United States Coast Pilot™ 4

Atlantic Coast: Cape Henry to Key West

2001 (33rd) Edition

This edition has been corrected through: 5th Coast Guard District Local Notice to Mariners No. 44/00 and the 7th Coast Guard District Local Notice to Mariners No. 11/01.

Changes 1 through 22 to the previous edition (32nd Edition, 1999) have been entered into this edition.

Changes to this edition will be published in the Fifth Coast Guard District Local Notice to Mariners, the Seventh Coast Guard District Local Notice to Mariners, and the National Imagery and Mapping Agency (NIMA) Notice to Mariners. The changes are also on the internet at http://critcorr.ncd.noaa.gov/.

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LIMITS OF UNITED STATES COAST PILOT

ATLANTIC COAST

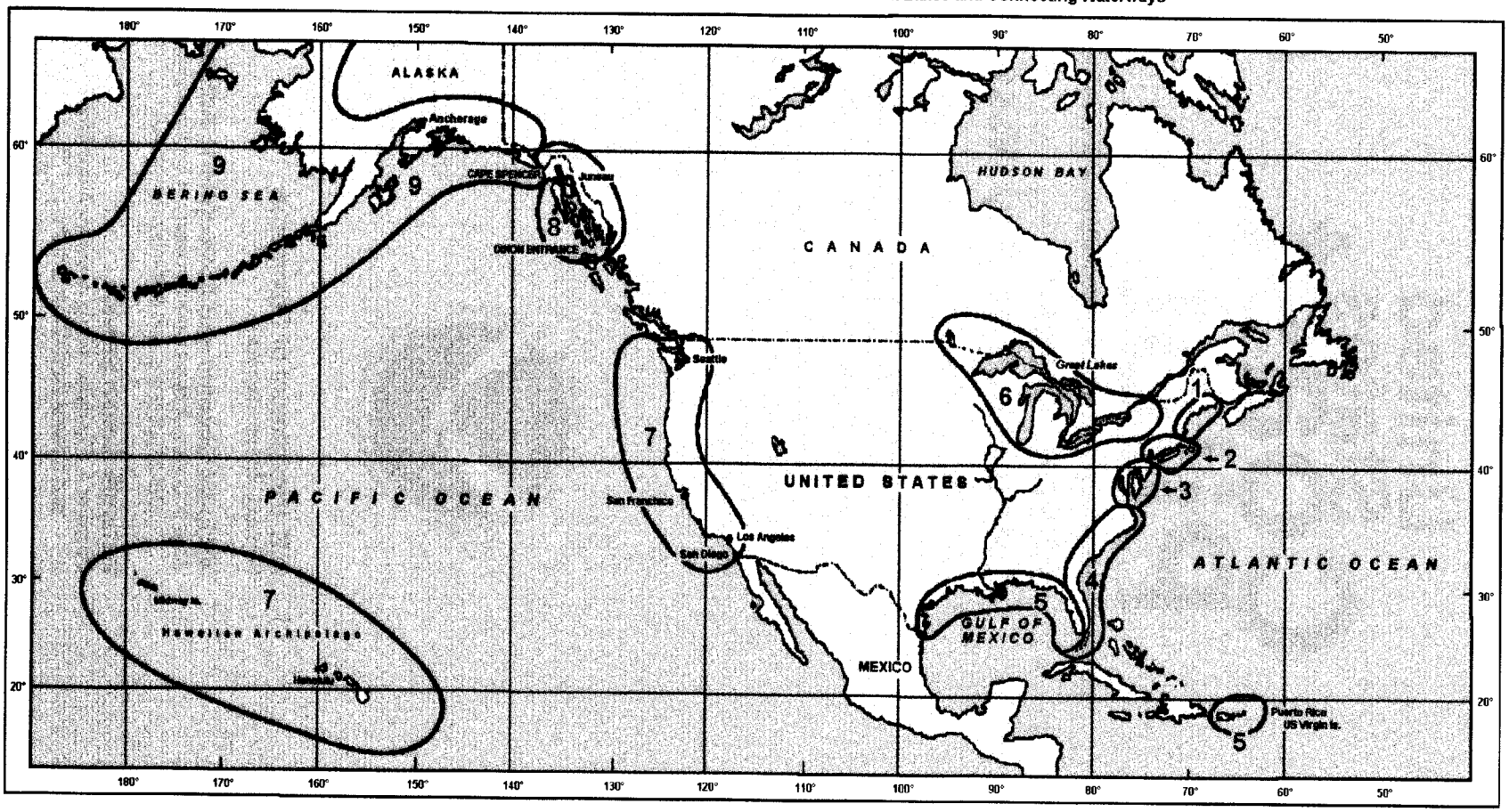
1 Eastport to Cape Cod
2 Cape Cod to Sandy Hook
3 Sandy Hook to Cape Henry
4 Cape Henry to Key West
5 Gulf of Mexico, Puerto Rico, and Virgin Islands

PACIFIC COAST

7 California, Oregon, Washington, Hawaii
8 Alaska: Dixon Entrance to Cape Spencer
9 Alaska: Cape Spencer to Beaufort Sea

GREAT LAKES

6 Great Lakes and Connecting Waterways



Preface

The United States Coast Pilot is published by the National Ocean Service (NOS), National Oceanic and Atmospheric Administration (NOAA), pursuant to the Act of 6 August 1947 (33 U.S.C. 883a and b), and the Act of 22 October 1968 (44 U.S.C. 1310). Coast Pilot and the NOAA emblem are trademarks of the National Oceanic and Atmospheric Administration, and may not be used without permission.

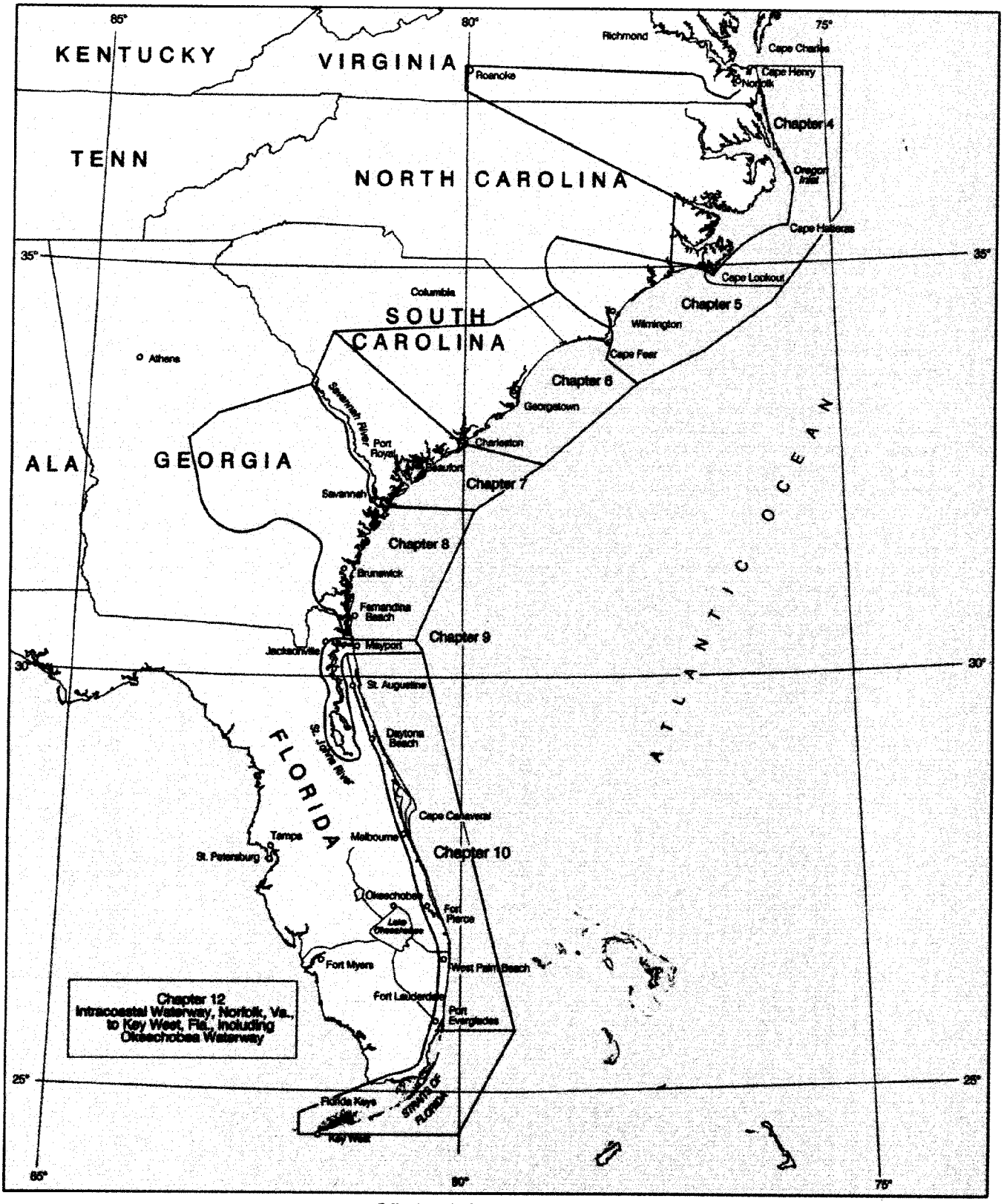
The Coast Pilot supplements the navigational information shown on the nautical charts. The sources for updating the Coast Pilot include but are not limited to field inspections conducted by NOAA, information published in Notices to Mariners, reports from NOAA Hydrographic vessels and field parties, information from other Government agencies, State and local governments, maritime and pilotage associations, port authorities, and mariners.

This volume of Coast Pilot 4, Atlantic Coast, Cape Henry to Key West, cancels the 1999 (32nd) Edition.

Notice.–Amendments are issued to this publication through U.S. Coast Guard Local Notices to Mariners. A subscription to the Local Notice to Mariners is available upon application to the appropriate Coast Guard District Commander (Aids to Navigation Branch). Consult the Appendix for addresses. All amendments are also issued in National Imagery and Mapping Agency Notices to Mariners. Mariners may also download and print amendments from the Internet at http://critcorr.ncd.noaa.gov/.

Mariners and others are urged to report promptly to the National Ocean Service errors, omissions, or any conditions found to differ from or to be additional to those published in the Coast Pilot or shown on the charts in order that they may be fully investigated and proper corrections made. A Coast Pilot Report form is included in the back of this book and a Marine Information Report form is published in the National Imagery and Mapping Agency Notice to Mariners for your convenience. These reports and/or suggestions for increasing the usefulness of the Coast Pilot should be sent to

Chief, Coast Pilot Branch (N/CS51)
Office of Coast Survey
National Ocean Service, NOAA
1315 East-West Highway, Station 7317
Silver Spring, MD 20910-3282.



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Record of Changes

CHANGE NO.	FROM NOTICE TO MARINERS NO.	ENTERED BY	DATE ENTERED

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1. GENERAL INFORMATION

(1) The **UNITED STATES COAST PILOT.**–The National Ocean Service Coast Pilot is a series of nine nautical books that cover a wide variety of information important to navigators of U.S. coastal and intracoastal waters, and the waters of the Great Lakes. Most of this book information cannot be shown graphically on the standard nautical charts and is not readily available elsewhere. The subjects in the Coast Pilot include, but are not limited to, channel descriptions, anchorages, bridge and cable clearances, currents, tide and water levels, prominent features, pilotage, towage, weather, ice conditions, wharf descriptions, dangers, routes, traffic separation schemes, small-craft facilities, and Federal regulations applicable to navigation.

(2) **Notice–Amendments are issued to this publication through U.S. Coast Guard Local Notices to Mariners, or by contacting the NOS internet website address, http://critcorr.ncd.noaa.gov. A subscription to the Local Notice to Mariners is available upon application to the appropriate Coast Guard District Commander (Aids to Navigation Branch). Consult appendix for address. All amendments are also issued in National Imagery and Mapping Agency Notices to Mariners.**

(3) **Bearings.**–These are true, and when given in degrees are clockwise from 000°(north) to 359°. Light-sector bearings are toward the light.

(4) **Bridges and cables.**–Vertical clearances of bridges and overhead cables are in feet (meters) above mean high water unless otherwise stated; clearances of drawbridges are for the closed position, although the open clearances are also given for vertical-lift bridges. Clearances given in the Coast Pilot are those approved for nautical charting, and are supplied by the U.S. Coast Guard (bridges) and U.S. Army Corps of Engineers (cables); they may be as-built (verified by actual inspection after completion of structures) or authorized (design values specified in permit issued prior to construction). No differentiation is made in the Coast Pilot between as-built and authorized clearances. (See charts for horizontal clearances of bridges, as these are given in the Coast Pilot only when they are less than 50 feet (15 meters).) Submarine cables are rarely mentioned.

(5) **Cable ferries.**–Cable ferries are guided by cables fastened to shore and sometimes propelled by a cable rig attached to the shore. Generally, the cables are suspended during crossings and dropped to the bottom when the ferries dock. Where specific operating procedures are known they are mentioned in the text. Since operating procedures vary, mariners are advised to exercise extreme caution and seek local knowledge. **DO NOT ATTEMPT TO PASS A MOVING CABLE FERRY.**

(6) **Courses.**–These are true and are given in degrees clockwise from 000°(north) to 359°. The courses given are the courses to be made good.

(7) **Currents.**–Stated current velocities are the averages at strength. Velocities are in knots, which are nautical miles per hour. Directions are the true directions to which the currents set.

(8) **Depths.**–Depth is the vertical distance from the chart datum to the bottom and is expressed in the same units (feet, meters or fathoms) as soundings on the applicable chart. (See Chart Datum this chapter for further detail.) The **controlling depth** of a channel is the least depth within the limits of the channel; it restricts the safe use of the channel to drafts of less than that depth. The **centerline controlling depth** of a channel applies only to the channel centerline; lesser depths may exist in the remainder of the channel. The **midchannel controlling depth** of a channel is the controlling depth of only the middle half of the channel. **Federal project depth** is the design dredging depth of a channel constructed by the U.S. Army Corps of Engineers; the project depth may or may not be the goal of maintenance dredging after completion of the channel, and, for this reason, project depth must not be confused with controlling depth. **Depths alongside wharves** usually have been reported by owners and/or operators of the waterfront facilities, and have not been verified by Government surveys; since these depths may be subject to change, local authorities should be consulted for the latest controlling depths.

(9) In general, the Coast Pilot gives the project depths for deep-draft ship channels maintained by the U.S. Army Corps of Engineers. The latest controlling depths are usually shown on the charts and published in the Notices to Mariners. For other channels, the latest controlling depths available at the time of publication are given. **In all cases, however, mariners are advised to consult with pilots, port and local authorities, and Federal and State authorities for the latest channel controlling depths.**

(10) **Under-keel clearances.**–It is becoming increasingly evident that economic pressures are causing mariners to navigate through waters of barely adequate depth, with under-keel clearances being finely assessed from the charted depths, predicted tide levels, and depths recorded by echo sounders.

(11) It cannot be too strongly emphasized that even charts based on modern surveys may not show all sea-bed obstructions or the shoalest depths, and actual tide levels may be appreciably lower than those predicted.

(12) In many ships an appreciable correction must be applied to shoal soundings recorded by echo sounders due to the horizontal distance between the transducers. This separation correction, which is the amount by which recorded depths therefore exceed true depths, increases with decreasing depths to a maximum equal to half the distance apart of the transducers; at this maximum the transducers are aground. Ships whose transducers are more than 6 feet (1.8 meters) apart should construct a table of true and recorded depths using the Traverse Tables. (Refer to discussion of echo soundings elsewhere in chapter 1.)

(13) Other appreciable corrections, which must be applied to many ships, are for settlement and squat. These corrections depend on the depth of water below the keel, the hull form and speed of the ship.

(14) Settlement causes the water level around the ship to be lower than would otherwise be the case. It will always cause echo soundings to be less than they would otherwise be. Settlement is appreciable when the depth is less than seven times the draft of the ship, and increases as the depth decreases and the speed increases.

(15) Squat denotes a change in trim of a ship underway, relative to her trim when stopped. It usually causes the stern of a vessel to sit deeper in the water. However, it is reported that in the case of mammoth ships squat causes the bow to sit deeper. Depending on the location of the echo sounding transducers, this may cause the recorded depth to be greater or less than it ought to be. **Caution and common sense are continuing requirements for safe navigation.**

(16) **Distances.**–These are in nautical miles unless otherwise stated. A nautical mile is one minute of latitude, or approximately 2,000 yards, and is about 1.15 statute miles.

(17) **Heights.**–These are in feet (meters) above the tidal datum used for that purpose on the charts, usually mean high water. However, the heights of the decks of piers and wharves are given in feet (meters) above the chart datum for depths.

(18) **Light and fog signal characteristics.**–These are not described, and light sectors and visible ranges are normally not defined. (See Coast Guard Light Lists.)

(19) **Obstructions.**–Wrecks and other obstructions are mentioned only if of a relatively permanent nature and in or near normal traffic routes.

(20) **Radio aids to navigation.**–These are seldom described. (See Coast Guard Light Lists and National Imagery and Mapping Agency Radio Navigational Aids.)

(21) **Ranges.**–These are not fully described. "**A 339°** Range" means that the rear structure bears 339° from the front structure. (See Coast Guard Light Lists.)

(22) **Reported information.**–Information received by NOS from various sources concerning depths, dangers, currents, facilities, and other subjects, which has not been verified by Government surveys or inspections, is often included in the Coast Pilot; such **unverified information** is qualified as "reported," and should be regarded with caution.

(23) **Time.**–Unless otherwise stated, all times are given in local standard time in the 24-hour system. (Noon is 1200, 2:00 p.m. is 1400, and midnight is 0000.)

(24) **Winds.**–Directions are the true directions from which the winds blow. Unless otherwise indicated, speeds are given in knots, which are nautical miles per hour.

NOTICES TO MARINERS

(25) **Notices to Mariners** are published by Federal agencies to advise operators of vessels of marine information affecting the safety of navigation. The notices include changes in aids to navigation, depths in channels, bridge and overhead cable clearances, reported dangers, and other useful marine information. They should be used routinely for updating the latest editions of nautical charts and related publications.

(26) **Local Notice to Mariners** is issued by each Coast Guard District Commander for the waters under his jurisdiction. (See appendix for Coast Guard district(s) covered by this volume.) These notices are usually published weekly and may be obtained without cost by making application to the appropriate District Commander, or by contacting the Coast Guard internet website address, **http://www.navcen.uscg.mil/lnm**.

(27) **Notice to Mariners,** published weekly by the National Imagery and Mapping Agency, is prepared jointly with NOS and the Coast Guard. These notices contain selected items from the Local Notices to Mariners and other reported marine information required by oceangoing vessels operating in both **foreign** and **domestic** waters. Special items covering a variety of subjects and generally not discussed in the Coast Pilot or shown on nautical charts are published annually in Notice to Mariners No. 1. These items are important to the mariner and should be read for future reference. These notices may be obtained by operators or oceangoing vessels, without cost by making application to **National Imagery and Mapping Agency** (see National Imagery and Mapping Agency Procurement Information in appendix).

(28) All active Notice to Mariners effecting Tide and/or Tidal Current Predictions at the date of printing are published in the Tide Tables and the Tidal Current Tables annually.

(29) Notices and reports of **improved channel depths** are also published by district offices of the U.S. Army Corps of Engineers (see appendix for districts covered by this volume). Although information from these notices/reports affecting NOS charts and related publications is usually published in the Notices to Mariners, the local district engineer office should be consulted where depth information is critical.

(30) **Marine Broadcast Notices to Mariners** are made by the Coast Guard through Coast Guard, Navy, and some commercial radio stations to report deficiencies and important changes in aids to navigation. (See Radio Navigation Warnings and Weather, this chapter.)

(31) Vessels operating within the limits of the Coast Guard districts can obtain information affecting NOS charts and related publications from the Local Notices to Mariners. Small craft using the Intracoastal Waterway and other waterways and small harbors within the United States that are not normally used by oceangoing vessels will require the Local Notices to Mariners to keep charts and related publications up-to-date.

U.S. GOVERNMENT AGENCIES PROVIDING MARITIME SERVICES

(32) **Animal and Plant Health Inspection Service,** Department of Agriculture.–The Agricultural Quarantine Inspection Program and Animal Health Programs of this organization are responsible for protecting the Nation's animal population, food and fiber crops, and forests from invasion by foreign pests. They administer agricultural quarantine and restrictive orders issued under authority provided in various acts of Congress. The regulations prohibit or restrict the importation or interstate movement of live animals, meats, animal products, plants, plant products, soil, injurious insects, and associated items that may introduce or spread plant pests and animal diseases which may be new to or not widely distributed within the United States or its territories. Inspectors examine imports at ports of entry as well as the vessel, its stores, and crew or passenger baggage.

(33) The Service also provides an inspection and certification service for exporters to assist them in meeting the quarantine requirements of foreign countries. (See appendix for a list of ports where agricultural inspectors are located and inspections conducted.)

(34) **Customs Service,** Department of the Treasury.–The U.S. Customs Service administers certain laws relating to: entry and clearance of vessels and permits for certain vessel movements between points in the United States; prohibitions against coastwise transportation of passengers and merchandise; salvage, dredging and towing by foreign vessels; certain activities of vessels in the fishing trade; regular and special tonnage taxes on vessels; the landing and delivery of foreign merchandise (including unlading, appraisement, lighterage, drayage, warehousing, and shipment in bond); collection of customs duties, including duty on imported pleasure boats and yachts and 50% duty on foreign repairs to American vessels engaged in trade; customs treatment of sea and ship's stores while in port and the baggage of crewmen and passengers; illegally imported merchandise; and remission of penalties or forfeiture if customs or navigation laws have been

violated. The Customs Service also cooperates with many other Federal agencies in the enforcement of statutes they are responsible for. Customs districts and ports of entry, including customs stations, are listed in the appendix.

(35) The Customs Service may issue, without charge, a **cruising license,** valid for a period of up to 6 months and for designated U.S. waters, to a yacht of a foreign country which has a reciprocal agreement with the United States. A foreign yacht holding a cruising license may cruise in the designated U.S. waters and arrive at and depart from U.S. ports without entering or clearing at the customhouse, filing manifests, or obtaining or delivering permits to proceed, provided it does not engage in trade or violate the laws of the United States or visit a vessel not yet inspected by a Customs Agent and does, within 24 hours of arrival at each port or place in the United States, report the fact of arrival to the nearest customhouse. Countries which have reciprocal agreements granting these privileges to U.S. yachts are Argentina, Australia, Bahama Islands, Bermuda, Canada, Federal Republic of Germany, Great Britain, Greece, Honduras, Jamaica, Liberia, the Netherlands, and New Zealand. Further information concerning cruising licenses may be obtained from the headquarters port for the customs district in which the license is desired. U.S. yacht owners planning cruises to foreign ports may contact the nearest customs district headquarters as to customs requirements.

(36) **National Ocean Service (NOS),** National Oceanic and Atmospheric Administration (NOAA), Department of Commerce.–The National Ocean Service provides charts and related publications for the safe navigation of marine and air commerce, and provides basic data for engineering and scientific purposes and for other commercial and industrial needs. The principal facilities of NOS are located in Silver Spring, Md.; in Norfolk, Va. (Atlantic Marine Center); and in Seattle, Wash. (Pacific Marine Center). NOAA ships are based at the marine centers. These offices maintain files of charts and other publications which are available for the use of the mariners, who are invited to avail themselves of the facilities afforded. (See Appendix for addresses.)

(37) **Sales agents** for Charts and the Coast Pilot of the National Ocean Service are located in many U.S. ports and in some foreign ports.

(38) **Nautical charts** are published primarily for the use of the mariner, but serve the public interest in many other ways. They are compiled principally from NOS basic field surveys, supplemented by data from other Government organizations.

(39) **Tide Tables** are computed annually by NOS in advance of the year for which they are prepared. These tables include predicted times and heights of high and low waters for every day in the year for a number of reference stations and differences for obtaining similar predictions for numerous other places. They also include other useful information such as a method of obtaining heights of tide at any time, local mean time of sunrise and sunset for various latitudes, reduction of local mean time to standard time, and time of moonrise and moonset for various ports.

(40) The Tide Tables and Tidal Current Tables for US waters contain the text of all active Notice to Mariners which effect the accuracy and use of tide and tidal current predictions they contain.

(41) Tide Tables and Tidal Current Tables are no longer printed by NOS and the Department of Commerce. Three private printers are printing Tables containing official NOS predictions. (See National Ocean Service Oceanographic Products and Services Division, indexed as such, in Appendix for addresses.)

(42) **Caution.**–In using the Tide Tables, slack water should not be confused with high or low water. For ocean stations there is usually little difference between the time of high or low water and the beginning of ebb or flood currents; but for places in narrow channels, landlocked harbors, or on tidal rivers, the time of slack current may differ by several hours from the time of high or low water. The relation of the times of high or low water to the turning of the current depends upon a number of factors, so that no simple general rule can be given. (To obtain the times of slack water, refer to the Tidal Current Tables.)

(43) **Tidal Current Tables** for the coasts of the United States are computed annually by NOS in advance of the year for which they are prepared. These tables include daily predictions of the times of slack water and the times and velocities of strength of flood and ebb currents for a number of waterways, together with differences for obtaining predictions for numerous other places. Also included is other useful information such as a method for obtaining the velocity of current at any time, duration of slack, coastal tidal currents, wind currents, combination of currents, and current diagrams. Some information on the Gulf Stream is included in the tables for the Atlantic coast.

(44) The Tide Tables and Tidal Current Tables for US waters contain the text of all active Notice to Mariners which effect the accuracy and use of tide and tidal current predictions they contain.

(45) Tide Tables and Tidal Current Tables are no longer printed by NOS and the Department of Commerce. Presently, three private printers are printing Tables containing official NOS predictions. (See National Ocean Service Oceanographic Products and Services Division, indexed as such, in Appendix for addresses.)

(46) **Tidal Current Charts** are published by NOS for various localities. These charts depict the direction and velocity of the current for each hour of the tidal cycle. They present a comprehensive view of the tidal current movement in the respective waterways as a whole and when used with the proper current tables or tide tables supply a means for readily determining for any time the direction and velocity of the current at various localities throughout the areas covered.

(47) **HOW TO OBTAIN TIDAL PREDICTIONS AND DATA FROM THE NATIONAL OCEAN SERVICE.**–NOS annually computes and prepares manuscripts for the Tide and Tidal Current Prediction Tables. NOS, however, no longer prints and distributes these Tables. The printing from official NOS manuscripts and the distribution of the Tables to sales agents are now done by three private printers. (See National Ocean Service Oceanographic Products and Services Division, indexed as such, in Appendix for addresses.) The role of NOS with regard to the publication of the Tables has been redefined to that of maintaining and updating the tidal prediction database from domestic and international sources and generating the annual predictions and associated information. The NOS ceased printing Tide Tables and Tidal Current Tables after 1996 editions.

(48) The titles of the NOS publications affected are:

(49) Tide Tables 1996 - East Coast of North and South America including Greenland;

(50) Tide Tables 1996 - West Coast of North and South America including the Hawaiian Islands;

(51) Tide Tables 1996 - Central and Western Pacific Ocean and Indian Ocean;

(52) Tide Tables 1996 - Europe and West Coast of Africa including the Mediterranean Sea;

(53) Tidal Current Tables 1996 - Atlantic Coast of North America;

(54) Tidal Current Tables 1996 - Pacific Coast of North America and Asia;

(55) Publication of "Regional Tide and Tidal Current Tables–New York Harbor to Chesapeake Bay" and "Supplemental Tidal Predictions–Anchorage, Nikiski, Seldovia, and Valdez, Alaska" ceased after the 1996 edition.

(56) Although NOS no longer prints and distributes the Tables in book format, a complete set of Tables for each calender year is available on CD-ROM. The CD-ROM contains page images in PostScript format. A PostScript reader is also included to allow viewing documents on-screen. Also, a PostScipt compatible printer is required to print Table pages.

(57) In addition to the CD-ROM, limited tide predictions may be obtained from the User Services Branch's Home page on the Internet (**http://www.ceob.nos.noaa.gov** or **http://www.olld.nos.noaa.gov**). Furthermore, NOS will continue to provide tide and tidal current predictions and associated information on the various media and in the various formats with which regular customers are familiar.

(58) Thus, all requests for tide and tidal current predictions and associated information continue to be welcome. Requests should be submitted in writing either by fax (**301–713–4500**), e–mail (**ipss@ceob–g30.nos.noaa.gov**), or by letter (See National Ocean Service Oceanographic Products and Services Division, indexed as such, in Appendix for addresses.)

(59) As NOS is no longer printing and distributing the Tables in book-form, the NOS Nautical Chart Sales Agents will no longer obtain the Tables in book-form from the NOS Distribution Division. Instead, they may obtain quantities of the Tables for resale to the public from various private printers and distributors.

(60) The U.S. Coast Guard, through the Federal regulation 33 CFR 164.33, requires certain charts and publications be carried on board vessels of 1,600 gross tons and greater when traversing U.S. waters. NOS has been in contact with the U.S. Coast Guard concerning this regulation. Questions concerning this regulation should be addressed to Chief, Navigation Rules Branch, G-NVT-3, United States Coast Guard, Washington, D.C. 20593-0001, telephone (202) 267-0416; fax (202) 267-4826.

(61) Anyone with questions or comments regarding the above subject or private printers and distributors wishing more information should write, telephone, fax or e-mail to:

(62) User Services Branch (N/CS44)
(63) Oceanographic Products and Services Division
(64) Room 6540
(65) 1305 East-West Highway
(66) Silver Spring, MD 20910-3281
(67) TEL 301-713-2815 Exts. 171, 196, 174 (voice)
(68) FAX 301-713-4500 (24 hours)
(69) ipss@ceob-g30.nos.noaa.gov (e-mail)

(70) Tidal observation data for some of the NOS tide stations and information about how to obtain other data is available on the User Services Branch web site (**http://www.ceob.nos.noaa.gov** or **http://www.olld.nos.noaa.gov**). TELNET access to tidal data and information is available at **wlnet2.nos.noaa.gov**. Tidal observation data is also available in hard copy by mail, and in some instances, by fax. Special arrangements can be made for continuing access to data, or for real-time access to certain data sites.

(71) Anyone with questions or comments regarding the above subject or private printers and distributors wishing more information should write, telephone, fax or e-mail to:

(72) National Ocean Service, NOAA
(73) User Services Branch (N/CS44)
(74) Oceanographic Products and Services Division
(75) Room 6543
(76) 1305 East-West Highway
(77) Silver Spring, MD 20910-3281
(78) TEL 301-713-2877 Exts. 170, 175, 176
(79) FAX 301-713-4436 (24 hours)
(80) ipss@ceob-g30.nos.noaa.gov (e-mail)

(81) NOS, in partnership with other agencies and institutions, has established a series of Physical Oceanographic Real Time Systems (PORTS) in selected areas. These PORTS sites provide constantly updated information on tidal and tidal current conditions, water temperature, and weather conditions. This information is updated every six minutes. The PORTS sites currently in operation include: Tampa Bay, FL; San Francisco, CA; New York/New Jersey; and Houston/Galveston, TX. The information is accessible through a computer data connection or by a voice response system at the following numbers:

(82) **TAMPA BAY**
(83) Voice response (813) 822-5836 or (813) 822-0022
(84) Data (813) 822-5931 (2400 baud, N-8-1)
(85) **SAN FRANCISCO**
(86) Voice response (707) 642-4337
(87) Data (707) 642-4608 (2400 baud, N-8-1)
(88) **NEW YORK/NEW JERSEY**
(89) Voice response (212) 688-7725
(90) **HOUSTON/GALVESTON**
(91) Voice response (409) 740-4975
(92) Data (409) 740-4973

(93) Anyone with questions or comments regarding the above subject or wishing more information should write, telephone, or fax to:

(94) PORTS Information and Data
(95) User Services Branch (N/CS44)
(96) Oceanographic Products and Services Division
(97) Room 6221
(98) 1305 East–West Highway
(99) Silver Spring, MD 20910-3281
(100) TEL 301-713-2806 Exts. 105, 149, 117
(101) FAX 301-713-1933 (24 hours)
(102) ipss@ceob–g30.nos.noaa.gov (e–mail)

(103) Limited voice response systems for tidal information have been installed in Anchorage and Nikishka, Alaska. For information on these systems contact:

(104) Director
(105) Pacific Marine Center
(106) National Ocean Service
(107) 1801 Fairview Ave. East
(108) Seattle, WA 98102-3767
(109) TEL 206-553-2256
(110) FAX 206-553-2246
(111) **ANCHORAGE**
(112) Voice response 907-277-1903
(113) **NIKISHKA**
(114) Voice response 907-776-5436

(115) **National Data Buoy Center Meteorological Buoys**.–The National Data Buoy Center (NDBC) deploys moored meteorological buoys which provide weather data directly to the mariner as well as to marine forecasters. Recently (reported January 1998), a disproportionate number of these buoys have had mooring failures due to abrasion of the nylon mooring line by trawls, tow lines, etc.

(116) These buoys have a watch circle radius (WCR) of 2,000 to 4,000 yards from assigned position (AP). In addition, any mooring in waters deeper than 1,000 feet will have a floating "loop" or catenary that may be as little as 500 feet below the surface. This catenary could be anywhere within the buoy's WCR. Any underwater activity within this radius may contact the mooring causing a failure.

(117) To estimate a buoy's WCR in yards, divide the charted depth (in feet) by three. For example, the WCR of a buoy moored at a charted depth of 12,000 feet can estimated at 4,000 yards.

(118) To avoid cutting or damaging a moor, mariners are urged to exercise extreme caution when navigating in the vicinity of meteorological buoys and to remain well clear of the watch circle. If a mooring is accidentally contacted or cut, please notify NDBC at (228) 688-2835 or (228) 688-2436.

(119) For further information relating to these buoys consult the NDBC home page (**http://seaboard.ndbc.noaa.gov**).

(120) **Coast Guard,** Department of Transportation.–The Coast Guard has among its duties the enforcement of the laws of the United States on the high seas and in coastal and inland waters of the U.S. and its possessions; enforcement of navigation and neutrality laws and regulations; establishment and enforcement of navigational regulations upon the Inland Waters of the United States, including the establishment of a demarcation line separating the high seas from waters upon which U.S. navigational rules apply; administration of the Oil Pollution Act of 1961, as amended; establishment and administration of vessel anchorages; approval of bridge locations and clearances over navigable waters; administration of the alteration of obstructive bridges; regulation of drawbridge operations; inspection of vessels of the Merchant Marine; admeasurement of vessels; documentation of vessels; preparation and publication of merchant vessel registers; registration of stack insignia; port security; issuance of Merchant Marine licenses and documents; search and rescue operations; investigation of marine casualties and accidents, and suspension and revocation proceedings; destruction of derelicts; operation of aids to navigation; publication of Light Lists and Local Notices to Mariners; and operation of ice-breaking facilities.

(121) The Coast Guard, with the cooperation of coast radio stations of many nations, operates the **Automated Mutual-assistance Vessel Rescue System (AMVER).** It is an international maritime mutual assistance program which provides important aid to the development and coordination of search and rescue (SAR) efforts in many offshore areas of the world. Merchant ships of all nations making offshore passages are encouraged to voluntarily send movement (sailing) reports and periodic position reports to the AMVER Center at Coast Guard New York via selected radio stations. Information from these reports is entered into an electronic computer which generates and maintains dead reckoning positions for the vessels. Characteristics of vessels which are valuable for determining SAR capability are also entered into the computer from available sources of information.

(122) A worldwide communications network of radio stations supports the AMVER System. Propagation conditions, location of vessel, and traffic density will normally determine which station may best be contacted to establish communications. To ensure that no charge is applied, all AMVER reports should be passed through specified radio stations. Those stations which currently accept AMVER reports and apply no coastal station, ship station, or landline charge are listed in each issue of the "AMVER Bulletin" publication. Also listed are the respective International radio call signs, locations, frequency bands, and hours of operation. The "AMVER Bulletin" is available from AMVER Maritime Relations, U.S. Coast Guard, Battery Park Building, New York, NY 10004, TEL 212-668-7764, FAX 212-668-7684. Although AMVER reports may be sent through nonparticipating stations, the Coast Guard cannot reimburse the sender for any charges applied.

(123) Information concerning the predicted location and SAR characteristics of each vessel known to be within the area of interest is made available upon request to recognized SAR agencies of any nation or vessels needing assistance. Predicted locations are only disclosed for reasons related to marine safety.

(124) Benefits of AMVER participation to shipping include: (1) improved chances of aid in emergencies, (2) reduced number of calls for assistance to vessels not favorably located, and (3) reduced time lost for vessels responding to calls for assistance. An AMVER participant is under no greater obligation to render assistance during an emergency than a vessel who is not participating.

(125) All AMVER messages should be addressed to **Coast Guard New York** regardless of the station to which the message is delivered, except those sent to Canadian stations which should be addressed to **AMVER Halifax** or **AMVER Vancouver** to avoid incurring charges to the vessel for these messages.

(126) Instructions guiding participation in the AMVER System are available in the following languages: Chinese, Danish, Dutch, English, French, German, Greek, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, and Swedish. The AMVER Users Manual is available from: AMVER Maritime Relations (address above); Commander, Atlantic Area, U.S. Coast Guard, Federal Building, 431 Crawford Street, Porsmouth, VA 23704-5004; Commander, Pacific Area, U.S. Coast Guard, Coast Guard Island, Alameda, CA. 94501-5100; and at U.S. Coast Guard District Offices, Marine Safety Offices, Marine Inspection Offices, and Captain of the Port Offices in major U.S. ports. Requests for instructions should state the language desired if other than English.

(127) For AMVER participants bound for U.S. ports there is an additional benefit. AMVER participation via messages which include the necessary information is considered to meet the requirements of **33 CFR 160**. (See **160.201,** chapter 2, for rules and regulations.)

(128) **AMVER Reporting Required.**–U.S. Maritime Administration regulations effective August 1, 1983, state that certain U.S. flag vessels and foreign flag "War Risk" vessels must report and regularly update their voyages to the AMVER Center. This reporting is required of the following: (a) U.S. flag vessels of 1,000 gross tons or greater, operating in foreign commerce; (b) foreign flag vessels of 1,000 gross tons or greater, for which an Interim War Risk Insurance Binder has been issued under the provisions of Title XII, Merchant Marine Act, 1936.

(129) Details of the above procedures are contained in the AMVER Users Manual. The system is also published in NIMA Pub. 117.

(130) Search and Rescue Operation procedures are contained in the International Maritime Organization (IMO) SAR Manual (MERSAR). U.S. flag vessels may obtain a copy of MERSAR from local Coast Guard Marine Safety Offices and Marine Inspection Offices or by writing to U.S. Coast Guard (G-OSR), Washington, D.C. 20593-0001. Other flag vessels may purchase MERSAR directly from IMO.

(131) The Coast Guard conducts and/or coordinates **search and rescue** operations for surface vessels and aircraft that are in distress or overdue. (See Distress Signals and Communication Procedures this chapter.)

(132) **Light Lists,** published by the Coast Guard, describe aids to navigation, consisting of lights, fog signals, buoys, lightships, daybeacons, and electronic aids, in United States (including Puerto Rico and U.S. Virgin Islands) and contiguous Canadian waters. Light Lists are for sale by the Government Printing Office (see appendix for address) and by sales agents in the principal seaports. Mariners should refer to these publications for detailed information regarding the characteristics and visibility of lights, and the descriptions of light structures, lightships, buoys, fog signals, and electronic aids.

(133) **Documentation** (issuance of certificates of registry, enrollments, and licenses), admeasurements of vessels, and administration of the various navigation laws pertaining thereto are functions of the Coast Guard. Yacht commissions are also issued, and certain undocumented vessels required to be numbered by the Federal Boat Safety Act of 1971 are numbered either by the Coast Guard or by a State having an approved numbering system (the latter is most common). Owners of vessels may obtain the necessary information from any Coast Guard District Commander, Marine Safety Office, or Marine Inspection Office. Coast Guard District Offices, Coast Guard Stations, Marine Safety Offices, Captain of the Port Offices, Marine Inspection Offices, and Documentation Offices are listed in the appendix. (Note: A Marine Safety Office performs the same functions as those of a Captain of the Port and a Marine Inspection Office. When a function is at a different address than the Marine Safety Office, it will be listed separately in the appendix.)

(134) **U.S. Army Corps of Engineers (USACE).**–The U.S. Army Corps of Engineers has charge of the improvement of the rivers and harbors of the United States and of miscellaneous other civil works which include the administration of certain Federal laws enacted for the protection and preservation of navigable waters of the United States; the establishment of regulations for the use, administration, and navigation of navigable waters; the establishment of harbor lines; the removal of sunken vessels obstructing or endangering navigation; and the granting of permits for structures or operations in navigable waters, and for discharges and deposits of dredged and fill materials in these waters.

(135) **Restricted areas** in most places are defined and regulations governing them are established by the U.S. Army Corps of Engineers. The regulations are enforced by the authority designated in the regulations, and the areas are shown on the large-scale charts of NOS. Copies of the regulations may be obtained at the District offices of the U.S. Army Corps of Engineers. The regulations also are included in the appropriate Coast Pilot.

(136) Information concerning the various ports, improvements, channel depths, navigable waters, and the condition of the Intracoastal Waterways in the areas under their jurisdiction may be obtained direct from the District Engineer Offices. (See appendix for addresses.)

(137) **Fishtraps.**–The U.S. Army Corps of Engineers has general supervision of location, construction, and manner of maintenance of all traps, weirs, pounds, or other fishing structures in the navigable waters of the United States. Where State and/or local controls are sufficient to regulate these structures, including that they do not interfere with navigation, the U.S. Army Corps of Engineers leaves such regulation to the State or local authority. (See **33 CFR 330** (not carried in this Pilot) for applicable Federal regulations.) Construction permits issued by the Engineers specify the lights and signals required for the safety of navigation.

(138) **Fish havens,** artificial reefs constructed to attract fish, can be established in U.S. coastal waters only as authorized by a U.S. Army Corps of Engineers permit; the permit specifies the location, extent, and depth over these materials of opportunity.

(139) **Environmental Protection Agency (EPA).**–The U.S. Environmental Protection Agency provides coordinated governmental action to assure the protection of the environment by abating and controlling pollution on a systematic basis. The ocean dumping permit program of the Environmental Protection Agency provides that except when authorized by permit, the dumping of any material into the ocean is prohibited by the "Marine Protection, Research, and Sanctuaries Act of 1972, Public Law 92–532," as amended (33 USC 1401 et seq.).

(140) Permits for the **dumping of dredged material** into waters of the United States, including the territorial sea, and into ocean waters are issued by the U.S. Army Corps of Engineers. Permits for the dumping of fill material into waters of the United States, including the territorial sea, are also issued by the U.S. Army Corps of Engineers. Permits for the dumping of other material in the territorial sea and ocean waters are issued by the Environmental Protection Agency.

(141) U.S. Army Corps of Engineers regulations relating to the above are contained in **33 CFR 323-324**; Environmental Protection Agency regulations are in **40 CFR 220-229**. (See Disposal Sites, this chapter.)

(142) Persons or organizations who want to file for an application for an ocean dumping permit should write the Environmental Protection Agency Regional Office for the region in which the port of departure is located. (See appendix for addresses of regional offices and States in the EPA coastal regions.)

(143) The letter should contain the name and address of the applicant; name and address of person or firm; the name and usual location of the conveyance to be used in the transportation and dumping of the material involved; a physical description where appropriate; and the quantity to be dumped and proposed dumping site.

(144) Everyone who writes EPA will be sent information about a final application for a permit as soon as possible. This final application is expected to include questions about the description of the process or activity giving rise to the production of the dumping material; information on past activities of applicant or others with respect to the disposal of the type of material involved; and a description about available alternative means of disposal of the material with explanations about why an alternative is thought by the applicant to be inappropriate.

(145) **Federal Communications Commission.**–The Federal Communications Commission controls non-Government radio communications in the United States, Guam, Puerto Rico, and the Virgin Islands. Commission inspectors have authority to board ships to determine whether their radio stations comply with international treaties, Federal Laws, and Commission regulations. The commission has field offices in the principal U.S. ports. (See appendix for addresses.) Information concerning ship radio regulations and service documents may be obtained from the Federal Communications Commission, Washington, D.C. 20554, or from any of the field offices.

(146) **Immigration and Naturalization Service,** Department of Justice.–The Immigration and Naturalization Service administers the laws relating to admission, exclusion, and deportation of aliens, the registration and fingerprinting of aliens, and the naturalization of aliens lawfully resident in the United States.

(147) The designated ports of entry for aliens are divided into three classes. Class A is for all aliens. Class B is only for aliens who at the time of applying for admission are lawfully in possession of valid resident aliens' border-crossing identification cards or valid nonresident aliens' border-crossing identification cards or are admissible without documents under the documentary waivers contained in **8 CFR 212.1(a)**. Class C is only for aliens who are arriving in the United States as crewmen as that term is defined in Section 101(a) (10) of the Immigration and Nationality Act. [The term"crewman" means a person serving in any capacity on board a vessel or aircraft. No person may enter the United States until he has been inspected by an immigration officer. A list of the offices covered by this Coast Pilot is given in the appendix.

(148) **National Imagery and Mapping Agency (NIMA),** Department of Defense.–The National Imagery and Mapping Agency provides hydrographic, navigational, topographic, and geodetic data, charts, maps, and related products and services to the Armed Forces, other Federal Agencies, the Merchant Marine and mariners in general. Publications include Sailing Directions, List of Lights, Distances Between Ports, Radio Navigational Aids, International Code of Signals, American Practical Navigator (Bowditch), and Notice to Mariners. (See National Imagery and Mapping Agency Procurement Information in appendix.)

(149) **Public Health Service,** Department of Health and Human Services.–The Public Health Service administers foreign quarantine procedures at U.S. ports of entry.

(150) All vessels arriving in the United States are subject to public health inspection. Vessels subject routine boarding for quarantine inspection are only those which have had on board during the 15 days preceding the date of expected arrival or during the period since departure (whichever period of time is shorter) the occurrence of any death or ill person among passengers or crew (including those who have disembarked or have been removed). The master of a vessel must report such occurrences immediately by radio to the quarantine station at or nearest the port at which the vessel will arrive.

(151) In addition, the master of a vessel carrying 13 or more passengers must report by radio 24 hours before arrival the number of cases (including zero) of diarrhea in passengers and crew recorded in the ship's medical log during the current cruise. All cases that occur after the 24 hour report must also be reported not less than 4 hours before arrival.

(152) "Ill person" means person who:

(153) 1. Has a temperature of 100°F (or 38°C) or greater, accompanied by a rash, glandular swelling, or jaundice, or which has persisted for more than 48 hours; or

(154) 2. Has diarrhea, defined as the occurrence in a 24 hour period of three or more loose stools or of a greater than normal (for the person) amount of loose stools.

(155) Vessels arriving at ports under control of the United States are subject to sanitary inspection to determine whether measures should be applied to prevent the introduction, transmission, or spread of communicable disease.

(156) Specific public health laws, regulations, policies, and procedures may be obtained by contacting U.S. Quarantine Stations, U.S. Consulates or the Chief Program Operations, Division of Quarantine, Centers for Disease Control and Prevention, Atlanta, Ga. 30333. (See appendix for addresses of U.S. Public Health Service Quarantine Stations.)

(157) **Food and Drug Administration (FDA),** Public Health Service, Department of Health and Human Services.–Under the provisions of the Control of Communicable Diseases Regulations (**21 CFR 1240**) and Interstate Conveyance Sanitation Regulations (**21 CFR 1250**), vessel companies operating in interstate traffic shall obtain potable water for drinking and culinary purposes only at watering points found acceptable to the Food and Drug Administration. Water supplies used in watering point operations must also be inspected to determine compliance with applicable Interstate Quarantine Regulations (**42 CFR 72**). These regulations are based on authority contained in the Public Health Service Act (PL 78–410). Penalties for violation of any regulation prescribed under authority of the Act are provided for under Section 368 (42 USC 271) of the Act.

(158) **Vessel Watering Points.**–FDA annually publishes a list of Acceptable Vessel Watering Points. This list is available from most FDA offices or from Interstate Travel Sanitation Subprogram Center for Food Safety and Applied Nutrition, FDA (HFF-312), 200 C Street SW., Washington, D.C. 20204. Current status of watering points can be ascertained by contacting any FDA office. (See appendix for addresses.)

(159) **National Weather Service** (NWS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce.–The National Weather Service provides marine weather forecasts and warnings for the U.S. coastal waters, the Great Lakes, offshore waters, and high seas areas. Scheduled marine forecasts are issued four times daily from more than 20 **National Weather Service Forecast Offices (WSFOs)** around the country, operating 24 hours a day. Marine services are also provided by over 50 **National Weather Service Offices** with local areas of responsibility. (See appendix for Weather Service Forecast Offices and Weather Service Offices for the area covered by this Coast Pilot.)

(160) Typically, the forecasts contain information on wind speed and direction, wave heights, visibility, weather, and a general synopsis of weather patterns affecting the region. The forecasts are supplemented with special marine warnings and statements, radar summaries, marine observations, small-craft advisories, gale warnings, storm warnings and various categories of tropical cyclone warnings e.g., tropical depression, tropical

storm and hurricane warnings. Specialized products such as coastal flood, seiche, and tsunami warnings, heavy surf advisories, low water statements, ice forecasts and outlooks, and lake shore warnings and statements are issued as necessary.

(161) The principal means of disseminating marine weather services and products in coastal areas is **NOAA Weather Radio.** This network or more than 350 stations nationwide is operated by the NWS and provides continuous broadcasts of weather information for the general public. These broadcasts repeat taped messages every 4-6 minutes. Tapes are updated periodically, usually every 2-3 hours and amended as required to include the latest information. When severe weather threatens, routine transmissions are interrupted and the broadcast is devoted to emergency warnings. (See appendix for NOAA Weather Radio Stations covered by this Coast Pilot.)

(162) In coastal areas, the programming is tailored to the needs of the marine community. Each coastal marine forecast covers a specific area. For example, "Cape Henlopen to Virginia Beach, out 20 miles." The broadcast range is about 40 miles from the transmitting antenna site, depending on terrain and quality of the receiver used. When transmitting antennas are on high ground, the range is somewhat greater, reaching 60 miles or more. Some receivers are equipped with a warning alert device that can be turned on by means of a tone signal controlled by the NWS office concerned. This signal is transmitted for 13 seconds preceding an announcement of a severe weather warning.

(163) NWS marine weather products are also disseminated to marine users through the broadcast facilities of the Coast Guard, Navy, and commercial marine radio stations. Details on these broadcasts including times, frequencies, and broadcast content are listed on the NWS internet site, **Marine Product Dissemination Information,** (http://www.nws.noaa.gov/om/marine/home.htm). For marine weather services in the coastal areas, the NWS publishes a series of Marine Weather Services Charts showing locations of NOAA Weather Radio stations, sites, telephone numbers of recorded weather messages and NWS offices, and other useful marine weather information.

(164) Ships of all nations share equally in the effort to report weather observations. These reports enable meteorologists to create a detailed picture of wind, wave, and weather patterns over the open waters that no other data source can provide and upon which marine forecasts are based. The effectiveness and reliability of these forecasts and warnings plus other services to the marine community are strongly linked to the observations received from mariners. There is an especially urgent need for ship observations in the coastal waters, and the NWS asks that these be made and transmitted whenever possible. Many storms originate and intensify in coastal areas. There may be a great difference in both wind direction and speed between the open sea, the offshore waters, and on the coast itself.

(165) Information on how ships, commercial fishermen, offshore industries, and others in the coastal zone may participate in the marine observation program is available from **National Weather Service Port Meteorological Officers (PMOs).** Port Meteorological Officers are located in major U.S. port cities and the Republic of Panama, where they visit ships in port to assist masters and mates with the weather observation program, provide instruction on the interpretation of weather charts, calibrate barometers and other meteorological instruments, and discuss marine weather communications and marine weather requirements affecting the ships' operations. (See appendix for addresses of Port Meteorological Officers in or near the area covered by this Coast Pilot.)

(166) **National Environmental Satellite, Data, and Information Service** (NESDIS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce.–Among its functions, NESDIS archives, processes, and disseminates the non-realtime meteorological and oceanographic data collected by government agencies and private institutions. Marine weather observations are collected from ships at sea on a voluntary basis. About 1 million observations are received annually at NESDIS's National Climatic Center. They come from vessels representing every maritime nation. These observations, along with land data, are returned to the mariners in the form of climatological summaries and atlases for coastal and ocean areas. They are available in such NOAA publications as the **U.S. Coast Pilot, Mariners Weather Log,** and **Local Climatological Data, Annual Summary.** They also appear in the National Imagery and Mapping Agency's **Pilot Chart Atlases** and **Sailing Directions Planning Guides.**

DISTRESS SIGNALS AND COMMUNICATION PROCEDURES

(167) **Coast Guard search and rescue operations.**–The Coast Guard conducts and/or coordinates search and rescue operations for surface vessels or aircraft that are in distress or overdue. Search and Rescue vessels and aircraft have special markings, including a wide slash of red-orange and a small slash of blue on the forward portion of the hull or fuselage. Other parts of aircraft, normally painted white, may have other areas painted red to facilitate observation. The cooperation of vessel operators with Coast Guard helicopters, fixed-wing aircraft, and vessels may mean the difference between life and death for some seaman or aviator; such cooperation is greatly facilitated by the prior knowledge on the part of vessel operators of the operational requirements of Coast Guard equipment and personnel, of the international distress signals and procedures, and of good seamanship.

(168) **Note.**–In August 1993, all Coast Guard communication stations and cutters discontinued watchkeeping on the distress frequency 500 kHz. Distress and other calls to Coast Guard communication stations may be made on any of the following HF single sideband radiotelephone channels: 424(4134 kHz), 601(6200 kHz), 816(8240 kHz), or 1205(12242 kHz).

(169) **International distress signals.**–(1) A signal made by radiotelegraphy or by any other signaling method consisting of the group "SOS" in Morse Code.

(170) (2) A signal sent by radiotelephony consisting of the spoken word "MAYDAY."

(171) (3) The International Flag Code Signal of NC.

(172) (4) A signal consisting of a square flag having above or below it a ball or anything resembling a ball.

(173) (5) Flames on the craft (as from a burning oil barrel, etc.)

(174) (6) A rocket parachute flare or hand flare showing a red light.

(175) (7) Rockets or shells, throwing red stars fired one at a time at short intervals.

(176) (8) Orange smoke, as emitted from a distress flare.

(177) (9) Slowly and repeatedly raising and lowering arms outstretched to each side.

(178) (10) A gun or other explosive signal fired at intervals of about 1 minute.

(179) (11) A continuous sounding of any fog-signal apparatus.

(180) (12) The radiotelegraph alarm signal.

(181) (13) The radiotelephone alarm signal.

(182) (14) Signals transmitted by emergency position-indicating radiobeacons.

(183) (15) A piece of orange-colored canvas with either a black square and circle or other appropriate symbol (for identification from the air).

(184) (16) A dye marker.

(185) **Radio distress procedures.**–Distress calls are made on 2182 kHz or VHF-FM channel 16 (MAYDAY). For less serious situations than warrant the distress procedure, the urgency signal PAN-PAN (PAHN-PAHN, spoken three times), or the safety signal SECURITY (SAY-CURITAY, spoken three times), for radiotelephony, are used as appropriate. Since radiotelegraph transmissions are normally made by professional operators, and urgency and safety situations are less critical, only the distress procedures for voice radiotelephone are described. For complete information on emergency radio procedures, see **47 CFR 83** or NIMA Pub. 117. **(See appendix for a list of Coast Guard Stations which guard 2182 kHz and 156.80 MHz.)** Complete information on distress guards can be obtained from Coast Guard District Commanders.

(186) Distress calls indicate a vessel or aircraft is threatened by grave and imminent danger and requests immediate assistance. They have absolute priority over all other transmissions. All stations which hear a distress call must immediately cease any transmission capable of interfering with the distress traffic and shall continue to listen on the frequency used for the emission of the distress call. This call shall not be addressed to a particular station, and acknowledgment of receipt shall not be given before the distress message which follows it is sent.

(187) **Radiotelephone distress communications include the following actions:**

(188) (1) The **radiotelephone alarm signal** (if available): The signal consists of two audio tones, of different pitch, transmitted alternately; its purpose is to attract the attention of persons on radio watch or to actuate automatic alarm devices. It may only be used to announce that a distress call or message is about to follow.

(189) (2) The **distress call,** consisting of:–the distress signal MAYDAY (spoken three times);

(190) the words THIS IS (spoken once);

(191) the call sign or name of the vessel in distress (spoken three times).

(192) (3) The **distress message** follows immediately and consists of:

(193) the distress signal MAYDAY;

(194) the call sign and name of the vessel in distress;

(195) particulars of its position (latitude and longitude, or true bearing and distance from a known geographical position);

(196) the nature of the distress;

(197) the kind of assistance desired;

(198) the number of persons aboard and the condition of any injured;

(199) present seaworthiness of vessel;

(200) description of the vessel (length; type; cabin; masts; power; color of hull, superstructure, trim; etc.);

(201) any other information which might facilitate the rescue, such as display of a surface-to-air identification signal or a radar reflector;

(202) your listening frequency and schedule;

(203) THIS IS (call sign and name of vessel in distress). OVER.

(204) (4) **Acknowledgment of receipt of a distress message:** If a distress message is received from a vessel which is definitely in your vicinity, immediately acknowledge receipt. If it is not in your vicinity, allow a short interval of time to elapse before acknowledging, in order to permit vessels nearer to the vessel in distress to acknowledge receipt without interference. However, in areas where reliable communications with one or more shore stations are practicable, all vessels may defer this acknowledgment for a short interval so that a shore station may acknowledge receipt first. The acknowledgment of receipt of a distress is given as follows:

(205) the call sign or name of the vessel sending the distress (spoken three times);

(206) the words THIS IS;

(207) the call sign or name of acknowledging vessel (spoken three times);

(208) The words RECEIVED MAYDAY.

(209) After the above acknowledgment, allow a momentary interval of listening to insure that you will not interfere with another vessel better situated to render immediate assistance; if not, with the authority of the person in charge of the vessel, transmit:

(210) the word MAYDAY;

(211) the call sign and name of distressed vessel;

(212) the words THIS IS;

(213) the call sign and name of your vessel;

(214) your position (latitude and longitude, or true bearing and distance from a known geographical position);

(215) the speed you are proceeding towards, and the approximate time it will take to reach, the distressed vessel. OVER.

(216) (5) **Further distress messages and other communications:** Distress communications consist of all messages relating to the immediate assistance required by the distressed vessel. Each distress communication shall be preceded by the signal MAYDAY. The vessel in distress or the station in control of distress communications may **impose silence** on any station which interferes. The procedure is:–the words SEELONCE MAYDAY (Seelonce is French for silence). Silence also may be imposed by nearby mobile stations other than the vessel in distress or the station in control of distress communications. The mobile station which believes that silence is essential may request silence by the following procedure:–the word SEELONCE, followed by the word DISTRESS, and its **own** call sign.

(217) (6) **Transmission of the distress procedure by a vessel or shore station not itself in distress:** A vessel or a shore station which learns that a vessel is in distress shall transmit a distress message in any of the following cases:

(218) (a) **When the vessel in distress is not itself able to transmit the distress message.**

(219) (b) When a vessel or a shore station considers that further help is necessary.

(220) (c) When, although not in a position to render assistance, it has heard a distress message that has not been acknowledged.

(221) In these cases, the transmission shall consist of:

(222) the radiotelephone alarm signal (if available);

(223) the words MAYDAY RELAY (spoken three times);

(224) the words THIS IS;

(225) the call sign and name of vessel (or shore station), spoken three times.

(226) When a vessel transmits a distress under these conditions, it shall take all necessary steps to contact the Coast Guard or a shore station which can notify the Coast Guard.

(227) (7) **Termination of distress:** When distress traffic has ceased, or when silence is no longer necessary on the frequency used for the distress traffic, the station in control shall transmit on that frequency a message to all stations as follows:

(228) the distress signal MAYDAY;

(229) the call TO ALL STATIONS, spoken three times;

(230) the words THIS IS;

(231) the call sign and name of the station sending the message;

(232) the time;

(233) the name and call sign of the vessel in distress;

(234) the words SEELONCE FEENEE (French for silence finished).

DISTRESS ASSISTANCE AND COORDINATION PROCEDURES

(235) **Surface ship procedures for assisting distressed surface vessels.**

(236) (1) The following immediate action should be taken by each ship on receipt of a distress message:

(237) (a) Acknowledge receipt and, if appropriate, retransmit the distress message;

(238) (b) Immediately try to take D/F bearings during the transmission of the distress message and maintain a D/F watch on 2182 kHz;

(239) (c) Communicate the following information to the ship in distress:

(240) (i) identity;

(241) (ii) position;

(242) (iii) speed and estimated time of arrival (ETA);

(243) (iv) when available, true bearing of the ship in distress.

(244) (d) Maintain a continuous listening watch on the frequency used for the distress. This will normally be:

(245) (i) 2182 kHz (radiotelephone).

(246) (e) Additionally, maintain watch on VHF-FM channel 16 as necessary;

(247) (f) Operate radar continuously;

(248) (g) If in the vicinity of the distress, post extra lookouts.

(249) (2) The following action should be taken when proceeding to the area of distress:

(250) (a) Plot the position, course, speed, and ETA of other assisting ships.

(251) (b) Know the communication equipment with which other ships are fitted. This information may be obtained from the International Telecommunication Union's List of Ship Stations.

(252) (c) Attempt to construct an accurate "picture" of the circumstances attending the casualty. The important information needed is included under Distress Signals and Communication Procedures, this chapter. Should the ship in distress fail to transmit this information, a ship proceeding to assist should request what information is needed.

(253) (3) The following on-board preparation while proceeding to the distress area should be considered:

(254) (a) A rope (guest warp) running from bow to quarter at the waterline on each side and secured by lizards to the ship's side to assist boats and rafts to secure alongside;

(255) (b) A derrick rigged ready for hoisting on each side of the ship with a platform cargo sling, or rope net, secured to the runner to assist the speedy recovery of exhausted or injured survivors in the water;

(256) (c) Heaving lines, ladders, and scramble net placed ready for use along both sides of the ship on the lowest open deck and possibly crew members suitably equipped to enter the water and assist survivors;

(257) (d) A ship's liferaft made ready for possible use as a boarding station;

(258) (e) Preparations to receive survivors who require medical assistance including the provision of stretchers;

(259) (f) When own lifeboat is to be launched, any means to provide communications between it and the parent ship will prove to be of very great help;

(260) (g) A line throwing appliance with a light line and a heavy rope, ready to be used for making connection either with the ship in distress or with survival craft.

(261) **Aircraft procedures for directing surface craft to scene of distress incident.**–The following procedures performed in sequence by an aircraft mean that the aircraft is directing a surface craft toward the scene of a distress incident,

(262) (a) Circling the surface craft at least once.

(263) (b) Crossing the projected course of the surface craft close ahead at low altitude, rocking the wings, opening and closing the throttle, or changing the propeller pitch.

(264) (c) Heading in the direction in which the surface craft is to be directed. The surface craft should acknowledge the signal by changing course and following the aircraft. If, for any reason, it is impossible to follow, the surface craft should hoist the international code flag NOVEMBER, or use any other signaling means available to indicate this.

(265) The following procedures performed by an aircraft mean that the assistance of the surface craft is no longer required:

(266) (a) Crossing the wake of the surface craft close astern at a low altitude, rocking the wings, opening and closing the throttle or changing the propeller pitch.

(267) Since modern jet-engined aircraft cannot make the characteristic sound associated with opening and closing the throttle, or changing propeller pitch, ships should be alert to respond to the signals without the sounds, when jets or turboprop aircraft are involved.

(268) **Surface ship procedures for assisting aircraft in distress.**

(269) 1. When an aircraft transmits a distress message by radio, the first transmission is generally made on the designated air/ground enroute frequency in use at the time between the aircraft and aeronautical station. The aircraft may change to another frequency, possibly another enroute frequency or the aeronautical emergency frequencies of 121.50 MHz or 243 MHz. In an emergency, it may use any other available frequency to establish contact with any land, mobile, or direction-finding station.

(270) 2. There is liaison between Coast Radio Stations aeronautical units, and land–based search and rescue organizations. Merchant ships will ordinarily be informed of aircraft casualties at sea by broadcast messages from Coast Radio Stations, made on the international distress frequency of 2182 kHz. Ships may, however, become aware of the casualty by receiving:

(271) (a) An SOS message from an aircraft in distress which is able to transmit on radiotelephone on 2182 kHz.

(272) (b) A message from a SAR aircraft.

(273) 3. For the purpose of emergency communications with aircraft, special attention is called to the possibility of conducting direct communications on 2182 kHz, if both ship and aircraft are so equipped.

(274) 4. An aircraft in distress will use any means at its disposal to attract attention, make known its position, and obtain help, including some of the signals prescribed by the applicable Navigation Rules.

(275) 5. Aircraft usually sink quickly (e.g. within a few minutes). Every endeavor will be made to give ships an accurate position of an aircraft which desires to ditch. When given such a position, a ship should at once consult any other ships in the vicinity on the best procedure to be adopted. The ship going to the rescue should answer the station sending the broadcast and give her identity, position, and intended action.

(276) 6. If a ship should receive a distress message direct from an aircraft, she should act as indicated in the immediately preceding paragraph and also relay the message to the nearest Coast Radio Station. Moreover, a ship which has received a distress message direct from an aircraft and is going to the rescue should take a bearing on the transmission and inform the Coast Radio Station and other ships in the vicinity of the call sign of the distressed aircraft and the time at which the distress message was received, followed by the bearing and time at which the signal ceased.

(277) 7. When an aircraft decides to ditch in the vicinity of a ship, the ship should:

(278) (a) Transmit homing bearings to the aircraft, or (if so required) transmit signals enabling the aircraft to take its own bearings.

(279) (b) By day, make black smoke.

(280) (c) By night, direct a searchlight vertically and turn on all deck lights. Care must be taken not to direct a searchlight toward the aircraft, which might dazzle the pilot.

(281) 8. Ditching an aircraft is difficult and dangerous. A ship which knows that an aircraft intends to ditch should be prepared to give the pilot the following information:

(282) (a) Wind direction and force.

(283) (b) Direction, height, and length of primary and secondary swell systems.

(284) (c) Other pertinent weather information.

(285) The pilot of an aircraft will choose his own ditching heading. If this is known by the ship, she should set course parallel to the ditching heading. Otherwise the ship should set course parallel to the main swell system and into the wind component, if any.

(286) 9. A land plane may break up immediately on striking the water, and liferafts may be damaged. The ship should, therefore, have a lifeboat ready for launching, and if possible, boarding nets should be lowered from the ship and heaving lines made ready in the ship and the lifeboat. Survivors of the aircraft may have bright colored lifejackets and location aids.

(287) 10. The method of recovering survivors must be left to the judgment of the master of the ship carrying out the rescue operation.

(288) 11. It should be borne in mind that military aircraft are often fitted with ejection seat mechanisms. Normally, their aircrew will use their ejection seats, rather than ditch. Should such an aircraft ditch, rather than the aircrew bail out, and it becomes necessary to remove them from their ejection seats while still in the aircraft, care should be taken to avoid triggering off the seat mechanisms. The activating handles are invariably indicated by red and or black/yellow coloring.

(289) 12. A survivor from an aircraft casualty who is recovered may be able to give information which will assist in the rescue of other survivors. Masters are therefore asked to put the following questions to survivors and to communicate the answers to a Coast Radio Station. They should also give the position of the rescuing ship and the time when the survivors were recovered.

(290) (a) What was the time and date of the casualty?

(291) (b) Did you bail out or was the aircraft ditched?

(292) (c) If you bailed out, at what altitude?

(293) (d) How many others did you see leave the aircraft by parachute?

(294) (e) How many ditched with the aircraft?

(295) (f) How many did you see leave the aircraft after ditching?

(296) (g) How many survivors did you see in the water?

(297) (h) What flotation gear had they?

(298) (i) What was the total number of persons aboard the aircraft prior to the accident?

(299) (j) What caused the emergency?

(300) **Helicopter evacuation** of personnel.–Helicopter evacuation, usually performed by the Coast Guard, is a hazardous operation to the patient and to the flight crew, and should only be attempted in event of very serious illness or injury. Provide the doctor on shore with all the information you can concerning the patient, so that an intelligent evaluation can be made concerning the need for evacuation. Most rescue helicopters can proceed less than 150 miles offshore (a few new helicopters can travel 250 to 300 miles out to sea), dependent on weather conditions and other variables. If an evaluation is necessary, the vessel must be prepared to proceed within range of the helicopter, and should be familiar with the preparations which are necessary prior to and after its arrival.

(301) **When requesting helicopter assistance:**

(302) (1) Give the accurate position, time, speed, course, weather conditions, sea conditions, wind direction and velocity, type of vessel, and voice and CW frequency for your ship.

(303) (2) If not already provided, give complete medical information including whether or not the patient is ambulatory.

(304) (3) If you are beyond helicopter range, advise your diversion intentions so that a rendezvous point may be selected.

(305) (4) If there are changes to any items reported earlier, advise the rescue agency immediately. Should the patient die before the arrival of the helicopter, be sure to advise those assisting you.

(306) **Preparations prior to the arrival of the helicopter:**

(307) (1) Provide continuous radio guard on 2182 kHz or specified voice frequency, if possible. The helicopter normally cannot operate CW.

(308) (2) Select and clear the most suitable hoist area, preferably aft on the vessel with a minimum of 50 feet (15.2 meters) radius of clear deck. This must include the securing of loose gear, awnings, and antenna wires. Trice up running rigging and booms. If hoist is aft, lower the flag staff.

(309) (3) If the hoist is to take place at night, light the pickup areas as well as possible. Be sure you do not shine any lights on the helicopter, so that the pilot is not blinded. If there are any obstructions in the vicinity, put a light on them so the pilot will be aware of their positions.

(310) (4) Point searchlight vertically to aid the flight crew in locating the ship and turn them off when the helicopter is on the scene.

(311) (5) Be sure to advise the helicopter of the location of the pickup area on the ship before the helicopter arrives, so that the

pilot may make his approach to aft, amidships, or forward, as required.

(312) (6) There will be a high noise level under the helicopter, so voice communications on deck are almost impossible. Arrange a set of hand signals among the crew who will assist.

(313) **Hoist operations:**

(314) (1) If possible, have the patient moved to a position as close to the hoist area as his condition will permit–**time is important.**

(315) (2) Normally, if a litter (stretcher) is required, it will be necessary to move the patient to the special litter which will be lowered by the helicopter. Be prepared to do this as quickly as possible. Be sure the patient is strapped in, face up, and with a life jacket on (if his condition will permit).

(316) (3) Be sure that the patient is tagged to indicate what medication, if any, was administered to him and when it was administered.

(317) (4) Have patient's medical record and necessary papers in an envelope or package ready for transfer with the patient.

(318) (5) Again, if the patient's condition permit, be sure he is wearing a life jacket.

(319) (6) Change the vessel's course to permit the ship to ride as easily as possible with the wind on the bow, preferably on the port bow. Try to choose a course to keep the stack gases clear of the hoist area. Once established, maintain course and speed.

(320) (7) Reduce speed to ease ship's motion, but maintain steerageway.

(321) (8) If you do not have radio contact with the helicopter, when you are in all respects ready for the hoist, signal the helicopter in with a "come on" with your hand, or at night by flashlight signals.

(322) (9) **Allow basket or stretcher to touch deck prior to handling to avoid static shock.**

(323) (10) If a trail line is dropped by the helicopter, guide the basket or stretcher to the deck with the line; keep the line free at all times. This line will not cause shock.

(324) (11) Place the patient in basket, sitting with his hands clear of the sides, or in the litter, as described above. Signal the helicopter hoist operator when ready for the hoist. Patient should signal by a nodding of the head if he is able. Deck personnel give thumbs up.

(325) (12) If it is necessary to take the litter away from the hoist point, unhook the hoist cable and keep it free for the helicopter to haul in. **Do not secure cable or trail line to the vessel or attempt to move stretcher without unhooking.**

(326) (13) When patient is strapped into the stretcher, signal the helicopter to lower the cable, attach cable to stretcher sling (bridle), then signal the hoist operator when the patient is ready to hoist. Steady the stretcher so it will not swing or turn.

(327) (14) If a trail line is attached to the basket or stretcher, use it to steady the patient as he is hoisted. Keep your feet clear of the line, and keep the line from becoming entangled.

(328) **Medical advice and/or evacuation.**–In the event a master of a vessel requires medical advice and/or there is a potential of evacuation the following should be volunteered by the master:

(329) Vessel's name and call sign.

(330) Vessel's position and time at position.

(331) Vessel's course, speed and next port and estimated time of arrival (ETA).

(332) Patient's name, nationality, age, race and sex.

(333) Patient's respiration, pulse and temperature.

(334) Patient's symptoms and nature of illness.

(335) Any known history of similar illness.

(336) Location and type of pain.

(337) Medical supplies carried on board vessel.

(338) Medication given to patient.

(339) Weather.

(340) Communication schedule and frequency.

(341) **Coast Guard droppable, floatable pumps.**–The Coast Guard often provides vessels in distress with emergency pumps by either making parachute drops, by lowering on helicopter hoist, or by delivering by vessel. The most commonly used type of pump comes complete in a sealed aluminum drum about half the size of a 50-gallon oil drum. One single lever on top opens it up. Don't be smoking as there may be gas fumes inside the can. The pump will draw about 90 gallons per minute. There should be a waterproof flashlight on top of the pump for night use. Operating instructions are provided inside the pump container.

(342) **Preparations for being towed by Coast Guard:**

(343) (1) Clear the forecastle area as well as you can.

(344) (2) If a line-throwing gun is used, keep everyone out of the way until line clears the boat. The Coast Guard vessel will blow a police whistle or otherwise warn you before firing.

(345) (3) Have material ready for chafing gear.

(346) **Radar reflectors on small craft.**–Operators of disabled wooden craft and persons adrift in rubber rafts or boats that are, or may consider themselves to be, the object of a search, should hoist on a halyard or otherwise place aloft as high as possible any metallic object that would assist their detection by radar. Coast Guard cutters and aircraft are radar equipped and thus are able to continue searching in darkness and during other periods of low visibility. It is advisable for coastal fishing boats, yachts, and other small craft to have efficient radar reflectors permanently installed aboard the vessel.

(347) **Filing Cruising schedules.**–Small-craft operators should prepare a cruising plan before starting on extended trips and leave it ashore with a yacht club, marina, friend, or relative. It is advisable to use a checking-in procedure by telephone for each point specified in the cruising plan. Such a trip schedule is vital for determining if a boat is overdue and will assist materially in locating a missing craft in the event search and rescue operations become necessary.

(348) **Medical advice.**–Free medical advice is furnished to seamen by radio through the cooperation of Governmental and commercial radio stations whose operators receive and relay messages prefixed **RADIOMEDICAL** from ships at sea to the U.S. Coast Guard and/or directly to a hospital and then radio the medical advice back to the ships. (See appendix for list of radio stations that provide this service.)

RADIO NAVIGATION WARNINGS AND WEATHER

(349) Marine radio warnings and weather are disseminated by many sources and through several types of transmissions. Morse code radiotelegraph broadcasts of navigational warnings and other advisories are not described, since these transmissions are normally copied only by professional radio operators. U.S. Coast Guard NAVTEX, high-frequency (HF) narrow-band direct printing (radio telex), HF radiofacsimile, and radiotelephone broad-

casts of maritime safety information are summarized here. (For complete information on radio warnings and weather see NIMA Pub. 117 and the joint National Weather Service/Navy publication **Selected Worldwide Marine Weather Broadcasts.**)

(350) **Frequency units.–Hertz (Hz)**, a unit equal to one cycle per second, has been generally adopted for radio frequencies; accordingly, frequencies formerly given in the Coast Pilot in kilocycles (kc) and megacycles (mc) are now stated in **kilohertz (kHz)** and **Megahertz (MHz),** respectively.

(351) **Coast Guard radio stations.**–Coast Guard radio stations provide urgent, safety, and scheduled marine information broadcasts with virtually complete coverage of the approaches and coastal waters of the United States, Puerto Rico, and the U.S. Virgin Islands.

(352) **Urgent and safety radiotelephone broadcasts** of important Notice to Mariners items, storm warnings, and other vital marine information are transmitted upon receipt, and urgent broadcasts are repeated 15 minutes later; additional broadcasts are made at the discretion of the originator. **Urgent** broadcasts are preceded by the urgent signal PAN-PAN (PAHN-PAHN, spoken three times). **Both the urgent signal and message are transmitted on 2182 kHz and/or VHF-FM channel 16. Safety** broadcasts are preceded by the safety signal SECURITY (SAY-CURITAY, spoken three times). **The Safety signal is given on 2182 kHz and/or VHF-FM channel 16, and the message is given on 2670 kHz and/or VHF-FM channel 22A.**

(353) Scheduled radiotelephone broadcasts include routine weather, small-craft advisories, storm warnings, navigational information, and other advisories. Short-range broadcasts are made on **2670 kHz** and/or **VHF-FM channel 22A,** following a preliminary call on **2182 kHz** and/or **VHF-FM channel 16.** (See appendix for a list of stations and their broadcast frequencies and times for the area covered by this Coast Pilot.)

(354) Weather information is not normally broadcast by the Coast Guard on VHF-FM channel 22A in areas where NOAA Weather Radio service is available. See note below regarding VHF-FM channel 22A.

(355) HF single-sideband broadcasts of high seas weather information is available on the (carrier) frequencies 4428.7, 6506.4, 8765.4, 13113.2, and 17307.3 kHz from Portsmouth, VA and San Francisco, CA.

(356) Narrow-band direct printing (radio telex or sitor) broadcasts of NAVAREA and other navigational warnings are transmitted on the following assigned frequencies:

(357) Atlantic ice reports: 5320, 8502, and 12750 kHz.

(358) Other Atlantic warnings: 8490, 16968.8 kHz.

(359) Pacific: 8710.5, 8714.5, 8718, 13077, 13084.5, 17203, 22567, and 22574.5 kHz.

(360) HF radiofacsimile broadcasts of weather and ice charts are made on the following frequencies:

(361) Atlantic: 3242, 7530, 8502 (ice only), 12750 (ice only) kHz.

(362) Pacific: 4298 (Kodiak), 4336, 8459 (Kodiak), 8682, 12730, 17151.2 kHz.

(363) **Warning Regarding Coast Guard VHF-FM Channel 22A Broadcasts.**–The Coast Guard broadcasts urgent and routine maritime safety information to ships on channel 22A (157.10 MHz), the ship station transmit frequency portion of channel 22, of Appendix 18 of the International Telecommunications Union (ITU) Radio Regulations. This simplex use of channel 22A is not compatible with the international duplex arrangement of the channel (coast transmit 161.70 MHz, ship transmit 157.10 MHz). As a result, many foreign flag vessels having radios tuned to the international channel 22 can not receive these maritime safety broadcasts. A 1987 Coast Guard survey of foreign vessels in U.S. waters indicated that half of foreign vessels in U.S. waters did not have equipment on board capable of receiving channel 22A broadcasts.

(364) Operators of vessels which transit U.S. waters and who do not have VHF-FM radios tunable to USA channel 22A are urged to either obtain the necessary equipment, to monitor the radiotelephone frequency 2182 kHz and tune to 2670 kHz when a broadcast is announced, or to carry a NAVTEX receiver.

(365) **NAVTEX.**–NAVTEX is a maritime radio warning system consisting of a series of coast stations transmitting radio teletype (CCIR Recommendation 476 standard narrow band direct printing, sometimes called Sitor or ARQ/FEC) safety messages on the international standard medium frequency 518 kHz. Coast stations transmit during preset time slots so as to minimize interference with one another. Routine messages are normally broadcast four to six times daily. Urgent messages are broadcast upon receipt, provided that an adjacent station is not transmitting. Since the broadcast uses the medium frequency band, a typical station service radius ranges from 100-500 NM day and night. Interference from or receipt of stations farther away occasionally occurs at night.

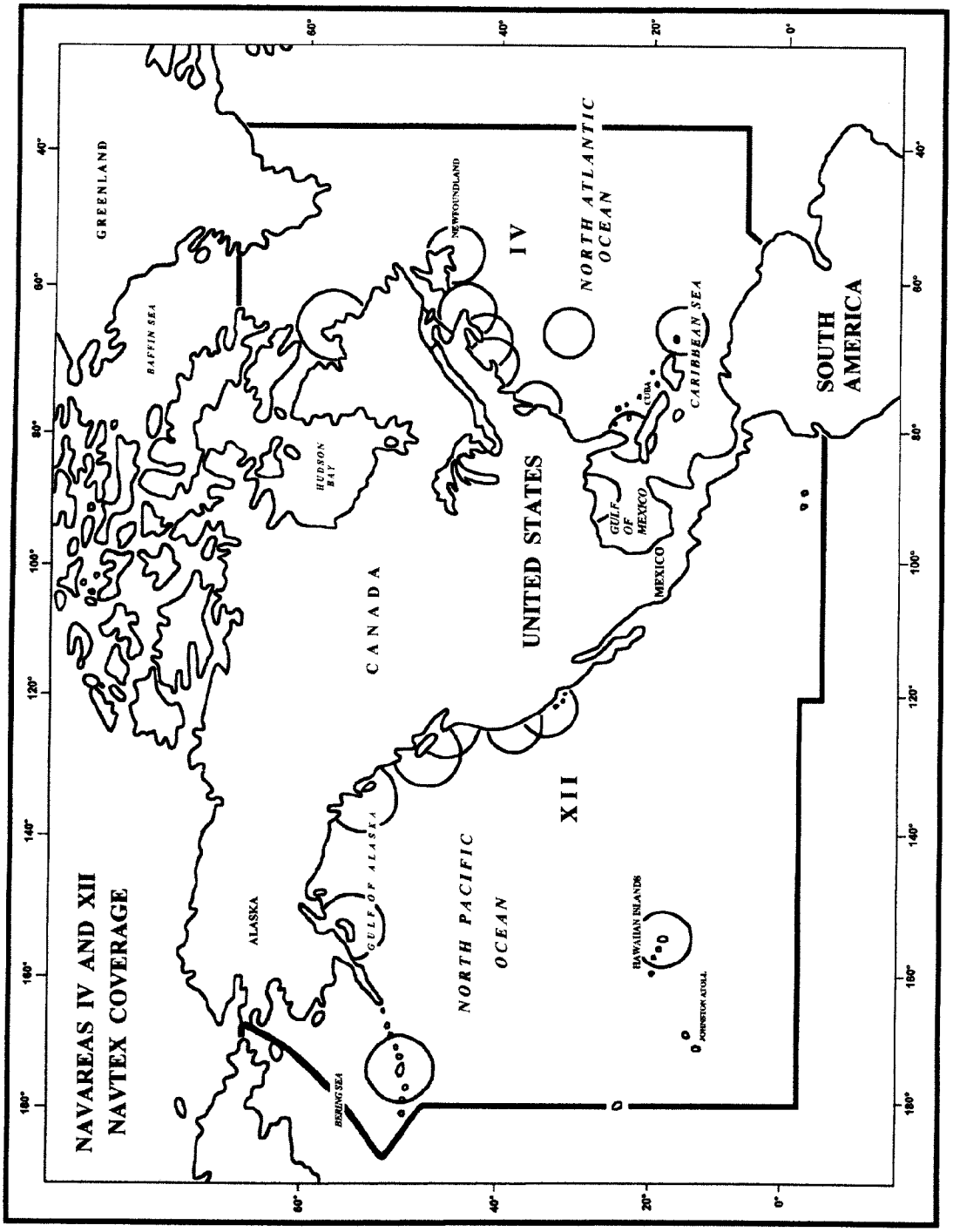
(366) Each NAVTEX message broadcast contains a four-character header describing identification of station (first character), message content (second character), and message serial number (third and fourth characters). This header allows the microprocessor in the shipborne receiver to screen messages, selecting only those stations relevant to the user, messages of subject categories needed by the user, and messages not previously received by the user. Selected messages are printed on a roll of paper as received, to be read by the mariner at his convenience. Unwanted messages are suppressed. Suppression of unwanted messages is more and more important to the mariner as the number of messages, including rebroadcasts, increases yearly. With NAVTEX, a mariner will no longer find it necessary to listen to, or sift through, a large number of irrelevant data to obtain the information necessary for safe navigation.

(367) Vessels regulated by the Safety of Life at Sea (SOLAS) Convention, as amended in 1988 (cargo vessels over 300 tons and passenger vessels, on international voyages), and operating in areas where NAVTEX service is available, have been required to carry NAVTEX receivers since 1 August 1993. The USCG discontinued broadcasts of safety information over MF Morse frequencies on that date.

(368) The USCG voice broadcasts (Ch. 22A), often of more inshore and harbor information, will remain unaffected by NAVTEX. With NAVTEX, mariners who do not have the knowledge of Morse code necessary to receive safety messages, or who have difficulty receiving them on a timely basis, should find a significant advantage in owning a NAVTEX receiver. Mariners not able to man a radio on a 24-hour basis in order to hear critical warning messages (e.g. commercial fishermen) should also find a significant advantage in owning a NAVTEX receiver.

(369) See appendix, U.S. NAVTEX Transmitting Stations, for a list of NAVTEX broadcast stations (Atlantic Ocean) and message content.

(370) **NOAA Weather Radio.**–The National Weather Service operates **VHF-FM radio stations,** usually on frequencies


NAVAREAS IV AND XII
NAVTEX COVERAGE
GREENLAND
BAFFIN SEA
HUDSON BAY
CANADA
ALASKA
BERING SEA
GULF OF ALASKA
NEWFOUNDLAND
IV
NORTH ATLANTIC OCEAN
UNITED STATES
GULF OF MEXICO
MEXICO
CUBA
CARIBBEAN SEA
SOUTH AMERICA
XII
NORTH PACIFIC OCEAN
HAWAIIAN ISLANDS
JOHNSTON ATOLL
60°
40°
20°
0°
40°
60°
80°
100°
120°
140°
160°
180°

162.40, 162.475, or 162.55 MHz, to provide continuous recorded weather broadcasts. These broadcasts are available to those with suitable receivers within about 40 miles of the antenna site. (See the appendix for a list of these stations in the area covered by this Coast Pilot.)

(371) **Commercial radiotelephone coast stations.**–Broadcasts of coastal weather and warnings are made by some commercial radiotelephone coast stations (marine operators) on the normal transmitting frequencies of the stations. Vessels with suitable receivers and desiring this service may determine the frequencies and schedules of these broadcasts from their local stations, from Selected Worldwide Marine Weather Broadcasts, or from the series of Marine Weather Services Charts published by NWS.

(372) **Local broadcast-band radio stations.**–Many local radio stations in the standard AM and FM broadcast band give local marine weather forecasts from NWS on a regular schedule. These stations are listed on the series of Marine Weather Services Charts published by NWS.

(373) **Reports from ships.**–The master of every U.S. ship equipped with radio transmitting apparatus, on meeting with a tropical cyclone, dangerous ice, subfreezing air temperatures with gale force winds causing severe ice accretion on superstructures, derelict, or any other direct danger to navigation, is required to cause to be transmitted a report of these dangers to ships in the vicinity and to the appropriate Government agencies.

(374) During the West Indies hurricane season, June 1 to November 30, ships in the Gulf of Mexico, Caribbean Sea area, southern North Atlantic Ocean, and the Pacific waters west of Central America and Mexico are urged to cooperate with NWS in furnishing these special reports in order that warnings to shipping and coastal areas may be issued.

(375) **Time Signals.**–The **National Institute of Standards and Technology (NIST)** broadcasts time signals continuously, day and night, from its radio stations **WWV,** near Fort Collins, Colorado, (40°49' 49"N., 105°02'27"W.) on frequencies of 2.5, 5, 10, 15, and 20 MHz, and **WWVH,** Kekaha, Kauai, Hawaii (21°59'26"N., 159°46'00"W.) on frequencies 2.5, 5, 10, and 15 MHz. Services include time announcements, standard time intervals, standard audio frequencies, geophysical alerts, BCD (binary coded decimal) time code, UT1 time corrections, and high seas storm information.

(376) Time announcements are made every minute, commencing at 15 seconds before the minute by a female voice and at 7½ seconds before the minute by a male voice, from WWVH and WWV, respectively. The time given is in Coordinated Universal Time (UTC) and referred to the time at Greenwich, England, i.e., Greenwich Mean Time.

(377) **NIST Time and Frequency Dissemination Services, Special Publication 432,** gives a detailed description of the time and frequency dissemination services of the **National Institute of Standards and Technology.** Single copies may be obtained upon request from the National Institute of Standards and Technology, Time and Frequency Division, Boulder, CO 80303. Quantities may be obtained from the Government Printing Office (see appendix for address).

NAUTICAL CHARTS

(378) **Reporting chart deficiencies.**–Users are requested to report all significant observed discrepancies in and desirable additions to NOS nautical charts, including depth information in privately maintained channels and basins; obstructions, wrecks, and other dangers; new landmarks or the nonexistence or relocation of charted ones; uncharted fixed private aids to navigation; and deletions or additions of small-craft facilities. All such reports should be sent to

(379) Chief,
(380) Marine Chart Division (N/CS2)
(381) National Ocean Service, NOAA,
(382) 1315 East-West Highway, Station 7317
(383) Silver Spring, MD 20910-3282.

(384) **Chart symbols and abbreviations.**–The standard symbols and abbreviations approved for use on all regular nautical charts are in **Chart No. 1,** United States of America **Nautical Chart Symbols and Abbreviations.** This product, maintained by the National Imagery and Mapping Agency and NOS, is available on the internet website address, http://chartmaker.ncd.noaa.gov.

(385) On certain foreign charts reproduced by the United States, and on foreign charts generally, the symbols and abbreviations used may differ from U.S. approved standards. It is, therefore, recommended that navigators who acquire and use foreign charts and reproductions procure the symbol sheet or Chart No. 1 produced by the same foreign agency.

(386) The mariner is warned that the buoyage systems, shapes, and colors used by other countries often have a different significance than the U.S. system.

(387) **Chart Datum.**–Chart Datum is the particular tidal datum to which soundings and depth curves on a nautical chart or bathymetric map are referred. The tidal datum of **Mean Low Water** has been used as Chart Datum along the east coast of the United States and in parts of the West Indies. It is presently being changed to Mean Lower Low Water, with no adjustments to soundings, shorelines, low water lines, clearances, heights, elevations, or in the application of tide predictions for navigational purposes. The tidal datum of **Mean Lower Low Water** is used as Chart Datum along the Gulf and west coasts; the coasts of Alaska, Hawaii, and other United States and United Nations islands of the Pacific; and in parts of the West Indies.

(388) Mean Low Water is defined as the arithmetic mean of all the low water heights observed over the National Tidal Datum Epoch. Mean Lower Low Water is defined as the arithmetic mean of the lower low water height of each tidal day (24.84 hours) observed over the National Tidal Datum Epoch. The National Tidal Datum Epoch is the specific 19-year period adopted by the National Ocean Service, NOAA, as the official time segment over which tide observations are taken and reduced to obtain mean values for tidal datums. The present Epoch is 1960 through 1978.

(389) **Horizontal Datum.**–Nautical charts presently are constructed based on one of a number of horizontal datums which are adopted to best represent individual regions around the world. Horizontal datum, horizontal geodetic datum, and horizontal control datum are synonymous.

(390) The exact placement of lines of latitude and longitude on a nautical chart is dependent on the referenced horizontal datum. Charts of the United States are currently referenced to datums such as the North American Datum of 1927 (NAD 27), Puerto Rican Datum, Old Hawaiian Datum, and others. Through the use of

satellites and other modern surveying techniques, it is now possible to establish global reference systems.

(391) **North American Datum of 1983 (NAD 83)** is the new geodetic reference system (horizontal datum) for the United States and Canada. NAD 83 replaces the various datums used in the past on NOS charts, except charts of Hawaii, and other Pacific Ocean islands, which will be compiled on **World Geodetic System 1984 (WGS 84)**. WGS 84 is equivalent to the NAD 83 for charting purposes.

(392) The parameters of the ellipsoid of reference used with NAD 83 are very close to those used for WGS 84. The ellipsoid used for NAD 83, **Geodetic Reference System 1980 (GRS 80)**, is earth centered or geocentric as opposed to the nongeocentric ellipsoids previously employed. This means that the center of the ellipsoid coincides with the center of mass of the earth.

(393) Many NOS charts have been converted to NAD 83. The NOS publication **Dates of Latest Editions**, published quarterly indicates, to date, which NOS charts have been published to NAD 83.

(394) What does this change in datum mean to the mariner? It means that during the period of conversion, some charts will be referenced to the new NAD 83 datum, while others will still be referenced to the old former datum. Charted features will remain unaffected in their relationship with the surrounding area. Therefore, when comparing charts of the same area, referenced to different horizontal datums, no changes to charted features will be noticed since all features shift by approximately the same amount. The apparent difference will be the shift of the latitude and longitude grid in relation to the charted features. As a result, the geographic positions (latitude and longitude) of all charted features will change.

(395) Each NOS chart that is published carries a standard horizontal datum note identifying the datum used on that chart.

(396) **Case I**: In addition to the standard horizontal datum note, all charts that have been converted to NAD 83 will carry an additional Horizontal Datum Note, similar to the one below, that will inform the mariner if any correction must be made to the latitude and longitude when transferring geographic positions from the previous charted datum to NAD 83.

(397) **Sample Horizontal Datum Note** (on chart 13272, Boston Inner Harbor):

(398) "**HORIZONTAL DATUM**

(399) The horizontal reference datum of this chart is North American Datum of 1983 (NAD 83), which for charting purposes is considered equivalent to the World Geodetic System 1984 (WGS 84). Geographic positions referred to the North American Datum of 1927 must be corrected an average of 0.351" northward and 1.819" eastward to agree with this chart."

(400) For example: One of the coordinates of the anchorage of 33 CFR 110.30(m), Boston Inner Harbor A, is the point 42°21'31.62"N, 71°02'52.37"W. When this anchorage was originally laid out, chart 13272, was on horizontal datum of NAD 27. The current edition of chart 13272 is on NAD 83. Accordingly, to plot the above point on the current chart, first add 0.351 " to the latitude and subtract 1.819" from the longitude.

(401) **Case II**. When the magnitude of the shift between the existing chart datum and NAD 83 does not result in a significant plottable difference, on a chart converted to NAD 1983, a note similar to the following appears on the chart:

(402) "**HORIZONTAL DATUM**

(403) The horizontal reference datum of this chart is North American Datum of 1983 (NAD 83), which for charting purposes is considered equivalent to the World Geodetic System 1984 (WGS 84). Geographic positions referred to (name of the old datum) do not require conversion to NAD 83 for plotting on this chart."

(404) **Case III**. If a chart is not yet on NAD 83, and NOS re-publishes same without converting it to NAD 83, a note similar to the following appears on the chart:

(405) "**HORIZONTAL DATUM**

(406) The horizontal reference datum of this chart is (name of the datum). Geographic positions on North American Datum of 1983 (NAD 83) must be corrected an average of _____ "northward/southward and _____" eastward/westward to agree with this chart. For charting purposes, NAD 83 is considered equivalent to the World Geodetic System of 1984 (WGS 1984) datum."

(407) Nautical chart changes by NOS involving latitude and longitude coordinates, published in Notices to Mariners, include which horizontal datum was used for the coordinates.

(408) Federal Regulations published by the Coast Guard (in **33 CFR**) involving geographic positions (latitude and longitude) include which horizontal datum was used for the coordinates. For example, **33 CFR 110.238**, Apra Harbor, Guam, contains "Datum: (WGS 84)."

(409) **Accuracy of a nautical chart.**–The value of a nautical chart depends upon the accuracy of the surveys on which it is based. The chart reflects what was found by field surveys and what has been reported to NOS Headquarters. The chart represents general conditions at the time of surveys or reports and does not necessarily portray present conditions. Significant changes may have taken place since the date of the last survey or report.

(410) Each sounding represents an actual measure of depth and location at the time the survey was made, and each bottom characteristic represents a sampling of the surface layer of the sea bottom at the time of the sampling. Areas where sand and mud prevail, especially the entrances and approaches to bays and rivers exposed to strong tidal current and heavy seas, are subject to continual change.

(411) In coral regions and where rocks and boulders abound, it is always possible that surveys may have failed to find every obstruction. Thus, when navigating such waters, customary routes and channels should be followed and areas avoided where irregular and sudden changes in depth indicate conditions associated with pinnacle rocks, coral heads, or boulders.

(412) Information charted as "reported" should be treated with caution in navigating the area, because the actual conditions have not been verified by government surveys.

(413) The **date of a chart** is of vital importance to the navigator. When charted information becomes obsolete, further use of the chart for navigation may be dangerous. Announcements of new editions of nautical charts are usually published in notices to mariners. The publication, **Dates of Latest Editions**, published quarterly, gives the edition and date of the latest edition of charts published by NOS. It is distributed to sales agents; free copies may be obtained from the sales agents or by writing to Distribution Division (N/ACC3), National Ocean Service. (See appendix for address.)

ERA	SOUNDING TECHNOLOGY	MAXIMUM LINE SPACING	AREAS OR DEPTHS
PRE-1940	Leadline	50 Meters	Anchorages, Channel Lines
			Open Coast
			Even Bottom
		200 - 300 Meters	0 - 10 Fathoms
		0.5 Mile	10 - 15 Fathoms
		1 - 4 Miles	15 - 100 Fathoms
		Reduced as Necessary	Uneven Bottom
1940 TO 1989	Continuous Recording Echo-sounder		**Harbors & Restricted Areas**
		50 Meters	Shoal Development
		100 Meters	< 20 Fathoms
		200 Meters	20 - 30 Fathoms
		400 Meters	> 30 Fathoms
			Open Coast
			Irregular Bottom
		100 Meters	<20 Fathoms (Rocky points, spits & channel entrances)
			Smooth Bottom
		200 Meters	< 20 Fathoms (All Other Areas)
		400 Meters	20 - 30 Fathoms
		800 Meters	30 - 110 Fathoms
		1600 Meters	110 - 500 Fathoms
1989 TO PRESENT	Continuous Recording Echo-sounder (Metrication)		**Harbors & Restricted Areas**
		100 Meters	< 30 Meters
		200 Meters	30-50 Meters
		400 Meters	> 50 Meters
			Open Coast
		100 Meters	<30 Meters (Rocky points, spits & channel entrances)
		200 Meters	<30 Meters (All Other Areas)
		400 Meters	30 - 50 Meters
		800 Meters	50 - 200 Meters
		1600 Meters	200 - 900 Meters

(414) **Source diagrams.**–The Office of Coast Survey has recently committed to adding a source diagram to all charts 1:500,000 scale and larger. This diagram is intended to provide the mariner with additional information about the density and reliability of the sounding data depicted on the chart. The adequacy with which sounding data depicts the configuration of the bottom depends on the following factors:

(415) •Survey technology employed (sounding and navigation equipment).

(416) •Survey specifications in effect (prescribed survey line spacing and sounding interval).

(417) •Type of bottom (e.g., rocky with existence of submerged pinnacles, flat sandy, coastal deposits subject to frequent episodes of deposition and erosion).

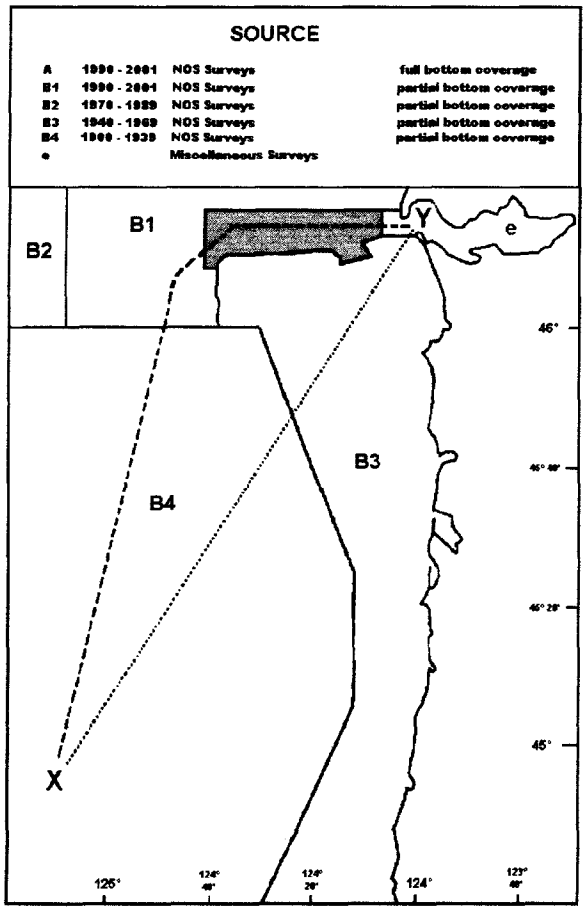
(418) Depth information on nautical charts is based on soundings from the latest available hydrographic survey, which in many cases may be quite old. The age of hydrographic surveys supporting nautical charts varies. Approximately 60 percent of inshore hydrography was acquired by **leadline** (pre-1940) sounding technology.

(419) The sounding information portrayed on NOAA nautical charts is considered accurate but does not, as noted above, represent a complete picture of the seafloor because older sounding technologies only collected discrete samples. For example, a leadline survey provides only a single point sounding. **Electronic echo sounders,** which came into common use during the 1940's, collected continuous soundings along the path of the survey vessel, but no information between survey lines. Full bottom coverage technology which transitioned into use as a supplemental method in the 1990's, has made leadline and conventional echo sounder technologies obsolete in areas of complex bathymetry.

(420) The following shows the eras of survey technology and their impact on the adequacy with which the bottom configuration is portrayed.

(421) Prior to 1940: The majority of survey data acquired prior to 1940 consisted of leadline soundings which were positioned using horizontal sextant angles. This positioning method is considered to be accurate.

SOURCE DIAGRAM



(422) A deficiency with pre-1940 data exists in the leadline sounding method because it represents discrete single-point sampling. Depths of areas between or outside of leadline sounding points can only be inferred or estimated leaving the possibility of undetected features, especially in areas of irregular relief.

(423) 1940 to present: During this period sounding data has been collected using continuous recording single-beam echo sounders which yield a graphic record of the entire sounding line–not just isolated points. Using this graphic record, features which fall between the standard position fixes can be inserted into the data set. Positioning of the sounding vessel in this era has varied from horizontal sextant angles to modern Global Positioning System satellite fixes.

(424) Although the sampling is continuous along the track of the sounding vessel, features can be missed between sounding lines.

(425) The spacing of sounding lines required to survey an area depends on several factors; such as water depths, bottom configuration, survey scale, general nature of the area, and the purpose of the survey. For example, a 1:10,000-scale survey conducted in an estuary will typically have 100-meter line spacing requirements, but may be reduced to 50 meters or less to adequately develop an irregular bottom, shoal, or some other feature that may present a hazard to navigation. Also, hydrographic project instructions for surveys may have required line spacing that deviates from these general specifications.

(426) The following table shows the various sounding technologies, line spacings, and areas or depths for each given period of hydrographic surveying. The terminology used to describe the different types of bottom in the table are derived from the first through fourth editions of the Hydrographic Manual and Hydrographic Survey Guideline No. 69.

(427) Referring to the accompanying sample Source Diagram and the above discussion of survey methods over time, a mariner transiting from Point X to Point Y, along the track indicated by the **dotted line**, would have the following information available about the relative quality of the depth information shown on the chart.

(428) • Point X lies in area surveyed by NOS within the 1900-1939 time period. The sounding data would have been collected by leadline. Depths between sounding points can only be inferred, and undetected features might exist between the sounding points in areas of irregular relief. Caution should be exercised.

(429) • The transit then crosses an area surveyed by NOS within the 1940-1969 time period. The sounding data would have been collected by continuous recording single beam echo sounder. It is possible that features could have been missed between sounding lines, although echo sounders record all depths along a sounding line with varying beam widths.

(430) • The transit ends in an area charted from miscellaneous surveys. These surveys may be too numerous to depict or vary in age, reliability, origin or technology used. No inferences about the fitness of the data can be made in this area from the diagram.

(431) Referring again to the accompanying sample Source Diagram, and the above discussion of survey methods over time, a mariner could choose to transit from Point X to Point Y, along the track shown with a **dashed line**.

(432) • The transit starts again in an area surveyed by NOS within the 1900-1939 time period. The sounding data would have been collected by leadline. Depths between sounding points can only be inferred, and undetected features might still exist between the sounding points in areas of irregular relief. Caution should be exercised.

(433) • The transit then crosses an area surveyed by NOS within the 1990-1999 time period. The data is collected in metric units and acquired by continuous recording single beam echo sounder. It is possible that features could have been missed between the sounding lines, although echo sounders record all depths along a sounding line with varying beam widths.

(434) • The transit then crosses an area surveyed by NOS within the 1990-1999 time period. This area of the charted diagram is shaded with the blue screen to draw attention to the fact that full bottom coverage has been achieved. The data would have been collected in metric units and acquired by side scan sonar or multibeam technology. Undetected features in this area would be extremely unlikely.

(435) • The transit ends in area charted from miscellaneous surveys. These surveys may be too numerous to depict or vary in age, reliability, origin or technology used. No inferences about the fitness of the data can be made in this area from the diagram.

(436) By choosing to transit along the track shown by the dashed line, the mariner would elect to take advantage of more recent survey information collected with more modern technology.

(437) **U.S. Nautical Chart Numbering System.**–This chart numbering system, adopted by the National Ocean Service and the National Imagery and Mapping Agency, provides for a uniform method of identifying charts published by both agencies. Nautical charts published by the National Imagery and Mapping Agency are identified in the Coast Pilot by an asterisk preceding the chart number.

(438) **Corrections to charts.**–It is essential for navigators to keep charts corrected through information published in the notices to mariners, especially since the NOS no longer hand-corrects charts prior to distribution.

(439) **Caution in using small-scale charts.**–Dangers to navigation cannot be shown with the same amount of detail on small-scale charts as on those of larger scale. Therefore, the largest scale chart of an area should always be used.

(440) The **scales of nautical charts** range from 1:2,500 to about 1:5,000,000. Graphic scales are generally shown on charts with scales of 1:80,000 or larger, and numerical scales are given on smaller scale charts. NOS charts are classified according to scale as follows:

(441) **Sailing charts,** scales 1:600,000 and smaller, are for use in fixing the mariner's position as he approaches the coast from the open ocean, or for sailing between distant coastwise ports. On such charts the shoreline and topography are generalized and only offshore soundings, and the principal lights, outer buoys, and landmarks visible at considerable distances are shown.

(442) **General charts,** scales 1:150,000 to 1:600,000, are for coastwise navigation outside of outlying reefs and shoals.

(443) **Coast charts,** scales 1:50,000 to 1:150,000 are for inshore navigation leading to bays and harbors of considerable width and for navigating large inland waterways.

(444) **Harbor charts,** scales larger than 1:50,000, are for harbors, anchorage areas, and the smaller waterways.

(445) **Special charts,** various scales, cover the Intracoastal waterways and miscellaneous small-craft areas.

(446) **Blue tint in water areas.**–A blue tint is shown in water areas on many charts to accentuate shoals and other areas considered dangerous for navigation when using that particular chart. Since the danger curve varies with the intended purpose of a chart a careful inspection should be made to determine the contour depth of the blue tint areas.

(447) **Caution on bridge and cable clearances.**–For bascule bridges whose spans do not open to a full vertical position, unlimited overhead clearance is not available for the entire charted horizontal clearance when the bridge is open, due to the inclination of the drawspans over the channel.

(448) The charted clearances of overhead cables are for the lowest wires at mean high water unless otherwise stated. **Vessels with masts, stacks, booms, or antennas should allow sufficient clearance under power cables to avoid arcing.**

(449) **Submarine cables and submerged pipelines** cross many waterways used by both large and small vessels, but all of them may not be charted. For inshore areas, they usually are buried beneath the seabed, but, for offshore areas, they may lie on the ocean floor. Warning signs are often posted to warn mariners of their existence.

(450) The installation of submarine cables or pipelines in U.S. waters or the Continental Shelf of the United States is under the jurisdiction of one or more Federal agencies, depending on the nature of the installation. They are shown on the charts when the necessary information is reported to NOS and they have been recommended for charting by the cognizant agency. The chart symbols for submarine cable and pipeline areas are usually shown for inshore areas, whereas, chart symbols for submarine cable and pipeline routes may be shown for offshore areas. Submarine cables and pipelines are not described in the Coast Pilots.

(451) In view of the serious consequences resulting from damage to submarine cables and pipelines, vessel operators should take special care when anchoring, fishing, or engaging in underwater operations near areas where these cables or pipelines may exist or have been reported to exist. Mariners are also warned that the areas where cables and pipelines were originally buried may have changed and they may be exposed; extreme caution should be used when operating vessels in depths of water comparable to the vessel's draft.

(452) Certain cables carry high voltage, while many pipelines carry natural gas under high pressure or petroleum products. Electrocution, fire, or explosion with injury, loss of life, or a serious pollution incident could occur if they are broached.

(453) Vessels fouling a submarine cable or pipeline should attempt to clear without undue strain. Anchors or gear that cannot be cleared should be slipped, but no attempt should be made to cut a cable or a pipeline.

(454) **Artificial obstructions to navigation.–Disposal areas** are designated by the U.S. Army Corps of Engineers for depositing dredged material where existing depths indicate that the intent is not to cause sufficient shoaling to create a danger to surface navigation. The areas are charted without blue tint, and soundings and depth curves are retained.

(455) **Disposal Sites** are areas established by Federal regulation **(40 CFR 220-229)** in which dumping of dredged and fill material and other nonbuoyant objects is allowed with the issuance of a permit. Dumping of dredged and fill material is supervised by the Corps of Engineers and all other dumping by the Environmental Protection Agency (EPA). (See U.S. Army Corps of Engineers and Environmental Protection Agency, this chapter, and appendix for office addresses.)

(456) **Dumping Grounds** are also areas that were established by Federal regulation **(33 CFR 205)**. However, these regulations have been revoked and the use of the areas discontinued. These areas will continue to be shown on nautical charts until such time as they are no longer considered to be a danger to navigation.

(457) Disposal Sites and Dumping Grounds are rarely mentioned in the Coast Pilot, but are shown on nautical charts. **Mariners are advised to exercise caution in and in the vicinity of all dumping areas.**

(458) **Spoil areas** are for the purpose of depositing dredged material, usually near and parallel to dredged channels; they are usually a hazard to navigation. Spoil areas are usually charted from survey drawings from U.S. Army Corps of Engineers after-dredging surveys, though they may originate from private or other Government agency surveys. Spoil areas are tinted blue on the charts and labeled, and all soundings and depth curves are omitted. Navigators of even the smallest craft should avoid crossing spoil areas.

(459) **Fish havens** are established by private interests, usually sport fishermen, to simulate natural reefs and wrecks that attract

fish. The reefs are constructed by intentional placement of assorted secondary-use materials and designated fishery habitat, ranging from old trolley cars and barges to scrap building material in areas which may be of very small extent or may stretch a considerable distance along a depth curve; old automobile bodies are a commonly used material. The Corps of Engineers must issue a permit, specifying the location and depth over the reef, before such a reef may be built. However, the reefbuilders' adherence to permit specifications can be checked only with a wire drag. Fish havens are outlined and labeled on the charts and show the minimum authorized depth when known. Fish havens are tinted blue if they have a minimum authorized depth of 11 fathoms or less or if the minimum authorized depth is unknown and they are in depths greater than 11 fathoms but still considered a danger to navigation. Navigators should be cautious about passing over fish havens or anchoring in their vicinity.

(460) **Fishtrap areas** are areas established by the U.S. Army Corps of Engineers, or State or local authority, in which traps may be built and maintained according to established regulations. The fish stakes which may exist in these areas are obstructions to navigation and may be dangerous. The limits of fishtrap areas and a cautionary note are usually charted. Navigators should avoid these areas.

(461) **Local magnetic disturbances.**–If measured values of magnetic variation differ from the expected (charted) values by several degrees, a magnetic disturbance note will be printed on the chart. The note will indicate the location and magnitude of the disturbance, but the indicated magnitude should not be considered as the largest possible value that may be encountered. Large disturbances are more frequently detected in the shallow waters near land masses than on the deep sea. Generally, the effect of a local magnetic disturbance diminishes rapidly with distance, but in some locations there are multiple sources of disturbances and the effects may be distributed for many miles.

(462) **Compass roses on charts.**–Each compass rose shows the date, magnetic variation, and the annual change in variation. Prior to the new edition of a nautical chart, the compass roses are reviewed. Corrections for annual change and other revisions may be made as a result of newer and more accurate information. On some general and sailing charts, the magnetic variation is shown by isogonic lines in addition to the compass roses.

(463) The **Mercator projection** used on most nautical charts has straight-line meridians and parallels that intersect at right angles. On any particular chart the distances between meridians are equal throughout, but distances between parallels increase progressively from the Equator toward the poles, so that a straight line between any two points is a rhumb line. This unique property of the Mercator projection is one of the main reasons why it is preferred by the mariner.

(464) **Echo soundings.**–Ship's echo sounders may indicate small variations from charted soundings; this may be due to the fact that various corrections (instrument corrections, settlement and squat, draft, and velocity corrections) are made to echo soundings in surveying which are not normally made in ordinary navigation, or to observational errors in reading the echo sounder. Instrument errors vary between different equipment and must be determined by calibration aboard ship. Most types of echo sounders are factory calibrated for a velocity of sound in water of 800 fathoms per second, but the actual velocity may differ from the calibrated velocity by as much as 5 percent, depending upon the temperature and salinity of the waters in which the vessel is operating; the highest velocities are found in warm, highly saline water, and the lowest in icy freshwater. Velocity corrections for these variations are determined and applied to echo soundings during hydrographic surveys. All echo soundings must be corrected for the vessel's draft, unless the draft observation has been set on the echo sounder.

(465) Observational errors include misinterpreting false echos from schools of fish, seaweed, etc., but the most serious error which commonly occurs is where the depth is greater than the scale range of the instrument; a 400–fathom scale indicates 15 fathoms when the depth is 415 fathoms. Caution in navigation should be exercised when wide variations from charted depths are observed.

AIDS TO NAVIGATION

(466) **Reporting of defects in aids to navigation.**–Promptly notify the nearest Coast Guard District Commander if an aid to navigation is observed to be missing, sunk, capsized, out of position, damaged, extinguished, or showing improper characteristics.

(467) Radio messages should be prefixed "Coast Guard" and transmitted directly to any U.S. Government shore radio station for relay to the Coast Guard District Commander. Merchant ships may send messages relating to defects noted in aids to navigation through commercial facilities only when they are unable to contact a U.S. Government shore radio station. Charges for these messages will be accepted "collect" by the Coast Guard.

(468) **Lights.**–The range of visibility of lights as given in the Light Lists and as shown on the charts is the **Nominal range,** which is the maximum distance at which a light may be seen in clear weather (meteorological visibility of 10 nautical miles) expressed in nautical miles. The Light Lists give the Nominal ranges for all Coast Guard lighted aids except range and directional lights. **Luminous range** is the maximum distance at which a light may be seen under the existing visibility conditions. By use of the diagram in the Light Lists, Luminous range may be determined from the known Nominal range, and the existing visibility conditions. Both the Nominal and Luminous ranges do not take into account elevation, observer's height of eye, or the curvature of the earth. **Geographic range** is a function of only the curvature of the earth and is determined solely from the heights above sea level of the light and the observer's eye; therefore, to determine the actual Geographic range for a height of eye, the Geographic range must be corrected by a distance corresponding to the height difference, the distance correction being determined from a table of "distances of visibility for various heights above sea level." (See Light List or Coast Pilot table following appendix.) The maximum distances at which lights can be seen may at times be increased by abnormal atmospheric refraction and may be greatly decreased by unfavorable weather conditions such as fog, rain, haze, or smoke. All except the most powerful lights are easily obscured by such conditions. In some conditions of the atmosphere white lights may have a reddish hue. During weather conditions which tend to reduce visibility, colored lights are more quickly lost to sight than are white lights. Navigational lights should be used with caution because of the following conditions that may exist;

(469) A light may be extinguished and the fact not reported to the Coast Guard for correction, or a light may be located in an isolated area where it will take time to correct.

(470) In regions where ice conditions prevail the lantern panes of unattended lights may become covered with ice or snow, which will greatly reduce the visibility and may also cause colored lights to appear white.

(471) Brilliant shore lights used for advertising and other purposes, particularly those in densely populated areas, make it difficult to identify a navigational light.

(472) At short distances flashing lights may show a faint continuous light between flashes.

(473) The distance of an observer from a light cannot be estimated by its apparent intensity. The characteristics of lights in an area should always be checked in order that powerful lights visible in the distance will not be mistaken for nearby lights showing similar characteristics at low intensity such as those on lighted buoys.

(474) The apparent characteristic of a complex light may change with the distance of the observer, due to color and intensity variations among the different lights of the group. The characteristic as charted and shown in the Light List may not be recognized until nearer the light.

(475) Motion of a vessel in a heavy sea may cause a light to alternately appear and disappear, and thus give a false characteristic.

(476) Where lights have different colored sectors, be guided by the correct bearing of the light; do not rely on being able to accurately observe the point at which the color changes. On either side of the line of demarcation of colored sectors there is always a small arc of uncertain color.

(477) On some bearings from the light, the range of visibility of the light may be reduced by obstructions. In such cases, the obstructed arc might differ with height of eye and distance. When a light is cut off by adjoining land and the arc of visibility is given, the bearing on which the light disappears may vary with the distance of the vessel from which observed and with the height of eye. When the light is cut off by a sloping hill or point of land, the light may be seen over a wider arc by a ship far off than by one close to.

(478) Arcs of circles drawn on charts around a light are not intended to give information as to the distance at which it can be seen, but solely to indicate, in the case of lights which do not show equally in all directions, the bearings between which the variation of visibility or obscuration of the light occurs.

(479) Lights of equal candlepower but of different colors may be seen at different distances. This fact should be considered not only in predicting the distance at which a light can be seen, but also in identifying it.

(480) Lights should not be passed close aboard, because in many cases riprap mounds are maintained to protect the structure against ice damage and scouring action.

(481) Many prominent towers, tanks, smokestacks, buildings, and other similar structures, charted as landmarks, display flashing and/or fixed red aircraft obstruction lights. Lights shown from landmarks are charted only when they have distinctive characteristics to enable the mariner to positively identify the location of the charted structure.

(482) **Articulated lights.**–An articulated light is a vertical pipe structure supported by a submerged buoyancy chamber and attached by a universal coupling to a weighted sinker on the seafloor. The light, allowed to move about by the universal coupling, is not as precise as a fixed aid. However, it has a much smaller watch circle than a conventional buoy, because the buoyancy chamber tends to force the pipe back to a vertical position when it heels over under the effects of wind, wave, or current.

(483) **Articulated daybeacons.**–Same description as for articulated lights (see above) except substitute daybeacon for light.

(484) **Bridge lights and clearance gages.**–The Coast Guard regulates marine obstruction lights and clearance gages on bridges across navigable waters. Where installed, clearance gages are generally vertical numerical scales, reading from top to bottom, and show the actual vertical clearance between the existing water level and the lowest point of the bridge over the channel; the gages are normally on the right-hand pier or abutment of the bridge, on both the upstream and downstream sides.

(485) Bridge lights are fixed red or green, and are privately maintained; they are generally not charted or described in the text of the Coast Pilot. All bridge piers (and their protective fenders) and abutments which are in or adjacent to a navigation channel are marked on all channel sides by red lights. On each channel span of a fixed bridge, there is a range of two green lights marking the center of the channel and a red light marking both edges of the channel, except that when the margins of the channel are confined by bridge piers, the red lights on the span are omitted, since the pier lights then mark the channel edges; for multiplespan fixed bridges, the main-channel span may also be marked by three white lights in a vertical line above the green range lights.

(486) On all types of drawbridges, one or more red lights are shown from the drawspan (higher than the pier lights) when the span is closed; when the span is open, the higher red lights are obscured and one or two green lights are shown from the drawspan, higher than the pier lights. The number and location of the red and green lights depend upon the type of drawbridge.

(487) Bridges and their lighting, construction and maintenance are set forth in **33 CFR 114, 115, 116, and 118,** (not carried in this Coast Pilot). Aircraft obstruction lights prescribed by the Federal Aviation Administration, may operate at certain bridges.

(488) **Fog signals.**–Caution should be exercised in the use of sound fog signals for navigation purposes. They should be considered solely as warning devices.

(489) Sound travels through the air in a variable manner, even without the effects of wind; and, therefore, the hearing of fog signals cannot be implicitly relied upon.

(490) Experience indicates that distances must not be judged only by the intensity of the sound; that occasionally there may be areas close to a fog signal in which it is not heard; and that fog may exist not far from a station, yet not be seen from it, so the signal may not be operating. It is not always possible to start a fog signal immediately when fog is observed.

(491) **Avoidance of collision with offshore light stations and large navigational buoys (LNB).**–Courses should invariably be set to pass these aids with sufficient clearance to avoid the possibility of collision from any cause. Errors of observation, current and wind effects, other vessels in the vicinity, and defects in steering gear may be, and have been the cause of actual collisions, or imminent danger thereof, needessly jeopardizing the safety of these facilities and their crews, and of all navigation dependent on these important aids to navigation.

(492) Experience shows that offshore light stations cannot be safely used as leading marks to be passed close aboard, but should always be left broad off the course, whenever sea room permits. When approaching fixed offshore light structures and large navigational buoys (LNB) on radio bearings, the risk of col-

lision will be avoided by ensuring that radio bearing does not remain constant.

(493) It should be borne in mind that most large buoys are anchored to a very long scope of chain and, as a result, the radius of their swinging circle is considerable. The charted position is the location of the anchor. Furthermore under certain conditions of wind and current, they are subject to sudden and unexpected sheers which are certain to hazard a vessel attempting to pass close aboard.

(494) **Buoys.**–The aids to navigation depicted on charts comprise a system consisting of fixed and floating aids with varying degrees of reliability. Therefore, prudent mariners will not rely solely on any single aid to navigation, particularly a floating aid.

(495) The approximate position of a buoy is represented by the dot or circle associated with the buoy symbol. The approximate position is used because of practical limitations in positioning and maintaining buoys and their sinkers in precise geographical locations. These limitations include, but are not limited to, inherent imprecisions in position fixing methods, prevailing atmospheric and sea conditions, the slope of and the material making up the seabed, the fact that buoys are moored to sinkers by varying lengths of chain, and the fact that buoy body and/or sinker positions are not under continuous surveillance, but are normally checked only during periodic maintenance visits which often occur more than a year apart. The position of the buoy body can be expected to shift inside and outside of the charting symbol due to the forces of nature. The mariner is also cautioned that buoys are liable to be carried away, shifted, capsized, sunk, etc. Lighted buoys may be extinguished or sound signals may not function as a result of ice, running ice or other natural causes, collisions, or other accidents.

(496) For the foregoing reasons, a prudent mariner must not rely completely upon the charted position or operation of floating aids to navigation, but will also utilize bearings from fixed objects and aids to navigation on shore. Further, a vessel attempting to pass close aboard always risks collision with a yawing buoy or with the obstruction the buoy marks.

(497) Buoys may not always properly mark shoals or other obstructions due to shifting of the shoals or of the buoys. Buoys marking wrecks or other obstructions are usually placed on the seaward or channelward side and not directly over a wreck. Since buoys may be located some distance from a wreck they are intended to mark, and since sunken wrecks are not always static, extreme caution should be exercised when operating in the vicinity of such buoys.

(498) **Caution, channel markers.**–Lights, daybeacons, and buoys along dredged channels do not always mark the bottom edges. Due to local conditions, aids may be located inside or outside the channel limits shown by dashed lines on a chart. The Light List tabulates the offset distances for these aids in many instances.

(499) Aids may be moved, discontinued, or replaced by other types to facilitate dredging operations. Mariners should exercise caution when navigating areas where dredges with auxiliary equipment are working.

(500) Temporary changes in aids are not included on the charts.

(501) **Radiobeacons.**–A map showing the locations and operating details of marine radiobeacons is given in each Light List. This publication describes the procedure to follow in using radiobeacons to calibrate radio direction finders as well as listing special radio direction finder calibration stations.

(502) A vessel steering a course for a radiobeacon should observe the same precautions as when steering for a light or any other mark. If the radiobeacon is aboard a lightship, particular care should be exercised to avoid the possibility of collision, and sole reliance should never be placed on sighting the lightship or hearing its fog signal. If there are no dependable means by which the vessel's position may be fixed and the course changed well before reaching the lightship, a course should be selected that will ensure passing the lightship at a distance, rather than close aboard, and repeated bearings of the radiobeacon should show an increasing change in the same direction.

(503) **Radio bearings.**–No exact data can be given as to the accuracy to be expected in radio bearings taken by a ship, since the accuracy depends to a large extent upon the skill of the ship's operator, the condition of the ship's equipment, and the accuracy of the ship's calibration curve. Mariners are urged to obtain this information for themselves by taking frequent radio bearings, when their ship's position is accurately known, and recording the results.

(504) Radio bearings obtained at twilight or at night, and bearings which are almost parallel to the coast, should be accepted with reservations, due to "night effect" and to the distortion of radio waves which travel overland. Bearings of aircraft ranges and standard broadcast stations should be used with particular caution due to coastal refraction and lack of calibration of their frequencies.

(505) **Conversion of radio bearings to Mercator bearings.**–Radio directional bearings are the bearings of the great circles passing through the radio stations and the ship, and, unless in the plane of the Equator or a meridian, would be represented on a Mercator chart as curved lines. Obviously it is impracticable for a navigator to plot such lines on a Mercator chart, so it is necessary to apply a correction to a radio bearing to convert it into a Mercator bearing, that is, the bearing of a straight line on a Mercator chart laid off from the sending station and passing through the receiving station.

(506) A table of corrections for the conversion of a radio bearing into a Mercator bearing follows the appendix. It is sufficiently accurate for practical purposes for distances up to 1,000 miles.

(507) The only data required are the latitudes and longitudes of the radiobeacons and of the ship by dead reckoning. The latter is scaled from the chart, and the former is either scaled from the chart or taken from the Light List.

(508) The table is entered with the differences of longitude in degrees between the ship and station (the nearest tabulated value being used), and opposite the middle latitude between the ship and station, the correction to be applied is read.

(509) The sign of the correction (bearings read clockwise from the north) will be as follows: In north latitude, the minus sign is used when the ship is east of the radiobeacon and the plus sign used when the ship is west of the radiobeacon. In south latitude, the plus sign is used when the ship is east of the radiobeacon, and the minus sign is used when the ship is west of the radiobeacon.

(510) To facilitate plotting, 180 degrees should be added to or subtracted from the corrected bearing, and the result plotted from the radiobeacon.

(511) Should the position by dead reckoning differ greatly from the true position of the ship as determined by plotting the corrected bearings, retrial should be made, using the new value as the position of the ship.

(512) **Radio bearings from other vessels.**–Any vessel with a radio direction-finder can take a bearing on a vessel equipped with a radio transmitter. These bearings, however, should be used only as a check, as comparatively large errors may be introduced by local conditions surrounding the radio direction-finder unless known and accounted for. Although any radio station, for which an accurate position is definitely known, may serve as a radiobeacon for vessels equipped with a radio direction-finder, extreme caution must be exercised in their use. Stations established especially for maritime services are more reliable.

(513) **SATELLITE POSITION INDICATING RADIO BEACON (EPIRB).**–Emergency position indicating radiobeacons (EPIRBs), devices which cost from $200 to over $2000, are designed to save your life if you get into trouble by alerting rescue authorities and indicating your location. EPIRB types are described in the accompanying table.

(514) **121.5/243 MHz.** These are the most common and least expensive type of EPIRB, designed to be detected by overflying commercial or military aircraft. Satellites were designed to detect these EPIRBs, but are limited for the following reasons:

(515) (i) Satellite detection range is limited for these EPIRBs (satellites must be within line of sight of both the EPIRB and a ground terminal for detection to occur) (see Chart),

(516) (ii) EPIRB design and frequency congestion cause these devices to be subject to a high false alert/false alarm rate (over 99%); consequently, confirmation is required before search and rescue forces can be deployed.

(517) (iii) EPIRBs manufactured before October 1989 may have design or construction problems (e.g. some models will leak and cease operating when immersed in water), or may not be detectable by satellite.

(518) **Class C EPIRBs.** These are manually activated devices intended for pleasure craft who do not venture far offshore and for vessels on the Great Lakes. They transmit a short burst on VHF-FM channel 16 and a longer homing signal on channel 15. Their usefulness depends upon a coast station or another vessel guarding channel 16 and recognizing the brief, recurring tone as an EPIRB. Class C EPIRBs are not recognized outside of the United States.

(519) New class C EPIRB stations will not be authorized after February 1, 1995. Class C EPIRB stations installed on board vessels before February 1, 1995, may be used until February 1, 1999, and not thereafter.

(520) **406 MHz EPIRBs.**–The 406 MHz EPIRB was designed to operate with satellites. Its signal allows a satellite local user terminal to accurately locate the EPIRB (much more accurately than 121.5/243 MHz devices), and identify the vessel (the signal is encoded with the vessel's identity) anywhere in the world (there is no range limitation). These devices also include a 121.5 MHz homing signal, allowing aircraft and rescue craft to quickly find the vessel in distress. These are the only type of EPIRB which must be certified by Coast Guard approved independent laboratories before they can be sold in the United States.

(521) All 406 MHz EPIRBs must be registered with NOAA. If you change your boat, your address or your phone number, you must re-register your EPIRB with NOAA. Request 406 MHz EPIRB registration forms from; and mail or fax completed forms to:

(522) NOAA/NESDIS

(523) SARSAT Operations Division, E/SP3

(524) Federal Office Building

(525) Washington, DC 20233

EPIRB Types

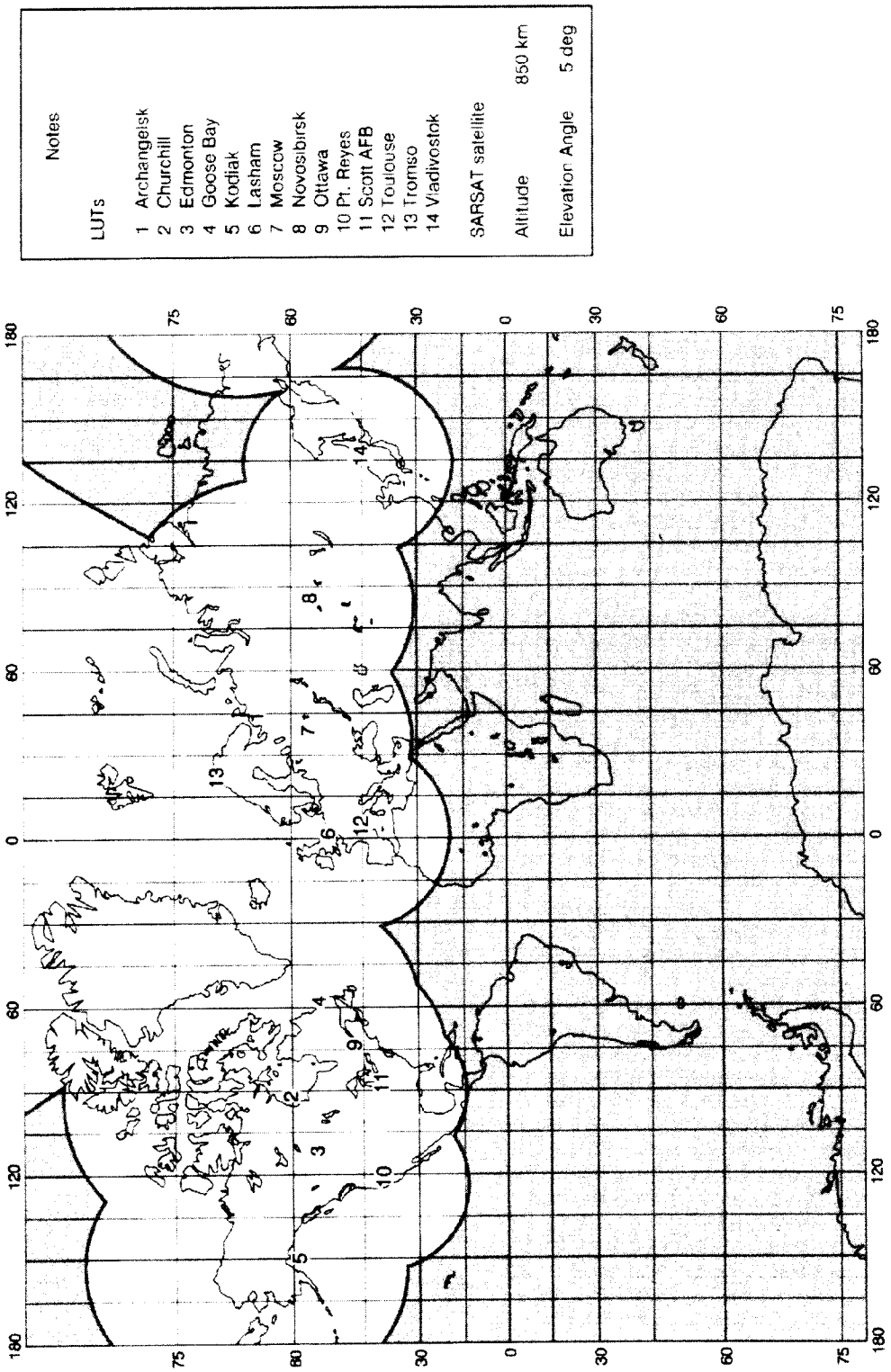
Type	Frequency	Description
Class A	121.5/243 MHz	Float-free automatically activated, detectable by aircraft and satellite. Coverage limited (see Chart).
Class B	121.5/243 MHz	Manually activated version of Class A.
Class C	VHF ch 15/16	Manually activated, operates on maritime channels only. Not detectable by satellite. Not authorized after 2/1/99
Class S	121.5/243 MHz	Similar to Class B, except it floats, or is an integral part of a survival craft.
Cat I	406/121.5 MHz	Float-free, automatically activated EPIRB. Detectable by satellite anywhere in the world.
Cat II	406/121.5 MHz	Similar to Category I, except is manually activated.

(526) For additional information on registering EPIRBs, call (301) 763-4680 or fax (301) 568-8649.

(527) By 1 August 1993, an automatically activated, float-free version of this EPIRB will be required on Safety of Life at Sea Convention vessels (passenger ships and ships over 300 tons, on international voyages) of any nationality. The Coast Guard requires U.S. commercial fishing vessels carry this device (by May 1990, unless they carry a Class A EPIRB), and will require the same for other U.S. commercial uninspected vessels which travel more than 3 miles offshore.

(528) The **COSPAS-SARSAT system.**–COSPAS: Space System for Search of Distress Vessels (a Russian acronym); SARSAT: Search and Rescue Satellite-Aided Tracking. COSPAS-SARSAT is an international satellite-based search and rescue system established by the U.S., Russia, Canada and France to locate emergency radio beacons transmitting on the frequencies 121.5, 243 and 406 MHz. Since its inception only a few years ago, COSPAS-SARSAT has contributed to the saving of 1240 lives (as of June 6, 1989), 554 of these mariners. The Coast Guard operates two local user terminals, satellite earth stations designed to received EPIRB distress calls forwarded from COSPAS-SARSAT satellites, located in Kodiak, Alaska and Point Reyes, California. The Air Force operates a third terminal at Scott Air Force Base, Illinois.

(529) **Testing EPIRBs.**–The Coast Guard urges those owning EPIRBs to periodically examine them for water tightness, battery expiration date and signal presence. FCC rules allow Class A, B, and S EPIRBs to be turned on briefly (for three audio sweeps, or one second only) during the first five minutes of each hour. Signal presence can be detected by an FM radio tuned to 99.5 MHz, or an AM radio tuned to any vacant frequency and located close to an EPIRB. FCC rules allow Class C EPIRBs to be tested within the first five minutes of every hour, for not more than five seconds. Class C EPIRBs can be detected by a marine radio tuned to channel 15 or 16. 406 MHz EPIRBs can be tested through its self-test function, which is an integral part of the device.



1988 Satellite Visibility Area of SARSAT LUTs

(represents approximate System coverage at 121.5 MHz; at 406 MHz, the System covers the entire globe)

(530) **Radar beacons (Racons)** are low-powered radio transceivers that operate in the marine radar X-band frequencies. When activated by a vessel's radar signal, **Racons** provide a distinctive visible display on the vessel's radarscope from which the range and bearing to the beacon may be determined. (See Light List and NIMA Pub. 117 for details.)

(531) **LORAN-C.**–LORAN, an acronym for LOng RAnge Navigation, is an electronic aid to navigation consisting of shore-based radio transmitters. The LORAN system enables users equipped with a LORAN receiver to determine their position quickly and accurately, day or night, in practically any weather.

(532) A LORAN-C chain consists of three to five transmitting stations separated by several hundred miles. Within a chain, one station is designated as master while the other stations are designated as secondaries. Each secondary station is identified as either whiskey, x-ray, yankee, or zulu.

(533) The master station is always the first station to transmit. It transmits a series of nine pulses. The secondary stations then follow in turn, transmitting eight pulses each, at precisely timed intervals. This cycle repeats itself endlessly. The length of the cycle is measured in microseconds and is called a Group Repetition Interval (GRI).

(534) LORAN-C chains are designated by the four most significant digits of their GRI. For example, a chain with a GRI of 89,700 microseconds is referred to as 8970. A different GRI is used for each chain because all LORAN-C stations broadcast in the same 90 to 110 kilohertz frequency band and would otherwise interfere with one another.

(535) The LORAN-C system can be used in either a hyperbolic or range mode. In the widely used hyperbolic mode, a LORAN-C line of position is determined by measuring the time difference between sychronized pulses received from two separate transmitting stations. In the range mode, a line of position is determined by measuring the time required by LORAN-C pulses to travel from a transmitting station to the user's receiver.

(536) A user's position is determined by locating the crossing point of two lines of position on a LORAN-C chart. Many receivers have built-in coordinate converters which will automatically display the receiver's latitude and longitude. With a coordinate converter, a position can be determined using a chart that is not overprinted with LORAN-C lines of position.

(537) **CAUTION: The latitude/longitude computation on some models is based upon an all seawater propagation path. This may lead to error if the LORAN-C signals from the various stations involve appreciable overland propagation paths. These errors may put the mariner at risk in areas requiring precise positioning if the proper correctors (ASF) are not applied. Therefore, it is recommended that mariners using Coordinate Converters check the manufacturer's operating manual to determine if and how corrections are to be applied to compensate for the discontinuity caused by the overland paths.**

(538) There are two types of LORAN-C positioning accuracy: absolute and repeatable. Absolute accuracy is a measure of the navigator's ability to determine latitude and longitude position from the LORAN-C time differences measured. Repeatable accuracy is a measure of the LORAN-C navigator's ability to return to a position where readings have been taken before.

(539) The absolute positioning accuracy of LORAN-C is 0.25 nautical miles, 95% confidence within the published coverage area using standard LORAN-C charts and tables. Repeatable accuracy depends on many factors, so measurements must be taken to determine the repeatable accuracy in any given area. Coast Guard surveys have found repeatable accuracies between 30 and 170 meters in most ground wave coverage areas. LORAN-C position determination on or near the baseline extensions are subject to significant errors and, therefore, should be avoided whenever possible. The use of skywaves is not recommended within 250 miles of a station being used, and corrections for these areas are not usually tabulated.

(540) If the timing or pulse shape of a master-secondary pair deviates from specified tolerances, the first two pulses of the secondary station's pulse train will blink on and off. The LORAN-C receiver sees this blinking signal and indicates a warning to the user. This warning will continue until the signals are once again in tolerance. A blinking signal is not exhibited during off-air periods, so a separate receiver alarm indicates any loss of signal. Never use a blinking secondary signal for navigation.

(541) In coastal waters, LORAN-C should not be relied upon as the only aid to navigation. A prudent navigator will use radar, radio direction finder, fathometer and any other aid to navigation, in addition to the LORAN-C receiver.

(542) **LORAN-C Interference**

(543) Interference to LORAN-C may result from radio transmissions by public or private sources operating near the LORAN-C band of 90-110 kHz.

(544) **LORAN-C Charts and Publications**

(545) Navigational charts overprinted with LORAN-C lines of position are available from National Ocean Service, Distribution Division (N/ACC3). (See appendix for address)

(546) **GPS Navigation System.**–GPS is a space-based positioning, velocity, and time system that has three major segments: space, control, and user. The Space Segment is composed of 24 satellites in six orbital planes. The satellites operate in circular 20,200 km (10,900 nm) orbits at an inclination angle, relative to the equator, of 55° and with a 12-hour period. The system normally operates with twenty-one satellites in service, the remaining three serving as active spares. At any given time, a minimum of four satellites are observable from any position on earth, providing instantaneous position information. Each satellite transmits on two L band frequencies: 1575.42 MHz (L1) and 1227.6 MHz (L2). L1 carries a precise (P) code and a course/acquisition (C/A) code. L2 carries the P code. A navigation data message is superimposed on the codes. The same navigation data message is carried on both frequencies. This message contains satellite ephemeris data, atmospheric propagation correction data, and satellite clock bias.

(547) The Control Segment consists of five monitor stations, three of which have uplink capabilities, located in Colorado, Hawaii, Kwajalein, Diego Garcia, and Ascension Island. The monitor stations use a GPS receiver to passively track all satellites in view, accumulating ranging data from the satellites' signals. The information from the monitor stations is processed at the Master Control Station (MCS), located in Colorado Springs, CO, to determine satellite orbits and to update the navigation message of each satellite. The updated information is transmitted to the satellites via ground antennas. The ground antennas, located at Kwajelein, Diego Garcia, and Ascension Island, are also used for transmitting and receiving satellite control information.

(548) The User Segment consists of antennas and receiver-processors that provide positioning, velocity, and precise timing to the user. The GPS receiver makes time-of-arrival measurements

of the satellite signals to obtain the distance between the user and the satellites. The distance calculations, known as pseudoranges, together with range rate information, are converted to yield system time and the user's three-dimensional position and velocity with respect to the satellite system. A time coordination factor then relates the satellite system to earth coordinates. A minimum of four pseudoranges are needed to produce a three-dimensional fix (latitude, longitude, and altitude). GPS receivers compute fix information in terms of the **World Geodetic System (1984)**, which may need datum shift correction before it can be accurately plotted on a chart. **There are three different types of receivers. Sequential** receivers track only one satellite at a time, computing a fix after a series of pseudoranges have been sequentially measured; these receivers are inexpensive but slow. **Continuous** receivers have at least four channels to process information from several satellites simultaneously; these process fix information the fastest. **Multiplex** receivers switch at a fast rate from satellite to satellite, receiving and processing data from several satellites simultaneously, producing a fix by a sort of "round-robin" process.

(549) GPS provides two services for position determination, **Standard Positioning Service (SPS)** and **Precise Positioning Service (PPS)**. Accuracy of a GPS fix varies with the capability of the user equipment. SPS is the standard level of positioning and timing accuracy that is available, without restrictions, to any user on a continuous worldwide basis. SPS provides positions with a horizontal accuracy of approximately 100 meters. PPS, limited to authorized users, provides horizontal accuracy of 30 meters or less.

(550) **Differential GPS (DGPS):**

(551) The U.S. Coast Guard provides a Differential GPS (**DGPS**) service for public use in all U.S. harbors and approach areas, including the Great Lakes, Puerto Rico, most of Alaska, and Hawaii. The system provides radionavigational accuracy of 10 meters or less. DGPS reference stations determine range errors and generate corrections for all GPS satellites in view. Monitor stations independently verify the quality of the DGPS broadcast. For further information and/or operational questions regarding GPS or DGPS, contact:

(552) Commanding Officer
(553) U.S. Coast Guard Navigation Center
(554) 7323 Telegraph Road
(555) Alexandria, VA 22310-3998
(556) TEL: (703) 313-5900; FAX: (703) 313-5920;
(557) Electronic Bulletin Board Service 703-313-5910;
(558) E-mail: NISWS@smtp.navcen.uscg.mil.

(559) **LORAN-C, GPS, DGPS, AND GENERAL RADIONAVIGATION USER INFORMATION.**–The Commandant of the U.S. Coast Guard has consolidated radionavigation operational control, management, and information responsibilities of the Commandant Radionavigation Division (G-NRN), Commander Atlantic Area (ATL), and Commander Pacific Area (PTL) at one field unit, entitled Navigation Center (NAVCEN). NAVCEN address:

(560) Commanding Officer
(561) USCG Navigation Center
(562) 7323 Telegraph Road
(563) Alexandria, VA 22310-3998.

(564) A reorganized G-NRN Staff remains at Coast Guard Headquarters for policy and planning functions of the radionavigation program.

(565) NAVCEN provides the following services:

(566) **Computer Bulletin Board (BBS)**: The BBS provides Loran–C, GPS, Marine Radiobeacon, Differential GPS (DGPS), and general radionavigation user information and status. It is accessed by computer users with modems. The Coast Guard does not charge for access to the BBS. Modem setup parameters: 8 bits, no parity, 1 stop; 300-14400 BAUD; call (703) 313-5910.

(567) **GPS System**: Current status recorded voice announcements are available; phone (703) 313-5907. Printed materials on GPS may also be obtained; phone (703) 313-5900.

(568) **Loran-C information**: the current operational status of all Loran-C stations is available from the coordinator of chain operations (**COCO**) or the **Regional Manager**. The COCO monitors the day-to-day operations of the Loran-C chain and provides information with a recorded telephone announcement or responds to queries directed to the COCO personally. The Regional Managers monitor the operation of the Loran-C chains in their areas. Pertinent telephone numbers follow:

(569) COCO Canadian east coast (CEC-5930) and Labrador Sea (LABSEA-7930) chains is located at Loran Monitor Station St. Anthony Newfoundland Canada. Recorded announcement: (709) 454-3261. COCO: (709) 454-2392.

(570) COCO Great Lakes (GKLS-8970) and northeast US (NEUS-9960) chains is located at Loran Station Seneca, NY. Recorded announcement: (607) 869-5395. COCO: (607) 869-1334.

(571) COCO southeast US (SEUS-7980) and south central US (SOCUS-9310) chains is located at Loran Station Malone, FL. Recorded announcement: (205) 899-5227. COCO: (205) 899-5225/6.

(572) Information concerning the Gulf of Alaska (7960), Canadian west coast (5990), US west coast (9940), Russian-American (5980), North Pacific (9990), and North Central US (8290) chains may be obtained from the USCG Pacific Area Loran-C Regional Manager in Alameda, CA at (510) 437-3232.

(573) European Loran-C information:

(574) Information concerning the Icelandic (9980), Norwegian Sea (7970), and Mediterranean Sea (7990) chains may be obtained from the Regional Manager at U.S. Coast Guard Activities Europe, London, UK at 011-44-71-872-0943. If additional information is required after contacting COCO'S or the Pacific or European Regional Managers, contact the NAVCEN by calling (703) 313-5900 or by writing: Commanding Officer (OPS), NAVCEN (address above).

(575) Scheduled Loran-C unusable times are published by announcements in USCG Local Notice to Mariners, Canadian Coast Guard Notice to Shipping (NOTSHIP'S), FAA Notice to Airmen (NOTAMS), FAA NOTAM "D"s, and on the pre-recorded service for the pertinent chain. In many cases scheduled outages are preceded by Coast Guard Marine Radio Voice and NAVTEX Broadcasts in the areas where coverage will be affected.

(576) Military or government users with an official **Government Plain Language Address (PLAD)** desiring inclusion on notification messages should request such in writing to NAVCEN; address above. Requests must include a point of contact, telephone number, why you need this service, and a Government PLAD. Due to the time sensitive nature of this information it is sent only by government message. These messages and other Loran-C information are also available to the public in the Loran-C section of the NAVCEN Bulletin Board (BBS).

(577) If you have a problem with Loran, contact the applicable COCO or Regional Manager for the rate used. If you need to check about unusable time, system failures or report abnormalities, note the rate used, model of receiver, location, type of problem, date, and time occurred. This will enable the COCO or Regional Manager to quickly check the records for the period in question and to provide a more exact answer to you.

(578) **WWV and WWVH broadcasts**: Broadcasts from WWV of Fort Collins, CO and WWVH of Kekaha, Kauai, HI contain GPS information. Broadcasts from WWV at 14 to 15 minutes after each hour and from WWVH at 43 to 44 minutes after each hour.

(579) **U.S. Naval Observatory**: The U.S. Naval Observatory (USNO) provides the following services: automated data services for Loran–C and GPS information: data service (menu driven) parameters - 8 bit, no parity, 1 stop, 1200 to 2400 BAUD, access password CESIUM133. Time service: (900) 410-8463 or (202) 762-1401. General information: (202) 762-1467.

(580) **National Oceanographic and Atmospheric Administration**: The U.S. Department of Commerce National Oceanographic and Atmospheric Administration (NOAA), Space Environment Services Center (SESC) disseminates information regarding solar activity, radio propagation, ionospheric, and geomagnetic conditions. For more information:

(581) For general information, and information about WWV and satellite broadcasts, write or call:

(582) U.S. Department of Commerce

(583) Space Environment Services Center, R/E/SE2

(584) 325 Broadway

(585) Boulder, CO 80303

(586) Telephone (303) 497-3171.

(587) **Uniform State Waterway Marking System.**–Many bodies of water used by boatmen are located entirely within the boundaries of a State. The Uniform State Waterway Marking System (USWMS) has been developed to indicate to the small-boat operator hazards, obstructions, restricted or controlled areas, and to provide directions. Although intended primarily for waters within the state boundaries, USWMS is suited for use in all water areas, since it supplements and is generally compatible with the Coast Guard lateral system of aids to navigation. The Coast Guard is gradually using more aids bearing the USWMS geometric shapes described below.

(588) Two categories of waterway markers are used. Regulatory markers, buoys, and signs use distinctive standard shape marks to show regulatory information. The signs are white with black letters and have a wide orange border. They signify speed zones, Fish havens, danger areas, and directions to various places. Aids to navigation on State waters use red and black buoys to mark channel limits. Red and black buoys are generally used in pairs. The boat should pass between the red buoy and its companion black buoy. If the buoys are not placed in pairs, the distinctive color of the buoy indicates the direction of dangerous water from the buoy. White buoys with red tops should be passed to the south or west, indicating that danger lies to the north or east of the buoy. White buoys with black tops should be passed to the north or east. Danger lies to the south or west. Vertical red and white striped buoys indicate a boat should not pass between the buoy and the nearest shore. Danger lies inshore of the buoy.

(589) **DESTRUCTIVE WAVES.**–Unusual sudden changes in water level can be caused by tsunamis or violent storms. These two types of destructive waves have become commonly known as **tidal waves,** a name which is technically incorrect as they are not the result of tide-producing forces.

(590) **Tsunamis (seismic sea waves)Seismic sea waves** are set up by submarine earthquakes. Many such seismic disturbances do not produce sea waves and often those produced are small, but the occasional large waves can be very damaging to shore installations and dangerous to ships in harbors.

(591) These waves travel great distances and can cause tremendous damage on coasts far from their source. The wave of April 1, 1946, which originated in the Aleutian Trench, demolished nearby Scotch Cap Lighthouse and caused damages of $25 million in the Hawaiian Islands 2,000 miles away. The wave of May 22-23, 1960, which originated off Southern Chile, caused widespread death and destruction in islands and countries throughout the Pacific.

(592) The speed of tsunamis varies with the depth of the water, reaching 300 to 500 knots in the deep water of the open ocean. In the open sea they cannot be detected from a ship or from the air because their length is so great, sometimes a hundred miles, as compared to their height, which is usually only a few feet (a meter or 2). Only on certain types of shelving coasts do they build up into waves of disastrous proportions.

(593) There is usually a series of waves with crests 10 to 40 minutes apart, and the highest may occur several hours after the first wave. Sometimes the first noticeable part of the wave is the trough which causes a recession of the water from shore, and people who have gone out to investigate this unusual exposure of the beach have been engulfed by the oncoming crest. Such an unexplained withdrawal of the sea should be considered as nature's warning of an approaching wave.

(594) Improvements have been made in the quick determination and reporting of earthquake epicenters, but no method has yet been perfected for determining whether a sea wave will result from a given earthquake. The Pacific Tsunami Warning Center, Oahu, Hawaii, of the National Oceanic and Atmospheric Administration is headquarters of a warning system which has field reporting stations (seismic and tidal) in most countries around the Pacific. When a warning is broadcast, waterfront areas should be vacated for higher ground, and ships in the vicinity of land should head for the deep water of the open sea.

(595) **Storm surge.**–A considerable rise or fall in the level of the sea along a particular coast may result from strong winds and sharp change in barometric pressure. In cases where the water level is raised, higher waves can form with greater depth and the combination can be destructive to low regions, particularly at high stages of tide. Extreme low levels can result in depths which are considerably less than those shown on nautical charts. This type of wave occurs especially in coastal regions bordering on shallow waters which are subject to tropical storms.

(596) **Seiche** is a stationary vertical wave oscillation with a period varying from a few minutes to an hour or more, but somewhat less than the tidal periods. It is usually attributed to external forces such as strong winds, changes in barometric pressure, swells, or tsunamis disturbing the equilibrium of the watersurface. Seiche is found both in enclosed bodies of water and superimposed upon the tides of the open ocean. When the external forces cause a short-period horizontal oscillation on the water, it is called **surge.**

(597) The combined effect of seiche and surge sometimes makes it difficult to maintain a ship in its position alongside a pier

even though the water may appear to be completely undisturbed, and heavy mooring lines have been parted repeatedly under such conditions. Pilots advise taut lines to reduce the effect of the surge.

SPECIAL SIGNALS FOR CERTAIN VESSELS

(598) **Special signals for surveying vessels.**–National Oceanic and Atmospheric Administration (NOAA) vessels engaged in survey operations and limited in their ability to maneuver because of the work being performed (handling equipment over-the-side such as water sampling or conductivity-temperature-density (CTD) casts, towed gear, bottom samplers, etc., and divers working on, below or in proximity of the vessel) are required by Navigation Rules, International-Inland, Rule 27, to exhibit:

(599) (b)(i) three all-round lights in a vertical line where they can best be seen. The highest and lowest of these lights shall be red and the middle light shall be white;

(600) (ii) three shapes in a vertical line where they can best be seen. The highest and lowest of these shapes shall be balls and the middle one a diamond;

(601) (iii) when making way through the water, masthead lights, sidelights and a sternlight, in addition to the lights prescribed in subparagraph (b)(i); and

(602) (iv) when at anchor, in addition to the lights or shapes prescribed in subparagraphs(b)(i) and (ii) the light, lights or shapes prescribed in Rule 30, Anchored Vessels and Vessels Aground.

(603) The color of the above shapes is black.

(604) A NOAA vessel engaged in hydrographic survey operations (making way on a specific trackline while sounding the bottom) is not restricted in its ability to maneuver and therefore exhibits at night only those lights required for a power-driven vessel of its length.

(605) **Warning signals for Coast Guard vessels while handling or servicing aids to navigation** are the same as those prescribed for surveying vessels. (See Special signals for surveying vessels, this chapter.)

MINECLEARING-CAUTION–ATTENTION IS CALLED TO THE FOLLOWING INSTRUCTIONS.

Mineclearing Operations.

(606) (a) United States vessels engaged in mineclearing operations or exercises are hampered to a considerable extent in their maneuvering powers.

Other Vessels Must Keep Clear of Mineclearance Vessels (COLREGS 1972).

(607) (b) With a view to indicating the nature of the work on which they are engaged, these vessels will show the signals hereinafter mentioned. For the public safety, all other vessels, whether steamers or sailing craft, must endeavor to keep out of the way of vessels displaying these signals and not approach them inside the distances mentioned herein, especially remembering that it is dangerous to pass between the vessels of a pair or group sweeping together.

(608) (c) All vessels towing sweeps are to show:

(609) **BY DAY.**–A black ball at the fore mast and a black ball at the end of each fore yard.

(610) **BY NIGHT.**–All around green lights instead of the black balls, and in a similar manner.

(611) (d) Vessels or formations showing these signals are not to be approached nearer than 1,000 meters. Under no circumstances is a vessel to pass through a formation of minesweepers.

(612) (e) Mineclearance vessels should be prepared to warn merchant vessels which persist in approaching too close by means of any of the appropriate signals from the International Code of Signals.

(613) (f) In fog, mist, falling snow, heavy rainstorms, or any other conditions similarly restricting visibility, whether by day or night, mineclearance vessels while towing sweeps when in the vicinity of other vessels will sound signals for a vessel towing (1 prolonged blast followed by 2 short blasts).

Helicopters Conducting Mineclearance Operations.

(614) (g) The United States is increasingly employing helicopters to conduct mineclearance operations or exercises. When so engaged, helicopters, like vessels, are considerably hampered in their ability to maneuver. Accordingly, surface craft approaching helicopters engaged in mineclearance operations should take safety precautions similar to those described in (b) and (d) above with respect to mineclearance vessels.

(615) (h) Helicopters towing mineclearance gear and accompanying surface escorts, if any, will use all available means to warn approaching ships of the operations or exercises being conducted. Also, measures will be taken where practicable to mark or light the gear or objects being towed.

(616) (i) Mineclearance helicopters are equipped with a rotating beacon which has selectable red and amber modes. The amber mode is used during towing operations to notify/warn other vessels that the helicopter is towing. While towing, the helicopter's altitude varies from 15 to 95 meters above the water and speeds vary from 0 to 30 knots.

(617) (j) General descriptions and approximate dimensions for towed mineclearance gear currently being used in conjunction with helicopters are as follows:

(618) (1) Mechanical sweep gear consisting, in part, of large lengths of submerged cables and explosive cutters. The only items normally visible on the surface are three to five international orange floats, depending upon the quantity of gear in use, which generally define the dimensions of the tow. The maximum width is 100 meters and the maximum distance behind the helicopter is 600 meters.

(619) (2) Acoustical sweep device weighing approximately 70 pounds (32 kg). This device is towed behind the helicopter on a 250-meter orange polypropylene tow cable. When dead in the water, the gear will rise to the surface, supported by a yellow float.

(620) (3) A hydrofoil platform containing equipment used for magnetic influence sweeping. The platform is towed on the end of a 140-meter cable and trails electrodes in the water which extend 185 meters behind the platform. Very often, the aforementioned acoustical sweep device is towed in conjunction with this platform by attaching it to the end of one of the electrodes by a 30-meter polypropylene tow line. In this configuration, the total length of the tow is 215 and 350 meters, respectively, behind the hydrofoil platform and helicopter. Special care must be exercised when crossing astern of the hydrofoil platform as the towed cable is barely visible, and the attached acoustic device is submerged just beneath the surface and is not visible to surface vessels.

(621) (k) Helicopters employed in mineclearance operations and their tows may function at night as well as day, and in various types of weather conditions. The major danger to any surface vessel is getting the various cables wrapped in its screws. Small craft also are subject to the risk of collision with the hydrofoil platform

(622) **Submarine Emergency Identification Signals and Hazard to Submarines.**–U.S. submarines are equipped with signal ejectors which may be used to launch identification signals, including emergency signals. Two general types of signals may be used: smoke floats and flares or stars. A combination signal which contains both smoke and flare of the same color may also be used. The smoke floats, which burn on the surface, produce a dense, colored smoke for a period of fifteen to forty-five seconds. The flares or stars are propelled to a height of three hundred to four hundred feet (90 to 120 meters) from which they descend by small parachute. The flares or stars burn for about twenty-five seconds. The color of the smoke or flare/star has the following meaning:

(623) (a) **GREEN OR BLACK.**–Used under training exercise conditions only to indicate that a torpedo has been fired or that the firing of a torpedo has been simulated.

(624) (b) **YELLOW.**–Indicates that submarine is about to come to periscope depth from below periscope depth. Surface craft terminate antisubmarine counter-attack and clear vicinity of submarine. Do not stop propellers.

(625) (c) **RED.**–Indicates an emergency condition within the submarine and that it will surface immediately, if possible. Surface ships clear the area and stand by to give assistance after the submarine has surfaced. In case of repeated red signals, or if the submarine fails to surface within reasonable time, she may be assumed to be disabled. Buoy the location, look for submarine buoy and attempt to establish sonar communications. Advise U.S. Naval authorities immediately.

(626) (d) **WHITE.**–Two white flares/smoke in succession indicates that the submarine is about to surface, usually from periscope depth (non-emergency surfacing procedure). Surface craft should clear the vicinity of the submarine.

(627) Submarine Marker Buoy consists of a cylindrically shaped object about 3 feet by 6 feet with connecting structure and is painted international orange. The buoy is a messenger buoy with a wire cable to the submarine; this cable acts as a downhaul line for a rescue chamber. The buoy may be accompanied by an oil slick release to attract attention. A submarine on the bottom in distress and unable to surface will, if possible, release this buoy. If an object of this description is sighted, it should be investigated and U.S. Naval Authorities advised immediately.

(628) Transmission of the International Distress Signal (SOS) will be made on the submarine's sonar gear independently or in conjunction with the red emergency signal as conditions permit. Submarines may employ any or all of the following additional means to attract attention and indicate their position while submerged:

(629) Release of dye marker.

(630) Release of air bubble.

(631) Ejection of oil.

(632) Pounding on the hull.

(633) United States destroyer-type vessels in international waters will, on occasion, stream a towed underwater object at various speeds engaged in naval maneuvers. All nations operating submarines are advised that this underwater object in the streamed condition constitutes a possible hazard to submerged submarines.

(634) **Vessels Constrained by their Draft.**–International Navigation Rules, Rule 28, states that a vessel constrained by her draft may, in addition to the lights prescribed for power-driven vessels in Rule 23, exhibit where they can best be seen three all-around red lights in a vertical line, or a cylinder.

NAVIGATION RESTRICTIONS AND REQUIREMENTS

(635) **Traffic Separation Schemes (Traffic Lanes).**–To increase the safety of navigation, particularly in converging areas of high traffic density, routes incorporating traffic separation have been adopted by the IMO in certain areas of the world. In the interest of safe navigation, it is recommended that through traffic use these schemes, as far as circumstances permit, by day and by night and in all weather conditions.

(636) The International Maritime Organization (IMO) is recognized as the only international body responsible for establishing and recommending measures on an international level concerning ships' routing. In deciding whether or not to adopt or amend a traffic separation scheme, IMO will consider whether the scheme complies with the design criteria for traffic separation schemes and with the established methods of routing. IMO also considers whether the aids to navigation proposed will enable mariners to determine their position with sufficient accuracy to navigate the scheme in accordance with Rule 10 of the International Regulations for Preventing Collisions at Sea (72 COLREGS).

(637) General principles for navigation in Traffic Separation Schemes are as follows:

(638) 1. A ship navigating in or near a traffic separation scheme adopted by IMO shall in particular comply with Rule 10 of the 72 COLREGS to minimize the development of risk of collisions with another ship. The other rules of the 72 COLREGS apply in all respects, and particularly the steering and sailing rules if risk of collision with another ship is deemed to exist.

(639) 2. Traffic separation schemes are intended for use by day and by night in all weather, ice-free waters or under light ice conditions where no extraordinary maneuvers or assistance by icebreaker(s) is required.

(640) 3. Traffic separation schemes are recommended for use by all ships unless stated otherwise. Bearing in mind the need for adequate underkeel clearance, a decision to use a traffic separation scheme must take into account the charted depth, the possibility of changes in the sea-bed since the time of last survey, and the effects of meteorological and tidal conditions on water depths.

(641) 4. A deep water route is an allied routing measure primarily intended for use by ships which require the use of such a route because of their draft in relation to the available depth of water in the area concerned. Through traffic to which the above consideration does not apply should, if practicable, avoid following deep water routes. When using a deep water route mariners should be aware of possible changes in the indicated depth of water due to meteorological or other effects.

(642) 5. The arrows printed on charts merely indicate the general direction of traffic; ships should not set their courses strictly along the arrows.

(643) 6. Vessels should, so far as practicable, keep clear of a traffic separation line or separation zone.

(644) 7. Vessels should avoid anchoring in a traffic separation scheme or in the area near its termination.

(645) 8. The signal "YG" meaning "You appear not to be complying with the traffic separation scheme " is provided in the International Code of Signals for appropriate use.

(646) **Note.**–Several governments administering Traffic Separation Schemes have expressed their concern to IMO about the large number of infringements of Rule 10 of the 72 COLREGS and the dangers of such contraventions to personnel, vessels and environment. Several governments have initiated surveillance of traffic separation schemes for which they are responsible and are providing documented reports of vessel violations to flag states. As in the past, the U.S. Coast Guard will investigate these reports and take appropriate action. Mariners are urged to comply at all times with the 72 COLREGS and, in particular, Rule 10 when operating in or near Traffic Separation Schemes.

(647) 9. Notice of temporary adjustments to traffic separation schemes for emergencies or for accommodation of activities which would otherwise contravene Rule 10 or obstruct navigation may be made in Notices to Mariners. Temporary adjustments may be in the form of a precautionary area within a traffic lane, or a shift in the location of a lane.

(648) 10. The IMO approved routing measures which affect shipping in or near U.S. waters are:

(649) **TRAFFIC SEPARATION SCHEMES**

(650) In the Approaches to Portland, Maine

(651) In the Approaches to Boston, Massachusetts

(652) In the Approaches to Narragansett Bay, Rhode Island and Buzzards Bay, Massachusetts

(653) Off New York

(654) Off Delaware Bay

(655) In the Approaches to Chesapeake Bay

(656) In the Approaches to Galveston Bay

(657) Off San Francisco

(658) In the Santa Barbara Channel

(659) In the Approaches to Los Angeles-Long Beach

(660) In the Strait of Juan de Fuca

(661) In Puget Sound and its Approaches

(662) In Prince William Sound, Alaska

(663) When approved or established, traffic separation scheme details are announced in Notice to Mariners, and later depicted on appropriate charts and included in the Coast Pilot and Sailing Directions.

MARINE POLLUTION

(664) **Oil Pollution-Compliance with the Clean Water Act.**–The Federal Water Pollution Control Act (FWPCA) prohibits the discharge of quantities of either oil or hazardous substance which may be harmful into or upon the navigable waters of the United States. This prohibition also applies to adjoining shorelines, waters of the contiguous zone, activities connected with the Outer Continental Shelf Lands Act (OSLA) and Deepwater Port Act of 1974, and such discharges which may affect natural resources belonging to the United States or under its exclusive management authority, including those resources under the Fishery Conservation and Management Act of 1976. Furthermore, in the event a spill does occur in violation of the Act the person in charge of a vessel or onshore or offshore facility is required to notify the Coast Guard as soon as he has knowledge of the spill. Such notification is to be by the most rapid means available to the National Response Center (1-800-424-8802, nationwide 24 hour number).

(665) **Compliance with the Act to Prevent Pollution from Ships.**–The Act to Prevent Pollution from ships (33 U.S.C. 1901) implements into U.S. law the International Convention for the Prevention of Pollution from Ships, as modified by the Protocol of 1978 (MARPOL 73/78). Annex I of MARPOL 73/78 deals with oil and oily waste, Annex II with hazardous chemicals and other substances referred to as Noxious Liquid Substances (NLS), and Annex V deals with the prevention of marine pollution by plastics and other garbage produced during vessel operations.

(666) Annex I of MARPOL 73/78 is applicable to oceangoing tankers over 150 gross tons and all other oceangoing ships over 400 gross tons. The MARPOL 73/78 requirements include oily waste discharge limitations, oily-water separating equipment, monitoring and alarm systems for discharges from cargo areas, cargo pump rooms and machinery space bilges. Ships to which Annex I MARPOL 73/78 is applicable are also required to have an International Oil Pollution Prevention (IOPP) Certificate verifying that the vessel is in compliance with the requirements of MARPOL 73/78 and that any required equipment is on board and operational. Vessels must also maintain an Oil Record Book recording all oil transfers and discharges. The Oil Record Book is available from USCG Supply Center Baltimore or any local Captain of the Port.

(667) Annex II of MARPOL 73/78 is applicable to oceangoing vessels and non-self propelled oceangoing ships which carry Noxious Liquid Substances (NLS) in bulk. The Annex II requirements include discharge restrictions for various classes of cargo residues; the maintenance of a Cargo Record Book for recording all NLS cargo and residue transfers and discharges; and a Procedures and Arrangements Manual describing the correct procedures for off loading and prewashing cargo tanks.

(668) Annex II NLS cargoes are classified in one of four categories, A,B,C, or D. Category A is the most hazardous to the environment. Category A and other substances which tend to solidify in tanks must be prewashed in port under the supervision of a Prewash Surveyor prior to departure from the off loading terminal. Vessel discharges must be underwater when discharge at sea is allowed. Tanks which carry Category B and C NLS must be tested to ensure that after tank stripping only a minimal amount of residues will remain. Reception facilities must be able to assist in cargo stripping operations by reducing back pressure during the final stages of off loading.

(669) Terminals and ports receiving oceangoing tankers, or any other oceangoing ships of 400 GT or more, carrying residues and mixtures containing oil, or receiving oceangoing ships carrying NLSs, are required to provide adequate reception facilities for the wastes generated. Coast Guard Captains of the Port issue a Certificate of Adequacy to terminals or ports to show that they are in compliance with federal reception facility requirements. An oceangoing tanker or any other oceangoing ship of 400 GT or more required to retain oil or oily residues and mixtures on board and an oceangoing ship carrying a Category A, B or C NLS cargo or NLS residue in cargo tanks that are required to be prewashed, may not enter any port or terminal unless the port or terminal holds a valid Certificate of Adequacy or unless the ship is entering under force majeure.

(670) Annex V is applicable to all recreational, fishing, uninspected and inspected vessels, and foreign flag vessels on the navigable waters and all other waters subject to the jurisdiction of the United States, out to and including the Exclusive Economic Zone (200 miles).

(671) Annex V prohibits the disposal of any and all plastic material from any vessel anywhere in the marine environment. Dunnage, lining and packing materials which float may be disposed of beyond 25 miles from the nearest land. Other garbage that will not float may be disposed of beyond 12 miles of land, except that garbage which can pass through a 25mm mesh screen (approximately 1 square inch) may be disposed of beyond 3 miles. Dishwater is not to be considered garbage within the meaning of Annex V when it is the liquid residue from the manual or automatic washing of dishes or cooking utensils. More restrictive disposal regimes apply in waters designated "Special Areas." This Annex requires terminals to provide reception facilities at ports and terminals to receive plastics and other garbage from visiting vessels.

(672) The civil penalty for each violation of MARPOL 73/78 is not more than $25,000. The criminal penalty for a person who knowingly violates the MARPOL Protocol, or the regulations (**33 CFR 151, 155, 157, and 158**), consists of a fine of not more than $250,000 and/or imprisonment for not more than 5 years; U.S. law also provides criminal penalties up to $500,000 against organizations which violate MARPOL.

(673) **Packaged Marine Pollutants-Complying with MARPOL Annex III.**–On October 1, 1993, new regulations under the Hazardous Materials Transportation Act (HMTA) took effect, implementing MARPOL Annex III in the United States. MARPOL Annex III deals with the prevention of marine pollution by harmful substances in packaged form.

(674) Annex III of MARPOL 73/78 applies to all ships carrying harmful substances in packaged form. Annex III provides standards for stowage, packing, labeling, marking, and documentation of substances identified as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code). On 5 November 1992, the U.S. Research and Special Programs Administration (RSPA) amended the Hazardous Materials Regulations (HMR, 49 CFR 100-177) to list and regulate these marine pollutants in all modes of transportation. Under the HMR, marine pollutants are listed in a separate appendix, and a new "marine pollutant mark" will be required for those materials. The marine pollutant mark is used in addition to any existing labels or placards designating a hazardous substance.

(675) Marine pollutants are divided into two classes: marine pollutants and severe marine pollutants. A solution or mixture containing 10% or more of any marine pollutant falls into the class of "marine pollutant." The "severe marine pollutant" class consists of those materials that contain 1% or more of any specified "severe marine pollutant" substance. Marine pollutants that do not meet the criteria for any other hazard class are transported as an environmentally hazardous substance, solid or liquid, N.O.S. (class 9).

(676) **Pollution-Ocean Dumping.**–The Marine Protection Research and Sanctuaries Act of 1972, as amended (33 USC 1401 et seq.), regulates the dumping of all material, except fish waste, into ocean waters. Radiological, chemical and biological warfare agents and other high level radioactive wastes are expressly banned from ocean disposal. The U.S. Army Corps of Engineers issues permits for the disposal of dredged spoils; the Environmental Protection Agency is authorized to issue permits for all other dumping activities. Surveillance and enforcement to prevent unlawful transportation of material for dumping or unlawful dumping under the Act has been assigned to the U.S. Coast Guard. The Act provides civil penalties of up to $50,000 and criminal penalties of up to $50,000 and/or one year imprisonment.

(677) **Other requirements for the protection of navigable waters.**–It is not lawful to tie up or anchor vessels or to float lografts in navigable channels in such manner as to obstruct normal navigation. When a vessel or raft is wrecked and sunk in a navigable channel it is the duty of the owner to immediately mark it with a buoy or beacon during the day and a light at night until the sunken craft is removed or abandoned.

(678) **Obligation of deck officers.**–Licensed deck officers are required to acquaint themselves with the latest information published in Notice to Mariners regarding aids to navigation.

(679) **Improper use of searchlights prohibited.**–No person shall flash or cause to be flashed the rays of a searchlight or other blinding light onto the bridge or into the pilothouse of any vessel underway. The International Code Signal "PG2" may be made by a vessel inconvenienced by the glare of a searchlight in order to apprise the offending vessel of the fact.

(680) **Use of Radar.**–Navigation Rules, International-Inland, Rule 7, states, in part, that every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist. Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.

(681) This rule places an additional responsibility on vessels which are equipped and manned to use radar to do so while underway during periods of reduced visibility without in any way relieving commanding officers of the responsibility of carrying out normal precautionary measures.

(682) Navigation Rules, International-Inland, Rules 6, 7, 8, and 19 apply to the use of radar.

(683) **Danger signal.**–Navigation Rules, International-Inland, Rule 34(d), states that when vessels in sight of one another are approaching each other and from any cause either vessel fails to understand the intentions or actions of the other, or is in doubt whether sufficient action is being taken by the other to avoid collision, the vessel in doubt shall immediately indicate such doubt by giving at least five short and rapid blasts on the whistle. Such signal may be supplemented by a light signal of at least five short and rapid flashes.

(684) **Narrow channels.**–Navigation Rules, International-Inland, Rule 9(b) states: A vessel of less than 65.6 feet (20 meters) in length or a sailing vessel shall not impede the passage of a vessel that can safety navigate only within a narrow channel or fairway.

(685) **Control of shipping in time of emergency or war.**–In time of war or national emergency, merchant vessels of the United States and those foreign flag vessels, which are considered under effective U.S. control, will be subject to control by agencies of the U.S. Government. The allocation and employment of such vessels, and of domestic port facilities, equipment, and services will be performed by appropriate agencies of the War Transport Administration. The movement, routing, and di-

version of merchant ships at sea will be controlled by appropriate naval commanders. The movement of merchant ships within domestic ports and dispersal anchorages will be coordinated by the U.S. Coast Guard. The commencement of naval control will be signaled by a general emergency message. (See NIMA Pub. 117 for emergency procedures and communication instructions.)

(686) **Exclusive Economic Zone of the United States.**–Established by a Presidential Proclamation on March 10, 1983, the Exclusive Economic Zone (**EEZ**) of the United States is a zone contiguous to the territorial sea, including zones contiguous to the territorial sea of the United States, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands (to the extent consistent with the Covenant and the United Nations Trusteeship Agreement), and United States overseas territories and possessions. The EEZ extends to a distance of 200 nautical miles from the baseline from which the breadth of the territorial sea is measured. In cases where the maritime boundary with a neighboring state remains to be determined, the boundary of the EEZ shall be determined by the United States and the other state concerned in accordance with equitable principles.

(687) Within the EEZ, the United States has asserted, to the extent permitted by international law, (a) sovereign rights for the purpose of exploring, exploiting, conserving and managing natural resources, both living and nonliving, of the seabed and subsoil and the superjacent waters and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds; and (b) jurisdiction with regard to the establishment and use of artificial islands, and installations and structures having economic purposes, and the protection and preservation of the marine environment.

(688) Without prejudice to the sovereign rights and jurisdiction of the United States, the EEZ remains an area beyond the territory and territorial sea of the United States in which all states enjoy the high seas freedoms of navigation, overflight, the laying of submarine cables and pipelines, and other internationally lawful uses of the sea.

(689) This Proclamation does not change existing United States policies concerning the continental shelf, marine mammals and fisheries, including highly migratory species of tuna which are not subject to United States jurisdiction and require international agreements for effective management.

(690) The United States will exercise these sovereign rights and jurisdiction in accordance with the rules of international law.

(691) The seaward limit of the EEZ is shown on the nautical chart as a line interspersed periodically with EXCLUSIVE ECONOMIC ZONE. The EEZ boundary is coincidental with that of the Fishery Conservation Zone.

(692) **U.S. Fishery Conservation Zone.**–The United States exercises exclusive fishery management authority over all species of fish, except tuna, within the fishery conservation zone, whose seaward boundary is 200 miles from the baseline from which the U.S. territorial sea is measured; all anadromous species which spawn in the United States throughout their migratory range beyond the fishery conservation zone, except within a foreign country's equivalent fishery zone as recognized by the United States; all U.S. Continental Shelf fishery resources beyond the fishery conservation zone. Such resources include American lobster and species of coral, crab, abalone, conch, clam, and sponge, among others.

(693) No foreign vessel may fish, aid, or assist vessels at sea in the performance of any activity relating to fishing including, but not limited to preparation, supply, storage, refrigeration, transportation or processing, within the fishery conservation zone, or fish for anadromous species of the United States or Continental Shelf fishery resources without a permit issued in accordance with U.S. law. These permits may only be issued to vessels from countries recognizing the exclusive fishery management authority of the United States in an international agreement. The owners or operators of foreign vessels desiring to engage in fishing off U.S. coastal waters should ascertain their eligibility from their own flag state authorities. Failure to obtain a permit prior to fishing, or failure to comply with the conditions and restrictions established in the permit may subject both vessel and its owner or operators to administrative, civil, and criminal penalties. (Further details concerning foreign fishing are given in **50 CFR 611**.)

(694) Reports of foreign fishing activity within the fishery conservation zone should be made to the U.S. Coast Guard. Immediate reports are particularly desired, but later reports by any means also have value. Reports should include the activity observed, the position, and as much identifying information (name, number, homeport, type, flag, color, size, shape, etc.) about the foreign vessel as possible, and the reporting party's name and address or telephone number.

(695) **Bridge-to-bridge Radiotelephone Communication.**–Voice radio bridge-to-bridge communication between vessels is an effective aid in the prevention of collisions where there is restricted maneuvering room and/or visibility. VHF-FM radio is used for this purpose, due to its essentially line-of-sight characteristic and relative freedom from static. As VHF-FM has increasingly come into use for short-range communications in U.S. harbors and other high-traffic waters, so has the number of ships equipped with this gear increased.

(696) The Vessel Bridge-to-Bridge Radiotelephone Regulations, effective January 1, 1973, require vessels subject to the Act while navigating to be equipped with at least one single channel transceiver capable of transmitting and receiving on VHF-FM channel 13 (156.65 MHz), the Bridge-to-Bridge Radiotelephone frequency. Vessels with multichannel equipment are required to have an additional receiver so as to be able to guard VHF-FM channel 13 (156.65 MHz), the Bridge-to-Bridge Radiotelephone frequency, in addition to VHF-FM channel 16 (156.80 MHz), the National Distress, Safety and Calling frequency required by Federal Communications Commission regulations. (See **26.01 through 26.10,** chapter 2, for Vessel Bridge-to-Bridge Radiotelephone Regulations.)

(697) Mariners are reminded that the use of bridge-to-bridge voice communications in no way alters the obligation to comply with the provisions of the Navigation Rules, International-Inland.

(698) **VHF-FM Radiotelephone.**–VHF-FM channel 16 (156.800 MHz) is the international distress, urgency, safety, calling and reply frequency for vessels and public and private coastal stations. In 1992, the Federal Communications Commission (FCC) designated VHF-FM channel 9 (156.450 MHz) for use as a general purpose calling frequency for non-commercial vessels, such as recreational boats. This move was designed to relieve congestion on VHF-FM channel 16. Non-commercial vessels are

encouraged to use VHF-FM channel 9, for routine communications but distress, urgency, and safety calls should continue to be initially made on VHF-FM channel 16.

(699) The following table provides the frequency equivalents and general usage of selected VHF-FM channels which appear in the Coast Pilot. The letter "A" appended to a channel number indicates that U.S. operation of the particular channel is different than the international operation, i.e., U.S. stations transmit and receive on the same frequency and international stations use different frequencies.

(700) The information given here is extracted from the "Maritime Radio Users Handbook" published by the Radio Technical Commission for Maritime Services. Ordering information for this valuable, comprehensive publication is included in the appendix.

(701) All channels given below are designated for both ship-to-ship and ship-to-coast communications except as noted.

VHF Channel	Ship Frequency (MHz)		Channel Usage
	Transmit	Receive	
1A	156.050	156.050	Port Operations and Commercial, VTS. (see footnote 2)
5A	156.250	156.250	Port Operations or VTS (see footnote 1)
6	156.300	156.300	Intership Safety
7A	156.350	156.350	Commercial
8	156.400	156.400	Commercial (Intership only)
9	156.450	156.450	Boater Calling. Commercial and Non-Commercial
10	156.500	156.500	Commercial
11	156.550	156.550	Commercial. VTS in selected areas.
12	156.600	156.600	Port Operations. VTS in selected areas.
13	156.650	156.650	Intership Navigation Safety (Bridge-to-bridge). (see footnote 4)
14	156.700	156.700	Port Operations. VTS in selected areas.
15	----------	156.750	Environmental (Receive only). Used by Class C EPIRBs.
16	156.800	156.800	International Distress, Safety and Calling. (See footnote 5)
17	156.850	156.850	State Control
18A	156.900	156.900	Commercial
19A	156.950	156.950	Commercial
20	157.000	161.600	Port Operations (duplex)
20A	157.000	157.000	Port Operations
21A	157.050	157.050	U.S. Coast Guard only
22A	157.100	157.100	Coast Guard Liaison/Maritime Safety Information Broadcasts. (Channel 16)
23A	157.150	157.150	U.S. Coast Guard only
24	157.200	161.800	Public Correspondence (Marine Operator)
25	157.250	161.850	Public Correspondence (Marine Operator)
26	157.300	161.900	Public Correspondence (Marine Operator)
27	157.350	161.950	Public Correspondence (Marine Operator)
28	157.400	162.000	Public Correspondence (Marine Operator)
63A	156.175	156.175	Port Operations and Commercial, VTS. (see footnote 2)
65A	156.275	156.275	Port Operations
66A	156.325	156.325	Port Operations
67	156.375	156.375	Commercial. (see footnote 3)
68	156.425	156.425	Non-Commercial
69	156.475	156.475	Non-Commercial
70	156.525	156.525	Digital Selective Calling (voice communications not allowed)
71	156.575	156.575	Non-Commercial
72	156.625	156.625	Non-Commercial (Intership only)
73	156.675	156.675	Port Operations
74	156.725	156.725	Port Operations
77	156.875	156.875	Port Operations (Intership only)
78A	156.925	156.925	Non-Commercial
79A	156.975	156.975	Commercial. Non-Commercial in Great Lakes only
80A	157.025	157.025	Commercial. Non-Commercial in Great Lakes only
81A	157.075	157.075	U.S. Government only-Environmental protection operations
82A	157.125	157.125	U.S. Government only
83A	157.175	157.175	U.S. Coast Guard only
84	157.225	161.825	Public Correspondence (Marine Operator)
85	157.275	161.875	Public Correspondence (Marine Operator)
86	157.325	161.925	Public Correspondence (Marine Operator)
87	157.375	161.975	Public Correspondence (Marine Operator)
88	157.425	162.025	Public Correspondence only near Canadian border.
88A	157.425	157.425	Commercial, Intership only.

Footnotes to table:

1. Houston, New Orleans and Seattle areas.
2. Available only in New Orleans/Lower Mississippi area.
3. Used for bridge-to-bridge communications in Lower Mississippi River. Intership only.
4. Ships >20m in length maintain a listening watch on this channel in US waters.
5. Ships required to carry radio, USCG, and most coast stations maintain a listening watch on this channel.

2. NAVIGATION REGULATIONS

(1) This chapter contains sections from the **Code of Federal Regulations (CFR)** that are of most importance in the areas covered by Coast Pilot 4. Included are:

Title 15 (15 CFR): Commerce and Foreign Trade

Part 922	National Marine Sanctuary Program Regulations

Title 33 (33 CFR): Navigation and Navigable Waters

Part 26	Vessel Bridge-to-Bridge Radiotelephone Regulations
Part 80	COLREGS Demarcation Lines
Part 110	Anchorage Regulations
Part 117	Drawbridge Operation Regulations
Part 160	Ports and Waterways Safety-General
Part 161	Vessel Traffic Management
Part 162	Inland Waterways Navigation Regulations
Part 164	Navigation Safety Regulations (in part)
Part 165	Regulated Navigation Areas and Limited Access Areas
Part 169	Mandatory Ship Reporting Systems
Part 207	Navigation Regulations
Part 334	Danger Zones and Restricted Area Regulations

Title 50 (50 CFR): Wildlife and Fisheries

Part 222	General Endangered and Threatened Marine Species
Part 224	Endangered Marine and Anadromous Species
Part 226	Designated Critical Habitat
Part 622	Fisheries of the Caribbean, Gulf, and South Atlantic

(2) **Note.**–These regulations can only be amended by the enforcing agency or other authority cited in the regulations. Accordingly, requests for changes to these regulations should be directed to the appropriate agency for action. In those regulations where the enforcing agency is not cited or is unclear, recommendations for changes should be directed to the following Federal agencies for action:

(3) **National Oceanic and Atmospheric Administration:** (15 CFR 922);

(4) **U.S. Coast Guard:** (33 CFR 26, 80, 110, 117, 160, 161, 162, 164, 165, and 169);

(5) **U.S. Army Corps of Engineers:** (33 CFR 207 and 334);

(6) **National Marine Fisheries Service, National Oceanic and Atmospheric Administration:** (50 CFR 222, 226 and 622).

TITLE 15–COMMERCE AND FOREIGN TRADE

PART 922–National Marine Sanctuary Program Regulations

Subpart A–General

(7) **§922.1 Applicability of regulations.**

(8) Unless noted otherwise, the regulations in subparts A, D and E apply to all eleven National Marine Sanctuaries for which site-specific regulations appear in subparts F through P, respectively. Subparts B and C apply to the site evaluation list and to the designation of future Sanctuaries.

(9) **§922.2 Mission, goals, and special policies.**

(10) (a) In accordance with the standards set forth in title III of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, also known as the National Marine Sanctuaries Act (Act) the mission of the National Marine Sanctuary program (Program) is to identify, designate and manage areas of the marine environment of special national, and in some cases international, significance due to their conservation, recreational, ecological, historical, research, educational, or aesthetic qualities.

(11) (b) The goals of the Program are to carry out the mission to:

(12) (1) Identify and designate as National Marine Sanctuaries areas of the marine environment which are of special national significance;

(13) (2) Provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner which complements existing regulatory authorities;

(14) (3) Support, promote, and coordinate scientific research on, and monitoring of, the resources of these marine areas, especially long-term monitoring and research of these areas:

(15) (4) Enhance public awareness, understanding, appreciation, and wise use of the marine environment;

(16) (5) Facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;

(17) (6) Develop and implement coordinated plans for the protection and management of these areas with appropriate Federal agencies, State and local governments, Native American tribes and organizations, international organizations, and other public and private interests concerned with the continuing health and resilience of these marine areas;

(18) (7) Create models of, and incentives for, ways to conserve and manage these areas;

(19) (8) Cooperate with global programs encouraging conservation of marine resources; and

(20) (9) Maintain, restore, and enhance living resources by providing places for species that depend upon these marine areas to survive and propagate.

(21) (c) To the extent consistent with the policies set forth in the Act, in carrying out the Program's mission and goals:

(22) (1) Particular attention will be given to the establishment and management of marine areas as National Marine Sanctuaries for the protection of the area's natural resource and ecosystem values; particularly for ecologically or economically important or threatened species or species assemblages, and for offshore areas where there are no existing special area protection mechanisms;

(23) (2) The size of a National Marine Sanctuary, while highly dependent on the nature of the site's resources, will be no larger than necessary to ensure effective management;

(24) (d) Management efforts will be coordinated to the extent practicable with other countries managing marine protected areas;

(25) (e) Program regulations, policies, standards, guidelines, and procedures under the Act concerning the identification, evaluation, registration, and treatment of historical resources shall be consistent, to the extent practicable, with the declared national policy for the protection and preservation of these resources as stated in the National Historic Preservation Act of 1966, 16 U.S.C. 470 et seq., the Archeological and Historical Preservation Act of 1974, 16 U.S.C. 469 et seq., and the Archeological Resources Protection Act of 1979 (ARPA), 16 U.S.C. 470aa et seq. The same degree of regulatory protection and preservation planning policy extended to historical resources on land shall be extended, to the extent practicable, to historical resources in the marine environment within the boundaries of designated National Marine Sanctuaries. The management of historical resources under the authority of the Act shall be consistent, to the extent practicable, with the Federal archeological program by consulting the Uniform Regulations, ARPA (43 CFR part 7) and other relevant Federal regulations. The Secretary of the Interior's Standards and Guidelines for Archeology may also be consulted for guidance. These guidelines are available from the Office of Ocean and Coastal Management at (301) 713-3125.

(26) **§922.3 Definitions.**

(27) *Act* means title III of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, 16 U.S.C. 1431 et seq., also known as the National Marine Sanctuaries Act.

(28) *Active Candidate* means a site selected by the Secretary from the Site Evaluation List for further consideration for possible designation as a National Marine Sanctuary.

(29) *Assistant Administrator* means the Assistant Administrator for Ocean Services and Coastal Zone Management, National Oceanic and Atmospheric Administration (NOAA), or designee.

(30) *Benthic community* means the assemblage of organisms, substrate, and structural formations found at or near the bottom that is periodically or permanently covered by water.

(31) *Commercial fishing* means any activity that results in the sale or trade for intended profit of fish, shellfish, algae, or corals.

(32) *Conventional hook and line gear* means any fishing apparatus operated aboard a vessel and composed of a single line terminated by a combination of sinkers and hooks or lures and spooled upon a reel that may be hand or electrically operated, hand-held or mounted. This term does not include bottom longlines.

(33) *Cultural resources* means any historical or cultural feature, including archaeological sites, historic structures, shipwrecks, and artifacts.

(34) *Director* means, except where otherwise specified, the Director of the Office of Ocean and Coastal Resource Management, NOAA, or designee.

(35) *Exclusive economic zone* means the exclusive economic zone as defined in the Magnuson Fishery Conservation and Management Act, 16 U.S. 1801 et seq.

(36) *Fish wastes* means waste materials resulting from commercial fish processing operations.

(37) *Historical resource* means any resource possessing historical, cultural, archaeological or paleontological significance, including sites, contextual information, structures, districts, and objects significantly associated with or representative of earlier people, cultures, maritime heritage, and human activities and events. Historical resources include "submerged cultural resources", and also include "historical properties", as defined in the National Historic Preservation Act, as amended, and its implementing regulations, as amended.

(38) *Indian tribe* means any American Indian tribe, band, group, or community recognized as such by the Secretary of the Interior.

(39) *Injure* means to change adversely, either in the long or short term, a chemical, biological or physical attribute of, or the viability of. This includes, but is not limited to, to cause the loss of or destroy.

(40) *Lightering* means at-sea transfer of petroleum-based products, materials or other matter from vessel to vessel.

(41) *Marine* means those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands over which the United States exercises jurisdiction, including the exclusive economic zone, consistent with international law.

(42) *Mineral* means clay, stone, sand, gravel, metalliferous ore, non-metalliferous ore, or any other solid material or other matter of commercial value.

(43) *National historic landmark* means a district, site, building, structure or object designated as such by the Secretary of the Interior under the National Historic Landmarks Program (36 CFR part 65).

(44) *National Marine Sanctuary* means an area of the marine environment of special national significance due to its resource or human-use values, which is designated as such to ensure its conservation and management.

(45) *Person* means any private individual, partnership, corporation or other entity; or any officer, employee, agent, department, agency or instrumentality of the Federal Government, of any State or local unit of government, or of any foreign government.

(46) *Regional Fishery Management Council* means any fishery council established under section 302 of the Magnuson Fishery Conservation and Management Act, 16 U.S.C. 1801 et seq.

(47) *Sanctuary quality* means any of those ambient conditions, physical-chemical characteristics and natural processes, the maintenance of which is essential to the ecological health of the Sanctuary, including, but not limited to, water quality, sediment quality and air quality.

(48) *Sanctuary resource* means any living or non-living resource of a National Marine Sanctuary that contributes to the conservation, recreational, ecological, historical, research, educational, or aesthetic value of the Sanctuary, including, but not limited to, the substratum of the area of the Sanctuary, other submerged features and the surrounding seabed, carbonate rock, corals and other bottom formations, coralline algae and other marine plants and algae, marine invertebrates, brine-seep biota, phytoplankton, zooplankton, fish, seabirds, sea turtles and other marine reptiles, marine mammals and historical resources.

(49) *Secretary* means the Secretary of the United States Department of Commerce, or designee.

(50) *Shunt* means to discharge expended drilling cuttings and fluids near the ocean seafloor.

(51) *Site Evaluation List (SEL)* means a list of selected natural and historical resource sites selected by the Secretary as qualifying for further evaluation for possible designation as National Marine Sanctuaries.

(52) *State* means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, the United States Virgin Islands, Guam, and any other commonwealth, territory, or possession of the United States.

(53) *Subsistence use* means the customary and traditional use by rural residents of areas near or in the marine environment for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles; and for barter, if for food or non-edible items other than money, if the exchange is of a limited and non-commercial nature.

(54) *Take or taking* means:

(55) (1) For any marine mammal, sea turtle, or seabird listed as either endangered or threatened pursuant to the Endangered Species Act, to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect or injure, or to attempt to engage in any such conduct;

(56) (2) For any other marine mammal, sea turtle, or seabird, to harass, hunt, capture, kill, collect or injure, or to attempt to engage in any such conduct.

(57) For the purpose of both (1) and (2) of this definition, this includes, but is not limited to, to collect any dead or injured marine mammal, sea turtle or seabird, or any part thereof; to restrain or detain any marine mammal, sea turtle or seabird, or any part thereof, no matter how temporarily; to tag any sea turtle, marine mammal or seabird; to operate a vessel or aircraft or to do any other act that results in the disturbance or molestation of any marine mammal, sea turtle or seabird.

(58) *Tropical fish* means fish or minimal sport and food value, usually brightly colored, often used for aquaria purposes and which lives in a direct relationship with live bottom communities.

(59) *Vessel* means a watercraft of any description capable of being used as a means of transportation in/on the waters of the Sanctuary.

(60) **§922.4 Effect of National Marine Sanctuary designation.**

(61) The designation of a National Marine Sanctuary, and the regulations implementing it, are binding on any person subject to the jurisdiction of the United States. Designation does not constitute any claim to territorial jurisdiction on the part of the United States for designated sites beyond the U.S. territorial sea, and the regulations implementing the designation shall be applied in accordance with generally recognized principles of international law, and in accordance with treaties, conventions, and other agreements to which the United States is a party. No regulation shall apply to a person who is not a citizen, national, or resident alien of the United States, unless in accordance with:

(62) (a) Generally recognized principles of international law;

(63) (b) An agreement between the United States and the foreign state of which the person is a citizen; or

(64) (c) An agreement between the United States and the flag state of the foreign vessel, if the person is a crew member of the vessel.

Subpart D–Management Plan Development and Implementation

(65) **§922.30 General.**

(66) (a) The Secretary shall implement each management plan, and applicable regulations, including carrying out surveillance and enforcement activities and conducting such research, monitoring, evaluation, and education programs as are necessary and reasonable to carry out the purposes and policies of the Act.

(67) (b) Consistent with Sanctuary management plans, the Secretary shall develop and implement site-specific contingency and emergency-response plans designed to protect Sanctuary resources. The plans shall contain alert procedures and actions to be taken in the event of an emergency such as a shipwreck or an oil spill.

(68) **§922.31 Promotion and coordination of Sanctuary use.**

(69) The Secretary shall take such action as is necessary and reasonable to promote and coordinate the use of National Marine Sanctuaries for research, monitoring, and education purposes. Such action may include consulting with Federal agencies, or other persons to promote use of one or more Sanctuaries for research, monitoring and education, including coordination with the National Estuarine Research Reserve System.

Subpart E–Regulations of General Applicability

(70) **§922.40 Purpose.**

(71) The purpose of the regulations in the subpart and in subparts F through P of this part is to implement the designations of the eleven National Marine Sanctuaries for which site-specific regulations appear in subparts F through P of this part, respectively, by regulating activities affecting them, consistent with their respective terms of designation in order to protect, preserve and manage and thereby ensure the health, integrity and continued availability of the conservation, ecological, recreational, research, educational, historical and aesthetic resources and qualities of these areas. Additional purposes of the regulations implementing the designation of the Florida Keys National Marine Sanctuary are found at §922.160.

(72) **§922.41 Boundaries.**

(73) The boundary for each of the eleven National Marine Sanctuaries covered by this part is described in subparts F through P of this part, respectively.

(74) **§922.42 Allowed Activities.**

(75) All activities (e.g., fishing, boating, diving, research, education) may be conducted unless prohibited or otherwise regulated in subparts F through P of this part, subject to any emergency regulations promulgated pursuant to §§922.44, 922.111(c), or §922.165, subject to all prohibitions, regulations, restrictions, and conditions validly imposed by any Federal, State, or local authority of competent jurisdiction, including Federal and State fishery management authorities, and subject to the provisions of section 312 of the Act. The Assistant Administrator may only directly regulate fishing activities pursuant to the procedure set forth in section 304(a)(5) of the NMSA.

(76) **§922.43 Prohibited or otherwise regulated activities.**

(77) Subparts F through P of this part set forth site-specific regulations applicable to the activities specified therein.

(78) **§922.44 Emergency Regulations.**

(79) Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality, or minimize the imminent risk of such destruction, loss, or injury, any and all such activities are subject to immediate temporary regulation, including prohibition. The provisions of this section do not apply to the Cordell Bank and Florida Keys National Marine Sanctuaries. See §§922.111(c) and 922.165, respectively, for the authority to issue emergency regulations with respect to those sanctuaries.

(80) **§922.45 Penalties.**

(81) (a) Each violation of the NMSA or FKNMSPA, any regulation in this part, or any permit issued pursuant thereto, is subject to a civil penalty of not more than $100,000. Each day of a continuing violation constitutes a separate violation.

(82) (b) Regulations setting forth the procedures governing administrative proceedings for assessment of civil penalties, permit sanctions, and denials for enforcement reasons, issuance and use of written warnings, and release or forfeiture of seized property appear at 15 CFR part 904.

(83) **§922.46 Response costs and damages.**

(84) Under section 312 of the Act, any person who destroys, causes the loss of, or injures any Sanctuary resource is liable to the United States for response costs and damages resulting from such destruction, loss or injury, and any vessel used to destroy, cause the loss of, or injure any Sanctuary resource is liable in rem to the United States for response costs and damages resulting from such destruction, loss or injury.

(85) **§922.47 Pre-existing authorizations or rights and certifications of pre-existing authorizations or rights.**

(86) (a) Leases, permits, licenses, or rights of subsistence use or access in existence on the date of designation of any National Marine Sanctuary shall not be terminated by the Director. The Director may, however, regulate the exercise of such leases, permits, licenses, or rights consistent with the purposes for which the Sanctuary was designated.

(87) (b) The prohibitions listed in subparts F through P of this part do not apply to any activity authorized by a valid lease, permit, license, approval or other authorization in existence on the effective date of Sanctuary designation, or in the case of the Florida Keys National Marine Sanctuary the effective date of the regulations in this subpart P, and issued by any Federal, State or local authority of competent jurisdiction, or by any valid right of subsistence use or access in existence on the effective date of Sanctuary designation, or in the case of the Florida Keys National Marine Sanctuary the effective date of the regulations in subpart P, provided that the holder of such authorization or right complies with certification procedures and criteria promulgated at the time of Sanctuary designation, or in the case of the Florida Keys National Marine Sanctuary the effective date of the regulations in subpart P of this part, and with any terms and conditions on the exercise of such authorization or right imposed by the Director as a condition of certification as the Director deems necessary to achieve the purposes for which the Sanctuary was designated.

(88) **§922.48 National Marine Sanctuary permits-application procedures and issuance criteria.**

(89) (a) A person may conduct an activity prohibited by subparts F through O of this part if conducted in accordance with the scope, purpose, terms and conditions of a permit issued under this section and subparts F through O of this part. For the Florida Keys National Marine Sanctuary, a person may conduct an activity prohibited by subpart P if conducted in accordance with the scope, purpose, terms and conditions of a permit issued under §922.166.

(90) (b) Applications for permits to conduct activities otherwise prohibited by subparts F through O of this part should be addressed to the Director and sent to the address specified in subparts F through O of this part. An application must include:

(91) (1) A detailed description of the proposed activity including a timetable for completion:

(92) (2) The equipment, personnel and methodology to be employed;

(93) (3) The qualifications and experience of all personnel;

(94) (4) The potential effects of the activity, if any, on Sanctuary resources and qualities; and

(95) (5) Copies of all other required licenses, permits, approvals or other authorizations.

(96) (c) Upon receipt of an application, the Director may request such additional information from the applicant as he or she deems necessary to act on the application and may seek the views of any persons or entity, within or outside the Federal government, and may hold a public hearing, as deemed appropriate.

(97) (d) The Director, at his or her discretion, may issue a permit, subject to such terms and conditions as he or she deems appropriate, to conduct a prohibited activity, in accordance with the criteria found in subparts F through O. The Director shall further impose, at a minimum, the conditions set forth in the relevant subpart.

(98) (e) A permit granted pursuant to this section is nontransferable.

(99) (f) The Director may amend, suspend, or revoke a permit issued pursuant to this section for good cause. The Director may deny a permit application pursuant to this section, in whole or in part, if it is determined that the permittee or applicant has acted in violation of the terms and conditions of a permit or of the regulations set forth in this section or subparts F through O or for other good cause. Any such action shall be communicated in writing to the permittee or applicant by certified mail and shall set forth the reason(s) for the action taken. Procedures governing permit sanctions and denials for enforcement reasons are set forth in subpart D of 15 CFR part 904.

(100) **§922.49 Notification and review of applications for leases, licenses, permits, approvals, or other authorizations to conduct a prohibited activity.**

(101) (a) A person may conduct an activity prohibited by subparts L through P of this part if such activity is specifically authorized by any valid Federal, State, or local lease, permit, license, approval, or other authorization issued after the effective date of Sanctuary designation, or in the case of the Florida Keys National Marine Sanctuary after the effective date of the regulations in subpart P of this part, provided that:

(102) (1) The applicant notifies the Director, in writing, of the application for such authorization (and of any application for an amendment, renewal, or extension of such authorization) within fifteen (15) days of the date of filing of the application or the effective date of Sanctuary designation, or in the case of the Florida Keys National Marine Sanctuary the effective date of the regulations in subpart P of this part, whichever is later;

(103) (2) The applicant complies with the other provisions of this §922.49;

(104) (3) The Director notifies the applicant and authorizing agency that he or she does not object to issuance of the authorization (or amendment, renewal, or extension); and

(105) (4) The applicant complies with any terms and conditions the Director deems reasonably necessary to protect Sanctuary resources and qualities.

(106) (b) Any potential applicant for an authorization described in paragraph (a) of this section may request the Director to issue a finding as to whether the activity for which an application is intended to be made is prohibited by subparts L through P of this part.

(107) (c) Notification of filings of applications should be sent to the Director, Office of Ocean and Coastal Resource Management at the address specified in subparts L through P of this part. A copy of the application must accompany the notification.

(108) (d) The Director may request additional information from the applicant as he or she deems reasonably necessary to determine whether to object to issuance of an authorization described in paragraph (a) of this section, or what terms and conditions are reasonably necessary to protect Sanctuary resources and qualities. The information requested must be received by the Director within 45 days of the postmark date of the request. The Director may seek the views of any persons on the application.

(109) (e) The Director shall notify, in writing, the agency to which application has been made of his or her pending review of the application and possible objection to issuance. Upon completion of review of the application and information received with respect thereto, the Director shall notify both the agency and applicant, in writing, whether he or she has an objection to issuance and what terms and conditions he or she deems reasonably necessary to protect Sanctuary resources and qualities, and reasons therefor.

(110) (f) The Director may amend the terms and conditions deemed reasonably necessary to protect Sanctuary resources and qualities whenever additional information becomes available justifying such an amendment.

(111) (g) Any time limit prescribed in or established under this §922.49 may be extended by the Director for good cause.

(112) (h) The applicant may appeal any objection by, or terms or conditions imposed by, the Director to the Assistant Administrator or designee in accordance with the provisions of §922.50.

(113) **§922.50 Appeals of administrative action.**

(114) (a)(1) Except for permit actions taken for enforcement reasons (see subpart D of 15 CFR part 904 for applicable procedures), an applicant for, or a holder of, a National Marine Sanctuary permit; an applicant for, or a holder of, a Special Use permit pursuant to section 310 of the Act; a person requesting certification of an existing lease, permit, license or right of subsistence use or access under §922.47; or, for those Sanctuaries described in subparts L through P, an applicant for a lease, permit, license or other authorization issued by any Federal, State, or local authority of competent jurisdiction (hereinafter appellant) may appeal to the Assistant Administrator:

(115) (i) The granting, denial, conditioning, amendment, suspension or revocation by the Director of a National Marine Sanctuary or Special Use permit;

(116) (ii) The conditioning, amendment, suspension or revocation of a certification under §922.47; or

(117) (iii) For those Sanctuaries described in subparts L through P, the objection to issuance of or the imposition of terms and conditions on a lease, permit, license or other authorization issued by any Federal, State, or local authority of competent jurisdiction.

(118) (2) For those National Marine Sanctuaries described in subparts F through K, any interested person may also appeal the same actions described in paragraphs (a)(1) (i) and (ii) of this section. For appeals arising from actions taken with respect to these National Marine Sanctuaries, the term "appellant" includes any such interested persons.

(119) (b) An appeal under paragraph (a) of this section must be in writing, state the action(s) by the Director appealed and the reason(s) for the appeal, and be received within 30 days of receipt of notice of the action by the Director. Appeals should be addressed to the Assistant Administrator for Ocean Services and Coastal Zone Management, NOAA 1305 East-West Highway, 13th Floor, Silver Spring, MD 20910.

(120) (c)(1) The Assistant Administrator may request the appellant to submit such information as the Assistant Administrator deems necessary in order for him or her to decide the appeal. The information requested must be received by the Assistant Administrator within 45 days of the postmark date of the request. The Assistant Administrator may seek the views of any other persons. For the Monitor National Marine Sanctuary, if the appellant has request a hearing, the Assistant Administrator shall grant an informal hearing. For all other National Marine Sanctuaries, the Assistant Administrator may determine whether to hold an informal hearing on the appeal. If the Assistant Administrator determines that an informal hearing should be held, the Assistant Administrator may designate an officer before whom the hearing shall be held.

(121) (2) The hearing officer shall give notice in the **Federal Register** of the time, place and subject matter of the hearing. The appellant and the Director may appear personally or by counsel at that hearing and submit such material and present such arguments as deemed appropriate by the hearing officer. Within 60 days after the record for the hearing closes, the hearing officer shall recommend a decision in writing to the Assistant Administrator.

(122) (d) The Assistant Administrator shall decide the appeal using the same regulatory criteria as for the initial decision and shall base the appeal decision on the record before the Director and any information submitted regarding the appeal, and, if a hearing has been held, on the record before the hearing officer and the hearing officer's recommended decision. The Assistant Administrator shall notify the appellant of the final decision and the reason(s) therefore in writing. The Assistant Administrator's decision shall constitute final agency action for the purpose of the Administrative Procedure Act.

(123) (e) Any time limit prescribed in or established under this section other than the 30-day limit for filing an appeal may be extended by the Assistant Administrator or hearing office for good cause.

Subpart F–Monitor National Marine Sanctuary

(124) **§922.60 Boundary.**

(125) The Monitor National Marine Sanctuary (Sanctuary) consists of a vertical water column in the Atlantic Ocean one mile in diameter extending from the surface to the seabed, the center of which is at 35°00'23"N. and 75°24'32"W.

(126) **§922.61 Prohibited or otherwise regulated activities.**

(127) Except as may be permitted by the Director, the following activities are prohibited and thus are unlawful for any person to conduct or to cause to be conducted within the Sanctuary:

(128) (a) Anchoring in any manner, stopping, remaining, or drifting without power at any time;

(129) (b) Any type of subsurface salvage or recovery operation;

(130) (c) Diving of any type, whether by an individual or by a submersible;

(131) (d) Lowering below the surface of the water any grappling, suction, conveyor, dredging or wrecking device;

(132) (e) Detonating below the surface of the water any explosive or explosive mechanism;

(133) (f) Drilling or coring the seabed;

(134) (g) Lowering, laying, positioning or raising any type of seabed cable or cable-laying device;

(135) (h) Trawling; or

(136) (i) Discharging waster material into the water in violation of any Federal statute or regulation.

(137) **922.62 Permit procedure and criteria.**

(138) (a) Any person or entity may conduct in the Sanctuary any activity listed in §922.61 if such activity is either: (1) For the purpose of research related to the Monitor, or (2) Pertains to salvage or recovery operations in connection with an air or marine casualty and such person or entity is in possession of a valid permit issued by the Director authorizing the conduct of such activity; except that, no permit is required for the conduct of any activity immediately and urgently necessary for the protection of life, property or the environment.

(139) (b) Any person or entity who wishes to conduct in the Sanctuary an activity for which a permit is authorized by this section (hereafter a permitted activity) may apply in writing to the Director for a permit to conduct such activity citing this section as the basis for the application. Such application should be made to: Director, Office of Ocean and Coastal Resource Management; ATTN: Manager, Monitor National Marine Sanctuary, Building 1519, NOAA, Fort Eustis, VA 23604-5544.

(140) (c) In considering whether to grant a permit for the conduct of a permitted activity for the purpose of research related to the Monitor, the Secretary shall evaluate such matters as:

(141) (1) The general professional and financial responsibility of the applicant;

(142) (2) The appropriateness of the research method(s) envisioned to the purpose(s) of the research;

(143) (3) The extent to which the conduct of any permitted activity may diminish the value of the MONITOR as a source of historic, cultural, aesthetic and/or maritime information;

(144) (4) The end value of the research envisioned; and

(145) (5) Such other matters as the Director deems appropriate.

(146) (d) In considering whether to grant a permit for the conduct of a permitted activity in the Sanctuary in relation to an air or marine casualty, the Director shall consider such matters as:

(147) (1) The fitness of the applicant to do the work envisioned;

(148) (2) The necessity of conducting such activity;

(149) (3) The appropriateness of any activity envisioned to the purpose of the entry into the Sanctuary;

(150) (4) The extent to which the conduct of any such activity may diminish the value of the Monitor as a source of historic, cultural, aesthetic and/or maritime information; and

(151) (5) Such other matters as the Director deems appropriate.

(152) (e) In considering any application submitted pursuant to this section, the Director shall seek and consider the views of the Advisory Council on Historic Preservation.

(153) (f) The Director may observe any activity permitted by this section; and/or may require the submission of one or more reports of the status or progress of such activity.

Subpart I–Gray's Reef National Marine Sanctuary

(154) **§922.90 Boundary.**

(155) The Gray's Reef National Marine Sanctuary (Sanctuary) consists of 16.68 square nautical miles (NM) of high sea waters off the coast of Georgia. The Sanctuary boundary includes all waters within a rectangle starting at coordinate

(156) 31°21'45"N., 80°55'17"W.; commencing to coordinate

(157) 31°25'15"N., 80°55'17"W.; thence to coordinate

(158) 31°25'15"N., 80°49'42"W.; thence to coordinate

(159) 31°21'45"N., 80°49'42"W.; thence back to the point of origin.

(160) **§922.91 Prohibited or otherwise regulated activities.**

(161) (a) Except as may be necessary for national defense (subject to the terms and conditions of Article 5, Section 2 of the Designation Document) or to respond to an emergency threatening life, property, or the environment, or except as may be permitted by the Director in accordance with §922.48 and §922.92, the following activities are prohibited and thus are unlawful for any person to conduct or to cause to be conducted within the Sanctuary:

(162) (1) Dredging, drilling, or otherwise altering the seabed in any way nor constructing any structure other than a navigation aid.

(163) (2) Discharging or depositing any material or other matter except:

(164) (i) Fish or parts, bait, and chumming materials;

(165) (ii) Effluent from marine sanitation devices; and

(166) (iii) Vessel cooling waters.

(167) (3) Operating a watercraft other than in accordance with the Federal rules and regulations that would apply if there were no Sanctuary.

(168) (4) Using, placing, or possessing wire fish traps.

(169) (5) Using a bottom trawl, specimen dredge, or similar vessel-towed bottom sampling device.

(170) (6)(i)(A) Breaking, cutting, or similarly damaging, taking, or removing any bottom formation, marine invertebrate, or marine plant.

(171) (B) Taking any tropical fish.

(172) (C) Using poisons, electric charges, explosives, or similar methods to take any marine animal not otherwise prohibited to be taken.

(173) (ii) There shall be a rebuttable presumption that any bottom formation, marine invertebrate, tropical fish, marine plant, or marine animal found in the possession of a person within the Sanctuary have been collected within or removed from the Sanctuary.

(174) (7) Tempering with, damaging, or removing any historic or cultural resources.

(175) (b) All activities currently carried out by the Department of Defense within the Sanctuary are essential for the national defense and, therefore, not subject to the prohibitions in this section. The exemption of additional activities having significant impacts shall be determined in consultation between the Director and the Department of Defense.

(176) **§922.92 Permit procedures and criteria.**

(177) (a) Any person in possession of a valid permit issued by the Director in accordance with this section and §922.48 may conduct the specific activity in the Sanctuary including any activity specifically prohibited under §922.91, if such activity is

(178) (1) Research related to the resources of the Sanctuary,

(179) (2) To further the educational value of the Sanctuary, or

(180) (3) For salvage or recovery operations.

(181) (b) Permit applications shall be addressed to the Director, Office of Ocean and Coastal Resource Management, ATTN: Manager, Gray's Reef National Marine Sanctuary, 10 Ocean Science Circle, Savannah, GA 31411.

(182) (c) In considering whether to grant a permit, the Director shall evaluate

(183) (1) The general professional and financial responsibility of the applicant,

(184) (2) The appropriateness of the methods envisioned to the purpose(s) of the activity,

(185) (3) The extent to which the conduct of any permitted activity may diminish or enhance the value of the Sanctuary,

(186) (4) The end value of the activity, and

(187) (5) Other matters as deemed appropriate.

(188) (d) The Director may observe any permitted activity and/or require the submission of one or more reports of the status or progress of such activity. Any information obtained will be made available to the public.

Subpart P–Florida Keys National Marine Sanctuary

(189) **§922.160 Purpose.**

(190) (a) The purpose of the regulations in this subpart is to implement the comprehensive management plan for the Florida Keys National Marine Sanctuary by regulating activities affecting the resources of the Sanctuary or any of the qualities, values, or purposes for which the Sanctuary is designated, in order to protect, preserve and manage the conservation, ecological, recreational, research, educational, historical, and aesthetic resources and qualities of the area. In particular, the regulations in this part are intended to protect, restore, and enhance the living resources of the Sanctuary, to contribute to the maintenance of natural assemblages of living resources for future generations, to provide places for species dependent on such living resources to survive and propagate, to facilitate to the extent compatible with the primary objective of resource protection all public and private uses of the resources of the Sanctuary not prohibited pursuant to other authorities, to reduce conflicts between such compatible uses, and to achieve the other policies and purposes of the Florida Keys National Marine Sanctuary and Protection Act and the National Marine Sanctuaries Act.

(191) (b) Section 304(e) of the NMSA requires the Secretary to review management plans and regulations every five years, and make necessary revisions. Upon completion of the five year review of the Sanctuary management plan and regulations, the Secretary will repropose the regulations in their entirety with any proposed changes thereto, including those regulations in subparts A and E of this part that apply to the Sanctuary. The Governor of the State of Florida will have the opportunity to review the reproposed regulations before they take effect and if the Governor certifies such regulations as unacceptable, they will not take effect in State waters of the Sanctuary.

(192) **§922.161 Boundary.**

(193) The Sanctuary consists of all submerged lands and waters from the mean high water mark to the boundary described in Appendix I to this part, with the exception of areas within the Dry Tortugas National Park. Appendix I to this subpart sets forth the precise Sanctuary boundary established by the Florida Keys National Marine Sanctuary and Protection Act. (See FKNMSPA section 5(b)(2)).

(194) **§922.162 Definitions.**

(195) (a) The following definitions apply to the Florida Keys National Marine Sanctuary regulations. To the extent that a definition appears in 922.3 and this section, the definition in this section governs.

(196) *Acts* means the Florida Keys National Marine Sanctuary and Protection Act, as amended, (FKNMSPA) (Pub. L. 101-605), and the National Marine Sanctuaries Act (NMSA), also known as Title III of the Marine Protection, Research, and Sanctuaries Act, as amended, (MPRSA) (16 U.S.C. 1431 et seq.).

(197) *Adverse effect* means any factor, force, or action that independently or cumulatively damages, diminishes, degrades, impairs, destroys, or otherwise harms any Sanctuary resource, as defined in section 302(8) of the NMSA (16 U.S.C. 1432(8)) and in this section, or any of the qualities, values, or purposes for which the Sanctuary is designated.

(198) *Airboat* means a vessel operated by means of a motor driven propeller that pushes air for momentum.

(199) *Areas To Be Avoided* means the areas in which vessel operations are prohibited pursuant to section 6(a)(1) of the FKNMSPA (see §922.164(a)). Appendix VII to this subpart sets forth the geographic coordinates of these areas, including any modifications thereto made in accordance with section 6(a)(3) of the FKNMSPA.

(200) *Closed* means all entry or use is prohibited.

(201) *Coral* means the corals of the Class Hydroza (stinging and hydrocorals); the Class Authozoa, Subclass Hexacorallia, Order Scleractinia (stony corals) and Antipatharia (black corals).

(202) *Coral area* means marine habitat where coral growth abounds including patch reefs, outer bank reefs, deepwater banks, and hardbottoms.

(203) *Coral reefs* means the hard bottoms, deep-water banks, patch reefs, and outer bank reefs.

(204) *Ecological Reserve* means an area of the Sanctuary consisting of contiguous, diverse habitats, within which uses are subject to conditions, restrictions and prohibitions, including access restrictions, intended to minimize human influences, to provide natural spawning, nursery, and permanent residence areas for the replenishment and genetic protection of marine life, and also to protect and preserve natural assemblages of habitats and species within areas representing a broad diversity of resources and habitats found within the Sanctuary. Appendix IV to this subpart sets forth the geographic coordinates of these areas.

(205) *Existing Management Area* means an area of the Sanctuary that is within or is a resource management area established by NOAA or by another Federal authority of competent jurisdiction as of the effective date of these regulations where protections above and beyond those provided by Sanctuary-wide prohibitions and restrictions are needed to adequately protect resources. Appendix II to this subpart sets forth the geographic coordinates of these areas.

(206) *Exotic species* means a species of plant, invertebrate, fish, amphibian, reptile or mammal whose natural zoogeographic range would not have included the waters of the Atlantic Ocean,

Caribbean, or Gulf of Mexico without passive or active introduction to such area through anthropogenic means.

(207) *Fish* means finfish, mollusks, crustaceans, and all forms of marine animal and plant life other than marine mammals and birds.

(208) *Fishing means*: (1) The catching, taking, or harvesting of fish; the attempted catching, taking, or harvesting of fish; any other activity which can reasonably be expected to result in the catching, taking, or harvesting of fish; or any operation at sea in support of, or in preparation for, any activity described in this subparagraph (1).

(209) (2) Such term does not include any scientific research activity which is conducted by a scientific research vessel.

(210) *Hardbottom* means a submerged marine community comprised of organisms attached to exposed solid rock substrate, Hardbottom is the substrate to which corals may attach but does not include the corals themselves.

(211) *Idle speed only/no-wake* means a speed at which a boat is operated that is no greater than 4 knots or does not produce a wake.

(212) *Idle speed only/no-wake zone* means a portion of the Sanctuary where the speed at which a boat is operated may be no greater than 4 knots or may not produce a wake.

(213) *Live rock* means any living marine organism or an assemblage thereof attached to a hard substrate, including dead coral or rock but not individual mollusk shells (e.g., scallops, clams, oysters). Living marine organisms associated with hard bottoms, banks, reefs, and live rock may include, but are not limited to: sea anemones (Phylum Cnidaria: Class Anthozoa: Order Actinaria); sponges (Phylum Porifera); tube worms (Phylum Annelida), including fan worms, feather duster worms, and Christmas tree worms; bryozoans (Phylum Bryzoa); sea squirts (Phylum Chordata); and marine algae, including Mermaid's fan and cups (Udotea spp.), corraline algae, green feather, green grape algae (Caulerpa spp.) and watercress (Halimeda spp.).

(214) *Marine life species* means any species of fish, invertebrate, or plant included in sections (2), (3), or (4) of Rule 46 –42.001, Florida Administrative Code, reprinted in Appendix VIII to this subpart.

(215) *Military activity* means an activity conducted by the Department of Defense with or without participation by foreign forces, other than civil engineering and other civil works projects conducted by the U.S. Army Corps of Engineers.

(216) *No-access buffer zone* means a portion of the Sanctuary where vessels are prohibited from entering regardless of the method of propulsion.

(217) *No motor zone* means an area of the Sanctuary where the use of internal combustion motors is prohibited. A vessel with an internal combustion motor may access a no motor zone only through the use of a push pole, paddle, sail, electric motor or similar means of operation but is prohibited from using it's internal combustion motor.

(218) *Not available for immediate use* means not readily accessible for immediate use, e.g., by being stowed unbaited in a cabin, locker, rod holder, or similar storage area, or by being securely covered and lashed to a deck or bulkhead.

(219) *Officially marked channel* means a channel marked by Federal, State of Florida, or Monroe County officials of competent jurisdiction with navigational aids except for channels marked idle speed only/no wake.

(220) *Personal watercraft* means any jet air-powered watercraft operated by standing, sitting, or kneeling on or behind the vessel, in contrast to a conventional boat, where the operator stands or sits inside the vessel, and that uses an inboard engine to power a water jet pump for propulsion, instead of a propeller as in a conventional boat.

(221) *Prop dredging* means the use of a vessel's propulsion wash to dredge or otherwise alter the seabed of the Sanctuary. Prop dredging includes, but is not limited to, the use of propulsion wash deflectors or similar means of dredging or otherwise altering the seabed of the Sanctuary. Prop dredging does not include the disturbance to bottom sediments resulting from normal vessel propulsion.

(222) *Prop scarring* means the injury to seagrasses or other immobile organisms attached to the seabed of the Sanctuary caused by operation of a vessel in a manner that allows its propeller or other running gear, or any part thereof, to cause such injury (e.g., cutting seagrass rhizomes). Prop scarring does not include minor disturbances to bottom sediments or seagrass blades resulting from normal vessel propulsion.

(223) *Residential shoreline* means any man-made or natural:

(224) (1) Shoreline,

(225) (2) Canal mouth,

(226) (3) Basin, or

(227) (4) Cove adjacent to any residential land use district, including improved subdivision, suburban residential or suburban residential limited, sparsely settled, urban residential, and urban residential mobile home under the Monroe County land development regulations.

(228) *Sanctuary* means the Florida Keys National Marine Sanctuary.

(229) *Sanctuary Preservation Area* means an area of the Sanctuary that encompasses a discrete, biologically important area, within which uses are subject to conditions, restrictions and prohibitions, including access restrictions, to avoid concentrations of uses that could result in significant declines in species populations or habitat, to reduce conflicts between uses, to protect areas that are critical for sustaining important marine species or habitats, or to provide opportunities for scientific research. Appendix V to this subpart sets forth the geographic coordinates of these areas.

(230) *Sanctuary wildlife* means any species of fauna, including avifauna, that occupy or utilize the submerged resources of the Sanctuary as nursery areas, feeding grounds, nesting sites, shelter, or other habitat during any portion of their life cycles.

(231) *Seagrass* means any species of marine angiosperms (flowering plants) that inhabit portions of the seabed in the Sanctuary. Those species include, but are not limited to: Thalassia testudinum (turtle grass); Syringodium filiforme (manatee grass); Halodule wrightii (shoal grass); Halophila decipiens, H. engelmannii, H. johnsonii; and Ruppia maritima.

(232) *Special-use Area* means an area of the Sanctuary set aside for scientific research and educational purposes, recovery or restoration of Sanctuary resources, monitoring, to prevent use or user conflicts, to facilitate access and use, or to promote public use and understanding of Sanctuary resources. Appendix VI to this part sets forth the geographic coordinates of these areas.

(233) *Tank vessel* means any vessel that is constructed or adapted to carry, or that carries, oil or hazardous material in bulk as cargo or cargo residue, and that -

(234) (1) Is a United States flag vessel;

(235) (2) Operates on the navigable waters of the United States; or

(236) (3) Transfers oil or hazardous material in a port or place subject to the jurisdiction of the United States [46 U.S.C. 2101].

(237) *Traditional fishing* means those commercial or recreational fishing activities that were customarily conducted within the Sanctuary prior to its designation as identified in the Environmental Impact Statement and Management Plan for this Sanctuary.

(238) *Tropical fish* means any species included in section (2) of Rule 46–42.001, Florida Administrative Code, reproduced in Appendix VIII to this subpart, or any part thereof.

(239) *Vessel* means a watercraft of any description, including, but not limited to, motorized and non-motorized watercraft, personal watercraft, airboats, and float planes while maneuvering on the water, capable of being used as a means of transportation in/on the waters of the Sanctuary. For purposes of this part, the terms "vessel," "watercraft," and "boat" have the same meaning.

(240) *Wildlife Management Area* means an area of the Sanctuary established for the management, protection, and preservation of Sanctuary wildlife resources, including such an area established for the protection and preservation of endangered or threatened species or their habitats, within which access is restricted to minimize disturbances to Sanctuary wildlife; to ensure protection and preservation consistent with the Sanctuary designation and other applicable law governing the protection and preservation of wildlife resources in the Sanctuary. Appendix III to this subpart lists these areas and their access restrictions.

(241) (b) Other terms appearing in the regulations in this part are defined at 15 CFR 922.3, and/or in the Marine Protection, Research, and Sanctuaries Act (MPRSA), as amended, 33 U.S.C. 1401 et seq. and 16 U.S.C., 1431 et seq.

(242) **§922.163 Prohibited activities—Sanctuary-wide.**

(243) (a) Except as specified in paragraph (b) through (e) of this section, the following activities are prohibited and thus are unlawful for any person to conduct or to cause to be conducted:

(244) (1) *Mineral and hydrocarbon exploration, development and production.* Exploring for, developing, or producing minerals or hydrocarbons within the Sanctuary.

(245) (2) *Removal of, injury to, or possession of coral or live rock.* (i) Moving, removing, taking, harvesting, damaging, disturbing, breaking, cutting, or otherwise injuring, or possessing (regardless of where taken from) any living or dead coral, or coral formation, or attempting any of these activities, except as permitted under 50 CFR part 638.

(246) (ii) Harvesting, or attempting to harvest, any live rock from the Sanctuary, or possessing (regardless of where taken from) any live rock within the Sanctuary, except as authorized by a permit for the possession or harvest from aquaculture operations in the Exclusive Economic Zone, issued by the National Marine Fisheries Service pursuant to applicable regulations under the appropriate Fishery Management Plan, or as authorized by the applicable State authority of competent jurisdiction within the Sanctuary for live rock cultured on State submerged lands leased from the State of Florida, pursuant to applicable State law. See §370.027, Florida Statutes and implementing regulations.

(247) (3) Alteration of, or construction on, the seabed. Drilling into, dredging, or otherwise altering the seabed of the Sanctuary, or engaging in prop-dredging; or constructing, placing or abandoning any structure, material, or other matter on the seabed of the Sanctuary, except as an incidental result of:

(248) (i) Anchoring vessels in a manner not otherwise prohibited by this part (see §§922.163(a)(5)(ii) and 922.164(d)(1)(v));

(249) (ii) Traditional fishing activities not otherwise prohibited by this part;

(250) (iii) Installation and maintenance of navigational aids by, or pursuant to valid authorization by, any Federal, State, or local authority of competent jurisdiction;

(251) (iv) Harbor maintenance in areas necessarily associated with Federal water resource development projects in existence on [insert effect date of these regulations], including maintenance dredging of entrance channels and repair, replacement, or rehabilitation of breakwaters or jetties;

(252) (v) Construction, repair, replacement, or rehabilitation of docks, seawalls, breakwaters, piers, or marinas with less than ten slips authorized by any valid lease, permit, license, approval, or other authorization issued by any Federal, State, or local authority of competent jurisdiction.

(253) (4) *Discharge or deposit of materials or other matter.* (i) Discharging or depositing, from within the boundary of the Sanctuary, any material or other matter, except:

(254) (A) Fish, fish parts, chumming materials, or bait used produced incidental to and while conducting a traditional fishing activity in the Sanctuary;

(255) (B) Biodegradable effluent incidental to vessel use and generated by a marine sanitation device approved in accordance with Section 312 of the Federal Water Pollution Control Act, as amended, (FWPCA), 33 U.S.C. 1322 et seq.;

(256) (C) Water generated by routine vessel operations (e.g., deck wash down and graywater as defined in section 312 of the FWPCA), excluding oily wastes from bilge pumping; or

(257) (D) Cooling water from vessels or engine exhaust;

(258) (ii) Discharging or depositing, from beyond the boundary of the Sanctuary, any material or other matter that subsequently enters the Sanctuary and injures a Sanctuary resource or quality, except those listed in paragraph (a)(4)(i)(A) through (D) of this section and those authorized under Monroe County land use permits.

(259) (5) *Operation of Vessels.* (i) Operating a vessel in such a manner as to strike or otherwise injure coral, seagrass, or any other immobile organism attached to the seabed, including, but not limited to, operating a vessel in such a manner as to cause prop-scarring.

(260) (ii) Having a vessel anchored on living coral other than hardbottom in water depths less than 50 feet when visibility is such that the seabed can be seen.

(261) (iii) Except in officially marked channels, operating a vessel at a speed greater than 4 knots or in a manner which creates a wake:

(262) (A) Within an area designated idle speed only/no wake;

(263) (B) Within 100 yards of navigational aids indicating emergent or shallow reefs (international diamond warning symbol);

(264) (C) Within 100 feet of the red and white "divers down" flag (or the blue and white "alpha" flag in Federal waters);

(265) (D) Within 100 yards of residential shorelines; or

(266) (E) Within 100 yards of stationary vessels.

(267) (iv) Operating a vessel in such a manner as to injure or take wading, roosting, or nesting birds or marine mammals.

(268) (v) Operating a vessel in a manner which endangers life, limb, marine resources, or property.

(269) (6) *Conduct of diving/snorkeling without flag.* Diving or snorkeling without flying in a conspicuous manner the red and white "divers down" flag (or the blue and white "alpha" flag in Federal waters).

(270) (7) *Release of exotic species.* Introducing or releasing an exotic species of plant, invertebrate, fish, amphibian, or mammals into the Sanctuary.

(271) (8) *Damage or removal of markers.* Marking, defacing, or damaging in any way or displacing, removing, or tampering with any official signs, notices, or placards, whether temporary or permanent, or with any navigational aids, monuments, stakes, posts, mooring buoys, boundary buoys, trap buoys, or scientific equipment.

(272) (9) *Movement of, removal of, injury to, or possession of Sanctuary historical resources.* Moving, removing, injuring, or possessing, or attempting to move, remove, injure, or possess, a Sanctuary historical resource.

(273) (10) *Take or possession of protected wildlife.* Taking any marine mammal, sea turtle, or seabird in or above the Sanctuary, except as authorized by the Marine Mammal Protection Act, as amended, (MMPA), 16 U.S.C. 1361 et seq., the Endangered Species Act, as amended, (ESA), 16 U.S.C. 1531 et seq., and the Migratory Bird Treaty Act, as amended, (MBTA) 16 U.S.C. 703 et seq.

(274) (11) *Possession or use of explosives or electrical charges.* Possessing, or using explosives, except powerheads, or releasing electrical charges within the Sanctuary.

(275) (12) *Harvest or possession of marine life species.* Harvesting, possessing, or landing any marine life species, or part thereof, within the Sanctuary, except in accordance with rules 46–42.001 through 46–42.003, 46–42.0035, and 46–42.004 through 46–42.007, and 46–42.009 of the Florida Administrative Code, reproduced in Appendix VIII to this subpart, and such rules shall apply mutatis mutandis (with necessary editorial changes) to all Federal and State waters within the Sanctuary.

(276) (13) *Interference with law enforcement.* Interfering with, obstructing, delaying or preventing an investigation, search, seizure, or disposition of seized property in connection with enforcement of the Acts or any regulation or permit issued under the Acts.

(277) (b) Notwithstanding the prohibitions in this section and in §922.164, and any access and use restrictions imposed pursuant thereto, a person may conduct an activity specifically authorized by, and conducted in accordance with the scope, purpose, terms, and conditions of, a National Marine Sanctuary permit issued pursuant to §922.166.

(278) (c) Notwithstanding the prohibitions in this section and in §922.164, and any access and use restriction imposed pursuant thereto, a person may conduct an activity specifically authorized by a valid Federal, State, or local lease, permit, license, approval, or other authorization in existence on the effective date of these regulations, or by any valid right of subsistence use or access in existence on the effective date of these regulations, provided that the holder of such authorization or right complies with §922.167 and with any terms and conditions on the exercise of such authorization or right imposed by the Director as a condition of certification as he or she deems reasonably necessary to achieve the purposes for which the Sanctuary was designated.

(279) (d) Notwithstanding the prohibitions in this section and in §922.164, and any access and use restrictions imposed pursuant thereto, a person may conduct an activity specifically authorized by any valid Federal, State, or local lease, permit, license, approval, or other authorization issued after the effective date of these regulations, provided that the applicant complies with §922.168, the Director notifies the applicant and authorizing agency that he or she does not object to issuance of the authorization, and the applicant complies with any terms and conditions the Director deems reasonably necessary to protect Sanctuary resources and qualities. Amendments, renewals and extensions of authorizations in existence on the effective date of these regulations constitute authorizations issued after the effective date of these regulations.

(280) (e)(1) All military activities shall be carried out in a manner that avoids to the maximum extent practical any adverse impacts on Sanctuary resources and qualities. The prohibitions in paragraph (a) of this section and §922.164 do not apply to existing classes of military activities which were conducted prior to the effective date of these regulations, as identified in the Environmental Impact Statement and Management Plan for the Sanctuary. New military activities in the Sanctuary are allowed and may be exempted from the prohibitions in paragraph (a) of this section and in §922.164 by the Director after consultation between the Director and the Department of Defense pursuant to section 304(d) of the NMSA. When a military activity is modified such that it is likely to destroy, cause the loss of, or injure a Sanctuary resource or quality in a manner significantly greater than was considered in a previous consultation under section 304(d) of the NMSA, or it is likely to destroy, cause the loss of, or injure a Sanctuary resource or quality not previously considered in a previous consultation under section 304(d) of the NMSA, the activity is considered a new activity for purposes of this paragraph. If it is determined that an activity may be carried out, such activity shall be carried out in a manner that avoids to the maximum extent practical any adverse impact on Sanctuary resources and qualities.

(281) (2) In the event of threatened or actual destruction of, loss of, or injury to a Sanctuary resource or quality resulting from an untoward incident, including but not limited to spills and groundings caused by the Department of Defense, the cognizant component shall promptly coordinate with the Director for the purpose of taking appropriate actions to prevent, respond to or mitigate the harm and, if possible, restore or replace the Sanctuary resource or quality.

(282) (f) The prohibitions contained in paragraph (a)(5) of this section do not apply to Federal, State and local officers while performing enforcement duties and/or responding to emergencies that threaten life, property, or the environment in their official capacity.

(283) (g) Notwithstanding paragraph (b) of this section and paragraph (a) of §922.168, in no event may the Director issue a permit under §922.166 authorizing, or otherwise approve, the exploration for, leasing, development, or production of minerals or hydrocarbons within the Sanctuary, the disposal of dredged material within the Sanctuary other than in connection with beach renourishment or Sanctuary restoration projects, or the discharge of untreated or primary treated sewage (except by a certification, pursuant to §922.167, of a valid authorization in existence on the effective date of these regulations), and any purported authorizations issued by other authorities after the effective date of these regulations for any of these activities within the Sanctuary shall be invalid.

(284) (h) Any amendment to these regulations shall not take effect in Florida State waters until approved by the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. Any fishery regulations in the Sanctuary shall not take effect in Florida State waters until established by the Florida Marine Fisheries Commission.

(285) **§922.164 Additional activity regulations by Sanctuary area.**

(286) In addition to the prohibitions set forth in §922.163, which apply throughout the Sanctuary, the following regulations apply with respect to activities conducted within the Sanctuary areas described in this section and in Appendix (II) through (VII) to this subpart. Activities located within two or more overlapping Sanctuary areas are concurrently subject to the regulations applicable to each overlapping area.

(287) (a) *Areas To Be Avoided.* Operating a tank vessel or a vessel greater than 50 meters in registered length is prohibited in all areas to be avoided, except if such vessel is a public vessel and its operation is essential for national defense, law enforcement, or responses to emergencies that threaten life, property, or the environment. Appendix VII to this subpart sets forth the geographic coordinates of these areas.

(288) (b) *Existing Management Areas.–(1) Key Largo and Looe Key Management Areas.* The following activities are prohibited within the Key Largo and Looe Key Management Areas (also known as the Key Largo and Looe Key National Marine Sanctuaries) described in Appendix II to this subpart:

(289) (i) Removing, taking, damaging, harmfully disturbing, breaking, cutting, spearing or similarly injuring any coral or other marine invertebrate, or any plant, soil, rock, or other material, except commercial taking of spiny lobster and stone crab by trap and recreational taking of spiny lobster by hand or by hand gear which is consistent with these regulations and the applicable regulations implementing the applicable Fishery Management Plan.

(290) (ii) Taking any tropical fish.

(291) (iii) Fishing with wire fish traps, bottom trawls, dredges, fish sleds, or similar vessel-towed or anchored bottom fishing gear or nets.

(292) (iv) Fishing with, carrying or possessing, except while passing through without interruption or for law enforcement purposes: pole spears, air rifles, bows and arrows, slings, Hawaiian slings, rubber powdered arbaletes, pneumatic and spring-loaded guns or similar devices known as spearguns.

(293) (2) *Great White Heron and Key West National Wildlife Refuge Management Areas.* Operating a personal watercraft, operating an airboat, or water skiing except within Township 66 South, Range 29 East, Sections 5, 11, 12 and 14; Township 66 South, Range 28 East, Section 2; Township 67 South, Range 26 East, Sections 16 and 20, all Tallahassee Meridian, are prohibited within the marine portions of the Great White Heron and Key West National Wildlife Refuge Management Areas described in Appendix II to this subpart:

(294) (c) *Wildlife Management Areas.* (1) Marine portions of the Wildlife Management Areas listed in Appendix III to this subpart or portions thereof may be designated "idle speed only/no-wake", "no-motor" or "no-access buffer" zones or "closed." The Director, in cooperation with other Federal, State, or local resource management authorities, as appropriate, shall post signs conspicuously, using mounting posts, buoys, or other means according to location and purpose, at appropriate intervals and locations, clearly delineating an area as an "idle speed only/no wake", a "no- motor", or a "no-access buffer" zone or as "closed", and allowing instant, long-range recognition by boaters. Such signs shall display the official logo of the Sanctuary.

(295) (2) The following activities are prohibited within the marine portions of the Wildlife Management Areas listed in Appendix III to this subpart:

(296) (i) In those marine portions of any Wildlife Management Area designated an " idle speed only/no wake" zone in Appendix III to this subpart, operating a vessel at a speed greater that idle speed only/no wake.

(297) (ii) In those marine portions of any Wildlife Management Area designated a "no-motor" zone in Appendix III to this subpart, using internal combustion motors or engines for any purposes. A vessel with an internal combustion motor or engine may access a "no-motor" zone only through the use of a push pole, paddle, sail, electric motor or similar means of propulsion.

(298) (iii) In those marine portions of any Wildlife Management Area designated a "no-access buffer" zone in Appendix III of this subpart, entering the area by vessel.

(299) (iv) In those marine portions of any Wildlife Management Area designated as closed in Appendix III to this subpart, entering or using the area.

(300) (3) The Director shall coordinate with other Federal, State, or local resource management authorities, as appropriate, in the establishment and enforcement of access restrictions described in paragraph (c)(2) (i)–(iv) of this section in the marine portions of Wildlife Management Areas.

(301) (4) The Director may modify the number and location of access restrictions described in paragraph (c)(2) (i)–(iv) of this section within the marine portions of a Wildlife Management Area if the Director finds that such action is reasonably necessary to minimize disturbances to Sanctuary wildlife, or to ensure protection and preservation of Sanctuary wildlife consistent with the purposes of the Sanctuary designation and other applicable law governing the protection and preservation of wildlife resources in the Sanctuary. The Director will effect such modification by:

(302) (i) Publishing in the **Federal Register**, after notice and an opportunity for public comments in accordance, an amendment to the list of such areas set forth in Appendix III to this subpart, and a notice regarding the time and place where maps depicting the precise locations of such restrictions will be made available for public inspection, and

(303) (ii) Posting official signs delineating such restrictions in accordance with paragraph (c)(1) of this section.

(304) (d) *Ecological Reserves and Sanctuary Preservation Areas.* (1) The following activities are prohibited within the Ecological Reserves described in Appendix IV to this subpart, and within the Sanctuary Preservation Areas, described in Appendix V to this subpart:

(305) (i) Discharging or depositing any material or other matter except cooling water or engine exhaust.

(306) (ii) Possessing, moving, harvesting, removing, taking, damaging, disturbing, breaking, cutting, spearing, or otherwise injuring any coral, marine invertebrate, fish, bottom formation, algae, seagrass or other living or dead organism, including shells, or attempting any of these activities. However, fish, invertebrates, and marine plants may be possessed aboard a vessel in an Ecological Reserve or Sanctuary Preservation Area, provided such resources can be shown not to have been harvested within, removed from, or taken within, the Ecological Reserve or Sanctu-

ary Preservation Area, as applicable, by being stowed in a cabin, locker, or similar storage area prior to entering and during transit through such reserves or areas.

(307) (iii) Except for catch and release fishing by trolling in the Conch Reef, Alligator Reef, Sombrero Reef, and Sand Key SPAs, fishing by any means. However, gear capable of harvesting fish may be aboard a vessel in an Ecological Reserve or Sanctuary Preservation Area, provided such gear is not available for immediate use when entering and during transit through such Ecological Reserve or Sanctuary Preservation Area, and no presumption of fishing activity shall be drawn therefrom.

(308) (iv) Touching living or dead coral, including but not limited to, standing on a living or dead coral formation.

(309) (v) Placing any anchor in a way that allows the anchor or any portion of the anchor apparatus (including the anchor, chain or rope) to touch living or dead coral, or any attached organism. When anchoring dive boats, the first diver down must inspect the anchor to ensure that it is not touching living or dead coral, and will not shift in such a way as to touch such coral or other attached organisms. No further diving shall take place until the anchor is placed in accordance with these requirements.

(310) (vi) Anchoring instead of mooring when a mooring buoy is available or anchoring in other than a designated anchoring area when such areas have been designated and are available.

(311) (vii) Except for passage without interruption though that area, for law enforcement purposes, or for purposes of monitoring pursuant to paragraph (d)(2) of this section, violating a temporary access restriction imposed by the Director pursuant to paragraph (d)(2) of this section.

(312) (2) The Director may temporarily restrict access to any portion of any Sanctuary Preservation Area or Ecological Reserve if the Director, on the basis of the best available data, information and studies, determines that a concentration of use appears to be causing or contributing to significant degradation of the living resources of the area and that such action is reasonably necessary to allow for recovery of the living resources of such area. The Director will provide for continuous monitoring of the area during the pendency of the restriction. The Director will provide public notice of the restriction by publishing a notice in the **Federal Register**, and by such other means as the Director may deem appropriate. The Director may only restrict access to an area for a period of 60 days, with one additional 60 day renewal. The Director may restrict access to an area for a longer period pursuant to a notice and opportunity for public comment rulemaking under the Administrative Procedure Act. Such restriction will be kept to the minimum amount of area necessary to achieve the purpose thereof.

(313) (e) *Special-use Areas.* (1) The Director may set aside discrete areas of the Sanctuary as Special-use Areas, and, by designation pursuant to this paragraph, impose the access and use restrictions specified in paragraph (e)(3) of this section. Special-use Areas are described in Appendix VI to this subpart, in accordance with the following designations and corresponding objectives:

(314) (i) "Recovery area" to provide for the recovery of Sanctuary resources from degradation or other injury attributable to human uses:

(315) (ii) "Restoration area" to provide for restoration of degraded or otherwise injured Sanctuary resources;

(316) (iii) "Research-only area" to provide for scientific research or education relating to protecting and management through the issuance of a Sanctuary General permit for research pursuant to §922.166; and

(317) (iv) "Facilitated-use area" to provide for the prevention of use or user conflicts or the facilitation of access and use, or to promote public use and understanding, of Sanctuary resources through the issuance of special-use permits.

(318) (2) A Special-use Area shall be no larger than the size the Director deems reasonably necessary to accomplish the applicable objective.

(319) (3) Persons conducting activities within any Special-use Area shall comply with the access and use restrictions specified in this paragraph and made applicable to such area by means of its designations as a "recovery area," "restoration area," "research-only area," or "facilitated-use area." Except for passage without interruption through the area or for law enforcement purposes, no person may enter a Special-use Area except to conduct or cause to be conducted the following activities:

(320) (i) in such area designated as a "recovery area" or a "restoration area," habitat manipulation related to restoration of degraded or otherwise injured Sanctuary resources, or activities reasonably necessary to monitor recovery of degraded or otherwise injured Sanctuary resources;

(321) (ii) in such area designated as a "research only area," scientific research or educational use specifically authorized by and conducted in accordance with the scope, purpose, terms and conditions of a valid National Marine Sanctuary General or Historical Resources permit, or

(322) (iii) in such area designated as a "facilitated-use area," activities specified by the Director or specifically authorized by and conducted in accordance with the scope, purpose, terms, and conditions of a valid Special-use permit.

(323) (4)(i) The Director may modify the number of, location of, or designations applicable to, Special-use Areas by publishing in the **Federal Register**, after notice and an opportunity for public comment in accordance with the Administration Procedure Act, an amendment to Appendix VI to this subpart, except that, with respect to such areas designated as a "recovery area," "restoration area," or "research only area," the Director may modify the number of, location of, or designation applicable to, such areas by publishing a notice of such action in the **Federal Register** if the Director determines that immediate action is reasonably necessary to:

(324) (A) Prevent significant injury to Sanctuary resources where circumstances create an imminent risk to such resources;

(325) (B) Initiate restoration activity where a delay in time would significantly impair the ability of such restoration activity to succeed;

(326) (C) Initiate research activity where an unforeseen natural event produces an opportunity for scientific research that may be lost if research is not initiated immediately.

(327) (ii) If the Director determines that a notice of modification must be promulgated immediately in accordance with paragraph (e)(4)(i) of this section, the Director will, as part of the same notice, invite public comment and specify that comments will be received for 15 days after the effective date of the notice. As soon as practicable after the end of the comment period, the Director will either rescind, modify or allow the modification to remain unchanged through notice in the **Federal Register**.

(328) (f) Additional Wildlife Management Areas, Ecological Reserves, Sanctuary Preservation Areas, or Special-use Areas, and additional restrictions in such areas, shall not take effect in

Florida State waters unless first approved by the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida.

(329) (g) Anchoring on Tortugas Bank. Vessels 50 meters or greater in registered length are prohibited from anchoring on the Tortugas Bank. The coordinates of the area on the Tortugas Bank, west of the Dry Tortugas National Park, closed to anchoring by vessels 50 meters or greater in registered length are:

(330) (1) 24°45.75'N., 82°54.40'W.

(331) (2) 24°45.60'N., 82°54.40'W.

(332) (3) 24°39.70'N., 83°00.05'W.

(333) (4) 24°32.00'N., 83°00.05'W.

(334) (5) 24°37.00'N., 83°06.00'W.

(335) (6) 24°40.00'N., 83°06.00'W.

(336) **§922.165 Emergency regulations.**

(337) Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality, or minimize the imminent risk of such destruction, loss, or injury, any and all activities are subject to immediate temporary regulation, including prohibition. Emergency regulations shall not take effect in Florida territorial waters until approved by the Governor of the State of Florida. Any temporary regulation may be in effect for up to 60 days, with one 60-day extension. Additional or extended action will require notice and comment rulemaking under the Administrative Procedure Act, notice in local newspapers, notice to Mariners, and press releases.

(338) **§922.166 Permits—application procedures and issuance criteria.**

(339) (a) National Marine Sanctuary General Permit.

(340) (1) A person may conduct an activity prohibited by §§922.163 or 922.164, other than an activity involving the survey/inventory, research/recovery, or deaccession/transfer of Sanctuary historical resources, if such activity is specifically authorized by, and provided such activity is conducted in accordance with the scope, purpose, terms and conditions of, a National Marine Sanctuary General permit issued under this paragraph (a).

(341) (2) The Director, at his or her discretion, may issue a General permit under this paragraph (a), subject to such terms and conditions as he or she deems appropriate, if the Director finds that the activity will:

(342) (i) Further research or monitoring related to Sanctuary resources and qualities;

(343) (ii) Further the educational value of the Sanctuary;

(344) (iii) Further the natural or historical resource value of the Sanctuary;

(345) (iv) Further salvage or recovery operations in or near the Sanctuary in connection with a recent air or marine casualty;

(346) (v) Assist in managing the Sanctuary; or

(347) (vi) Otherwise further Sanctuary purposes, including facilitating multiple use of the Sanctuary, to the extent compatible with the primary objective of resource protection.

(348) (3) The Director shall not issue a General permit under this paragraph (a), unless the Director also finds that:

(349) (i) The applicant is professionally qualified to conduct and complete the proposed activity;

(350) (ii) The applicant has adequate financial resources available to conduct and complete the proposed activity;

(351) (iii) The duration of the proposed activity is no longer than necessary to achieve its stated purpose;

(352) (iv) The methods and procedures proposed by the applicant are appropriate to achieve the proposed activity's goals in relation to the activity's impacts on Sanctuary resources and qualities;

(353) (v) The proposed activity will be conducted in a manner compatible with the primary objective of protection of Sanctuary resources and qualities, considering the extent to which the conduct of the activity may diminish or enhance Sanctuary resources and qualities, any indirect, secondary or cumulative effects of the activity, and the duration of such effects;

(354) (vi) It is necessary to conduct the proposed activity within the Sanctuary to achieve its purposes; and

(355) (vii) The reasonably expected and value of the activity to the furtherance of Sanctuary goals and purposes outweighs any potential adverse impacts on Sanctuary resources and qualities from the conduct of the activity.

(356) (4) For activities proposed to be conducted within any of the areas described in §922.164(b)–(e), the Director shall not issue a permit unless he or she further finds that such activities will further and are consistent with the purposes for which such area was established, as described in §§922.162 and 922.164 and in the management plan for the Sanctuary.

(357) (b) National Marine Sanctuary Survey/Inventory of Historical Resources Permit.

(358) (1) A person may conduct an activity prohibited by §§922.163 or 922.164 involving the survey/inventory of Sanctuary historical resources if such activity is specifically authorized by, and is conducted in accordance with the scope, purpose, terms and conditions of, a Survey/Inventory of Historical Resources permit issued under this paragraph (b). Such permit is not required if such survey/inventory activity does not involve any activity prohibited by §§922.163 or 922.164. Thus, survey/inventory activities that are non-intrusive, do not include any excavation, removal, or recovery of historical resources, and do not result in destruction of, loss of, or injury to Sanctuary resources or qualities do not require a permit. However, if a survey/inventory activity will involve test excavations or removal of artifacts or materials for evaluative purposes, a Survey/Inventory of Historical Resources permit is required. Regardless of whether a Survey/Inventory permit is required, a person may request such permit. Persons who have demonstrated their professional abilities under a Survey/Inventory permit will be given preference over other persons in consideration of the issuance of a Research/Recovery permit. While a Survey/Inventory permit does not grant any rights with regards to areas subject to pre-existing rights of access which are still valid, once a permit is issued for an area, other survey/inventory permits will not be issued for the same area during the period for which the permit is valid.

(359) (2) The Director, at his or her direction, may issue a Survey/Inventory permit under this paragraph (b), subject to such terms and conditions as he or she deems appropriate, if the Director finds that such activity:

(360) (i) Satisfies the requirements for a permit issued under paragraph (a)(3) of this section;

(361) (ii) Either will be non-intrusive, not include any excavation, removal, or recovery of historical resources, and not result in destruction of, loss of, or injury to Sanctuary resources or qualities, or if intrusive, will involve no more than the minimum manual alteration of the seabed and/or the removal of artifacts or other material necessary for evaluative purposes and will cause

no significant adverse impacts on Sanctuary resources or qualities; and

(362) (iii) That such activity will be conducted in accordance with all requirements of the Programmatic Agreement for the Management of Submerged Cultural Resources in the Florida Keys National Marine Sanctuary among NOAA, the Advisory Council on Historic Preservation, and the State of Florida (hereinafter SCR Agreement), and that such permit issuance is in accordance with such SCR Agreement.

(363) The SCR Agreement is reproduced in the "Submerged Cultural Resources Action Plan" set forth in Volume 1 of the Florida Keys National Marine Sanctuary Management Plan, dated 1996. Copies of the SCR Agreement may also be examined at, and obtained from, the Sanctuaries and Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, National Oceanic and Atmospheric Administration, 1305 East-West Highway, 12th floor, Silver Spring, MD 20910; or from the Florida Keys National Marine Sanctuary Office, P.O. Box 500368, Marathon, FL 33050.

(364) (c) National Marine Sanctuary Research/Recovery of Sanctuary Historical Resources Permit.

(365) (1) A person may conduct any activity prohibited by §§922.163 or 922.164 involving the research/recovery of Sanctuary historical resources if such activity is specifically authorized by, and is conducted in accordance with the scope, purpose, terms and conditions of, a Research/Recovery of Historical Resources permit issued under this paragraph (c).

(366) (2) The Director, at his or her discretion, may issue a Research/Recovery of Historical Resources permit, under this paragraph (c), and subject to such terms and conditions as he or she deems appropriate, if the Director finds that:

(367) (i) Such activity satisfies the requirements for a permit issued under paragraph (a)(3) of this section;

(368) (ii) The recovery of the resource is in the public interest as described in the SCR Agreement;

(369) (iii) Recovery of the resource is part of research to preserve historic information for public use; and

(370) (iv) Recovery of the resource is necessary or appropriate to protect the resource, preserve historical information, and/or further the policies and purposes of the NMSA and the FKNMSPAK, and that such permit issuance is an accordance with, and that the activity will be conducted in accordance with, all requirements of the SCR Agreement.

(371) (d) National Marine Sanctuary Special-use Permit.

(372) (1) A person may conduct any commercial or concession-type activity prohibited by §§922.163 or 922.164, if such activity is specifically authorized by, and is conducted in accordance with the scope, purpose, terms and conditions of, a Special-use permit issued under this paragraph (d). A Special-use permit is required for the deaccession/transfer of Sanctuary historical resources.

(373) (2) The Director, at his or her discretion, may issue a Special-use permit in accordance with this paragraph (d), and subject to such terms and conditions as he or she deems appropriate and the mandatory terms and conditions of section 310 of the NMSA, if the Director finds that issuance of such permit is reasonably necessary to: establish conditions of access to and use of any Sanctuary resource; or promote public use and understanding of any Sanctuary resources. No permit may be issued unless the activity is compatible with the purposes for which the Sanctuary was designated and can be conducted in a manner that does not destroy, cause the loss of, or injure any Sanctuary resource, and if for the deaccession/transfer of Sanctuary Historical Resources, unless such permit issuance is in accordance with, and that the activity will be conducted in accordance with, all requirements of the SCR Agreement.

(374) (3) The Director may assess and collect fees for the conduct of any activity authorized by a Special-use permit issued pursuant to this paragraph (d). No Special-use permit shall be effective until all assessed fees are paid, unless otherwise provided by the Director by a fee schedule set forth as a permit condition. In assessing fee, the Director shall include:

(375) (i) all costs incurred, or expected to be incurred, in reviewing and processing the permit application, including, but not limited to, costs for:

(376) (A) Number of personnel;

(377) (B) Personnel hours;

(378) (C) Equipment;

(379) (D) Biological assessments;

(380) (E) Copying; and

(381) (F) Overhead directly related to reviewing and processing the permit application;

(382) (ii) all costs incurred, or expected to be incurred, as a direct result of the conduct of the activity for which the Special-use permit is being issued, including, but not limited to:

(383) (A) The cost of monitoring the conduct both during the activity and after the activity is completed in order to assess the impacts to Sanctuary resources and qualities;

(384) (B) The use of an official NOAA observer, including travel and expenses and personnel hours; and

(385) (C) Overhead costs directly related to the permitted activity; and

(386) (iii) an amount which represents the fair market value of the use of the Sanctuary resource and a reasonable return to the United States Government.

(387) (4) Nothing in this paragraph (d) shall be considered to require a person to obtain a permit under this paragraph for the conduct of any fishing activities within the Sanctuary.

(388) (e) *Applications.* (1) Application for permits should be addressed to the Director, Office of Ocean and Coastal Resource Management; ATTN: Sanctuary Superintendent, Florida Keys National Marine Sanctuary, PO Box 500368, Marathon, FL 33050. All applications must include:

(389) (i) A detailed description of the proposed activity including a timetable for completion of the activity and the equipment, personnel and methodology to be employed;

(390) (ii) The qualifications and experience of all personnel;

(391) (iii) The financial resources available to the applicant to conduct and complete the proposed activity;

(392) (iv) A statement as to why it is necessary to conduct the activity within the Sanctuary;

(393) (v) The potential impacts of the activity, if any, on Sanctuary resources and qualities;

(394) (vi) The benefit to be derived from the activity; and

(395) (vii) Such other information as the Director may request depending on the type of activity.

(396) Copies of all other required licenses, permits, approvals, or other authorizations must be attached to the application.

(397) (3) Upon receipt of an application, the Director may request such additional information from the applicant as he or she deems reasonably necessary to act on the application and may seek the views of any persons. The Director may require a site

visit as part of the permit evaluation. Unless otherwise specified the information requested must be received by the Director within 30 days of the postmark date of the request. Failure to provide such additional information on a timely basis may be deemed by the Director to constitute abandonment or withdrawal of the permit application.

(398) (f) A permit may be issued for a period not exceeding five years. All permits will be reviewed annually to determine to the permittee's compliance with permit scope, purpose, terms and conditions and progress toward reaching the stated goals and appropriate action taken under paragraph (g) of this section if warranted. A permittee may request permit renewal pursuant to the same procedures for applying for a new permit. Upon the permittee's request for renewal, the Director shall review all reports submitted by the permittee as required by the permit conditions. In order to renew the permit, the Director must find that the:

(399) (1) Activity will continue to further the purposes for which the Sanctuary was designated in accordance with the criteria applicable to the initial issuance of the permit;

(400) (2) permittee has at no time violated the permit, or these regulations; and

(401) (3) the activity has not resulted in any unforeseen adverse impacts to Sanctuary resources or qualities.

(402) (g) The Director may amend, suspend, or revoke a permit for good cause. The Director may deny a permit application, in whole or in part, if it is determined that the permittee or applicant has acted in violation of a previous permit, of these regulations, of the NMSA or FKNMSPA, or for other good cause. Any such action shall be communicated in writing to the permittee or applicant by certified mail and shall set forth the reason(s) for the action taken. Procedures governing permit sanctions and denials for enforcement reasons are set forth in subpart D of 15 CFR part 904.

(403) (h) The applicant for or holder of a National Marine Sanctuary permit may appeal the denial, conditioning, amendment, suspension or revocation of the permit in accordance with the procedures set forth in §922.50.

(404) (i) A permit issued pursuant to this section other than a Special-use permit is nontransferable. Special-use permits may be transferred, sold, or assigned with the written approval of the Director. The permittee shall provide the Director with written notice of any proposed transfer, sale, or assignment no less than 30 days prior to its proposed consummation. Transfers, sales, or assignments consummated in violation of this requirement shall be considered a material breach of the Special-use permit, and the permit shall be considered void as of the consummation of any such transfer, sale, or assignment.

(405) (j) The permit or a copy thereof shall be maintained in legible condition on board all vessels or aircraft used in the conduct of the permitted activity and the displayed for inspection upon the request of any authorized officer.

(406) (k) Any permit issued pursuant to this section shall be subject to the following terms and conditions:

(407) (1) All permitted activities shall be conducted in a manner that does not destroy, cause the loss of, or injure Sanctuary resources or qualities, except to the extent that such may be specifically authorized.

(408) (2) The permittee agrees to hold the United States harmless against any claims arising out of the conduct of the permitted activities.

(409) (3) All necessary Federal, State, and local permits from all agencies with jurisdiction over the proposed activities shall be secured before commencing field operations.

(410) (l) In addition to the terms and conditions listed in paragraph (k) of this section, any permit authorizing the research/recovery of historical resources shall be subject to the following terms and conditions:

(411) (1) a professional archaeologist shall be in charge of planning, field recovery operations, and research analysis.

(412) (2) an agreement with a conservation laboratory shall be in place before field recovery operations are begun, an approved nautical conservator shall be in charge of planning, conducting, and supervising the conservation of any artifacts and other materials recovered.

(413) (3) a curation agreement with a museum or facility for curation, public access and periodic public display, and maintenance of the recovered historical resources shall be in place before commencing field operations (such agreement for the curation and display of recovered historical resources may provide for the release of public artifacts for deaccession/transfer if such deaccession/transfer is consistent with preservation, research, education, or other purposes of the designation of the designation and management of the Sanctuary. Deaccession/transfer of historical resources requires a Special-use permit issued pursuant to paragraph (d) of this section and such deaccession/transfer shall be executed in accordance with the requirements of the SCR Agreement).

(414) (4) The site's archaeological information is fully documented, including measured drawings, site maps drawn to professional standards, and photographic records.

(415) (m) In addition to the terms and conditions listed in paragraph (k) and (l) of this section, any permit issued pursuant to this section is subject to such other terms and conditions, including conditions governing access to, or use of, Sanctuary resources, as the Director deems reasonably necessary or appropriate and in furtherance of the purposes for which the Sanctuary is designated. Such terms and conditions may include, but are not limited to:

(416) (1) Any data or information obtained under the permit shall be made available to the public.

(417) (2) A NOAA official shall be allowed to observe any activity conducted under the permit.

(418) (3) The permittee shall submit one or more reports on the status, progress, or results of any activity authorized by the permit.

(419) (4) The permittee shall submit an annual report to the Director not later than December 31 of each year on activities conducted pursuant to the permit. The report shall describe all activities conducted under the permit and all revenues derived from such activities during the year and/or term of the permit.

(420) (5) The permittee shall purchase and maintain general liability insurance or other acceptable security against potential claims for destruction, loss of, or injury to Sanctuary resources arising out of the permitted activities. The amount of insurance or security should be commensurate with an estimated value of the Sanctuary resources in the permitted area. A copy of the insurance policy or security instrument shall be submitted to the Director.

(421) **§922.167 Certification of preexisting leases, licenses, permits, approvals, other authorizations, or rights to conduct a prohibited activity.**

(422) (a) A person may conduct an activity prohibited by §§922.163 or 922.164 if such activity is specifically authorized by a valid Federal, State, or local lease, permit, license, approval, or other authorization in existence on (insert the effective date of these regulations), or by any valid right of subsistence use or access in existence on (insert the effective date of these regulations), provided that:

(423) (1) The holder of such authorization or right notifies the Director, in writing, within 90 days of (insert the effective date of these regulations), of the existence of such authorization or right and requests certification of such authorization or right;

(424) (2) The holder complies with the other provisions of this §922.167; and

(425) (3) The holder complies with any terms and conditions on the exercise of such authorization or right imposed as a condition of certification, by the Director, to achieve that purposes for which the Sanctuary was designated.

(426) (b) The holder of an authorization or right described in paragraph (a) of this section authorizing an activity prohibited by §922.163 or §922.164 may conduct the activity without being in violation of applicable provisions of §922.163 or §922.164, pending final agency action on his or her certification request, provided the holder is in compliance with this §922.167.

(427) (c) Any holder of an authorization or right described in paragraph (a) above may request the Director to issue a finding as to whether the activity for which the authorization has been issued, or the right given, is prohibited by §922.163 or §922.164, thus requiring certification under this section.

(428) (d) Requests for findings or certifications should be addressed to the Director, Office of Ocean and Coastal Resource Management; ATTN: Sanctuary Superintendent, Florida Keys National Marine Sanctuary, P.O. Box 500368, Marathon, FL 33050. A copy of the lease, permit, license, approval, or other authorization and accompany the request.

(429) (e) The Director may request additional information from the certification requester as he or she deems reasonably necessary to condition appropriately the exercise of the certified authorization or right to achieve the purposes for which the Sanctuary was designated. The information requested must be received by the Director within 45 days of the postmark date of the request. The Director may seek the views of any persons on the certification request.

(430) (f) The Director may amend any certification made under this §922.167 whenever additional information becomes available justifying such an amendment.

(431) (g) Upon completion of review of the authorization or right and information received with respect thereto, the Director shall communicate, in writing, any decision on a certification request or any action taken with respect to any certification made under this §922.167, in writing, to both the holder of the certified lease, permit, license, approval other authorization, or right, and the issuing agency, and shall set forth the reason(s) for the decision or action taken.

(432) (h) Any time limit prescribed in or established under this §922.167 may be extended by the Director for good cause.

(433) (i) The holder may appeal any action conditioning, amending, suspending, or revoking any certification in accordance with the procedures set forth in §922.50.

(434) (j) Any amendment, renewal, or extension made after (insert the effective date of these regulations), to a lease, permit, license, approval, other authorization or right is subject to the provisions of §922.49.

Appendix I to Subpart P of Part 922—Florida Keys National Marine Sanctuary boundary coordinates

(Appendix based on North American Datum of 1983)

(435) The boundary of the Florida Keys National Marine Sanctuary–

(436) (a) begins at the north easternmost point of Biscayne National Park located at approximately 25°39'N., 80°05'W., then runs eastward to the 300-foot isobath located at approximately 25°39'N., 80°04'W.;

(437) (b) then runs southward and connects in succession the points at the following coordinates:

(438) (i) 25°34'N., 80°04'W.,

(439) (ii) 25°28'N., 80°05'W., and

(440) (iii) 25°21'N., 80°07'W.;

(441) (iv) 25°16'N., 80°08'W.;

(442) (c) then runs southwesterly approximating the 300-foot isobath and connects in succession the points at the following coordinates:

(443) (i) 25°07'N., 80°13'W.,

(444) (ii) 24°57'N., 80°21'W.,

(445) (iii) 24°39'N., 80°52'W.,

(446) (iv) 24°30'N., 81°23'W.,

(447) (v) 24°25'N., 81°50'W.,

(448) (vi) 24°22'N., 82°48'W.,

(449) (vii) 24°37'N., 83°06'W.,

(450) (viii) 24°40'N., 83°06'W.,

(451) (ix) 24°46'N., 82°54'W.,

(452) (x) 24°44'N., 81°55'W.,

(453) (xi) 24°51'N., 81°26'W., and

(454) (xii) 24°55'N., 80°56'W.;

(455) (d) then follows the boundary of Everglades National Park in a southerly then northeasterly direction through Florida Bay, Buttonwood Sound, Tarpon Basin, and Blackwater Sound;

(456) (e) after Division Point, then departs from the boundary of Everglades National Park and follows the western shoreline of Manatee Bay, Barnes Sound, and Card Sound;

(457) (f) then follows the southern boundary of Biscayne National Park to the southeastern most point of Biscayne National Park; and

(458) (g) then follows the eastern boundary of Biscayne National Park to the beginning point specified in paragraph (a).

Appendix II to Subpart P of Part 922—Existing Management Areas boundary coordinates

(459) The Existing Management Areas are located within the following geographic boundary coordinates:

(460) National Oceanic and Atmospheric Administration, Preexisting National Marine Sanctuaries:

(461) Key Largo Management Area (Key Largo National Marine Sanctuary):

Point	Latitude	Longitude
1	25°19.45'N.	80°12.00'W.
2	25°16.02'N.	80°08.07'W.
3	25°07.05'N.	80°12.05'W.

Point	Latitude	Longitude
4	24°58.03'N.	80°19.08'W.
5	25°02.02'N.	80°25.25W.

(462) Looe Key Management Area (Looe Key National Marine Sanctuary):

Point	Latitude	Longitude
1	24°31.62'N.	81°26.00'W.
2	24°33.57'N.	81°26.00'W.
3	24°34.15'N.	81°23.00'W.
4	24°32.20'N.	81°23.00'W.

(463) United States Fish and Wildlife Service: Great White Heron National Wildlife Refuge (based on the North American Datum of 1983):

Point	Latitude	Longitude
1	24°43.8'N.	81°48.6'W.
2	24°43.8'N.	81°37.2'W.
3	24°49.2'N.	81°37.2'W.
4	24°49.2'N.	81°19.8'W.
5	24°48.0'N.	81°19.8'W.
6	24°48.0'N.	81°14.4'W.
7	24°49.2'N.	81°14.4'W.
8	24°49.2'N.	81°08.4'W.
9	24°49.8'N.	81°08.4'W.
10	24°43.8'N.	81°14.4'W.
11	24°43.2'N.	81°14.4'W.
12	24°43.2'N.	81°16.2'W.
13	24°42.6'N.	81°16.2'W.
14	24°42.6'N.	81°21.0'W.
15	24°41.4'N.	81°21.0'W.
16	24°41.4'N.	81°22.2'W.
17	24°43.2'N.	81°22.2'W.
18	24°43.2'N.	81°22.8'W.
19	24°43.8'N.	81°22.8'W.
20	24°43.8'N.	81°24.0'W.
21	24°43.2'N.	81°24.0'W.
22	24°43.2'N.	81°26.4'W.
23	24°43.8'N.	81°26.4'W.
24	24°43.8'N.	81°27.0'W.
25	24°43.2'N.	81°27.0'W.
26	24°43.2'N.	81°29.4'W.
27	24°42.6'N.	81°29.4'W.
28	24°42.6'N.	81°30.6'W.
29	24°41.4'N.	81°30.6'W.
30	24°41.4'N.	81°31.2'W.
31	24°40.8'N.	81°31.2'W.
32	24°40.8'N.	81°32.4'W.
33	24°41.4'N.	81°32.4'W.
34	24°41.4'N.	81°34.2'W.
35	24°40.8'N.	81°34.2'W.
36	24°48.0'N.	81°35.4'W.
37	24°39.6'N.	81°35.4'W.
38	24°39.6'N.	81°36.0'W.
39	24°39.0'N.	81°36.0'W.
40	24°39.0'N.	81°37.2'W.
41	24°37.8'N.	81°37.2'W.
42	24°37.8'N.	81°37.8'W.
43	24°37.2'N.	81°37.8'W.
44	24°37.2'N.	81°40.2'W.
45	24°36.0'N.	81°40.2'W.
46	24°36.0'N.	81°40.8'W.
47	24°35.4'N.	81°40.8'W.
48	24°35.4'N.	81°42.0'W.
49	24°36.0'N.	81°42.0'W.
50	24°36.0'N.	81°48.6'W.

Key West National Wildlife Refuge:

Point	Latitude	Longitude
1	24°40'N.	81°49'W.
2	24°40'N.	82°10'W.
3	24°27'N.	82°10'W.
4	24°27'N.	81°49'W.

(464) When differential Global Positioning Systems data becomes available, these coordinates may be revised by **Federal Register** notice to reflect the increased accuracy of such data.

Appendix IV to Subpart P of Part 922—Ecological Reserves boundary coordinates

(465) One Ecological Reserve–the Western Sambos Ecological Reserve–is designated in the area of Western Sambos reef. NOAA has committed to designating a second Ecological Reserve within two years from issuance of this plan in the area of the Dry Tortugas. The establishment of a Dry Tortugas Ecological Reserve will be proposed by a notice of proposed rulemaking with a proposed boundary determined through a joint effort among the Sanctuary, and the National Park Service, pursuant to a public process involving a team consisting of managers, scientists, conversationists, and affected user groups.

(466) The Western Sambos Ecological Reserve (based on North American Datum of 1983, aerial photos, charts, and Geographic Information Systems data) is located within the following geographic boundary coordinates:

***WESTERN SAMBOS**

Point	Latitude	Longitude
1	24°33.70'N.	81°40.80'W.
2	24°28.85'N.	81°41.90'W.
3	24°28.50'N.	81°43.70'W.
4	24°33.50'N.	81°43.10'W.

Appendix to Subpart P of Part 922—Wildlife Management Areas Access Restrictions

Area	Access restrictions
Bay Keys	No-motor zone (300 feet) around one key; idle speed only/no-wake zones in tidal creeks.
Boca Grande Key	South one-half of beach closed (beach above mean high water closed by Department of Interior).
Woman Key	One-half of beach and sand spit on southeast side closed (beach and sand spit above mean high water closed by Department of the Interior).
Cayo Agua Keys	Idle speed only/no-wake zones in all navigable tidal creeks.
Cotton Key	No-motor zone on tidal flat.
Snake Creek	No-motor zone on tidal flat.
Cottrell Key	No-motor zone (300 feet) around entire key.
Little Mullet Key	No-access buffer zone (300 feet) around entire key.
Big Mullet Key	No-motor zone (300 feet) around entire key
Crocodile Lake	No-access buffer zone (100 feet) along shoreline between March 1 and October 1.
East Harbor Key	No-access buffer zone (300 feet) around northernmost island.
Lower Harbor Keys	Idle speed only/no-wake zones in selected tidal creeks.
Eastern Lake Surprise	Idle speed only/no-wake zone east of highway U.S. 1.
Horseshoe Key	No-access buffer zone (300 feet) around main island (main island closed by Department of Interior).
Marquesas Keys	(i) No-motor zones (300 feet) around three smallest keys on western side of chain; (ii) no-access buffer zone (300 feet) around one island at western side of chain; (iii) idle speed only/no-wake zone in southwest tidal creek.
Tidal flat south of Marvin Key	No-access buffer zone on tidal flat
Mud Keys	(i) Idle speed only/no-wake zones in the two main tidal creeks; (ii) two smaller creeks on west side closed.
Pelican Shoal	No-access buffer zone-out to 50 meters from shore between April 1 and August 31 (shoal closed by the Florida Game Freshwater Fish Commission).
Rodriguez Key	No-motor zone on tidal flats.
Dove Key	No-motor zone on tidal flats; area around the two small islands closed.
Tavernier Key	No-motor zone on tidal flats.
Sawyer Keys	Tidal creeks on south side closed.
Snipe Keys	(i) Idle speed only/no-wake zone in main tidal creek; (ii) no-motor zone in all other tidal creeks.
Upper Harbor Key	No-access buffer zone (300 feet) around entire key.
East Content Keys	Idle speed only/no-wake zones in tidal creeks between southwesternmost keys.
West Content Keys	Idle speed only/no-wake zones in selected tidal creeks; no-access buffer zone in one cove.
Little Crane Key	No-access buffer zone (300 feet) around entire key.

(*Denotes located in State Waters)

Appendix V to Subpart P of Part 922—Sanctuary Preservation Areas Boundary Coordinates

(467) The Sanctuary Preservation Areas (SPAs) (based on differential Global Positioning Systems data) are located within the following geographic boundary coordinates:

ALLIGATOR REEF

Point	Latitude	Longitude
1	24°50.98'N.	80°36.84'W.
2	24°50.51'N.	80°37.35'W.
3	24°50.81'N.	80°37.63'W.
4	24°51.23'N.	80°37.17'W.

(468) Catch and release fishing by trolling only is allowed in this SPA.

CARYSFORT/SOUTH CARYSFORT REEF

Point	Latitude	Longitude
1	25°13.78'N.	80°12.00'W.
2	25°12.03'N.	80°12.98'W.
3	25°12.24'N.	80°13.77'W.
4	25°14.13'N.	80°12.78'W.

*CHEECA ROCKS

Point	Latitude	Longitude
1	24°54.42'N.	80°36.91'W.
2	24°54.25'N.	80°36.77'W.
3	24°54.10'N.	80°37.00'W.
4	24°54.22'N.	80°37.15'W.

COFFINS PATCH

Point	Latitude	Longitude
1	24°41.47'N.	80°57.68'W.
2	24°41.12'N.	80°57.53'W.
3	24°40.75'N.	80°58.33'W.
4	24°41.06'N.	80°58.48'W.

CONCH REEF

Point	Latitude	Longitude
1	24°57.48'N.	80°27.47'W.
2	24°57.34'N.	80°27.26'W.
3	24°56.78'N.	80°27.52'W.
4	24°56.96'N.	80°27.73'W.

(469) Catch and release fishing by trolling only is allowed in this SPA.

DAVIS REEF

Point	Latitude	Longitude
1	24°55.61'N.	80°30.27'W.
2	24°55.41'N.	80°30.05'W.
3	24°55.11'N.	80°30.35'W.
4	24°55.34'N.	80°30.52'W.

DRY ROCKS

Point	Latitude	Longitude
1	25°07.59'N.	80°17.91W.
2	25°07.41'N.	80°17.70'W.
3	25°07.25'N.	80°17.82'W.
4	25°07.41'N.	80°18.09'W.

GRECIAN ROCKS

Point	Latitude	Longitude
1	25°06.91'N.	80°18.20W.
2	25°06.67'N.	80°18.06'W.
3	25°06.39'N.	80°18.32'W.
4	25°06.42'N.	80°18.48'W.
5	25°06.81'N.	80°18.44'W.

*EASTERN DRY ROCKS

Point	Latitude	Longitude
1	24°27.92'N.	81°50.55'W.
2	24°27.73'N.	81°50.33'W.
3	24°27.47'N.	81°50.80'W.
4	24°27.72'N.	81°50.86'W.

THE ELBOW

Point	Latitude	Longitude
1	25°08.97'N.	80°15.63'W.
2	25°08.95'N.	80°15.22'W.
3	25°08.18'N.	80°15.64'W.
4	25°08.50'N.	80°16.07'W.

FRENCH REEF

Point	Latitude	Longitude
1	25°02.20'N.	80°20.63'W.
2	25°01.81'N.	80°21.02'W.
3	25°02.36'N.	80°21.27'W.

*HENS AND CHICKENS

Point	Latitude	Longitude
1	24°56.38'N.	80°32.86'W.
2	24°56.21'N.	80°32.63'W.
3	24°55.86'N.	80°32.95'W.
4	24°56.04'N.	80°33.19'W.

LOOE KEY

Point	Latitude	Longitude
1	24°33.24'N.	81°24.03'W.
2	24°32.70'N.	81°23.85'W.
3	24°32.52'N.	81°32.70'W.
4	24°33.12'N.	81°24.81'W.

MOLASSES REEF

Point	Latitude	Longitude
1	25°01.00'N.	80°22.53'W.
2	25°01.06'N.	80°21.84'W.
3	25°00.29'N.	80°22.70'W.
4	25°00.72'N.	80°22.83'W.

*NEWFOUND HARBOR KEY

Point	Latitude	Longitude
1	24°37.10'N.	81°23.34'W.
2	24°36.85'N.	81°23.28'W.
3	24°36.74'N.	81°23.80'W.
4	24°37.00'N.	81°23.86'W.

*ROCK KEY

Point	Latitude	Longitude
1	24°27.48'N.	81°51.35'W.
2	24°27.30'N.	81°51.15'W.
3	24°27.21'N.	81°51.60'W.
4	24°27.45'N.	81°51.65'W.

*SAND KEY

Point	Latitude	Longitude
1	24°27.58'N.	81°52.29'W.
2	24°27.01'N.	81°52.32'W.
3	24°27.02'N.	81°52.95'W.
4	24°27.61'N.	81°52.94'W.

(470) Catch and release fishing by trolling only is allowed in this SPA.

SOMBRERO KEY

Point	Latitude	Longitude
1	24°37.91'N.	81°06.78'W.
2	24°37.50'N.	81°06.19'W.
3	24°37.25'N.	81°06.89'W.

*Denotes located in State waters

(471) Catch and release fishing by trolling only is allowed in this SPA.

Appendix VI to Subpart P of Part 922—Special-Use Areas Boundary Coordinates and Use Designations

(472) The Special-use Areas (based on differential Global Positioning Systems data) are located within the following geographic boundary coordinates:

CONCH REEF (RESEARCH ONLY)

Point	Latitude	Longitude
1	24°56.83'N.	80°27.26'W.
2	24°57.10'N.	80°26.93'W.
3	24°56.99'N.	80°27.42'W.
4	24°57.34'N.	80°27.26'W.

EASTERN SAMBOS (RESEARCH ONLY)

Point	Latitude	Longitude
1	24°29.84'N.	81°39.59'W.
2	24°29.55'N.	81°39.35'W.
3	24°29.37'N.	81°39.96'W.
4	24°29.77'N.	81°40.03'W.

LOOE KEY (RESEARCH ONLY)

Point	Latitude	Longitude
1	24°34.17'N.	81°23.01'W.
2	24°33.98'N.	81°22.96'W.
3	24°33.84'N.	81°23.60'W.
4	24°34.23'N.	81°23.68'W.

TENNESSEE REEF (RESEARCH ONLY)

Point	Latitude	Longitude
1	24°44.77'N.	80°47.12'W.
2	24°45.57'N.	80°46.98'W.
3	24°44.68'N.	80°46.59'W.
4	24°44.95'N.	80°45.74'W.

Appendix VII to Subpart P of Part 922—Areas To Be Avoided Boundary Coordinates

In the Vicinity of the Florida Keys

(Reference Charts: United States 11466, 27th Edition–September 1, 1990 and United States 11450, 4th Editon–August 11, 1990.)

Point	Latitude	Longitude
1	25°45.00'N.	80°06.10'W.
2	25°38.70'N.	80°02.70'W.
3	25°22.00'N.	80°03.00'W.
4	25°00.20'N.	80°13.40'W.
5	24°37.90'N.	80°47.30'W.
6	24°29.20'N.	81°17.30'W.
7	24°22.30'N.	81°43.17'W.
8	24°28.00'N.	81°43.17'W.
9	24°28.70'N.	81°43.50'W.
10	24°29.80'N.	81°43.17'W.
11	24°33.10'N.	81°35.15'W.
12	24°33.60'N.	81°26.00'W.
13	24°38.20'N.	81°07.00'W.
14	24°43.20'N.	80°53.20'W.
15	24°46.10'N.	80°46.15'W.
16	24°51.10'N.	80°37.10'W.
17	24°57.50'N.	80°27.50'W.
18	25°09.90'N.	80°16.20'W.
19	25°24.00'N.	80°09.10'W.
20	25°31.50'N.	80°07.00'W.
21	25°39.70'N.	80°06.85'W.
22	25°45.00'N.	80°06.10'W.

In the Vicinity of Key West Harbor

(Reference Chart: United States 11434, 21st Edition–August 11, 1990.)

Point	Latitude	Longitude
23	24°27.95'N.	81°48.65'W.
24	24°23.00'N.	81°53.50'W.
25	24°26.60'N.	81°58.50'W.
26	24°27.75'N.	81°55.70'W.
27	24°29.35'N.	81°53.40'W.
28	24°29.35'N.	81°50.00'W.
29	34°27.95'N.	81°48.65'W.

Area Surrounding the Dry Marquesas Keys

(Reference Chart: United States 11434, 21st Edition–August 11, 1990.)

Point	Latitude	Longitude
30	24°26.60'N.	81°59.55'W.
31	24°23.00'N.	82°03.50'W.
32	24°23.60'N.	82°27.80'W.
33	24°34.50'N.	82°37.50'W.
34	24°43.00'N.	82°26.50'W.
35	24°38.31'N.	81°54.06'W.
36	24°37.91'N.	81°53.40'W.
37	24°36.15'N.	81°51.78'W.
38	24°34.40'N.	81°50.60'W.
39	24°33.44'N.	81°49.73'W.
40	24°31.20'N.	81°52.10'W.
41	24°28.70'N.	81°56.80'W.
42	24°26.60'N.	81°59.55'W.

Area Surrounding the Dry Tortugas Islands

(Reference Chart: United States 11434, 21st Edition–August 11, 1990.)

Point	Latitude	Longitude
43	24°32.00'N.	82°53.50'W.
44	24°32.00'N.	83°00.05'W.
45	24°39.70'N.	83°00.05'W.
46	24°45.60'N.	82°54.40'W.
47	24°45.60'N.	82°47.20'W.
48	24°42.80'N.	82°43.90'W.
49	24°39.50'N.	82°43.90'W.
50	24°35.60'N.	82°46.40'W.
51	24°32.00'N.	82°53.50'W.

Appendix VIII to Subpart P of Part 922—Marine Life Rule [as Excerpted From Chapter 46–42 of the Florida Administrative Code]

(473) 46–42.001 Purpose and Intent; Designation of Restricted Species; Definition of "Marine Life Species."

(474) 46–42.002 Definitions.

(475) 46–42.003 Prohibition of Harvest: Longspine Urchin, Bahama Starfish.

(476) 46–42.0035 Live Landing and Live Well Requirements.

(477) 46–42.0036 Harvest in Biscayne National Park.*

(478) 46–42.004 Size Limits.

(479) 46–42.005 Bag Limits.

(480) 46–42.006 Commercial Season, Harvest Limits.

(481) 46–42.007 Gear Specifications and Prohibited Gear.

(482) 46–42.008 Live Rock.*

(483) 46–42.009 Prohibition on the Taking, Destruction, or Sale of Marine Corals and Sea Fans.

(484) *Part 42.0036 was not reproduced because it does not apply to the Sanctuary.

(485) *Part 42.008 was not reproduced because it is regulated pursuant to §922.163(a)(2)(ii).

46–42.001 Purpose and Intent; Designation of Restricted Species; Definition of "Marine Life Species."

(486) (1)(a) The purpose and intent of this chapter are to protect and conserve Florida's tropical marine life resources and assure the continuing health and abundance of these species. The further intent of this chapter is to assure that harvesters in this fishery use nonlethal methods of harvest and that the fish, invertebrates, and plants so harvested be maintained alive for the maximum possible conservation and economic benefits.

(487) (b) It is the express intent of the Marine Fisheries Commission that landing of live rock propagated through aquaculture will be allowed pursuant to the provisions of this chapter.

(488) (2) The following fish species, as they occur in waters of the state and in federal Exclusive Economic Zone (EEZ) waters adjacent to state waters, are hereby designated as restricted species pursuant to Section 370.01(20), Florida Statutes:

(489) (a) Moray eels–Any species of the Family Muraenidae.

(490) (b) Snake eels–Any species of the Genera Myrichthys and Myrophis of the Family Ophichthidae.

(491) (c) Toadfish–Any species of the Family Batrachoididae.

(492) (d) Frogfish–Any species of the Family Antennariidae.

(493) (e) Batfish–Any species of the Family Ogcocephalidae.

(494) (f) Clingfish–Any species of the Family Gobiesocidae.

(495) (g)Trumpetfish–Any species of the Family Aulostomidae.

(496) (h) Cornetfish–Any species of the Family Fistulariidae.

(497) (i) Pipefish/seahorses–Any species of the Family Syngnathidae.

(498) (j) Hamlet/seabass–Any species of the Family Serranidae, expect groupers of the genera Epinephalus and Mycteroperca, and seabass of the genus Centropristis.

(499) (k) Basslets–Any species of the Family Grammistidae.

(500) (l) Cardinalfish–Any species of the Family Apogonidae.

(501) (m) High-hat, Jackknife-fish, Spotted drum, Cubbyu–Any species of the genus Equetus of the Family Sciaenidae.

(502) (n) Reef Croakers–Any of the species Odontocion dentex.

(503) (o) Sweepers–Any species of the Family Pempherididae.

(504) (p) Butterflyfish–Any species of the Family Chaetodontides.

(505) (q) Angelfish–Any species of the Family Pomacanthidae.

(506) (r) Damselfish–Any species of the Family Pomacentridae.

(507) (s) Hawkfish–Any species of the Family Cirrhitidae.

(508) (t) Wrasse/hogfish/razorfish–Any species of the Family Labridae, except hogfish, Lachnolaimus maximus.

(509) (u) Parrotfish–Any species of the Family Scaridae.

(510) (v) Jawfish–Any species of the Family Opistognathidae.

(511) (w) Blennies–Any species of the Families Clinidae or Blenniidae.

(512) (x) Sleepers–Any species of the Family Eleotrididae.

(513) (y) Gobies–Any species of the Family Gobiidae.

(514) (z) Tangs and surgeonfish–Any species of the Family Acanthuridae.

(515) (aa) Filefish/triggerfish–Any species of the Family Balistes, except gray triggerfish, Balistdae capriscus.

(516) (bb) Trunkfish/cowfish–Any species of the Family Ostraciidae.

(517) (cc) Pufferfish/burrfish/balloonfish–Any of the following species:

(518) 1. Balloonfish–Diodon holocanthus.

(519) 2. Sharpnose puffer–Canthigaster rostrata.

(520) 3. Striped burrfish–Chilomycterus schoepfi.

(521) (3) The following invertebrate species, as they occur in waters of the state and in federal Exclusive Economic Zone (EEZ) waters adjacent to state waters, are hereby designated as restricted species pursuant to Section 370.01(20), Florida Statutes:

(522) (a) Sponges–Any species of the Class Demospongia, except sheepswool, yellow, grass, glove, finger, wire, reef, and velvet sponges, Order Dictyoceratida.

(523) (b) Upside-down jellyfish–Any species of the Genus Cassiopeia.

(524) (c) Siphonophores/hydroids–Any species of the Class Hydrozoa, except fire corals, Order Milleporina.

(525) (d) Soft corals–Any species of the Subclass Octocorallia, except sea fans Gorgonia flabellum and Gorgonia ventalina.

(526) (e) Sea anemones–Any species of the Orders Actinaria Zoanthidea, Corallimorpharia, and Ceriantharia.

(527) (f) Featherduster worms/calcareous tubeworms–Any species of the Families Sabellidae and Serpulidae.

(528) (g) Star-shells–Any of the species Astraea americana or Astraea phoebia.

(529) (h) Nudibranchs/sea slugs–Any species of the Subclass Opisthobranchia.

(530) (i) Fileclams–Any species of the Genus Lima.

(531) (j) Octopods–Any species of the Order Octopoda, except the common octopus, Octopodus vulgaris.

(532) (k) Shrimp–Any of the following species:

(533) 1. Cleaner shrimp and peppermint shrimp–Any species of the Genera Periclimenes or Lysmata.

(534) 2. Coral shrimp–Any species of the Genus Stenopus.

(535) 3. Snapping shrimp–Any species of the Genus Alpheus.

(536) (l) Crabs–Any of the following species:

(537) 1. Yellowline arrow crab–Stenorhynchus seticornis.

(538) 2. Furcate spider or decorator crab–Stenocionops furcata.

(539) 3. Thinstripe hermit crab–Clibanarius vittatus.

(540) 4. Polkadotted hermit crab–Phimochirus operculatus.

(541) 5. Spotted porcelain crab–Porcellana sayana.

(542) 6. Nimble spray or urchin crab–Percnon gibbesi.

(543) 7. False arrow crab–Metoporhaphis calcarata.

(544) (m) Starfish–Any species of the Class Asteroidea, except the Bahama starfish, Oreaster reticulatus.

(545) (n) Brittlestars–Any species of the Class Ophiuroidea.

(546) (o) Sea urchins–Any species of the Class Echinoidea, except longspine urchin, Diadema antillarum, and sand dollars and sea biscuits, Order Clyeasterodia.

(547) (p) Sea cucumbers–Any species of the Class Holothuroidea.

(548) (q) Sea lillies–Any species of the Class Crinoidea.

(549) (4) The following species of plants, as they occur in waters of the state and in federal Exclusive Economic Zone (EEZ) waters adjacent to state waters, are hereby designated as restricted species pursuant to section 370.01(20), Florida Statutes:

(550) (a) Caulerpa–Any species of the Family Caulerpaceae.

(551) (b) Halimeda/mermaid's fan/mermaid's shaving brush–Any species of the Family Halimedaceae.

(552) (c) Coralline red algae–Any species of the Family Corallinaceae.

(553) (5) For the purposes of Section 370.06(2)(d), Florida Statutes, the term " marine life species" is defined to mean those species designated as restricted species in subsections (2), (3), and (4) of this rule.

(554) Specific Authority 370.01(20), 370.027(2), 370.06(2)(d), F.S. Law Implemented 370.01(20), 370.025, 370.027, 370.06(2)(d), F.S. History–New 1-1-91, Amended 7-1-92, 1-1-95.

46–42.002 Definitions.–As used in this rule chapter

(555) (1) "Barrier net," also known as a "fence net," means a seine used beneath the surface of the water by a driver to enclose and concentrate tropical fish and which may be made of either nylon or monofilament.

(556) (2) "Drop net" means a small, usually circular, net with weighs attached along the outer edge and a single float in the center, used by a diver to enclose and concentrate tropical fish.

(557) (3) "Hand held net" means a landing or dip net as defined in Rule 46–4.002(4), except that a portion of the bag may be constructed of clear plastic material, rather than mesh.

(558) (4) "Harvest" means the catching or taking of a marine organism by any means whatsoever, followed by a reduction of such organism to possession. Marine organisms that are caught but immediately returned to the water free, alive, and unharmed are not harvested. In addition, temporary possession of a marine animal for the purpose of measuring it to determine compliance with the minimum or maximum size requirements of this chapter shall not constitute harvesting such animal, provided that it is measured immediately after taking, and immediately returned to the water free, alive, and unharmed if undersize or oversize.

(559) (5) "Harvest for commercial purposes" means the taking or harvesting of any tropical ornamental marine life species or tropical ornamental marine plant for purposes of sale or with intent to sell. The harvest of tropical ornamental marine life species or tropical ornamental marine plants in excess of the bag limit shall constitute prima facie evidence of intent to sell.

(560) (6) "Land," when used in connection with the harvest of marine organisms, means the physical act of bringing the harvested organism ashore.

(561) (7) "Live rock" means rock with living marine organisms attached to it.

(562) (8) "Octocoral" means any erect, nonecrusting species of the Subclass Octocorallia, except the species Gorgonia flabellum and Gorgonia ventalina.

(563) (9) "Slurp gun" means a self-contained, handheld device that captures tropical fish by rapidly drawing seawater containing such fish into a closed chamber.

(564) (10) "Total length" means the length of a fish as measured from the tip of the snout to the tip of the tail.

(565) (11) "Trawl" means a net in the form of an elongated bag with the mouth kept open by various means and fished by being towed or dragged on the bottom.

(566) "Roller frame trawl" means a trawl with all of the following features and specifications:

(567) (a) A rectangular rigid frame to keep the mouth of the trawl open while being towed.

(568) (b) The lower horizontal beam of the frame has rollers to allow the trawl to roll over the bottom and any obstructions while being towed.

(569) (c) The trawl opening is shielded by a grid of vertical bars spaced no more than 3 inches apart.

(570) (d) The trawl is towed by attaching a line or towing cable to a tongue located above or at the center of the upper horizontal beam of the frame.

(571) (e) The trawl has no doors attached to keep the mouth of the trawl open.

(572) (12) "Tropical fish" means any species included in subsection (2) of Rule 46–42.001, or any part thereof.

(573) (13) "Tropical ornamental marine life species" means any species included in subsections (2) or (3) of Rule 46–42.001, or any part thereof.

(574) (14) "Tropical ornamental marine plant" means any species included in subsection (4) of Rule 46–42.001.

(575) Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History –New 1-1-91, Amended 7-1-92, 1-1-95.

46–42.003 Prohibition of Harvest: Longspine Urchin, Bahama Starfish.– No person shall harvest, possess while in or on the waters of the state, or land any of the following species

(576) (1) Longspine urchin, Diadema antillarum.

(577) (2) Bahama starfish, Oreaster reticulatus.

(578) Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History–New-1-1-91, Amended 7-1-92.

46–4200.35 Live Landing and Live Well Requirements

(579) (1) Each person harvesting any tropical ornamental marine life species or any tropical ornamental marine plant shall land such marine organism alive.

(580) (2) Each person harvesting any tropical ornamental marine life species or any tropical ornamental marine plant shall have aboard the vessel being used for such harvest a continuously circulating live well or aeration or oxygenation system of adequate size and capacity to maintain such harvested marine organisms in a healthy condition.

(581) Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History–New 7-1-92.

46–42.004 Size Limits

(582) (1) Angelfishes.–

(583) (a) No person harvesting for commercial purposes shall harvest, possess while in or on the waters of the state, or land any of the following species of angelfish, of total length less than that set forth below:

(584) 1. One-and-one half (1½) inches for:

(585) a. Gray angelfish (Pomacanthus arcuatus).

(586) b. French angelfish (Pomacanthus paru).

(587) 2. One-and-three-quarters (1¾) inches for:

(588) a. Blue angelfish (Holacanthus bermudensis).

(589) b. Queen angelfish (Holacanthus ciliaris).

(590) 3. Two (2) inches for rock beauty (Holacanthus tricolor).

(591) (b) No person shall harvest, possess while in or on the waters of the state, or land any angelfish (Family Pomacanthidae), of total length greater than that specified below:

(592) 1. Eight (8) inches for angelfish, except rock beauty (Holacanthus tricolor).

(593) 2. Five (5) inches for rock beauty.

(594) (c) Except as provided herein, no person shall purchase, sell, or exchange any angelfish, smaller than the limits specified in paragraph (a) or larger than the limits specified in paragraph (b). This prohibition shall not apply to angelfish legally harvested outside of state waters or federal Exclusive Economic Zone (EEZ) waters adjacent to state waters, which angelfish are entering Florida in interstate or international commerce. The burden shall be upon any person possessing such angelfish for sale or exchange to establish the chain of possession from the initial transaction after harvest, by appropriate receipt(s), bill(s) of sale, or bill(s) of lading, and any customs receipts, and to show that such angelfish originated from a point outside the waters of the State of Florida or federal Exclusive Economic Zone (EEZ) waters adjacent to Florida waters and entered the state in interstate or international commerce. Failure to maintain such documentation or to promptly produce same at the request of any duly

authorized law enforcement officer shall constitute prima facie evidence that such angelfish were harvested from Florida waters or adjacent EEZ waters for purposes of this paragraph.

(595) (2) Butterflyfishes.–

(596) (a) No person harvesting for commercial purposes shall harvest, possess while in or on the waters of the state, or land any butterflyfish (Family Chaetodontidae) of total length less than one (1) inch.

(597) (b) No person shall harvest, possess while in or on the waters of the state, or land any butterflyfish to total length greater than 4 inches.

(598) (3) Gobies–No person shall harvest, possess while in or on the waters of the state, or land any gobie (Family Gobiidae) of total length greater than 2 inches.

(599) (4) Jawfishes–No person shall harvest, possess while in or on the waters of the state, or land any jawfish (Family Opistognathidae) of total length greater than 4 inches.

(600) (5) Spotfin and Spanish hogfish–

(601) (a) No person shall harvest, possess while in or on the waters of this state, or land any Spanish hogfish (Bodianus rufus) of total length less than 2 inches.

(602) (b) No person shall harvest, possess while in or on the waters of this state, or land any Spanish hogfish (Bodianus rufus) or spotfin hogfish (Bodianus pulchellus) of total length greater than 8 inches.

(603) Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History–New 1-1-91, Amended 7-1-92, 1-1-95.

46–42.005 Bag limit

(604) (1) Except as provided in Rule 46–42.006 or subsections (3) or (4) of this rule (46–42.005) no person shall harvest, possess while in or on the waters of the state, or land more than 20 individuals per day of tropical ornamental marine life species, in any combination.

(605) (2) Except as provided in Rule 46–42.006, no person shall harvest, possess while in or on the waters of the state, or land more than one (1) gallon per day of tropical ornamental marine plants, in any combination of species.

(606) (3) Except as provided in Rule 46–42.006, no person shall harvest, possess while in or on the waters of the state, or land more than 5 angelfishes (Family Pomacanthidae) per day. Each angelfish shall be counted for purposes of the 20 individual bag limit specified in subsection (1) of this rule (46–42.005).

(607) (4)(a) Unless the season is closed pursuant to paragraph (b), no person shall harvest, possess while in or on the waters of the state, or land more than 6 colonies per day of octocorals. Each colony of octocoral or part thereof shall be considered an individual of the species for purposes of subsection (1) of this rule (46–42-005) and shall be counted for purposes of the 20 individual bag limit specific therein. Each person harvesting any octocoral as authorized by this rule (46–42-005) may also harvest substrate within 1 inch of the perimeter of the holdfast at the base of the octocoral, provided that such substrate remains attached to the octocoral.

(608) (b) If the harvest of octocorals in federal Exclusive Economic Zone (EEZ) waters adjacent to state waters is closed to all harvesters prior to September 30 of any year, the season for harvest of octocorals in state waters shall also close until the following October 1, upon notice given by the Secretary of the Department of Environmental Protection, in the manner provided in s.120.52(16)(d), Florida Statutes.

(609) Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History–New 1-1-91, Amended 1-1-95.

46–42.006 Commercial Season, Harvest Limits

(610) (1) Except as provided in Rule 46–42.008(7), no person shall harvest, possess while in or on the waters of the state or land quantities of tropical ornamental marine life species or tropical ornamental marine plants in excess of the bag limits established in Rule 46–42.005 unless such person possesses a valid saltwater products license with both a marine life fishery endorsement and a restricted species endorsement issued by the Department of Environmental Protection.

(611) (2) Persons harvesting tropical ornamental marine life species or tropical ornamental marine plants for commercial purposes shall have a season that begins on October 1 of each year and continues through September 30 of the following year. These persons shall not harvest, possess while in or the waters of the state, or land tropical ornamental marine life species in excess of the following limits:

(612) (a) A limit of 75 angelfish (Family Pomacanthidae) per person per day or 150 angelfish per vessel per day, whichever is less.

(613) (b) A limit of 75 butterflyfishes (Family Chaetodontidae) per vessel per day.

(614) (c) There shall be no limits on the harvest for commercial purposes of octocorals unless and until the season for all harvest of octocorals in federal Exclusive Economic Zone (EEZ) waters adjacent to state waters is closed. At such time the season for harvest of octocorals in state waters shall also close until the following October 1, upon notice given by the Secretary of the Department of Environmental Protection, in the manner provided in Section 120.52(16)(d), Florida Statutes. Each person harvesting any octocoral as authorized by this rule may also harvest substrate within 1 inch of the perimeter of the holdfast at the base of the octocoral, provided that such substrate remains attached to the octocoral.

(615) (d) A limit of 400 giant Caribbean or "pink-tipped" anemones (Genus Condylactus) per vessel per day.

(616) Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History–New 1-1-91, Amended 7-1-92, 1-1-95.

46–42.007 Gear Specifications and Prohibited Gear

(617) (1) The following types of gear shall be the only types allowed for the harvest of any tropical fish, whether from state waters or from federal Exclusive Economic Zone (EEZ) waters adjacent to state waters:

(618) (a) Hand held net.

(619) (b) Barrier net, with a mesh size not exceeding ¾ inch stretched mesh.

(620) (c) Drop net, with a mesh size not exceeding ¾ inch stretch mesh.

(621) (d) Slurp gun.

(622) (e) Quinaldine may be used for the harvest of tropical fish if the person using the chemical or possessing the chemical in or on the waters of the state meets each of the following conditions:

(623) 1. The person also possesses and maintains aboard any vessel used in the harvest of tropical fish with quinaldine a special activity license authorizing the use of quinaldine, issued by

the Division of Marine Resources of the Department of Environmental Protection pursuant to Section 370.08(8), Florida Statutes.

(624) 2. The quinaldine possessed or applied while in or on the waters of the state is in a diluted form of no more than 2% concentration in solution with seawater. Prior to dilution in seawater, quinaldine shall only be mixed with isopropyl alcohol or ethanol.

(625) (f) A roller frame trawl operated by a person possessing a valid live bait shrimping license issued by the Department of Environmental Protection pursuant to Section 370.15, Florida Statutes, if such tropical fish are taken as an incidental bycatch of shrimp lawfully harvested with such trawl.

(626) (g) A trawl meeting the following specifications used to collect live specimens of the dwarf seahorse, Hippocampus zosterae, if towed by a vessel no greater than 15 feet in length at no greater than idle speed:

(627) 1. The trawl opening shall be no larger than 12 inches by 48 inches.

(628) 2. The trawl shall weigh no more than 5 pounds wet when weighed out of the water.

(629) (2) This rule shall not be construed to prohibit the use of any bag or container used solely for storing collected specimens or the use of a single blunt rod in conjunction with any allowable gear, which rod meets each of the following specifications:

(630) (a) The rod shall be made of nonferrous metal, fiberglass, or wood.

(631) (b) The rod shall be no longer than 36 inches and have a diameter no greater than ¾ inch at any point.

(632) (3) No person shall harvest in or from state waters any tropical fish by or with the use of any gear other than those types specified in subsection (1); provided, however, that tropical fish harvested as an incidental bycatch of other species lawfully harvested for commercial purposes with other types of gear shall not be deemed to be harvested in violation of this rule, if the quantity of tropical fish so harvested does not exceed the bag limits established in Rule 46–42.005.

(633) Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History–New-1-1-91, Amended 7-1-92, 1-1-95.

46–42.009 Prohibition on the Taking, Destruction, or Sale of Marine Corals and Sea Fans; Exception; Repeal of Section 370.114, Florida Statutes

(634) (1) Except as provided in subsection (2), no person shall take, attempt to take, or otherwise destroy, or sell, or attempt to sell, any sea fan of the species Gorgonia flabellum or of the species Gorgonia ventalina, or any hard or stony coral (Order Scleractinia) or any fire coral (Genus Millepora). No person shall possess any such fresh, uncleaned, or uncured sea fan, hard or stony coral, or fire coral.

(635) (2) Subsection (1) shall not apply to:

(636) (a) Any sea fan, hard or stony coral, or fire coral legally harvested outside of state waters or federal Exclusive Economic Zone (EEZ) waters adjacent to state waters and entering Florida in interstate or international commerce. The burden shall be upon any person possessing such species to establish the chain of possession from the initial transaction after harvest, by appropriate receipt(s), bill(s) of sale, or bill(s) of lading, and any customs receipts, and to show that such species originated from a point outside the waters of the State of Florida or federal Exclusive Economic Zone (EEZ) adjacent to state waters and entered the state in interstate or international commerce. Failure to maintain such documentation or to promptly produce same at the request of any duly authorized law enforcement officer shall constitute prima facie evidence that such species were harvested from Florida waters in violation of this rule.

(637) (b) Any sea fan, hard or stony coral, or fire coral harvested and possessed pursuant to permit issued by the Department of Environment Protection for scientific or educational purposes as authorized in Section 370.10(2), Florida Statutes.

(638) (c) Any sea fan, hard or stony coral, or fire coral harvested and possessed pursuant to the aquacultured live rock provisions of Rule 46–42.008(3)(a) pursuant to a Live Rock Aquaculture Permit issued by the National Marine Fisheries Service under 50 CFR Part 638 and meeting the following requirements:

(639) 1. Persons possessing these species in or on the waters of the state shall also possess a state submerged lands lease for live rock aquaculture and a Department of Environmental Protection permit for live rock culture deposition and removal or a federal Live Rock Aquaculture Permit. If the person possessing these species is not the person named in the documents required herein, then the person in such possession shall also possess written permission from the person so named to transport aquacultured live rock pursuant to this exception.

(640) 2. The nearest office of the Florida Marine Patrol shall be notified at least 24 hours in advance of any transport in or on state waters of aquacultured live rock pursuant to this exception.

(641) 3. Persons possessing these species off the water shall maintain and produce upon the request of any duly authorized law enforcement officer sufficient documentation to establish the chain of possession from harvest on a state submerged land lease for live rock aquaculture or in adjacent Exclusive Economic Zone (EEZ) waters pursuant to a federal Live Rock Aquaculture Permit.

(642) 4. Any sea fan, hard or stony coral, or fire coral harvested pursuant to Rule 46–42.008(3)(a) shall remain attached to the cultured rock.

(643) Specific Authority 370.027(2), F.S.; Section 6, Chapter 83-134, Laws of Florida, as amended by Chapter 84-121, Laws of Florida. Law Implemented 370.025, 370.027, F.S.; Section 6, Chapter 83-134, Laws of Florida, as amended by Chapter 84-121, Laws of Florida. History–New 1-1-95.2222.

TITLE 33–NAVIGATION AND NAVIGABLE WATERS

Part 26–Vessel Bridge-to-Bridge Radiotelephone Regulations

(644) **§26.01 Purpose.**

(645) (a) The purpose of this part is to implement the provisions of the Vessel Bridge-to-Bridge Radiotelephone Act. This part -

(646) (1) Requires the use of the vessel bridge-to-bridge radiotelephone;

(647) (2) Provides the Coast Guard's interpretation of the meaning of important terms in the Act;

(648) (3) Prescribes the procedures for applying for an exemption from the Act and the regulations issued under the Act and a listing of exemptions.

(649) (b) Nothing in this part relieves any person from the obligation of complying with the rules of the road and the applicable pilot rules.

(650) **§26.02 Definitions.**

(651) For the purpose of this part and interpreting the Act -

(652) "Secretary" means the Secretary of the Department in which the Coast Guard is operating;

(653) "Act" means the "Vessel Bridge-to-bridge Radiotelephone Act," 33 U.S.C. sections 1201-1208;

(654) "Length" is measured from end to end over the deck excluding sheer;

(655) "Power-driven vessel" means any vessel propelled by machinery; and

(656) "Towing vessel" means any commercial vessel engaged in towing another vessel astern, alongside, or by pushing ahead.

(657) "Vessel Traffic Services (VTS)" means a service implemented under Part 161 of this chapter by the United States Coast Guard designed to improve the safety and efficiency of vessel traffic and to protect the environment. The VTS has the capability to interact with marine traffic and respond to traffic situations developing in the VTS area.

(658) "Vessel Traffic Service Area or VTS Area" means the geographical area encompassing a specific VTS area of service as described in Part 161 of this chapter. This area of service may be subdivided into sectors for the purpose of allocating responsibility to individual Vessel Traffic Centers or to identify different operating requirements.

(659) **Note**: Although regulatory jurisdiction is limited to the navigable waters of the United States, certain vessels will be encouraged or may be required, as a condition of port entry to report beyond this area to facilitate traffic management within the VTS area.

(660) **§26.03 Radiotelephone required.**

(661) (a) Unless an exemption is granted under §26.09 and except as provided in paragraph (a)(4) of this section, this part applies to:

(662) (1) Every power-driven vessel of 20 meters or over in length while navigating:

(663) (2) Every vessel of 100 gross tons and upward carrying one or more passengers for hire while navigating:

(664) (3) Every towing vessel of 26 feet or over in length while navigating; and

(665) (4) Every dredge and floating plant engaged in or near a channel or fairway in operations likely to restrict or affect navigation of other vessels except for an unmanned or intermittently manned floating plant under the control of a dredge.

(666) (b) Every vessel, dredge, or floating plant described in paragraph (a) of this section must have a radiotelephone on board capable of operation from its navigational bridge, or in the case of a dredge, from its main control station, and capable of transmitting and receiving on the frequency or frequencies within the 156-162 Mega-Hertz band using the classes of emissions designated by the Federal Communications Commission for the exchange of navigational information.

(667) (c) The radiotelephone required by paragraph (b) of this section must be carried on board the described vessels, dredges, and floating plants upon the navigable waters of the United States.

(668) (d) The radiotelephone required by paragraph (b) of this section must be capable of transmitting and receiving on VHF FM channel 22A (157.1 MHz).

(669) (e) While transiting any of the following waters, each vessel described in paragraph (a) of this section also must have on board a radiotelephone capable of transmitting and receiving on VHF FM channel 67 (156.375 MHz):

(670) (1) The lower Mississippi River from the territorial sea boundary, and within either the Southwest Pass safety fairway or the South Pass safety fairway specified in 33 CFR 166.200, to mile 242.4 AHP (Above Head of Passes) near Baton Rouge;

(671) (2) The Mississippi River-Gulf Outlet from the territorial sea boundary, and within the Mississippi River-Gulf outlet Safety Fairway specified in 33 CFR 166.200, to that channel's junction with Inner Harbor Navigation Canal; and

(672) (3) The full length of the Inner Harbor Navigation Canal from its junction with the Mississippi River to that canal's entry to Lake Pontchartain at the New Seabrook vehicular bridge.

(673) (f) In addition to the radiotelephone required by paragraph (b) of this section each vessel described in paragraph (a) of this section while transiting any waters within a Vessel Traffic Service Area, must have on board a radiotelephone capable of transmitting and receiving on the VTS designated frequency in Table 26.03(f) (VTS Call Signs, Designated Frequencies, and Monitoring Areas).

(674) **Note**: A single VHF-FM radio capable of scanning or sequential monitoring (often referred to as "dual watch" capability) will not meet the requirements for two radios.

(675) **§26.04 Use of the designated frequency.**

(676) (a) No person may use the frequency designated by the Federal Communications Commission under section 8 of the Act, 33 U.S.C. 1207(a), to transmit any information other than information necessary for the safe navigation of vessels or necessary tests.

(677) (b) Each person who is required to maintain a listening watch under section 5 of the Act shall, when necessary, transmit and confirm, on the designated frequency, the intentions of his vessel and any other information necessary for the safe navigation of vessels.

(678) (c) Nothing in these regulations may be construed as prohibiting the use of the designated frequency to communicate with shore stations to obtain or furnish information necessary for the safe navigation of vessels.

(679) (d) On the navigable waters of the United States, channel 13 (156.65 MHz) is the designated frequency required to be monitored in accordance with §26.05(a) except that in the area prescribed in §26.03(e), channel 67 (156.375 MHz) is the designated frequency.

(680) (e) On those navigable waters of the United States within a VTS area, an additional designated VTS frequency is an additional designated frequency required to be monitored in accordance with §26.05.

(681) **Note**: As stated in 47 CFR 80.148(b), a VHF watch on Channel 16 (156.800 MHz) is not required on vessels subject to the Vessel Bridge-to-Bridge Radiotelephone Act and participating in a Vessel Traffic Service (VTS) system when the watch is maintained on both the vessel bridge-to-bridge frequency and a designated VTS frequency.

(682) **§26.05 Use of radiotelephone.**

(683) Section 5 of the Act states that the radiotelephone required by this Act is for the exclusive use of the master or person in charge of the vessel, or the person designated by the master or person in charge to pilot or direct the movement of the vessel, who shall maintain a listening watch on the designated frequency. Nothing herein shall be interpreted as precluding the use of portable radiotelephone equipment to satisfy the requirements of this Act.

Table 26.03(f)–VESSEL TRAFFIC SERVICES (VTS) CALL SIGNS, DESIGNATED FREQUENCIES, AND MONITORING AREAS

Vessel traffic services[1] (call sign)	Designated frequencies[2] (channel designation)	Monitoring area
		New York[3]
New York Traffic[4].....	156.550 MHz (Ch.11) and 156.700 MHz (Ch.14).....	The navigable waters of the Lower New York Harbor bounded on the east by a line drawn from the Norton Point to Breezy Point; on the south by a line connecting the entrance buoys at the Asmbrose Channel, Swash Channel and Sandy Hook Channel to Sandy Hook Point; and on the southeast including the waters of the Sandy hook Bay south to a line drawn at 40°25'N.; then west into waters of the Raritan Bay to the Raritan River Rail Road Bridge; and then north including the waters of the Arthur Kill and Newark Bay to the Lehigh Valley Draw Bridge at 40°41.95'N.; and then east including the waters of the Kill Van Kull and Upper New York Bay north to a line drawn east-west from the Holland Tunnel Ventilator Shaft at 40°43.7'N., 74°01.6'W. In the Hudson River; and continuing easty including the waters of the East River to the Throgs Neck Bridge, excluding the Harlem River.
	156.600 MHz (Ch. 12).....	Each vessel at anchor within the above areas.
		Houston[3]
		The navigable waters orth of 29°N., west of 94°20'W., south of 29°49'N., and east of 95°20'W.:
Houston Traffic.....	156.550 MHz (Ch.11).....	The navigable waters north of a line extending due west from the southernmost end of Exxon Dock #1 (29°43.37'N., 95°01.27'W.)
	156.600 MHz (Ch 12).....	The navigable waters south of a line extending due west from the southernmost end of Exxon Dock #1 (29°43.37'N., 95°01.27'W.)
		Berwick Bay
Berwick Traffic	156.550 MHz (Ch. 11).....	The navigable waters south of 29°45'N., west of 91°10'W., north of 29°37'N., and east of 91°18'W.
		St. Marys River
Soo Control	156.600 MHz (Ch. 12).....	The navigable waters of the St. Marys River between 45°57'N. (De Tour Reef Light) and 46°38.7'N. (Ile Parisienne Light), except the St. Marys Falls Canal and those navigable waters east of a line from 46°04.16'N. And 46°01.57'N. (La Pointe to Sims Point in Potagannissing Bay and Worsley Bay).
		San Francisco[3]
San Francisco Offhore Vessel Movement.	156.600 MHz (Ch. 12).....	The waters within a 38 nautical mile radius of Mount Tamalpais (37°55.8'N., 122°34.6'W.) excluding the San Francisco Offshore Precautionary Area.
Reporting Service San Francisco Traffic.	156.700 MHz (Ch. 14).....	The waters of the San Francisco Offshore Precautionary Area eastward to San Francisco Bay including its tributaries extending to the ports of Stockton, Sacramento and Redwood City.
		Puget Sound[5]
Seattle Traffic[6].....	156.700 MHz (Ch. 14).....	The navigable waters of Puget Sound, Hood Canal and adjacent waters south of a line connecting Nodule Point (48°01.5'N., 122°40.05'W.) and Bush Point (48°01.5'N., 122°36.23'W.) in Admiralty Inlet and south of a line drawn due east from the southernmost tip of Possession Point (47°34'N., 122°40'W.) on Whidbey Island to the shoreline.
	156.250 MHz (Ch. 5A).....	The navigable waters of the Strait of Juan de Fuca east of 124°40'W., excluding the waters in the central portion of the Strait of Juan de Fuca north and east of Race Rocks (48°18'N., 123°32'W.); the navigable waters of the Strait of Georgia east of 122°52'W.; the San Juan Island Archipelago, Rosario Strait, Bellingham Bay; Admiralty of Juan de Fuca north and east of Race Rocks (48°18'N., 123°32'W.); the navigable waters of the Strait of Georgia east of 122°52'W.; the San Juan Island Archipelago, Rosario Strait, Bellingham Bay; Admiralty Inlet north of a line connecting Nodule Point (48°01.5'N., 122°40.05'W.) and Bush Point (48°01.5'N., 122°36.23'W.) and all waters of Whidbey Island north of a line drawn due east from the southernmost tip of Possession Point (47°34'N., 122°40'W.) on Whidbey Island to the shoreline.
Tofino Traffic[7]	156.725 MHz (Ch. 74).....	The Waters west of 124°40'W, within 50 nautical miles of the coast of Vancouver Island including the waters north 48°N., and east of 127°W.
Vancouver Traffic.....	156.550 MHz (Ch. 11)....	The navigable waters of the Strait of Georgia west of 122°52'W., the navigable waters of the central Strait of Juan de Fuca north and east of Race Rocks, including the Gulf Island Archipelago, Boundary Pass and Haro Strait.

Table 26.03(f)–VESSEL TRAFFIC SERVICES (VTS) CALL SIGNS, DESIGNATED FREQUENCIES, AND MONITORING AREAS

Vessel traffic services[1] (call sign)	Designated frequencies[2] (channel designation)	Monitoring area
		Prince William Sound[8]
Valdez Traffic	156.650 MHz (Ch. 13)	The navigable waters south of 61°05'N., east of 147°20'W., north of 60°N., and west of 146°30'W.; and , all navigable waters in Port Valdez.
		Louisville[8]
Louisville Traffic.	156.650 MHz (Ch. 13)	The navigable waters of the Ohio River between McAlpine Locks (Mile 606) and Twelve Mile Island (Mile 593), only when the McAlpine upper pool gauge is at approximately 13.0 feet or above.

NOTES:

1. VTS regulations are denoted in 33 CFR Part 161. All geographic coordinates (latitude and longitude) are expressed in North American Datum of 1983 (NAD 83).

2. In the event of a communication failure either by the vessel traffic center or the vessel or radio congestion on a designated VTS frequency, communications may be established on an alternate VTS frequency. The bridge-to-bridge navigational frequency, 156.650 MHz (Channel 13), is monitored in each VTS area; and it may be used as an alternate frequency, however, only to the extent that doing so provides a level of safety beyond that provided by other means.

3. Designated frequency monitoring is required within U.S. Navigable waters. In areas which are outside the U.S. Navigable waters, designated frequency monitoring is voluntary. However, prospective VTS Users are encouraged to monitor the designated frequency.

4. VMRS participants shall make their initial report (Sail Plan) to New York Traffic on Channel 11 (156.550 MHz). All other reports, including the Final Report, shall be made on Channel 14 (156.700 MHz). VMRS and other VTS Users shall monitor Channel 14 (156.700 MHz) while transiting the VTS area. New York Traffic may direct a vessel to monitor and report on either primary frequency depending on traffic density, weather conditions, or other safety factors. This does not require a vessel to monitor both primary frequencies.

5. A Cooperative Vessel Traffic Service was established by the United States and Canada within adjoining waters. The appropriate vessel traffic center administers the rules issued by both nations; however, it will enforece only its own set of rules within its jurisdiction.

6. Seattle Traffic may direct a vessel to monitor the other primary VTS frequency 156.250 MHz or 156.700 MHz (Channel 5A or 14) depending on traffic density, weather conditions, or other safety factors, rather than strictly adhering to the disignated frequency required for each monitoring area as defined above. This does not require a vessel to monitor both primary frequencies.

7. A portion of Tofino Sector's monitoring area extends beyond the defined CVTS area. Designated frequency monitoring is voluntary in these portions outside of VTS jurisdiction, however, prospective VTS Users are encouraged to monitor the designated frequency.

8. The bridge-to-bridge navigational frequency, 156.650 MHz (Channel 13), is used in these VTSs because the level of radiotelephone transmissions does not warrant a designated VTS frequency. The listening watch required by §26.05 of this chapter is not limited to the monitoring area.

(684) **§26.06 Maintenance of radiotelephone; failure of radiotelephone. Section 6 of the Act states -**

(685) (a) Whenever radiotelephone capability is required by this Act, a vessel's radiotelephone equipment shall be maintained in effective operating condition. If the radiotelephone equipment carried aboard a vessel ceases to operate, the master shall exercise due diligence to restore it or cause it to be restored to effective operating condition at the earliest practicable time. The failure of a vessel's radiotelephone equipment shall not, in itself, constitute a violation of this Act, nor shall it obligate the master of any vessel to moor or anchor his vessel; however, the loss of radiotelephone capability shall be given consideration in the navigation of the vessel.

(686) **§26.07 Communications.**

(687) No person may use the service of, and no person may serve as, a person required to maintain a listening watch under section 5 of the Act, 33 U.S.C. 1204, unless the person can communicate in the English language.

(688) **§26.08 Exemption procedures.**

(689) (a) The Commandant has redelegated to the Assistant Commandant for Marine Safety and Environmental Protection, U.S. Coast Guard Headquarters, with the reservation that this authority shall not be further redelegated, the authority to grant exemptions from provisions of the Vessel Bridge-to-Bridge Radiotelephone Act and this part.

(690) (b) Any person may petition for an exemption from any provision of the Act or this part;

(691) (c) Each petition must be submitted in writing to U.S. Coast Guard, Marine Safety and Environmental Protection, 2100 Second Street SW., Washington, DC 20593-0001, and must state:

(692) (1) The provisions of the Act or this part from which an exemption is requested; and

(693) (2) The reasons why marine navigation will not be adversely affected if the exemption is granted and if the exemption relates to a local communication system how that system would fully comply with the intent of the concept of the Act but would not conform in detail if the exemption is granted.

(694) **§26.09 List of exemptions.** (a) All vessels navigating on those waters governed by the navigation rules for Great Lakes and their connecting and tributary waters (33 U.S.C. 241 et seq.) are exempt from the requirements of the Vessel Bridge-to-Bridge Radiotelephone Act and this part until May 6, 1975.

(695) (b) Each vessel navigating on the Great Lakes as defined in the Inland Navigational Rules Act of 1980 (33 U.S.C. 2001 et seq.) and to which the Vessel Bridge-to-Bridge Radiotelephone Act (33 U.S.C. 1201-1208) applies is exempt from the requirements in 33 U.S.C. 1203, 1204, and 1205 and the regulations under §§26.03, 26.04, 26.05, 26.06, and 26.07. Each of these vessels and each person to whom 33 U.S.C. 1208(a) applies must comply with Articles VII, X, XI, XII, XIII, XV, and XVI and Technical Regulations 1-9 of "The Agreement Between the United States of America and Canada for Promotion of Safety on the Great Lakes by Means of Radio, 1973. "

(696) **§26.10 Penalties.** Section 9 of the Act states -

(697) (a) Whoever, being the master or person in charge of a vessel subject to the Act, fails to enforce or comply with the Act or the regulations hereunder; or whoever, being designated by the master or person in charge of a vessel subject to the Act to pilot or direct the movement of a vessel fails to enforce or comply with the Act or the regulations hereunder–is liable to a civil penalty of not more than $500 to be assessed by the Secretary.

(698) (b) Every vessel navigated in violation of the Act or the regulations hereunder is liable to a civil penalty of not more than $500 to be assessed by the Secretary, for which the vessel may be proceeded against in any District Court of the United States having jurisdiction.

(699) (c) Any penalty assessed under this section may be remitted or mitigated by the Secretary, upon such terms as he may deem proper.

Part 80–COLREGS Demarcation Lines

(700) **§80.01 General basis and purpose of demarcation lines.** (a) The regulations in this part establish the lines of demarcation delineating those waters upon which mariners shall comply with the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) and those waters upon which mariners shall comply with the Inland Navigation Rules.

(701) (b) The waters inside of the lines are Inland Rules waters. The waters outside the lines are COLREGS waters.

(702) (c) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

(703) **§80.510 Chesapeake Bay Entrance, Va.**

(704) A line drawn from Cape Charles Light to Cape Henry Light.

(705) **§80.515 Cape Henry, Va. to Cape Hatteras, N.C.** (a) A line drawn from Rudee Inlet Jetty Light 2 to Rudee Inlet Jetty Light 1.

(706) (b) A line formed by the centerline of the highway bridge across Oregon Inlet.

(707) **§80.520 Cape Hatteras, N.C. to Cape Lookout, N.C.** (a) A line drawn from Hatteras Inlet Lookout Tower (30°11.8'N., 75°44.9'W.) 255° true to the eastern end of Ocracoke Island.

(708) (b) A line drawn from the westernmost extremity of Ocracoke Island at latitude 35°04.0'N. longitude 76°00.8'W. to the northeastern extremity of Portsmouth Island at latitude 35°03.7'N. longitude 76°02.3'W.

(709) (c) A line drawn across Drum Inlet parallel with the general trend of the highwater shoreline.

(710) **§80.525 Cape Lookout, N.C. to Cape Fear, N.C.** (a) A line drawn from Cape Lookout Light to the seaward tangent of the southeastern end of Shackleford Banks.

(711) (b) A line drawn from Morehead City Channel Range Front Light to the seaward extremity of the Beaufort Inlet west jetty.

(712) (c) A line drawn from the southernmost extremity of Bogue Banks at latitude 34°38.7'N. longitude 77°06.0'W. across Bogue Inlet to the northernmost extremity of Bear Beach at latitude 34°38.5'N., Longitude 77°07.1'W.

(713) (d) A line drawn from the southeasternmost extremity on the southwest side of New River inlet at latitude 34°31.5'N., longitude 77°20.6'W., to the seaward tangent of the shoreline on the northeast side on New River Inlet.

(714) (e) A line drawn across New Topsail Inlet between the closest extremities of the shore on either side of the inlet from

latitude 34°20.8'N. longitude 77°39.2'W. to latitude 34°20.6'N. longitude 77°39.6'W.

(715) (f) A line drawn from the seaward extremity of the jetty on the northeast side of Masonboro Inlet to the seaward extremity of the jetty on the southeast side of the Inlet.

(716) (g) Except as provided elsewhere in this section from Cape Lookout to Cape Fear, lines drawn parallel with the general trend of the highwater shoreline across the entrance of small bays and inlets.

(717) **§80.530 Cape Fear, N.C. to Little River Inlet, N.C.** (a) A line drawn from the abandoned lighthouse charted in approximate position latitude 33°52.4'N. longitude 78°00.1'W. across the Cape Fear River Entrance to Oak Island Light.

(718) (b) Except as provided elsewhere in this section from Cape Fear to Little River Inlet, lines drawn parallel with the general trend of the highwater shoreline across the entrance to small inlets.

(719) **§80.703 Little River Inlet, S.C. to Cape Romain, S.C.** (a) A line drawn from the westernmost extremity of the sand spit on Bird Island to the easternmost extremity of Waties Island across Little River Inlet.

(720) (b) From Little River Inlet, a line drawn parallel with the general trend of the highwater shoreline across Hog Inlet; thence a line drawn across the seaward ends of the Murrels Inlet jetties; thence a line drawn parallel with the general trend of the highwater shoreline across Midway Inlet, Pawleys Inlet, and North Inlet.

(721) (c) A line drawn from the charted position of Winyah Bay North Jetty End Buoy 2N south to the Winyah Bay South Jetty.

(722) (d) A line drawn from Santee Point to the seaward tangent of Cedar Island.

(723) (e) A line drawn from Cedar Island Point west to Murphy Island.

(724) (f) A north-south line (longitude 79°20.3'W.) drawn from Murphy Island to the northernmost extremity of Cape Island Point.

(725) **§80.707 Cape Romain, S.C. to Sullivans Island, S.C.** (a) A line drawn from the western extremity of Cape Romain 292° true to Racoon Key on the west side of Racoon Creek.

(726) (b) A line drawn from the westernmost extremity of Sandy Point across Bull Bay to the northernmost extremity of Northeast Point.

(727) (c) A line drawn from the southernmost extremity of Bull Island to the easternmost extremity of Capers Island.

(728) (d) A line formed by the overhead power cable from Capers Island to Dewees Island.

(729) (e) A line formed by the overhead power cable from Dewees Island to Isle of Palms.

(730) (f) A line formed by the centerline of the highway bridge between Isle of Palms and Sullivans Island over Breach Inlet.

(731) **§80.710 Charleston Harbor, S.C.** (a) A line formed by the submerged north jetty from the shore to the west end of the north jetty.

(732) (b) A line drawn from across the seaward extremity of the Charleston Harbor Jetties.

(733) (c) A line drawn from the west end of the South Jetty across the South Entrance to Charleston Harbor to shore on a line formed by the submerged south jetty.

(734) **§80.712 Morris Island, S.C. to Hilton Head Island, S.C.** (a) A line drawn from the easternmost tip of Folley Island to the abandoned lighthouse tower on the north side of Lighthouse Inlet; thence west to the shoreline of Morris Island.

(735) (b) A straight line drawn from the seaward tangent of Folly Island through Folly River Daybeacon 10 across Stono River to the shoreline of Sandy Point.

(736) (c) A line drawn from the southernmost extremity of Seabrook Island 257° true across the North Edisto River Entrance to the shore of Botany Bay Island.

(737) (d) A line drawn from the microwave antenna tower on Edisto Beach charted in approximate position latitude 32°29.3'N. longitude 80°19.2'W. across St. Helena Sound to the abandoned lighthouse tower on Hunting Island.

(738) (e) A line formed by the centerline of the highway bridge between Hunting Island and Fripp Island.

(739) (f) A line drawn from the westernmost extremity of Bull Point on Capers Island to Port Royal Sound Channel Range Rear Light, latitude 32°13.7'N., longitude 80°36.0'W.; thence 259° true to the easternmost extremity of Hilton Head at 32°13.0'N., 80°40.1'W.

(740) **§80.715 Savannah River.**

(741) A line drawn from the southernmost tank on Hilton Head Island charted in approximate position latitude 32°06.7'N. longitude 80°49.3'W. to Bloody Point Range Rear Light; thence to Tybee (Range Rear) Light.

(742) **§80.717 Tybee Island, Ga. to St. Simons Island, Ga.** (a) A line drawn from the southernmost extremity of Savannah Beach on Tybee Island 255° true across Tybee Inlet to the shore of Little Tybee Island south of the entrance to Buck Hammock Creek.

(743) (b) A straight line drawn from the northeasternmost extremity of Wassaw Island 031° true through Tybee River Daybeacon 1 to the shore of Little Tybee Island.

(744) (c) A line drawn approximately parallel with the general trend of the highwater shorelines from the seaward tangent of Wassaw Island to the seaward tangent of Bradley Point on Ossabaw Island.

(745) (d) A north-south line (longitude 81°08.4'W.) drawn from the southernmost extremity of Ossabaw Island to St. Catherine Island.

(746) (e) A north-south line (longitude 81°10.6'W.) drawn from the southernmost extremity of St. Catherines Island to Northeast Point on Blackbeard Island.

(747) (f) A line following the general trend of the seaward highwater shoreline across Cabretta Inlet.

(748) (g) A north-south line (longitude 81°16.9'W.) drawn from the southwesternmost point on Sapelo Island to Wolf Island.

(749) (h) A north-south line (longitude 81°17.1'W.) drawn from the southeasternmost point of Wolf Island to the northeasternmost point on Little St. Simons Island.

(750) (i) A line drawn from the northeastern extremity of Sea Island 045° true to Little St. Simons Island.

(751) (j) An east-west line from the southernmost extremity of Sea Island across Goulds Inlet to St. Simons Island.

(752) **§80.720 St. Simons Island, Ga. to Amelia Island, Fla.** (a) A line drawn from St. Simons Light to the northernmost tank on Jekyll Island charted in approximate position latitude 31°05.9'N. longitude 81°24.5'W.

(753) (b) A line drawn from the southernmost tank on Jekyll Island charted in approximate position latitude 31°01.6'N. longitude 81°25.2'W. to coordinate latitude 30°59.4'N. longitude 81°23.7'W. (0.5 nautical mile east of the charted position of St.

Andrew Sound Lighted Buoy 32); thence to the abandoned lighthouse tower on the north end of Little Cumberland Island charted in approximate position 30°58.5'N., 81°24.8'W.

(754) (c) A line drawn across the seaward extremity of the St. Marys River Entrance Jetties.

(755) **§80.723 Amelia Island, Fla. to Cape Canaveral, Fla.** (a) A line drawn from the southernmost extremity of Amelia Island to the northeasternmost extremity of Little Talbot Island.

(756) (b) A line formed by the centerline of the highway bridge from Little Talbot Island to Fort George Island.

(757) (c) A line drawn across the seaward extremity of the St. Johns River Entrance Jetties.

(758) (d) A line drawn across the seaward extremity of the St. Augustine Inlet Jetties.

(759) (e) A line formed by the centerline of the highway bridge over Matanzas Inlet.

(760) (f) A line drawn across the seaward extremity of the Ponce de Leon Inlet Jetties.

(761) **§80.727 Cape Canaveral, Fla. to Miami Beach, Fla.** (a) A line drawn across the seaward extremity of the Port Canaveral Entrance Channel Jetties.

(762) (b) A line drawn across the seaward extremity of the Sebastian Inlet Jetties.

(763) (c) A line drawn across the seaward extremity of the Fort Pierce Inlet Jetties.

(764) (d) A north-south line (longitude 80°09.7'W.) drawn across St. Lucie Inlet.

(765) (e) A line drawn from the seaward extremity of Jupiter Inlet North Jetty to the northeast extremity of the concrete apron on the south side of Jupiter Inlet.

(766) (f) A line drawn across the seaward extremity of the Lake Worth Inlet Jetties.

(767) (g) A line drawn across the seaward extremity of the Boynton Inlet Jetties.

(768) (h) A line drawn from Boca Raton Inlet North Jetty Light 2 to Boca Raton Inlet South Jetty Light 1.

(769) (i) A line drawn from Hillsboro Inlet Light to Hillsboro Inlet Entrance Light 2; thence to Hillsboro Inlet Entrance Light 1; thence west to the shoreline.

(770) (j) A line drawn across the seaward extremity of the Port Everglades Entrance Jetties.

(771) (k) A line formed by the centerline of the highway bridge over Bakers Haulover Inlet.

(772) **§80.730 Miami Harbor, Fla.**

(773) A line drawn across the seaward extremity of the Miami Harbor Government Cut Jetties.

(774) **§80.735 Miami, Fla. to Long Key, Fla.** (a) A line drawn from the southernmost extremity of Fisher Island 212° true to the point in latitude 25°45.0'N. longitude 80°08.6'W. on Virginia Key.

(775) (b) A line formed by the centerline of the highway bridge between Virginia Key and Key Biscayne.

(776) (c) A line drawn from Cape Florida Light to the northernmost extremity on Soldier Key.

(777) (d) A line drawn from the southernmost extremity on Soldier Key to the northernmost extremity of the Ragged Keys.

(778) (e) A line drawn from the Ragged Keys to the southernmost extremity of Angelfish Key following the general trend of the seaward shoreline.

(779) (f) A line drawn on the centerline of the Overseas Highway (U.S. 1) and bridges from latitude 25°19.3'N. longitude 80°16.0'W. at Little Angelfish Creek to the radar dome charted on Long Key at approximate position latitude 24°49.3'N. longitude 80°49.2'W.

(780) **§80.740 Long Key, Fla. to Cape Sable, Fla.**

(781) A line drawn from the microwave tower charted on Long Key at approximate position latitude 24°48.8'N. longitude 80°49.6'W. to Long Key Light 1; thence to Arsenic Bank Light 2; thence to Sprigger Bank Light 5; thence to Schooner Bank Light 6; thence to Oxfoot Bank Light 10; thence to East Cape Light 2; thence through East Cape Daybeacon 1A to the shoreline at East Cape.

Part 110–Anchorage Regulations

(782) **§110.1 General.** (a) The areas described in subpart A of this part are designated as special anchorage areas for purposes of 33 U.S.C. §§2030(g) and 2035(j). Vessels of less than 20 meters in length, and barges, canal boats, scows, or other nondescript craft, are not required to sound signals required by rule 35 of the Inland Navigation Rules (33 U.S.C. 2035). Vessels of less than 20 meters are not required to exhibit anchor lights or shapes required by rule 30 of the Inland Navigation Rules (33 U.S.C. 2030).

(783) (b) The anchorage grounds for vessels described in Subpart B of this part are established, and the rules and regulations in relation thereto adopted, pursuant to the authority contained in section 7 of the act of March 4, 1915, as amended (38 Stat. 1053; 33 U.S.C. 471).

(784) (c) All bearings in the part are referred to true meridian.

(785) (d) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

Subpart A–Special Anchorage Areas

(786) **§110.72b St. Simons Island, Ga.** The area beginning at a point southwest of Frederica River Bridge, St. Simons Island Causeway at

(787) 31°09'58"N., 81°24'55"W.; thence southwesterly to

(788) 31°09'42"N., 81°25'10"W.; thence westerly to the shoreline at

(789) 31°09'45"N., 81°25'20"W.; thence northeasterly along the shoreline to

(790) 31°10'02"N., 81°25'00"W.; thence southeasterly to the point of origin.

(791) **§110.72d Ashley River anchorage areas, SC.**

(792) The following locations are special anchorage areas:

(793) (a) Ashley River Anchorage 1. The waters lying within an area across the Ashley River Channel from the George M. Lockwood Municipal Marina bounded by the southeast side of the channel beginning at

(794) 32°46'42.7"N., 079°57'19.3"W.; thence to

(795) 32°46'38.0"N., 079°57'24.0"W.; thence to

(796) 32°46'32.0"N., 079°57'15.0"W.; thence to

(797) 32°46'29.0"N., 079°57'00.9"W.; thence back to the beginning following the southwest boundary of the Ashley River Channel. All coordinates referenced use datum: NAD 1983.

(798) (b) Ashley River Anchorage 2. The waters lying within an area across the Ashley River Channel from the Ashley Marina Bounded by the southwest side of the channel beginning at

(799) 32°46'53.0"N., 079°57'34.5"W.; thence to

(800) 32°46'50.5"N., 079°57'40.5"W.; thence to

(801) 32°46'46.0"N., 079°57'34.5"W.; thence to

(802) 32°46'49.0"N., 079°57'28.7"W.; thence back to the beginning following the southwest boundary of the Ashley River Channel. All coordinates referenced use datum: NAD 1983.

(803) **§110.73 St. Johns River, Fla.** (a) Area A. The waters lying within an area bounded by a line beginning at a point located at the west bank of St. Johns River at

(804) 30°15'11", 81°41'23"; thence to

(805) 30°15'13", 81°41'14"; thence to

(806) 30°15'03", 81°41'11"; thence to

(807) 30°15'04", 81°41'20"; and thence to the point of beginning.

(808) (b) Area B. The waters lying within an area bounded by a line beginning at

(809) 30°15'03", 81°41'28"; thence to

(810) 30°15'02", 81°41'10"; thence to

(811) 30°14'56", 81°41'08"; thence to

(812) 30°14'54.5", 81°41'10.5"; and thence to the point of beginning.

(813) **§110.73a Indian River at Sebastian, Florida.** Beginning at a point on the shoreline at latitude 27°49'40"N., longitude 80°28'26"W.; thence 060° to latitude 27°49'46"N., longitude 80°28'13"W.; thence 156° to latitude 27°49'31"N., longitude 80°28'05"W.; thence 242° to latitude 27°49'25"N., longitude 80°28'18"W.; thence northerly along the shoreline to the point of beginning.

(814) Note: This area is principally for use by commercial fishing vessels less than 65 feet in length.

(815) **§110.73b Indian River at Vero Beach, Fla.**

(816) (a) Area A. Beginning at a point located on the eastern shore of Fritz Island at latitude 27°39'32.5"N., longitude 80°22'20.6"W., following the shoreline northward to the northwest point at 27°39'46"N., 80°22'25.9"W., thence due east to a point on Orchid Island at approximately 27°39'46"N., 80°22'16.2"W., thence southerly along the shoreline of Orchid Island to 27°39'32.5"N., 80°22'13.4"W., thence due west to the point of beginning.

(817) (b) Area B. Beginning at a point located at the entrance channel marker No. 2 at 27°39'12"N., 80°22'17.3"W., thence northeasterly to channel marker No. 4 at 27°39'21"N., 80°22'15.8"W., thence due east to Orchid Island at approximately 27°39'21"N., 80°22'11.8"W., thence southerly along the western shoreline of Orchid Is. to 27°39'12"N., 80°22'15.6"W., thence due west to the point of beginning.

(818) (c) Vessels shall be so anchored so that no part of the vessel obstructs the turning basin or channels adjacent to the special anchorage areas.

(819) **§110.73c. Okeechobee Waterway, St. Lucie River, Stuart, FL.**

(820) The following is a special anchorage area: Beginning on the Okeechobee Intracoastal Waterway between mile marker 7 and 8 on the St. Lucie River, bounded by a line beginning at

(821) 27°12'06.583"N., 80°15'33.447"W.; thence to

(822) 27°12'07.811"N., 80°15'38.861"W.; thence to

(823) 27°12'04.584"N., 80°15'41.437"W.; thence to

(824) 27°11'49.005"N., 80°15'44.796"W.; thence to

(825) 27°11'47.881"N., 80°15'38.271"W.; thence to the point of beginning. All coordinates reference Datum NAD: 83.

Subpart B–Anchorage Grounds

(826) **§110.170 Lockwoods Folly Inlet, N.C.** (a) Explosives Anchorage. Beginning at a point southeast of Shallotte Inlet at

(827) 33°52'31"N., 78°18'49"W.; thence south to

(828) 33°51'31"N., 78°18'42"W.; thence east to

(829) 33°51'51"N., 78°14'35"W.; thence north to

(830) 33°52'52"N., 78°14'40"W.; thence west to the point of beginning.

(831) (b) General regulations. (1) This anchorage is reserved for the exclusive use of vessels carrying explosives.

(832) (2) Vessels in this anchorage shall not anchor closer than 1,500 yards to one another. This provision is not intended to prohibit barges or lighters from lying alongside vessels for transfer of cargo.

(833) (3) The maximum quantity of explosives aboard any vessel that may be in this anchorage is 8,000 tons.

(834) (4) Nothing in this section shall be construed as relieving the owner, master, or person in charge of any vessel from the penalties of the law for obstructing navigation or for not complying with the navigation laws in regard to lights, fog signals, etc.

(835) **§110.173 Port of Charleston, S.C.**

(836) (a) The anchorage grounds. (1) Commercial Anchorage A. This anchorage is located adjacent to the western edge of Folly Island Channel and southwest of Rebellion Reach and is bounded by the following coordinates:

(837) 32°45'34"N., 79°52'12"W.; to

(838) 32°46'17"N., 79°53'21"W.; to

(839) 32°45'51"N., 79°53'23"W.; to

(840) 32°45'34"N., 79°52'55"W.; thence back to

(841) 32°45'34"N., 79°52'12"W.

(842) (2) Commercial Anchorage B. This anchorage is located adjacent to the south side of South Channel and bounded by the following coordinates:

(843) 32°45'28"N., 79°53'40"W.; to

(844) 32°45'28"N., 79°54'46"W.; to

(845) 32°45'19"N., 79°54'46"W.; to

(846) 32°45'12"N., 79°54'06"W.; to

(847) 32°45'16"N., 79°53'40"W.; thence back to

(848) 32°45'28"N., 79°53'40"W.

(849) (3) Commercial Anchorage C. This anchorage is located 1,800 yards, 118° true from St. Michaels Church Spire and has a diameter of 500 yards. Vessels using this anchorage must anchor in the center.

(850) (4) Commercial Anchorage D. This anchorage is located 051°30' true, 1,375 yards from St. Michaels Church Spire and has a diameter of 1,400 feet. The use of this anchorage is limited to loaded vessels for a period of not more than 24 hours.

(851) (b) The regulations. (1) Except in cases of great emergency, no vessel shall be anchored in the main ship channels as defined by broken lines marking their boundaries on NOAA Chart 11524. Vessels must be anchored in such a way as not to interfere with the free navigation of channels in the port, including Cooper, Ashley, Wando Rivers, and Town Creek, nor to obstruct the approach to any pier or entrance to any slip, nor to impede the movement of any vessel or craft.

(852) (2) Vessels using the anchorages opposite the eastern waterfront of Charleston shall place their anchors as near as possible in the center of the anchorage. Vessels not using a designated

commercial anchorage shall not place their anchors within the main ship channels, nor shall be so anchored as to swing within 400 feet of any wharf or pier on the eastern waterfront of Charleston. Vessels may be so anchored as to swing into the main ship channels only if they are so placed with reference to the customary winds, tides, and currents of the harbor, as to swing only during slack water, and that during this period there shall remain in the waters adjacent to the channel an area of sufficient depth as to permit the safe passage of loaded vessels.

(853) (3) No vessel may anchor within the designated anchorages for more than 72 hours without the prior approval of the Captain of the Port.

(854) (4) No vessel may anchor unless it maintains a bridge watch, guards and answers Channel 16 FM, and maintains an accurate position plot.

(855) (5) If any anchored vessel is so close to another that a collision is probable, each vessel must communicate with the other vessel and the Captain of the Port on Channel 16 FM and shall act to eliminate the close proximity situation.

(856) (6) No vessel may anchor unless it maintains the capability to get underway within 4 hours.

(857) (7) No vessel may anchor in a "dead ship" status (propulsion or control unavailable for normal operations) without the prior approval of the Captain of the Port.

(858) (8) Dragging of anchors in or across main ship channels and cable areas is prohibited.

(859) (9) Vessels which, through force of great emergency, are anchored contrary to the foregoing regulations in this section shall be shifted to new berths in accordance with such regulations at the earliest opportunity.

(860) (10) A vessel, upon notification from the Captain of the Port to shift its position in anchorage grounds must get underway at once or signal for a tug, and must change position as directed with reasonable promptness.

(861) (11) No vessel may conduct lightering operations in an anchorage without permission from the Captain of the Port.

(862) (12) When the use of an anchorage is required by naval vessels, the vessels anchored therein shall move when the Captain of the Port directs them.

(863) (13) Nothing in this section shall be construed as relieving the owner or person in charge of any vessel from the penalties of law for obstructing navigation, or for obstructing or interfering with range lights, or for not complying with the navigation laws in regard to lights, fog signals, etc.

(864) **§110.179 Skidaway River, Isle of Hope, Ga.** (a) The anchorage ground. An area in Skidaway River beginning at a point on the mean low water line 400 feet south of Brady Boat Works, thence 076°30', 300 feet to a buoy; thence 152°30', 900 feet to a buoy; thence 251°00', 450 feet to the mean low water line at Wymberly Yacht Club dock.

(865) (b) The regulations. (1) Except in cases of great emergency, no vessels shall anchor in Skidaway River between the north end of Barbee's dock and southward to Day Marker 48 except in the anchorage area hereby defined and established: Provided, however, that vessels may moor to any lawfully constructed wharf.

(866) (2) Except in cases of great emergency, no vessel shall be anchored where it can swing within 50 feet of any lawfully constructed wharf or within 50 feet of the mean low water line, nor shall any vessel be so anchored that any portion of the hull or rigging shall at any time extend outside the boundary of the anchorage area.

(867) (3) Any vessel anchoring under circumstances of great emergency outside the anchorage area should be placed in such a position as not to interfere with the free navigation of the channel nor obstruct the approach to any lawfully constructed wharf nor impede the movement of any boat, and shall move away immediately after the emergency ceases or upon notification of the District Commander.

(868) (4) No vessels with an overall length greater than 65 feet will use the anchorage area except in cases of great emergency.

(869) (5) Vessels operating within the anchorage area will not exceed a speed of five (5) miles per hour.

(870) **§110.182 Atlantic Ocean off Fort George Inlet, near Mayport, Fla.** (a) The Anchorage areas–(1) Anchorages for aircraft carriers and other deep draft vessels. Four circular areas each with a radius of 600 yards and with their centers located at:

(871) "A"–30°25'35"N., 81°21'23"W.;

(872) "B"–30°26'13"N., 81°21'13"W.;

(873) "C"–30°26'19"N., 81°20'27"W.;

(874) "D"–30°26'55"N., 81°20'47"W.

(875) (2) Anchorages for destroyers and other ships of similar size. Six circular areas each with a radius of 300 yards and with their centers located at:

(876) "1"–30°24'38"N., 81°21'57"W.;

(877) "2"–30°24'57"N., 81°21'58"W.;

(878) "3"–30°24'56"N., 81°21'38"W.;

(879) "4"–30°25'13"N., 81°22'05"W.;

(880) "5"–30°25'13"N., 81°21'43"W;

(881) "6"–30°25'07"N., 81°21'24"W.

(882) (3) Explosives anchorage. The circular area "A" described in paragraph (a) (1) of this section is also designated as an explosives anchorage for use during periods when ammunition must be handled outside the limits of the U.S. Naval Station, Mayport, Fla.

(883) (b) The regulations for all designated areas. (1) Usage of these areas by naval vessels shall predominate only when necessary for military requirements; at such times other vessels shall remain clear of the areas.

(884) (2) Prudent assignment of the anchorage areas shall be made by the Commanding Officer, U.S. Naval Station, Mayport, Fla.

(885) (c) Additional regulations for Explosives Anchorage Area "A." (1) When occupied by a vessel handling explosives, no other vessel may enter the area unless authorized by the enforcing agency.

(886) (2) Only one vessel handling explosives may anchor in the area at one time. A patrol craft shall be utilized to assure that other vessels remain clear when explosives are exposed or being transferred to and from the anchorage.

(887) (3) No more than 500,000 pounds net high explosives or equivalent may be exposed in the area at any one time.

(888) (d) The regulations in this section shall be enforced by the Commanding Officer, U.S. Naval Station, Mayport, Fla., or other agencies that he may designate.

(889) **§110.183 St. Johns River, Florida.**

(890) (a) The anchorage grounds–

(891) (1) Anchorage A. (Upper Anchorage) The Anchorage is established within the following coordinates, the area enclosed by a line starting at the south shore westerly of the entrance to Miller Creek at

(892) 30°18'43.8"N., 81°38'15.0"W.; thence to
(893) 30°18'52.8"N., 81°38'15.0"W.; thence to
(894) 30°18'47.6"N., 81°37'47.6"W.; thence to
(895) 30°18'55.0"N., 81°37'29.0"W.; thence to
(896) 30°19'06.0"N., 81°37'27.0"W.; thence to
(897) 30°19'06.0"N., 81°37'02.0"W.; thence to
(898) 30°19'01.2"N., 81°37'02.0"W.; thence returning to the point of beginning.
(899) (2) Anchorage B. (Lower Anchorage) The Anchorage is established within the following coordinates, the area enclosed by a line starting at a point on the eastern shore of the river at Floral Bluff at
(900) 30°21'00.0"N., 81°36'41.0"W.; thence to
(901) 30°20'00.0"N., 81°37'03.0"W.; thence to
(902) 30°21'00.0"N., 81°37'06.0"W.; thence to
(903) 30°21'50.0"N., 81°36'56.0"W.; thence to
(904) 30°21'54.0"N., 81°36'48.0"W.; thence to returning to the point of beginning.
(905) (b) The regulations.
(906) (1) Except in cases of emergency, only vessels meeting the conditions and restrictions of this paragraph will be authorized by the Captain of the Port to anchor in the St. Johns River, as depicted on NOAA chart 11491, between the entrance buoy (STJ) and the Main Street Bridge (in position 30°19'20"N., 81°39'32"W). Vessels unable to meet any of the following conditions and restrictions must obtain specific authorization from the Captain of the Port prior to anchoring in Anchorage A or B.
(907) (2) All vessels intending to enter and anchor in Anchorage A or B shall notify the Captain of the Port prior to entering.
(908) (3) Anchorages A and B are temporary anchorages. Additionally, Anchorage B is used as a turning basin. Vessels may not anchor for more than 24 hours in either anchorage without specific written authorization from the Captain of the Port.
(909) (4) All vessels at anchor must maintain a watch on VHF-FM channels 13 and 16 by a person fluent in English, and shall make a security broadcast on channel 13 upon anchoring and every 4 hours thereafter.
(910) (5) Anchorage A is restricted to vessels less than 250 feet in length.
(911) (6) Anchorage B is restricted to vessels with a draft of 24 feet or less, regardless of length.
(912) (7) Any vessel transferring petroleum products within Anchorage B shall have a pilot or Docking Master aboard, and employ sufficient assist tugs to assure the safety of the vessel at anchor and any vessels transiting the area.
(913) (8) Any vessel over 300 feet in length within Anchorage B shall have a Pilot or Docking Master aboard, and employ sufficient assist tugs to assure the safety of the vessel at anchor and any vessels transiting the area.
(914) **§110.185 Atlantic Ocean, off the Port of Palm Beach, FL**
(915) (a) The anchorage grounds. (1) Anchorage A. The waters lying within an area bounded by a line beginning at
(916) 26°50'00"N., 80°01'12"W.; thence westerly to
(917) 26°50'00"N., 80°01'30"W.; thence southerly to
(918) 26°47'30"N., 80°01'30"W.; thence easterly to
(919) 26°47'30"N., 80°01'12"W.; and thence northerly to the point of beginning.
(920) (2) Anchorage B. The waters lying within an area bounded by a line beginning at
(921) 26°45'06"N., 80°01'12"W.; thence westerly to
(922) 26°45'06"N., 80°01'42"W.; thence southerly to
(923) 26°43'48"N., 80°01'42"W.; thence easterly to
(924) 26°43'48"N., 80°01'12"W.; and thence northerly to the point of beginning.
(925) (b) The regulations. (1) Vessels in the Atlantic Ocean near Lake Worth Inlet awaiting berthing space at the Port of Palm Beach, shall only anchor within the anchorage areas hereby defined and established, except in cases of great emergency.
(926) (2) Vessels anchoring under circumstances of great emergency outside the anchorage areas shall be shifted to new positions within the anchorage areas immediately after the emergency ceases.
(927) **§110.186 Port Everglades, Florida.**
(928) (a) The anchorage grounds. (1) Anchorage A. A rectangular area the center of which is approximately two miles northeast of the entrance to Port Everglades with the following NAD 83 coordinates:
(929) 26°07'46"N., 80°04'51"W.
(930) 26°07'46"N., 80°05'01"W.
(931) 26°06'20"N., 80°05'01"W.
(932) 26°06'20"N., 80°05'10"W.
(933) (2) Anchorage B. An area bounded by a line connecting points with the following NAD 83 coordinates:
(934) 26°07'16"N., 80°04'38"W.
(935) 26°07'56"N., 80°04'34"W.
(936) 26°07'56"N., 80°02'42"W.
(937) 26°07'16"N., 80°02'54"W.
(938) (b) The regulations. (1) Commercial vessels in the Atlantic Ocean in the vicinity of Port Everglades shall anchor only within the anchorage area hereby defined and established, except in cases of emergency.
(939) (2) Prior to entering the anchorage area, all vessels shall notify the Coast Guard Captain of the Port, via the Port Everglades Harbormaster, on VHF-FM Channel 14.
(940) (3) All vessels within the anchorage area shall maintain a 24-hour bridge watch by an English speaking licensed deck officer monitoring VHF-FM channel 16. This individual shall perform frequent checks of the vessel's position to ensure the vessel is not dragging anchor.
(941) (4) Vessels experiencing casualties such as a main propulsion, main steering or anchoring equipment malfunction or which are planning to perform main propulsion engine repairs or maintenance, shall immediately notify the Coast Guard Captain of the Port via the Coast Guard Group Miami on VHF-FM Channel 16.
(942) (5) The Coast Guard Captain of the Port may close the anchorage area and direct vessels to depart the anchorage during periods of adverse weather or at other times as deemed necessary in the interest of port safety.
(943) (6) Commercial vessels anchoring under emergency circumstances outside the anchorage area shall shift to new positions within the anchorage area immediately after the emergency ceases.
(944) **§110.188 Atlantic Ocean off Miami and Miami Beach, Fla.** (a) The anchorage grounds. The area to the eastward of a line bearing 012° through a point X, which is 1½ nautical miles due east of the intersection of the Miami Beach shoreline with the north jetty; to the northward of a line bearing 102° and intersecting the 012° line at a point A, one-half nautical mile north of the said point X; and to the southward of a line bearing 102° and intersecting the 012° line at a point B, 2½ nautical miles north of

the said point X. The northern and southern extremities of the 012° line are marked by spar buoys. The entire anchorage area lies north of the entrance channel to Miami Harbor.

(945) (b) The regulations. (1) except in cases of great emergency, no vessel shall be anchored in the Atlantic Ocean in the vicinity of the entrances to the approach channels leading to the cities of Miami Beach and Miami, Fla., outside of the anchorage area hereby defined and established–that is, they shall not anchor shoreward of the line first named nor southward of the second nor northward of the third line–but may anchor as far to the eastward as may be desired.

(946) (2) Any vessel anchoring under circumstances of great emergency outside of the anchorage area shall be shifted to new berths within the area immediately after the emergency ceases.

(947) (3) All vessels shall lie at anchor with as short a cable as conditions will permit.

(948) (4) A vessel upon being notified to move into the anchorage limits or to shift its position on the anchorage ground must get under way at once or signal for a tug, and must change position as directed with reasonable promptness.

(949) (5) Whenever the maritime or commercial interests of the United States so require, the Captain of the Port, U.S. Coast Guard, Miami, Fla., is hereby empowered to shift the position of any vessel anchored on the anchorage ground or outside thereof, or of any vessel moored or anchored so as to impede or obstruct vessel movements or obstruct or interfere with range lights.

(950) (6) Vessels carrying explosives shall be anchored only under a written permit issued by the Captain of the Port and at such point as he may direct.

(951) (7) Vessels carrying explosives shall be at all times in charge of a competent person, and must display by day a red flag, of not less than 16 square feet, at the masthead, or not less than 10 feet above the upper deck if the vessel has no mast; at night a red light shall be displayed in the positions specified for the red flag.

(952) (8) Nothing in this paragraph shall be construed as relieving the owner or person in charge of any vessel from the penalties of the law for obstructing navigation, or for obstructing or interfering with range lights, or for not complying with the navigation laws in regard to lights, fog signals, or other aids to navigation, or for otherwise violating law.

(953) (9) All vessels desiring to use the Anchorage must notify the Coast Guard Captain of the Port, via the Biscayne Bay Pilots on VHF-FM channel 12 or 16.

(954) (10) All vessels anchored within the anchorage area shall maintain a 24-hour bridge watch by an English speaking licensed deck officer monitoring VHF-FM Channel 16. This individual shall perform frequent checks of the vessels's position to ensure the vessel is not dragging anchor.

(955) (11) Vessels experiencing casualties such as a main propulsion, main steering or anchoring equipment malfunction or which are planning to perform main propulsion engine repairs or maintenance, shall immediately notify the Coast Guard Captain of the Port via the Coast Guard Group Miami on VHF-FM Channel 16.

(956) (12) The Coast Guard Captain of the Port may close the anchorage area and direct vessels to depart the anchorage during periods of adverse weather or at other times as deemed necessary in the interest of port safety.

(957) **§110.189a Key West Harbor, Key West, Fla.; naval explosives anchorage area.** (a) The anchorage ground. A circular area with its center at latitude 24°30'50.6", longitude 81°50'31.6" with a radius of 300 yards, for use for ammunition exceeding the prescribed limits for pier-side handling.

(958) (b) The regulations. (1) When occupied by a vessel handling explosives, no other vessel may enter the area unless authorized by the enforcing agency.

(959) (2) Only one vessel handling explosives may anchor in the area at one time.

(960) (3) No more than 300,000 pounds net of high explosives or equivalent may be handled in the area at any one time.

(961) (4) The regulations in this section shall be enforced by the Commander, U.S. Naval Base, Key West, Fla., and any other agencies he may designate.

Part 117–Drawbridge Operation Regulations

Subpart A–General Requirements

(962) **§117.1 Purpose.**

(963) This subpart prescribes general requirements relating to the use and operation of drawbridges across the navigable waters of the United States.

(964) **Note**–The primary jurisdiction to regulate drawbridges across the navigable waters of the United States is vested in the Federal Government. Laws, ordinances, regulations, and rules which purport to regulate these bridges and which are not promulgated by the Federal Government have no force and effect.

(965) **§117.3 Applicability.**

(966) The provisions of this subpart not in conflict with the provisions of Subpart B apply to each drawbridge.

(967) **Note.**–For all of the requirements applicable to a drawbridge listed in Subpart B, one must review the requirements in Subpart A and §§117.51 through 117.99 of Subpart B, as well as the requirements in Subpart B applicable to the particular drawbridge in question.

(968) **§117.4 Definitions.**

(969) Certain terms used in this part are defined in this section.

(970) **Appurtenance.** The term "appurtenance" means an attachment or accessory extending beyond the hull or superstructure that is not an integral part of the vessel and is not needed for a vessel's piloting, propelling, controlling, or collision avoidance capabilities.

(971) **Lowerable.** The term "lowerable" means the nonstructural vessel appurtenance can be mechanically or manually lowered and raised again. The term "lowerable" also applies to a nonstructural vessel appurtenance which can be modified to make the item flexible, hinged, collapsible, or telescopic such that it can be mechanically or manually lowered and raised again. Failure to make the modification is considered equivalent to refusing to lower a lowerable nonstructural appurtenance that is not essential to navigation. Examples of appurtenances which are considered to be lowerable include, but are not limited to, fishing outriggers, radio antennae, television antennae, false stacks, and masts purely for ornamental purposes. Examples of appurtenances which are not considered to be lowerable include, but are not limited to, radar antennae, flying bridges, sailboat masts, piledriver leads, spud frames on hydraulic dredges, drilling derricks' substructures and buildings, cranes on drilling or construction vessels, or other items of permanent and fixed equipment.

(972) **Nonstructural.** The term "nonstructural" means that the item is not rigidly fixed to the vessel and is thus susceptible to relocation or alteration.

(973) **Not essential to navigation.** The term "not essential to navigation" means the nonstructural vessel appurtenance does not adversely affect the vessel's piloting, propulsion, control, or collision avoidance capabilities when in the lowered position.

(974) **§117.5 When the draw shall open.**

(975) Except as otherwise required by this subpart, drawbridges shall open promptly and fully for the passage of vessels when a request to open is given in accordance with this subpart.

(976) **§117.7 General duties of drawbridge owners and tenders.**

(977) (a) Drawbridge owners and tenders shall operate the draw in accordance with the requirement in this part.

(978) (b) Except for drawbridges not required to open for the passage of vessels, owners of drawbridges shall ensure that:

(979) (1) The necessary drawtenders are provided for the safe and prompt opening of the draw;

(980) (2) The operating machinery of the draw is maintained in a serviceable condition; and

(981) (3) The draws are operated at sufficient intervals to assure their satisfactory operation.

(982) **§117.9 Delaying opening of a draw.**

(983) No person shall unreasonably delay the opening of a draw after the signals required by §117.15 have been given.

(984) **Note.**–Trains are usually controlled by the block method. That is, the track is divided into blocks or segments of a mile or more in length. When a train is in a block with a drawbridge, the draw may not be able to open until the train has passed out of the block and the yardmaster or other manager has "unlocked" the drawbridge controls. The maximum time permitted for delay is defined in Subpart B for each affected bridge. Land and water traffic should pass over or through the draw as soon as possible in order to prevent unnecessary delays in the opening and closure of the draw.

(985) **§117.11 Unnecessary opening of the draw.**

(986) No vessel owner or operator shall -

(987) (a) Signal a drawbridge to open if the vertical clearance is sufficient to allow the vessel, after all lowerable nonstructural vessel appurtenances that are not essential to navigation have been lowered, to safely pass under the drawbridge in the closed position; or

(988) (b) Signal a drawbridge to open for any purpose other than to pass through the drawbridge opening.

(989) **§117.15 Signals.**

(990) (a) General. (1) The operator of each vessel requesting a drawbridge to open shall signal the drawtender and the drawtender shall acknowledge that signal. The signal shall be repeated until acknowledged in some manner by the drawtender before proceeding.

(991) (2) The signals used to request the opening of the draw and to acknowledge that request shall be sound signals, visual signals, or radiotelephone communications described in this subpart.

(992) (3) Any of the means of signaling described in this subpart sufficient to alert the party being signaled may be used.

(993) (b) Sound signals. (1) Sound signals shall be made by whistle, horn, megaphone, hailer, or other device capable of producing the described signals loud enough to be heard by the drawtender.

(994) (2) As used in this section, "prolonged blast" means a blast of four to six seconds duration and "short blast" means a blast of approximately one second duration.

(995) (3) The sound signal to request the opening of a draw is one prolonged blast followed by one short blast sounded not more than three seconds after the prolonged blast. For vessels required to be passed through a draw during a scheduled closure period, the sound signal to request the opening of the draw during that period is five short blasts sounded in rapid succession.

(996) (4) When the draw can be opened immediately, the sound signal to acknowledge a request to open the draw is one prolonged blast followed by one short blast sounded not more than 30 seconds after the requesting signal.

(997) (5) When the draw cannot be opened immediately, or is open and shall be closed promptly, the sound signal to acknowledge a request to open the draw is five short blasts sounded in rapid succession not more than 30 seconds after the vessel's opening signal. The signal shall be repeated until acknowledged in some manner by the requesting vessel.

(998) (c) Visual signals. (1) The visual signal to request the opening of a draw is -

(999) (i) A white flag raised and lowered vertically; or

(1000) (ii) A white, amber, or green light raised and lowered vertically.

(1001) (2) When the draw can be opened immediately, the visual signal to acknowledge a request to open the draw, given not more than 30 seconds after the vessel's opening signal, is -

(1002) (i) A white flag raised and lowered vertically;

(1003) (ii) A white, amber, or green light raised and lowered vertically, or

(1004) (iii) A fixed or flashing white, amber, or green light or lights.

(1005) (3) When the draw cannot be opened immediately, or is open and must be closed promptly, the visual signal to acknowledge a request to open the draw is -

(1006) (i) A red flag or red light swung back and forth horizontally in full sight of the vessel given not more than 30 seconds after the vessel's opening signal; or

(1007) (ii) A fixed or flashing red light or lights given not more than 30 seconds after the vessel's opening signal.

(1008) (4) The acknowledging signal when the draw cannot open immediately or is open and must be closed promptly shall be repeated until acknowledged in some manner by the requesting vessel.

(1009) (d) Radiotelephone communications. (1) Radiotelephones may be used to communicate the same information provided by sound and visual signals.

(1010) **NOTE**: Call signs and radio channels for drawbridges equipped with radiotelephones are included with the bridge descriptions in chapters 4 through 12.

(1011) (2) The vessel and the drawtender shall monitor the frequency used until the vessel has cleared the draw.

(1012) (3) When radiotelephone contact cannot be initiated or maintained, sound or visual signals under this section shall be used.

(1013) **§117.17 Signalling for contiguous drawbridges.**

(1014) When a vessel must pass two or more drawbridges close together, the opening signal is given for the first bridge. After acknowledgment from the first bridge that it will promptly open, the opening signal is given for the second bridge, and so on until all bridges that the vessel must pass have been given the opening signal and have acknowledged that they will open promptly.

(1015) **§117.19 Signalling when two or more vessels are approaching a drawbridge.**

(1016) When two or more vessels are approaching the same drawbridge at the same time, or nearly the same time, whether from the same or opposite directions, each vessel shall signal independently for the opening of the draw and the drawtender shall reply in turn to the signal of each vessel. The drawtender need not reply to signals by vessels accumulated at the bridge for passage during a scheduled open period.

(1017) **§117.21 Signalling for an opened drawbridge.**

(1018) When a vessel approaches a drawbridge with the draw in the open position, the vessel shall give the opening signal. If no acknowledgment is received within 30 seconds, the vessel may proceed, with caution, through the open draw.

(1019) **§117.23 Installation of radiotelephones.**

(1020) (a) When the District Commander deems it necessary for reasons of safety of navigation, the District Commander may require the installation and operation of a radiotelephone on or near a drawbridge.

(1021) (b) The District Commander gives written notice of the proposed requirement to the bridge owner.

(1022) (c) All comments the owner wishes to submit shall be submitted to the District Commander within 30 days of receipt of the notice under paragraph (b) of this section.

(1023) (d) If, upon consideration of the comments received, the District Commander determines that a radiotelephone is necessary, the District Commander notifies the bridge owner that a radiotelephone shall be installed and gives a reasonable time, not to exceed six months, to install the radiotelephone and commence operation.

(1024) **§117.24 Radiotelephone installation identification.**

(1025) (a) The Coast Guard authorizes, and the District Commander may require the installation of a sign on drawbridges, on the upstream and downstream sides, indicating that the bridge is equipped with and operates a VHF radiotelephone in accordance with §117.23.

(1026) (b) The sign shall give notice of the radiotelephone and its calling and working channels-

(1027) (1) In plain language; or

(1028) (2) By a sign consisting of the outline of a telephone handset with the long axis placed horizontally and a vertical three-legged lightning slash superimposed over the handset. The slash shall be as long vertically as the handset is wide horizontally and normally not less than 27 inches and no more than 36 inches long. The preferred calling channel should be shown in the lower left quadrant and the preferred working channel should be shown in the lower right quadrant.

(1029) **§117.31 Operation of draw for emergency situations.**

(1030) (a) When a drawtender is informed by a reliable source that an emergency vehicle is due to cross the draw, the drawtender shall take all reasonable measures to have the draw closed at the time the emergency vehicle arrives at the bridge.

(1031) (b) When a drawtender receives notice, or a proper signal as provided in §117.15 of this part, the drawtender shall take all reasonable measures to have the draw opened, regardless of the operating schedule of the draw, for passage of the following, provided this opening does not conflict with local emergency management procedures which have been approved by the cognizant Coast Guard Captain of the Port:

(1032) (1) Federal, State, and local government vessels used for public safety;

(1033) (2) vessels in distress where a delay would endanger life or property;

(1034) (3) commercial vessels engaged in rescue or emergency salvage operations; and

(1035) (4) vessels seeking shelter from severe weather.

(1036) **§117.33 Closure of draw for natural disasters or civil disorders.**

(1037) Drawbridges need not open for the passage of vessels during periods of natural disasters or civil disorders declared by the appropriate authorities unless otherwise provided for in Subpart B or directed to do so by the District Commander.

(1038) **§117.35 Operations during repair or maintenance.**

(1039) (a) When operation of the draw must deviate from the regulations in this part for scheduled repair or maintenance work, the drawbridge owner shall request approval from the District Commander at least 30 days before the date of the intended change. The request shall include a brief description of the nature of the work to be performed and the times and dates of requested changes. The District Commander's decision is forwarded to the applicant within five working days of the receipt of the request. If the request is denied, the reasons for the denial are forwarded with the decision.

(1040) (b) When the draw is rendered inoperative because of damage to the structure or when vital, unscheduled repair or maintenance work shall be performed without delay, the drawbridge owner shall immediately notify the District Commander and give the reasons why the draw is or should be rendered inoperative and the expected date of completion of the repair or maintenance work.

(1041) (c) All repair or maintenance work under this section shall be performed with all due speed in order to return the draw to operation as soon as possible.

(1042) (d) If the operation of the draw will be affected for periods of less than 60 days, the regulations in this part will not be amended. Where practicable, the District Commander publishes notice of temporary deviations from the regulations in this part in the Federal Register and Local Notices to Mariners. If operation of the draw is expected to be affected for more than 60 days, the District Commander publishes temporary regulations covering the repair period.

(1043) **§117.37 Opening or closure of draw for public interest concerns.**

(1044) (a) For reasons of public health or safety or for public functions, such as street parades and marine regattas, the District Commander may authorize the opening or closure of a drawbridge for a specified period of time.

(1045) (b) Requests for opening or closure of a draw shall be submitted to the District Commander at least 30 days before the proposed opening or closure and include a brief description of the proposed event or other reason for the request, the reason why the opening or closure is required, and the times and dates of the period the draw is to remain open or closed.

(1046) (c) Approval by the District Commander depends on the necessity for the opening or closure, the reasonableness of the times and dates, and the overall effect on navigation and users of the bridge.

(1047) **§117.39 Closure of draw due to infrequent use.**

(1048) Upon written request by the owner or operator of a drawbridge, the District Commander may, after notice in the Federal Register and opportunity for public comment, permit the draw to be closed and untended due to infrequency of use of the draw by vessels. The District Commander may condition approval on the continued maintenance of the operating machinery.

(1049) **§117.41 Maintenance of draw in fully open position.**

(1050) The draw may be maintained in the fully open position to permit the passage of vessels and drawtender service discontinued if the District Commander is notified in advance. The draw shall remain in the fully open position until drawtender service is restored or authorization under §117.39 is given for the draw to remain closed and untended.

(1051) **§117.43 Changes in draw operation requirements for regulatory purposes.**

(1052) In order to evaluate suggested changes to the drawbridge operation requirements, the District Commander may authorize temporary deviations from the regulations in this part for periods not to exceed 90 days. Notice of these deviations is disseminated in the Local Notices to Mariners and published in the Federal Register.

(1053) **§117.45 Operation during winter in the Great Lakes area.**

(1054) (a) The Commander, Ninth Coast Guard District, may determine that drawbridges located in the Ninth Coast Guard District need not open during the winter season when general navigation is curtailed, unless a request to open the draw is given at least 12 hours before the time of the intended passage.

(1055) (b) Notice of these determinations is disseminated in Local Notices to Mariners and other appropriate media. Notices indicate–

(1056) (1) The name and location of the bridge affected;

(1057) (2) The period of time covered; and

(1058) (3) The telephone number and address of the party to whom requests for openings are given.

(1059) **§117.47 Clearance gauges.**

(1060) (a) Clearance gauges are required for drawbridges across navigable waters of the United States discharging into the Atlantic Ocean south of Delaware Bay (including the Lewes and Rehoboth Canal, DE) or into the Gulf of Mexico (including coastal waterways contiguous thereto and tributaries to such waterways and the Lower Atchafalaya River, LA), except the Mississippi River and its tributaries and outlets.

(1061) (b) Except for provisions in this part which specify otherwise for particular drawbridges, clearance gauges shall be designed, installed, and maintained according to the provisions of 33 CFR 118.160 (not carried in this Coast Pilot).

(1062) **Note.**–Clearance gauge requirements, if any, for drawbridges other than those referred to in this section are listed in Subpart B under the appropriate bridge.

(1063) **§117.49 Process of violations.**

(1064) (a) Complaints of alleged violations under this part are submitted to the District Commander of the Coast Guard District in which the drawbridge is located.

(1065) (b) Penalties for violations under this part are assessed and collected under Subpart 1.07 of Part 1 of this chapter (not published in this Coast Pilot; see 33 CFR 1.07).

Subpart B–Specific Requirements

(1066) **§117.51 Purpose.**

(1067) This subpart prescribes specific requirements relating to the operation of certain drawbridges.

(1068) **Note.**–The drawbridges under this subpart are listed by the waterway they cross and by the state in which they are located. Waterways are arranged alphabetically by state. The drawbridges listed under a waterway are generally arranged in order from the mouth of the waterway moving upsteam. The drawbridges on the Atlantic Intracoastal Waterway are listed from north to south and on the Gulf Intracoastal Waterway from east to west.

(1069) **§117.53 Applicability.**

(1070) (a) The requirements in this subpart apply to the bridges listed and are in addition to, or vary from, the general requirements in Subpart A.

(1071) (b) A requirement in this subpart which varies from a general requirement in Subpart A supersedes the general requirement.

(1072) (c) All other general requirements in Subpart A not at variance apply to the bridges listed in this subpart.

(1073) (d) The draws of a number of the bridges listed in this subpart need not open for the passage of vessels during certain periods, however, this does not preclude the bridge owner from directing the drawtender to open the draw during these periods.

(1074) **§117.55 Posting of requirements.**

(1075) (a) The owner of each drawbridge under this subpart, other than removable span bridges, shall ensure that a sign summarizing the requirements in this subpart applicable to the bridge is posted both upstream and downstream of the bridge. The requirements to be posted need not include those in Subpart A or §§117.51 through 117.99.

(1076) (b) The signs shall be of sufficient size and so located as to be easily read at any time from an approaching vessel.

(1077) (c) If advance notice is required to open the draw, the signs shall also state the name, address, and telephone number of the person to be notified.

(1078) **§117.57 Advance notice.**

(1079) Owners and tenders of drawbridges requiring advance notice to open shall use all reasonable means to open the draw at the requested time and give due regard to the possibility that a brief delay may be experienced by the vessel giving the advance notice.

(1080) **§117.59 Special requirements due to hazards.**

(1081) For the duration of occurrences hazardous to safety or navigation, such as floods, freshets, and damage to the bridge or fender system, the District Commander may require the owner of an operational drawbridge listed in this subpart to have the bridge attended full time and open on signal.

(1082) **FLORIDA**

(1083) **§117.261 Atlantic Intracoastal Waterway from St. Marys River to Key Largo.**

(1084) (a) General. Public vessels of the United States, tugs with tows, and vessels in a situation where a delay would endanger life or property shall, upon proper signal, be passed through the draw of each bridge listed in this section at any time.

(1085) (b) McCormick Bridge, mile 747.5 at Jacksonville Beach. The draw shall open on signal; except that, during April, May, October, and November, from 7 a.m. to 8:30 a.m. and 4:30 p.m. to 6 p.m. Monday through Friday except federal holidays, the draw need open only on the hour and half-hour. During April, May, October, and November, from 12 noon to 6 p.m. Saturdays, Sundays, and federal holidays, the draw need open only on the hour and half-hour.

(1086) (c) Vilano Beach (SR A1A), Mile 775.8 at Vilano Beach. The draw shall open on signal, except that from March 15 through December 15, from 7 a.m. to 6 p.m. Monday through Friday, except federal holidays, and from 9 a.m. to sunset on Saturdays, Sundays and federal holidays, the draw need open only on

the hour, twenty minutes after the hour, and forty minutes after the hour.

(1087) (d) Bridge of Lions (SR A1A) bridge, mile 777.9 at St. Augustine. The draw shall open on signal; except that, from 7 a.m. to 6 p.m. the draw need open only on the hour and half-hour, however, the draw need not open at 8 a.m., 12 noon, and 5 p.m. Monday through Friday except federal holidays. From 7 a.m. to 6 p.m. on Saturdays, Sundays and federal holidays the draw need only open on the hour and half-hour.

(1088) (e)–(f) [Reserved]

(1089) (g) Memorial bridge, mile 830.6 at Daytona Beach. The draw shall open on signal; except that, from 7:45 a.m. to 8:45 a.m. and 4:45 p.m. to 5:45 p.m. Monday through Saturday except federal holidays, the draw need open only at 8:15 a.m. and 5:15 p.m.

(1090) (h) (Reserved)

(1091) (i) (Reserved)

(1092) (j) NASA Railroad bridge, mile 876.6 at Kennedy Space Center.

(1093) (1) The draw is not constantly tended.

(1094) (2) The draw is normally in the fully open position displaying flashing green lights to indicate that vessels may pass.

(1095) (3) When a train approaches the bridge, it stops and the operator initiates a command to lower the bridge. The lights go to flashing red and the draw lowers and locks, providing scanning equipment reveals nothing under the draw. The draw remains down until a manual raise command is initiated, or will raise automatically 5 minutes after the intermediate track circuit is no longer occupied by a rail car.

(1096) (4) After the train has cleared, the draw opens and the lights return to flashing green.

(1097) (k) State Road 402, Max Brewer bridge, mile 878.9 at Titusville. The draw shall open on signal; except that, from 6 a.m. to 7:15 a.m. and 3:15 p.m. to 4:30 p.m., Monday through Friday, except federal holidays, the draw need not open.

(1098) (1) John F. Kennedy Space Center bridge, mile 885 at Addison Point. The draw shall open on signal; except that from 6:30 a.m. to 8 a.m. and 3:30 p.m. to 5 p.m. Monday through Friday, except Federal holidays, the draw need not open.

(1099) (m) (Reserved)

(1100) (n) (Reserved)

(1101) (o) Jensen Beach (SR 707a) bridge, mile 981.4 at Stuart. The draw shall open on signal; except that from December 1 through May 1, from 7 a.m. to 6 p.m., Monday through Friday, except federal holidays, the draw need open only on the hour and half-hour.

(1102) (p) Ernest Lyons (SR A1A) bridge, mile 984.9 at Stuart. The draw shall open on signal; except that, from December 1 through May 1, from 7 a.m. to 6 p.m., Monday through Friday, except federal holidays, the draw need open only on the hour and half-hour.

(1103) (q) reserved.

(1104) (r) The draw of the Donald Ross Road Bridge, mile 1009.3 shall open on signal, except that from 1 October to 31 May, Monday through Friday, except federal holidays, from 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m., the draw need open only on the hour, quarter-hour, half-hour, and three quarter-hour.

(1105) (s) PGA Boulevard Bridge, mile 1012.6. The draw shall open on signal; except that, from 7 a.m. to 9 a.m. and 4 p.m. to 7 p.m., Monday through Friday except Federal holidays, the draw need open only on the quarter-hour and three-quarter hour. On Saturdays, Sundays and Federal holidays from 8 a.m. to 6 p.m., the draw need open only on the hour, 20 minutes after the hour, and 40 minutes after the hour. On weekdays except Federal holidays from November 1 through April 30 from 9 a.m. to 4 p.m., the draw need open only on the hour, 20 minutes after the hour, and 40 minutes after the hour.

(1106) (t) Parker (US 1) bridge, mile 1013.7. The draw shall open on signal; except that, from 7 a.m. to 9 a.m. and 4 p.m. to 7 p.m. Monday through Friday except Federal holidays, the draw need open only on the hour and half-hour. On Saturdays, Sundays and Federal holidays from 8 a.m. to 6 p.m., the draw need open only on the hour, 20 minutes after the hour, and 40 minutes after the hour. On weekdays except Federal holidays from November 1 through April 30 from 9 a.m. to 4 p.m., the draw need open only on the hour, 20 minutes after the hour, and 40 minutes after the hour.

(1107) (u) Flagler Memorial (SR A1A) bridge, mile 1021.9 at Palm Beach. The draw shall open on signal, except that from October 1 to May 31, Monday through Friday except Federal holidays, from 7:30 a.m. to 9:30 a.m. and from 4 p.m. to 5:45 p.m., the draw need open only at 8:30 a.m. and 4:45 p.m.; and from 9:30 a.m. to 4 p.m., the draw need open only on the hour and half-hour.

(1108) (v) Royal Park (SR 704) bridge, mile 1022.6 at Palm Beach. The draw shall open on signal, except that from October 1 through May 31, Monday through Friday except Federal holidays, from 7:45 a.m. to 9:45 a.m. and from 3:30 p.m. to 5:45 p.m., the draw need open only at 8:45 a.m., 4:30 p.m., and 5:15 p.m. and from (9:30 a.m. to 3:30 p.m., the draw need open only on the quarter-hour and three-quarter hour.

(1109) (w) Southern Boulevard (SR 700/80) bridge, mile 1024.7 at Palm Beach. The draw shall open on signal, except that, from October 1 through May 31, Monday through Friday except Federal holidays, from 7:30 a.m. to 9:15 a.m. and from 4:30 p.m. to 6:30 p.m., the draw need open only at 8:15 a.m. and 5:30 p.m. and from 9:15 a.m. to 4:30 p.m., the draw need open only on the quarter-hour and three-quarter hour.

(1110) (x) Ocean Avenue bridge, mile 1031.0 at Lantana. The draw shall open on signal; except that, from December 1 to April 30, from 7 a.m. to 6 p.m. Monday through Friday, and from 10 a.m. to 6 p.m. Saturdays, Sundays and federal holidays, the bridge need open only on the hour, quarter-hour, half-hour, and three-quarter-hour.

(1111) (y) (Reserved)

(1112) (z) N.E. 8th Street bridge, mile 1038.7 at Delray Beach. The draw shall open on signal; except that, from November 1 to May 31, from 11 a.m. to 6 p.m., on Saturdays, Sundays, and federal holidays, the draw need open only on the hour, quarter-hour, half-hour, and three-quarter-hour.

(1113) (aa) Atlantic Avenue (SR806) bridge, mile 1039.6 at Delray Beach. The draw shall open on signal; except that, from November 1 to May 31 from 10 a.m. to 6 p.m. Monday through Friday, the draw need open only on the hour and half-hour.

(1114) (aa-1) Boca Club, Camino Real bridge, mile 1048.2 at Boca Raton. The draw shall open on signal, except that from 7 a.m. to 6 p.m., the draw need open only on the hour, quarter-hour, half-hour, and three-quarter-hour.

(1115) (bb) Hillsboro Boulevard drawbridge (SR 810), mile 1050.0, at Deerfield Beach. The draw shall open on signal; except that from October 1 to May 31, from 7 a.m. to 6 p.m., the

draw need open only on the hour, 20 minutes after the hour, and 40 minutes after the hour.

(1116) (cc) N.E. 14th Street bridge, mile 1055.0 at Pompano. The draw shall open on signal; except that, from 7 a.m. to 6 p.m., the draw need open only on the quarter-hour and three-quarter-hour.

(1117) (dd) Atlantic Boulevard (SR814) bridge, mile 1056.0 at Pompano. The draw shall open on signal; except that, from 7 a.m. to 6 p.m., the draw need open only on the hour and half-hour.

(1118) (ee) Commercial Boulevard bridge (SR 870), mile 1059.0, at Lauderdale-by-the-Sea. The draws shall open on signal; except that, from November 1 through May 15 from 8 a.m. to 6 p.m., Monday through Friday, the draw need open only on the hour, quarter-hour, half-hour, and three-quarter hour, and from 8 a.m. to 6 p.m. on Saturdays, Sundays, and federal holidays, the draw need open only on the hour, 20 minutes after the hour, and 40 minutes after the hour.

(1119) (ff) Oakland Park Boulevard Bridge, mile 1060.5 at Fort Lauderdale. The draw shall open on signal; except that from November 15 through May 15 from 7 a.m. to 10 p.m., Monday through Friday, the draw need open only on the hour, 20 minutes past the hour, and 40 minutes past the hour, and from 10 a.m. to 10 p.m. on Saturdays, Sundays, and federal holidays, the draw need open only on the hour, quarter-hour, half-hour, and three-quarter-hour.

(1120) (gg) The draw of the East Sunrise Boulevard drawbridge (SR 838), mile 1062.6, at Fort Lauderdale shall open on signal; except that from November 15 to May 15, from 10 a.m. to 6 p.m., the draw need open only on the hour, quarter-hour, half-hour and three-quarter-hour.

(1121) (hh) The draw of the Brooks Memorial (S.E. 17th Street) bridge, mile 1065.9 at Fort Lauderdale, shall open on signal; except that from 7 a.m. to 7 p.m. the draw need open only on the hour and half-hour.

(1122) (ii) (Reserved)

(1123) (jj) Hollywood Beach Boulevard (SR820) bridge, mile 1072.2 at Hollywood. The draw shall open on signal; except that from November 15 through May 15 from 10 a.m. to 6 p.m., the draw need open only on the hour and half-hour. From May 16 through November 14 on Saturdays, Sundays, and federal holidays, from 9 a.m. to 7 p.m., the draw need open only on the hour and half-hour.

(1124) (kk) Hallandale Beach Boulevard (SR824) bridge, mile 1074.0 at Hallandale. The draw shall open on signal; except that, from 7:15 a.m. to 6:15 p.m., the draw need open only on the quarter-hour and three-quarter-hour.

(1125) (ll) N.E. 163rd Street (SR826) bridge, mile 1078.0 at Sunny Isles. The draw shall open on signal; except that, from 7 a.m. to 6 p.m. on Monday through Friday except federal holidays, and from 10 a.m. to 6 p.m. on Saturdays, Sundays, and federal holidays, the draw need open only on the quarter-hour and three-quarter-hour.

(1126) (mm) Broad Causeway bridge, mile 1081.4 at Bay Harbor Islands. The draw shall open on signal; except that, from 8 a.m. to 6 p.m., the draw need open only on the quarter-hour and three-quarter-hour.

(1127) (nn) West Span of the Venetian Causeway, mile 1088.6 at Miami. The draw shall open on signal; except that, from November 1 through April 30, Monday through Friday except federal holidays, from 7 a.m. to 9 a.m. and 4:30 p.m. to 6:30 p.m., the draw need be opened only on the hour and half-hour.

(1128) (oo) MacArthur Causeway bridge, mile 1088.8 at Miami. The draw shall open on signal; except that, from November 1 through April 30 from 7 a.m. to 9 a.m. and 4:30 p.m. to 6:30 p.m., the draw need open only on the hour and half-hour.

(1129) (pp)(Reserved).

(1130) (qq) Jewfish Creek, mile 1134, Key Largo. The draw shall open on signal; except that from 10 a.m. to sunset, Thursday through Sunday and federal holidays, the draw need open only on the hour and half-hour.

(1131) **§117.263 Banana River.**

(1132) (a) The draw of the Mathers (SR A-1-A) Bridge, mile 0.5 at Indian Harbor Beach, shall open on signal; except that, from 10 p.m. to 6 a.m. Monday through Friday except Federal holidays, the draw shall open on signal if at least two hours notice is given.

(1133) **Note.**–Opening requests can be made by telephoning 305-631-1776.

(1134) (b) The draw of the NASA Causeway bridge, mile 27.6 at Cape Canaveral, shall open on signal if at least four hours notice is given to the NASA Security Office by telephone or in person.

(1135) **§117.269 Biscayne Bay.**

(1136) The draw of the East Span of the Venetian Causeway bridge, between Miami and Miami Beach, shall open on signal; except that, from November 1 through April 30 from 7:15 a.m. to 8:45 a.m. and 4:45 p.m. to 6:15 p.m. Monday through Friday, the draw need not be opened. However, the draws shall open at 7:45 a.m., 8:15 a.m., 5:15 p.m., and 5:45 p.m. if any vessels are waiting to pass. The draw shall open on signal on Thanksgiving Day, Christmas Day, New Year's Day, and Washington's Birthday. The draw shall open at any time for public vessels of the United States, tugs with tows, regularly scheduled cruise vessels, and vessels in distress.

(1137) **§117.272 Boot Key Harbor.**

(1138) The draw of the Boot Key Harbor drawbridge, mile 0.13, between Marathon and Book Key, shall open on signal; except that during the evening hours from 10 p.m. to 6 a.m., the draw shall open on signal if at least 2 hours notice is given.

(1139) **§117.273 Canaveral Barge Canal.**

(1140) (a) The draw of the Christa McAuliffe bridge, SR 3, mile 1.0, near Indianola shall open on signal from 6 a.m. to 10 p.m. except that, from 6:15 a.m. to 7:45 a.m. and 3:30 p.m. to 5:15 p.m. Monday through Friday, except federal holidays, the draw need not open for the passage of vessels. From 10 p.m. to 6 a.m., the draw shall open on signal if at least three hours notice is given. The draw shall open as soon as possible for the passage of public vessels of the United States, tugs with tows and vessels in distress.

(1141) (b) The draw of the SR401 bridge, mile 5.5 at Port Canaveral, shall open on signal; except that, from 6:30 a.m. to 8 a.m. and 3:30 p.m. to 5:15 p.m. Monday through Friday except Federal holidays, the draw need not be opened for the passage of vessels. From 10 p.m. to 6 a.m., the draws shall open on signal if at least three hours notice is given. The draw shall open as soon as possible for the passage of public vessels of the United States, tugs with tows, and vessels in distress.

(1142) **§117.289 Hillsboro Inlet.**

(1143) The draw of the SR A-1-A bridge, mile 0.3 at Hillsboro Beach, shall open on signal; except that, from 7 a.m. to 6 p.m., the draw need be opened only on the hour, quarter-hour, half-hour, and three-quarter-hour. Public vessels of the United States, tugs with tows, and vessels in distress shall be passed at any time.

(1144) **§117.295 Kissimmee River.**

(1145) The draw of the DSX Railroad bridge, mile 37.0, near Fort Basinger, shall open if at least 96 hours notice is given.

(1146) **§117.300 Loxahatchee River.**

(1147) The draw of the Florida East Coast Railway bridge across the Loxahatchee River, mile 1.2 at Jupiter, operates as follows:

(1148) (a) The bridge is not constantly tended.

(1149) (b) The draw is normally in the fully open position, displaying flashing green lights to indicate that vessels may pass.

(1150) (c) When a train approaches, the lights go to flashing red and a horn starts four blasts, pauses, and then continues four blasts. After an eight minute delay, the draw lowers and locks, providing the scanning equipment reveals nothing under the draw. The draw remains down for a period of eight minutes or while the approach track circuit is occupied.

(1151) (d) After the train has cleared, the draw opens and the lights return to flashing green.

(1152) **§117.305 Miami River.**

(1153) The draw of each bridge from the mouth to and including the N.W. 27th Avenue bridge, mile 3.7 at Miami, shall open on signal; except that, from 7:30 a.m. to 9 a.m. and 4:30 p.m. to 6 p.m. Monday through Friday except New Year's, Independence, Labor, Veteran's, Thanksgiving, and Christmas Days, the draws need not be opened for the passage of vessels. During the period of a hurricane alert issued by the National Weather Bureau, all bridges shall open on signal. Public vessels of the United States and vessels in an emergency involving danger to life or property shall be passed at any time.

(1154) **§117.307 Miami River, North Fork.**

(1155) The draw of the Seaboard System Railroad bridge, mile 5.3 at Miami, shall open on signal from 8:30 a.m. to 5:30 p.m. Monday through Friday. At all other times, the draw shall open on signal if at least three hours notice is given.

(1156) **§117.309 Nassau Sound.**

(1157) The draw of the Fernandina Port Authority (SR A-1-A) bridge, mile 0.4 between Amelia Island and Talbot Island, shall open on signal from 6 a.m. to 6 p.m. if at least six hours notice is given. The draw need not be opened from 6 p.m. to 6 a.m.

(1158) **§117.313 New River.**

(1159) (a) The draw of the S.E. Third Avenue bridge, mile 1.4 at Fort Lauderdale, shall open on signal; except that, from 7:30 a.m. to 8:30 a.m. and 4:30 p.m. to 5:30 p.m. Monday through Friday, the draw need not be opened for the passage of vessels. Public vessels of the United States, regularly scheduled cruise vessels, tugs with tows, and vessels in distress shall be passed at any time.

(1160) (b) The draw of the Andrews Avenue bridge, mile 2.3 at Fort Lauderdale, shall open on signal; however, the draw need not be opened for upbound vessels when the draw of the Florida East Coast railroad bridge, mile 2.5 at Fort Lauderdale, is in the closed position for the passage of a train.

(1161) **§117.315 New River, South Fork.**

(1162) (a) The draw of the Southwest 12th Street bridge, mile 0.9 at Fort Lauderdale, shall open on signal; except that, from 7:30 a.m. to 8:30 a.m. and 4:30 p.m. to 5:30 p.m. Monday through Friday, the draws need not be opened for the passage of vessels. Public vessels of the United States, regularly scheduled cruise vessels, tugs with tows, and vessels in distress shall be passed through the draw as soon as possible.

(1163) (b) The draw of the SR84 bridge, mile 4.4 at Fort Lauderdale, shall open on signal if at least 24 hours notice is given. Public vessels of the United States, regularly scheduled cruise vessels, tugs with tows, and vessels in distress shall be passed through the draw as soon as possible.

(1164) **§117.317 Okeechobee Waterway.**

(1165) (a) Exempt Vessels. This term means public vessels of the United States, tugs with tows, and vessels in a situation where a delay would endanger life or property.

(1166) (b) Evans Crary (SR A1A) bridge, mile 3.4 at Stuart. The draw shall open on signal; except that from December 1 through May 1, from 7 a.m. to 6 p.m., Monday through Friday, except federal holidays, the draw need open only on the hour and half-hour. On Saturdays, Sundays, and federal holidays, December 1, through May 1, from 8 a.m. to 6 p.m., the draw need open only on the hour, 20 minutes after the hour, and 40 minutes after the hour. Exempt vessels shall be passed at any time.

(1167) (c) Florida East Coast Railroad bridge, mile 7.4 at Stuart. The draw shall operate as follows:

(1168) (1) The bridge is not constantly tended.

(1169) (2) The draw is normally in the fully open position, displaying flashing green lights to indicate that vessels may pass.

(1170) (3) When a train approaches the bridge, the navigation lights go to flashing red and a horn sounds four blasts, pauses, and then repeats four blasts. After an eight minute delay, the draw lowers and locks, providing the scanning equipment reveals nothing under the draw. The draw remains down for a period of eight minutes or while the approach track circuit is occupied.

(1171) (4) After the train has cleared, the draw opens and the lights return to flashing green.

(1172) (d) Roosevelt (US1) bridge, mile 7.4 at Stuart. The draw shall open on signal; except Monday through Friday, except federal holidays, from 7 a.m. to 6 p.m. the draw need open only on the hour and half hour. However, the draw need not open between 7:30 a.m. and 9 a.m. and 4 p.m. and 5:30 p.m. except at 8:15 a.m. and 4:45 p.m. On Saturdays, Sundays, and federal holidays from 8 a.m. to 6 p.m. the draw need open only on the hour, 20 minutes after the hour, and 40 minutes after the hour. When the adjacent railway bridge is in the closed position at the time of a scheduled opening the draw need not open, but it must then open immediately upon opening of the railroad bridge to pass all accumulated vessels. Exempt vessels shall be passed at any time.

(1173) (e) Seaboard System Railroad bridge, mile 28.2 at Indiantown. The draw shall open on signal; except that, from 10 p.m. to 6 a.m. the draw shall open on signal if at least three hours notice is given.

(1174) (f) Florida East Coast Railroad bridge, mile 38.0, at Port Mayaca.

(1175) (1) The bridge is not constantly tended.

(1176) (2) The draw is normally in the fully open position, displaying flashing green lights to indicate that vessels may pass.

(1177) (3) When a train approaches the bridge, it will stop and a crew member will observe the waterway for approaching vessels, which will be allowed to pass. Upon manual signal, the bridge lights will go to flashing red, and the horn will sound four blasts, pause, then repeat four blasts, then the draw will lower and lock, providing scanning equipment reveals nothing under the span.

(1178) (4) After the train has cleared, the draw will open, and the lights will return to flashing green.

(1179) (g) Belle Glade Dike (SR 71) bridge, mile 60.7 between Torry Island and Lake Shore. The draw shall open on signal from 7 a.m. to 6 p.m. Monday through Thursday, and from 7 a.m. to 7 p.m. Friday through Sunday. At all other times, the draw need not be opened for passage of vessels.

(1180) (h) Seaboard System Railroad bridge, mile 78.3 at Moore Haven. The draw shall open on signal; except that, from 10 p.m. to 6 a.m. the draw need not be opened for the passage of vessels.

(1181) (i) Highway bridges at Moore Haven (mile 78.4), La Belle (mile 103.0), Denaud (mile 108.2), Alva (mile 116.0), and Olga (mile 126.3). The draws shall open on signal; except that, from 10 p.m. to 6 a.m. the draws shall open on signal if at least three hours notice is given.

(1182) **§117.319 Oklawaha River.**

(1183) (a) The draws of the Sharpes Ferry (SR 40) bridge, mile 55.1, and Muclan Farms bridge, mile 63.9, shall open on signal if at least three hours notice is given.

(1184) (b) The draw of the Moss Bluff (SR464) bridge, mile 66.0, need not open for the passage of vessels.

(1185) **§117.325 St. Johns River.**

(1186) (a) The draws of the Main Street (US17) Bridge, mile 24.7, the Acosta (SR13) Bridge, mile 24.9 and the Fuller Warren (I10-I95) Bridge, mile 25.4, all at Jacksonville, shall open on signal except that, from 7 a.m. to 8:30 a.m. and 4:30 p.m. to 6 p.m., Monday through Saturday except federal holidays, the draws need not be opened for the passage of vessels. The draws shall open at any time for vessels in an emergency involving life or property.

(1187) (b) The draw of the Florida East Coast automated railroad bridge, mile 24.9, shall operate as follows:

(1188) (1) The bridge shall be constantly tended and have a mechanical override capability for the automated operation. A radiotelephone shall be maintained at the bridge for the safety of navigation.

(1189) (2) The draw is normally in the fully open position, displaying flashing green lights to indicate that vessels may pass.

(1190) (3) When a train approaches, large signs on both the upstream and downstream sides of the bridge flash "Bridge Coming Down," the lights go to flashing red, and siren signals sound. After an eight minute delay, the draw lowers and locks if there are no vessels under the draw. The draw remains down for a period of eight minutes or while the approach track circuit is occupied.

(1191) (4) After the train has cleared, the draw opens and the lights return to flashing green.

(1192) **§117.329 St. Marys River.**

(1193) The draws of US17 bridge, mile 23.0, and the Seaboard System Railroad bridge, mile 23.1, both at Kingsland, shall open on signal if at least 48 hours notice is given.

(1194) **§117.335 Taylor Creek.**

(1195) The draw of US441 bridge, mile 0.3 at Okeechobee, shall open on signal if at least two hours notice is given.

(1196) **§117.337 Trout River.**

(1197) The draw of the Seaboard System Railroad bridge, mile 0.9 at Panama Park, shall open on signal from 6 a.m. to 10 p.m. From 10 p.m. to 6 a.m., the draw shall open on signal if at least 12 hours notice is given.

(1198) **GEORGIA**

(1199) **§117.351 Altamaha River.**

(1200) (a) The draws of all bridges, except the Seaboard System Railroad bridge, mile 59.4 at Doctortown, shall open on signal if at least 24 hours notice is given.

(1201) (b) The draw of the Seaboard System Railroad bridge, mile 59.4 at Doctortown, shall open on signal if at least seven days notice is given.

(1202) **§117.353 Atlantic Intracoastal Waterway, Savannah River to St. Marys River.**

(1203) (a) General. Public vessels of the United States, tugs with tows, and vessels in a situation where a delay would endanger life or property shall, upon proper signal, be passed through the draw of each bridge in this section at any time.

(1204) (b) Causton Bluff, SR 26, mile 579.9 near Causton Bluff. The draw shall open on signal, except that from 6:30 a.m. to 9 a.m. and 4:30 p.m. to 6:30 p.m. Monday through Friday, except Federal holidays, the draw need open only at 7 a.m., 8 a.m. and 5:30 p.m.

(1205) **§117.363 Ocmulgee River.**

(1206) The draws of each bridge shall open on signal if at least 24 hours notice is given.

(1207) **§117.365 Oconee River.**

(1208) The draw of the SR46 bridge, mile 44.3 near Soperton, shall open on signal if at least 24 hours notice is given.

(1209) **§117.367 Ogeechee River.**

(1210) (a) The draw of the Seaboard System Railroad bridge, mile 30.7 at Richmond Hill, shall open on signal if at least 15 days notice is given.

(1211) (b) The draw of the highway bridge, mile 37.8 near Richmond Hill, need not be opened for the passage of vessels.

(1212) **§117.369 Satilla River.**

(1213) The draw of the Seaboard System Railroad bridge, mile 25.7 at Woodbine, shall open on signal if at least 24 hours notice is given.

(1214) **§117.371 Savannah River.**

(1215) (a) The draw of the Houlihan bridge (US 17) mile 21.6 at Savannah shall open on signal if at least three hours advance notice is given to the Georgia Department of Transportation Area Engineer in Savannah.

(1216) (b) The draw of the Seaboard System Railroad bridge, mile 27.4 near Hardeeville, South Carolina, shall open on signal if at least three hours advance notice is given. VHF radiotelephone communications will be maintained at the railroad's chief dispatcher's office in Savannah.

(1217) (c) The draw of the CSX Transportation railroad bridge, mile 60.9, near Clyo, Georgia, shall open on signal if at least 48 hours advance notice is given. Openings can be arranged by contacting CSX Transportation on Channel 16 VHF or by telephone at 1-800-232-0146. VHF radiotelephone communications will be maintained at the dispatcher's office in Savannah, Georgia.

(1218) (d) The draw of the Seaboard System Railroad bridge, mile 195.4 near Augusta, shall open on signal if at least three hours notice is given.

(1219) **§117.373 St. Marys River.**

(1220) See §117.329, St. Marys River, listed under Florida.

(1221) **NORTH CAROLINA**

(1222) **§117.821 Atlantic Intracoastal Waterway, Albermarle Sound to Sunset Beach.**

(1223) (a) The drawbridges across the Atlantic Intracoastal Waterway in North Carolina shall open on signal for commercial vessels at all times and on signal for pleasure vessels, except at the times and during the periods specified in this paragraph:

(1224) (1) S.H. 94 Bridge, mile 113.7, at Fairfield, NC, from April 1 to November 30, between 7 a.m. and 7 p.m., the draw need only open on the hour and half hour.

(1225) (2) S.R. 304 Bridge, mile 157.2, at Hobucken, NC, from April 1 to November 30, between 7 a.m. and 7 p.m., the draw need only open on the hour and half hour.

(1226) (3) Onslow Beach Swing Bridge, mile 240.7, at Camp Lejeune, NC, between 7 a.m. and 7 p.m., the draw need only open on the hour and half hour.

(1227) (4) S.R. 50 Bridge, mile 260.7, at Surf City, NC, between 7 a.m. and 7 p.m., the draw need only open on the hour.

(1228) (5) Figure Eight Swing Bridge, mile 278.1, at Scotts Hill, NC, the draw need only open on the hour and half hour..

(1229) (6) S.R. 74 Bridge, mile 283.1, at Wrightsville Beach, NC, between 7 a.m. and 7 p.m., the draw need only open on the hour.

(1230) (7) S.R. 1172 Bridge, mile 337.9, at Sunset Beach, NC, shall open on the hour on signal between 7 a.m. and 7 p.m., April 1 to November 30, except that on Saturdays, Sundays and Federal holidays, from June 1 through September 30, the bridge shall open on signal on the hour between 7 a.m. and 9 p.m.

(1231) (b) If a pleasure vessel is approaching a drawbridge which is only required to open on the hour or on the hour and half hour, and cannot reach the drawbridge on the hour or on the half hour, drawtender may delay the required opening up to 10 minutes past the hour or half hour.

(1232) **§117.822 Beaufort Channel, N.C.**

(1233) The draw of the US 70 bridge, mile 0.1, at Beaufort, shall open as follows:

(1234) (a) From 6 a.m. to 10 p.m., the draw need only open every hour on the hour, 20 minutes past the hour and 40 minutes past the hour; except that on weekdays the bridge need not open at 7:40 a.m., 8:40 a.m., 4:40 p.m., and 5:40 p.m.

(1235) (b) From 10 p.m. to 6 a.m., the bridge shall open on signal.

(1236) **§117.823 Neuse River.**

(1237) (a) The draw of the U.S. 17 bridge, mile 33.7, at New Bern:

(1238) (1) Need not open from 6:30 a.m. to 8:30 a.m. and from 4:00 p.m. to 6:00 p.m., Monday through Friday, for pleasure vessels. However, the draw shall open at 7:30 a.m. and 5:00 p.m., for any vessel waiting to pass.

(1239) (2) Need not open from 2:00 p.m. to 7:00 p.m. from May 24 through September 8, on Sundays and Federal holidays, for pleasure vessels. However, the draw shall open at 4:00 p.m. and 6:00 p.m., for any vessel waiting to pass.

(1240) (3) Shall always open on signal for public vessels of the United States, State or local vessels used for public safety, tugs with tows, vessels in distress.

(1241) (4) Shall open on signal at all other times.

(1242) (b) The draw of the Atlantic and East Carolina Railway bridge, mile 80.0 at Kinston, shall open on signal if at least 24 hours notice is given.

(1243) **§117.825 Newport River.**

(1244) The draw of the Atlantic and East Carolina Railway bridge, mile 13.0 at Newport, need not be opened for the passage of vessels.

(1245) **§117.829 Northeast River.**

(1246) The draw of the Seaboard System Railroad bridge across the Northeast River, mile 27.0, at Castle Hayne, North Carolina, shall open on signal if at least 4 hours notice is given.

(1247) **§117.831 Pamlico and Tar Rivers.**

(1248) The draws of the US17-264 bridge, mile 37.2 at Washington, and the Boyds Ferry bridge, mile 44.8 at Grimesland, shall open on signal if at least 24 hours notice is given. The bridge owners shall restore constant attendance when so directed by the District Commander.

(1249) **§117.833 Pasquotank River.**

(1250) (a) The draw of the Albermarle & Chesapeake railroad bridge, mile 47.7, at Elizabeth City, North Carolina, shall be maintained in the open position; the draw may close only for the crossing of trains and maintenance of the bridge. When the draw is closed, a bridgetender shall be present to reopen the draw after the train has cleared the bridge.

(1251) (b) The draw of the US 158 Highway Bridge, mile 50.7, at Elizabeth City, shall open on signal; except that between 7 a.m. and 9 a.m., and 4 p.m. and 6 p.m., Monday through Friday, the draw need open only at 7:30 a.m., 8:30 a.m., 4:30 p.m., and 5:30 p.m. for any pleasure vessels waiting to pass.

(1252) **§117.835 Perquimans River.**

(1253) The draw of the US17 bridge, mile 12.0 at Hertford, shall open on signal from 8 a.m. to midnight from April 1 through September 30 and from 10 a.m. to 10 p.m. from October 1 through March 31. The draw need not be opened at all other times.

(1254) **§117.837 Roanoke River.**

(1255) The draw of the Seaboard System Railroad bridge, mile 94.0 at Palmyra, need not be opened for the passage of vessels.

(1256) **§117.841 Smith Creek.**

(1257) The draw of the S117-S133 bridge, mile 1.5 at Wilmington, shall open on signal if at least 24 hours notice is given.

(1258) **§117.843 Trent River.**

(1259) (a) The draw of the U.S. 70 bridge, mile 0.0, at New Bern:

(1260) (1) Need not open from 6:30 a.m. to 8:30 a.m. and from 4:00 p.m. to 6:00 p.m., Monday through Friday, for pleasure vessels. However, the draw shall open at 7:30 a.m. and 5:00 p.m. for any vessel waiting to pass.

(1261) (2) Need not open from 2:00 p.m. to 7:00 p.m. from May 24 through September 8, on Sundays and Federal holidays, for pleasure vessels. However, the draw shall open at 4:00 p.m. and 6:00 p.m. for any vessel waiting to pass.

(1262) (3) Shall always open on signal for public vessels of the United States, State or local vessels used for public safety, tugs with tows, and vessels in distress.

(1263) (4) Shall open on signal at all other times.

(1264) **SOUTH CAROLINA**

(1265) **§117.911 Atlantic Intracoastal Waterway, Little River to Savannah River.**

(1266) (a) General. Public vessels of the United States, tugs with tows, and vessels in a situation where a delay would endanger life or property shall, upon proper signal, be passed through the draw of each bridge listed in this section at any time.

(1267) (b) Socastee (SR544) bridge, mile 371 at Socastee. The draw shall open on signal except that from April 1 through June 30 and October 1 through November 30 from 7 a.m. to 10 a.m. and 2 p.m. to 6 p.m. Monday through Friday, except federal holidays, the draw need open only on the quarter hour and three-quarter hour. From May 1 through June 30 and October 1 through October 31 from 10 a.m. to 2 p.m., Saturdays, Sundays and federal holidays, the draw need open only on the quarter-hour and three-quarter-hour.

(1268) (c) Ben Sawyer (SR703) bridge across Sullivan's Island Narrows, mile 462.2 between Sullivan's Island and Mount Pleasant. The draw shall open on signal, except that the draw need not open from 7 a.m. to 9 a.m. and from 4 p.m. to 6 p.m. Monday

through Friday except federal holidays. On Saturdays, Sundays, and federal holidays, from 9 a.m. to 7 p.m., the draw need open only on the hour.

(1269) (d) SR 171/700 bridge across Wappoo Creek Mile 470.8 at Charleston. The draw shall open on signal, except that from April 1 to November 30 from 9 a.m. to 4 p.m. Monday through Friday, except federal holidays, and from 9 a.m. to 7 p.m., on Saturdays, Sundays and federal holidays, the bridge need not open except on the hour and half-hour. From June 1 to September 30 and from December 1 to March 30 the draw need not open from 6:30 a.m. to 9 a.m. and from 4 p.m. to 6:30 p.m. Monday through Friday, except federal holidays, and from April 1 to May 31 and from October 1 to November 30 Monday through Friday, except federal holidays, the draw need not open from 6 a.m. to 9 a.m. and from 4 p.m. to 6:30 p.m.

(1270) (e) John Limehouse bridge across the Stono River, mile 479.3 at Johns Island. The draw shall open on signal; except that between 6:30 a.m. and 9 a.m., and 4 p.m. and 6:30 p.m., Monday through Friday except federal holidays the draw need open only on the hour and 30 minutes after the hour. Between 9 a.m. and 4 p.m., Monday through Friday except federal holidays, from March 15 to June 15, and from September 15 to November 15, the bridge need not be opened except on the hour, 20 minutes after the hour, and 40 minutes after the hour.

(1271) (f) *Lady's Island Bridge, across the Beaufort River, Mile 536.0 at Beaufort.* The draw shall operate as follows:

(1272) (1) On Monday through Friday, except Federal holidays:

(1273) (i) from 7:30 a.m. to 9 a.m. and 4 p.m. to 6 p.m., the draw need not open, and,

(1274) (ii) from 9 a.m. to 4 p.m., the draw need open only on the hour and half-hour.

(1275) (2) At all other times the draw shall open on signal.

(1276) **§117.913 Ashepoo River.**

(1277) The draw of the Seaboard System Railroad bridge, mile 32.0 at Ashepoo, need not be opened for the passage of vessels. However, the draw shall be returned to operable condition within six months after notification by the District Commander to do so.

(1278) **§117.915 Ashley River**

(1279) (a) The draws of the US17 highway bridges, miles 2.4 and 2.5 at Charleston, shall open on signal; except that, from 7 a.m. to 9 a.m. Monday through Friday and 4 p.m. to 7 p.m. daily, the draws need be opened only if at least 12 hours notice is given. The draws of either bridge shall open as soon as possible for the passage of vessels in an emergency involving danger to life or property.

(1280) (b) The draw of the Seaboard System Railroad bridge, mile 12.0 near Drayton Hall, shall open on signal from 7 a.m. to 11 p.m. From 11 p.m. to 7 a.m., the draw shall open on signal if at least three hours notice is given.

(1281) **§117.917 Battery Creek.**

(1282) The draw of the State highway bridge, mile 2.1 between Beaufort and Parris Island, shall open on signal if at least 24 hours notice is given.

(1283) **§117.921 Broad River.**

(1284) (a) The draw of the S170 bridge, mile 14.0 near Beaufort, shall open on signal if at least 24 hours notice is given.

(1285) (b) The draw of the Seaboard System Railroad bridge, mile 17.0 near Whale Branch, shall open on signal if at least 24 hours notice is given.

(1286) **§117.923 Congaree River.**

(1287) The draw of the Southern Railway bridge, mile 4.3 at Moye's Station, shall open on signal if at least 24 hours notice is given.

(1288) **§117.925 Cooper River.**

(1289) The draw of the Seaboard System Railroad bridge, mile 42.8 near Cordesville, shall open on signal if at least six hours advance notice is given.

(1290) **§117.927 Coosaw River (Whale Branch).**

(1291) The draw of the Seaboard System Railroad bridge, mile 5.3 at Seabrook, and the draw of the US21 bridge, mile 7.0 at Beaufort, shall open on signal from 6 a.m. to 8 p.m. Monday through Friday if at least 24 hours notice is given. At all other times, the draw need not be opened for the passage of vessels.

(1292) **§117.929 Durham Creek.**

(1293) The removable span of the Seaboard System Railroad bridge, mile 1.7 at Bushy Park, shall be removed to allow the passage of dredges and construction equipment if at least 20 days notice is given. When notified by the City of Charleston of an emergency in the Bushy Park Reservoir, the span shall be removed as soon as possible to permit the passage of dredges and construction equipment.

(1294) **§117.933 Pee Dee River.**

(1295) The draws of the Seaboard System Railroad bridges, mile 72.6 near Poston and mile 107.2 near Pee Dee, need not be opened for the passage of vessels.

(1296) **§117.935 Rantowles Creek.**

(1297) The draw of the Seaboard System Railroad bridge, 1.1 near Rantowles, need not be opened for the passage of vessels.

(1298) **§117.937 Savannah River.**

(1299) See §117.371, Savannah River, listed under Georgia.

(1300) **§117.938 Waccamaw River.**

(1301) The draw of the Waccamaw Coast Line Railroad bridge, mile 44.4 at Conway, shall open on signal; except that from 8 a.m. to 6 p.m. Monday through Friday, the draw shall open on signal if at least one hour notice is given.

(1302) **§117.939 Wando River.**

(1303) The draw of the S41 bridge, mile 10.0 near Cainhoy, shall open on signal if at least 12 hours notice is given.

(1304) **VIRGINIA**

(1305) **§117.997 Atlantic Intracoastal Waterway, South Branch of the Elizabeth River to the Albemarle and Chesapeake Canal.**

(1306) (a) The draw of the Jordan (S337) bridge, mile 2.8, in Chesapeake:

(1307) (1) Shall open on signal at any time for public vessels of the United States, vessels in distress, commercial vessels carrying liquefied flammable gas or other harmful substances, and commercial and/or public vessels assisting in any emergency situation.

(1308) (2) From 6:30 a.m. to 7:30 a.m. and from 3:30 p.m. to 5 p.m., Monday through Friday, except Federal holidays:

(1309) (i) Need not open for the passage of pleasure craft or commercial vessels that do not qualify under paragraph (a)(2)(ii) of this section.

(1310) (ii) Need not open for commercial cargo vessels, including tugs and tows, unless 2 hours advance notice has been given to the Jordan Bridge Office at (804) 545-4695.

(1311) (3) Shall open on signal at all other times.

(1312) (b) The draw of the Norfolk and Western railroad bridge across the South Branch of the Elizabeth River, mile 3.6 at

Portsmouth-Chesapeake, shall be maintained in the open position; except the draw may close for the crossing of trains and maintenance of the bridge. When the draw is closed, a drawtender shall be present and the draw shall open on signal.

(1313) (c) The draw of the Gilmerton (US13/460) bridge, mile 5.8, in Chesapeake:

(1314) (1) Shall open on signal at any time for public vessels of the United States, vessels in distress, commercial vessels carrying liquefied flammable gas or other harmful substances, and commercial and/or public vessels assisting in any emergency situation.

(1315) (2) From 6:30 a.m. to 8 a.m. and from 3:30 p.m. to 5 p.m., Monday through Friday, except Federal holidays the bridge:

(1316) (i) Need not open for the passage of pleasure craft or commercial vessels that do not qualify under paragraph (c)(2)(ii) of this section.

(1317) (ii) Need not open for commercial cargo vessels, including tugs, and tugs with tows, unless 2 hours advance notice has been given to the Gilmerton Bridge at (804) 545-1512.

(1318) (3) Shall open on signal at all other times.

(1319) (c) The draw of the I64 bridge across the South Branch of the Elizabeth River, mile 7.1 at Chesapeake, shall open on signal if at least 24 hours notice is given.

(1320) (d) The draw of the Dominion Boulevard Bridge, mile 8.8, in Chesapeake shall open on signal, except:

(1321) (1) From 7 a.m. to 8 a.m. and from 4 p.m. to 6 p.m., Monday through Friday, except Federal holidays, the drawbridge may not be opened for recreational vessels except it may be open at 5 p.m. for recreational vessels waiting to pass.

(1322) (2) Vessels in an emergency involving danger to life or property shall be passed at any time.

(1323) (e) The draw of the S168 bridge, mile 12 at Chesapeake (Great Bridge), shall open on signal; except that, from 6 a.m. to 7 p.m., the draw need be opened only on the hour. If any vessel is approaching the bridge and cannot reach the draw exactly on the hour, the drawtender may delay the hourly opening up to 10 minutes past the hour for the passage of the approaching vessel and any other vessels that are waiting to pass. Vessels in an emergency condition which presents danger to life or property shall be passed at any time.

(1324) (f) The draw of the Centerville Turnpike (SR 170) bridge across the Albemarle and Chesapeake Canal, mile 15.2, at Chesapeake, shall open on signal; except that, from 7 a.m. to 7 p.m., the draw need only be opened on the hour and half-hour, seven days a week year-around, for the passage of pleasure craft. Public vessels of the United States, commercial vessels, and vessels in an emergency condition which present danger to life or property shall be passed at any time.

(1325) **§117.999 Blackwater River.**

(1326) The draw of the S189 bridge, mile 9.2 at South Quay, shall open on signal if at least 24 hours notice is given.

(1327) **Note.**–Call signs and radio channels for drawbridges equipped with radiotelephones are included with the bridge descriptions in chapters 4 through 12.

Part 160–Ports and Waterways Safety-General

Subpart A–General

(1328) **§160.1 Purpose.**

(1329) (a) This subchapter contains regulations implementing the Ports and Waterway Safety Act (33 U.S.C. 1221) and related statutes.

(1330) **§160.3 Definitions.**

(1331) For the purposes of this subchapter:

(1332) "Bulk" means material in any quantity that is shipped, stored, or handled without the benefit of package, label, mark or count and carried in integral or fixed independent tanks.

(1333) "Captain of the Port" means the Coast Guard officer designated by the Commandant to command a Captain of the Port Zone as described in part 3 of this chapter.

(1334) "Commandant" means the Commandant of the United States Coast Guard.

(1335) "Commanding Officer, Vessel Traffic Services" means the Coast Guard officer designated by the Commandant to command a Vessel Traffic Service (VTS) as described in part 161 of this chapter.

(1336) "Deviation" means any departure from any rule in this subchapter.

(1337) "District Commander" means the Coast Guard officer designated by the Commandant to command a Coast Guard District as described in part 3 of this chapter.

(1338) "ETA" means estimated time of arrival.

(1339) "Length of Tow" means, when towing with a hawser, the length in feet from the stern of the towing vessel to the stern of the last vessel in tow. When pushing ahead or towing alongside, length of tow means the tandem length in feet of the vessels in tow excluding the length of the towing vessel.

(1340) "Person" means an individual, firm, corporation, association, partnership, or governmental entity.

(1341) "State" means each of the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Trust Territories of the Pacific Islands, the Commonwealth of the Northern Marianas Islands, and any other commonwealth, territory, or possession of the United States.

(1342) "Tanker" means a self-propelled tank vessel constructed or adapted primarily to carry oil or hazardous materials in bulk in the cargo spaces.

(1343) "Tank Vessel" means a vessel that is constructed or adapted to carry, or that carries, oil or hazardous material in bulk as cargo or cargo residue.

(1344) "Vehicle" means every type of conveyance capable of being used as a means of transportation on land.

(1345) "Vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water.

(1346) "Vessel Traffic Services (VTS)" means a service implemented under Part 161 of this chapter by the United States Coast Guard designed to improve the safety and efficiency of vessel traffic and to protect the environment. The VTS has the capability to interact with marine traffic and respond to traffic situations developing in the VTS area.

(1347) "Vessel Traffic Service Area or VTS Area" means the geographical area encompassing a specific VTS area of service as described in Part 161 of this chapter. This area of service may be subdivided into sectors for the purpose of allocating responsibility to individual Vessel Traffic Centers or to identify different operating requirements.

(1348) **Note:** Although regulatory jurisdiction is limited to the navigable waters of the United States, certain vessels will be en-

couraged or may be required, as a condition of port entry, to report beyond this area to facilitate traffic management within the VTS area.

(1349) "VTS Special Area" means a waterway within a VTS area in which special operating requirements apply.

(1350) **§160.5 Delegations.**

(1351) (a) District Commanders and Captains of the Ports are delegated the authority to establish safety zones.

(1352) (b) Under the provisions of 33 CFR 6.04–1 and 6.04–6, District Commanders and Captains of the Ports have been delegated authority to establish security zones.

(1353) (c) Under the provisions 33 CFR §1.05–1, District Commanders have been delegated authority to establish regulated navigation areas.

(1354) (d) Subject to the supervision of the cognizant Captain of the Port and District Commander, Commanding Officers, Vessel Traffic Services are delegated authority under 33 CFR 1.01-30 to discharge the duties of the Captain of the Port that involve directing the operation, movement, and anchorage of vessels within a Vessel Traffic Service area including management of vessel traffic within anchorages, regulated navigation areas and safety zones, and to enforce Vessel Traffic Service and ports and waterways safety regulations. This authority may be exercised by Vessel Traffic Center personnel. The Vessel Traffic Center may, within the Vessel Traffic Service area, provide information, make recommendations, or, to a vessel required under Part 161 of this chapter to participate in a Vessel Traffic Service, issue an order, including an order to operate or anchor as directed; require the vessel to comply with orders issued; specify times of entry, movement or departure; restrict operations as necessary for safe operation under the circumstances; or take other action necessary for control of the vessel and the safety of the port or of the marine environment.

(1355) **§160.7 Appeals.**

(1356) (a) Any person directly affected by a safety zone or an order or direction issued under this subchapter (33 CFR Subchapter P) may request reconsideration by the official who issued it or in whose name it was issued. This request may be made orally or in writing, and the decision of the official receiving the request may be rendered orally or in writing.

(1357) (b) Any person directly affected by the establishment of a safety zone or by an order or direction issued by, or on behalf of, a Captain of the Port may appeal to the District Commander through the Captain of the Port. The appeal must be in writing, except as allowed under paragraph (d) of this section, and shall contain complete supporting documentation and evidence which the appellant wishes to have considered. Upon receipt of the appeal, the District Commander may direct a representative to gather and submit documentation or other evidence which would be necessary or helpful to a resolution of the appeal. A copy of this documentation and evidence is made available to the appellant. The appellant is afforded five working days from the date of receipt to submit rebuttal materials. Following submission of all materials, the District Commander issues a ruling, in writing, on the appeal. Prior to issuing the ruling, the District Commander may, as a matter of discretion, allow oral presentation on the issues.

(1358) (c) Any person directly affected by the establishment of a safety zone or by an order or direction issued by a District Commander, or who receives an unfavorable ruling on an appeal taken under paragraph (b) of this section, may appeal through the District Commander to the Assistant Commandant for Office of Marine Safety, Security and Environmental Protection, U.S. Coast Guard, Washington, D.C. 20593. The appeal must be in writing, except as allowed under paragraph (d) of this section. The District Commander forwards the appeal, all the documents and evidence which formed the record upon which the order or direction was issued or the ruling under paragraph (b) of this section was made, and any comments which might be relevant, to the Assistant Commandant for Office of Marine Safety, Security and Environmental Protection. A copy of this documentation and evidence is made available to the appellant. The appellant is afforded five working days from the date of receipt to submit rebuttal materials to the Assistant Commandant for Office of Marine Safety, Security and Environmental Protection. The decision of the Assistant Commandant for Office of Marine Safety, Security and Environmental Protection is based upon the materials submitted, without oral argument or presentation. The decision of the Assistant Commandant for Office of Marine Safety, Security and Environmental Protection is issued in writing and constitutes final agency action.

(1359) (d) If the delay in presenting a written appeal would have significant adverse impact on the appellant, the appeal under paragraphs (b) and (c) of this section may initially be presented orally. If an initial presentation of the appeal is made orally, the appellant must submit the appeal in writing within five days of the oral presentation to the Coast Guard official to whom the presentation was made. The written appeal must contain, at a minimum, the basis for the appeal and a summary of the material presented orally. If requested, the official to whom the appeal is directed may stay the effect of the action while the ruling is being appealed.

Subpart B–Control of Vessel and Facility Operations

(1360) **§160.101 Purpose.**

(1361) This subpart describes the authority exercised by District Commanders and Captains of the Ports to insure the safety of vessels and waterfront facilities, and the protection of the navigable waters and the resources therein. The controls described in this subpart are directed to specific situations and hazards.

(1362) **§160.103 Applicability.**

(1363) (a) This subpart applies to any-

(1364) (1) Vessel on the navigable waters of the United States, except as provided in paragraphs (b) and (c) of this section;

(1365) (2) Bridge or other structure on or in the navigable waters of the United States; and

(1366) (3) Land structure or shore area immediately adjacent to the navigable waters of the United States.

(1367) (b) This subpart does not apply to any vessel on the Saint Lawrence Seaway.

(1368) (c) Except pursuant to international treaty, convention, or agreement, to which the United States is a party, this subpart does not apply to any foreign vessel that is not destined for, or departing from, a port or place subject to the jurisdiction of the United States and that is in-

(1369) (1) Innocent passage through the territorial sea of the United States;

(1370) (2) Transit through the navigable waters of the United States which form a part of an international strait.

(1371) **§160.105 Compliance with orders.**

(1372) Each person who has notice of the terms of an order issued under this subpart must comply with that order.

(1373) **§160.107 Denial of entry.**

(1374) Each District Commander or Captain of the Port, subject to recognized principles of international law, may deny entry into the navigable waters of the United States or to any port or place under the jurisdiction of the United States, and within the district or zone of that District Commander or Captain of the Port, to any vessel not in compliance with the provisions of the Port and Tanker Safety Act (33 U.S.C. 1221-1232) or the regulations issued thereunder.

(1375) **§160.109 Waterfront facility safety.**

(1376) (a) To prevent damage to, or destruction of, any bridge or other structure on or in the navigable waters of the United States, or any land structure or shore area immediately adjacent to those waters, and to protect the navigable waters and the resources therein from harm resulting from vessel or structure damage, destruction, or loss, each District Commander or Captain of the Port may–

(1377) (1) Direct the handling, loading, unloading, storage, stowage, and movement (including the emergency removal, control, and disposition) of explosives or other dangerous articles and substances, including oil or hazardous material as those terms are defined in 46 (U.S.C. 2101) on any structure on or in the navigable waters of the United States, or any land structure or shore area immediately adjacent to those waters; and

(1378) (2) Conduct examinations to assure compliance with the safety equipment requirements for structures.

(1379) **§160.111 Special orders applying to vessel operations.**

(1380) Each District Commander or Captain of the Port may order a vessel to operate or anchor in the manner directed when -

(1381) (a) The District Commander or Captain of the Port has reasonable cause to believe that the vessel is not in compliance with any regulation, law or treaty;

(1382) (b) The District Commander or Captain of the Port determines that the vessel does not satisfy the conditions for vessel operation and cargo transfers specified in §160.113; or

(1383) (c) The District Commander or Captain of the Port has determined that such order is justified in the interest of safety by reason of weather, visibility, sea conditions, temporary port congestion, other temporary hazardous circumstances, or the condition of the vessel.

(1384) **§160.113 Prohibition of vessel operation and cargo transfers.**

(1385) (a) Each District Commander or Captain of the Port may prohibit any vessels subject to the provisions of chapter 37 of Title 46, U.S. Code from operating in the navigable waters of the United States, or from transferring cargo or residue in any port or place under the jurisdiction of the United States, and within the district or zone of that District Commander or Captain of the Port, if the District Commander or the Captain of the Port determines that the vessel's history of accidents, pollution incidents, or serious repair problems creates reason to believe that the vessel may be unsafe or pose a threat to the marine environment.

(1386) (b) The authority to issue orders prohibiting operation of the vessels or transfer of cargo or residue under paragraph (a) of this section also applies if the vessel:

(1387) (1) Fails to comply with any applicable regulation;

(1388) (2) Discharges oil or hazardous material in violation of any law or treaty of the United States;

(1389) (3) Does not comply with applicable vessel traffic service requirements;

(1390) (4) While underway, does not have at least one licensed deck officer on the navigation bridge who is capable of communicating in the English language.

(1391) (c) When a vessel has been prohibited from operating in the navigable waters of the United States under paragraphs (a) or (b) of this section, the District Commander or Captain of the Port may allow provisional entry into the navigable waters of the United States, or into any port or place under the jurisdiction of the United States and within the district or zone of that District Commander or Captain of the Port, if the owner or operator of such vessel proves to the satisfaction of the District Commander or Captain of the Port, that the vessel is not unsafe or does not pose a threat to the marine environment, and that such entry is necessary for the safety of the vessel or the persons on board.

(1392) (d) A vessel which has been prohibited from operating in the navigable waters of the United States, or from transferring cargo or residue in a port or place under the jurisdiction of the United States under the provisions of paragraph (a) or (b)(1), (2) or (3) of this section, may be allowed provisional entry if the owner or operator proves, to the satisfaction of the District Commander or Captain of the Port that has jurisdiction, that the vessel is no longer unsafe or a threat to the environment, and that the condition which gave rise to the prohibition no longer exists.

(1393) **§160.115 Withholding of clearance.**

(1394) (a) Each District Commander or Captain of the Port may request the Secretary of the Treasury, or the authorized representative thereof, to withhold or revoke the clearance required by 46 U.S.C. App. 91 of any vessel, the owner or operator of which is subject to any penalties under 33 U.S.C. 1232.

Subpart C–Notifications of Arrivals, Departures, Hazardous Conditions, and Certain Dangerous Cargoes

(1395) **§160.201 Applicability and exceptions to applicability**

(1396) (a) This subpart prescribes notification requirements for U.S. and foreign vessels bound for or departing from ports or places in the United States.

(1397) (b) This part does not apply to recreational vessels under 46 U.S.C. 4301 et seq. and, except §160.215, does not apply to:

(1398) (1) Passenger and supply vessels when they are employed in the exploration for or in the removal of oil, gas, or mineral resources on the continental shelf, and

(1399) (2) Oil Spill Recovery Vessels (OSRVs) when engaged in actual spill response operations or during spill response exercises.

(1400) (c) Section 160.207 does not apply to the following:

(1401) (1) Each vessel of 300 gross tons or less, except a foreign vessel of 300 gross tons or less entering any port or place in the Seventh Coast Guard District as described by 3.35-1(b) of this chapter.

(1402) (2) Each vessel operating exclusively within a Captain of the Port zone.

(1403) (3) Each vessel operating upon a route that is described in a schedule that is submitted to the Captain of the Port for each port or place of destination listed in the schedule at least 24 hours in advance of the first date and time of arrival listed on the schedule and contains -

(1404) (i) Name of the vessel;

(1405) (ii) Country of registry of the vessel;

(1406) (iii) Call sign of the vessel;

(1407) (iv) International Maritime Organization (IMO) international number or, if the vessel does not have an assigned IMO international number, the official number of the vessel;

(1408) (v) Name of the registered owner of the vessel;

(1409) (vi) Name of the operator of the vessel;

(1410) (vii) Name of the classification society of the vessel;

(1411) (viii) Each port or place of destinations;

(1412) (ix) Estimated dates and times of arrivals at and departures from these ports or places; and

(1413) (x) Name and telephone number of a 24-hour point of contact.

(1414) (4) Each vessel arriving at a port or place under force majeure.

(1415) (5) Each vessel entering a port of call in the United States in compliance with the Automated Mutual Assistance Vessel Rescue System (AMVER).

(1416) (6) Each vessel entering a port of call in the United States in compliance with the U.S. Flag Merchant Vessel Locator Filing System (USMER).

(1417) (7) Each barge.

(1418) (8) Each public vessel.

(1419) (9) United States or Canadian flag vessels, except tank vessels or vessels carrying certain dangerous cargo, which operate solely on the Great Lakes.

(1420) (d) Sections 160.207, 160.211, and 160.213 apply to each vessel upon the waters of the Mississippi River between its mouth and mile 235, Lower Mississippi River, above Head of Passes. Sections 160.207, 160.211, and 160.213 do not apply to each vessel upon the waters of the Mississippi River between its sources and mile 235, above Head of Passes, and all the tributaries emptying thereinto and their tributaries, and that part of the Atchafalaya River above its junction with the Plaquemine-Morgan City alternate waterway, and the Red River of the North.

(1421) **§160.203 Definitions.**

(1422) As used in this subpart:

(1423) "Agent" means any person, partnership, firm, company or corporation engaged by the owner or charterer of a vessel to act in their behalf in matters concerning the vessel.

(1424) "Carried in bulk" means a commodity that is loaded or carried on board a vessel without containers or labels and received and handled without mark or count.

(1425) "Certain dangerous cargo" includes any of the following:

(1426) (a) Division 1.1 or 1.2 (explosive) materials, as defined in 49 CFR 173.50.

(1427) (b) Oxidizing materials or blasting agents for which a permit is required under 49 CFR 176.415.

(1428) (c) Highway route controlled quantity radioactive material, as defined in 49 CFR 173.403(1), or Fissile Class III shipments of fissile radioactive material, as defined in 49 CFR 173.455(a)(3).

(1429) (d) Each cargo under Table 1 of 46 CFR Part 153 when carried in bulk.

(1430) (e) Any of the following when carried in bulk:

(1431) Acetaldehyde

(1432) Ammonia, anhydrous

(1433) Butadiene

(1434) Butane

(1435) Butene

(1436) Butylene Oxide

(1437) Chlorine

(1438) Ethane

(1439) Ethylene

(1440) Ethylene Oxide

(1441) Methane

(1442) Methyl Acetylene, Propadiene Mixture, Stabilized

(1443) Methyl Bromide

(1444) Methyl Chloride

(1445) Phosphorous, elemental

(1446) Propane

(1447) Propylene

(1448) Sulfur Dioxide

(1449) Vinyl Chloride

(1450) "Great Lakes" means Lakes Superior, Michigan, Huron, Erie, and Ontario, their connecting and tributary waters, the Saint Lawrence River as far east as Saint Regis, and adjacent port areas.

(1451) "Gross tons" means the tonnage determined by the tonnage authorities of a vessel's flag state in accordance with the national tonnage rules in force before the entry into force of the International Convention on Tonnage Measurement of Ships, 1969 ("Convention"). For a vessel measured only under Annex I of the Convention, gross tons means that tonnage. For a vessel measured under both systems, the higher gross tonnage is the tonnage used for the purposes of the 300-gross-ton threshold.

(1452) "Hazardous conditions" means any condition that may adversely affect (1) the safety of any vessel, bridge, structure, or shore area or (2) the environmental quality of any port, harbor, or navigable waterway of the United States. It may–but need not–involve collision, allision, fire, explosion, grounding, leaking, damage injury or illness of a person aboard, or manning-shortage.

(1453) "Operator" means any person including, but not limited to, an owner, a demise- (bareboat-) charterer, or another contractor who conducts, or is responsible for, the operation of a vessel.

(1454) "Port or place of departure" means any port or place in which a vessel is anchored or moored.

(1455) "Port or place of destination" means any port or place to which a vessel is bound to anchor or moor.

(1456) "Public vessel" means a vessel that is owned or demise-(bareboat-) chartered by the government of the United States, by a State or local government, or by the government of a foreign country and that is not engaged in commercial service.

(1457) **§160.205 Waivers.**

(1458) The Captain of the Port may waive, within that Captain of the Port's designated zone, any of the requirements of this subpart for any vessel or class of vessels upon finding that the vessel, route, area of operations, conditions of the voyage, or other circumstances are such that application of this subpart is unnecessary or impractical for purposes of safety, environmental protection, or national security.

(1459) **§160.207 Notice of arrival: Vessels bound for ports or places in the United States.**

(1460) (a) The owner, master, agent or person in charge of a vessel on a voyage of 24 hours or more shall report under paragraph (c) of this section at least 24 hours before entering the port or place of destination.

(1461) (b) The owner, master, agent, or person in charge of a vessel on a voyage of less than 24 hours shall report under paragraph (c) of this section before departing the port or place of departure.

(1462) (c) The Captain of the Port of the port or place of destination in the United States must be notified of -

(1463) (1) Name of the vessel;
(1464) (2) Country of registry of the vessel;
(1465) (3) Call sign of the vessel;
(1466) (4) International Maritime Organization (IMO) international number or, if the vessel does not have an assigned IMO international number, the official number of the vessel;
(1467) (5) Name of the registered owner of the vessel;
(1468) (6) Name of the operator of the vessel;
(1469) (7) Name of the classification society of the vessel;
(1470) (8) Name of the port or place of departure;
(1471) (9) Name of the port or place of destination;
(1472) (10) Estimated date and time of arrival at this port or place; and
(1473) (11) Name and telephone number of a 24-hour point of contact.
(1474) (d) International Safety Management (ISM) Code (Chapter IX of SOLAS) Notice. If you are the owner, agent, master, operator, or person in charge of a vessel that is 500 gross tons or more and engaged on a foreign voyage to the United States, you must provide the ISM Code notice described in paragraph (e) as follows:
(1475) (1) ISM Code notice beginning January 26, 1998, if your vessel is–a passenger vessel carrying more than 12 passengers, a tank vessel, a bulk freight vessel, or a high-speed freight vessel.
(1476) (2) ISM Code notice beginning January 1, 2002, if your vessel is–a freight vessel not listed in paragraph (d)(1) or a self-propelled mobile offshore drilling unit (MODU).
(1477) (e) Content and Manner of ISM Code Notice.
(1478) (1) ISM Code notice includes the following:
(1479) (i) The date of issuance for the companys' Document of Compliance certificate that covers the vessel.
(1480) (ii) The date of issuance for the vessel's Safety Management Certificate, and,
(1481) (iii) The name of the Flag Administration, or the recognized organization(s) representing the vessel flag administration, that issued those certificates.
(1482) (2) If you meet the criteria in paragraph (d) of this section, you must give the ISM Code notice to the Coast Guard Captain of the Port of the port or place of your destination in the U.S. at least 24 hours before you enter the port or place of destination. The ISM Code notice may be combined and provided with the report required by paragraph (a) of this section.
(1483) **§160.209** [Reserved]
(1484) **§160.211 Notice of arrival: Vessels carrying certain dangerous cargo.**
(1485) (a) The owner, agent, master, operator, or person in charge of a vessel, except a barge, bound for a port or place in the United States and carrying certain dangerous cargo, shall notify the Captain of the Port of the port or place of destination at least 24 hours before entering that port or place of the:
(1486) (1) Name of the vessel;
(1487) (2) Country of registry of the vessel;
(1488) (3) Call sign of the vessel;
(1489) (4) International Maritime Organization (IMO) international number or, if the vessel does not have an assigned IMO international number, the official number of the vessel;
(1490) (5) Name of the registered owner of the vessel;
(1491) (6) Name of the operator of the vessel;
(1492) (7) Name of the classification society of the vessel;
(1493) (8) Name of the port or place of departure;
(1494) (9) Name of the port or place of destination;
(1495) (10) Estimated date and time of arrival at this port or place;
(1496) (11) Name and telephone number of a 24-hour point of contact;
(1497) (12) Location of the vessel at the time of the report;
(1498) (13) Name of each of the certain dangerous cargoes carried;
(1499) (14) Amount of each of the certain dangerous cargoes carried;
(1500) (15) Stowage location of each of the certain dangerous cargoes carried; and
(1501) (16) Operational condition of the equipment under §164.35 of this chapter.
(1502) (b) The owner, master, agent, or person in charge of a barge bound for a port or place in the United States carrying certain dangerous cargo shall report the information required in paragraph (a)(1) through (a)(4) and (a)(8) through (a)(16) of this section to the Captain of the Port of the port or place of destination at least 4 hours before entering that port or place.
(1503) **§160.213 Notice of departure: Vessels carrying certain dangerous cargo.**
(1504) (a) The owner, agent, master, operator, or person in charge of a vessel, except a barge, departing from a port or place in the United States for any other port or place and carrying certain dangerous cargo, shall notify the Captain of the Port or place of departure at least 24 hours before departing, unless this notification was made within 2 hours after the vessel's arrival of the:
(1505) (1) Name of the vessel;
(1506) (2) Country of registry of the vessel;
(1507) (3) Call sign of the vessel;
(1508) (4) International Maritime Organization (IMO) international number or, if the vessel does not have an assigned IMO international number, the official number of the vessel;
(1509) (5) Name of the registered owner of the vessel;
(1510) (6) Name of the operator of the vessel;
(1511) (7) Name of the classification society of the vessel;
(1512) (8) Name of the port or place of departure;
(1513) (9) Name of the port or place of destination;
(1514) (10) Estimated date and time of arrival of this port or place;
(1515) (11) Name and telephone number of a 24-hour point of contact;
(1516) (12) Name of each of the certain dangerous cargoes carried;
(1517) (13) Amount of each of the certain dangerous cargoes carried;
(1518) (14) Stowage location of each of the certain dangerous cargoes carried; and
(1519) (15) Operational condition of the equipment under §164.35 of this chapter.
(1520) If the estimated time of departure changes by more than six hours from the latest reported time, the Captain of the Port must be notified of the correction as soon as the change is known.
(1521) (b) The owner, master, agent, or person in charge of a barge departing from a port or place in the United States for any other port or place and carrying a certain dangerous cargo shall report the information required in paragraphs (a)(1) through (a)(4) and (a)(8) through (a)(15) of this section to the Captain of the Port of the port or place of departure at least 4 hours before departing unless this report was made within 2 hours after the barge's arrival.

(1522) **§160.215 Notice of hazardous conditions.**

(1523) Whenever there is a hazardous condition either aboard a vessel or caused by a vessel or its operation, the owner, agent, master, operator, or person in charge shall immediately notify the nearest Coast Guard Marine Safety office or Group office. (Compliance with this section does not by itself discharge the duty of compliance with 46 CFR 4.05-10.)

Part 161–Vessel Traffic Management

Subpart A–Vessel Traffic Services

(1524) **General Rules**

(1525) **§161.1 Purpose and Intent.**

(1526) (a) The purpose of this part is to promulgate regulations implementing and enforcing certain sections of the Ports and Waterways Safety Act (PWSA) setting up a national system of Vessel Traffic Services that will enhance navigation, vessel safety, and marine environmental protection and promote safe vessel movement by reducing the potential for collisions, rammings, and groundings, and the loss of lives and property associated with these incidents within VTS areas established hereunder.

(1527) (b) Vessel Traffic Services provide the mariner with information related to the safe navigation of a waterway. This information, coupled with the mariner's compliance with the provisions set forth in this part, enhances the safe routing of vessels through congested waterways or waterways of particular hazard. Under certain circumstances, a VTS may issue directions to control the movement of vessels in order to minimize the risk of collision between vessels, or damage to property or the environment.

(1528) (c) The owner, operator, charterer, master, or person directing the movement of a vessel remains at all times responsible for the manner in which the vessel is operated and maneuvered, and is responsible for the safe navigation of the vessel under all circumstances. Compliance with these rules or with a direction of the VTS is at all times contingent upon the exigencies of safe navigation.

(1529) (d) Nothing in this part is intended to relieve any vessel, owner, operator, charterer, master, or person directing the movement of a vessel from the consequences of any neglect to comply with this part or any other applicable law or regulations (e.g., the International Regulations for Prevention of Collisions at Sea, 1972 (72 COLREGS) or the Inland Navigation Rules) or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

(1530) **§161.2 Definitions.**

(1531) For the purposes of this part:

(1532) "Cooperative Vessel Traffic Services (CVTS)" means the system of vessel traffic management established and jointly operated by the United States and Canada within adjoining waters. In addition, CVTS facilitates traffic movement and anchorages, avoids jurisdictional disputes, and renders assistance in emergencies in adjoining United States and Canadian waters.

(1533) "Hazardous Vessel Operating Condition" means any condition related to a vessel's ability to safely navigate or maneuver, and includes, but is not limited to:

(1534) (1) The absence or malfunction of vessel operating equipment, such as propulsion machinery, steering gear, radar system, gyrocompass, depth sounding device, automatic radar plotting aid (ARPA), radiotelephone, Automatic Identification System equipment, navigational lighting, sound signaling devices or similar equipment.

(1535) (2) Any condition on board the vessel likely to impair navigation, such as lack of current nautical charts and publications, personnel shortage, or similar condition.

(1536) (3) Vessel characteristics that affect or restrict maneuverability, such as cargo arrangement, trim, loaded condition, underkeel clearance, speed, or similar characteristics.

(1537) "Precautionary Area" means a routing measure comprising an area within defined limits where vessels must navigate with particular caution and within which the direction of traffic may be recommended.

(1538) "Towing Vessel" means any commercial vessel engaged in towing another vessel astern, alongside, or by pushing ahead.

(1539) "Vessel Movement Reporting System (VMRS)" is a system used to manage and track vessel movements within a VTS area. This is accomplished by a vessel providing information under established procedures as set forth in this part, or as directed by the VTS.

(1540) "Vessel Movement Reporting System (VMRS) User" means a vessel, or an owner, operator, charterer, master, or person directing the movement of a vessel, that is required to participate in a VMRS within a VTS area. VMRS participation is required for:

(1541) (1) Every power-driven vessel of 40 meters (approximately 131 feet) or more in length, while navigating;

(1542) (2) Every towing vessel of 8 meters (approximately 26 feet) or more in length, while navigating; or

(1543) (3) Every vessel certificated to carry 50 or more passengers for hire, when engaged in trade.

(1544) "Vessel Traffic Center (VTC)" means the shore-based facility that operates the vessel traffic service for the Vessel Traffic Service area or sector within such an area.

(1545) "Vessel Traffic Services (VTS)" means a service implemented by the United States Coast Guard designed to improve the safety and efficiency of vessel traffic and to protect the environment. The VTS has the capability to interact with marine traffic and respond to traffic situations developing in the VTS area.

(1546) "Vessel Traffic Service Area or VTS Area" means the geographical area encompassing a specific VTS area of service. This area of service may be subdivided into sectors for the purpose of allocating responsibility to individual Vessel Traffic Centers or to identify different operating requirements.

(1547) **Note:** Although regulatory jurisdiction is limited to the navigable waters of the United States, certain vessels will be encouraged or may be required, as a condition of port entry, to report beyond this area to facilitate traffic management within the VTS area.

(1548) "VTS Special Area" means a waterway within a VTS area in which special operating requirements apply.

(1549) "VTS User" means a vessel, or an owner, operator, charterer, master, or person directing the movement of a vessel, that is:

(1550) (a) Subject to the Vessel Bridge-to-Bridge Radiotelephone Act; or

(1551) (b) Required to participate in a VMRS within a VTS area (VMRS User).

(1552) "VTS User's Manual" means the manual established and distributed by the VTS to provide the mariner with a description of the services offered and rules in force for that VTS. Additionally, the manual may include chartlets showing the area and sector

boundaries, general navigational information about the area, and procedures, radio frequencies, reporting provisions and other information which may assist the mariner while in the VTS area.

(1553) **§161.3 Applicability.**

(1554) The provisions of this subpart shall apply to each VTS User and may also apply to any vessel while underway or at anchor on the navigable waters of the United States within a VTS area, to the extent the VTS considers necessary.

(1555) **§161.4 Requirement to carry the rules.**

(1556) Each VTS User shall carry on board and maintain for ready reference a copy of these rules.

(1557) **Note:** These rules are contained in the applicable U.S. Coast Pilot, the VTS User's Manual which may be obtained by contacting the appropriate VTS, and periodically published in the Local Notice to Mariners. The VTS User's Manual and the World VTS Guide, an International Maritime Organization (IMO) recognized publication, contain additional information which may assist the prudent mariner while in the appropriate VTS area.

(1558) **§161.5 Deviations from the rules.**

(1559) (a) Requests to deviate from any provision in this part, either for an extended period of time or if anticipated before the start of a transit, must be submitted in writing to the appropriate District Commander. Upon receipt of the written request, the District Commander may authorize a deviation if it is determined that such a deviation provides a level of safety equivalent to that provided by the required measure or is a maneuver considered necessary for safe navigation under the circumstances. An application for an authorized deviation must state the need and fully describe the proposed alternative to the required measure.

(1560) (b) Requests to deviate from any provision in this part due to circumstances that develop during a transit or immediately preceding a transit, may be made verbally to the appropriate VTS Commanding Officer. Requests to deviate shall be made as far in advance as practicable. Upon receipt of the request, the VTS Commanding Officer may authorize a deviation if it is determined that, based on vessel handling characteristics, traffic density, radar contacts, environmental conditions and other relevant information, such a deviation provides a level of safety equivalent to that provided by the required measure or is a maneuver considered necessary for safe navigation under the circumstances.

(1561) **Services, VTS Measures, and Operating Requirements**

(1562) **§161.10 Services.**

(1563) To enhance navigation and vessel safety, and to protect the marine environment, a VTS may issue advisories, or respond to vessel requests for information, on reported conditions within the VTS area, such as:

(1564) (a) Hazardous conditions or circumstances;

(1565) (b) Vessel congestion;

(1566) (c) Traffic density;

(1567) (d) Environmental conditions;

(1568) (e) Aids to navigation status;

(1569) (f) Anticipated vessel encounters;

(1570) (g) Another vessel's name, type, position, hazardous vessel operating conditions, if applicable, and intended navigation movements, as reported;

(1571) (h) Temporary measures in effect;

(1572) (i) A description of local harbor operations and conditions, such as ferry routes, dredging, and so forth;

(1573) (j) Anchorage availability; or

(1574) (k) Other information or special circumstances.

(1575) **§161.11 VTS measures.**

(1576) (a) A VTS may issue measures or directions to enhance navigation and vessel safety and to protect the marine environment, such as, but not limited to:

(1577) (1) Designating temporary reporting points and procedures;

(1578) (2) Imposing vessel operating requirements; or

(1579) (3) Establishing vessel traffic routing schemes.

(1580) (b) During conditions of vessel congestion, restricted visibility, adverse weather, or other hazardous circumstances, a VTS may control, supervise, or otherwise manage traffic, by specifying times of entry, movement, or departure to, from, or within a VTS area.

(1581) **§161.12 Vessel operating requirements.**

(1582) (a) Subject to the exigencies of safe navigation, a VTS User shall comply with all measures established or directions issued by a VTS.

(1583) (1) If, in a specific circumstance, a VTS User is unable to safely comply with a measure or direction issued by the VTS, the VTS User may deviate only to the extent necessary to avoid endangering persons, property or the environment. The deviation shall be reported to the VTS as soon as is practicable.

(1584) (b) When not exchanging communications, a VTS User must maintain a listening watch as required by §26.04(e) of this chapter on the VTS frequency designated in Table 161.12(b) (VTS Call Signs, Designated Frequencies, and Monitoring Areas). In addition, the VTS User must respond promptlywhen hailed and communicate in the English language.

(1585) **Note:** As stated in 47 CFR 80.148(b), a VHF watch on Channel 16 (156.800 MHz) is not required on vessels subject to the Vessel Bridge-to-Bridge Radiotelephone Act and participating in a Vessel Traffic Service (VTS) system when the watch is maintained on both the vessel bridge-to-bridge frequency and a designated VTS frequency.

(1586) (c) As soon as practicable, a VTS User shall notify the VTS of any of the following:

(1587) (1) A marine casualty as defined in 46 CFR 4.05-1;

(1588) (2) Involvement in the ramming of a fixed or floating object;

(1589) (3) A pollution incident as defined in §151.15 of this chapter:

(1590) (4) A defect or discrepancy in an aid to navigation;

(1591) (5) A hazardous condition as defined in §160.203 of this chapter;

(1592) (6) Improper operation of vessel equipment required by Part 164 of this chapter;

(1593) (7) A situation involving hazardous materials for which a report is required by 49 CFR 176.48; and

(1594) (8) A hazardous vessel operating condition as defined in §161.2.

(1595) **§161.13 VTS Special Area Operating Requirements.**

(1596) The following operating requirements apply within a VTS Special Area:

(1597) (a) A VTS User shall, if towing astern, do so with as short a hawser as safety and good seamanship permits.

(1598) (b) A VMRS User shall:

(1599) (1) Not enter or get underway in the area without prior approval of the VTS;

Table 161.12(b)–VESSEL TRAFFIC SERVICES (VTS) CALL SIGNS, DESIGNATED FREQUENCIES, AND MONITORING AREAS

Vessel traffic services (call sign)	Designated frequencies[1] (channel designation)	Monitoring area
		New York[2]
New York Traffic[3] . .	156.550 MHz (Ch.11) and 156.700 MHz (Ch.14) . . .	The navigable waters of the Lower New York Harbor bounded on the east by a line drawn from the Norton Point to Breezy Point; on the south by a line connecting the entrance buoys at the Ambrose Channel, Swash Channel and Sandy Hook Channel to Sandy Hook Point; and on the southeast including the waters of the Sandy hook Bay south to a line drawn at 40°25'N.; then west into waters of the Raritan Bay to the Raritan River Rail Road Bridge; and then north including the waters of the Arthur Kill and Newark Bay to the Lehigh Valley Draw Bridge at 40°41.95'N.; and then east including the waters of the Kill Van Kull and Upper New York Bay north to a line drawn east-west from the Holland Tunnel Ventilator Shaft at 40°43.7'N., 74°01.6'W. In the Hudson River; and continuing easty including the waters of the East River to the Throgs Neck Bridge, excluding the Harlem River.
	156.600 MHz (Ch. 12) . .	Each vessel at anchor within the above areas.
		Houston[2]
		The navigable waters north of 29°N., west of 94°20'W., south of 29°49'N., and east of 95°20'W.:
Houston Traffic . . .	156.550 MHz (Ch.11) . . .	The navigable waters north of a line extending due west from the southernmost end of Exxon Dock #1 (29°43.37'N., 95°01.27'W.)
	156.600 MHz (Ch 12) . . .	The navigable waters south of a line extending due west from the southernmost end of Exxon Dock #1 (29°43.37'N., 95°01.27'W.)
		Berwick Bay
Berwick Traffic. . . .	156.550 MHz (Ch. 11) . . .	The navigable waters south of 29°45'N., west of 91°10'W., north of 29°37'N., and east of 91°18'W.
		St. Marys River
Soo Control	156.600 MHz (Ch. 12) . . .	The navigable waters of the St. Marys River between 45°57'N. (De Tour Reef Light) and 46°38.7'N. (Ile Parisienne Light), except the St. Marys Falls Canal and those navigable waters east of a line from 46°04.16'N. And 46°01.57'N. (La Pointe to Sims Point in Potagannissing Bay and Worsley Bay).
		San Francisco[2]
San Francisco Offhore Vessel Movement.	156.600 MHz (Ch. 12) . . .	The waters within a 38 nautical mile radius of Mount Tamalpais (37°55.8'N., 122°34.6'W.) excluding the San Francisco Offshore Precautionary Area.
Reporting Service San Francisco Traffic.	156.700 MHz (Ch. 14) . . .	The waters of the San Francisco Offshore Precautionary Area eastward to San Francisco Bay including its tributaries extending to the ports of Stockton, Sacramento and Redwood City.
		Puget Sound[4]
Seattle Traffic[5] . . .	156.700 MHz (Ch. 14) . . .	The navigable waters of Puget Sound, Hood Canal and adjacent waters south of a line connecting Nodule Point (48°01.5'N., 122°40.05'W.) and Bush Point (48°01.5'N., 122°36.23'W.) in Admiralty Inlet and south of a line drawn due east from the southernmost tip of Possession Point (47°34'N., 122°40'W.) on Whidbey Island to the shoreline.
	156.250 MHz (Ch. 5A). . .	The navigable waters of the Strait of Juan de Fuca east of 124°40'W., excluding the waters in the central portion of the Strait of Juan de Fuca north and east of Race Rocks (48°18'N., 123°32'W.); the navigable waters of the Strait of Georgia east of 122°52'W.; the San Juan Island Archipelago, Rosario Strait, Bellingham Bay; Admiralty of Juan de Fuca north and east of Race Rocks (48°18'N., 123°32'W.); the navigable waters of the Strait of Georgia east of 122°52'W.; the San Juan Island Archipelago, Rosario Strait, Bellingham Bay; Admiralty Inlet north of a line connecting Nodule Point (48°01.5'N., 122°40.05'W.) and Bush Point (48°01.5'N., 122°36.23'W.) and all waters of Whidbey Island north of a line drawn due east from the southernmost tip of Possession Point (47°34'N., 122°40'W.) on Whidbey Island to the shoreline.

Table 161.12(b)–VESSEL TRAFFIC SERVICES (VTS) CALL SIGNS, DESIGNATED FREQUENCIES, AND MONITORING AREAS

Vessel traffic services (call sign)	Designated frequencies[1] (channel designation)	Monitoring area
Tofino Traffic[6] . . .	156.725 MHz (Ch. 74) . . .	The waters west of 124°40'W, within 50 nautical miles of the coast of Vancouver Island including the waters north 48°N., and east of 127°W.
Vancouver Traffic . .	156.550 MHz (Ch. 11) . .	The navigable waters of the Strait of Georgia west of 122°52'W., the navigable waters of the central Strait of Juan de Fuca north and east of Race Rocks, including the Gulf Island Archipelago, Boundary Pass and Haro Strait.
Prince William Sound[7]		
Valdez Traffic	156.650 MHz (Ch. 13) . . .	The navigable waters south of 61°05'N., east of 147°20'W., north of 60°N., and west of 146°30'W.; and all navigable waters in Port Valdez.
Louisville[7]		
Louisville Traffic . . .	156.650 MHz (Ch. 13) . . .	The navigable waters of the Ohio River between McAlpine Locks (Mile 606) and Twelve Mile Island (Mile 593), only when the McAlpine upper pool gauge is at approximately 13.0 feet or above.

NOTES:

1. In the event of a communication failure either by the vessel traffic center or the vessel or radio congestion on a designated VTS frequency, communications may be established on an alternate VTS frequency. The bridge-to-bridge navigational frequency, 156.650 MHz (Channel 13), is monitored in each VTS area; and it may be used as an alternate frequency, however, only to the extent that doing so provides a level of safety beyond that provided by other means.

2. Designated frequency monitoring is required within U.S. Navigable waters. In areas which are outside the U.S. Navigable waters, designated frequency monitoring is voluntary. However, prospective VTS Users are encouraged to monitor the designated frequency.

3. VMRS participants shall make their initial report (Sail Plan) to New York Traffic on Channel 11 (156.550 MHz). All other reports, including the Final Report, shall be made on Channel 14 (156.700 MHz). VMRS and other VTS Users shall monitor Channel 14 (156.700 MHz) while transiting the VTS area. New York Traffic may direct a vessel to monitor and report on either primary frequency depending on traffic density, weather conditions, or other safety factors. This does not require a vessel to monitor both primary frequencies.

4. A Cooperative Vessel Traffic Service was established by the United States and Canada within adjoining waters. The appropriate vessel traffic center administers the rules issued by both nations; however, it will enforece only its own set of rules within its jurisdiction.

5. Seattle Traffic may direct a vessel to monitor the other primary VTS frequency 156.250 MHz or 156.700 MHz (Channel 5A or 14) depending on traffic density, weather conditions, or other safety factors, rather than strictly adhering to the disignated frequency required for each monitoring area as defined above. This does not require a vessel to monitor both primary frequencies.

6. A portion of Tofino Sector's monitoring area extends beyond the defined CVTS area. Designated frequency monitoring is voluntary in these portions outside of VTS jurisdiction, however, prospective VTS Users are encouraged to monitor the designated frequency.

7. The bridge-to-bridge navigational frequency, 156.650 MHz (Channel 13), is used in these VTSs because the level of radiotelephone transmissions does not warrant a designated VTS frequency. The listening watch required by §26.05 of this chapter is not limited to the monitoring area.

(1600) (2) Not enter a VTS Special Area if a hazardous vessel operating condition or circumstance exists;

(1601) (3) Not meet, cross, or overtake any other VMRS User in the area without prior approval of the VTS; and

(1602) (4) Before meeting, crossing, or overtaking any other VMRS User in the area, communicate on the designated vessel bridge-to-bridge radiotelephone frequency, intended navigation movements, and any other information necessary in order to make safe passing arrangements. This requirement does not relieve a vessel of any duty prescribed by the International Regulations for Prevention of Collisions at Sea, 1972 (72 COLREGS) or the Inland Navigation Rules.

Subpart B–Vessel Movement Reporting System

(1603) **§161.15 Purpose and Intent.**

(1604) (a) A Vessel Movement Reporting System (VMRS) is a system used to manage and track vessel movements within a VTS area. This is accomplished by requiring that vessels provide information under established procedures as set forth in this part, or as directed by the VTS.

(1605) (b) To avoid imposing an undue reporting burden or unduly congesting radiotelephone frequencies, reports shall be limited to information which is essential to achieve the objectives of the VMRS. These reports are consolidated into four reports (sailing plan, position, sailing plan deviation and final).

(1606) **§161.16 Applicability.**

(1607) The provisions of this subpart shall apply to the following VMRS Users:

(1608) (a) Every power-driven vessel of 40 meters (approximately 131 feet) or more in length, while navigating;

(1609) (b) Every towing vessel of 8 meters (approximately 26 feet) or more in length, while navigating; or

(1610) (c) Every vessel certificated to carry 50 or more passengers for hire, when engaged in trade.

(1611) **§161.17 Definitions.**

(1612) As used in this subpart: Published means available in a widely-distributed and publicly available medium (e.g., VTS User's Manual, ferry schedule, Notice to Mariners).

(1613) **§161.18 Reporting requirements.**

(1614) (a) A VTS may: (1) Direct a vessel to provide any of the information set forth in Table 161.18(a) (IMO Standard Ship Reporting System);

(1615) (2) Establish other means of reporting for those vessels unable to report on the designated frequency; or

(1616) (3) Require reports from a vessel in sufficient time to allow advance vessel traffic planning.

(1617) (b) All reports required by this part shall be made as soon as is practicable on the frequency designated in Table 161.12(b) (VTS Call Signs, Designated Frequencies, and Monitoring Areas).

(1618) (c) When not exchanging communications, a VMRS User must maintain a listening watch as described in §26.04(e) of this chapter on the frequency designated in Table 161.12(b) (VTS Call Signs, Designated Frequencies, and Monitoring Areas). In addition, the VMRS User must respond promptly when hailed and communicate in the English language.

(1619) **Note:** As stated in 47 CFR 80.148(b), a VHF watch on Channel 16 (156.800 MHz) is not required on vessels subject to the Vessel Bridge-to-Bridge Radiotelephone Act and participating in a Vessel Traffic Service (VTS) system when the watch is maintained on both the vessel bridge-to-bridge frequency and a designated VTS frequency.

(1620) (d) When reports required by this part include time information, such information shall be given using the local time zone in effect and the 24-hour military clock system.

(1621) **§161.19 Sailing Plan (SP).**

(1622) Unless otherwise stated, at least 15 minutes before navigating a VTS area, a vessel must report the:

(1623) (a) Vessel name and type;

(1624) (b) Position;

(1625) (c) Destination and ETA;

(1626) (d) Intended route;

(1627) (e) Time and point of entry; and

(1628) (f) Dangerous cargo on board or in its tow, as defined in §160.203 of this chapter, and other required information as set out in §160.211 and §160.213 of this chapter, if applicable.

(1629) **§161.20 Position Report (PR).**

(1630) A vessel must report its name and position:

(1631) (a) Upon point of entry into a VTS area;

(1632) (b) At designated reporting points as set forth in subpart C; or

(1633) (c) When directed by the VTC.

(1634) **Note:** Notice of temporary reporting points, if established, may be published via Local Notices to Mariners, general broadcast or the VTS User's Manual.

(1635) **§161.21 Sailing Plan Deviation Report (DR).**

(1636) A vessel must report:

(1637) (a) When its ETA to a destination varies significantly from a previously reported ETA;

(1638) (b) Any intention to deviate from a VTS issued measure or vessel traffic routing system; or

(1639) (c) Any significant deviation from previously reported information.

(1640) **§161.22 Final Report (FR).**

(1641) A vessel must report its name and position:

(1642) (a) On arrival at its destination; or

(1643) (b) When leaving a VTS area.

(1644) **§161.23 Reporting exemptions.**

(1645) (a) Unless otherwise directed, the following vessels are exempted from providing Position and Final Reports due to the nature of their operation:

(1646) (1) Vessels on a published schedule and route;

(1647) (2) Vessels operating within an area of a radius of three nautical miles or less; or

(1648) (3) Vessels escorting another vessel or assisting another vessel in maneuvering procedures.

(1649) (b) A vessel described in paragraph (a) of this section must:

(1650) (1) Provide a Sailing Plan at least 5 minutes but not more than 15 minutes before navigating within the VTS area; and

(1651) (2) If it departs from its promulgated schedule by more than 15 minutes or changes its limited operating area, make the established VMRS reports, or report as directed.

(1652) (c) In those VTS areas capable of receiving automated position reports from Automatic Identification Shipborne System equipment (AISSE) as required by §164.43 of this chapter and where AISSE is required, vessels equipped with an operating AISSE are not required to make voice radio position reports at designated reporting points as required by §161.20(b) of this part, unless otherwise directed by the VTC.

TABLE 161.18(a).–THE IMO STANDARD SHIP REPORTING SYSTEM

A	ALPHA	Ship	Name, cell sign or ship station identity, and flag.
B	BRAVO	Dates and time of events	A 6 digit group giving day of month (first two digits), hours and minutes (last four digits). If other than UTC state time zone used.
C	CHARLIE	Position	A 4 digit group giving latitude in degrees and minutes suffixed with N (north) or S (south) and a 5 digit group giving longitude in degrees and minutes suffixed with E (east) or W (west); or,
D	DELTA	Position	True bearing (first 3 digits) and distance (state distance) in nautical miles from a clearly identified landmark (state landmark).
E	ECHO	True course	A 3 digit group.
F	FOXTROT	Speed in knots and tenths of knots	A 3 digit group.
G	GOLF	Port of Departure	Name of last port of call.
H	HOTEL	Date, time and point of entry	Entry time expressed as in (B) and into the entry position expressed as in (C) or (D).
I	INDIA	Destination and expected time of arrival.	Name of port and date time group expressed as in (B).
J	JULIET	Pilot	State whether a deep sea or local pilot is on board.
K	KILO	Date, time and point of exit from system.	Exit time expressed as in (B) and exit position expressed as in (C) or (D).
L	LIMA	Route information	Intended track.
M	MIKE	Radio	State in fullnames of communications stations/frequencies guarded.
N	NOVEMBER	Time of next report	Date time group expressed as in (B).
O	OSCAR	Maximum present static draft in meters.	4 digit group giving meters and centimeters.
P	PAPA	Cargo on board	Cargo and brief details of any dangerous cargoes as well as harmful substances and gases that could endager persons or the environment.
Q	QUEBEC	Defects, damage, deficiencies or limitations.	Brief detail of defects, damage, deficiencies or other limitations.
R	ROMEO	Description of pollution or dangerous goods lost.	Brief details of type pollution (oil, chemicals, etc) or dangerous goods lost overboard; position expressed as in (C) or (D).
	SIERRA	Weather conditions	Brief details of weather and sea conditions prevailing.
	TANGO	Ship's representative and/or owner.	Details of name and particulars of ship's representative and/or owner for provision of information.
	UNIFORM	Ship size and type	Details of length, breadth, tonnage, and type, etc., as required.
	VICTOR	Medical personnel	Doctor, physician's assistant, nurse, no medic.
	WHISKEY	Total number of persons on board.	State number.
	XRAY	Miscellaneous	Any other information as appropriate. (i.e., a detailed description of a planned operation, which may include: its durration; effective area; any restrictions to navigation; notification procedures for approching vessels; in addition, for a towing operation; configuration, length of the tow, available horsepower, etc.; for a dredge or floating plant: configuration of pipeline, mooring configuration, number of assist vessels, etc.)

(1653) (1) Whenever an AISSE becomes non-operational as defined in §164.43(c) of this chapter, before entering or while underway in a VTS area, a vessel must:

(1654) (i) Notify the VTC;

(1655) (ii) Make voice radio position reports at designated reporting points as required by §161.20(b) of this part;

(1656) (iii) Make other voice radio reports as directed; and

(1657) (iv) Restore the AISSE to operating condition as soon as possible.

(1658) (2) Whenever an AISSE becomes non-operational due to a loss of position correction information (i.e., the U.S. Coast Guard differential global positioning system (dGPS) cannot provide the required error correction messages) a vessel must:

(1659) (i) Make required voice radio position reports at designated reporting points required by §161.20(b) of this part; and

(1660) (ii) Make other voice radio reports as directed.

(1661) **Note:** Regulations pertaining to AISSE required capabilities are set forth in §164.43 of this chapter.

Subpart C–Vessel Traffic Service Areas, Cooperative Vessel Traffic Service Area, Vessel Traffic Service Special Areas and Reporting Points.

(1662) **Note:** All geographic coordinates contained in part 161 (latitude and longitude) are expressed in North American Datum of 1983 (NAD 83).

(1663) **§161.25 Vessel Traffic Service New York Area.**

(1664) The area consists of the navigable waters of the Lower New York Harbor bounded on the east by a line drawn from Norton Point to Breezy Point; on the south by a line connecting the entrance buoys at the Ambrose Channel, Swash Channel, and Sandy Hook Channel to Sandy Hook Point; and on the southeast including the waters of Sandy Hook Bay south to a line drawn at 40°25'N.; then west into waters of the Raritan Bay to the Raritan River Rail Road Bridge; and then north including the waters of the Arthur Kill and Newark Bay to the Lehigh Valley Draw Bridge at 40°41.9'N.; and then east including the waters of the Kill Van Kull and Upper New York Bay north to a line drawn east-west from the Holland Tunnel Ventilator Shaft at 40°43.7'N., 74°01.6'W. in the Hudson River; and then continuing east including the waters of the East River to the Throgs Neck Bridge, excluding the Harlem River.

(1665) **Note:** Although mandatory participation in VTSNY is limited to the area within the navigable waters of the United States, VTSNY will provide services beyond those waters. Prospective users are encouraged to report beyond the area of required participation in order to facilities advance vessel traffic management in the VTS area and to receive VTSNY advisories and/or assistance.

(1666) **§161.30 Vessel Traffic Service Louisville.**

(1667) The VTS area consists of the navigable waters of the Ohio River between McAlpine Locks (Mile 606.8) and Twelve Mile Island (Mile 593), only when the McAlpine upper pool gauge is at 13.0 feet or above.

(1668) **§161.35 Vessel Traffic Service Houston/Galveston.**

(1669) (a) The VTS area consists of the following major waterways and portions of connecting waterways: Galveston Bay Entrance Channel; Outer Bar Channel; Inner Bar Channel: Bolivar Roads Channel; Galveston Channel; Gulf ICW and Galveston-Freeport Cut-Off from Mile 346 to Mile 352; Texas City Channel; Texas City Turning Basin; Texas City Channel; Texas City Canal Turning Basin; Houston Ship Channel; Bayport Channel; Bayport Turning Basin; Houston Turning Basin: and the following precautionary areas associated with these waterways.

(1670) (b) Precautionary Areas. (Table 161.35(b))

(1671) (c) Reporting Points. (Table 161.35(c))

(1672) **§161.40 Vessel Traffic Service Berwick Bay.**

(1673) (a) The VTS area consists of the navigable waters of the following segments of waterways: the Intracoastal Waterway (ICW) Morgan City to Port Allen Alternate Route from Mile Marker 0 to Mile Marker 5; the ICW from Mile Marker 93 west of Harvey Lock (WHL) to Mile Marker 102 WHL; the Atchafalaya River Route from Mile Marker 113 to Mile Marker 122; from Bayou Shaffer Junction (ICM Mile Marker 94.5 WHL) south one statute mile along Bayou Shaffer; and from Ber-

TABLE 161.35(b)–VTS HOUSTON/GALVESTON PRECAUTIONARY AREAS

Precautionary area name	Radius (yards)	Center Points	
		Latitude	Longitude
Bolivar Roads	4000	29°20.9'N	94°47.0'W
Red Fish Bar	4000	29°29.8'N	94°51.9'W
Bayport Channel	4000	29°36.7'N	94°57.2'W
Morgans Point	2000	29°41.0'N	94°59.0'W
Upper San Jacinto Bay	1000	29°42.3'N	95°01.1'W
Baytown	1000	29°43.6'N	95°01.4'W
Lynchburg	1000	29°45.8'N	95°04.8'W
Carpenter Bayou	1000	29°45.3'N	95°05.6'W
Jacintoport	1000	29°44.8'N	95°06.0'W
Greens Bayou	1000	29°44.8'N	95°10.2'W
Hunting Bayou	1000	29°44.3'N	95°12.1'W
Sims Bayou	1000	29°43.1'N	95°14.4'W
Brady Island	1000	29°43.5'N	95°16.4'W
Buffalo Bayou	1000	29°45.0'N	95°17.3'W

Note: Each Precautionay Area encompasses a circular area of the radius denoted.

TABLE 161.35(c)–VTS HOUSTON/GALVESTON REPORTING POINTS

Designator	Geographic name	Geographic description	Latitude/ Longitude	Notes
1	Galveston Bay Entrance Channel	Galveston Bay Entrance CH Lighted Buoy (LB) "GB"	29°18.4'N 94°37.6'W	
2	Galveston Bay Entrance Channel	Galveston Bay Entrance Channel LB 11 and 12	29°20.6'N 94°44.6'W	
E	Bolivar Land Cut	Mile 349 Intracoastal Waterway (ICW)	29°22.5'N 94°46.9'W	Tows entering HSC also report at HSC LB 25 & 26
W	Pelican Cut	Mile 351 ICW	29°21.4'N 94°48.5'W	Tows entering HSC also report at HSC LB 25 & 26
GCG	Galveston Harbor	USCG Base. At the entrance to Galveston Harbor	29°20.0'N 94°46.5'W	
T	Texas City Channel	Texas City Channel LB 12	29°22.4'N 94°50.9'W	
X	Houston Ship Channel ICW Intersection	Houston Ship Channel (HSC) LB 25 and 26	29°22.1'N 94°48.1'W	Tows entering HSC from ICW or Texas Cut only
3	Lower Galveston Bay	HSC LB 31 and 32	29°23.5'N 94°48.8'W	
4	Red Fish Reef	HSC Lt 53A and 54 A	29°30.3'N 94°52.4'W	
P	Bayport Ship Channel	Bayport Ship Channel Lt. 7 and 8	29°36.8'N 94°59.5'W	Report at North Land Cut
4A	Upper Galveston Bay	HSC Buoys 69 and 70	29°34.7'N 94°55.8'W	Tows only.
5	Morgan's Pont	Barbour's Cut	29°41.0'N 94°58.9'W	Abeam Barbours Cut
6	Exxon	Baytown Bend	29°43.5'N 94°01.4'W	
7	Lynchburg	Ferry Crossing	29°45.8'N 94°04.8'W	
8	Shell Oil	Boggy Bayou	29°44.1'N 94°08.0'W	
9	Greens Bayou	Greens Bayou	29°44.8'N 94°10.1'W	
10	Hess Turning Basin	Hunting Bayou Turning Basin	29°44.3'N 94°12.1'W	
11	Lyondell Turning Basin	Sims Bayou Turning Basin	29°43.2'N 94°14.4'W	
12	I-610 Bridge	I-610 Bridge	29°43.5'N 94°16.0'W	
13	Houston Turning Basin	Buffalo Bayou	29°45.0'N 94°17.4'W	

TABLE 161.40(c)–VTS BERWICK BAY REPORTING POINTS

Designator	Geographic name	Geographic description	Latitude/ Longitude	Notes
1	Stouts Pass	Stouts Point Light "1" Mile 113-Atchafalya River	29°43'47"N 91°13'25"W	
2	Berwick Lock	Mile 1.9 MC/PA	29°43'10"N 91°13'28"W	If transiting the Lock.
3	Conrad's Point Junction	Buoy "1" Mile 1.5 MC/PA	29°42'32"N 91°13'14"W	
4	Swift Ships Flat Lake Junction	Mile 3 MC/PA	29°43'26"N 91°12'22"W	
5	South Pacific Railroad Bridge	Mile 0.3 MC/PA	29°41'34"N 91°12'44"W	
6	20 Grand Point Junction	Bayou Boeuf-Atchafalaya R. Mile 95.5 ICW	29°41'18"N 91°12'36"W	
7	ICW	Overhead Power Cable Mile 96.5 ICW	29°40'43"N 91°13'18"W	
8	Wax Bayou Junction	Light "A" Mile 98.2W ICW	29°39'29"N 91°14'46"W	
9	Shaffer Junction	ICW - Bayou Shaffer Mile 94.5 ICW	29°41'10"N 91°11'38"W	

wick Lock northwest one statute mile along the Lower Atchafalaya River.

(1674) (b) VTS Special Area. The Berwick Bay VTS Special Area consists of those waters within a 1000 yard radius of the Southern Pacific Railroad Bridge located at Mile .03 MC/PA.

(1675) (c) Reporting Points. (Table 161.40(c))

Part 162–Inland Waterways Navigation Regulations

(1676) **§162.1 General.**

(1677) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

(1678) **§162.65 All waterways tributary to the Atlantic Ocean south of Chesapeake Bay and all waterways tributary to the Gulf of Mexico east and south of St. Marks, Fla.** (a) Description. This section applies to the following: (1) Waterways. All navigable waters of the United States, natural or artificial, including bays, lakes, sounds, rivers, creeks, intracoastal waterways, as well as canals and channels of all types, which are tributary to or connected by the other waterways with the Atlantic Ocean south of Chesapeake Bay or with the Gulf of Mexico east and south of St. Marks, Florida.

(1679) (2) United States property. All river and harbor lands owned by the United States in or along the waterways described in paragraph (a)(1) of this section, including lock sites and all structures thereon, other sites for Government structures and for the accommodation and use of employees of the United States, and rights of way and spoil disposal areas to the extent of Federal interest therein.

(1680) (3) Vessels and rafts. The term "vessel" as used in this section includes all floating things moved over these waterways other than rafts.

(1681) (b) Waterways-(1) Fairway. A clear channel shall at all times be left open to permit free and unobstructed navigation by all types of vessels and rafts that normally use the various waterways or sections thereof. The District Commander may specify the width of the fairway required in the various waterways under his charge.

(1682) (2) Stoppage in waterway, anchorage or mooring. (i) No vessels or rafts shall anchor or moor in any of the land cuts or other narrow parts of the waterway, except in case of an emergency. Whenever it becomes necessary for a vessel or raft to stop in any such portions of the waterway it shall be securely fastened to one bank and as close to the bank as possible. This shall be done only at such a place and under such conditions as will not obstruct or prevent the passage of other vessels or craft. Stoppages shall be only for such periods as may be necessary.

(1683) (ii) No vessel or raft will be allowed to use any portion of the fairway as a mooring place except temporarily as authorized above without the written permission from the District Commander.

(1684) (iii) When tied up, all vessels must be moored by bow and stern lines. Rafts and tows shall be secured at sufficiently close intervals to insure their not being drawn away from the bank by winds, currents or the suction of passing vessels. Tow lines shall be shortened so that the different parts of the tow shall be as close together as possible. In narrow sections, no vessel or raft shall be tied abreast of another.

(1685) (iv) Lights shall be displayed in accordance with provisions of the Inland Rules and the Pilot Rules for Inland Waters.

(1686) (v) No vessel, even if fastened to the bank as prescribed in paragraph (b)(2)(i) of this section, shall be left without a sufficient crew to care for it properly.

(1687) (vi) Vessels will not be permitted to load or unload in any of the land cuts except as a regular established landing or wharf

without written permission secured in advance from the District Commander.

(1688) (vii) No vessel, regardless of size, shall anchor in a dredged channel or narrow portion of a waterway for the purpose of fishing, if navigation is obstructed, thereby.

(1689) (viii) Except in cases of emergency the dropping of anchors, weights, or other ground tackle, within areas occupied by submarine cable or pipe crossings, is prohibited. Such crossings will ordinarily be marked by signboards on each bank of the shore or indicated on coast charts.

(1690) (3) Speed. (i) Vessels shall proceed at a speed which will not endanger other vessels or structures and will not interfere with any work in progress incident to maintaining, improving, surveying or marking the channel.

(1691) (ii) Official signs indicating limited speeds through critical portions of the waterways shall be strictly obeyed.

(1692) (iii) Vessels approaching and passing through a bridge shall so govern their speed as to insure passage through the bridge without damage to the bridge or its fenders.

(1693) (4) Assembly and handling of tows.

(1694) (i) All vessels drawing tows and equipped with rudders shall use two tow lines or a bridle and shorten them to the greatest possible extent so as to have full control at all times. The various parts of a tow shall be securely assembled with the individual units connected by lines as short as practicable. If necessary, as in the case of lengthy or cumbersome tows or tows in restricted channels, the District Commander may require that tows be broken up and may require the installation of a rudder, drag or other approved steering device on the tow in order to avoid obstructing navigation or damaging the property of others, including aids to navigation maintained by the United States or under its authorization, by collision or otherwise.

(1695) (ii) No tow shall be drawn by a vessel that has insufficient power or crew to permit ready maneuverability and safe handling.

(1696) (iii) Tows desiring to pass a bridge shall approach the opening along the axis of the channel so as to pass through without danger of striking the bridge or its fenders. No vessel or tow shall navigate through a drawbridge until the movable span is fully opened.

(1697) (iv) In the event that it is evident to the master of a towing vessel that a tow cannot be safely handled through a bridge, it will be brought to anchor and the towed vessels will be taken through the bridge in small units, or singly if necessary, or the tow will wait until navigation conditions have improved to such an extent that the tow can pass through the bridge without damage.

(1698) (5) Projections from vessels. No vessel carrying a deck load which overhangs or projects over the side of said vessel, or whose rigging projects over the side of the vessel so as to endanger passing vessels, wharves or other property, will enter or pass through any of the narrow parts of the waterway.

(1699) (6) Meeting and passing. Vessels, on meeting or overtaking, shall give the proper signals and pass in accordance with the Inland Rules and the Pilot Rules for Inland Waters. Rafts shall give to vessels the side demanded by proper signal. All vessels approaching dredges, or other plant engaged on improvements to a waterway, shall give the signal for passing and slow down sufficiently to stop if so ordered or if no answering signal is received. On receiving the answering signal, they shall then proceed to a pass at a speed sufficiently slow to insure safe navigation.

(1700) NOTE.–The Corps of Engineers also has regulations dealing with this section in 33 CFR 207.

Part 164–Navigation Safety Regulations (in part). For a complete description of this part see 33 CFR 164.

(1701) **§164.01 Applicability.**

(1702) (a) This part (except as specifically limited herein) applies to each self-propelled vessel of 1600 or more gross tons (except foreign vessels described in §164.02) when it is operating in the navigable waters of the United States except the St. Lawrence Seaway.

(1703) (b) Sections 164.70 through 164.82 of this part apply to each towing vessel of 12 meters (39.4 feet) or more in length operating in the navigable waters of the United States other than the St. Lawrence Seaway; except that a towing vessel is exempt from the requirements of §164.72 if it is -

(1704) (1) Used solely within a limited geographic area, such as a fleeting-area for barges or a commercial facility, and used solely for restricted service, such as making up or breaking up larger tows;

(1705) (2) Used solely for assistance towing as defined by 46 CFR 10.103;

(1706) (3) Used solely for pollution response; or

(1707) (4) Any other vessel exempted by the Captain of the Port (COTP). The COTP, upon written request, may, in writing, exempt a vessel from §164.72 for a specified route if he or she decides that exempting it would not allow its unsafe navigation under anticipated conditions.

(1708) **§164.02 Applicability exception for foreign vessels.**

(1709) (a) This part (including §§164.38 and 164.39) does not apply to vessels that:

(1710) (1) Are not destined for, or departing from, a port or place subject to the jurisdiction of the United States; and

(1711) (2) Are in:

(1712) (i) Innocent passage through the territorial sea of the United States; or

(1713) (ii) Transit through navigable waters of the United States which form a part of an international strait.

(1714) **§164.03 Incorporation by reference.**

(1715) (a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in paragraph (b) of this section, the Coast Guard must publish notice of change in the Federal Register and the material must be available to the public. All approved material is on file at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC, and at the U.S. Coast Guard, Marine Environmental Protection Division (G-MEP), Room 2100, 2100 Second Street, SW., Washington, DC 20593-0001 and is available from the sources indicated in paragraph (b) of this section.

(1716) (b) The materials approved for incorporation by reference in this part and the sections affected are as follows:

(1717) *American Petroleum Institute* (API), 1220 L Street NW., Washington, DC 20005

(1718) API Specifications 9A, Specification for Wire Rope, Section 3, Properties and Tests for Wire and Wire Rope, May 28, 1984. . . . . **164.74**

(1719) *American Society for Testing and Materials (ASTM)*, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

(1720) ASTM D4268-93, Standard Test Method for Testing Fiber Ropes. **164.74**

(1721) *Cordage Institute*, 350 Lincoln Street, Hingham, MA 02043

(1722) CIA-3, Standard Test Methods for Fiber Rope Including Standard Terminations, Revised, June 1980 . . . . . **164.74**

(1723) *International Maritime Organization (IMO)*, 4 Albert Embankment, London SE1 7SR, U.K. IMO Resolution A342(IX), Recommendation on Performance Standards for Automatic Pilots, adopted November 12, 1975 . . . . . **164.13**

(1724) *International Telecommunication Union Radiocommunication Bureau (ITU-R)*, Place de Nations CH-1211 Geneva 20 Switzerland

(1725) (1) ITU-R Recommendation M.821, Optional Expansion of the Digital Selective-Calling System for Use in the Maritime Mobile Service, 1992. . . . . **164.43**

(1726) (2) ITU-R Recommendation M.825, Characteristics of a Transponder System Using Digital Selective-Calling Techniques for Use with Vessel Traffic Services and Ship-to-Ship Identification,1992 . . . . . **164.43**

(1727) *Radio Technical Commission for Maritime Services*, 655 Fifteenth Street, NW., Suite 300, Washington, DC 20005

(1728) (1) RTCM Paper 12-78/DO-100, Minimum Performance Standards, Loran C Receiving Equipment, 1977. . . . . 164.41

(1729) (2) RTCM Paper 194-93/SC104-STD, RTCM Recommended Standards for Differential NAVSTAR GPS Service, Version 2.1, 1994. . . . . 164.43

(1730) (3) RTCM Paper 71-95/SC112-STD, RTCM Recommended Standards for Marine Radar Equipment Installed on Ships of Less Than 300 Tons Gross Tonnage, Version 1.1, October 10, 1995 . . . . . **164.72**

(1731) (4) RTCM Paper 191-93/SC112-X, RTCM Recommended Standards for Maritime Radar Equipment Installed on Ships of 300 Tons Gross Tonnage and Upwards, Version 1.2, December 29, 1993. . . . . **164.72**

(1732) **§164.11 Navigation under way: General.**

(1733) The owner, master, or person in charge of each vessel underway shall ensure that:

(1734) (a) The wheelhouse is constantly manned by persons who–

(1735) (1) Direct and control the movement of the vessel; and

(1736) (2) Fix the vessel's position;

(1737) (b) Each person performing a duty described in paragraph (a) of this section is competent to perform that duty;

(1738) (c) The position of the vessel at each fix is plotted on a chart of the area and the person directing the movement of the vessel is informed of the vessel's position;

(1739) (d) Electronic and other navigational equipment, external fixed aids to navigation, geographic reference points, and hydrographic contours are used when fixing the vessel's position;

(1740) (e) Buoys alone are not used to fix the vessel's position;

(1741) **Note**: Buoys are aids to navigation placed in approximate positions to alert the mariner to hazards to navigation or to indicate the orientation of a channel. Buoys may not maintain an exact position because strong or varying currents, heavy seas, ice, and collisions with vessels can move or sink them or set them adrift. Although buoys may corroborate a position fixed by other means, buoys cannot be used to fix a position: however, if no other aids are available, buoys alone may be used to establish an estimated position.

(1742) (f) The danger of each closing visual or each closing radar contact is evaluated and the person directing the movement of the vessel knows the evaluation;

(1743) (g) Rudder orders are executed as given;

(1744) (h) Engine speed and direction orders are executed as given;

(1745) (i) Magnetic variation and deviation and gyrocompass errors are known and correctly applied by the person directing the movement of the vessel;

(1746) (j) A person whom he has determined is competent to steer the vessel is in the wheelhouse at all times (See also 46 U.S.C. 8702(d), which requires an able seaman at the wheel on U.S. vessels of 100 gross tons or more in narrow or crowded waters during low visibility.);

(1747) (k) If a pilot other than a member of the vessel's crew is employed, the pilot is informed of the draft, maneuvering characteristics, and peculiarities of the vessel and of any abnormal circumstances on the vessel that may affect its safe navigation.

(1748) (1) Current velocity and direction for the area to be transited are known by the person directing the movement of the vessel;

(1749) (m) Predicted set and drift are known by the person directing movement of the vessel;

(1750) (n) Tidal state for the area to be transited is known by the person directing movement of the vessel;

(1751) (o) The vessel's anchors are ready for letting go;

(1752) (p) The person directing the movement of the vessel sets the vessel's speed with consideration for -

(1753) (1) The prevailing visibility and weather conditions;

(1754) (2) The proximity of the vessel to fixed shore and marine structures;

(1755) (3) The tendency of the vessel underway to squat and suffer impairment of maneuverability when there is small underkeel clearance;

(1756) (4) The comparative proportions of the vessel and the channel;

(1757) (5) The density of marine traffic;

(1758) (6) The damage that might be caused by the vessel's wake;

(1759) (7) The strength and direction of the current; and

(1760) (8) Any local vessel speed limit;

(1761) (q) The tests required by §164.25 are made and recorded in the vessel's log; and

(1762) (r) The equipment required by this part is maintained in operable condition.

(1763) (s) Upon entering U.S. waters, the steering wheel or lever on the navigating bridge is operated to determine if the steering equipment is operating properly under manual control, unless the vessel has been steered under manual control from the navigating bridge within the preceding 2 hours, except when operating on the Great Lakes and their connecting and tributary waters.

(1764) (t) At least two of the steering-gear power units on the vessel are in operation when such units are capable of simultaneous operation, except when the vessel is sailing on the Great Lakes and their connecting and tributary waters, and except as required by paragraph (u) of this section.

(1765) (u) On each passenger vessel meeting the requirements of the International Convention for the Safety of Life at Sea, 1960 (SOLAS 60) and on each cargo vessel meeting the requirements of SOLAS 74 as amended in 1981, the number of steering-gear power units necessary to move the rudder from 35° on either side

to 30° on the other in not more than 28 seconds must be in simultaneous operation.

(1766) **§164.13 Navigation underway: tankers.**

(1767) (a) As used in this section, "tanker" means a self-propelled tank vessel, including integrated tug barge combinations, constructed or adapted primarily to carry oil or hazardous material in bulk in the cargo spaces and inspected and certificated as a tanker.

(1768) (b) Each tanker must have an engineering watch capable of monitoring the propulsion system, communicating with the bridge, and implementing manual control measures immediately when necessary. The watch must be physically present in the machinery spaces or in the main control space and must consist of at least a licensed engineer.

(1769) (c) Each tanker must navigate with at least two licensed deck officers on watch on the bridge, one of whom may be a pilot. In waters where a pilot is required, the second officer, must be an individual licensed and assigned to the vessel as master, mate, or officer in charge of a navigational watch, who is separate and distinct from the pilot.

(1770) (d) Except as specified in paragraph (e) of this section, a tanker may operate with an auto pilot engaged only if all of the following conditions exist:

(1771) (1) The operation and performance of the automatic pilot conforms with the standards recommended by the International Maritime Organization in IMO Resolution A.342(IX).

(1772) (2) A qualified helmsman is present at the helm and prepared at all times to assume manual control.

(1773) (3) The tanker is not operating in any of the following areas:

(1774) (i) The areas of the traffic separation schemes specified in subchapter P of this chapter.

(1775) (ii) The portions of a shipping safety fairway specified in part 166 of this chapter.

(1776) (iii) An anchorage ground specified in part 110 of this chapter.

(1777) (iv) An area within one-half nautical mile of any U.S. shore.

(1778) **§164.15 Navigation bridge visibility.**

(1779) (a) The arrangement of cargo, cargo gear, and trim of all vessels entering or departing from U.S. ports must be such that the field of vision from the navigation bridge conforms as closely as possible to the following requirements:

(1780) (1) From the conning position, the view of the sea surface must not be obscured by more than the lesser of two hip lengths or 500 meters (1,640 feet) from dead ahead to 10 degrees on either side of the vessel. Within this arc of visibility any blind sector caused by cargo, cargo gear, or other permanent obstruction must not exceed 5 degrees.

(1781) (2) From the conning position, the horizontal field of vision must extend over an arc from at least 22.5 degrees abaft the beam on one side of the vessel, through dead ahead, to at least 22.5 degrees abaft the beam on the other side of the vessel. Blind sectors forward of the beam caused by cargo, cargo gear, or other permanent obstruction must not exceed 10 degrees each, nor total more than 20 degrees, including any blind sector within the arc of visibility described in paragraph (a)(1) of this section.

(1782) (3) From each bridge wing, the field of vision must extend over an arc from at least 45 degrees on the opposite bow, through dead ahead, to at least dead astern.

(1783) (4) From the main steering position, the field of vision must extend over an arc from dead ahead to at least 60 degrees on either side of the vessel.

(1784) (b) A clear view must be provided through at least two front windows at all times regardless of weather conditions.

(1785) **§164.19 Requirements for vessels at anchor.**

(1786) The master or person in charge of each vessel that is anchored shall ensure that–

(1787) (a) A proper anchor watch is maintained;

(1788) (b) Procedures are followed to detect a dragging anchor; and

(1789) (c) Whenever weather, tide, or current conditions are likely to cause the vessel's anchor to drag, action is taken to ensure the safety of the vessel, structures, and other vessels, such as being ready to veer chain, let go a second anchor, or get underway using the vessel's own propulsion or tug assistance.

(1790) **§164.25 Tests before entering or getting underway.**

(1791) (a) Except as provided in paragraphs (b) and (c) of this section no person may cause a vessel to enter into or get underway on the navigable waters of the United States unless no more than 12 hours before entering or getting underway, the following equipment has been tested:

(1792) (1) Primary and secondary steering gear. The test procedure includes a visual inspection of the steering gear and its connecting linkage, and, where applicable, the operation of the following:

(1793) (i) Each remote steering gear control system.

(1794) (ii) Each steering position located on the navigating bridge.

(1795) (iii) The main steering gear from the alternative power supply, if installed.

(1796) (iv) Each rudder angle indicator in relation to the actual position of the rudder.

(1797) (v) Each remote steering gear control system power failure alarm.

(1798) (vi) Each remote steering gear power unit failure alarm.

(1799) (vii) The full movement of the rudder to the required capabilities of the steering gear.

(1800) (2) All internal vessel control communications and vessel control alarms.

(1801) (3) Standby or emergency generator, for as long as necessary to show proper functioning, including steady state temperature and pressure readings.

(1802) (4) Storage batteries for emergency lighting and power systems in vessel control and propulsion machinery spaces.

(1803) (5) Main propulsion machinery, ahead and astern.

(1804) (b) Vessels navigating on the Great Lakes and their connecting and tributary waters, having once completed the test requirements of this sub-part, are considered to remain in compliance until arriving at the next port of call on the Great Lakes.

(1805) (c) Vessels entering the Great Lakes from the St. Lawrence Seaway are considered to be in compliance with this sub-part if the required tests are conducted preparatory to or during the passage of the St. Lawrence Seaway or within one hour of passing Wolfe Island.

(1806) (d) No vessel may enter, or be operated on the navigable waters of the United States unless the emergency steering drill described below has been conducted within 48 hours prior to entry and logged in the vessel logbook, unless the drill is conducted and logged on a regular basis at least once every three months. This drill must include at a minimum the following:

(1807) (1) Operation of the main steering gear from within the steering gear compartment.

(1808) (2) Operation of the means of communications between the navigating bridge and the steering compartment.

(1809) (3) Operation of the alternative power supply for the steering gear if the vessel is so equipped.

(1810) **§164.30 Charts, publications, and equipment: General.**

(1811) No person may operate or cause the operation of a vessel unless the vessel has the marine charts, publications, and equipment as required by §§164.33 through 164.41 of this part.

(1812) **§164.33 Charts and publications.**

(1813) (a) Each vessel must have the following:

(1814) (1) Marine charts of the area to be transited, published by the National Ocean Service, U.S. Army Corps of Engineers, or a river authority that -

(1815) (i) Are of a large enough scale and have enough detail to make safe navigation of the area possible; and

(1816) (ii) Are currently corrected.

(1817) (2) For the area to be transited, a currently corrected copy of, or applicable currently corrected extract from, each of the following publications:

(1818) (i) U.S. Coast Pilot.

(1819) (ii) Coast Guard Light List.

(1820) (3) For the area to be transited, the current edition of, or applicable current extract from:

(1821) (i) Tide tables published by the National Ocean Service.

(1822) (ii) Tidal current tables published by the National Ocean Service, or river current publication issued by the U.S. Army Corps of Engineers, or a river authority.

(1823) (b) As an alternative to the requirements for paragraph (a) of this section, a marine chart or publication, or applicable extract, published by a foreign government may be substituted for a U.S. chart and publication required by this section. The chart must be of large enough scale and have enough detail to make safe navigation of the area possible, and must be currently corrected. The publication, or applicable extract, must singly or in combination contain similar information to the U.S. Government publication to make safe navigation of the area possible. The publication, or applicable extract must be currently corrected, with the exceptions of tide and tidal current tables, which must be the current editions.

(1824) (c) As used in this section, "currently corrected" means corrected with changes contained in all Notices to Mariners published by Defense Mapping Agency, or an equivalent foreign government publication, reasonably available to the vessel, and that is applicable to the vessel's transit.

(1825) **§164.35 Equipment: All vessels.**

(1826) Each vessel must have the following:

(1827) (a) A marine radar system for surface navigation.

(1828) (b) An illuminated magnetic steering compass, mounted in a binnacle, that can be read at the vessel's main steering stand.

(1829) (c) A current magnetic compass deviation table or graph or compass comparison record for the steering compass, in the wheelhouse.

(1830) (d) A gyrocompass.

(1831) (e) An illuminated repeater for the gyrocompass required by paragraph (d) of this section that is at the main steering stand, unless that gyrocompass is illuminated and is at the main steering stand.

(1832) (f) An illuminated rudder angle indicator in the wheelhouse.

(1833) (g) The following maneuvering information prominently displayed on a fact sheet in the wheelhouse:

(1834) (1) A turning circle diagram to port and starboard that shows the time and distance and advance and transfer required to alter course 90 degrees with maximum rudder angle and constant power settings, for either full and half speeds, or for full and slow speeds. For vessels whose turning circles are essentially the same for both directions, a diagram showing a turning circle in one direction, with a note on the diagram stating that turns to port and starboard are essentially the same, may be substituted.

(1835) (2) The time and distance to stop the vessel from either full and half speeds, or from full and slow speeds, while maintaining approximately the initial heading with minimum application of rudder.

(1836) (3) For each vessel with a fixed propeller, a table of shaft revolutions per minute for a representative range of speeds.

(1837) (4) For each vessel with a controllable pitch propeller, a table of control settings for a representative range of speeds.

(1838) (5) For each vessel that is fitted with an auxiliary device to assist in maneuvering, such as a bow thruster, a table of vessel speeds at which the auxiliary device is effective in maneuvering the vessel.

(1839) (6) The maneuvering information for the normal load and normal ballast condition for–

(1840) (i) Calm weather-wind 10 knots or less, calm sea;

(1841) (ii) No current;

(1842) (iii) Deep water conditions-water depth twice the vessel's draft or greater; and

(1843) (iv) Clean hull.

(1844) (7) At the bottom of the fact sheet, the following statement:

(1845) **Warning.**

(1846) The response of the (name of the vessel) may be different from that listed above if any of the following conditions, upon which the maneuvering information is based, are varied:

(1847) (1) Calm weather-wind 10 knots or less, calm sea;

(1848) (2) No current;

(1849) (3) Water depth twice the vessel's draft or greater;

(1850) (4) Clean hull; and

(1851) (5) Intermediate drafts or unusual trim.

(1852) (h) An echo depth sounding device.

(1853) (i) A device that can continuously record the depth rea- ings of the vessel's echo depth sounding device, except when o- erating on the Great Lakes and their connecting and tributary w- ters.

(1854) (j) Equipment on the bridge for plotting relative motio

(1855) (k) Simple operating instructions with a block diagra , showing the changeover procedures for remote steering gear co- trol systems and steering gear power units, permanently d- played on the navigating bridge and in the steering gear compa- ment.

(1856) (l) An indicator readable from the centerline conning p- sition showing the rate of revolution of each propeller, exc t when operating on the Great Lakes and their connecting and tr- utary waters.

(1857) (m) If fitted with controllable pitch propellers, an indi- tor readable from the centerline conning position showing e pitch and operational mode of such propellers, except when

operating on the Great Lakes and their connecting and tributary waters.

(1858) (n) If fitted with lateral thrust propellers, an indicator readable from the centerline conning position showing the direction and amount of thrust of such propellers, except when operating on the Great Lakes and their connecting and tributary waters.

(1859) (o) A telephone or other means of communication for relaying headings to the emergency steering station. Also, each vessel of 500 gross tons and over and constructed on or after June 9, 1995 must be provided with arrangements for supplying visual compass-readings to the emergency steering station.

(1860) **§164.37 Equipment: Vessels of 10,000 gross tons or more.**

(1861) (a) Each vessel of 10,000 gross tons or more must have, in addition to the radar system under §164.35(a), a second marine radar system that operates independently of the first.

(1862) **Note.**–Independent operation means two completely separate systems, from separate branch power supply circuits or distribution panels to antennas, so that failure of any component of one system will not render the other system inoperative.

(1863) (b) On each tanker of 10,000 gross tons or more that is subject to Section 5 of the Port and Tanker Safety Act of 1978 (46 U.S.C. 391a), the dual radar system required by this part must have a short range capability and a long range capability; and each radar must have true north features consisting of a display that is stabilized in azimuth.

(1864) **§164.38 Automatic radar plotting aids (ARPA).** (See 33 CFR 164.)

(1865) **§164.39 Steering gear: Foreign tankers.**

(1866) (a) This section applies to each foreign tanker of 10,000 gross tons or more, except a public vessel, that -

(1867) (1) Transfers oil at a port or place subject to the jurisdiction of the United States; or

(1868) (2) Otherwise enters or operates in the navigable waters of the United States, except a vessel described by §164.02 of this part.

(1869) (b) *Definitions*. The terms used in this section are as follows:

(1870) *Constructed* means the same as in Chapter II-1, Regulations 1.1.2 and 1.1.3.1, of SOLAS 74.

(1871) *Existing tanker* means a tanker–

(1872) (1) For which the building contract is placed on or after June 1, 1979;

(1873) (2) In the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after January 1, 1980;

(1874) (3) The delivery of which occurs on or after June 1, 1982;

(1875) (4) That has undergone a major conversion contracted for on or after June 1, 1979; or construction of which was begun on or after January 1, 1980, or completed on or after June 1, 1982.

(1876) *Public vessel, oil, hazardous materials, and foreign vessel* mean the same as in 46 U.S.C. 2101.

(1877) *SOLAS 74* means the International Convention for the Safety of Life at Sea, 1974, as amended.

(1878) *Tanker* means a self-propelled vessel defined as a tanker in 46 U.S.C. 2101(38) or as a tank vessel by 46 U.S.C. 2101(39).

(1879) (c) Each tanker constructed on or after September 1, 1984, must meet the applicable requirements of Chapter II-1, Regulations 29 and 30, of SOLAS 74.

(1880) (d) Each tanker constructed before September 1, 1984, must meet the requirements of Chapter II-1, Regulation 29.19, of SOLAS 74.

(1881) (e) Each tanker of 40,000 gross tons or more, constructed before September 1, 1984, that does not meet the single-failure criterion of Chapter II-1, Regulation 29.16, of SOLAS 74, must meet the requirements of Chapter II-1, Regulation 29.20, of SOLAS 74.

(1882) (f) Each tanker constructed before September 1, 1984, must meet the applicable requirements of Chapter II-1, Regulations 29.14 and 29.15, of SOLAS 74.

(1883) **§164.40 Devices to indicate speed and distance.**

(1884) (a) Each vessel required to be fitted with an Automatic Radar Plotting Aid (ARPA) under §164.38 must be fitted with a device to indicate speed and distance of the vessel either through the water, or over the ground. Vessels constructed prior to September 1, 1984, must have this equipment according to the following schedule:

(1885) (1) Each tank vessel constructed before September 1, 1984, operating on the navigable waters of the United States–

(1886) (i) If of 40,000 gross tons or more, by January 1, 1985;

(1887) (ii) If of 10,000 gross tons or more but less than 40,000 gross tons, by January 1, 1986.

(1888) (2) Each self-propelled vessel constructed before September 1, 1984, that is not a tank vessel, operating on the navigable waters of the United States–

(1889) (i) If of 40,000 gross tons or more, by September 1, 1986;

(1890) (ii) If of 20,000 gross tons or more, but less than 40,000 gross tons, by September 1, 1987;

(1891) (iii) If of 15,000 gross tons or more, but less than 20,000 gross tons, by September 1, 1988.

(1892) (b) The device must meet the following specifications:

(1893) (1) The display must be easily readable on the bridge by day or night.

(1894) (2) Errors in the indicated speed, when the vessel is operating free from shallow water effect, and from the effects of wind, current, and tide, should not exceed 5 percent of the speed of the vessel, or 0.5 knot, whichever is greater.

(1895) (3) Errors in the indicated distance run, when the vessel is operating free from shallow water effect, and from the effects of wind, current, and tide, should not exceed 5 percent of the distance run of the vessel in one hour or 0.5 nautical mile in each hour, whichever is greater.

(1896) **§164.41 Electronic position fixing devices.**

(1897) (a) Each vessel calling at a port in the continental United States, including Alaska south of Cape Prince of Wales, except each vessel owned or bareboat chartered and operated by the United States, or by a state or its political subdivision, or by a foreign nation, and not engaged in commerce, must have one of the following:

(1898) (1) A Type I or II LORAN C receiver as defined in Section 1.2(e), meeting Part 2 (Minimum Performance Standards) of the Radio Technical Commission for Marine Services (RTCM) Paper 12-78/DO-100 dated December 20, 1977, entitled "Minimum Performance Standards (MPS) Marine Loran-C Receiving Equipment." Each receiver installed must be labeled with the information required under paragraph (b) of this section.

(1899) (2) A satellite navigation receiver with:

(1900) (i) Automatic acquisition of satellite signals after initial operator settings have been entered; and

(1901) (ii) Position updates derived from satellite information during each usable satellite pass.

(1902) (3) A system that is found by the Commandant to meet the intent of the statements of availability, coverage, and accuracy for the U.S. Coastal Confluence Zone (CCZ) contained in the U.S. "Federal Radionavigation Plan" (Report No. DOD-NO 4650.4-P, I or No. DOT-TSC-RSPA-80-16, I). A person desiring a finding by the Commandant under this subparagraph must submit a written application describing the device to the Assistant Commandant for Operations, 2100 Second Street, SW, Washington, D.C. 20593-0001. After reviewing the application, the Commandant may request additional information to establish whether or not the device meets the intent of the Federal Radionavigation Plan.

(1903) **Note.**–The Federal Radionavigation Plan is available from the National Technical Information Service, Springfield, Va. 22161, with the following Government Accession Numbers:

(1904) Vol 1, ADA 116468

(1905) Vol 2, ADA 116469

(1906) Vol 3, ADA 116470

(1907) Vol 4, ADA 116471

(1908) (b) Each label required under paragraph (a)(1) of this section must show the following:

(1909) (1) The name and address of the manufacturer.

(1910) (2) The following statement by the manufacturer:

(1911) This receiver was designed and manufactured to meet Part 2 (Minimum Performance Standards) of the RTCM MPS for Marine Loran-C Receiving Equipment.

(1912) **§164.42 Rate of turn indicator.**

(1913) Each vessel of 100,000 gross tons or more constructed on or after September 1, 1984, shall be fitted with a rate of turn indicator.

(1914) **§164.43 Automatic Identification System Shipborne Equipment.**

(1915) (a) Each vessel required to provide automated position reports to a Vessel Traffic Service (VTS) must do so by an installed Automatic Identification System Shipborne Equipment (AISSE) system consisting of a:

(1916) (1) Twelve-channel all-in-view Differential Global Positioning System (dGPS) receiver;

(1917) (2) Marine band Non-Directional Beacon receiver capable of receiving dGPS error correction messages;

(1918) (3) VHF-FM transceiver capable of Digital Selective Calling (DSC) on the designated DSC frequency; and

(1919) (4) Control unit.

(1920) (b) An AISSE must have the following capabilities:

(1921) (1) Use dGPS to sense the position of the vessel and determine the time of the position using Universal Coordinated Time (UTC);

(1922) (2) Fully use the broadcast type 1, 2, 3, 5, 6, 7, 9, and 16 messages, as specified in RTCM Recommended Standards for Differential NAVSTAR GPS Service in determining the required information;

(1923) (3) Achieve a position error which is less than ten meters (32.8 feet) 2 distance root mean square (2 drms) from the true North American Datum of 1983 (NAD 83) in the position information transmitted to a VTS;

(1924) (4) Achieve a course error of less than 0.5 degrees from true course over ground in the course information transmitted to a VTS;

(1925) (5) Achieve a speed error of less than 0.05 knots from true speed over ground in the speed information transmitted to a VTS;

(1926) (6) Receive and comply with commands broadcast from a VTS as DSC messages on the designated DSC frequency;

(1927) (7) Receive and comply with RTCM messages broadcast as minimum shift keying modulated medium frequency signals in the marine radiobeacon band, and supply the messages to the dGPS receiver;

(1928) (8) Transmit the vessel's position, tagged with the UTC position solution, course over ground, speed over ground, and Lloyd's identification number to a VTS;

(1929) (9) Display a visual alarm to indicate to shipboard personnel when a failure to receive or utilize the RTCM messages occurs;

(1930) (10) Display a separate visual alarm which is triggered by a VTS utilizing a DSC message to indicate to shipboard personnel that the U.S. Coast Guard dGPS system cannot provide the required error correction messages; and

(1931) (11) Display two RTCM type 16 messages, one of which must display the position error in the position error broadcast.

(1932) (c) An AISSE is considered non-operational if it fails to meet the requirements of paragraph (b) of this section.

(1933) **Note:** Vessel Traffic Service (VTS) areas and operating procedures are set forth in Part 161 of this chapter.

(1934) **§164.51 Deviations from rules: Emergency.**

(1935) Except for the requirements of §164.53(b), in an emergency, any person may deviate from any rule in this part to the extent necessary to avoid endangering persons, property, or the environment.

(1936) **§164.53 Deviations from rules and reporting: Non-operating equipment.**

(1937) (a) If during a voyage any equipment required by this part stops operating properly, the person directing the movement of the vessel may continue to the next port of call, subject to the directions of the District Commander or the Captain of the Port, as provided by 33 CFR 160.

(1938) (b) If the vessel's radar, radio navigation receivers, gyrocompass, echo depth sounding device, or primary steering gear stops operating properly, the person directing the movement of the vessel must report or cause to be reported that it is not operating properly to the nearest Captain of the Port, District Commander, or, if participating in a Vessel Traffic Service, to the Vessel Traffic Center, as soon as possible.

(1939) **§164.55 Deviations from rules: Continuing operation or period of time.**

(1940) The Captain of the Port, upon written application, may authorize a deviation from any rule in this part if he determines that the deviation does not impair the safe navigation of the vessel under anticipated conditions and will not result in a violation of the rules for preventing collisions at sea. The authorization may be issued for vessels operating in the waters under the jurisdiction of the Captain of the Port for any continuing operation or period of time the Captain of the Port specifies.

(1941) **§164.61 Marine casualty reporting and record retention.**

(1942) When a vessel is involved in a marine casualty as defined in 46 CFR 4.03–1, the master or person in charge of the vessel shall -

(1943) (a) Ensure compliance with 46 CFR 4.05, "Notice of Marine Casualty and Voyage Records," and

(1944) (b) Ensure that the voyage records required by 46 CFR 4.05–15 are retained for -

(1945) (1) 30 days after the casualty if the vessel remains in the navigable waters of the United States; or

(1946) (2) 30 days after the return of the vessel to a United States port if the vessel departs the navigable waters of the United States within 30 days after the marine casualty.

(1947) **§164.70 Definitions.**

(1948) For purposes of §§164.72 through 164.82, the term -

(1949) *Current edition* means the most recent published version of a publication, chart, or map required by §164.72.

(1950) *Currently corrected edition* means a current or previous edition of a publication required by §164.72, corrected with changes that come from Notice to Mariners (NTMs) or Notices to Navigation reasonably available and that apply to the vessel's transit. Hand-annotated river maps from U.S. Army Corps of Engineers (ACOE) are currently corrected editions if issued within the previous 5 years.

(1951) *Great Lakes* means the Great Lakes and their connecting and tributary waters including the Calumet River as far as the Thomas J. O'Brien Lock and Controlling Works (between miles 326 and 327), the Chicago River as far as the east side of the Ashland Avenue Bridge (between miles 321 and 322), and the Saint Lawrence River as far east as the lower exit of Saint Lambert Lock.

(1952) *Swing-meter* means an electronic or electric device that indicates that rate of turn of the vessel on board which it is installed.

(1953) *Towing vessel* means a commercial vessel engaged in or intending to engage in pulling, pushing or hauling alongside, or any combination of pulling, pushing, or hauling alongside.

(1954) *Western Rivers* means the Mississippi River, its tributaries, South Pass, and Southwest Pass, to the navigational-demarcation lines dividing the high seas from harbors, rivers, and other inland waters of the United States, and the Port Allen-Morgan City Alternative Route, and that part of the Atchafalaya River above its junction with the Port Allen-Morgan City Alternative Route including the Old River and the Red River and those waters specified by §§89.25 and 89.27 of this chapter, and such other, similar waters as are designated by the COTP.

(1955) **§164.72 Navigational-safety equipment, charts or maps, and publications required on towing vessels.**

(1956) (a) Except as provided by §164.01(b), each towing vessel must be equipped with the following navigational-safety equipment:

(1957) (1) *Marine Radar.* By August 2, 1997, a marine radar that meets the following applicable requirements:

(1958) (i) For a vessel of less than 300 tons gross tonnage that engages in towing on navigable waters of the U.S., including Western Rivers, the radar must meet–

(1959) (A) The requirements of the Federal Communications Commission (FCC) specified by 47 CFR part 80; and

(1960) (B) RTCM Standard for Marine Radar Equipment Installed on Ships of Less Than 300 Tons Gross Tonnage, RTCM Paper 71-95/SC112-STD, Version 1.1, display Category II and stabilization Category Bravo.

(1961) (ii) For a vessel of less than 300 tons gross tonnage that engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes, the radar must meet–

(1962) (A) The requirements of the FCC specified by 47 CFR part 80; and

(1963) (B) RTCM Standard for Marine Radar Equipment Installed on Ships of Less Than 300 Tons Gross Tonnage, RTCM Paper 71-95/SC112-STD, Version 1.1, display Category I and stabilization Category Alpha.

(1964) (iii) For a vessel of 300 tons gross tonnage or more that engages in towing on navigable waters of the U.S., including Western rivers, the radar must meet–

(1965) (A) The requirements of the Federal Communications Commission (FCC) specified by 47 CFR part 80; and

(1966) (B) RTCM Recommended Standards for Marine Radar Equipment Installed on Ships of 300 Tons Gross Tonnage and Upwards, RTCM Paper 191-93/SC112-X, Version 1.2 except the requirements for azimuth stabilization in paragraph 3.10.

(1967) (iv) For a vessel of 300 tons gross tonnage or more that engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes, the radar must meet–

(1968) (A) The requirements of the FCC specified by 47 CFR Part 80; and

(1969) (B) RTCM Recommended Standards for Marine Radar Equipment Installed on Ships of 300 Tons Gross Tonnage and Upwards, RTCM Paper 191-93/SC112-X, Version 1.2.

(1970) (v) A towing vessel with an existing radar must meet the applicable requirements of paragraphs (a)(1) (i) through (iv) of this section by August 2, 1998; except that a towing vessel with an existing radar must meet the display and stabilization requirements of paragraph (a)(1)(ii)(B) of this section by August 2, 2001.

(1971) (2) *Searchlight.* A searchlight, directable from the vessel's main steering station and capable of illuminating objects at a distance of at least two times the length of the tow.

(1972) (3) *VHF-FM Radio.* An installation or multiple installations of VHF-FM radios as prescribed by part 26 of this chapter and 47 CFR part 80, to maintain a continuous listening watch on the designated calling channel, VHF-FM Channel 13 (except on portions of the Lower Mississippi River, where VHF-FM Channel 67 is the designated calling channel), and to separately monitor the International Distress and Calling Channel, VHF-FM Channel 16, except when transmitting or receiving traffic on other VHF-FM channels or when participating in a Vessel Traffic Service (VTS) or monitoring a channel of a VTS. (Each U.S. towing vessel of 26 feet (about 8 meters) or more in length, except a public vessel, must hold a ship-radio-station license for radio transmitters (including radar and EPIRBs), and each operator must hold a restricted operator's license or higher. To get an application for either license, call (800) 418-FORM or (202) 418-FORM, or write to the FCC; Wireless Bureau, Licensing Division; 1270 Fairfield Road; Gettysburg, PA 17325-7245.)

(1973) (4) *Magnetic Compass.* Either–

(1974) (i) An illuminated swing-meter or an illuminated car-type magnetic steering compass readable from the vessel's main steering station, if the vessel engages in towing exclusively on Western Rivers; or

(1975) (ii) An illuminated card-type magnetic steering compass readable from the vessel's main steering station.

(1976) (5) *Echo Depth-Sounding Device.* By August 2, 2001, an echo depth-sounding device readable from the vessel's main steering station, unless the vessel engages in towing exclusively on Western Rivers.

(1977) (6) *Electronic Position-Fixing Device.* An electronic position-fixing device, either a LORAN-C receiver or a satellite navigational system such as the Global Positioning System (GPS) as required by §164.41, if the vessel engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes.

(1978) (b) Each towing vessel must carry on board and maintain the following:

(1979) (1) *Charts or maps.* Marine charts or maps of the areas to be transited, published by the National Ocean Service (NOS), the ACOE, or a river authority that satisfy the following requirements.

(1980) (i) The charts or maps must be of a large enough scale and have enough detail to make safe navigation of the areas possible.

(1981) (ii) The charts or maps must be either–

(1982) (A) Current editions or currently corrected editions, if the vessel engages in towing exclusively on navigable waters of the U.S., including Western Rivers; or

(1983) (B) Currently corrected editions, if the vessel engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes.

(1984) (iii) The charts or maps may be, instead of charts or maps required by paragraphs (b)(1) (i) and (ii) of this section, currently corrected marine charts or maps, or applicable extracts, published by a foreign government. These charts or maps, or applicable extracts, must contain information similar to that on the charts or maps required by paragraphs (b)(1) (i) and (ii) of the section, be of large enough scale, and have enough detail to make safe navigation of the areas possible, and must be currently corrected.

(1985) (2) *General publications.* A currently corrected edition of, or an applicable currently corrected extract from, each of the following publications for the area to be transited:

(1986) (i) If the vessel is engaged in towing exclusively on Western Rivers–

(1987) (A) U.S. Coast Guard Light List;

(1988) (B) Applicable Notices to Navigation published by the ACOE, or Local Notices to Marines (LNMs) published by the Coast Guard, for the area to be transited, when available; and

(1989) (C) River-current tables published by the ACOE or a river authority, if available.

(1990) (ii) if the vessel is engaged other than in towing exclusively on Western Rivers–

(1991) (A) Coast Guard Light List;

(1992) (B) Notices to Mariners published by the Defense Mapping Agency, or LNMs published by the Coast Guard;

(1993) (C) Tidal-Current tables published by the NOS, or river-current tables published by the ACOE or a river authority:

(1994) (D) Tide tables published by the NOS; and

(1995) (E) U.S. Coast Pilot.

(1996) (c) Table 164.72, following, summarizes the navigational-safety equipment, charts or maps, and publications required for towing vessels of 12 meters or more in length engaged in towing:

(1997) **§164.74 Towline and terminal gear for towing astern.**

(1998) (a) *Towline.* The owner, master, or operator of each vessel towing astern shall ensure that the strength of each towline is adequate for its intended service, considering at least the following factors:

(1999) (1) The size and material of each towline must be–

(2000) (i) Appropriate for the horsepower or bollard pull of the vessel;

(2001) (ii) Appropriate for the static loads and dynamic loads expected during the intended service;

(2002) (iii) Appropriate for the sea conditions expected during the intended service;

(2003) (iv) Appropriate for exposure to the marine environment and to any chemicals used or carried on board the vessel;

(2004) (v) Appropriate for the temperatures of normal stowage and service on board the vessel;

(2005) (vi) Compatible with associated navigational-safety equipment; and

(2006) (vii) Appropriate for the likelihood of mechanical damage.

(2007) (2) Each towline as rigged must be–

(2008) (i) Free of knots;

(2009) (ii) Spliced with a thimble, or have a poured socket at its end; and

(2010) (iii) Free of wire clips except for temporary repair, for which the towline must have a thimble and either five wire clips or as many wire clips as the manufacturer specifies for the nominal diameter and construction of the towline, whichever is more.

(2011) (3) The condition of each towline must be monitored through the–

(2012) (i) Keeping on board the towing vessel or in company files of a record of the towline's initial minimum breaking strength as determined by the manufacturer, by a classification ("class") society authorized in §157.04 of this chapter, or by a tensile test that meets API Specifications 9A, Specification for Wire Rope, Section 3; ASTM D 4268 (incorporated by reference, see §164.03), Standard Test Method for Testing Fiber Ropes; or Cordage Institute CIA 3, Standard Test Methods for Fiber Rope Including Standard Terminations;

(2013) (ii) If the towline is purchased from another owner, master, or operator of a vessel with the intent to use it as a towline or if it is retested for any reason, keeping on board the towing vessel or in company files of a record of each retest of the towline's minimum breaking strength as determined by a class society authorized in §157.04 of this chapter or by a tensile test that meets API Specification 9A, Section 3; ASTM D 4268 (incorporated by reference, see §164.03); or Cordage Institute CIA 3, Standard Test Methods;

(2014) (iii) Conducting visual inspections of the towline in accordance with the manufacturer's recommendations, or at least monthly, and whenever the serviceability of the towline is in doubt (the inspections being conducted by the owner, master or operator, or by a person on whom the owner, master, or operator confers the responsibility to take corrective measures appropriate for the use of the towline);

(2015) (iv) Evaluating the serviceability of the whole towline or any part of the towline, and removing the whole or part from service either as recommended by the manufacturer or a class society authorized in §157.04 of this chapter or in accordance with a replacement schedule developed by the owner, master, or operator that accounts for at least the–

(2016) (A) Nautical miles on, or time in service of, the towline;

(2017) (B) Operating conditions experienced by the towline

(2018) (C) History of loading of the towline;

(2019) (D) Surface condition, including corrosion and discoloration, of the towline;

(2020) (E) Amount of visible damage to the towline;

TABLE 164.72—EQUIPMENT, CHARTS OR MAPS, AND PUBLICATIONS OF TOWING VESSELS FOR 12 METERS OR MORE IN LENGTH

	Western rivers	U.S. navigable waters other than Western rivers	Waters seaward of navigable waters and 3 NM or more from shore on the Great Lakes
Marine Radar: Towing vessels of less than 300 GT.	RTCM Paper 71-95/SC112-STD Version 1.1, Display Category 11[1] Stabilization Category BRAVO.	RTCM Paper 71-95/SC112-STD Version 1.1, Display Category 11[1] Stabilization Category BRAVO.	RTCM Paper 71-95/SC112-STD Version 1.1, Display Category 1[2] Stabilization Category ALPHA.
Towing vessels of 300 GT or more.	RTCM Paper 191-93/SC112-X Version 1.2 (except the Azmuth stabilization requirement in paragraph 3.10).[1]	RTCM Paper 191-93/SC112-X Version 1.2 (except the Azmuth stabilization requirement in paragraph 3.10).[1]	RTCM Paper 191-93/SC112-X Version 1.2.[1]
Searchlight	X	X	X.
VHF-FM radio	X	X	X.
Magnetic compass	X[3]	X	X.
Swing-meter	X[3]		
Echo depth-sounding device.		X	X.
Electronic position-fixing device.			X.
Charts or maps	(1) Large enough scale	(1) Large enough scale	(1) Large enough scale.
	(2) Current edition or currently corrected edition.	(2) Current edition or currently corrected edition.	(2) Currently corrected edition.
General publications.	(1) U.S. Coast Guard Light List	(1) U.S. Coast Guard Light List	(1) U.S. Coast Guard Light List.
	(2) Notices to Navigation or Local Notice to Mariners.	(2) Local Notices to Mariners	(2) Local Notice to Mariners.
	(3) River-current Tables	(3) Tidal-current Tables	(3) Tidal-current Tables.
		(4) Tide Tables	(4) Tide Tables.
		(5) U.S. Coast Pilot	(5) U.S. Coast Pilot.

N: :

1: ıg vessels with existing radar must meet this requirement by August 2, 1998.

2: g vessels with existing radar must meet this requirement by August 2, 1998, but do not need to meet the display and stabilization re-
q: ent until August 2, 2001.

3. ıng vessel may carry either a swing-meter or a magnetic compass.

(F) Amount of material deterioration indicated by mea-
ents of diameter and, if applicable, measurements of lay
ion of the towline; and

(G) Point at which a tensile test proves the minimum
ıg strength of the towline inadequate by the standards of
aph (a)(1) of this section, if necessary; and

(v) Keeping on board the towing vessel or in company
a record of the material condition of the towline when in-
d under paragraphs (a)(3)(iii) and (iv) of this section. Once
ord lapses for three months or more, except when a vessel
up or out of service or has not deployed its towline, the
master, or operator shall retest the towline or remove it
ervice.

(2024) (b) *Terminal gear.* The owner, master, or operator of each vessel towing astern shall ensure that the gear used to control, protect, and connect each towline meets the following criteria:

(2025) (1) The material and size of the terminal gear are appropriate for the strength and anticipated loading of the towline and for the environment;

(2026) (2) Each connection is secured by at least one nut with at least one cotter pin or other means of preventing its failure;

(2027) (3) The lead of the towline is appropriate to prevent sharp bends in the towline from fairlead blocks, chocks, or tackle;

(2028) (4) There is provided a method, whether mechanical or non-mechanical, that does not endanger operating personnel but that easily releases the towline;

(2029) (5) The towline is protected from abrasion or chafing by chafing gear, lagging, or other means;

(2030) (6) Except on board a vessel towing in ice on Western Rivers or one using a towline of synthetic or natural fiber, there is fitted a winch that evenly spools and tightly winds the towline; and

(2031) (7) If a winch is fitted, there is attached to the main drum a brake that has holding power appropriate for the horsepower or bollard pull of the vessel and can be operated without power to the winch.

(2032) **§164.76 Towline and terminal gear for towing alongside and pushing ahead.**

(2033) The owner, master, or operator of each vessel towing alongside or pushing ahead shall ensure the face wires, spring lines, and push gear used–

(2034) (a) Are appropriate for the vessel's horsepower;

(2035) (b) Are appropriate for the arrangement of the tow;

(2036) (c) Are frequently inspected; and

(2037) (d) Remain serviceable.

(2038) **§164.78 Navigation under way: Towing vessels.**

(2039) (a) The owner, master, or operator of each vessel towing shall ensure that each person directing and controlling the movement of the vessel–

(2040) (1) Understands the arrangement of the tow and the effects of maneuvering on the vessel towing and on the vessel, barge, or object being towed;

(2041) (2) Can fix the position of the vessel using installed navigational equipment, aids to navigation, geographic reference-points, and hydrographic contours;

(2042) (3) Does not fix the position of the vessel using buoys alone (Buoys are aids to navigation placed in approximate positions either to alert mariners to hazards to navigation or to indicate the orientation of a channel. They may not maintain exact charted positions, because strong or varying currents, heavy seas, ice and collisions with vessels can move or sink them or set them adrift. Although they may corroborate a position fixed by other means, they cannot fix a position; however, if no other aids are available, buoys alone may establish an estimated position.);

(2043) (4) Evaluates the danger of each closing visual or radar contact;

(2044) (5) Knows and applies the variation and deviation, where a magnetic compass is fitted and where charts or maps have enough detail to enable this type of correction;

(2045) (6) Knows the speed and direction of the current, set, drift, and tidal state for the area to be transited; and

(2046) (7) Proceeds at a speed prudent for the weather, visibility, traffic density, tow draft, possibility of wake damage, speed of the current, and local speed-limits.

(2047) (b) The owner, master, or operator of each vessel towing shall ensure that the tests and inspections required by §164.80 are conducted and that the results are entered in the log or other record carried on board.

(2048) **§164.80 Tests and inspections.**

(2049) (a) The owner, master, or operator of each towing vessel of less than 1,600 GT shall ensure that the following tests and inspections of gear occur before the vessel embarks on a voyage of more than 24 hours or when each new master or operator assumes command:

(2050) (1) *Steering-systems.* A test of the steering-gear-control system; a test of the main steering gear from the alternative power supply, if installed; a verification of the rudder-angle indicator relative to the actual position of the rudder; and a visual inspection of the steering gear and its linkage.

(2051) (2) *Navigational equipment.* A test of all installed navigational equipment.

(2052) (3) *Communications.* Operation of all internal vessel control communications and vessel-control alarms, if installed.

(2053) (4) *Lights.* Operation of all navigational lights and all searchlights.

(2054) (5) *Terminal gear.* Visual inspection of tackle; of connections of bridle and towing pendant, if applicable; of chafing gear; and the winch brake, if installed.

(2055) (6) *Propulsion systems.* Visual inspection of the spaces for main propulsion machinery, of machinery, and of devices for monitoring machinery.

(2056) (b) The owner, master, or operator of each towing vessel of 1,600 GT or more shall ensure that the following tests of equipment occur at the frequency required by §164.25 and that the following inspections of gear occur before the vessel embarks on a voyage of more than 24 hours or when each new master or operator assumes command:

(2057) (1) *Navigational equipment.* Tests of onboard equipment as required by §164.25.

(2058) (2) *Terminal gear.* Visual inspection of tackle; of connections of bridle and towing pendant, if applicable; of chafing gear; and of the winch brake, if installed.

(2059) **§164.82 Maintenance, failure, and reporting.**

(2060) (a) *Maintenance.* The owner, master, or operator or each towing vessel shall maintain operative the navigational-safety equipment required by §164.72.

(2061) (b) *Failure.* If any of the navigational-safety equipment required by §164.72 fails during a voyage, the owner, master, or operator of the towing vessel shall exercise due diligence to repair it at the earliest practicable time. He or she shall enter its failure in the log or other record carried on board. The failure of equipment, in itself, does not constitute a violation of this rule; nor does it constitute unseaworthiness; nor does it obligate an owner, master, or operator to moor or anchor the vessel. However, the owner, master, or operator shall consider the state of the equipment-along with such factors as weather, visibility, traffic, and the dictates of good seamanship-in deciding whether it is safe for the vessel to proceed.

(2062) (c) *Reporting.* The owner, master, or operator of each tow ing vessel whose equipment is inoperative or otherwise impaire while the vessel is operating within a Vessel Traffic Servic (VTS) Area shall report the fact as required by 33 CFR 161.12- (33 CFR 161.124 requires that each user of a VTS report to th Vessel Traffic Center as soon as practicable:

(2063) (1) Any absence or malfunction of vessel-operati equipment for navigational safety, such as propulsion machiner steering gear, radar, gyrocompass, echo depth-sounding or oth sounding device, automatic dependent surveillance equipmer or navigational lighting;

(2064) (2) Any condition on board the vessel likely to imp navigation, such as shortage of personnel or lack of current nau cal charts or maps, or publications; and

(2065) (3) Any characteristics of the vessel that affect or restr the maneuverability of the vessel, such as arrangement of carg trim, loaded condition, under-keel clearance, and speed.)

(2066) (d) *Deviation and authorization.* The owner, master, operator of each towing vessel unable to repair within 96 hou an inoperative marine radar required by §164.72(a) shall so r

tify the Captain of the Port (COTP) and shall seek from the COTP both a deviation from the requirements of this section and an authorization for continued operation in the area to be transited. Failure of redundant navigational-safety equipment, including but not limited to failure of one of two installed radars, where each satisfies §164.72(a), does not necessitate either a deviation or an authorization.

(2067) (1) The initial notice and request for a deviation and an authorization may be spoken, but the request must also be written. The written request must explain why immediate repair is impracticable, and state when and by whom the repair will be made.

(2068) (2) The COTP, upon receiving even a spoken request, may grant a deviation and an authorization from any of the provisions of §§164.70 through 164.82 for a specified time if he or she decides that they would not impair the safe navigation of the vessel under anticipated conditions.

Part 165–Regulated Navigation Areas and Limited Access Areas

Subpart A–General

(2069) **§165.1–Purpose of part.**

(2070) The purpose of this part is to–

(2071) (a) Prescribe procedures for establishing different types of limited or controlled access areas and regulated navigation areas;

(2072) (b) Prescribe general regulations for different types of limited or controlled access areas and regulated navigation areas;

(2073) (c) Prescribe specific requirements for established areas; and

(2074) (d) List specific areas and their boundaries.

(2075) **§165.5 Establishment procedures.**

(2076) (a) A safety zone, security zone, or regulated navigation area may be established on the initiative of any authorized Coast Guard official.

(2077) (b) Any person may request that a safety zone, security zone, or regulated navigation area be established. Except as provided in paragraph (c) of this section, each request must be submitted in writing to either the Captain of the Port or District Commander having jurisdiction over the location as described in 33 CFR 3, and include the following:

(2078) (1) The name of the person submitting the request;

(2079) (2) The location and boundaries of the safety zone, security zone, or regulated navigation area;

(2080) (3) The date, time, and duration that the safety zone, security zone, or regulated navigation area should be established;

(2081) (4) A description of the activities planned for the safety zone, security zone, or regulated navigation area;

(2082) (5) The nature of the restrictions or conditions desired; and

(2083) (6) The reason why the safety zone, security zone, or regulated navigation area is necessary.

(2084) (Requests for safety zones, security zones, and regulated navigation areas are approved by the Office of Management and Budget under control numbers 2115-0076, 2115-0219, and 2115-0087.)

(2085) (c) Safety Zones and Security Zones. If, for good cause, a request for a safety zone or security zone is made less than 5 working days before the zone is to be established, the request may be made orally, but it must be followed by a written request within 24 hours.

(2086) **§165.7 Notification.**

(2087) (a) The establishment of these limited access areas and regulated navigation areas is considered rulemaking. The procedures used to notify persons of the establishment of these areas vary depending upon the circumstances and emergency conditions. Notification may be made by marine broadcasts, local notice to mariners, local news media, distribution in leaflet form, and on-scene oral notice, as well as publication in the Federal Register.

(2088) (b) Notification normally contains the physical boundaries of the area, the reasons for the rule, its estimated duration, and the method of obtaining authorization to enter the area, if applicable, and special navigational rules, if applicable.

(2089) (c) Notification of the termination of the rule is usually made in the same form as the notification of its establishment.

(2090) **§165.8 Geographic coordinates.**

(2091) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

Subpart B–Regulated Navigation Areas

(2092) **§165.10 Regulated navigation area.**

(2093) A regulated navigation area is a water area within a defined boundary for which regulations for vessels navigating within the area have been established under this part.

(2094) **§165.11 Vessel operating requirements (regulations).**

(2095) Each District Commander may control vessel traffic in an area which is determined to have hazardous conditions, by issuing regulations–

(2096) (a) Specifying times of vessel entry, movement, or departure to, from, within, or through ports, harbors, or other waters;

(2097) (b) Establishing vessel size, speed, draft limitations, and operating conditions; and

(2098) (c) Restricting vessel operation, in a hazardous area or under hazardous conditions, to vessels which have particular operating characteristics or capabilities which are considered necessary for safe operation under the circumstances.

(2099) **§165.13 General regulations.**

(2100) (a) The master of a vessel in a regulated navigation area shall operate the vessel in accordance with the regulations contained in Subpart F.

(2101) (b) No person may cause or authorize the operation of a vessel in a regulated navigation area contrary to the regulations in this Part.

Subpart C–Safety Zones

(2102) **§165.20 Safety zones.**

(2103) A Safety Zone is a water area, shore area, or water and shore area to which, for safety or environmental purposes, access is limited to authorized persons, vehicles, or vessels. It may be stationary and described by fixed limits or it may be described as a zone around a vessel in motion.

(2104) **§165.23 General regulations.**

(2105) Unless otherwise provided in this part–

(2106) (a) No person may enter a safety zone unless authorized by the COTP or the District Commander;

(2107) (b) No person may bring or cause to be brought into a safety zone any vehicle, vessel, or object unless authorized by the COTP or the District Commander;

(2108) (c) No person may remain in a safety zone or allow any vehicle, vessel, or object to remain in a safety zone unless authorized by the COTP or the District Commander; and

(2109) (d) Each person in a safety zone who has notice of a lawful order or direction shall obey the order or direction of the COTP or District Commander issued to carry out the purposes of this subpart.

Subpart D–Security Zones

(2110) **§165.30 Security zones.**

(2111) (a) A security zone is an area of land, water, or land and water which is so designated by the Captain of the Port or District Commander for such time as is necessary to prevent damage or injury to any vessel or waterfront facility, to safeguard ports, harbors, territories, or waters of the United States or to secure the observance of the rights and obligations of the United States.

(2112) (b) The purpose of a security zone is to safeguard from destruction, loss, or injury from sabotage or other subversive acts, accidents, or other causes of a similar nature–

(2113) (1) Vessels,

(2114) (2) Harbors,

(2115) (3) Ports and

(2116) (4) Waterfront facilities–in the United States and all territory and water, continental or insular, that is subject to the jurisdiction of the United States.

(2117) **§165.33 General regulations.**

(2118) Unless otherwise provided in the special regulations in Subpart F of this part–

(2119) (a) No person or vessel may enter or remain in a security zone without the permission of the Captain of the Port;

(2120) (b) Each person and vessel in a security zone shall obey any direction or order of the Captain of the Port;

(2121) (c) The Captain of the Port may take possession and control of any vessel in the security zone;

(2122) (d) The Captain of the Port may remove any person, vessel, article, or thing from a security zone;

(2123) (e) No person may board, or take or place any article or thing on board, any vessel in a security zone without the permission of the Captain of the Port; and

(2124) (f) No person may take or place any article or thing upon any waterfront facility in a security zone without the permission of the Captain of the Port.

Subpart E–Restricted Waterfront Area

(2125) **§165.40 Restricted Waterfront Areas.**

(2126) The Commandant, may direct the COTP to prevent access to waterfront facilities, and port and harbor areas, including vessels and harbor craft therein. This section may apply to persons who do not possess the credentials outlined in 33 CFR 125.09 when certain shipping activities are conducted that are outlined in 33 CFR 125.15.

(2127) **§165.514 Safety Zone: Atlantic Intracoastal Waterway and Connecting Waters, Vicinity of Marine Corps Base Camp Lejeune, North Carolina.**

(2128) (a) *Location.* The following area is a safety zone: All waters of the Atlantic Intracoastal Waterway (AICW) and connecting waters, from Bogue Sound–New River Light 58 (LLNR 39210) at approximate position 34°37'57"N., 77°12'18"W., and continuing in the AICW southwest to Bogue Sound–New River Daybeacon 70 (LLNR 39290) at approximate position 34°33'07"N., 77°20'30"W. All coordinates reference Datum: NAD 1983.

(2129) (b) Notwithstanding the provisions of 33 CFR 334.440(e)(2)(i), no vessel may enter the safety zone described in Paragraph (a) of this section while weapons firing exercises are in progress, except as provided in Paragraph (c) of this section or unless permitted by the Captain of the Port (COTP) Wilmington.

(2130) (1) Red warning flags or red warning lights will be displayed on towers located at both end of the safety zone (Bear Creek and Cedar Point) while firing exercises are in progress. The flags or lights will be displayed by 8 a.m. on days where firing exercises are scheduled, and will be removed at the end of the firing exercise.

(2131) (2) A Coast Guard or U.S. Navy vessel will patrol each end of the safety zone to ensure the public is aware that firing exercises are in progress and that the firing area is clear of vessel traffic before weapons are fired.

(2132) (c)(1) The COTP Wilmington will announce the specific times and locations of firing exercises by Broadcast Notice to Mariners and Local Notice to Mariners. Normally, weapons firing for each firing exercise is limited to a 2-nautical-mile portion of the safety zone. The COTP may issue general permission to transit all or specified parts of the safety zone outside of the actual firing area or if firing is temporarily stopped. This general permission will be announced in a Local Notice to Mariners and Broadcast Notice to Mariners.

(2133) (2) Weapons firing will be suspended and vessels permitted to transit the specified 2-nautical-mile firing area for a 1-hour period beginning at the start of each odd-numbered hour local time (e.g., 9 a.m.; 1 p.m.). A vessel may not enter the specified firing area unless it will be able to complete its transit of the firing area before firing exercises are scheduled to re-start at the beginning of the next even-numbered hour.

(2134) (d) U.S. Navy safety vessels may be contacted on VHF marine band radio channels 13 (156.65 MHz) and 16 (156.8 MHz). The Captain of the Port may be contacted at the Marine Safety Office, Wilmington, NC by telephone at 1-(800) 325-4956 or (910) 815-4895.

(2135) **§165.515 Safety Zone: Cape Fear River, Wilmington, North Carolina.**

(2136) (a) Location. The following area is a safety zone:

(2137) (1) The waters of the Cape Fear River bounded by a line connecting the following points:

(2138) 34°14'12"N., 77°57'10"W.

(2139) 34°14'12"N., 77°57'06"W.

(2140) 34°13'54"N., 77°57'00"W.

(2141) 34°13'54"N., 77°57'06"W.

(2142) (2) The safety zone boundary can be described as follows: starting at the stern of the Battleship USS NORTH CAROLINA, across the Cape Fear River to the north end of the Coast Guard moorings, down along the east bank of the Cape Fear River to the bow of the tug CAPTAIN JOHN TAXIS Memorial (Chandler's Wharf), back across the Cape Fear River to Eagle Island, and then up along the west bank of the Cape Fear River to the stern of the Battleship USS NORTH CAROLINA.

(2143) (b) Definitions. The designated representative of the Captain of the Port is any Coast Guard commissioned, warrant or petty officer who has been authorized by the Captain of the Port, Wilmington, North Carolina to act on his behalf.

(2144) (c) General information. The Captain of the Port and the Duty Officer at the Marine Safety Office, Wilmington, North Carolina, can be contacted at telephone number (910) 343-4895. The Coast Guard Patrol Commander and the senior boarding officer on each vessel enforcing the safety zone can be contacted on VHF-FM channels 16 and 81.

(2145) (d) Regulation. Except for persons or vessels authorized by the Coast Guard Patrol Commander, no person or vessel may enter or remain in the regulated area.

(2146) (1) The operator of any vessel in the immediate vicinity of this safety zone shall:

(2147) (i) Stop the vessel immediately upon being directed to do so by any commissioned, warrant, or petty officer on board a vessel displaying a Coast Guard Ensign.

(2148) (ii) Proceed as directed by any commissioned, warrant, or petty officer on board a vessel displaying a Coast Guard Ensign.

(2149) (2) Any spectator vessel may anchor outside of the regulated area specified in paragraph (a) of the section, but may not block a navigable channel.

(2150) (e) Effective date. The Captain of the Port will issue a Marine Safety Information Broadcast and a Notice to Mariners to notify the public when this section is in effect.

Subpart F–Specific Regulated Navigation Areas and Limited Access Areas

(2151) **§165.701 Vicinity, Kennedy Space Center, Merritt Island, Florida-security zone.**

(2152) (a) The water, land, and land and water within the following boundaries are a security zone-The perimeter of the Cape Canaveral Barge Canal and the Banana River at 28°24'33"N., 80°39'48"W.; then due west along the northern shoreline of the barge canal for 1,300 yards; then due north to 28°28'42"N., 80°40'30"W., on Merritt Island. From this position, the line proceeds irregularly to the eastern shoreline of the Indian River to a position 1,300 yards south of the NASA Causeway at 28°30'54"N., 80°43'42"W. (the line from the barge canal to the eastern shoreline of the Indian River is marked by a three-strand barbed-wire fence); then north along the shoreline of the Indian River to the NASA Causeway at 28°31'30"N., 80°43'48"W. The line continues west on the southern shoreline of the NASA Causeway to NASA Gate 3 (permanent), then north to the northern shoreline of the NASA Causeway and east on the northern shoreline of the causeway back to the shoreline on Merritt Island position 28°31'36"N., 80°43'42"W.; then northwest along the shoreline to 28°41'01.2"N., 80°47'10.2"W. (Blackpoint); then north to channel marker #6 on the Intracoastal Waterway (ICW), then northeast along the southern edge of the ICW to the eastern entrance to the Haulover Canal. From this point, the line continues northeast along the southern edge of the Haulover Canal to the eastern entrance to the canal; then due east to a point in the Atlantic Ocean 3 miles offshore at 28°44'42"N., 80°47'51"W.; then south along a line 3 miles from the coast to Buoy "WR6", then to Port Canaveral Channel Lighted Buoy 10, then west along the northern edge of the Port Canaveral Channel to the northeast corner of the intersection of the Cape Canaveral Barge Canal and the ICW in the Banana River at 28°24'36"N., 80°38'42"W. The line continues north along the eastern side of the Intracoastal Waterway to daymarker "35" thence north Westerly one quarter of a mile south of NASA Causeway (Orsino Causeway) to the shoreline on Merritt Island at position 28°30.95'N., 80°37.6'W., then south along the shoreline to the starting point.

(2153) (b) The area described in paragraph (a) of this section is closed to all vessels and persons, except those vessels and persons authorized by the Commander, Seventh Coast Guard District, or the COTP Jacksonville, Florida, whenever space vehicles are to be launched by the United States Government from Cape Canaveral.

(2154) (c) COTP Jacksonville, Florida, closes the security zone, or specific portions of it, by means of locally promulgated notices. The closing of the area is signified by the display of a red ball from a 90-foot pole near the shoreline at approximately 28°35'00"N., 80°34'36"W., and from a 90-foot pole near the shoreline at approximately 28°25'18"N., 80°35'00"W. Appropriate Local Notices to Mariners will also be broadcast on 2670 kHz.

(2155) **§165.705 Port Canaveral Harbor, Cape Canaveral, Florida.**

(2156) (a) Security Zone A-East (TRIDENT) Basin, Port Canaveral Harbor, at Cape Canaveral Air Force Station, Brevard County, Florida. All waters of the East Basin north of latitude 28°24'36"N.

(2157) (b) Security Zone B-Middle Basin, Port Canaveral Harbor, adjacent to the Navy wharf at Cape Canaveral Air Force Station, Brevard County, Florida. The waters of Port Canaveral Harbor within a line circumscribing the water approaches to the Navy wharf along the northeasterly edge of the Port Canaveral Harbor turning basin at a distance of 200 feet from all portions of the wharf including the dolphins located 200 feet off the northwest end and 75 feet of the southeast end of the wharf.

(2158) (c) Entrance into these zones by vessels other than vessels owned or leased by the United States is prohibited without permission of the Captain of the Port, Jacksonville, Florida.

(2159) (d) The general regulations governing security zones contained in 33 CFR 165.33 apply.

(2160) **§165.708 Safety/Security Zone; Charleston Harbor and Cooper River, Charleston, SC.**

(2161) (a) *Regulated area.* The following boundaries are established as a safety and security zone during specified conditions:

(2162) (1) All waters 200 yards ahead and astern and 100 yards to each side of a vessel transporting nuclear materials while the vessel transits from Charleston Harbor Entrance Buoy "C" (LLNR 1885, position 32-39.6N, 079-40.9W) to the Charleston Naval Weapons Station (position 32-55.4N, 079-56.0W) on the Cooper River. All coordinates referenced use datum: NAD 1983.

(2163) (2) All waters within 100 yards of the vessel described in paragraph (a)(1) of this section while the vessel is conducting cargo operations at the Charleston Naval Weapons Station.

(2164) (b) Captain of the Port Charleston will announce the activation of the safety/security zones described in paragraph (a) of this section by Broadcast Notice to Mariners. The general regulations governing safety and security zones contained in §§165.23 and 165.33 apply.

(2165) **§165.714 Regulated Navigation Area: Atlantic Ocean, Charleston, SC.**

(2166) (a) *Location.* The following area is a Regulated Navigation Area: A trapezoid at the water surface, and the entire water column from surface to seabed inclusive of the vessel, bounded by the following four coordinates:

(2167) (NAD 83)

(2168) (b) *Regulations.* In accordance with the general regulations in §165.23 of this part, all vessels and persons are prohibited from anchoring, diving, laying cable or conducting salvage operations in this zone except as authorized by the Captain of the Port.

(2169) **§165.720 Safety/Security Zone: St. Johns River, Jacksonville, FL.**

(2170) (a) Location. The water and the land within the following boundaries are established as a safety and security zone during specified conditions:

(2171) (1) All waters within 200 yards of Blount Island, Jacksonville, Florida and all adjacent land within 100 yards of the island shoreline during staging of Department of Defense equipment and during the loading/unloading of military supply vessels.

(2172) (2) All waters within 200 yards of "any" waterfront facility at which a laden military vessel is located and all land at the facility, including docks and piers, within 100 yards of the St. Johns River.

(2173) (3) All waters within 200 yards of any specified military supply vessel during its transit of the St. Johns River and out to three (3) nautical miles offshore.

(2174) (b) Regulations. (1) For public notice, the zone described in paragraph (a)(1) of this section is effective beginning 11 December 1990 and will remain in force until cancelled by the Captain of the Port Jacksonville, Florida.

(2175) (2) The COTP Jacksonville may activate, as necessary, any portion of the safety/security zone described in paragraphs (a)(2) and (a)(3) of this section by means of locally promulgated broadcast notice to mariners. Once implemented, neither overtaking nor meeting situations will be allowed during specified vessel transits.

(2176) (3) In accordance with the general regulations governing safety and security zones contained in 33 CFR 165.23 and 165.33 of this part, entry into any portion of the described zone is prohibited unless authorized by the Captain of the Port Jacksonville, Florida.

(2177) (4) This regulation does not apply to authorized law enforcement agencies operating within the safety/security zone.

(2178) **§165.722 Security Zone St. Johns River, Jacksonsville, Florida.**

(2179) (a) Location. The water located within the following area is established as a security zone: beginning at the shoreline of the St. Johns River at the northernmost property line of Naval Air Station Jacksonville next to Timuquana Country Club, at

(2180) 30°14'39.5"N., 81°40'45"W.; thence northeasterly to

(2181) 30°14'42"N., 81°40'42"W.; thence south remaining 400 feet from the shoreline at mean high water; thence past Piney Point and Black Point to the northern edge of Mulberry Cover Manatee refuge, 400 feet from Naval Air Station Jacksonville boat ramp, at

(2182) 30°13'00"N., 81°40'23.5"W.; thence southwesterly in a straight line to position

(2183) 30°12'14"N., 81°40'42"W.; thence southerly, remaining 400' seaward of the mean high water shoreline to

(2184) 30°11'40"N., 81°41'15.5"W.; thence northwest to the point at the end of the property line of Naval Air Station Jacksonville just north of the Buckman Bridge at position

(2185) 30°11'42.30"N., 81°41'23.66"W.; thence northeasterly along the mean high water shoreline of the St. Johns River and Mulberry Cove to the point of beginning. Datum: NAD 83

(2186) (b) In accordance with the general regulations in §165.33 of this part, no person or vessel may enter or remain in the zone without the permission of the Captain of the Port Jacksonville, Florida. All other portions of §165.33 remain applicable.

(2187) (c) This regulation does not apply to Coast Guard vessels and authorized law enforcement vessels operating within the Security Zone.

(2188) **§165.726 Regulated Navigation Areas; Miami River, Miami, Florida.**

(2189) (a) *Location.* The following are Regulated Navigation Areas:

(2190) (1) All the waters of the Miami River, Miami, Florida, from the Brickell Avenue Bridge, in approximate position 25°46.19'N., 80°11.4'W., inland to the South Florida Water Management District's salinity dam in approximate position 25°48.4'N., 80°15.6'W.

(2191) (2) The Tamiami Canal from its intersection with the Miami River in approximate position 25°47.7'N., 80°14.7'W. to the N.W. 37th Avenue bridge in approximate position 25°48.5'N., 80°15.5'W. All coordinates referenced use datum: NAD 83.

(2192) (b) *Regulations.* The restrictions in this paragraph apply to vessels operating within the regulated navigation areas in paragraph (a) of this section unless authorized to deviate by the Captain of the Port, Miami, Florida, or a Coast Guard commissioned, warrant, or petty officer designated by him.

(2193) (1) All rafted vessels (inboard and outboard) must be properly moored in accordance with applicable municipal laws and regulations.

(2194) (2) At no time shall any vessels be rafted more than two abreast.

(2195) (3) Neither single nor rafted vessels shall extend greater than 54 feet into the main river (measured from the dock) without permission of the Captain of the Port.

(2196) (4) A minimum channel width of 65 feet shall be maintained at all times on the Miami River from the Brickell Avenue Bridge west to the Tamiami Canal. A minimum channel width of 45 feet shall be maintained at all times on the Miami River west of the junction of the Miami River and the Tamiami Canal to the South Florida Water Management District's salinity dam, as well as on the Tamiami Canal from its mouth to the N.W. 37th Avenue Bridge.

(2197) (5) All moored and rafted vessels shall provide safe access from the shore.

(2198) (6) All moored and rafted vessels shall provide clear and ready access for land-based firefighters to safely and quickly reach outboard rafted vessels.

(2199) (7) No vessels shall moor or raft in any manner as to impede safe passage of another vessel to any of the tributaries of the Miami River.

(2200) (8) Nothing in these regulations shall prohibit the U. S. Army Corps of Engineers from requiring the relocation or movement of vessels in a declared flood emergency.

(2201) (c) *Enforcement.* Violations of these regulated navigation areas should be reported to the Captain of the Port, Miami. Persons in violation of these regulations will be subject to civil penalty under §165.13(b) of this part.

(2202) **§165.728 Jacksonville, Florida–Safety Zones.**

(2203) (a) The water, land, and land and water within the following boundaries are established as Safety Zones during the specified conditions:

(2204) (1) Zone A: 200 yards in all directions around any specified Maritime Prepositioned Ship as it transits between the St. Johns River entrance sea buoy (STJ) and its berth inside the Mayport Basin (Ribault Bay), Mayport, Florida. The prescribed safety zone will also be in effect as the vessel transits to its berth at Blount Island Marine Terminal, Jacksonville, Florida.

(2205) (2) Zone B: 100 yards in all directions on land and 200 yards on water from the eastern end of Transit Shed #2 to the east shore of Alligator Creek at Blount Island Terminal, Jacksonville, Florida.

(2206) (3) Zone C: 100 yards in all directions on land from Gate berth #1 and all waters within the Back River (locally known as the Gate Slip) on Blount Island, Jacksonville, Florida, commencing from a line drawn between the southwesterly most shore point 30°23'34"N., 81°30'52"W. and the southeasterly most shore point 30°23'38"N., 81°30'36"W.

(2207) (b) The areas described in paragraph (a) of this section may be closed to all vessels and persons, except those vessels and persons authorized by the Commander, Seventh Coast Guard District or the Captain of the Port, Jacksonville, Florida, whenever specified Maritime Prepositioned Ships are transiting the St. Johns River (Zone A), moored at Blount Island (Zone B), or moored at Gate Terminal (Zone C).

(2208) (c) The general regulations governing safety zones contained in 33 CFR 165.23 apply.

(2209) (d) The Captain of the Port Jacksonville, Florida will activate the safety zones or specific portions of them by issuing a local broadcast notice to mariners. The closing of the area at Blount Island, described above, will be signified by the display of a rotating yellow light located on the waterfront at Blount Island Marine Terminal or at the Gate Terminal Berth #1.

(2210) **§165.729 Jacksonville Harbor, Florida-Security Zone.**

(2211) (a) The water, land, and land and water within the following boundaries are established as Security Zones during the specified conditions:

(2212) (1) Zone A: 200 yards in all directions around any specified Maritime Prepositioned Ship as it transits between the St. Johns River entrance sea buoy (STJ) and its berth inside the Mayport Naval Basin (Ribault Bay), Mayport, Florida. The prescribed security zone will also be in effect as the vessel transits to its berth at Blount Island Marine Terminal, Jacksonville, Florida.

(2) Zone B: 100 yards in all directions on land and 200 yards on water from the eastern end of Transit Shed #2 to the east shore of Alligator Creek at Blount Island Terminal, Jacksonville, Florida.

(3) Zone C: 100 yards in all directions on land from Gate berth #1 and all waters within the Back River (locally known as the Gate Slip) on Blount Island, Jacksonville, Florida, commencing from a line drawn between the southwesterly most shore point 30°23'34"N., 81°30'52"W. and the southeasterly most shore point 30°23'38"N., 81°30'36"W.

(b) The areas described in paragraph (a) of this section may be closed to all vessels and persons, except those vessels and persons authorized by the Commander, Seventh Coast Guard District or the Captain of the Port, Jacksonville, Florida, whenever specified Maritime Prepositioned Ships are transiting the St. Johns River (Zone A), moored at Blount Island (Zone B), or moored at Gate Terminal (Zone C).

(c) The general regulations governing safety zones contained in 33 CFR 165.23 apply.

(2217) (d) The Captain of the Port Jacksonville, Florida will activate the safety zones or specific portions of them by issuing a local broadcast notice to mariners. The closing of the area at Blount Island, described above, will be signified by the display of a rotating yellow light located on the waterfront at Blount Island Marine Terminal or at the Gate Terminal Berth #1.

(2218) **§165.730 Kings Bay, GA-Regulated navigation area.**

(2219) Vessels transiting in the water bounded by the line connecting the following points must travel no faster than needed for steerageway:

(2220) 30°48'00.0"N., 081°29'24.0"W.

(2221) 30°46'19.5"N., 081°29'17.0"W.

(2222) 30°47'35.0"N., 081°30'16.5"W. and thence to the point of beginning.

(2223) **§165.731 Safety/Security Zone; Cumberland Sound, Georgia and St. Marys River Entrance Channel.**

(2224) (a) Location. A permanent safety/security zone is established within the following coordinates, the area enclosed by a line starting at

(2225) 30°44'55"N., 81°29'39"W.; thence to

(2226) 30°44'55"N., 81°29'18"W.; thence to

(2227) 30°46'35"N., 81°29'18"W.; thence to

(2228) 30°47'02"N., 81°29'34"W.; thence to

(2229) 30°47'21"N., 81°29'39"W.; thence to

(2230) 30°48'00"N., 81°29'42"W.; thence to

(2231) 30°49'07"N., 81°29'56"W.; thence to

(2232) 30°49'55"N., 81°30'35"W.; thence to

(2233) 30°50'15"N., 81°31'08"W.; thence to

(2234) 30°50'14"N., 81°31'30"W.; thence to

(2235) 30°49'58"N., 81°31'45"W.; thence to

(2236) 30°49'58"N., 81°32'03"W.; thence to

(2237) 30°50'12"N., 81°32'17"W.; thence following the land based perimeter boundary to the point of origin.

(2238) (b) A temporary safety/security zone, when activated by the Captain of the Port, Jacksonville, Florida, encompasses all waters and land from bank to bank within Cumberland Sound and the St. Marys Entrance Channel: the northern extent of this zone starts at the southern tip of Crab Island; lighted buoy number "1" at the mouth of the Amelia River demarks the southern boundary; daymarker number "2" at the mouth of the St. Marys River indicates the western boundary; and the eastern boundary extends out to three (3) nautical miles in the Atlantic Ocean, with the zone also encompassing the waters within 1,000 yards of the entrance channel east of the jetties.

(2239) (c) Regulations. (1) The Captain of the Port, Jacksonville, Florida will activate the temporary safety/security zone described in paragraph (b) of this section by issuing a local broadcast notice to mariners.

(2240) (2) All persons and vessels in the vicinity of the safety/security zone shall immediately obey any direction or order of the Captain of the Port, Jacksonville, Florida.

(2241) (3) The general regulations governing safety and security zones contained in 33 CFR 165.23 and .33 apply. No person or vessel may enter or remain within the designed zones without the permission of the Captain of the Port, Jacksonville, Florida.

(2242) (4) This regulation does not apply to persons or vessels operating under the authority of the United States Navy nor to authorized law enforcement agencies.

(2243) **§165.735 Brunswick, Georgia, Turtle River, Vicinity of Sydney Lanier Bridge.**

(2244) Except during the flood tide, every vessel over 500 GRT departing the Port of Brunswick for sea shall do so only from the Turtle River, so as to be shaped up for bridge transit:

(2245) (a) Before reaching Turtle River Buoy "1" (Light List Number 6050); or,

(2246) (b) Before reaching the intersection of Brunswick Harbor Range and Turtle River Lower Range, provided that the vessel:

(2247) (1) Be equipped with an operable bow thruster or have tug assistance; and

(2248) (2) Be stopped and maneuvered with no appreciable way on until aligned with the centerline axis of the Turtle River Channel.

Part 169—Ship Reporting Systems

Subpart A–General

(2249) **§169.1 What is the purpose of this subpart?**

(2250) This subpart prescribes the requirements for mandatory ship reporting systems. Ship reporting systems are used to provide, gather, or exchange information through radio reports. The information is used to provide data for many purposes including, but not limited to: navigation safety, environmental protection, vessel traffic services, search and rescue, weather forecasting and prevention of marine pollution.

(2251) **§169.5 What terms are defined?**

(2252) (a) *Mandatory ship reporting system* means a ship reporting system that requires the participation of specified vessels or classes of vessels, and that is established by a Government or Governments after adoption of a proposed system by the International Maritime Organization (IMO) as complying with all requirements of regulation V/8-1 of the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS), except paragraph (e) thereof.

(2253) (b) *Shore-based authority* means the government appointed office or offices that will receive the reports made by ships entering each of the mandatory ship reporting systems. The office or offices will be responsible for the management and coordination of the system, interaction with participating ships, and the safe and effective operation of the system. Such an authority may or may not be an authority in charge of a vessel traffic service.

(2254) **§169.10 What geographic coordinates are used?**

(2255) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts where the referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

Subpart B–Establishment of Two Mandatory Ship Reporting Systems for the Protection of Northern Right Whales

(2256) **§169.100 What mandatory ship reporting systems are established by this subpart?**

(2257) This subpart prescribes requirements for the establishment and maintenance of two mandatory ship reporting systems for the protection of the endangered northern right whale (also known as the North Atlantic right whale). These two systems are designated for certain areas of the East Coast of the United States. One system is located in the northeast and is identified as WHALESNORTH. The other system is located in the southeast and is identified as WHALESSOUTH.

(2258) **Note:** 50 CFR 224.103 contains requirements and procedures concerning northern right whale approach limitations and avoidance procedures.

(2259) **§169.102 Who is the shore-based authority?**

(2260) The U.S. Coast Guard is the shore-based authority for these mandatory ship reporting systems.

(2261) **§169.105 Where is the northeastern reporting system located?**

(2262) Geographical boundaries of the northeastern area include the waters of Cape Cod Bay, Massachusetts Bay, and the Great South Channel east and southeast of Massachusetts. The coordinates (NAD 83) of the area are as follows: from a point on Cape Ann, Massachusetts at 42°39'N, 70°37'W; then northeast to 42°45'N, 70°13'W; then southeast to 42°10'N, 68°31'W; then south to 41°00'N, 68°31'W; then west to 41°00'N, 69°17'W; then northwest to 42°05'N, 70°02'W, then west to 42°04'N, 70°10'W; and then along the Massachusetts shoreline of Cape Cod Bay and Massachusetts Bay back to the point on Cape Ann at 42°39'N, 70°37'W.

(2263) **§169.110 When is the northeastern reporting system in effect?**

(2264) The mandatory ship reporting system in the northeastern United States operates year-round.

(2265) **§169.115 Where is the southeastern reporting system located?**

(2266) Geographical boundaries of the southeastern area include coastal waters within about 25 nautical miles (45 kilometers) along a 90-nautical mile (170-kilometer) stretch of the Atlantic seaboard in Florida and Georgia. The area coordinates (NAD 83) extends from the shoreline east to longitude 80°51.6'W with the southern and northern boundaries at latitude 30°00'N and 31°27'N., respectively.

(2267) **§169.120 When is the southeastern reporting system in effect?**

(2268) The mandatory ship reporting system in the southeastern United States operates during the period beginning on 15 November and ends on 16 April of each year.

(2269) **§169.125 What classes of ships are required to make reports?**

(2270) Each ship of 300 gross tons or greater must participat in the reporting systems, except government ships exempted fr m reporting by regulation V/8-1(c) of SOLAS. However, exe pt ships are encouraged to participate in the reporting systems.

(2271) **§169.130 When are ships required to make report**

(2272) Participating ships must report to the shore-based aut or-ity upon entering the area covered by a reporting system. A di-tional reports are not necessary for movements made wit a system or for ships exiting a system.

(2273) **§169.135 How must the reports be made?**

(2274) (a) A ship equipped with INMARSAT C must rep in IMO standard format as provided in Table 169.140 in §169.1).

(2275) (b) A ship not equipped with INMARSAT C must r ort to the Coast Guard using other means, listed below in ord of precedence–

(2276) (1) Narrow band direct printing (SITOR).

(2277) (2) HF voice communication, or

(2278) (3) MF or VHF voice communications.

(2279) (c) SITOR or HF reports made directly to the Coast Guard's Communications Area Master Station Atlantic (CAMSLANT) in Chesapeake, VA, or MF or VHF reports made to Coast Guard activities or groups, should only be made by ships not equipped with INMARSAT C. Ships in this category must provide all the required information to the Coast Guard watchstander.

(2280) **§169.140 What information must be included in the report?**

(2281) Each ship report made to the shore-based authority must follow the standard reporting and format requirements listed in table 169.140.

(2284) (2) Locks. All Government owned or operated locks and hurricane gate chambers and appurtenant structures in any of the waterways described in paragraph (a) (1) of this section.

(2285) (3) United States property. All river and harbor lands owned by the United States in or along the waterways described in paragraph (a) (1) of this section, including lock sites and all structures thereon, other sites for Government structures and for the accommodation and use of employees of the United States, and rights of way and spoil disposal areas to the extent of Federal interest therein.

(2286) (4) Vessels and rafts. The term "vessels" as used in this section includes all floating things moved over these waterways other than rafts.

Table 169.140 Requirements for ship reports

Telegraphy	Function	Information required
Name of system	System identifier	Ship reporting system WHALESNORTH or WHALES SOUTH
M	INMARSAT number	Vessel INMARSAT number
A	Ship	The name, call sign or ship station identity, IMO number, and flag of the vessel.
B	Date and time of event	A 6-digit group giving day of month (first two digits), hours and minutes (last four digits).
E	True course	A 3-digit group.
F	Speed in knots and tenths of knots	A 3-digit group.
H	Date, time and point of entry into system	Entry time expressed as in (B) and entry position expressed as– (1) A 4-digit group giving latitude in degrees and minutes suffixed with N (north) or S (south) and a 5-digit group giving longitude in degrees and minutes suffixed with E (east) or W (west); or (2) True bearing (first 3 digits) and distance (state distance) in nautical miles from a clearly identified landmark (state landmark).
I	Destination and expected time of arrival	Name of port and date group expressed as in (B).
L	Route information	Intended track.

P 07–Navigation Regulations

§207.160 All waterways tributary to the Atlantic south of Chesapeake Bay and all waterways tributary Gulf of Mexico east and south of St. Marks, Fla.; use, stration, and navigation. (a) Description. This section to the following:

1) Waterways. All navigable waters of the United States, or artificial, including bays, lakes, sounds, rivers, creeks, stal waterways, as well as canals and channels of all which are tributary to or connected by other waterways e Atlantic Ocean south of Chesapeake Bay or with the Mexico east and south of St. Marks, Florida.

(2287) (b) Authority of District Engineers. The use, administration, and navigation of these waterways, Federal locks and hurricane gate chambers shall be under the direction of the officers of the Corps of Engineers, United States Army, detailed in charge of the respective sections, and their authorized assistants. The cities in which the U.S. District Engineers are located are as follows:

(2288) U.S. District Engineer, Norfolk, Virginia.

(2289) U.S. District Engineer, Wilmington, North Carolina.

(2290) U.S. District Engineer, Charleston, South Carolina.

(2291) U.S. District Engineer, Savannah, Georgia.

(2292) U.S. District Engineer, Jacksonville, Florida.

(2293) (c)[Reserved].

(2294) (d) Bridges. (For regulations governing the operation of bridges, see 33 CFR 117.1, 117.240, and 117.245.)

(2295) (e) Locks-(1) Authority of Lockmasters

(2296) (i) Locks Staffed with Government Personnel. The provisions of this subparagraph apply to all waterways in this Section except for the segment of the Atlantic Intracoastal Waterway identified in (e)(1)(ii). The lockmaster shall be charged with the immediate control and management of the lock, and of the area set aside as the lock area, including the lock approach channels. He/she shall see that all laws, rules and regulations for the use of the lock and lock area are duly complied with, to which end he/she is authorized to give all necessary orders and directions in accordance therewith, both to employees of the Government and to any and every person within the limits of the lock and lock area, whether navigating the lock or not. No one shall cause any movement of any vessel, boat, or other floating thing in the lock or approaches except by or under the direction of the lockmaster or his/her assistants.

(2297) (ii) Locks Staffed with Contract Personnel. The provisions of this subparagraph apply to the segment of the Atlantic Intracoastal Waterway comprising the Albemarle and Chesapeake Canal and the Dismal Swamp Canal including Great Bridge Lock, Chesapeake, Virginia; Deep Creek Lock, Chesapeake, Virginia; and South Mills Lock, North Carolina. Contract personnel shall give all necessary orders and directions for operation of the locks. No one shall cause any movement of any vessel, boat or other floating thing in the locks or approaches except by or under the direction of the contract lock operator. All duties and responsibilities of the lockmaster set forth in this Section shall be performed by the contract lock operator except that the responsibility for enforcing all laws, rules and regulations shall be vested in a government employee designated by the Norfolk District Engineer. The District Engineer will notify waterway users and the general public through appropriate notices and media concerning the location and identity of the designated government employee.

(2298) (2) Signals. Vessels desiring lockage in either direction shall give notice to the lockmaster at not more than three-quarters of a mile nor less than one-quarter of a mile from the lock, by two long and two short blasts of a whistle. When the lock is available, a green light, semaphore or flag will be displayed; when not available, a red light, semaphore or flag will be displayed. No vessels or rafts shall approach within 300 feet of any lock entrance unless signalled to do so by the lockmaster.

(2299) (3) Precedence at locks. (i) The vessel arriving first at a lock shall be first to lock through; but precedence shall be given to vessels belonging to the United States and to commercial vessels in the order named. Arrival posts or markers may be established ashore above or below the locks. Vessels arriving at or opposite such posts or markers will be considered as having arrived at the locks within the meaning of this paragraph.

(2300) (ii) The lockage of pleasure boats, house boats or like craft shall be expedited by locking them through with commercial craft (other than barges carrying petroleum products or highly hazardous materials) in order to utilize the capacity of the lock to its maximum. If, after the arrival of such craft, no separate or combined lockage can be accomplished within a reasonable time not to exceed the time required for three other lockages, then separate lockage shall be made.

(2301) (4) Entrance to and exit from locks. No vessel or raft shall enter or leave the locks before being signalled to do so. While waiting their turns, vessels or rafts must not obstruct traffic and must remain at a safe distance from the lock. They shall take position in rear of any vessels or rafts that may precede them, and there arrange the tow for locking in sections if necessary. Masters and pilots of vessels or in charge of rafts shall cause no undue delay in entering or leaving the lock, and will be held to a strict accountability that the approaches are not at any time unnecessarily obstructed by parts of a tow awaiting lockage or already passed through. They shall provide sufficient men to move through the lock promptly without damage to the structures. Vessels or tows that fail to enter the locks with reasonable promptness after being signalled to do so will lose their turn.

(2302) (5) Lockage of vessels. (i) Vessels must enter and leave the locks carefully at slow speed, must be provided with suitable lines and fenders, must always use fenders to protect the walls and gates, and when locking at night must be provided with suitable lights and use them as directed.

(2303) (ii) Vessels which do not draw at least six inches less than the depth on miter sills or breast walls, or which have projections or sharp corners liable to damage gates or walls, shall not enter a lock or approaches.

(2304) (iii) No vessel having chains or lines either hanging over the sides or ends, or dragging on the bottom, for steering or other purposes, will be permitted to pass a lock or dam.

(2305) (iv) Power vessels must accompany tows through the locks when so directed by the lockmaster.

(2306) (v) No vessel whose cargo projects beyond its sides will be admitted to lockage.

(2307) (vi) Vessels in a sinking condition shall not enter a lock or approaches.

(2308) (vii) The passing of coal from flats or barges to steamers while in locks is prohibited.

(2309) (viii) Where special regulations for safeguarding human life and property are desirable for special situations, the same may be indicated by printed signs, and in such cases such signs will have the same force as other regulations in this section.

(2310) (ix) The lockmaster may refuse to lock vessels which, in his judgment, fail to comply with this paragraph.

(2311) (6) Lockage of rafts. Rafts shall be locked through in sections as directed by the lockmaster. No raft will be locked that is not constructed in accordance with the requirements stated in paragraph (g) of this section. The party in charge of a raft desiring lockage shall register with the lockmaster immediately upon arriving at the lock and receive instructions for locking.

(2312) (7) Number of lockages. Tows or rafts locking in sections will generally be allowed only two consecutive lockages if one or more single vessels are waiting for lockage, but may be allowed more in special cases. If tows or rafts are waiting above and below a lock for lockage, sections will be locked both ways alternately whenever practicable. When there are two or more tows or rafts awaiting lockage in the same direction, no part of one shall pass the lock until the whole of the one preceding it shall have passed.

(2313) (8) Mooring. (i) Vessels and rafts when in the lock shall be moored where directed by the lockmaster by bow, stern and spring lines to the snubbing posts or hooks provided for that purpose, and lines shall not be let go until signal is given for vessel or raft to leave. Tying boats to the lock ladders is prohibited.

(2314) (ii) The mooring of vessels or rafts near the approaches to locks except while waiting for lockage, or at other places in the pools where such mooring interferes with general navigation of the waterway is prohibited.

(2315) (9) Maneuvering locks. The lock gates, valves, and accessories will be moved only under the direction of the lockmaster;

but if required, all vessels and rafts using the locks must furnish ample help on the lock walls for handling lines and maneuvering the various parts of the lock under the direction of the lockmaster.

(2316) (f) (Reserved)

(2317) (g) Rafts, logging. (1) Rafts will be permitted to navigate a waterway only if properly and securely assembled. The passage of "bag" or "sack" rafts, "dog" rafts, or of loose logs over any portion of a waterway, is prohibited. Each section of a raft will be secured within itself in such a manner as to prevent the sinking of any log, and so fastened or tied with chains or wire rope that it cannot be separated or bag out so as to materially change its shape. All dogs, chains and other means used in assembling rafts shall be in good condition and of ample size and strength to accomplish their purposes.

(2318) (2) No section of a raft will be permitted to be towed over any portion of a waterway unless the logs float sufficiently high in the water to make it evident that the section will not sink en route.

(2319) (3) Frequent inspections will be made by the person in charge of each raft to insure that all fastenings remain secure, and when any one is found to have loosened, it shall be repaired at once. Should any log or section be lost from a raft, the fact must be promptly reported to the District Engineer, giving as definitely as possible the exact point at which the loss occurred. In all cases the owner of the lost log or section will take steps immediately to remove the same from the waterway.

(2320) (4) The length and width of rafts shall not exceed such maximum dimensions as may be prescribed by the District Engineer.

(2321) (5) All rafts shall carry sufficient men to enable them to be managed properly, and to keep them from being an obstruction to other craft using the waterway. To permit safe passage in a narrow channel rafts will, if necessary, stop and tie up alongside the bank. Care must be exercised both in towing and mooring rafts to avoid the possibility of damage to aids to navigation maintained by the United States or under its authorization.

(2322) (6) When rafts are left for any reason with no one in attendance, they must be securely tied at each end and at as many intermediate points as may be necessary to keep the timbers from bagging into the stream, and must be moored so as to conform to the shape of the bank. Rafts moored to the bank shall have lights at 500-foot intervals along their entire length. Rafts must not be moored at prominent projections of the bank, or at critical sections.

(2323) (7) Logs may be stored in certain tributary streams provided a clear channel at least one-half the width of the channel be left clear for navigation along the tributary. Such storage spaces must be protected by booms and, if necessary to maintain an open channel, piling should also be used. Authority for placing these booms and piling must be obtained by written permit from the District Engineer.

(2324) (8) The building, assembling, or breaking up of a raft in a waterway will be permitted only upon special authority obtained from the District Engineer, and under such conditions as he may prescribe.

(2325) (h) Dumping of refuse or oil in waterway, obstructions. Attention is invited to the provisions of sections 13 and 20 of the River and Harbor Act of March 3, 1899 (30 Stat. 1152, 1154; 33 U.S.C. 407, 415), and of sections 2, 3, and 4 of the Oil Pollution Act of June 7, 1924 (43 Stat. 604, 605; 33 U.S.C. 432-434), which prohibit the depositing of any refuse matter in these waterways or along their banks where liable to be washed into the waters; authorize the immediate removal or destruction of any sunken vessel, craft, raft, or other similar obstruction, which stops or endangers navigation; and prohibit the discharge of oil from vessels into the coastal navigable waters of the United States.

(2326) (i) Damage. Masters and owners of vessels using the waterways are responsible for any damage caused by their operations to canal revetments, lock piers and walls, bridges, hurricane gate chambers, spillways, or approaches thereto, or other Government structures, and for displacing or damaging of buoys, stakes, spars, range lights or other aids to navigation. Should any part of a revetment, lock, bridge, hurricane gate chamber, spillway or approach thereto, be damaged, they shall report the fact, and furnish a clear statement of how the damage occurred, to the nearest Government lockmaster or bridge tender, and by mail to the District Engineer, U.S. Engineer Office in local charge of the waterway in which the damage occurred. Should any aid to navigation be damaged, they shall report that fact immediately to the Superintendent of Lighthouses at Norfolk, Virginia, if north of New River Inlet, North Carolina; to the Superintendent of Lighthouses at Charleston, South Carolina, if between New River Inlet, North Carolina, and St. Lucie Inlet, Florida; to the Superintendent of Lighthouses at Key West, Florida, if between St. Lucie Inlet and Suwanee River, Florida; and to the Superintendent of Lighthouses, New Orleans, Louisiana, if between Suwanee River and St. Marks, Florida.

(2327) (j) Trespass on property of the United States. Trespass on waterway property or injury to the banks, locks, bridges, piers, fences, trees, houses, shops or any other property of the United States pertaining to the waterway, is strictly prohibited. No business, trading or landing of freight or baggage will be allowed on or over Government piers, bridges, or lock walls.

(2328) (k) Copies of regulations. Copies of the regulations in this section will be furnished free of charge upon application to the nearest District Engineer.

(2329) **§207.169 Oklawaha River, navigation lock and dam at Moss Bluff, Fla.; use, administration and navigation.** (a) The owner of or agency controlling the lock shall not be required to operate the navigation lock except from 7 a.m. to 7 p.m. during the period of February 15 through October 15 each year, and from 8 a.m. to 6 p.m. during the remaining months of the year. During the above hours and periods the lock shall be opened upon demand for the passage of vessels. The hours of operation are based on local time.

(2330) (b) The owner of or agency controlling the lock shall place signs of such size and description as may be designated by the District Engineer, U.S. Army Engineer District, Jacksonville, Fla., at each side of the lock indicating the nature of the regulations of this section.

(2331) **§207.170 Federal Dam, Oklawaha River, Moss Bluff, Fla.; pool level.** (a) The level of the pool shall normally be maintained at elevation 56.5 feet above sea level: Provided, That the level of the pool may be raised to not exceeding 58.5 feet above sea level at such times as may be authorized in writing by the District Engineer, Jacksonville, Fla., and subject to such conditions as he may specify.

(2332) (b) When in the opinion of the District Engineer, an emergency exists requiring the lowering of the pool level to an elevation less than 56.5 above sea level either to safeguard the dikes or to increase the discharge from Lake Griffin in times of high wa-

ter, the discharge past the dam shall be regulated in such manner as he may direct until he shall declare the emergency passed.

(2333) **§207.170a Eugene J. Burrell Navigation Lock in Haines Creek near Lisbon, Florida; use, administration and navigation.** (a) The owner of or agency controlling the lock shall not be required to operate the navigation lock except from 7 a.m. to 12 noon, and from 1 p.m. to 7 p.m., during the period of February 15 through October 15 each year; and from 8 a.m. to 12 noon, and from 1 p.m. to 6 p.m., during the remaining months of each year. During the above hours and periods the lock shall be opened upon demand for the passage of vessels.

(2334) (b) The owner of the lock shall place signs, of such size and description as may be designated by the District Engineer, U.S. Army Engineer District, Jacksonville, Florida, at each side of this lock indicating the nature of the regulations of this section.

(2335) **§207.170b Apopka-Beauclair Navigation Lock in Apopka-Beauclair Canal in Lake County, Florida; use, administration and navigation.** (a) The owner of or agency controlling the lock shall not be required to operate the navigation lock except from 7:00 a.m. to 12:00 noon, and from 1:00 p.m. to 7:00 p.m., during the period of February 15 through October 15 each year; and from 8:00 a.m. to 12 noon, and from 1:00 p.m. to 6:00 p.m., during the remaining months of each year. During the above hours and periods the lock shall be opened upon demand for the passage of vessels.

(2336) (b) The owner of the lock shall place signs, of such size and descriptions as may be designated by the District Engineer, U.S. Army Engineer District, Jacksonville, Florida, at each side of this lock indicating the nature of the regulations.

(2337) **§207.170c Kissimmee River, navigation locks between Lake Tohopekaliga and Lake Okeechobee, Fla.; use, administration and navigation.** (a) The owner of or agency controlling the locks shall be required to open the navigation locks upon demand for passage of vessels during the following hours and periods:

(2338) Locks S–61, S–65, and S–65E:

(2339) Monday through Friday, all year; 7:00 a.m. to 6:00 p.m.

(2340) Saturday and Sunday, Mar. 1 through Oct. 31; 5:30 a.m. to 7:30 p.m.

(2341) Saturday and Sunday, Nov. 1 through Feb. 28; 5:30 a.m. to 6:30 p.m.

(2342) Lock S–65A:

(2343) Seven days a week, all year; 8:00 a.m. to 5:00 p.m.

(2344) Locks S–65B, S–65C, and S–65D:

(2345) Monday through Friday, all year; 8:00 a.m. to 5:00 p.m.

(2346) Saturday and Sunday, Mar. 1 through Oct. 31; 5:30 a.m. to 7:30 p.m.

(2347) Saturday and Sunday, Nov. 1 through Feb. 28; 5:30 a.m. to 6:30 p.m.

(2348) (b) The owner of or agency controlling the locks shall place signs, of such size and description as may be designated by the District Engineer, U.S. Army Engineer District, Jacksonville, Florida, at each side of the locks indicating the nature of the regulations of this section.

(2349) **§207.170d Taylor Creek, navigation lock (S-193) across the entrance to Taylor Creek at Lake Okeechobee, Okeechobee, Fla.; use, administration and navigation.** (a) The owner of or agency controlling the lock shall not be required to operate the navigation lock except from 5:30 a.m. to 8:00 p.m. daily. During the above hours the lock shall be opened upon demand for the passage of vessels.

(2350) (b) The owner of the lock shall place signs, of such size and description as may be designated by the District Engineer, U.S. Army Engineer District, Jacksonville, Florida at each side of this lock indicating the nature of the regulations of this section.

(2351) **§207.800 Collection of navigation statistics.**

(2352) (a) Definitions. For the purpose of this regulation the following terms are defined:

(2353) (1) Navigable waters of the United States means those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. (See 33 CFR part 329 for a more complete definition of this term.)

(2354) (2) Offenses and Violations mean:

(2355) (i) Failure to submit a required report.

(2356) (ii) Failure to provide a timely, accurate, and complete report.

(2357) (iii) Failure to submit monthly listings of idle vessels or vessels in transit.

(2358) (iv) Failure to submit a report required by the lockmaster or canal operator.

(2359) (3) Leased or chartered vessel means a vessel that is leased or chartered when the owner relinquishes control of the vessel through a contractual agreement with a second party for a specified period of time and/or for a specified remuneration from the lessee. Commercial movements on an affreightment basis are not considered a lease or charter of a particular vessel.

(2360) (4) Person or entity means an individual, corporation, partnership, or company.

(2361) (5) Timely means vessel and commodity movement data must be received by the Waterborne Commerce Statistics Center within 30 days after the close of the month in which the vessel movement or nonmovement takes place.

(2362) (6) Commercial vessel means a vessel used in transporting by water, either merchandise or passengers for compensation or hire, or in the course of business of the owner, lessee, or operator of the vessel.

(2363) (7) Reporting situation means a vessel movement by an operator that is required to be reported. Typical examples are listed in the instructions on the various ENG Forms. Five typical movements that are required to be reported by vessel operating companies include the following examples:

(2364) Company A is the barge owner, and the barge transports corn from Minneapolis, MN to New Orleans, LA, with fleeting at Cairo, IL.

(2365) (i) Lease/Charter: If Company A leases or charters the barge to Company B, then Company B is responsible for reporting the movements of the barge until the lease/charter expires.

(2366) (ii) Interline Movement: A barge is towed from Minneapolis to Cairo by Company A, and from Cairo to New Orleans by Company B. Since Company A is the barge owner, and the barge is not leased. Company A reports the entire movement of the barge with an origin of Minneapolis and a destination of New Orleans.

(2367) (iii) Vessel Swap/Trade: Company A swaps barge with Company B to allow Company B to meet a delivery commitment to New Orleans. Since Company A has not leased/chartered the barge, Company A is responsible for filing the report. Company B is responsible for filing the report on the barge which is traded to Company A. The swap or trade will not affect the primary responsibility for reporting the individual vessel movements.

(2368) (iv) Re-Consignment: Barge is reconsigned to Mobile, AL. Company A reports the movements as originating in Minneapolis and terminating in Mobile. The point from which barge is reconsigned is not reported, only points of loading and unloading.

(2369) (v) Fleeting: Barge is deposited at a New Orleans fleeting area by Company A and towed by Company B from fleeting area to New Orleans area dock for unloading. Company A, as barge owner, reports entire movements from Minneapolis to the unloading dock in New Orleans. Company B does not report any barge movement.

(2370) (b) Implementation of the waterborne commerce statistics provisions of the River and Harbor Act of 1922, as amended by the Water Resources Development Act of 1986 (Pub. L. 99-662), mandates the following.

(2371) (1) Filing Requirements. Except as provided in paragraph (b)(2) of this section, the person or entity receiving remuneration for the movement of vessels or for the transportation of goods or passengers on the navigable waters is responsible for assuring that the activity report of commercial vessels is timely filed.

(2372) (i) For vessels under lease/charter agreements, the lessee or charterer of any commercial vessel engaged in commercial transportation will be responsible for the filing of said reports until the lease/ charter expires.

(2373) (ii) The vessel owner, or his designated agent, is always the responsible party for ensuring that all commercial activity of the vessel is timely reported.

(2374) (2) The following Vessel Information Reports are to be filed with the Army Corps of Engineers, at the address specified on the ENG Form, and are to include:

(2375) (i) Monthly Reports. These reports shall be made on ENG Forms furnished upon written request of the vessel operating companies to the Army Corps of Engineers. The forms are available at the following address: U.S. Army Corps of Engineers, Waterborne Commerce Statistics Center, Post Office Box 62180, New Orleans, LA 70161-1280.

(2376) (A) All movements of domestic waterborne commercial vessels shall be reported, including but not limited to: Dry cargo ship and tanker moves, loaded and empty barge moves, towboat moves, with or without barges in tow, fishing vessels, movements of crew boats and supply boats to offshore locations, tugboat moves and movements of newly constructed vessels from the shipyard to the point of delivery.

(2377) (B) Vessels idle during the month must also be reported.

(2378) (C) Notwithstanding the above requirements, the following waterborne vessel movements need not be reported:

(2379) (1) Movements of recreational vessels.

(2380) (2) Movements of fire, police, and patrol vessels.

(2381) (3) Movements of vessels exclusively engaged in construction (e.g., piledrivers and crane barges). **Note:** however, that movements of supplies, materials, and crews to or from the construction site must be timely reported.

(2382) (4) Movements of dredges to or from the dredging site. However, vessel movements of dredged material from the dredging site to the disposal site must be reported.

(2383) (5) Specific movements granted exemption in writing by the Waterborne Commerce Statistics Center.

(2384) (D) ENG Forms 3925 and 3925b shall be completed and filed by vessel operating companies each month for all voyages or vessel movements completed during the month. Vessels that did not complete a move during the month shall be reported as idle or in transit.

(2385) (E) The vessel operating company may request a waiver from the Army Corps of Engineers, and upon written approval by the Waterborne Commerce Center, the company may be allowed to provide the requisite information of the above paragraph (D), on computer printouts, magnetic tape, diskettes, or alternate medium approved by the Center.

(2386) (F) Harbor Maintenance Tax information is required on ENG Form 3925 for cargo movements into or out of ports that are subject to the provisions of section 1402 of the Water Resources Development Act of 1986 (Pub. L. 99-662).

(2387) (1) The name of the shipper of the commodity, and the shipper 0146's Internal Revenue Service number or Social Security number, must be reported on the form.

(2388) (2) If a specific exemption applies to the shipper, the shipper should list the appropriate exemption code. The specific exemption codes are listed in the directions for ENG Form 3925.

(2389) (3) Refer to 19 CFR part 24 for detailed information on exemptions and ports subject to the Harbor Maintenance Tax.

(2390) (ii) Annual Reports. Annually an inventory of vessels available for commercial carriage of domestic commerce and vessel characteristics must be filed on ENG Forms 3931 and 3932.

(2391) (iii) Transaction Reports. The sale, charter, or lease of vessels to other companies must also be reported to assure that proper decisions are made regarding each company's duty for reporting vessel movements during the year. In the absence of notification of the transaction, the former company of record remains responsible until proper notice is received by the Corps.

(2392) (iv) Reports to Lockmasters and Canal Operators. Masters of self-propelled non-recreational vessels which pass through locks and canals operated by the Army Corps of Engineers will provide the data specified on ENG Forms 3102b, 3102c, and/or 3102d to the lockmaster, canal operator, or his designated representative in the manner and detail dictated.

(2393) (c) Penalties for Noncompliance. The following penalties for noncompliance can be assessed for offenses and violations.

(2394) (1) Criminal Penalties. Every person or persons violating the provisions of this regulation shall, for each and every offenses, be liable to a fine of not more than $5,000, or imprisonment not exceeding two months, to be enforced in any district court in the United States within whose territorial jurisdiction such offense may have been committed.

(2395) (2) Civil Penalties. In addition, any person or entity that fails to provide timely, accurate, and complete statements or reports required to be submitted by this regulation may also be assessed a civil penalty of up to $2,500 per violation under 33 U.S.C. 555, as amended.

(2396) (3) Denial of Passage. In addition to these fines, penalties, and imprisonments, the lockmaster or canal operator can refuse to allow vessel passage.

(2397) (d) Enforcement Policy. Every means at the disposal of the Army Corps of Engineers will be utilized to monitor and enforce these regulations.

(2398) (1) To identify vessel operating companies that should be reporting waterborne commerce data, The Corps will make use of, but is not limited to, the following sources.

(2399) (i) Data on purchase and sale of vessels.

(2400) (ii) U.S. Coast Guard vessel documentation and reports.

(2401) (iii) Data collected at Locks, Canals, and other facilities operated by the Corps.

(2402) (iv) Data provided by terminals on ENG Form 3926.

(2403) (v) Data provided by the other Federal agencies including the Internal Revenue Service, Customs Service, Maritime Administration, Department of Transportation, and Department of Commerce.

(2404) (vi) Data provided by ports, local facilities, and State or local governments.

(2405) (vii) Data from trade journals and publications.

(2406) (viii) Site visits and inspections.

(2407) (2) Notice of Violation. Once a reporting violation is determined to have occurred, the Chief of the Waterborne Commerce Statistics Center will notify the responsible party and allow 30 days for the reports to be filed after the fact. If the reports are not filed within this 30-day notice period, then appropriate civil or criminal actions will be undertaken by the Army Corps of Engineers, including the proposal of civil or criminal penalties for noncompliance. Typical cases for criminal or civil action include, but are not limited to, those violations which are willful, repeated, or have a substantial impact in the opinion of the Chief of the Waterborne Commerce Statistics Center.

(2408) (3) Administrative Assessment of Civil Penalties. Civil penalties may be assessed in the following manner.

(2409) (i) Authorization. If the Chief of the Waterborne Commerce Statistics Center finds that a person or entity has failed to comply with any of the provisions specified herein, he is authorized to assess a civil penalty in accordance with the Class I penalty provisions of 33 CFR part 326. Provided, however, that the procedures in 33 CFR part 326 specifically implementing the Clean Water Act (33 U.S.C. 1319(g)(4)), public notice, comment period, and state coordination, shall not apply.

(2410) (ii) Initiation. The Chief of the Waterborne Commerce Statistics Center will prepare and process a proposed civil penalty order which shall state the amount of the penalty to be assessed, described by reasonable specificity the nature of the violation, and indicate the applicable provisions of 33 CFR part 326.

(2411) (iii) Hearing Requests. Recipients of a proposed civil penalty order may file a written request for a hearing or other proceeding. This request shall be as specified in 33 CFR part 326 and shall be addressed to the Director of the Water Resources Support Center, Casey Building, Fort Belvoir, VA 22060-5586, who will provide the requesting person or entity with a reasonable opportunity to present evidence regarding the issuance, modification, or revocation of the proposed order. Thereafter, the Director of the Water Resources Center shall issue a final order.

(2412) (4) Additional Remedies. Appropriate cases may also be referred to the local U.S. Attorney for prosecution, penalty collection, injunctive, and other relief by the Chief of the Waterborne Commerce Statistics Center.

Part 334–Danger Zones and Restricted Area Regulations

(2413) **§334.1 Purpose.**

(2414) The purpose of this part is to:

(2415) (a) Prescribe procedures for establishing, amending and disestablishing danger zones and restricted area;

(2416) (b) List the specific danger zones and restricted areas and their boundaries; and

(2417) (c) Prescribe specific requirements, access limitations and controlled activities within the danger zones and restricted areas.

(2418) **§334.2 Definitions**

(2419) (a) Danger zone. A defined water area (or areas) used for target practice, bombing, rocket firing or other especially hazardous operations, normally for the armed forces. The danger zones may be closed to the public on a full-time or intermittent basis, as stated in the regulations.

(2420) (b) Restricted area. A defined water area for the purpose of prohibiting or limiting public access to the area. Restricted areas generally provide security for Government property and/or protection to the public from the risks of damage or injury arising from the Government's use of that area.

(2421) **§334.3 Special policies.**

(2422) (a) General. The general regulatory policies stated in 33 CFR part 320 will be followed as appropriate. In addition, danger zone and restricted area regulations shall provide for public access to the area to the maximum extent practicable.

(2423) (b) Food fishing industry. The authority to prescribe danger zone and restricted area regulations must be exercised so as not to unreasonably interfere with or restrict the food fishing industry. Whenever the proposed establishment of a danger zone or restricted area may affect fishing operations, the District Engineer will consult with the Regional Director, U.S. Fish and Wildlife Service, Department of the Interior and the Regional Director, National Marine Fisheries Service, National Oceanic & Atmospheric Administration (NOAA),

(2424) (c) Temporary, occasional or intermittent use. If the use of the water area is desired for a short period of time, not exceed thirty days in duration, and that planned operations can be conducted safely without imposing unreasonable restrictions on navigation, and without promulgating restricted area regulations in accordance with the regulations in this section, applicants may be informed that formal regulations are not required. Activities of this type shall not reoccur more often than biennially (every other year), unless danger zone/restricted area rules are promulgated under this Part. Proper notices for mariners requesting that vessels avoid the area will be issued by the Agency requesting such use of the water area, or if appropriate, by the District Engineer, to all known interested persons. Copies will also be sent to appropriate State agencies, the Commandant, U.S. Coast Guard, Washington, DC 20590, and Director, Defense Mapping Agency, Hydrographic Center, Washington, DC 20390, ATTN: Code NS 12. Notification to all parties and Agencies shall be made at least two weeks prior to the planned event, or earlier, if required for distribution of Local Notice to Mariners by the Coast Guard.

(2425) **§334.4 Establishment and amendment procedures.**

(2426) (a) Application. Any request for the establishment, amendment or revocation of a danger zone or restricted area must contain sufficient information for the District Engineer to issue a public notice, and as a minimum must contain the following:

(2427) (1) Name, address and telephone number of requestor including the identity of the command and DoD facility and the identity of a point of contact with phone number.

(2428) (2) Name of waterway and if a small tributary, the name of a larger connecting waterbody.

(2429) (3) Name of closest city or town, county/parish and state.

(2430) (4) Location of proposed or existing danger zone or restricted area with a map showing the location, if possible.

(2431) (5) A brief statement of the need for the area, its intended use and detailed description of the times, dates and extent of restriction.

(2432) (b) Public notice. (1) The Corps will normally publish public notices and **Federal Register** documents concurrently. Upon receipt of a request for the establishment, amendment or revocation of a danger zone or restricted area, the District Engineer should forward a copy of the request with his/her recommendation, a copy of the draft public notice and a draft **Federal Register** document to the Office of the Chief of Engineers, ATTN: CECW-OR. The Chief of Engineers will publish the proposal in the **Federal Register** concurrent with the public notice issued by the District Engineer.

(2433) (2) Content. The public notice and **Federal Register** documents must include sufficient information to give a clear understanding of the proposed action and should include the following items of information:

(2434) (i) Applicable statutory authority or authorities; (40 Stat. 266; 33 U.S.C. 1) and (40 Stat. 892; 33 U.S.C. 3)

(2435) (ii) A reasonable comment period. The public notice should fix a limiting date within which comments will be received, normally a period not less than 30 days after publication of the notice.

(2436) (iii) The address of the District Engineer as the recipient of any comments received.

(2437) (iv) The identity of the applicant/proponent;

(2438) (v) The name or title, address and telephone number of the Corps employee from whom additional information concerning the proposal may be obtained;

(2439) (vi) The location of the proposed activity accompanied by a map of sufficient detail to show the boundaries of the area(s) and its relationship to the surrounding area.

(2440) (3) Distribution. Public notice will be distributed in accordance with 33 CFR 325.3(d)(1). In addition to this general distribution, public notices will be sent to the following Agencies:

(2441) (i) The Federal Aviation Administration (FAA) where the use of airspace is involved.

(2442) (ii) The Commander, Service Force, U.S. Atlantic Fleet, if a proposed action involves a danger zone off the U.S. Atlantic coast.

(2443) (iii) Proposed danger zones on the U.S. Pacific coast must be coordinated with the applicable commands as follows:

(2444) Alaska, Oregon and Washington:

(2445) Commander, Naval Base, Seattle

(2446) California:

(2447) Commander, Naval Base, San Diego

(2448) Hawaii and Trust Territories:

(2449) Commander, Naval Base, Pearl Harbor

(2450) (c) Public hearing. The District Engineer may conduct a public hearing in accordance with 33 CFR part 327.

(2451) (d) Environmental documentation. The District Engineer shall prepare environmental documentation in accordance with appendix B to 33 CFR part 325.

(2452) (e) District Engineer's recommendation. After closure of the comment period, and upon completion of the District Engineer's review he/she shall forward the case through channels to the Office of the Chief of Engineers, ATTN: CECW-OR with a recommendation of whether or not the danger zone or restricted area regulation should be promulgated. The District Engineer shall include a copy of environmental documentation prepared in accordance with appendix B to 33 CFR part 325, the record of any public hearings, if held, a summary of any comments received and a response thereto, and a draft of the regulation as it is to appear in the **Federal Register.**

(2453) (f) Final decision. The Chief of Engineers will notify the District Engineer of the final decision to either approve or disapprove the regulations. The District Engineer will notify the applicant/proponent and publish a public notice of the final decision. Concurrent with issuance of the public notice the Office of the Chief of Engineers will publish the final decision in the **Federal Register** and either withdraw the proposed regulation or issue the final regulation as appropriate. The final rule shall become effective no sooner than 30 days after publication in the **Federal Register** unless the Chief of Engineers finds that sufficient cause exists and publishes that rationale with the regulations.

(2454) **§334.5 Disestablishment of a danger zone.**

(2455) (a) Upon receipt of a request from any agency for the disestablishment of a danger zone, the District Engineer shall notify that agency of its responsibility for returning the area to a condition suitable for use by the public. The agency must either certify that it has not used the area for a purpose that requires cleanup or that it has removed all hazardous materials and munitions, before the Corps will disestablish the area. The agency will remain responsible for the enforcement of the danger zone regulations to prevent unauthorized entry into the area until the area is deemed safe for use by the public and the area is disestablished by the Corps.

(2456) (b) Upon receipt of the certification required in paragraph (a) of this section, the District shall forward the request for disestablishment of the danger zone through channels to CECW-OR, with its recommendations. Notice of proposed rulemaking and public procedures as outlined in §334.4 are not normally required before publication of the final rule revoking a restricted area or danger zone regulation. The disestablishment/revocation of the danger zone or restricted area regulation removes a restriction on a waterway.

(2457) **§334.6 Datum.**

(2458) (a) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose reference horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

(2459) (b) For further information on NAD 83 and National Service nautical charts please contact:

(2460) Director, Coast Survey (N/CG2)

(2461) National Ocean Service, NOAA

(2462) 1315 East-West Highway, Station 6147

(2463) Silver Spring, MD 20910-3282.

(2464) **§334.290 Elizabeth River, Southern Branch, Va., naval restricted areas.** (a) The areas–(1) St. Helena Annex Area. Beginning at a point at St. Helena Annex of the Norfolk Naval Shipyard, on the eastern shore of Southern Branch of Elizabeth River, at latitude 36°49'43", longitude 76°17'26.5"; thence in a southwesterly direction to a point on the eastern boundary of Norfolk Harbor 40-foot channel at latitude 36°49'42", longitude 76°17'33"; thence in a southerly direction along the eastern boundary of Norfolk Harbor 40-foot channel to latitude 36°49'28", longitude 76°17'27"; thence easterly to the shore at latitude 36°49'28", longitude 76°17'22"; and thence, northerly along the shore to the point of beginning.

(2465) (2) Norfolk Naval Shipyard Area. Beginning at a point on the shore at the northeast corner of the Norfolk Naval Shipyard,

at latitude 36°49'43.5", longitude 76°17'41.5"; thence due east approximately 100 feet to the western boundary of Elizabeth River channel; thence in a southerly direction along the western boundary of the channel to the point where it passes through the draw of the Norfolk and Portsmouth Belt Line Railroad bridge, thence in a southwesterly direction along the northerly side of the bridge to the western shore of Southern Branch of Elizabeth River; and thence along the shore in a northerly direction to the point of beginning.

(2466) (3) Southgate Terminal Area. Beginning at a point at the northeast corner of Southgate Terminal Annex of Norfolk Naval Shipyard, at

(2467) 36°48'23", 76°17'39"; thence east to

(2468) 36°48'23", 76°17'29"; thence southerly along the western boundary of Norfolk Harbor 35-foot channel to

(2469) 36°48'04", 76°17'33"; thence west to

(2470) 36°48'04", 76°17'41"; and thence along the shore in a northerly direction to the point of beginning.

(2471) (b) The regulations. (1) No vessels other than Naval vessels and other vessels authorized to move to and from piers at the Norfolk Naval Shipyard and its two annexes described in paragraph (a) (1) and (3) of this section, and no person other than persons embarked in such vessels, shall enter the restricted areas.

(2472) (2) This section shall be enforced by the Commander, Norfolk Naval Shipyard, Portsmouth, Va. and such agencies as he may designate.

(2473) **§334.320 Chesapeake Bay entrance; naval restricted area.** (a) The area. Beginning at a point on the south shore of Chesapeake Bay at longitude 76°03'06"; thence to

(2474) 37°01'18", 76°02'06"; thence to

(2475) 37°00'18", 75°55'54"; thence to

(2476) 36°58'00", 75°48'24"; thence to

(2477) 36°51'48", 75°51'00"; thence to the shore at longitude 75°58'48", and thence northwesterly and southwesterly along the shore at Cape Henry to the point of beginning.

(2478) (b) The regulations. (1) Anchoring, trawling, crabbing, fishing, and dragging in the area are prohibited, and no object attached to a vessel or otherwise shall be placed on or near the bottom.

(2479) (2) This section shall be enforced by the Commandant, Fifth Naval District, Norfolk, Va.

(2480) **§334.380 Atlantic Ocean south of entrance to Chesapeake Bay off Dam Neck, Virginia Beach, Virginia, naval firing range.**

(2481) (a) The danger zone. All of the water within a sector extending seaward a distance of 7,500 yards between radial lines bearing 035° true and 092° true, respectively, from a point on the shore at latitude 36°47'33"N, longitude 75°58'23"W.

(2482) (b) The regulations. (1) Vessels shall proceed through the area with caution and shall remain therein no longer than necessary for purpose of transit.

(2483) (2) When firing is in progress during daylight hours, red flags will be displayed at conspicuous locations on the beach. When firing is in progress during periods of darkness, red flashing lights will be displayed from conspicuous locations which are visible from the water a minimum distance of four (4) nautical miles.

(2484) (3) Firing on the ranges will be suspended as long as any vessel is within the danger zone.

(2485) (4) Lookout posts shall be manned by the activity or agency operating the firing range at Fleet Combat Center. After darkness, night vision systems will be utilized by lookouts to aid in locating vessels transiting the area.

(2486) (5) There shall be no firing on any ranges during the periods of low visibility which would prevent the recognition of a vessel (to a distance of 7,500 yards) which is properly displaying navigational lights, or which would preclude a vessel from observing the red range flags or lights.

(2487) (6) The regulations in this section shall be enforced by the Commanding Officer, Fleet Combat Training Center, Atlantic, Dam Neck, Virginia Beach, Virginia, and other such agencies as he/she may designate.

(2488) **§334.390 Atlantic Ocean south of entrance to Chesapeake Bay; firing range.**

(2489) (a) The danger zone. A sector extending seaward for a distance of 12,000 yards between two radial lines bearing 030° True and 083° True, respectively, from a point on the shore at 36°46'48"N., 75°57'24"W.; and an adjacent sector extending seaward for a distance of 15 nautical miles between two radial lines bearing 083° True and 150° True, respectively, from the same shore position.

(2490) (b) The regulations. (1) Vessels shall proceed through the area with caution and shall remain therein no longer than necessary for purposes of transit.

(2491) (2) When firing is in progress during daylight hours, red flags will be displayed at conspicuous locations on the beach. When firing is in progress during periods of darkness, red flashing lights will be displayed from conspicuous locations on the beach which are visible from the water a minimum distance of four (4) nautical miles.

(2492) (3) Firing on the ranges will be suspended as long as any vessel is within the danger zone.

(2493) (4) Lookout posts will be manned by the activity or agency operating the firing range at the Fleet Combat Center, Atlantic, Dam Neck, Virginia Beach, Virginia. After darkness, night vision systems will be utilized by lookouts to aid in locating vessels transiting the area.

(2494) (5) There shall be no firing on the range during periods of low visibility which would prevent the recognition of a vessel (to a distance of 7,500 yards) which is properly displaying navigation lights, or which would preclude a vessel from observing the red range flags or lights.

(2495) (6) The regulations in this section shall be enforced by the Commander, Naval Air Force, U.S. Atlantic Fleet/Commander, Fleet Air Norfolk, Norfolk, Va., and such agencies as he may designate.

(2496) **§334.400 Atlantic Ocean south of entrance to Chesapeake Bay off Camp Pendleton, Virginia; naval restricted area.** (a) The area. Beginning at a point on the shore at Camp Pendleton at

(2497) 36°48'19"N, 75°57'49"W; thence easterly 200 yards to

(2498) 36°48'20"N, 75°57'42"W; thence northerly 400 yards to

(2499) 36°48'32"N, 75°57'45"W: thence westerly 200 yards to

(2500) 36°48'31"N, 75°57'53"W; and thence southerly 400 yards along the shore to the point of beginning.

(2501) (b) *The regulations.* (1) Persons or vessels, other than those vessels owned and operated by the United States shall not enter the area except by permission of the Commanding Officer, U.S. Naval Amphibious Base, Little Creek, Norfolk, Virginia.

(2502) (2) This section shall be enforced by the Commanding Officer, U.S. Naval Amphibious Base, Little Creek, Norfolk, Virginia, and such agencies as he may designate.

(2503) **§334.410 Albemarle Sound, Pamlico Sound, and adjacent waters, N.C.; danger zones for naval aircraft operations.** (a) Target areas–(1) North Landing River (Currituck Sound). The waters of North Landing River within a radius of 1,000 yards from a target located at latitude 36°31'00", longitude 76°01'40".

(2504) (2) Northern part of Currituck Sound. Beginning at a point bearing 65°30', 1,025 yards, from Currituck Sound Light 69; thence 86°, 6,000 yards; thence 193°, 4,425 yards; thence 267°30', 2,775 yards; and thence to the point of beginning. The target is located at latitude 36°27'16", longitude 75°56'30".

(2505) Note: All bearings in this section are referred to true meridian.

(2506) (b) Target and bombing area along south shore of Albemarle Sound. The area. Beginning at

(2507) 36°00'43", 76°19'20"; thence to

(2508) 36°02'40", 76°04'26", thence to

(2509) 36°00'12", 76°04'26"; thence to

(2510) 35°59'35", 76°19'20", and thence to the point of beginning. This area is divided into three subareas A, B, and C as follows: Area A, beginning at

(2511) 36°00'43", 76°19'20"; thence to

(2512) 36°01'20", 76°14'30"; thence to

(2513) 35°59'45", 76°14'30"; thence to

(2514) 35°59'35", 76°19'20", and thence to the point of beginning. Area B, beginning at

(2515) 36°01'20", 76°14' 30"; thence to

(2516) 36°02'18", 76°07'15"; thence to

(2517) 36°00'05", 76°07'15"; thence to

(2518) 35°59'45", 76°14'30"; and thence to the point of beginning. Area C, beginning at

(2519) 36°02'18", 76°07'15"; thence to

(2520) 36°02'40", 76°04'26"; thence to

(2521) 36°00'12", 76°04'26"; thence to

(2522) 36°00'05", 76°07'15"; and thence to the point of beginning.

(2523) (c) Naval Aviation Ordnance test area in Pamlico Sound in vicinity of Long Shoal. A circular area with radius of one and one-half miles having its center at latitude 35°32'18", longitude 75°40'39".

(2524) (d) The regulations–(1) Target areas. The area described in paragraph (1)(a) of this section will be used as a dive bombing target by naval aircraft. In peacetime, munitions will be limited to miniature bombs which contain only small explosive charges for producing smoke puffs to mark points of impact. All operations will be conducted during daylight hours, and the area will be open to navigate at night. No persons or vessels shall enter this area during the hours of daylight without special permission from the enforcing agency. The area will be patrolled and vessels will be warned not to enter. "Buzzing" by plane will warn vessels that they are in a danger zone, and upon being so warned vessels which have inadvertently entered the area shall immediately leave the area.

(2525) (2) *Target and bombing area.* The area described in paragraph (b) of this section will be used as a target and bombing area for both day and night operations. Dummy ammunition, waterfilled or smoke bombs and inert rockets will be used, except during wartime when live ammunition, bombs and rockets may be used. The area will be open to navigation except for periods when ordnance exercises are being conducted by naval aircraft. In area B described in paragraph (b) of the section the placing of nets, traps, buoys, pots, fishponds, stakes, or other equipment which may interfere with target vessels operating in the area shall not be permitted. The area will be patrolled and persons and vessels shall clear the area under patrol upon being warned by the surface patrol craft or when "buzzed" by patrolling aircraft. As a further means of warning vessels of naval aircraft operations in the area described in paragraph (b) of this section, a cluster of flashing red lights at night and a large red flag by day will be displayed from the range observation tower located in the approximate center of the shore side of this area.

(2526) (3) *Naval Aviation Ordnance test area.* The area described in paragraph (c) of this section shall be closed to persons and navigation except for such military personnel and vessels as may be directed by the enforcing agency to enter on assigned duties.

(2527) (4) *Enforcing agency.* The regulations in this section shall be enforced by the Commander, Naval Air Force, U.S. Atlantic Fleet, and such agencies as he/she shall designate.

(2528) **§334.412 Albermarle Sound, Pamlico Sound, Harvey Point and adjacent waters, NC; restricted area.**

(2529) (a) *The area.* Beginning on the north shore of Albemarle Sound and the easternmost tip of Harvey Point; thence southeasterly to Daybeacon 3; thence southeasterly to

(2530) 36°03'06"N., 76°16'43"W.; thence southwesterly to

(2531) 36°02'18"N., 76°19'30"W.; thence northwesterly to

(2532) 36°04'18"N., 76°20'20"W.; thence 23°5' True to the shore; and thence northeasterly along the shore to the point of beginning.

(2533) (b) *The regulations.* The restricted area described in this section is the inactive Harvey Point target range which was disestablished as a danger zone. The area will be open to public access for recreational and commercial uses, except that dredging, clamming, crabbing, seining, and anchoring of all vessels and any other activity which could result in disturbing or penetrating the bottom is prohibited.

(2534) (c) Enforcing agency. The regulations in this section shall be enforced by the Commander, Naval Air Force, U.S. Atlantic Fleet, and such agencies as he/she shall designate.

(2535) **§334.420 Pamlico Sound and adjacent waters, N.C.; danger zones for Marine Corps operations.** (a) Bombing and rocket firing area in Pamlico Sound in vicinity of Brant Island–(1) The area. The waters within a circular area with a radius of 3.0 statute miles having its center on the southern side of Brant Island at latitude 35°12'30", longitude 76°26'30".

(2536) (2) *The regulations.* The area shall be closed to navigation and personnel at all times except for vessels engaged in operational and maintenance work as directed by the enforcing agency. Prior to bombing or firing operations the area will be "buzzed" by plane. Upon being so warned vessels working in the area shall leave the area immediately.

(2537) (b) Bombing, rocket firing, and strafing areas in Pamlico Sound and Neuse River–(1) The areas. (i) The waters within a circular area with a radius of 1.8 statute miles having its center at 35°02'12"N., 76°28'00"W.

(2538) (ii) The waters within a circular area with a radius of 0.5 statute mile having its center at

(2539) 35°04'12"N., 76°28'24"W.

(2540) (iii) The waters within a circular area with a radius of 0.5 statute mile having its center at

(2541) 35°01'42"N., 76°25'48"W.

(2542) (iv) The waters within a circular area with a radius of 0.5 statute mile having its center at

(2543) 34°58'48"N., 76°26'12"W.

(2544) (2) *The regulations.* (i) The area described in paragraph (b)(1) of this section will be used as bombing, rocket firing, and strafing areas. Live and dummy ammunition will be used. The area shall be closed to navigation and all persons at all times except for such vessels as may be directed by the enforcing agency to enter on assigned duties. The area will be patrolled and vessels "buzzed" by the patrol plane prior to the conduct of operations in the area. Vessels or personnel which have inadvertently entered the danger zone shall leave the area immediately upon being so warned.

(2545) (ii) The areas described in paragraphs (b)(1)(ii), (iii) and (iv) of this section shall be used for bombing, rocket firing, and strafing areas. Practice and dummy ammunition will be used. All operations will be conducted during daylight hours, and the areas will be open to navigation at night. No vessel or person shall enter these areas during the hours of daylight without special permission from the enforcing agency. The areas will be patrolled and vessels "buzzed" by the patrol plane prior to the conduct of operations in the areas. Vessels or personnel which have inadvertently entered the danger zones shall have leave the area immediately upon being warned.

(2546) **§334.430 Neuse River and tributaries at Marine Corps Air Station, Cherry Point, N.C.; restricted area.** (a) The area. That portion of Neuse River within 500 feet of the shore along the reservation of the Marine Corps Air Station, Cherry Point, North Carolina, extending from the mouth of Hancock Creek to a point approximately 6,800 feet west of the mouth of Slocum Creek, and all waters of Hancock and Slocum Creeks and their tributaries within the boundaries of the reservation.

(2547) (b) *The regulations.* (1) Except in cases of extreme emergency, all persons or vessels, other than those vessels operated by the U.S. Navy or Coast Guard are prohibited from entering this area without prior permission of the enforcing agency.

(2548) (2) The regulations in this section shall be enforced by the Commanding General, United States Marine Corps Air Station, Cherry Point, North Carolina, and such agencies as he may designate.

(2549) **§334.440 New River, N.C., and vicinity; Marine Corps Firing Ranges.** (a) Atlantic Ocean east of New River Inlet. The waters of the Atlantic Ocean within a sector bounded on the north by a line bearing 105° from

(2550) 34°37'25"N., 77°10'35"W.; on the east and south by the arc of a circle having a radius of 25,000 yards centered at

(2551) 34°34'15"N., 77°16'10"W.; on the west by a line bearing 205° from

(2552) 34°32'37"N., 77°18'34"W., and on the northwest by the shore.

(2553) Note: All bearings in this section are referred to true meridian.

(2554) (b) New River. The firing ranges include all waters to the high waterline within eight sections described as follows:

(2555) (1) Trap Bay Sector. Bounded on the south by a line running from Cedar Point 280° to New River Light 70, thence 254° to Hatch Point; and on the northwest by a line running from Wilkins Bluff 232° to Hall Point.

(2556) (2) Courthouse Bay Sector. Bounded on the southeast by the northwest boundary of the Traps Bay Sector and on the west by Sneads Ferry Bridge.

(2557) (3) Stone Bay Sector. Bounded on the east by Sneads Ferry Bridge and on the north by a line running from a point on the east side of New River opposite the head of Sneads Creek 291°30' to the south side of the mouth of Stone Creek.

(2558) (4) Stone Creek Sector. The northwest portion of Stone Bay, bounded on the south by the north boundary of the Stone Bay Sector; and on the east by longitude 77°26'.

(2559) (5) Grey Point Sector. Bounded on the south by the north boundary of the Stone Bay Sector; on the west by the east boundary of the Stone Creek Sector; and on the northeast by a line running from Town Point 113° to the south side of the mouth of French Creek.

(2560) (6) Farnell Bay Sector. Bounded on the south by the northeast boundary of the Grey Point Sector, including French Creek up to longitude 77°20'; and on the north by a line running from Hadnot Point 285°30' to Holmes Point.

(2561) (7) Morgan Bay Sector. Bounded on the south by the north boundary of the Farnell Bay Sector, including Wallace Creek up to longitude 77°22'; and on the northwest by a line running from Paradise Point 243°30' to Ragged Point.

(2562) (8) Jacksonville Sector. Bounded on the southeast by the northwest boundary of the Morgan Bay Sector, including Southwest Creek up to the point where it narrows to 200 feet in width, and Northeast Creek up to longitude 77°23'30"; and on the north by an east-west line passing through New River Day Beacon 41.

(2563) (c) *The regulations.* (1) No person shall enter or remain in the water in any closed section after notice of firing therein has been given. Sailing vessels and any water-craft having a speed of less than 5 knots shall keep clear of any closed sector at all times after notice of firing therein has been given. Vessels propelled by mechanical power at a speed greater than 5 knots may enter the sectors without restriction except when the firing signals are being displayed. When these signals are displayed, vessels shall clear the closed sectors immediately and no vessels shall enter such sectors until the signals indicate that firing has ceased.

(2564) (2) Firing will take place both day and night at irregular periods throughout the year. Insofar as training requirements will permit, underwater explosions will be restricted in the Atlantic Ocean sector (described in paragraph (a) of this section) during the periods May 1 and June 5, inclusive, and November 22 to December 15, inclusive.

(2565) (3) Two days in advance of the day when firing in any sector except the Stone Creek sector is scheduled to begin, the enforcing agency will warn the public of the contemplated firing, stating the sector or sectors to be closed, through the public press and the United States Coast Guard and, in the case of the Atlantic Ocean sector, the Cape Fear Pilots Association at Southport, and the Pilots Association at Morehead City, North Carolina. The Stone Creek sector may be closed without advance notice.

(2566) (4) Towers at least 50 feet in height will be erected near the shore at the northeast and southwest limits of the Atlantic Ocean sector, and towers at least 25 feet in height will be erected near the easterly shore at the upper and lower limits of each New River sector. On days when firing is to take place a red flag will be displayed on each of the towers marking the sector or sectors to be closed. These flags will be displayed by 8:00 a.m., and will be removed when firing ceases for the day. Suitable range markers will be erected indicating the bearings of the north and west limits of the Atlantic Ocean sector.

(2567) (5) During the night firing, red lights will be displayed on the towers; and, in the case of the Atlantic Ocean sector, searchlights will be employed as barrier lights to enable safety observers to detect vessels which may attempt to enter the danger zone.

(2568) (d) Target and bombing area in Atlantic Ocean in vicinity of Bear Inlet–(1) The water within an area described as follows: Beginning at

(2569) 34°37'32"N., 77°12'03"W.; thence to

(2570) 34°36'58"N., 77°11'25"W.; thence to

(2571) 34°37'44"N., 77°10'35"W.; thence to

(2572) 34°32'27"N., 77°06'30"W.; thence to

(2573) 34°28'55"N., 77°15'05"W.; thence to

(2574) 34°34'50"N., 77°15'10"W.; thence to the point of beginning.

(2575) (2) The regulations. Vessels may proceed along established waterways except during military training periods. Warning of military training periods will be given through Notices to Mariners and by displaying one hour prior to commencement a red danger streamer during daylight hours or a red light at night, from a flag pole 40 feet in height located at the U.S. Coast Guard Life Boat Station, Bogue Inlet, Swansboro, North Carolina, and from observation tower 40 feet in height located at the northern end of Onslow (Hurst) Beach. Prior to bombing and firing operations, the area will be searched by plane. Watercraft in the area will be warned by aircraft "buzzing" of the impending target practice. Upon being so warned, all persons and vessels shall leave the area as quickly as possible by the most direct route.

(2576) (e) Inland waters in the Browns Inlet area between Bear Creek and Onslow Beach Bridge over the Atlantic Intracoastal Waterway–(1) The area. Navigable waters between Bear Creek and Onslow Beach Bridge to include all inlets, streams, bays, and water therein contained, bounded on the north by Bear Creek, on the east and south by the Atlantic Ocean, to the meridian 77°16' 20"; thence by this meridian to latitude 34°34'31"; and thence by a line bearing 44° from this point until the line intersects Bear Creek.

(2577) (2) *The regulations.* (i) No person shall enter or remain in the waters of this area due the possibility of unexploded projectiles.

(2578) (ii) Vessels may proceed through the Atlantic Intracoastal Waterway in the area without stopping except in cases of extreme emergencies.

(2579) (iii) All navigable waters in the area between the south bank of Bear Creek and the north bank of the north connecting channel between the Atlantic Intracoastal Waterway and Browns Inlet shall be closed to navigation at all times. There are highly sensitive unexploded projectiles within the limits of this area.

(2580) (iv) Vessels may proceed through the north connecting channel and the south connecting channel (Banks Channel) in the area between the Atlantic Intracoastal Waterway and Browns Inlet to the Atlantic Ocean without stopping during periods of nonmilitary use. Caution should be used when proceeding through these waters due to the presence of unexplored projectiles lying in this area.

(2581) (v) Navigable waters in the area between the south connecting channel (Banks Channel) leading to Browns Inlet and Onslow Beach Bridge on both sides of the Atlantic Intracoastal Waterway are open to unrestricted navigation during periods of nonmilitary use. An unknown element of risk exists in this area due to the possible presence of unexploded projectiles.

(2582) (vi) Warning of impending military use of the area will be contained in weekly Notice to Mariners.

(2583) (vii) Vessels having specific authority from the Commanding General, Marine Corps Base, Camp Lejeune, North Carolina, may enter the area.

(2584) (f) Enforcing agency. The regulations of this section shall be enforced by the Commanding General, Marine Corps Base, Camp Lejeune, North Carolina, or his authorized representatives.

(2585) **§334.450 Cape Fear River and tributaries at Sunny Point Army Terminal, Brunswick County, North Carolina; restricted area.** (a) The area. That portion of Cape Fear River due west of the main ship channel extending from U.S. Coast Guard buoy No. 31A at the north approach channel to Sunny Point Army Terminal to U.S. Coast Guard buoy No. 23A at the south approach channel to Sunny Point Army Terminal and all waters of its tributaries therein.

(2586) (b) Except in cases of extreme emergency, all persons or vessels of any size or rafts other than those authorized by the Commander, Sunny Point Army Terminal, are prohibited from entering this area without prior permission of the enforcing agency.

(2587) (c) The regulations in this section shall be enforced by the Commander, Sunny Point Army Terminal, Southport, North Carolina, and such agencies as he may designate.

(2588) **§334.460 Cooper River and tributaries at Charleston, SC.**

(2589) (a) The areas:

(2590) (1) That portion of the Cooper River beginning on the west shore at

(2591) 32°52'37"N., 79°58'06"W.; thence to

(2592) 32°52'37"N., 79°58'03"W.; thence to

(2593) 32°52'27"N., 79°68'01"W.; thence to

(2594) 32°52'06"N., 79°57'54"W.; at the west channel edge, thence to

(2595) 32°51'48.5"N., 79°57'41.5"W.; thence to

(2596) 32°51'33"N., 79°57'27"W.; thence to

(2597) 32°51'19"N., 79°57'05"W.; thence to

(2598) 32°51'01"N., 79°56'07"W.; thence to

(2599) 32°50'50"N., 79°56'02"W.; thence to

(2600) 32°50'48"N., 79°56'07"W.; on the west shore, thence north along the shoreline including the reach of Noisett Creek to the eastern boundary of the Navy Base to the beginning point at the west shore at

(2601) 32°52'37"N., 79°58'06"W.

(2602) (2) The reach of Shipyard Creek upstream from a line 300 feet from and parallel to the upstream limit of the Improved Federal Turning Basin.

(2603) (3) That portion of the interior Shipyard Creek commencing at 32°49'50"N., 79°56'10"W., being a point at the southern tip of the shoreline where the northern shore of Shipyard Creek joins the Cooper River, thence going along the northern shore of Shipyard Creek to the southern portion of the existing restructed area in paragraph (a)(2) of this section; thence along said line being 300 feet from and parallel to the upstream limit of the Improved Federal Turning Basin for a distance of 15 feet, thence to the most northerly point of the Improved Federal Turning Basin, thence along the northeastern edge for the Improved Turning Basin to the northeast edge of the main channel of Shipyard Creek to a point lying in the mouth of Shipyard Creek where it reaches the Cooper River at the northeast edge of the main channel of the Shipyard Creek and 79°56'10"W., thence to the beginning point at 32°49'50"N., 79°56'10"W.

(2604) (4) That portion of the Cooper River surrounding Pier Yankee beginning at a point on the west shore of the Cooper River at

(2605) 32°50'00"N., 79°56'10.5"W.; thence to

(2606) 32°50'00"N., 79°55'55"W.; thence to
(2607) 32°49'54"N., 79°55'55"W.; thence to
(2608) 32°49'50"N., 79°56'10"W.; thence north along the shore to the beginning point at the west shore of the Cooper River at
(2609) 32°50'00"N., 79°56'10.5"W.
(2610) (5) That portion of the Cooper River beginning on the west channel edge at
(2611) 32°52'06"N., 79°57'54"W.; thence to the east shore at
(2612) 32°52'13"N., 79°57'30"W.; thence along the eastern shore to
(2613) 32°51'30"N., 79°56'15.5"W.; thence to
(2614) 32°51'01"N., 79°55'50"W.; thence to
(2615) 32°50'52"N., 79°56'03.5"W.; thence to
(2616) 32°51'01"N., 79°56'07"W.; thence to
(2617) 32°51'19"N., 79°57'05"W.; thence to
(2618) 32°51'33"N., 79°57'27"W.; thence to
(2619) 32°51'48.5"N., 79°57'41.5"W.; thence to the beginning point at the west channel edge at
(2620) 32°52'06"N., 79°57'54"W.
(2621) (6) That portion of the Cooper River beginning on the west shore at
(2622) 32°50'48"N., 79°56'07"W.; thence to
(2623) 32°50'50"N., 79°56'02"W.; thence to
(2624) 32°50'32"N., 79°55'55"W.; thence to
(2625) 32°50'00"N., 79°55'55"W.; thence to
(2626) 32°50'00"N., 79°56'10.5"W.; on the west shore, thence along the shoreline to the beginning point on the west shore at
(2627) 32°50'48"N., 79°56'07"W.
(2628) (7) That portion of Goose Creek beginning at a point on the west shore of Goose Creek at its intersection with the Cooper River at
(2629) 32°54'32"N., 79°57'04"W.; thence proceeding along the western shoreline of Goose Creek for approximately 6.9 miles to its intersection with the Seaboard Coastline Railroad at
(2630) 32°55'34"N., 79°59'30"W.; thence in a northwesterly direction along the Seaboard Coastline Railroad to
(2631) 32°55'37"N., 79°59'32"W.; thence proceeding along the eastern shoreline of Goose Creek in a southeasterly direction to
(2632) 32°54'33"N., 79°56'59"W.; thence back to
(2633) 32°54'32"N., 79°57'04"W.
(2634) (8) That portion of the Cooper River, extending from the mouth of Goose Creek, to a point approximately five-hundred (500) yards north of Red Bank Landing, a distance of approximately 4.8 miles and, the tributaries to the Cooper River within the area enclosed by the following arcs and their intersections:
(2635) (i) Radius=8,255' center of radius,
(2636) 32°55'45"N., 79°45'23"W.
(2637) (ii) Radius=3,790' center of radius,
(2638) 32°55'00"N., 79°55'41"W.
(2639) (iii) Radius=8,255' center of radius,
(2640) 32°55'41"N., 79°56'15"W.
(2641) (iv) Radius=8,255' center of radius,
(2642) 32°56'09"N., 79°56'19"W.
(2643) (9) That portion of the Cooper River beginning on the western shoreline at
(2644) 32°54'37"N., 79°57'01"W.; thence proceeding along the western shoreline in a northerly direction for approximately 4.8 miles to
(2645) 32°57'32"N., 79°55'27"W.; thence in a southerly direction for approximately 100 yards to
(2646) 32°57'29"N., 79°55'23"W., thence in a southwesterly direction, paralleling the shoreline to
(2647) 32°56'48"N., 79°55'48"W.; thence in an easterly direction for approximately 50 yards to
(2648) 32°56'49"N., 79°55'46"W., thence in a southerly direction, paralleling the shoreline, to
(2649) 32°56'40"N., 79°55'40"W.; thence in a westerly direction for approximately 50 yards to
(2650) 32°56'39"N., 79°55'42"W.; thence in a southwesterly direction, paralleling the shoreline, to
(2651) 32°56'15"N., 79°56'07"W.; thence in a southwesterly direction to
(2652) 32°56'05"N., 79°56'17"W.; thence in a westerly direction, for approximately 50 yards to
(2653) 32°56'05"N., 79°56'19"W.; thence in a southerly direction, paralleling the shoreline to
(2654) 32°55'45"N., 79°56'19"W.; thence in a southwesterly direction to
(2655) 32°55'42"N., 79°56'13"W.; thence in a southeasterly direction, parallel the shoreline, to
(2656) 32°55'18"N., 79°55'55"W.; thence in a southwesterly direction to
(2657) 32°55'16"N., 79°56'00"W.; thence in a southwesterly direction paralleling the shoreline to
(2658) 32°54'35"N., 79°56'57"W., thence back to
(2659) 32°54'37"W., 79°57'01"W.
(2660) (10) That portion of the Cooper River beginning at a point near the center of the Cooper River at
(2661) 32°55'03"N., 79°55'42"W.; thence easterly to
(2662) 32°55'03"N., 79°55'35"W.; thence southerly to
(2663) 32°54'52"N., 79°55'33"W.; thence westerly to
(2664) 32°54'53"N., 79°55'42"W.; thence northerly to
(2665) 32°55'03"N., 79°55'42"W.
(2666) (11) That portion of Foster Creek beginning at a point on the southern shoreline of Foster Creek at its intersection with Back River at
(2667) 32°58'30"N., 79°56'33"W.; thence proceeding along the southern shoreline to the terminus of Foster Creek; thence back down its northern shoreline of Foster Creek 32°58'34"N., 79°56'34"W.; thence back to
(2668) 32°58'30"N., 79°56'33"W.
(2669) (12) Danger zone. That portion of Foster Creek beginning at the point of the southern shoreline of an unnamed tributary of Foster Creek at its intersection with Foster Creek at 32°59'16"N., 79°57'23"W.; thence back proceeding along the eastern shoreline to the terminus of the tributary at 32°59' 49"N., 79°57'29"W.; thence back down the western shoreline of the unnamed tributary to 32°59'15"N., 79°57'26"W. The waters and associated marshes in this danger zone area are subject to impact by rounds and ricochets originating from a small arms range when firing is in progress.
(2670) (13) Danger Zone. Those portions of unnamed tributaries and associated marshes of Back River and Foster Creek that are generally described as lying south of the main shoreline and extending southward to the northern shoreline of Big Island (U.S. Naval Reservation). Specifically, the area beginning at a point on the main shoreline which is the northern shore of an unnamed tributary of Back River at 32°59'19"N., 79°56'52"W., southwesterly to a point on or near the northern shoreline of Big Island at 32°59'11"N., 79°56'59"W.; thence northwesterly to a point on the main shoreline, which is the northern shore of an unnamed

tributary of Foster Creek, at 32°59'16"N., 79°57'11"W.; thence easterly along the main shoreline, which is the northern shore of the unnamed tributaries of Foster Creek and Back River, back to the point of beginning at 32°59'19"N., 79°56'52"W. The waters and associated marshes in this danger zone area are subject to impact by rounds and ricochets originating from a small arms range when firing is in progress.

(2671) (b) The regulations:

(2672) (1) Unauthorized personnel, vessels and other watercraft shall not enter the restricted areas described in paragraphs (a)(1), (a)(2), and (a)(4) of this section at any time.

(2673) (2) Personnel, vessels and other watercraft entering the restricted area described in paragraph (a)(5) of this section, shall proceed at normal speed and under no circumstances anchor, fish, loiter, or photograph until clear of the restricted area.

(2674) (3) Personnel, vessels and other watercraft may be restricted from using any or all of the area described in paragraphs (a)(3) and (a)(6) of this section without first obtaining an escort or other approval from Commander, Naval Base, Charleston, when deemed necessary and appropriately noticed by him/her for security purposes or other military operations.

(2675) (4) Personnel, vessels and other watercraft, other than those specifically authorized by Commanding Officer, U.S. Naval Weapons Station, Charleston, SC, entering the restricted area described in paragraph (a)(8) of this section shall proceed at normal speed, and under no circumstances anchor, fish, loiter, or photograph in any way until clear of the restricted area.

(2676) (5) Personnel, vessels and other watercraft, other than those specifically authorized by Commanding Officer, U.S. Naval Weapons Station, Charleston, SC, entering the areas described in paragraphs (a)(9) and (a)(10) of this section are prohibited from entering within one-hundred (100) yards of the west bank of the Cooper River, in those portions devoid of any vessels or manmade structures. In those areas where vessels or man-made structures are present, the restricted area will be 100 yards from the shoreline or 50 yards beyond those vessels or other man-made structures, whichever is the greater. This includes the area in paragraph (a)(10) of this section.

(2677) (6) In the interest of National Security, Commanding Officer, U.S. Officer, U.S. Naval Weapons Station, Charleston, SC, may at his/her discretion, restrict passage of persons, watercraft and vessels in the areas described in paragraphs (a)(7) and (a)(11) of this section until such time as he/she determines such restriction may be terminated.

(2678) (7) All restricted areas and all danger zones and the approaches leading to the danger zones will be marked with suitable warning signs.

(2679) (8) The regulations described in paragraphs (b)(1), (2) and (3) of this section shall be enforced by Commander, Naval Base, Charleston, and such agencies as he/she may designate.

(2680) (9) The regulations in this section for the danger zones described in paragraphs (a)(12) and (a)(13) of this section and the regulations described in paragraphs (b) (4), (5) and (6) of this section, shall be enforced by the Commanding Officer, Naval Weapons Station Charleston, SC, and such agencies as he/she may designate.

(2681) (10) It is understood that none of the restrictions herein will apply to properly marked Federal vessels performing official duties. It is further understood that Federal employees will not take photographs from within the above described restricted areas.

(2682) (11) The unauthorized entering or crossing of the danger zones described in paragraphs (a)(12) and (a)(13) of this section by all persons, watercraft and vessels is prohibited at all times unless specifically authorized by the Commanding Officer of the U.S. Naval Weapons Station Charleston, SC.

(2683) **§334.470 Cooper River and Charleston Harbor, S.C.: restricted areas.** (a) The Restricted Areas. (1) Area No. 1 is that portion of the Cooper River beginning near the westerly shore north of Shipyard Creek at

(2684) "a" 32°50'14"N., 79°56'11"W.; thence to

(2685) "b" 32°50'14"N., 79°55'37"W.; thence to

(2686) "c" 32°49'41"N., 79°55'37"W.; thence to

(2687) "d" 32°49'41"N., 79°55'52"W.; thence to

(2688) "e" 32°49'47"N., 79°56'09"W.; and thence returning to

(2689) "a" 32°50'14"N., 79°56'11"W.

(2690) (2) Area No. 2 is that portion of the Cooper River beginning at a point west of Shutes Folly Island at

(2691) "a" 32°46'27"N., 79°55'31"W.; thence to

(2692) "b" 32°46'39"N., 79°55'11"W.; thence to

(2693) "c" 32°46'39"N., 79°54'51"W.; thence to

(2694) "d" 32°46'28"N., 79°54'47"W.; thence to

(2695) "e" 32°46'17"N., 79°54'51"W.; thence to

(2696) "f" 32°46'17"N., 79°55'11"W.; and thence returning to

(2697) "a" 32°46'27"N., 79°55'31"W.

(2698) (b) The regulations. (1) There shall be no introduction of magnetic material or magneto-electric field sources within the area.

(2699) (2) No person shall enter or remain in the water within the restricted areas. Ships transiting the areas will proceed without delay and shall not, except as noted below, lie to or anchor within the areas.

(2700) (i) Pleasure craft under 50 feet LOA will not normally be affected; however, such craft may be required to stand clear upon notification, in the event they are interfering with range operation.

(2701) (ii) Anchored commercial ships will be allowed to swing into the restricted area at the Shutes Folly Island site when the range is not in use. Shutes Folly Island Range usage will be indicated by range house display of the international DELTA signal flag.

(2702) (iii) This section shall be enforced by the Commandant, Sixth Naval District, Charleston, South Carolina, and such agencies as he may designate.

(2703) **§334.480 Archers Creek, Ribbon Creek and Broad River, S.C.; U.S. Marine Corps Recruit Depot Rifle and Pistol Ranges, Parris Island.** (a) During the periods when the rifle and pistol ranges on Parris Island are in use, the following areas will be restricted to navigation:

(2704) (1) At the rifle range. Archers Creek between Broad River and Beaufort River and Ribbon Creek from Broad Creek entrance. The area is inclosed by the following points:

(2705) 32°21'40"N., 80°44'52"W.;

(2706) 32°21'51"N., 80°44'38"W.;

(2707) 32°21'54"N., 80°44'41"W.;

(2708) 32°22'01"N., 80°44'21"W.;

(2709) 32°22'08"N., 80°44'15"W.;

(2710) 32°22'15"N., 80°44'07"W.;

(2711) 32°22'17"N., 80°44'05"W.;

(2712) 32°22'20"N., 80°43'52"W.;

(2713) 32°22'17"N., 80°43'48"W.;

(2714) 32°22'17"N., 80°43'47"W.;

(2715) 32°21'44"N., 80°43'28"W.;
(2716) 32°21'30"N., 80°43'13"W.;
(2717) 32°20'55"N., 80°42'23"W.;
(2718) 32°20'21"N., 80°42'24"W.;
(2719) 32°20'06"N., 80°42'43"W.;
(2720) 32°20'12"N., 80°43'01"W.;
(2721) 32°20'18"N., 80°43'22"W.;
(2722) 32°20'28"N., 80°43'33"W.;
(2723) 32°20'30"N., 80°43'37"W.;
(2724) 32°20'35"N., 80°43'41"W.;
(2725) and thence to point of beginning:
(2726) 32°21'40"N., 80°44'52"W.
(2727) (2) At the pistol range. An area in Broad River inclosed by the following points:
(2728) 32°20'09"N., 80°42'57"W.;
(2729) 32°19'27"N., 80°42'27"W.;
(2730) 32°18'57"N., 80°43'24"W.;
(2731) 32°19'39"N., 80°43'54"W.;
(2732) 32°20'00"N., 80°43'36"W.;
(2733) 32°20'00"N., 80°43'15"W.
(2734) The area will be adequately marked by red flags for the convenience and protection of the general public.
(2735) (b) Firing over these ranges will normally take place between the hours of 6:30 a.m. and 5 p.m., Monday through Friday, and from 6 a.m. to 12 noon on Saturday, National holidays excepted, and at other times as designated and properly published by the Commanding General, Parris Island Marine Base.
(2736) (c) No person, vessel and other watercraft shall enter the restricted waters when firing is in progress. At all other times these waters are open to navigation. Safety regulations shall be enforced at all times with the following specific precautions being provided by the Parris Island Marine Base:
(2737) (1) At the rifle range–Warning signs indicating the periods when the rifle range is in use will be posted at the entrances to Archers Creek and Ribbon Creek. Also the warning signs will be placed at the corners of the rifle range impact area.
(2738) (2) At the pistol range–Warning flag shall be flown from top of a lookout tower with a sentry lookout during actual firing. Also a patrol boat shall be accessible for clearing the area and warning all approaching vessels of the danger zone area and the schedule of firing. During storms or similar emergencies this area shall be opened to vessels to reach safety without undue delay for the preservation of life and property.
(2739) (d) The regulations in this section shall be enforced by the Commanding General, Marine Corps Recruit Depot, Parris Island, South Carolina, and such agencies as he may designate.
(2740) **§334.490 Atlantic Ocean off Georgia Coast; air-to-air and air-to-water gunnery and bombing ranges for fighter and bombardment aircraft, United States Air Force.** (a) The danger zones–(1) For fighter aircraft. An area approximately 30 miles offshore between Wassaw Sound and Brunswick, Georgia, described as follows: Beginning at
(2741) 31°55'30", 80°24'00"; thence 090° true to longitude 80°16'00"; thence southwesterly to
(2742) 31°10'00", 80°43'00"; thence 270° to longitude 80°51'00"; and then northeasterly to the point of beginning.
(2743) (2) For bombardment aircraft. An area approximately 70 miles off shore between Savannah Beach and Brunswick, Georgia, described as follows: Beginning at
(2744) 32°00'00", 79°43'00"; thence 090° true to longitude 79°07'00"; thence southwesterly to
(2745) 31°10'00", 79°24'00"; thence 270° true to longitude 80°00'00"; and thence northeasterly to the point of beginning.
(2746) (b) The regulations. (1) The danger zones shall be open to navigation except when aerial gunnery or bombing practice is being conducted.
(2747) (2) Prior to conducting each practice, the entire area will be patrolled by aircraft to warn any persons and watercraft found in the vicinity that such practice is about to take place. The warning will be by "buzzing," (i.e., by flying low over the person or watercraft.) Any person or watercraft shall, upon being so warned, immediately leave the area designated and shall remain outside the area until practice has ceased.
(2748) (3) The regulations in this section shall be enforced by the Commanding Officer, 2d Bombardment Wing, Hunter Air Force Base, Savannah, Georgia, and such agencies as he may designate.
(2749) **§334.500 St. Johns River Fla., Ribault Bay; restricted area.** (a) The Area. All waters constituting the Turning Basin within the Naval Air Base Reservation, Mayport, Florida, and enclosed by a line bearing approximately 180° true from Ribault Channel Light 4 to the shore at a point connecting with the Naval Base boundary line fence.
(2750) (b) *The regulations.* (1) All persons, vessels and craft, except those vessels operated by the U.S. Navy or Coast Guard are prohibited from entering this area except in cases of extreme emergency.
(2751) (2) This section shall be enforced by the Commander, United States Naval Air Station, Jacksonville, Florida, and such agencies as he may designate.
(2752) **§334.510 U.S. Navy Fuel Depot Pier, St. Johns River, Jacksonville, Fla.; restricted area.** (a) The area is described as:
(2753) (1) A line running at 238.5° true and paralleling the pier at 100 feet is extended from the eastern edge of the mooring platform No.59 to the western edge of platform No.65. From these points the boundaries are extended to the shoreline along lines running at 328.5°.
(2754) (2) The easterly waterward coordinate being:
(2755) 30°23'58.0"N., 81°37'15.0"W.
(2756) (3) The westerly waterward coordinate being:
(2757) 30°23'53.0"N., 81°37'24.4"W.
(2758) (b) *The regulations.* (1) The use of waters as previously described by private and/or commercial floating craft or persons is prohibited with the exception of vessels or persons that have been specifically authorized to do so by the Officer in Charge of the Navy Fuel Depot.
(2759) (2) This regulation shall be enforced by the Officer in Charge, U.S. Navy Fuel Depot, Jacksonville, Florida, and such agencies as the officer in charge may designate.
(2760) **§334.520 Lake George, Fla.; naval bombing area.** (a) The danger zone. An area in the eastern part of Lake George described as follows: Beginning at
(2761) 29°13'16", 81°34'28"; thence along a line parallel to the navigation channel to
(2762) 29°20'05", 81°36'15"; thence along a line about three-fifths mile southerly from the Putnam-Volusia County line to
(2763) 29°20'19", 81°35'12"; thence to
(2764) 29°18'36", 81°33'53"; thence to
(2765) 29°13'22", 81°32'38"; and thence to the point of beginning. The area will be marked by appropriate warnings signs at the five corners and at the midpoint of the longer side.

(2766) (b) The regulations. (1) Bombing operations will be confined, as nearly as practicable, to the north-south center line of the danger zone, keeping well clear of the navigation channel.

(2767) (2) Prior to each bombing operation the danger zone will be patrolled by naval aircraft which will warn all persons and vessels to leave the area by "zooming" a safe distance to the side and at least 500 feet above the surface. Upon being so warned, such persons and vessels shall leave the danger zone immediately and shall not re-enter the danger zone until bombing operations have ceased.

(2768) (3) At intervals of not more than three months, public notices will be issued that bombing operations are continuing. Such notices will appear in the local newspaper and in "Notice to Mariners."

(2769) (4) The regulations in this section shall not deny passage through Lake George by regular cargo-carrying vessels proceeding along established lanes for such vessels. When any such vessel is within the danger zone the officer in charge of the bombing operations will cause the cessation or postponement of such operations until the vessel has cleared the area. The vessel shall proceed on its normal course and shall not delay its progress.

(2770) (5) The regulations in this section shall be enforced by the Commander, Naval Air Bases, Sixth Naval District, Naval Air Station, Jacksonville, Florida, and such agencies as he may designate.

(2771) **§334.530 Canaveral Harbor adjacent to the Navy pier at Port Canaveral, Fla.; restricted area.** (a) The area. The waters of Canaveral Harbor within a line circumscribing the water approaches to the Navy pier along the northeasterly edge of the Canaveral Harbor turning basin at a distance of 200 feet from all portions of the pier including the dolphins 200 feet off the northwest end and 75 feet off the southeast end of the pier.

(2772) (b) *The regulations.* (1) All unauthorized vessels and personnel are prohibited from the area during specified periods.

(2773) (2) The area will be closed when a red square flag (bravo), and depending on the status of the hazardous operation, either an amber or red beacon, steady burning or rotating, day or night, when displayed from any of the three berths along the wharf.

(2774) (3) Lighted signs indicating the restricted area will be placed on the pier and adjacent thereto.

(2775) (4) The regulations in this section shall be enforced by the Commanding Officer, U.S. Naval Ordnance Test Unit, AFMTC, Patrick Air Force Base, Florida.

(2776) **§334.540 Banana River at Cape Canaveral Missile Test Annex, Fla.; restricted area.** (a) The area. The waters within a semicircle with a radius of 10,000 feet centered on the easterly shore of Banana River at Cape Canaveral at latitude 28°27'23", longitude 80°35'48".

(2777) (b) *The regulations.* (1) All unauthorized persons and craft shall stay clear of the area at all times.

(2778) (2) The regulations in this section shall be enforced by the Commander, Air Force Missile Test Center, Patrick Air Force Base, Florida, and such agencies as he may designate.

(2779) **§334.550 Banana River at Cape Canaveral Air Force Station, Fla., restricted area.** (a) The Area. (1) Starting at the northern boundary of the existing Prohibited Area as described in 33 CFR 334.540, and the shoreline at

(2780) 28°28'58"N., 80°35'26"W.; thence westerly along the northern boundary of 207.171a, to

(2781) 28°28'58"N., 80°35'43"W.; thence N 004°06'25" for 4,760.11 feet to

(2782) 28°29'45"N., 80°35'39"W.; thence due east to a point on the shoreline at

(2783) 28°29'45"N., 80°35'11"W.

(2784) (b) *The regulation.* (1) All unauthorized persons and craft shall stay clear of this area at all times.

(2785) (2) The regulations in this section shall be enforced by the Commander, Eastern Space and Missile Center, Patrick Air Force Base, Florida, and such agencies as he may designate.

(2786) **§334.560 Banana River at Patrick Air Force Base, Fla.; restricted area.** (a) The area. The water area within a semicircle with a radius of 600 feet having its center at latitude 28°14'14.1", longitude 80°36'54.7" near the easterly shore of Banana River. The offshore boundary will be marked with appropriate warning signs.

(2787) (b) *The regulations.* (1) All unauthorized persons and watercraft shall stay clear of the area at all times.

(2788) (2) The regulations in this section shall be enforced by the Commander, Air Force Missile Test Center, Patrick Air Force Base, Florida, and such agencies as he may designate.

(2789) **§334.570 Banana River near Orsino, Fla.; restricted area.** (a) The area. That part of Banana River N of the NASA Banana River Causeway near Orsino and extending above the head of said river to the N and westerly to Kennedy Parkway North.

(2790) (b) The regulations. (1) All unauthorized craft and personnel shall stay clear of the area at all times.

(2791) (2) The regulations in this section shall be enforced by the Director, John F. Kennedy Space Center, NASA, Cocoa Beach, Fla.

(2792) **§334.580 Atlantic Ocean near Port Everglades, Fla.; naval restricted area.** (a) The area. Beginning at a point at

(2793) 26°05'30"N., 80°03'30"W.; proceed west to

(2794) 26°05'30"N., 80°06'30"W.; thence, southerly to

(2795) 26°03'00"N., 80°06'42"W., thence, east to

(2796) 26°03'00"N., 80°05'44"W.; thence, south to

(2797) 26°01'36"N., 80°05'44"W.; thence, east to

(2798) 26°01'36"N., 80°03'30"W.; thence, north to the point of beginning.

(2799) (b) The regulations. (1) Anchoring of ocean-going vessels and/or any vessel with an anchor weight of 100 pounds or more and/or an anchor winch pull capacity of 300 pounds or more shall be prohibited in the above described area.

(2800) (2) The regulations of this section shall be enforced by the Officer-in-Charge of the Naval Surface Weapons Center, Ft. Lauderdale Facility, Florida, and such agencies as he/she may designate.

(2801) **§334.590 Atlantic Ocean off Cape Canaveral, Fla.; Air Force Missile Testing Area, Patrick Air Force Base, Fla.** (a) The danger zone. An area in the Atlantic Ocean immediately offshore from Cape Canaveral defined by a line 3 nautical miles from shore, said area terminating in the north at a line on a bearing of 070° from a point on shore at approximate latitude 28°35' north and in the south at a line on a bearing of 115° from a point on the shore at approximate latitude 28°25' north.

(2802) (b) *The regulations.* (1) All unauthorized persons and vessels are prohibited from operating within the danger zone during firing periods to be specified by the Commander, Air Force Missile Test Center, Patrick Air Force Base.

(2803) (2) Warning signals will be used to warn persons and vessels that the danger zone is active. These signals will be in the form of a large red ball and a red flashing high intensity beacon. One signal will be located on a 90-foot pole near the shoreline at

the north end of the danger zone, and one signal will be located on a 90-foot pole near the shoreline about one-half mile north of the south limit of the danger zone. An amber rotating beacon and warning sign will be erected on the north side of the Port Canaveral ship channel to indicate to vessels about to leave the harbor that the danger zone is in use.

(2804) (3) When the signals in paragraph (b)(2) of this section are displayed, all persons and vessels, except those authorized personnel and patrol vessels, will immediately leave the danger zone by the most direct route and stay out until the signals are discontinued.

(2805) (4) The regulations in this paragraph shall be enforced by the Commander, Air Force Missile Test Center, Patrick Air Force Base, Fla., and such agencies as he may designate.

(2806) **§334.600 Trident Basin Adjacent to Canaveral Harbor at Cape Canaveral Air Force Station, Brevard County, Florida Danger Zone.** (a) The Danger Zone. From the west side of the access channel at latitude 28°24'37", longitude 80°35'35" to the east side of the access channel at latitude 28°24'37", longitude 80°35'26" and the entire basin.

(2807) (b) *The regulations.* (1) No unauthorized person or vessel shall enter the area. The area will be used for loading and unloading explosives. The entrance to the basin will be marked by suitable boundary signs.

(2808) (2) The regulations will be enforced by the Commanding Officer, Naval Ordnance Test Unit, Patrick Air Force Base, Florida, or such agencies he may designate.

(2809) **§334.610 Key West Harbor, at U.S. Naval Base, Key West, Fla.; naval restricted areas and danger zone.**

(2810) (a) The areas. (1) All waters within 100 yards of the south shoreline of the Harry S. Truman Annex, beginning at a point on the shore at

(2811) 24°32'45.3"N., 81°47'51"W.; thence to a point 100 yards due south of the south end of Whitehead Street of

(2812) 24°32'42.3"N., 81°47'51"W.; thence extending westerly, paralleling the southerly shoreline of the Harry S. Truman Annex, to

(2813) 24°32'37.6"N., 81°48'32"W.; thence northerly to the shore at

(2814) 24°32'41"N., 81°48'31"W. (Area #1).

(2815) (2) All waters within 100 yards of the westerly shoreline of the Harry S. Truman Annex and all waters within a portion of the Truman Annex Harbor, as defined by a line beginning on the shore at

(2816) 24°33'00"N., 81°48'41.7"W.; thence to a point 100 yards due west at

(2817) 24°33'00"N., 81°48'45"W.; thence northerly, paralleling the westerly shoreline of the Harry S. Truman Annex, including a portion of the Truman Annex Harbor entrance, to

(2818) 24°33'23"N., 81°48'37"W.; thence southeasterly to the shore (sea wall) at

(2819) 24°33'19.3"N., 81°48'28.7"W. (Area #2).

(2820) (3) All waters within 100 yards of the U.S. Coast Guard Station and the westerly end of Trumbo Point Annex beginning at the shore at

(2821) 24°33'47.6"N., 81°47'55.6"W.; thence westerly to

(2822) 24°33'48"N., 81°48'00.9"W.; thence due south to

(2823) 24°33'45.8"N., 81°48'00.9"W.; thence westerly to

(2824) 24°33'47"N., 81°48'12"W.; thence northerly to

(2825) 24°34'06.2"N., 81°48'10"W.; thence easterly to a point joining the restricted area around Fleming Key at

(2826) 24°34'03.3"N., 81°47'55"W. (Area #3).

(2827) (4) Beginning at the last point designated in area 3 at

(2828) 24°34'03.3"N., 81°47'55"W.; proceed northwesterly, maintaining a distance of 100 yards from the shoreline of Fleming Key, except for a clearance of approximately 400 yards across the mouth of Fleming Cove near the southwesterly end of Fleming Key, continue around Fleming Key to a point,easterly of the southeast corner of Fleming Key at

(2829) 24°34'00.8"N., 81°47'37.5"W.: thence easterly to

(2830) 24°33'57.6"N., 81°47'20"W.; thence southerly to a point on the shore at

(2831) 24°33'54.7"N., 81°47'20.9"W. (Area #4).

(2832) (5) All waters contiguous to the southwesterly shoreline of Boca Chica Key beginning at a point on the southwest shoreline at

(2833) 24°33'24"N., 81°42'30"W.; proceed due south 100 yards to

(2834) 24°33'20.4"N., 81°42'30"W.; thence, maintaining a distance 100 yards from the shoreline, proceed westerly and northerly to

(2835) 24°34'03"N., 81°42'47"W.; thence due north to a point at the easterly end of the U.S. Highway 1 (Boca Chica Channel) bridge at

(2836) 24°34'39"N., 81°42'47"W. (Area #5).

(2837) (6) **Danger zone**. All waters within an area along the northeast side of the Naval Air Station on Boca Chica Key defined by a line beginning at

(2838) 24°35'27.2"N., 81°41'48.6"W.; thence proceed in a northerly direction to a point at

(2839) 24°35'48"N., 81°41'49"W.; thence proceed westerly to a point on the shore at

(2840) 24°35'49.1"N., 81°42'03"W. (Area #6).

(2841) (b) *The regulations:* (1) Entering or crossing Restricted Areas #1 and #4 and the Danger Zone (Area #6) described in paragraph (a) of this section, by any person or vessel, is prohibited.

(2842) (2) Privately owned vessels, properly registered and bearing identification in accordance with Federal and/or State laws and regulations may transit the following portions of restricted area #2, #3 and #5. NOTE: All vessels entering the areas at night must display lights as required by Federal laws and Coast Guard regulations or, if no constant lights are required, then the vessel must display a bright white showing all around the horizon,

(2843) (i) The channel, approximately 75 yards in width, extending from the northwest corner of Pier D-3 of Trumbo Point Annex, eastward beneath the Fleming Key bridge and along the north shore of Trumbo Point Annex (area #3).

(2844) (ii) A channel of 150 feet in width which extends easterly from the main ship channel into Key West Bight, the northerly edge of which channel passes 25 feet south of the Trumbo Point Annex piers on the north side of the Bight. While the legitimate access of privately owned vessels to facilities of Key West Bight is unimpeded, it is prohibited to moor, anchor, or fish within 50 feet of any U.S. Government-owned pier or craft (area #3).

(2845) (iii) The dredged portion of Boca Chica channel from its seaward end to a point due south of the east end of the Boca Chica Bridge (area #5).

(2846) (iv) All of the portion of Restricted Area No. 2 that lies between the Truman Annex Mole and the Key West Harbor Range Channel. The transit zone extends to the northwesterly corner of

the Truman Annex Mole, thence to the northwesterly end of the breakwater at

(2847) 24°33'21.3"N., 81°48'32.7"W.

(2848) (3) Stopping or landing by any person and/or any vessel, other than Government-owned vessels and specifically authorized private craft in any of the restricted areas or danger zone described in paragraph (a) of this section is prohibited.

(2849) (4) Vessels using the restricted channel areas described in paragraph (b)(2)(i), (ii), (iii), and (iv) of this section shall proceed at speeds commensurate with minimum wake.

(2850) (c) The regulations in this section shall be enforced by the Commanding Officer, Naval Air Station, Key West, Florida, and such agencies as he/she may designate.

(2851) **§334.620 Straits of Florida and Florida Bay in vicinity of Key West, Fla.; operational training area, aerial gunnery range, and bombing and strafing target areas, Naval Air Station, Key West, Fla.** (a) The danger zones–(1) Operational training area. Waters of the Straits of Florida and Gulf of Mexico southwest, west and northwest of Key West bounded as follows: Beginning at latitude 25°45'00", longitude 82°07'00"; thence southeast to

(2852) 24°49'00", 81°55'00"; thence southwest to

(2853) 24°37'30", 82°00'30"; thence westerly to

(2854) 24°37'30", 82°06'00"; thence southerly to

(2855) 24°28'30", 82°06'00"; thence southerly to

(2856) 24°25'00", 82°06'30"; thence easterly to

(2857) 24°25'00", 81°57'00"; thence southwesterly to

(2858) 23°30'00", 82°19'00"; thence westerly to

(2859) 23°30'00", 82°46'00"; thence northwesterly to

(2860) 23°52'30", 83°11'00"; thence northerly to

(2861) 24°25'00", 83°11'00"; thence easterly to

(2862) 24°25'00", 83°08'00"; thence clockwise along the arc of a circle with a radius of 92 miles centered at

(2863) 24°35'00", 81°41'15" to

(2864) 25°45'05", 82°23'30"; thence east to point of beginning.

(2865) (2) Bombing and strafing target areas.

(2866) (i) A circular area immediately west of Marquesas Keys with a radius of two nautical miles having its center at

(2867) 24°33.4'N., 82°10.9'W., not to include land area and area within Marquesas Keys. The target located within this area, a grounded LSIL will be used for bombing and aircraft rocket exercises.

(2868) (ii) A circular area located directly west of Marquesas Keys with a radius of three statute miles having its center at

(2869) 24°35.6'N., 82°11.6'W., not to include land area within Marquesas Keys. The targets located within this area, pile-mounted platforms, will be used as high altitude horizontal bombing range utilizing live ordnance up to and including 1,800 pounds of high explosives. In general, these explosives will be of an air-burst type, above 1,500 feet.

(2870) (iii) A circular area located west of Marquesas Keys with a radius of two nautical miles having its center at

(2871) 24°34'30", 82°14'00".

(2872) (b) The regulations. (1) In advance of scheduled air or surface operations which, in the opinion of the enforcing agency, may be dangerous to watercraft, appropriate warnings will be issued to navigation interests through official government and civilian channels or in such other manner as the District Engineer, Corps of Engineers, Jacksonville, Florida, may direct. Such warnings will specify the location, type, time, and duration of operations, and give such other pertinent information as may be required in the interests of safety.

(2873) (2) Watercraft shall not be prohibited from passing through the operational training area except when the operations being conducted are of such nature that the exclusion of watercraft is required in the interest of safety or for accomplishment of the mission, or is considered important to the national security.

(2874) (3) When the warning to navigation interests states that bombing and strafing operations will take place over the designated target areas or that other operations hazardous to watercraft are proposed to be conducted in a specifically described portion of the overall area, all watercraft will be excluded from the target area or otherwise described zone of operations and no vessel shall enter or remain therein during the period operations are in progress.

(2875) (4) Aircraft and naval vessels conducting operations in any part of the operational training area will exercise caution in order not to endanger watercraft. Operations which may be dangerous to watercraft will not be conducted without first ascertaining that the zone of operations is clear. Any vessel in the zone of operations will be warned to leave and upon being so warned the vessel shall leave immediately.

(2876) (5) The regulations in this section shall be enforced by the Commandant, Sixth Naval District, Charleston, S.C., and such agencies as he may designate.

TITLE 50–WILDLIFE AND FISHERIES

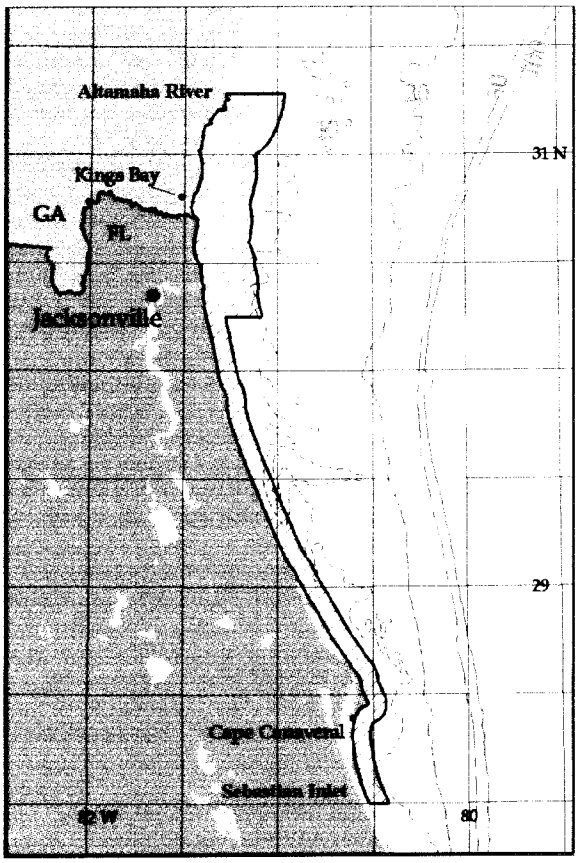
PART 222–General Endangered and Threatened Marine Species

Subpart A–Introduction and General Provisions

(2877) **§222.101 Purpose and scope of regulations.**

(2878) (a) The regulations of parts 222, 223, and 224 of this chapter implement the Endangered Species Act (Act), and govern the taking, possession, transportation, sale, purchase, barter, exportation, importation of, and other requirements pertaining to wildlife and plants under the jurisdiction of the Secretary of Commerce and determined to be threatened or endangered pursuant to section 4(a) of the Act. These regulations are implemented by the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce. This part pertains to general provisions and definitions. Specifically, parts 223 and 224 pertain to provisions to threatened species and endangered species, respectively. Part 226 enumerates designated critical habitat for endangered and threatened species. Certain of the endangered and threatened marine species enumerated in §§224.102 and 223.102 are included in Appendix I or II to the Convention on International Trade of Endangered Species of Wild Fauna and Flora. The importation, exportation, and re-exportation of such species are subject to additional regulations set forth at 50 CFR part 23, chapter I.

(2879) (b) For rules and procedures relating to species determined to be threatened or endangered under the jurisdiction of the Secretary of the Interior, see 50 CFR parts 10 through 17. For rules and procedures relating to the general implementation of the Act jointly by the Departments of the Interior and Commerce and for certain species under the joint jurisdiction of both the Secretaries of the Interior and Commerce, see 50 CFR Chapter IV. Marine mammals listed as endangered or threatened and sub-



The area designated as critical habitat in the Southeastern United States includes waters between 31 15'N (approximately located at the mouth of the Altamaha River, GA) and 30 15'N (approximately Jacksonville, FL) from the shoreline out to 15 nautical miles offshore, and the waters between 30 15'N and 28 00'N (approximately Sabastian Inlet, FL) from the shoreline out to 5 nautical miles.

ject to these regulations may also be subject to additional requirements pursuant to the Marine Mammal Protection Act (for regulations implementing that act, see 50 CFR part 216).

(2880) (c) No statue or regulation of any state shall be construed to relieve a person from the restrictions, conditions, and requirements contained in parts 222, 223, and 224 of this chapter. In addition, nothing in parts 222, 223, and 224 of this chapter, including any permit issued pursuant thereto, shall be construed to relieve a person from any other requirements imposed by a statute or regulation of any state or of the United States, including any applicable health, quarantine, agricultural, or customs laws or regulations, or any other National Marine Fisheries Service enforced statutes or regulations.

PART 224–Endangered Marine and Anadromous Species

(2881) **§224.103 Special prohibitions for endangered marine mammals.**

(2882) (b) *Approaching North Atlantic right whales.*

(2883) (1) *Prohibitions.* Except as provided under paragraph (b)(3) of this section, it is unlawful for any person subject to the jurisdiction of the United States to commit, attempt to commit, to solicit another to commit, or cause to be committed any of the following acts:

(2884) (i) Approach (including by interception) within 500 yards (460 m) of a right whale by vessel, aircraft, or any other means;

(2885) (ii) Fail to undertake required right whale avoidance measures specified under paragraph (b)(2) of this section.

(2886) (2) *Right whale avoidance measures.* Except as provided under paragraph (b)(3) of this section, the following avoidance measures must be taken if within 500 yards (460 m) of a right whale:

(2887) (i) If underway, a vessel must steer a course away from the right whale and immediately leave the area at a slow safe speed.

(2888) (ii) An aircraft must take a course away from the right whale and immediately leave the area at a constant airspeed.

(2889) (3) *Exceptions.* The following exceptions apply to this section, but any person who claims the applicability of an exception has the burden of proving that the exception applies:

(2890) (i) Paragraphs (b)(1) and (b)(2) of this section do not apply if a right whale approach is authorized by the National Marine Fisheries Service through a permit issued under part 222, subpart C, of this chapter (General Permit Procedures) or through a similar authorization.

(2891) (ii) Paragraphs (b)(1) and (b)(2) of this section do not apply where compliance would create an imminent and serious threat to a person, vessel, or aircraft.

(2892) (iii) Paragraphs (b)(1) and (b)(2) of this section do not apply when approaching to investigate a right whale entanglement or injury, or to assist in the disentanglement or rescue of a right whale, provided that permission is received from the National Marine Fisheries Service or designee prior to the approach.

(2893) (iv) Paragraphs (b)(1) and (b)(2) of this section do not apply to an aircraft unless the aircraft is conducting whale watch activities.

(2894) (v) Paragraph (b)(2) of this section does not apply to the extent that a vessel is restricted in her ability to maneuver and, because of the restriction, cannot comply with paragraph (b)(2) of this section.

PART 226–Designated Critical Habitat

(2895) **§226.101 Purpose and scope.**

(2896) The regulations contained in this part identify those habitats designated by the Secretary of Commerce as critical under section 4 of the Act, for endangered and threatened species under the jurisdiction of the Secretary of Commerce. Those species are enumerated at §223.102 of this chapter, if threatened and at Sec. 224.101 of this chapter, if endangered. For regulations pertaining to the designation of critical habitat, see part 424 of this title, and for regulations pertaining to prohibition against the adverse modification or destruction of critical habitat, see part 402 of this title. Maps and charts identifying designated critical habitat that are not provided in this section may be obtained upon request to the

Office of Protected Resources (see §222.102, definition of "Office of Protected Resources").

(2897) **§226.203 Critical habitat for Northern right whales.**

(2898) Northern Right Whale (*Eubalaena glacialis*)

(2899) (c) *Southeastern United States.* The coastal waters between 31°15 'N. and 30°15'N. from the coast out 15 nautical miles; and the coastal waters between 30°15'N. and 28°00'N. from the coast out 5 nautical miles.

Part 622–Fisheries of the Caribbean, Gulf, and South Atlantic

Subpart A–General Provisions

(2900) **§622.1 Purpose and scope.**

(2901) (a) The purpose of this part is to implement the FMPs prepared under the Magnuson Act by the CFMC, GMFMC, and/or SAFMC listed in Table 1 of this section.

(2902) (b) This part governs conservation and management of species included in the FMPs in or from the Caribbean, Gulf, Mid-Atlantic, or South Atlantic EEZ, as indicated in Table 1 of this section. For the FMPs noted in the following table, conservation and management extends to adjoining state waters for the purposes of data collection and monitoring:

(2903) **§622.2 Definitions and acronyms.**

(2904) In addition to the definitions in the Magnuson Act and in §600.10 of this chapter, and the acronyms in §600.15 of this chapter, the terms and acronyms used in this part have the following meanings:

(2905) *Allowable chemical* means a substance, generally used to immobilize marine life so that it can be captured alive, that, when introduced into the water, does not take Gulf and South Atlantic prohibited coral and is allowed by Florida for the harvest of tropical fish (e.g., quinaldine, quinaldine compounds, or similar substances).

(2906) *Allowable octocoral* means an erect, nonencrusting species of the subclass Octocorallia, except the seafans Gorgonia flabellum and G. ventalina, plus the attached substrate within 1 inch (2.54 cm) of an allowable octocoral.

(2907) **Note:** An erect, nonencrusting species of the subclass Octocorallia, except the seafans Gorgonia flabellum and G.

Table 1.—FMPs IMPLEMENTED UNDER PART 622

FMP title	Responsible fishery management council(s)	Geographical area
Atlantic Coast Red Drum FMP	SAFMC	Mid-Atlantic and South Atlantic.
FMP for Coastal Migratory Pelagic Resources	GMFMC/SAFMC	Gulf,[1] Mid-Atlantic[1,2] and South Atlantic.[1,3]
FMP for Coral and Coral Reefs,of the Gulf of Mexico	GMFMC	Gulf.
FMP for Coral, Coral Reefs, and Live/Hard Bottom Habitats of the South Atlantic region	SAFMC	South Atlantic
FMP for Corals and Reef Associated Plants and Invertebrates of Puerto Rico and the U.S. Virgin Islands	CFMC	Caribbean.
FMP for the Golden Crab Fishery of the South Atlantic Region	SAFMC	South Atlantic
FMP for Queen Conch Resources of Puerto Rico and the U.S. Virgin Islands	CFMC	Caribbean.
FMP for the Red Drum Fishery of the Gulf of Mexico	GMFMC	Gulf.[1]
FMP for the Reef Fish Fishery of Puerto Rico and the U.S. Virgin Islands.	CFMC	Caribbean.
FMP for the Reef Fish Resources of the Gulf of Mexico	GMFMC	Gulf.[1]
FMP for the Shrimp Fishery of the Gulf of Mexico	GMFMC	Gulf.[1]
FMP for the Shrimp Fishery of the South Atlantic Region.	SAFMC	South Atlantic.
FMP for the Snapper-Grouper Fishery of South Atlantic Region.	SAFMC	South Atlantic.[1, 4]
FMP for the Spiny Lobster Fishery of Puerto Rico and the U.S. Virgin Islands.	CFMC	Caribbean.

[1] Regulated area includes adjoining state waters for purposes of data collection and quota monitoring.

[2] Only king and Spanish mackerel are managed under the FMP in the Mid-Atlantic.

[3] Bluefish are not managed under the FMP in the South Atlantic.

[4] Bank, rock, and black sea bass and scup are not managed by the FMP or regulated by this part north of 35°15.3'N. lat., the latitude of Cape Hatteras Light, NC.

ventalina, with attached substrate exceeding 1 inch (2.54 cm) is considered to be live rock and not allowable octocoral.

(2908) *Aquacultured live rock* means live rock that is harvested under a Federal aquacultured live rock permit, as required under §622.4(a)(3)(iii).

(2909) *Authorized statistical reporting agent means:*

(2910) (1) Any person so designated by the SRD; or

(2911) (2) Any person so designated by the head of any Federal or State agency that has entered into an agreement with the Assistant Administrator to collect fishery data.

(2912) *Automatic reel* means a reel that remains attached to a vessel when in use from which a line and attached hook(s) are deployed. The line is payed out from and retrieved on the reel electrically or hydraulically.

(2913) *Bandit gear* means a rod and reel that remain attached to a vessel when in use from which a line and attached hook(s) are deployed. The line is payed out from and retrieved on the reel manually, electrically, or hydraulically.

(2914) *BRD* means bycatch reduction device.

(2915) *Buoy gear* means fishing gear consisting of a float and one or more weighted lines suspended therefrom, generally long enough to reach the bottom. A hook or hooks (usually 6 to 10) are on the lines at or near the end. The float and line(s) drift freely and are retrieved periodically to remove catch and rebait hooks.

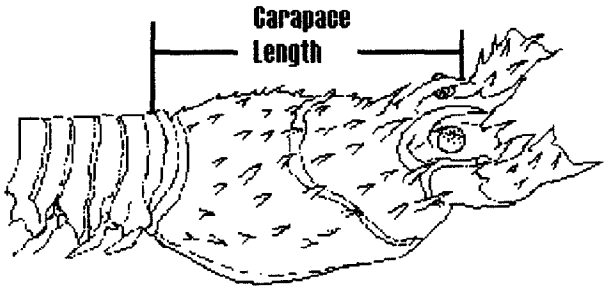
(2916) *Carapace length* means the straight-line distance from the orbital notch inside the orbital spine, in a line parallel to the lateral rostral sulcus, to the posterior margin of the cephalothorax.

(2917) *Caribbean* means the Caribbean Sea around Puerto Rico and the U.S. Virgin Islands.

(2918) *Caribbean conch resource* means one or more of the following species, or a part thereof:

(2919) (1) Atlantic triton's trumpet, *Charonia variegata*.

(2920) (2) Cameo helmet, Cassis *madagascarensis*.



(2921) (3) Caribbean helmet, *Cassis tuberosa*.

(2922) (4) Caribbean vase, *Vasum muricatum*.

(2923) (5) Flame helmet, *Cassis flammea*.

(2924) (6) Green star shell, *Astrea tuber*.

(2925) (7) Hawkwing conch, *Strombus raninus*.

(2926) (8) Milk conch, *Strombus costatus*.

(2927) (9) Queen conch, *Strombus gigus*.

(2928) (10) Roostertail conch, *Strombus gallus*.

(2929) (11) True tulip, *Fasciolaria tulipa*.

(2930) (12) West Indian fighting conch, *Strombus pugilis*.

(2931) (13) Whelk (West Indian top shell), *Cittarium pica*.

(2932) *Caribbean coral reef resource* means one or more of the species, or a part thereof, listed in Table 1 in Appendix A of this part, whether living or dead.

(2933) *Caribbean prohibited coral* means, in the Caribbean; a gorgonian, that is, a Caribbean coral reef resource of the Class Anthozoa, Subclass Octocorallia, Order Gorgonacea; a live rock; or a stony coral, that is, a Caribbean coral reef resource of the Class Hydrozoa (fire corals and hydrocorals) or of the Class Anthozoa, Subclass Hexacorallia, Orders Scleractinia (stony corals) and Antipatharia (black corals); or a part thereof.

(2934) *Caribbean reef fish* means one or more of the species, or a part thereof, listed in Table 2 in Appendix A of this part.

(2935) *Caribbean spiny lobster* means the species Panulirus argus, or a part thereof.

(2936) *CFMC* means the Caribbean Fishery Management Council.

(2937) *Charter vessel* means a vessel less than 100 gross tons (90.8 mt) that meets the requirements of the USCG to carry six or fewer passengers for hire and that carries a passenger for hire at any time during the calendar year. A charter vessel with a commercial permit, as required under §622.4(a)(2), is considered to be operating as a charter vessel when it carries a passenger who pays a fee or when there are more than three persons aboard, including operator and crew.

(2938) *Coastal migratory pelagic fish* means one or more of the following species, or a part thereof:

(2939) (1) Bluefish, *Pomatomus saltatrix* (Gulf of Mexico only).

(2940) (2) Cero, *Scomberomorus regalis*.

(2941) (3) Cobia, *Rachycentron canadum*.

(2942) (4) Dolphin, *Coryphaena hippurus*.

(2943) (5) King mackerel, *Scomberomorus cavalla*.

(2944) (6) Little tunny, *Euthynnus alletteratus*.

(2945) (7) Spanish mackerel, *Scomberomorus maculatus*.

(2946) *Coral area* means marine habitat in the Gulf or South Atlantic EEZ where coral growth abounds, including patch reefs, outer bank reefs, deep water banks, and hard bottoms.

(2947) Dealer, in addition to the definition specified in §600.15 of this chapter, means the person who first receives rock shrimp harvested from the EEZ upon transfer ashore.

(2948) Drift gillnet, for the purposes of this part, means a gillnet, other than a run-around gillnet, that is unattached to the ocean bottom, whether or not attached to a vessel.

(2949) *Fish trap* means–

(2950) (1) In the Caribbean EEZ, a trap and its component parts (including the lines and buoys), regardless of the construction material, used for or capable of taking finfish.

(2951) (2) In the Gulf EEZ, a trap and its component parts (including the lines and buoys), regardless of the construction material, used for or capable of taking finfish, except a trap historically used in the directed fishery for crustaceans (that is, blue crab, stone crab, and spiny lobster).

(2952) (3) In the South Atlantic EEZ, a trap and its component parts (including the lines and buoys), regardless of the construction material, used for or capable of taking fish, except a sea bass pot, a golden crab trap, or a crustacean trap (that is, a type of trap historically used in the directed fishery for blue crab, stone crab, red crab, jonah crab, or spiny lobster and that contains at any time not more than 25 percent, by number, of fish other than blue crab, stone crab, red crab, jonah crab, and spiny lobster).

(2953) *Fork length* means the straight-line distance from the tip of the head (snout) to the rear center edge of the tail (caudal fin). (See Appendix C of this part.)

(2954) *Golden crab* means the species Chaceon fenneri, or a part thereof.

(2955) *Golden crab trap* means any trap used or possessed in association with a directed fishery for golden crab in the South Atlantic EEZ, including any trap that contains a golden crab in or from the South Atlantic EEZ or any trap on board a vessel that possesses golden crab in or from the South Atlantic EEZ.

(2956) *GMFMC* means the Gulf of Mexico Fishery Management Council.

(2957) *Gulf* means the Gulf of Mexico. The line of demarcation between the Atlantic Ocean and the Gulf of Mexico is specified in §600.105(c) of this chapter.

(2958) *Gulf reef fish* means one or more of the species, or a part thereof, listed in Table 3 in Appendix A of this part.

(2959) *Gulf and South Atlantic prohibited coral* means, in the Gulf and South Atlantic, one or more of the following, or a part thereof:

(2960) (1) Coral belonging to the Class Hydrozoa (fire corals and hydrocorals).

(2961) (2) Coral belonging to the Class Anthozoa, Subclass Hexacorallia, Orders Scleractinia (stony corals) and Antipatharia (black corals).

(2962) (3) A seafan, Gorgonia flabellum or G. ventalina.

(2963) (4) Coral in a coral reef, except for allowable octocoral.

(2964) (5) Coral in an HAPC, including allowable octocoral.

(2965) *HAPC* means habitat area of particular concern.

(2966) *Headboat* means a vessel that holds a valid Certificate of Inspection issued by the USCG to carry passengers for hire. A headboat with a commercial vessel permit, as required under §622.4(a)(2), is considered to be operating as a headboat when it carries a passenger who pays a fee or –

(2967) (1) In the case of persons aboard fishing for or possessing South Atlantic snapper-grouper, when there are more persons aboard than the number of crew specified in the vessel's Certificate of Inspection; or

(2968) (2) In the case of persons aboard fishing for or possessing coastal migratory pelagic fish or Gulf reef fish, when there are more than three persons aboard, including operator and crew.

(2969) *Headrope length* means the distance, measured along the forwardmost webbing of a trawl net, between the points at which the upper lip (top edge) of the mouth of the net are attached to sleds, doors, or other devices that spread the net.

(2970) *Live rock* means living marine organisms, or an assemblage thereof, attached to a hard substrate, including dead coral or rock (excluding individual mollusk shells).

(2971) *Long gillnet* means a gillnet that has a float line that is more than 1,000 yd (914 m) in length.

(2972) *Longline* means a line that is deployed horizontally to which gangions and hooks are attached. A longline may be a bottom longline, i.e., designed for use on the bottom, or a pelagic longline, i.e., designed for use off the bottom. The longline hauler may be manually, electrically, or hydraulically operated.

(2973) *MAFMC* means the Mid-Atlantic Fishery Management Council.

(2974) *Mid-Atlantic* means the Atlantic Ocean off the Atlantic coastal states from the boundary between the New England Fishery Management Council and the MAFMC, as specified in §600.105(a) of this chapter, to the boundary between the MAFMC and the SAFMC, as specified in §600.105(b) of this chapter.

(2975) *Migratory group*, for king and Spanish mackerel, means a group of fish that may or may not be a separate genetic stock, but that is treated as a separate stock for management purposes. King and Spanish mackerel are divided into migratory groups –the Atlantic migratory group and the Gulf migratory group. The boundaries between these groups are as follows:

(2976) (1) *King mackerel*–(i) *Summer separation.* From April 1 through October 31, the boundary separating the Gulf and Atlantic migratory groups of king mackerel is 25°48'N., which is a line directly west from the Monroe/Collier County, FL, boundary to the outer limit of the EEZ.

(2977) (ii) *Winter separation.* From November 1 through March 31, the boundary separating the Gulf and Atlantic migratory groups of king mackerel is 29°25'N., which is a line directly east from the Volusia/Flagler County, FL, boundary to the outer limit of the EEZ.

(2978) (2) *Spanish mackerel.* The boundary separating the Gulf and Atlantic migratory groups of Spanish mackerel is 25°20.4'N., which is a line directly east from the Dade/Monroe County, FL, boundary to the outer limit of the EEZ.

(2979) *Off Florida* means the waters in the Gulf and South Atlantic from 30°42'45.6"N., which is a line directly east from the seaward terminus of the Georgia/Florida boundary, to 87°31'06"W., which is a line directly south from the Alabama/Florida boundary.

(2980) *Off Georgia* means the waters in the South Atlantic from a line extending in a direction of 104° from true north from the seaward terminus of the South Carolina/Georgia boundary to 30°42'45.6"N., which is a line directly east from the seaward terminus of the Georgia/Florida boundary.

(2981) *Off Louisiana, Mississippi, and Alabama* means the waters in the Gulf other than off Florida and off Texas.

(2982) *Off North Carolina* means the waters in the South Atlantic from 36°34'55"N., which is a line directly east from the Virginia/North Carolina boundary, to a line extending in a direction of 135°34'55" from true north from the North Carolina/South Carolina boundary, as marked by the border station on Bird Island at 33°51'07.9"N., 78°32'32.6"W.

(2983) *Off South Carolina* means the waters in the South Atlantic from a line extending in a direction of 135°34'55" from true north from the North Carolina/South Carolina boundary, as marked by the border station on Bird Island at 33°51'07.9"N., 78°32'32.6"W., to a line extending in a direction of 104 from true north from the seaward terminus of the South Carolina/Georgia boundary.

(2984) *Off Texas* means the waters in the Gulf west of a rhumb line from 29°32.1'N., 93°47.7'W. to 26°11.4'N., 92°53'W., which line is an extension of the boundary between Louisiana and Texas.

(2985) *Official sunrise or official sunset* means the time of sunrise or sunset as determined for the date and location in The *Nautical Almanac*, prepared by the U.S. Naval Observatory.

(2986) *Penaeid shrimp trawler* means any vessel that is equipped with one or more trawl nets whose on-board or landed catch of brown, pink, or white shrimp (penaeid shrimp) is more than 1 percent, by weight, of all fish comprising its on-board or landed catch.

(2987) *Powerhead* means any device with an explosive charge, usually attached to a speargun, spear, pole, or stick, that fires a projectile upon contact.

(2988) *Processor* means a person who processes fish or fish products, or parts thereof, for commercial use or consumption.

(2989) *Purchase* means the act or activity of buying, trading, or bartering, or attempting to buy, trade, or barter.

(2990) *Red drum*, also called redfish, means *Sciaenops ocellatus*, or a part thereof.

(2991) *Red snapper* means Lutjanus campechanus, or a part thereof, one of the Gulf reef fish species.

(2992) *Regional Administrator (RA)*, for the purposes of this part, means the Administrator, Southeast Region, NMFS, 9721 Executive Center Drive N., St. Petersburg, FL 33702, or a designee.

(2993) *Run-around gillnet* means a gillnet with a float line 1,000 yards (914 m) or less in length that, when used, encloses an area of water.

(2994) *SAFMC* means the South Atlantic Fishery Management Council.

(2995) *Sale or sell* means the act or activity of transferring property for money or credit, trading, or bartering, or attempting to so transfer, trade, or barter.

(2996) *Science and Research Director (SRD), for the purposes of this part,* means the Science and Research Director, Southeast Fisheries Science Center, NMFS (see Table 1 of Sec. 600.502 of this chapter).

(2997) *Sea bass pot* means a trap has six rectangular sides and does not exceed 25 inches (63.5 cm) in height, width, or depth.

(2998) *Shrimp* means one or more of the following species, or a part thereof:

(2999) (1) Brown shrimp, *Penaeus aztecus.*

(3000) (2) Pink shrimp, *Penaeus duorarum.*

(3001) (3) Rock shrimp, *Sicyonia brevirostris.*

(3002) (4) Royal red shrimp, *Pleoticus robustus.*

(3003) (5) Seabob shrimp, *Xiphopenaeus kroyeri.*

(3004) (6) White shrimp, *Penaeus setiferus.*

(3005) *Shrimp trawler* means any vessel that is equipped with one or more trawl nets whose on-board or landed catch of shrimp is more than 1 percent, by weight, of all fish comprising its on-board or landed catch.

(3006) *SMZ* means special management zone.

(3007) *South Atlantic* means the Atlantic Ocean off the Atlantic coastal states from the boundary between the MAFMC and the SAFMC, as specified in §600.105(b) of this chapter, to the line of demarcation between the Atlantic Ocean and the Gulf of Mexico, as specified in §600.105(c) of this chapter.

(3008) *South Atlantic snapper-grouper* means one or more of the species, or a part thereof, listed in Table 4 in Appendix A of this part.

(3009) *Stab net* means a gillnet, other than a long gillnet, or trammel net whose weight line sinks to the bottom and submerges the float line.

(3010) *Total length (TL)*, for the purposes of this part, means the straight-line distance from the tip of the snout to the tip of the tail (caudal fin), excluding any caudal filament, while the fish is lying on its side. The mouth of the fish may be closed and/or the tail may be squeezed together to give the greatest overall measurement. (See Appendix C of this part.)

(3011) *Toxic chemical* means any substance, other than an allowable chemical, that, when introduced into the water, can stun, immobilize, or take marine life.

(3012) *Trammel net* means two or more panels of netting, suspended vertically in the water by a common float line and a common weight line, with one panel having a larger mesh size than the other(s), to entrap fish in a pocket of netting.

(3013) *Trip* means a fishing trip, regardless of number of days duration, that begins with departure from a dock, berth, beach, seawall, or ramp and that terminates with return to a dock, berth, beach, seawall, or ramp.

(3014) *Try net*, also called test net, means a net pulled for brief periods by a shrimp trawler to test for shrimp concentrations or determine fishing conditions (e.g., presence or absence of bottom debris, jellyfish, bycatch, seagrasses).

(3015) *Wild live rock* means live rock other than aquacultured live rock.

(3016) *Wreckfish* means the species Polyprion americanus, or a part thereof, one of the South Atlantic snapper-grouper species.

(3017) **§622.3 Relation to other laws and regulations.**

(3018) (a) The relation of this part to other laws is set forth in §600.705 of this chapter and paragraphs (b) and (c) of this section.

(3019) (b) Except for regulations on allowable octocoral, Gulf and South Atlantic prohibited coral, and live rock, this part is intended to apply within the EEZ portions of applicable National Marine Sanctuaries and National Parks, unless the regulations governing such Sanctuaries or Parks prohibit their application. Regulations on allowable octocoral, Gulf and South Atlantic prohibited coral, and live rock do not apply within the EEZ portions of the following National Marine Sanctuaries and National Parks:

(3020) (1) Everglades National Park (36 CFR 7.45).

(3021) (2) Looe Key National Marine Sanctuary (15 CFR part 937).

(3022) (3) Fort Jefferson National Monument (36 CFR 7.27).

(3023) (4) Key Largo Coral Reef National Marine Sanctuary (15 CFR part 929).

(3024) (5) Biscayne National Park (16 U.S.C. 410gg).

(3025) (6) Gray's Reef National Marine Sanctuary (15 CFR Part 938).

(3026) (7) Monitor Marine Sanctuary (15 CFR part 924).

(3027) (c) For allowable octocoral, if a state has a catch, landing, or gear regulation that is more restrictive than a catch, landing, or gear regulation in this part, a person landing in such state allowable octocoral taken from the Gulf or South Atlantic EEZ must comply with the more restrictive state regulation.

(3028) (d) General provisions on facilitation of enforcement, penalties, and enforcement policy applicable to all domestic fisheries are set forth in §§600.730, 600.735, and 600.740 of this chapter, respectively.

(3029) (e) An activity that is otherwise prohibited by this part may be conducted if authorized as scientific research activity, exempted fishing, or exempted educational activity, as specified in §600.745 of this chapter.

(3030) **§622.4 Permits and fees.**

(3031) (a) *Permits required.* To conduct activities in fisheries governed in this part, valid Federal permits are required as follows:

(3032) (1) *Charter vessel/headboat permits.* For a person aboard a vessel that is operating as a charter vessel or headboat to fish for or possess coastal migratory pelagic fish, Gulf reef fish, or South Atlantic snapper-grouper in or from the EEZ, a charter vessel/headboat permit for coastal migratory pelagic fish, Gulf reef fish, or South Atlantic snapper-grouper, respectively, must have been issued to the vessel and must be on board. A charter vessel or headboat may have both a charter vessel/headboat permit and a commercial vessel permit. However, when a vessel is operating as a charter vessel or headboat, a person aboard must adhere to the bag limits.

(3033) (2) *Commercial vessel permits and endorsements*–(i) *Fish traps in the Gulf.* For a person to possess or use a fish trap in the EEZ in the Gulf of Mexico, a commercial vessel permit for Gulf reef fish with a fish trap endorsement must have been issued to the vessel and must be on board. See paragraph (n) of this section regarding fish trap endorsements.

(3034) (ii) *Gillnets for king mackerel in the southern Florida west coast subzone.* For a person aboard a vessel to use a run-around gillnet for king mackerel in the southern Florida west coast subzone (see §622.42(c)(1)(i)(A)(3)), a commercial vessel permit for king mackerel with a gillnet endorsement must have been issued to the vessel and must be on board. See paragraph (o) of this section regarding a moratorium on endorsements for the use of gillnets for king mackerel in the southern Florida west subzone and restrictions on transferability of king mackerel gillnet endorsements.

(3035) (iii) *King mackerel.* For a person aboard a vessel to be eligible for exemption from the bag limits and to fish under a quota for king mackerel in or from the Gulf, Mid-Atlantic, or South Atlantic EEZ, a commercial vessel permit for king mackerel must have been issued to the vessel and must be on board. To obtain or renew a commercial vessel permit for king mackerel valid after April 30, 1999, at least 24 percent of the applicant's earned income, or at least $10,000, must have been derived from commercial fishing (i.e., harvest and first sale of fish) or from charter fishing during one of the 3 calendar years preceding the application. See paragraph (q) of this section regarding a moratorium on commerical vessel permits for king mackerel, initial permits under the moratorium, transfers of permits during the moratorium, and limited exceptions to the earned income or gross sales requirements for a permit.

(3036) (iv) *Spanish mackerel.* For a person aboard a vessel to be eligible for exemption from the bag limits and to fish under a quota for Spanish mackerel in or from the Gulf, Mid-Atlantic, or South Atlantic EEZ, a commercial vessel permit for Spanish mackerel must have been issued to the vessel and must be on board. To obtain or renew a commercial vessel permit for Spanish mackerel valid after April 30, 1999, at least 25 percent of the applicant's earned income, or at least $10,000, must have been derived from commercial fishing (i.e., harvest and first sale of fish) or from charter fishing during one of the 3 calendar years preceding the application.

(3037) (v) *Gulf reef fish.* For a person aboard a vessel to be eligible for exemption from the bag limits, to fish under a quota, or to sell Gulf reef fish in or from the Gulf EEZ, a commercial vessel permit for Gulf reef fish must have been issued to the vessel and must be on board. To obtain or renew a commercial vessel permit for Gulf reef fish, more than 50 percent of the applicant's earned income must have been derived from commercial fishing, that is, sale of fish harvested from the applicant's vessels, or from charter or headboat operations during either of the 2 calendar years preceding the application. See paragraph (m) of this section regarding a moratorium on commercial vessel permits for Gulf reef fish and limited exceptions to the earned income requirement for a permit.

(3038) (vi) *South Atlantic snapper-grouper.* For a person aboard a vessel to be eligible for exemption from the bag limits for South Atlantic snapper-grouper in or from the South Atlantic EEZ, to engage in the directed fishery for tilefish in the South Atlantic EEZ, to use a longline to fish for South Atlantic snapper-grouper in the South Atlantic EEZ, or to use a sea bass pot in the South Atlantic EEZ north of 28°35.1'N. (due east of the NASA Vehicle Assembly Building, Cape Canaveral, FL), a commercial vessel permit for South Atlantic snapper-grouper must have been issued to the vessel and must be on board. A vessel with longline gear and more than 200 lb (90.7 kilograms) of tilefish aboard is considered to be in the directed fishery for tilefish. It is a rebuttable presumption that a fishing vessel with more than 200 lb of tilefish aboard harvested such tilefish in the EEZ. To obtain or renew a commercial vessel permit for South Atlantic snapper-grouper, more than 50 percent of the applicant's earned income must have been derived from commercial fishing, that is, sale of fish harvested from the applicant's vessels, or from charter or headboat operations; or gross sales of fish harvested from the owner's, operator's, corporation's, or partnership's vessels must have been greater than $20,000, during one of the 3 calendar years preceding the application.

(3039) (vii) *Wreckfish.* For a person aboard a vessel to fish for wreckfish in the South Atlantic EEZ, possess wreckfish in or from the South Atlantic EEZ, offload wreckfish from the South Atlantic EEZ, or sell wreckfish in or from the South Atlantic EEZ, a commercial vessel permit for wreckfish must have been issued to the vessel and must be on board. To obtain a commercial vessel permit for wreckfish, the applicant must be a wreckfish shareholder; and either the shareholder must be the vessel owner or the owner or operator must be an employee, contractor, or agent of the shareholder. (See §622.15 for information on wreckfish shareholders.)

(3040) (viii) *South Atlantic rock shrimp.* For a person aboard a vessel to fish for rock shrimp in the South Atlantic EEZ or possess rock shrimp in or from the South Atlantic EEZ, a commercial vessel permit for rock shrimp must be issued to the vessel and must be on board.

(3041) (ix) *Gulf red snapper.* Effective through December 31, 1997, as a prerequisite for exemption from the trip limit for red snapper specified in §622.44 (d) (1), a commercial vessel permit for Gulf reef fish with a red snapper endorsement must have been issued to the vessel and must be on board.

(3042) (3) *Coral permits*–(i) *Allowable chemical.* For an individual to take or possess fish or other marine organisms with an allowable chemical in a coral area, other than fish or other marine organisms that are landed in Florida, a Federal allowable chemical permit must have been issued to the individual. Such permit must be available when the permitted activity is being conducted and when such fish or other marine organisms are possessed, through landing ashore.

(3043) (ii) *Allowable octocoral.* For an individual to take or possess allowable octocoral in the Gulf or South Atlantic EEZ, other than allowable octocoral that is landed in Florida, a Federal allowable octocoral permit must have been issued to the individual. Such permit must be available for inspection when the permitted activity is being conducted and when allowable octocoral is possessed, through landing ashore.

(3044) (iii) *Aquacultured live rock.* For a person to take or possess aquacultured live rock in the Gulf or South Atlantic EEZ, a Federal aquacultured live rock permit must have been issued for the specific harvest site. Such permit, or a copy, must be on board a vessel depositing or possessing material on an aquacultured live rock site or harvesting or possessing live rock from an aquacultured live rock site.

(3045) (iv) *Prohibited coral.* A Federal permit may be issued to take or possess Gulf and South Atlantic prohibited coral or Carib-

bean prohibited coral only as scientific research activity, exempted fishing, or exempted educational activity. See §600.745 of this chapter for the procedures and limitations for such activities and fishing.

(3046) (v) *Florida permits.* Appropriate Florida permits and endorsements are required for the following activities, without regard to whether they involve activities in the EEZ or Florida's waters:

(3047) (A) Landing in Florida fish or other marine organisms taken with an allowable chemical in a coral area.

(3048) (B) Landing allowable octocoral in Florida.

(3049) (C) Landing live rock in Florida.

(3050) (4) *Dealer permits.* For a dealer to receive Gulf reef fish, golden crab harvested from the South Atlantic EEZ, South Atlantic snapper-grouper, rock shrimp harvested from the South Atlantic EEZ, or wreckfish, a dealer permit for Gulf reef fish, golden crab, South Atlantic snapper-grouper, rock shrimp, or wreckfish, respectively, must be issued to the dealer. To obtain a dealer permit, the applicant must have a valid state wholesaler's license in the state(s) where the dealer operates, if required by such state(s), and must have a physical facility at a fixed location in such state(s).

(3051) (b) *Applications for permits.* Application forms for all permits are available from the RA. Completed application forms and all required supporting documents must be submitted to the RA at least 30 days prior to the date on which the applicant desires to have the permit made effective. All vessel permits are mailed to owners, whether the applicant is an owner or an operator.

(3052) (1) *Coral permits.* (i) The applicant for a coral permit must be the individual who will be conducting the activity that requires the permit. In the case of a corporation or partnership that will be conducting live rock aquaculture activity, the applicant must be the principal shareholder or a general partner.

(3053) (ii) An applicant must provide the following:

(3054) (A) Name, address, telephone number, and other identifying information of the applicant.

(3055) (B) Name and address of any affiliated company, institution, or organization.

(3056) (C) Information concerning vessels, harvesting gear/methods, or fishing areas, as specified on the application form.

(3057) (D) Any other information that may be necessary for the issuance or administration of the permit.

(3058) (E) If applying for an aquacultured live rock permit, identification of each vessel that will be depositing material on or harvesting aquacultured live rock from the proposed aquacultured live rock site, specification of the port of landing of aquacultured live rock, and a site evaluation report prepared pursuant to generally accepted industry standards that–

(3059) (1) Provides accurate coordinates of the proposed harvesting site so that it can be located using LORAN or Global Positioning System equipment;

(3060) (2) Shows the site on a chart in sufficient detail to determine its size and allow for site inspection;

(3061) (3) Discusses possible hazards to safe navigation or hindrance to vessel traffic, traditional fishing operations, or other public access that may result from aquacultured live rock at the site;

(3062) (4) Describes the naturally occurring bottom habitat at the site; and

(3063) (5) Specifies the type and origin of material to be deposited on the site and how it will be distinguishable from the naturally occurring substrate.

(3064) (2) *Dealer permits.* (i) The application for a dealer permit must be submitted by the owner (in the case of a corporation, an officer or shareholder; in the case of a partnership, a general partner).

(3065) (ii) An applicant must provide the following:

(3066) (A) A copy of each state wholesaler's license held by the dealer.

(3067) (B) Name, address, telephone number, date the business was formed, and other identifying information of the business.

(3068) (C) The address of each physical facility at a fixed location where the business receives fish.

(3069) (D) Name, address, telephone number, other identifying information, and official capacity in the business of the applicant.

(3070) (E) Any other information that may be necessary for the issuance or administration of the permit, as specified on the application form.

(3071) (3) *Vessel permits.* (i) The application for a commercial vessel permit, other than for wreckfish, or for a charter vessel/headboat permit must be submitted by the owner (in the case of a corporation, an officer or shareholder; in the case of a partnership, a general partner) or operator of the vessel. A commercial vessel permit that is issued based on the earned income qualification of an operator is valid only when that person is the operator of the vessel. The applicant for a commercial vessel permit for wreckfish must be a wreckfish shareholder.

(3072) (ii) An applicant must provide the following:

(3073) (A) A copy of the vessel's valid USCG certificate of documentation or, if not documented, a copy of its valid state registration certificate.

(3074) (B) Vessel name and official number.

(3075) (C) Name, address, telephone number, and other identifying information of the vessel owner and of the applicant, if other than the owner.

(3076) (D) Any other information concerning the vessel, gear characteristics, principal fisheries engaged in, or fishing areas, as specified on the application form.

(3077) (E) Any other information that may be necessary for the issuance or administration of the permit, as specified on the application form.

(3078) (F) If applying for a commercial vessel permit, documentation, as specified in the instructions accompanying each application form, showing that applicable eligibility requirements of paragraph (a)(2) of this section have been met.

(3079) (G) If a fish trap or sea bass pot will be used, the number dimensions, and estimated cubic volume of the traps/pots that will be used and the applicant's desired color code for use in identifying his or her vessel and buoys (white is not an acceptable color code).

(3080) (c) *Change in application information.* The owner or operator of a vessel with a permit, a person with a coral permit, or a dealer with a permit must notify the RA within 30 days after any change in the application information specified in paragraph (b) of this section.

(3081) (d) *Fees.* A fee is charged for each permit application submitted under paragraph (b) of this section or under 622.17(d) and for each fish trap or sea bass pot identification tag required under §622.6(b)(1)(i). The amount of each fee is calculated in accordance with the procedures of the NOAA Finance Handbook

available from the RA, for determining the administrative costs of each special product or service. The fee may not exceed such costs and is specified with each application form. The appropriate fee must accompany each application or request for fish trap/sea bass pot identification tags.

(3082) (e) *Initial issuance.* (1) The RA will issue an initial permit at any time to an applicant if the application is complete and the specific requirements for the requested permit have been met. An application is complete when all requested forms, information, and documentation have been received.

(3083) (2) Upon receipt of an incomplete application, the RA will notify the applicant of the deficiency. If the applicant fails to correct the deficiency within 30 days of the date of the RA's letter of notification, the application will be considered abandoned.

(3084) (f) *Duration.* A permit remains valid for the period specified on it unless it is revoked, suspended, or modified pursuant to subpart D of 15 CFR part 904 or the vessel or dealership is sold.

(3085) (g) *Transfer.* A vessel permit, license or endorsement or dealer permit issued under this section is not transferable or assignable, except as provided in paragraph (m) of this section for a commercial vessel permit for Gulf reef fish, in paragraph (n) of this section for a fish trap endorsement, in paragraph (o) of this section for a Gulf king mackerel gillnet endorsement, in paragraph (p) of this section for a red snapper license, in paragraph (q) of this section for a king mackerel permit, in §622.17(c) for a commerical vessel permit for golden crab, or in §622.18(e) for a commerical vessel permit for South Atlantic snapper-grouper. A person who acquires a vessel or dealership who desires to conduct activities for which a permit or endorsement is required must apply for a permit or endorsement in accordance with the provisions of this section. If the acquired vessel or dealership is currently permitted, the application must be accompanied by the original permit and a copy of a signed bill of sale or equivalent acquisition papers.

(3086) (h) *Renewal.* Although a permit, license, or endorsement required by this section is issued on an annual basis, an application for its renewal is required only every 2 years. In the interim years, renewal is automatic (without application) for a vessel owner or dealer who has met the specific requirements for the requested permit, license, or endorsement; who has submitted all reports required under the Magnuson-Stevens Act; and who is not subject to a sanction or denial under paragraph (j) of this section. An owner or dealer whose permit, license, or endorsement is expiring will be mailed a notification by the RA approximately 2 months prior to its expiration. That notification will advise the status of the renewal. That is, the notification will advise that the renewal will be issued without further action by the owner or dealer (automatic renewal); that the permit, license, or endorsement is ineligible for automatic renewal; or that a new application is required.

(3087) (1) *If eligible for automatic renewal.* If the RA's notification indicates that the owner's or dealer's permit, license, or endorsement is eligible for automatic renewal, the RA will mail the automatically renewed permit, license or endorsement approximately 1 month prior to expiration of the old permit, license, or endorsement.

(3088) (2) *If ineligible for automatic renewal.* If the RA's notification indicates that the owner's or dealer's permit, license, or endorsement is ineligible for automatic renewal, the notification will specify the reasons and will provide an opportunity for correction of any deficiencies. If the owner or dealer does not correct such deficiencies within 60 days after the date of the RA's notification, the renewal will be considered abandoned. A permit, license, or endorsement that is not renewed within the applicable deadline will not be reissued.

(3089) (3) *If new application is required.* If the RA's notification indicates that a new application is required, the notification will include a preprinted renewal application. If the RA receives an incomplete application, the RA will notify the applicant of the deficiency. If the applicant fails to correct the deficiency within 30 days of the date of the RA's letter of notification, the application will be considered abandoned. A permit, license, or endorsement that is not renewed within the applicable deadline will not be reissued.

(3090) (4) *If notification is not received.* A vessel owner or dealer who does not receive a notification from the RA regarding status of renewal of a permit, license, or endorsement of 45 days prior to expiration of the current permit must contact the RA.

(3091) (i) *Display.* A vessel permit or endorsement issued under this section must be carried on board the vessel. A dealer permit issued under this section, or a copy thereof, must be available on the dealer's premises. In addition, a copy of the dealer's permit must accompany each vehicle that is used to pick up from a fishing vessel reef fish harvested from the Gulf EEZ. The operator of a vessel must present the permit or endorsement for inspection upon the request of an authorized officer. A dealer or a vehicle operator must present the permit or a copy for inspection upon the request of an authorized officer.

(3092) (j) *Sanctions and denials.* A permit or endorsement issued pursuant to this section may be revoked, suspended, or modified, and a permit or endorsement application may be denied, in accordance with the procedures governing enforcement-related permit sanctions and denials found at subpart D of 15 CFR part 904.

(3093) (k) *Alteration.* A permit that is altered, erased, or mutilated is invalid.

(3094) (l) *Replacement.* A replacement permit or endorsement may be issued. An application for a replacement permit or endorsement will not be considered a new application. A fee, the amount of which is stated with the application form, must accompany each request for a replacement.

(3095) (m) *Moratorium on commercial vessel permits for Gulf reef fish.* The provisions of this paragraph (m) are applicable through December 31, 2000.

(3096) (1) No applications for additional commercial vessel permits for Gulf reef fish will be accepted. Existing vessel permits may be renewed, are subject to the restrictions on transfer or change in paragraphs (m)(2) through (5) of this section, and are subject to the requirement for timely renewal in paragraph (m)(6) of this section.

(3097) (2) An owner of a permitted vessel may transfer the commercial vessel permit for Gulf reef fish to another vessel owned by the same entity.

(3098) (3) An owner whose earned income qualified for the commercial vessel permit for Gulf reef fish may transfer the permit to the owner of another vessel, or to the new owner when he or she transfers ownership of the permitted vessel. Such owner of another vessel, or new owner, may receive a commercial vessel permit for Gulf reef fish for his or her vessel, and renew it through April 15 following the first full calendar year after obtaining it, without meeting the earned income requirement of paragraph (a)(2)(v) of this section. However, to further renew the commercial vessel permit, the owner of the other vessel, or new owner,

must meet the earned income requirement not later than the first full calendar year after the permit transfer takes place.

(3099) (4) An owner of a permitted vessel, the permit for which is based on an operator's earned income and, thus, is valid only when that person is the operator of the vessel, may transfer the permit to the income qualifying operator when such operator becomes an owner of a vessel.

(3100) (5) An owner of a permitted vessel, the permit for which is based on an operator's earned income and, thus, is valid only when that person is the operator of the vessel, may have the operator qualification on the permit removed, and renew it without such qualification through April 15 following the first full calendar year after removing it, without meeting the earned income requirement of paragraph (a)(2)(v) of this section. However, to further renew the commercial vessel permit, the owner must meet the earned income requirement not later than the first full calendar year after the operator qualification is removed. To have an operator qualification removed from a permit, the owner must return the original permit to the RA with an application for the changed permit.

(3101) (6) A commercial vessel permit for Gulf reef fish that is not renewed or that is revoked will not be reissued. A permit is considered to be not renewed when an application for renewal is not received by the RA within 1 year of the expiration date of the permit.

(3102) (n) *Endorsements for fish traps in the Gulf.* The provisions of this paragraph (n) are applicable through February 7, 2007. After February 7, 2007, no fish trap endorsements are valid.

(3103) (1) Only those fish trap endorsements that are valid on February 7, 1997, may be renewed. Such endorsements are subject to the restrictions on transfer in paragraphs (n)(2) and (3) of this section and are subject to the requirement for timely renewal in paragraph (n)(5) of this section.

(3104) (2) Through February 7, 1999, a fish trap endorsement may be transferred only to a vessel that has a commercial permit for reef fish.

(3105) (3) After February 7, 1999, a fish trap endorsement is not transferable except as follows:

(3106) (i) An owner of a vessel with a fish trap endorsement may transfer the endorsement to another vessel owned by the same entity.

(3107) (ii) A fish trap endorsement is transferable upon a change of ownership of a permitted vessel with such endorsement from one to another of the following: Husband, wife, son, daughter, brother, sister, mother, or father.

(3108) (iii) When a change of ownership of a vessel with a fish trap endorsement is directly related to the disability or death of the owner, the RA may issue such endorsement, temporarily or permanently, with the commercial vessel permit for Gulf reef fish that is issued for the vessel under the new owner. Such new owner will be the person specified by the owner or his/her legal guardian, in the case of a disabled owner, or by the will or executor/administrator of the estate, in the case of a deceased owner. (Paragraphs (m)(3) and (4) of this section apply for the transfer of a commercial vessel permit for Gulf reef fish upon disability or death of an owner.)

(3109) (iv) A fish trap endorsement may be transferred to a vessel with a commercial vessel permit for Gulf reef fish whose owner has a record of landings of reef fish from fish traps in the Gulf EEZ, as reported on fishing vessel logbooks received by the SRD, from November 20, 1992, through February 6, 1994, and who was unable to obtain a fish trap endorsement for the vessel with the reported landings.

(3110) (4) The owner of a vessel that is to receive a transferred endorsement must return the originals of the endorsed commercial vessel permit for Gulf reef fish and the unendorsed permit to the RA with an application for a fish trap endorsement for his or her vessel.

(3111) (5) A fish trap endorsement that is not renewed or that is revoked will not be reissued. Such endorsement is considered to be not renewed when an application for renewal is not received by the RA within 1 year of the expiration date of the permit.

(3112) (o) *Moratorium on endorsements for the use of gillnets for king mackerel in the southern Florida west coast subzone.* (1) An initial king mackerel gillnet endorsement will be issued only if–

(3113) (i) The vessel owner was the owner of a vessel with a commercial mackerel permit with a gillnet endorsement on or before October 16, 1995; and

(3114) (ii) The vessel owner was the owner of a vessel that had gillnet landings of Gulf migratory group king mackerel in one of the two fishing years, July 1, 1995, through June 30, 1996, or July 1, 1996, through June 30, 1997. Such landings must have been documented by NMFS or by the Florida Department of Environmental Protection trip ticket system as of December 31, 1997. Only landings when a vessel had a valid commercial permit for king mackerel with a gillnet endorsement and only landings that were harvested, landed, and sold in compliance with state and Federal regulations may be used to establish eligibility.

(3115) (2) Paragraphs (o)(1)(i) and (o)(1)(ii) of this section notwithstanding, the owner of a vessel that received a commercial king mackerel permit through transfer, between March 4, 1998, and March 28, 2000, from a vessel that met the eligibility requirements in paragraphs (o)(1)(i) and (o)(1)(ii) also qualifies for an initial king mackerel gillnet endorsement.

(3116) (3) To obtain an initial king mackerel gillnet endorsement under the moratorium, an owner or operator of a vessel that does not have a king mackerel gillnet endorsement on March 28, 2000, must submit an application to the RA, postmarked or hand delivered not later than June 26, 2000. Except for applications for renewals of king mackerel gillnet endorsements, no applications for king mackerel gillnet endorsements will be accepted after June 26, 2000. Application forms are available from the RA.

(3117) (4) The RA will not issue an owner more initial king mackerel gillnet endorsements under the moratorium than the number of vessels with king mackerel gillnet endorsements that the owner owned simultaneously on or before October 16, 1995.

(3118) (5) An owner of a vessel with a king mackerel gillnet endorsement issued under this moratorium may transfer that endorsement upon a change of ownership of a permitted vessel with such endorsement from one to another of the following: Husband, wife, son, daughter, brother, sister, mother, or father. Such endorsement also may be transferred to another vessel owned by the same entity.

(3119) (6) A king mackerel gillnet endorsement that is not renewed or that is revoked will not be reissued. An endorsement is considered to be not renewed when an application for renewal is not received by the RA within 1 year after the expiration date of the permit that includes the endorsement.

(3120) (p) *Gulf red snapper licenses*–(1) *Class 1 licenses.* To be eligible for the 2,000-lb (907-kg) trip limit for Gulf red snapper specified in §622.44(e)(1), a vessel must have been issued both a

valid commercial vessel permit for Gulf reef fish and a valid Class 1 Gulf red snapper license, and such permit and license must be on board.

(3121) (2) *Class 2 licenses.* To be eligible for the 200-lb (91-kg) trip limit for Gulf red snapper specified in §622.44(e)(2), a vessel must have been issued both a valid commercial vessel permit for Gulf reef fish and a valid Class 2 Gulf red snapper license, and such permit and license must be on board.

(3122) (3) *Operator restriction.* An initial Gulf red snapper license that is issued for a vessel based on the qualification of an operator or historical captain is valid only when that operator or historical captain is the operator of the vessel. When applicable, this operator restriction is shown on the license.

(3123) (4) *Transfer of Gulf red snapper licenses.* A red snapper license may be transferred independently of a commercial vessel permit for Gulf reef fish. To request the transfer of a red snapper license, complete the transfer information on the reverse of the license and return it to the RA.

(3124) (5) *Initial issue of Gulf red snapper licenses*–(i) *Class 1 licenses.* (A) An initial Class 1 license will be issued for the vessel specified by the holder of a valid red snapper endorsement on March 1, 1997, and to a historical captain. In the event of death or disability of such holder between March 1, 1997, and the date Class 1 licenses are issued, a Class 1 license will be issued for the vessel specified by the person to whom the red snapper endorsement was transferred.

(3125) (B) Status as a historical captain is based on information collected under Amendment 9 to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico (FMP) (59 FR 39301, August 2, 1994). A historical captain is an operator who –

(3126) (1) From November 6, 1989, through 1993, fished solely under verbal or written share agreements with an owner, and such agreements provided for the operator to be responsible for hiring the crew, who was paid from the share under his or her control;

(3127) (2) Landed from that vessel at least 5,000 lb (2,268 kg) of red snapper per year in 2 of the 3 years 1990, 1991, and 1992;

(3128) (3) Derived more than 50 percent of his or her earned income from commercial fishing, that is, sale of the catch, in each of the years 1989 through 1993; and

(3129) (4) Landed red snapper prior to November 7, 1989.

(3130) (ii) *Class 2 licenses.* (A) An initial Class 2 license will be issued for the vessel specified by an owner or operator whose income qualified for a commercial vessel permit for reef fish that was valid on March 1, 1997, and such owner or operator was the person whose earned income qualified for a commercial vessel permit for reef fish that had a landing of red snapper during the period from January 1, 1990, through February 28, 1997.

(3131) (B) For the purpose of paragraph (p)(5)(ii)(A) of this section, landings of red snapper are as recorded in the information collected under Amendment 9 to the FMP (59 FR 39301, August 2, 1994) for the period 1990 through 1992 and in fishing vessel logbooks, as required under §622.5(a)(1)(ii), received by the SRD not later than March 31, 1997, for the period from January 1, 1993, through February 28, 1997.

(3132) (C) A vessel's red snapper landings record during the period from January 1, 1990, through February 28, 1997, is retained by the owner at the time of the landings if the vessel's permit was transferred to another vessel owned by him or her. When a vessel has had a change of ownership and concurrent transfer of its permit, the vessel's red snapper landings record is credited to the owner of that vessel on March 1, 1997, unless there is a legally binding agreement under which a previous owner retained the landings record. An owner who claims such retention of a landings record must submit a copy of the agreement to the RA postmarked or hand delivered no later than January 30, 1998. However, an owner who submits a copy of such agreement after January 6, 1998, is not assured that a red snapper license will be issued before the opening of the commercial fishery for red snapper on February 1, 1998.

(3133) (6) *Implementation procedures*–(i) *Initial notification.* The RA will notify each owner of a vessel that had a valid permit for Gulf reef fish on March 1, 1997, each operator whose earned income qualified for a valid permit on that date, and each potential historical captain of his or her eligibility for a Class 1 or Class 2 red snapper license. Initial determinations of eligibility will be based on NMFS' records of red snapper endorsements, red snapper landings during the period from January 1, 1990, through February 28, 1997, and applications for historical captain status under Amendment 9 to the FMP (59 FR 39301, August 2, 1994). An owner, operator, or potential historical captain who concurs with NMFS' initial determination of eligibility need take no further action. Each owner, operator, and historical captain who is initially determined to be eligible will be issued an appropriate license not later than January 23, 1998.

(3134) (ii) *Reconsideration.* (A) An owner, operator, or potential historical captain who does not concur with NMFS' initial determination of eligibility for historical captain status or for a Class 2 red snapper license may request reconsideration of that initial determination by the RA.

(3135) (B) A written request for reconsideration must be submitted to the RA postmarked or hand delivered not later than February 10, 1998, and must provide written documentation supporting the basis for reconsideration. However, an owner who submits such request after January 13, 1998, is not assured that a red snapper license will be issued before the opening of the commercial fishery for red snapper on February 1, 1998. Upon request by the owner, operator, or potential historical captain, the RA will forward the initial determination, the request for reconsideration, and pertinent records to a committee consisting of the principal state officials who are members of the GMFMC, or their designees. An owner, operator, or potential historical captain may request to make a personal appearance before the committee in his or her request for reconsideration. If an owner, operator, or potential historical captain requests that his or her request be forwarded to the committee, such a request constitutes the applicant's written authorization under section 402(b)(1)(F) of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.) for the RA to make available to the committee members such confidential catch and other records as are pertinent to the matter under reconsideration.

(3136) (C) Members of the committee will provide their individual recommendations for each application for reconsideration referred to the committee to the RA. The committee may only deliberate whether the eligibility criteria specified in paragraph (p)(5) of this section were applied correctly in the applicant's case, based solely on the available record, including documentation submitted by the applicant. Neither the committee nor the RA may consider whether a person should have been eligible for historical captain status or a Class 2 license because of hardship or other factors. The RA will make a final decision based on the initial eligibility criteria in paragraph (p)(5) of this section and the available record, including documentation submitted by the

applicant, and, if the request is considered by the committee, the recommendations and comments from each member of the committee. The RA will notify the applicant of the decision and the reason therefore, in writing, within 15 days of receiving the recommendations of the committee members. If the application is not considered by the committee, the RA will provide such notification within 15 days of the RA's receipt of the request for reconsideration. The RA's decision will constitute the final administrative action by NMFS on an application for reconsideration.

(3137) (q) *Moratorium on commercial vessel permits for king mackerel.* This paragraph (q) is effective through October 15, 2000.

(3138) (1) Effective March 4, 1998, an initial commercial vessel permit for king mackerel will be issued only if the vessel owner was the owner of a vessel with a commercial vessel permit for king mackerel on or before October 16, 1995. A king mackerel permit for a vessel whose owner does not meet this moratorium criterion may be renewed only through April 30, 1999.

(3139) (2) To obtain a commercial vessel permit for king mackerel under the moratorium, an owner or operator of a vessel that does not have a valid king mackerel permit on March 4, 1998, must submit an application to the RA postmarked or hand delivered not later than June 2, 1998. Other than applications for renewals of commercial vessel permits for king mackerel, no applications for commercial vessel permits for king mackerel will be accepted after June 2, 1998. Application forms are available from the RA.

(3140) (3) An owner will not be issued initial commercial vessel permits for king mackerel under the moratorium in numbers exceeding the number of vessels permitted in the king mackerel fishery that he/she owned simultaneously on or before October 16, 1995. If a vessel with a commercial vessel permit for king mackerel on or before October 16, 1995, has been sold since that date, the owner on or before that date retains the right to the commercial vessel permit for king mackerel unless there is a written agreement that such right transfers to the new owner.

(3141) (4) An owner of a permitted vessel may transfer the commercial vessel permit for king mackerel issued under this moratorium to another vessel owned by the same entity.

(3142) (5) An owner whose percentage of earned income or gross sales qualified him/her for the commercial vessel permit for king mackerel issued under the moratorium may request that NMFS transfer that permit to the owner of another vessel, or to the new owner when he or she transfers ownership of the permitted vessel. Such owner of another vessel, or new owner, may receive a commercial vessel permit for king mackerel for his or her vessel, and renew it through April 15 following the first full calendar year after obtaining it, without meeting the percentage of earned income or gross sales requirement of paragraph (a)(2)(iii) of this section. However, to further renew the commercial vessel permit, the owner of the other vessel, or new owner, must meet the earned income or gross sales requirement not later than the first full calendar year after the permit transfer takes place.

(3143) (6) An owner of a permitted vessel, the permit for which is based on an operator's earned income and, thus, is valid only when that person is the operator of the vessel, may request that NMFS transfer the permit to the income-qualifying operator when such operator becomes an owner of a vessel.

(3144) (7) An owner of a permitted vessel, the permit for which is based on an operator's earned income and, thus, is valid only when that person is the operator of the vessel, may have the operator qualification on the permit removed, and renew it without such qualification through April 15 following the first full calendar year after removing it, without meeting the earned income or gross sales requirement of paragraph (a)(2)(iii) of this section. However, to further renew the commercial vessel permit, the owner must meet the earned income or gross sales requirement not later than the first full calendar year after the operator qualification is removed. To have an operator qualification removed from a permit, the owner must return the original permit to the RA with an application for the changed permit.

(3145) (8) NMFS will not reissue a commercial vessel permit for king mackerel if the permit is revoked or if the RA does not receive an application for renewal within 1 year of the permit's expiration date.

(3146) **§622.5 Recordkeeping and reporting.**

(3147) Participants in fisheries governed in this part are required to keep records and report as follows.

(3148) (a) *Commercial vessel owners and operators*–(1) *Requirements by specie* –(i) *Coastal migratory pelagic fish.* The owner or operator of a vessel that fishes for or lands coastal migratory pelagic fish for sale in or from the Gulf or South Atlantic EEZ or adjoining state waters, or whose vessel is issued a commercial permit for king and Spanish mackerel, as required under §622.4(a)(2)(iv), who is selected to report by the SRD must maintain a fishing record on a form available from the SRD and must submit such record as specified in paragraph (a)(2) of this section.

(3149) (ii) *Gulf reef fish.* The owner or operator of a vessel for which a commercial permit for Gulf reef fish has been issued, as required under §622.4(a)(2)(v), or whose vessel fishes for or lands reef fish in or from state waters adjoining the Gulf EEZ, who is selected to report by the SRD must maintain a fishing record on a form available from the SRD and must submit such record as specified in paragraph (a)(2) of this section.

(3150) (iii) *Gulf shrimp.* The owner or operator of a vessel that fishes for shrimp in the Gulf EEZ or in adjoining state waters, or that lands shrimp in an adjoining state, must provide information for any fishing trip, as requested by the SRD, including, but not limited to, vessel identification, gear, effort, amount of shrimp caught by species, shrimp condition (heads on/heads off), fishing areas and depths, and person to whom sold.

(3151) (iv) *South Atlantic snapper-grouper.* (A) The owner or operator of a vessel for which a commercial permit for South Atlantic snapper-grouper has been issued, as required under §622.4(a)(2)(vi), or whose vessel fishes for or lands South Atlantic snapper-grouper in or from state waters adjoining the South Atlantic EEZ, who is selected to report by the SRD must maintain a fishing record on a form available from the SRD and must submit such record as specified in paragraph (a)(2) of this section.

(3152) (B) The wreckfish shareholder under §622.15, or operator of a vessel for which a commercial permit for wreckfish has been issued, as required under §622.4(a)(2)(vii), must maintain a fishing record on a form available from the SRD and must submit such record as specified in paragraph (a)(2) of this section.

(3153) (C) The wreckfish shareholder under §622.15, or operator of a vessel for which a commercial permit for wreckfish has been issued, as required under §622.4(a)(2)(vii), must make available to an authorized officer upon request all records of offloadings, purchases, or sales of wreckfish.

(3154) (v) *South Atlantic golden crab.* The owner or operator of a vessel for which a commercial permit for golden crab has been issued, as required under §622.17(a), who is selected to report by the SRD must maintain a fishing record on a form available from the SRD.

(3155) (2) *Reporting deadlines.* (i) Completed fishing records required by paragraphs (a)(1)(i), (ii), and (iv) of this section must be submitted to the SRD postmarked not later than 7 days after the end of each fishing trip. If no fishing occurred during a calendar month, a report so stating must be submitted on one of the forms postmarked not later than 7 days after the end of that month. Information to be reported is indicated on the form and its accompanying instructions.

(3156) (ii) Reporting forms required in paragraph (a)(1)(v) of this section must be submitted to the SRD postmarked not later than 30 days after sale of the golden crab offloaded from a trip. If no fishing occurred during a calendar month, a report so stating must be submitted on one of the forms postmarked not later than 7 days after the end of that month. Information to be reported is indicated on the form and its accompanying instructions.

(3157) (b) *Charter vessel/headboat owners and operators*–(1) Coastal migratory pelagic fish, reef fish, and snapper-grouper. The owner or operator of a vessel for which a charter vessel/headboat permit for coastal migratory pelagic fish, Gulf reef fish, or South Atlantic snapper-grouper has been issued, as required under §622.4(a)(1), or whose vessel fishes for or lands such coastal migratory pelagic fish, reef fish, or snapper-grouper in or from state waters adjoining the Gulf or South Atlantic EEZ, who is selected to report by the SRD must maintain a fishing record for each trip, or a portion of such trips as specified by the SRD, on forms provided by the SRD and must submit such record as specified in paragraph (b)(2) of this section.

(3158) (2) *Reporting deadlines*–(i) *Charter vessels.* Completed fishing records required by paragraph (b)(1) of this section for charter vessels must be submitted to the SRD weekly, postmarked not later than 7 days after the end of each week (Sunday). Information to be reported is indicated on the form and its accompanying instructions.

(3159) (ii) *Headboats.* Completed fishing records required by paragraph (b)(1) of this section for headboats must be submitted to the SRD monthly and must either be made available to an authorized statistical reporting agent or be postmarked not later than 7 days after the end of each month. Information to be reported is indicated on the form and its accompanying instructions.

(3160) (c) *Dealers*–(1) *Coastal migratory pelagic fish.* (i) A person who purchases coastal migratory pelagic fish from a fishing vessel, or person, that fishes for or lands such fish in or from the EEZ or adjoining state waters who is selected to report by the SRD must submit information on forms provided by the SRD. This information must be submitted to the SRD at monthly intervals, postmarked not later than 5 days after the end of each month. Reporting frequency and reporting deadlines may be modified upon notification by the SRD. If no coastal migratory pelagic fish were received during a calendar month, a report so stating must be submitted on one of the forms, in accordance with the instructions on the form, and must be postmarked not later than 5 days after the end of the month. The information to be reported is as follows:

(3161) (A) Dealer's or processor's name and address.

(3162) (B) County where fish were landed.

(3163) (C) Total poundage of each species received during that month, or other requested interval.

(3164) (D) Average monthly price paid for each species.

(3165) (E) Proportion of total poundage landed by each gear type.

(3166) (ii) Alternate SRD. For the purposes of paragraph (c)(1)(i) of this section, in the states from New York through Virginia, or in the waters off those states, "SRD" means the Science and Research Director, Northeast Fisheries Science Center, NMFS (see Table 1 of §600.502 of this chapter), or a designee.

(3167) (2) *Gulf red drum.* A dealers or processor who purchases red drum harvested from the Gulf who is selected to report by the SRD must report to the SRD such information as the SRD may request and in the form and manner as the SRD may require. The information required to be submitted must include, but is not limited to, the following:

(3168) (i) Dealer's or processor's name and address.

(3169) (ii) State and county where red drum were landed.

(3170) (iii) Total poundage of red drum received during the reporting period, by each type of gear used for harvest.

(3171) (3) *Gulf reef fish.* A person who purchases Gulf reef fish from a fishing vessel, or person, that fishes for or lands such fish in or from the EEZ or adjoining state waters must maintain records and submit information as follows:

(3172) (i) A dealer must maintain at his/her principal place of business a record of Gulf reef fish that he/she receives. The record must contain the name of each fishing vessel from which reef fish were received and the date, species, and quantity of each receipt. A dealer must retain such record for at least 1 year after receipt date and must provide such record for inspection upon the request of an authorized officer or the SRD.

(3173) (ii) When requested by the SRD, a dealer must provide information from his/her record of Gulf reef fish received the total poundage of each species received during the month, average monthly price paid for each species by market size, and proportion of total poundage landed by each gear type. This information must be provided on forms available from the SRD and must be submitted to the SRD at monthly intervals, postmarked not later than 5 days after the end of the month. Reporting frequency and reporting deadlines may be modified upon notification by the SRD. If no reef fish were received during a calendar month, a report so stating must be submitted on one of the forms, postmarked not later than 5 days after the end of the month.

(3174) (iii) The operator of a car or truck that is used to pick up from a fishing vessel reef fish harvested from the Gulf must maintain a record containing the name of each fishing vessel from which reef fish on the car or truck have been received. The vehicle operator must provide such record for inspection upon the request of an authorized officer.

(3175) (4) *Gulf shrimp.* A person who purchases shrimp from a vessel, or person, that fishes for shrimp in the Gulf EEZ or in adjoining state waters, or that lands shrimp in an adjoining state, must provide the following information when requested by the SRD:

(3176) (i) Name and official number of the vessel from which shrimp were received or the name of the person from whom shrimp were received, if received from other than a vessel.

(3177) (ii) Amount of shrimp received by species and size category for each receipt.

(3178) (iii) Exvessel value, by species and size category, for each receipt.

(3179) (5) *South Atlantic snapper-grouper.* (i) A person who purchases South Atlantic snapper-grouper that were harvested from the EEZ or from adjoining state waters and who is selected to report by the SRD and a dealer who has been issued a dealer permit for wreckfish, as required under §622.4(a)(4), must provide information on receipts of South Atlantic snapper-grouper and prices paid, by species, on forms available from the SRD. The required information must be submitted to the SRD at monthly intervals, postmarked not later than 5 days after the end of the month. Reporting frequency and reporting deadlines may be modified upon notification by the SRD. If no South Atlantic snapper-grouper were received during a calendar month, a report so stating must be submitted on one of the forms, postmarked not later than 5 days after the end of the month. However, during complete months encompassed by the wreckfish spawning-season closure (that is, February and March), a wreckfish dealer is not required to submit a report stating that no wreckfish were received.

(3180) (ii) A dealer reporting South Atlantic snapper-grouper other than wreckfish may submit the information required in paragraph (c)(5)(i) of this section via facsimile (fax).

(3181) (iii) A dealer who has been issued a dealer permit for wreckfish, as required under §622.4(a)(4), must make available to an authorized officer upon request all records of offloadings, purchases, or sales of wreckfish.

(3182) (6) *South Atlantic golden crab.* A dealer who receives from a fishing vessel golden crab harvested from the South Atlantic EEZ and who is selected by the SRD must provide information on receipts of, and prices paid for, South Atlantic golden crab to the SRD at monthly intervals, postmarked not later than 5 days after the end of each month. Reporting frequency and reporting deadlines may be modified upon notification by the SRD.

(3183) (7) *South Atlantic rock shrimp.* (i) A dealer who has been issued a permit for rock shrimp, as required under §622.4(a)(4), and who is selected by the SRD must provide information on receipts of rock shrimp and prices paid on forms available from the SRD. The required information must be submitted to the SRD at monthly intervals postmarked not later than 5 days after the end of each month. Reporting frequencies and reporting deadlines may be modified upon notification by the SRD.

(3184) (ii) On demand, a dealer who has been issued a dealer permit for rock shrimp, as required under §622.4(a)(4), must make available to an authorized officer all records of offloadings, purchases, or sales of rock shrimp.

(3185) (d) *Individuals with coral or live rock permits.* (1) An individual with a Federal allowable octocoral permit must submit a report of harvest to the SRD. Specific reporting requirements will be provided with the permit.

(3186) (2) A person with a Federal aquacultured live rock permit must report to the RA each deposition of material on a site. Such reports must be postmarked not later than 7 days after deposition and must contain the following information:

(3187) (i) Permit number of site and date of deposit.

(3188) (ii) Geological origin of material deposited.

(3189) (iii) Amount of material deposited.

(3190) (iv) Source of material deposited, that is, where obtained, if removed from another habitat, or from whom purchased.

(3191) (3) A person who takes aquacultured live rock must submit a report of harvest to the RA. Specific reporting requirements will be provided with the permit. This reporting requirement is waived for aquacultured live rock that is landed in Florida.

(3192) (e) *Additional data and inspection.* Additional data will be collected by authorized statistical reporting agents and by authorized officers. A person who fishes for or possesses species in or from the EEZ governed in this part is required to make the applicable fish or parts thereof available for inspection by the SRD or an authorized officer upon request.

(3193) (f) *Commercial vessel, charter vessel, and headboat inventory.* The owner or operator of a commercial vessel, charter vessel, or headboat operating in a fishery governed in this part who is not selected to report by the SRD under paragraph (a) or (b) of this section must provide the following information when interviewed by the SRD:

(3194) (1) Name and official number of vessel and permit number, if applicable.

(3195) (2) Length and tonnage.

(3196) (3) Current home port.

(3197) (4) Fishing areas.

(3198) (5) Ports where fish were offloaded during the last year.

(3199) (6) Type and quantity of gear.

(3200) (7) Number of full- and part-time fishermen or crew members.

(3201) **§622.6 Vessel and gear identification.**

(3202) (a) *Vessel identification*–(1) *Applicability* –(i) *Official number.* A vessel for which a permit has been issued under §622.4 or §622.17, and a vessel that fishes for or possesses shrimp in the Gulf EEZ, must display its official number –

(3203) (A) On the port and starboard sides of the deckhouse or hull and, for vessels over 25 ft (7.6 m) long, on an appropriate weather deck, so as to be clearly visible from an enforcement vessel or aircraft.

(3204) (B) In block arabic numerals permanently affixed to or painted on the vessel in contrasting color to the background.

(3205) (C) At least 18 inches (45.7 cm) in height for vessels over 65 ft (19.8 m) long; at least 10 inches (25.4 cm) in height for vessels over 25 ft (7.6 m) long; and at least 3 inches (7.6 cm) in height for vessels 25 ft (7.6 m) long or less.

(3206) (ii) *Official number and color code.* The following vessels must display their official number as specified in paragraph (a)(1)(i) of this section and, in addition, must display their assigned color code: A vessel for which a fish trap endorsement has been issued, as required under §622.4(a)(2)(i); a vessel for which a permit has been issued to fish with a sea bass pot, as required under §622.4(a)(2)(vi); a vessel in the commercial Caribbean reef fish fishery fishing with traps; and a vessel in the Caribbean spiny lobster fishery. Color codes required for the Caribbean reef fish fishery and Caribbean spiny lobster fishery are assigned by Puerto Rico or the U.S. Virgin Islands, whichever is applicable; color codes required in all other fisheries are assigned by the RA. The color code must be displayed–

(3207) (A) On the port and starboard sides of the deckhouse or hull and, for vessels over 25 ft (7.6 m) long, on an appropriate weather deck, so as to be clearly visible from an enforcement vessel or aircraft.

(3208) (B) In the form of a circle permanently affixed to or painted on the vessel.

(3209) (C) At least 18 inches (45.7 cm) in diameter for vessels over 65 ft (19.8 m) long; at least 10 inches (25.4 cm) in diameter for vessels over 25 ft (7.6 m) long; and at least 3 inches (7.6 cm) in diameter for vessels 25 ft (7.6 m) long or less.

(3210) (2) *Duties of operator.* The operator of a vessel specified in paragraph (a)(1) of this section must keep the official number

and the color code, if applicable, clearly legible and in good repair and must ensure that no part of the fishing vessel, its rigging, fishing gear, or any other material on board obstructs the view of the official number or the color code, if applicable, from an enforcement vessel or aircraft.

(3211) (b) *Gear identification*–(1) *Traps/pots and associated buoys*-(i) *Traps or pots*–(A) *Caribbean EEZ.* A fish trap or spiny lobster trap used or possessed in the Caribbean EEZ must display the official number specified for the vessel by Puerto Rico or the U.S. Virgin Islands so as to be easily identified.

(3212) (B) *Gulf and South Atlantic EEZ.* A fish trap used or possessed in the Gulf EEZ and a sea bass pot used or possessed in the South Atlantic EEZ, or a fish trap or sea bass pot on board a vessel with a commercial permit for Gulf reef fish or South Atlantic snapper-grouper, must have a valid identification tag issued by the RA attached. A golden crab trap used or possessed in the South Atlantic EEZ or on board a vessel with a commercial permit for golden crab must have the commercial vessel permit number permanently affixed so as to be easily distinguished, located, and identified; an identification tag issued by the RA may be used for this purpose but is not required.

(3213) (ii) *Associated buoys.* A buoy that is attached to a trap or pot must display the official number and assigned color code so as to be easily distinguished, located, and identified as follows:

(3214) (A) *Caribbean EEZ.* Each buoy must display the official number and color code specified for the vessel by Puerto Rico or the U.S. Virgin Islands, whichever is applicable.

(3215) (B) *Gulf and South Atlantic EEZ.* Each buoy must display the number and color code assigned by the RA. In the Gulf EEZ, a buoy must be attached to each trap, or each end trap if traps are connected by a line. In the South Atlantic EEZ, buoys are not required to be used, but, if used, each buoy must display the number and color code. However, no color code is required on a buoy attached to a golden crab trap.

(3216) (iii) *Presumption of ownership.* A Caribbean spiny lobster trap, a fish trap, a golden crab trap, or a sea bass pot in the EEZ will be presumed to be the property of the most recently documented owner. This presumption will not apply with respect to such traps and pots that are lost or sold if the owner reports the loss or sale within 15 days to the RA.

(3217) (iv) *Unmarked traps, pots, or buoys.* An unmarked Caribbean spiny lobster trap, a fish trap, a golden crab trap, a sea bass pot, or a buoy deployed in the EEZ is illegal and may be disposed of in any appropriate manner by the Assistant Administrator or an authorized officer.

(3218) (2) *Gillnet buoys.* On board a vessel with a valid Spanish mackerel permit that is fishing for Spanish mackerel in, or that possesses Spanish mackerel in or from, the South Atlantic EEZ off Florida north of 25°20.4'N., which is a line directly east from the Dade/Monroe County, FL, boundary, the float line of each gillnet possessed, including any net in use, must have a maximum of nine distinctive floats, i.e., different from the usual net buoys, spaced uniformly at a distance of 100 yd (91.4 m) or less. Each such distinctive float must display the official number of the vessel.

(3219) **§622.7 Prohibitions.**

(3220) In addition to the general prohibitions in §600.725 of this chapter, it is unlawful for any person to do any of the following:

(3221) (a) Engage in an activity for which a valid Federal permit is required under §622.4 or §622.17 without such permit.

(3222) (b) Falsify information on a permit application or submitted with such application, as specified in §622.4 (b) or (g) or §622.17.

(3223) (c) Fail to display a permit or endorsement, as specified in §622.4(i) or §622.17(g).

(3224) (d) Falsify or fail to maintain, submit, or provide information required to be maintained, submitted, or provided, as specified in §622.5 (a) through (f).

(3225) (e) Fail to make a fish, or parts thereof, available for inspection, as specified in §622.5(e).

(3226) (f) Falsify or fail to display and maintain vessel and gear identification, as specified in §622.6 (a) and (b).

(3227) (g) Fail to comply with any requirement or restriction regarding ITQ coupons, as specified in §622.15(c)(3), (c)(5), (c)(6), or (c)(7).

(3228) (h) Possess wreckfish as specified in §622.15(c)(4), receive wreckfish except as specified in §622.15(c)(7), or offload a wreckfish except as specified in §622.15 (d)(3) and (d)(4).

(3229) (i) Transfer–

(3230) (1) A wreckfish, as specified in §622.15(d)(1);

(3231) (2) A limited-harvest species, as specified in §622.32(c) introductory text;

(3232) (3) A species/species group subject to a bag limit, as specified §622.39(a)(1);

(3233) (4) South Atlantic snapper-grouper from a vessel with unauthorized gear on board, as specified in §622.41(d)(2)(iii); or

(3234) (5) A species subject to a commercial trip limit, as specified in §622.44.

(3235) (j) Use or possess prohibited gear or methods or possess fish in association with possession or use of prohibited gear, as specified in §622.31.

(3236) (k) Fish for, harvest, or possess a prohibited species, or a limited-harvest species in excess of its limitation, sell or purchase such species, fail to comply with release requirements, or molest or strip eggs from a Caribbean spiny lobster, as specified in §622.32.

(3237) (l) Fish in violation of the prohibitions, restrictions, and requirements applicable to seasonal and/or area closures, including but not limited to: Prohibition of all fishing, gear restrictions, restrictions on take or retention of fish, fish release requirements, and restrictions on use of an anchor or grapple, as specified in §622.33, §622.34, or §622.35, or as may be specified under §622.46 (b) or (c).

(3238) (m) Harvest, possess, offload, sell, or purchase fish in excess of the seasonal harvest limitations, as specified in §622.36.

(3239) (n) Except as allowed under §622.37(c) (2) and (3) for king and Spanish mackerel, possess undersized fish, fail to release undersized fish, or sell or purchase undersized fish, as specified in §622.37.

(3240) (o) Fail to maintain a fish intact through offloading ashore, as specified in §622.38.

(3241) (p) Exceed a bag or possession limit, as specified in §622.39.

(3242) (q) Fail to comply with the limitations on traps and pots, including but not limited to: Tending requirements, constructions requirements, and area specific restrictions, as specified in §622.40.

(3243) (r) Fail to comply with the species-specific limitations, as specified in §622.41.

(3244) (s) Fail to comply with the restrictions that apply after closure of a fishery, as specified in §622.43.

(3245) (t) Possess on board a vessel or land, purchase, or sell fish in excess of the commercial trip limits, as specified in §622.44.

(3246) (u) Fail to comply with the restrictions on sale/purchase, as specified in §622.45.

(3247) (v) Interfere with fishing or obstruct or damage fishing gear or the fishing vessel of another, as specified in §622.46(a).

(3248) (w) Fail to comply with the requirements for observer coverage as specified in §622.10.

(3249) (x) Assault, resist, oppose, impede, intimidate, or interfere with a NMFS-approved observer aboard a vessel.

(3250) (y) Prohibit or bar by command, impediment, threat, coercion, or refusal of reasonable assistance, an observer from conducting his or her duties aboard a vessel.

(3251) (z) Fish for or possess golden crab in or from a designated fishing zone of the South Atlantic EEZ other than the zone for which the vessel is permitted, as specified in §622.17(h).

(3252) **§622.8 At-sea observer coverage.**

(3253) (a) If a vessel's trip is selected by the SRD for observer coverage, the owner or operator of a vessel for which a commercial permit for golden crab has been issued, as required under §622.17(a), must carry a NMFS-approved observer.

(3254) (b) When notified in writing by the SRD that his or her vessel has been selected to carry an NMFS-approved observer, an owner or operator must advise the SRD in writing not less than 5 days in advance of each trip of the following:

(3255) (1) Departure information (port, dock, date, and time).

(3256) (2) Expected landing information (port, dock, and date).

(3257) (c) An owner or operator of a vessel on which a NMFS approved observer is embarked must:

(3258) (1) Provide accommodations and food that are equivalent to those provided to the crew.

(3259) (2) Allow the observer access to and use of the vessel's communications equipment and personnel upon request for the transmission and receipt of messages related to the observer's duties.

(3260) (3) Allow the observer access to and use of the vessel's navigation equipment and personnel upon request to determine the vessel's position.

(3261) (4) Allow the observer free and unobstructed access to the vessel's bridge, working decks, holding bins, weight scales, holds, and any other space used to hold, process, weigh, or store golden crab.

(3262) (5) Allow the observer to inspect and copy the vessel's log, communications logs, and any records associated with the catch and distribution of golden crab for that trip.

(3263) **§622.9 Gulf shrimp interim measures.**

(3264) (a) *Vessel logbooks.* In addition to the requirements of §622.5(a)(1)(iii), the owner or operator of a vessel that fishes for shrimp in the Gulf EEZ who is selected to report by the SRD must maintain fishing records on forms available from the SRD. The owner or operator must submit completed fishing records to the SRD postmarked not later than 7 days after the end of each fishing trip. If no fishing occurred during a calendar month, the owner or operator must submit a report so stating on one of the forms postmarked not later than 7 days after the end of that month. Information to be reported is indicated on the form and its accompanying instructions.

(3265) (b) *Observer coverage.* (1) If a vessel is selected by the SRD for observer coverage, the owner or operator of the vessel that fishes for shrimp in the Gulf EEZ must carry a NMFS-approved observer aboard the vessel.

(3266) (2) When notified in writing by the SRD that his or her vessel has been selected to carry a NMFS-approved observer, the owner or operator must advise the SRD in writing not less than 5 days in advance of each trip of the port, dock, date, and time of departure and the port, dock, date, and time of landing.

(3267) (3) An owner or operator of a vessel on which a NMFS-approved observer is embarked must:

(3268) (i) Provide accommodations and food that are equivalent to those provided to the crew.

(3269) (ii) Allow the observer access to and use of the vessel's communications equipment and personnel upon request for the transmission and receipt of messages related to the observer's duties

(3270) (iii) Allow the observer access to and use of the vessel's navigation equipment and personnel upon request to determine the vessel's position.

(3271) (iv) Allow the observer free and unobstructed access to the vessel's bridge, working decks, holding bins, weight scales, holds, and any other space used to hold, process, weigh, or store fish.

(3272) (v) Allow the observer to inspect and copy the vessel's log, communications logs, and any records associated with the catch and distribution of fish for that trip.

(3273) (vi) On or after May 14, 1998, comply with the observer's instructions to make an installed bycatch reduction device (BRD) inoperative; use of a trawl net with an inoperative BRD in accordance with the observer's instructions while the observer is aboard is not a violation of §622.41(h)(1).

(3274) (c) *Vessel monitoring.* (1) If a vessel is selected by the SRD for monitoring, the owner or operator of the vessel that fishes for shrimp in the Gulf EEZ must carry a NMFS-supplied vessel monitoring system (VMS) unit on board the vessel.

(3275) (2) Upon selection by the SRD for monitoring, the vessel owner or operator must advise the Special Agent-in-Charge, NMFS, Office of Enforcement, Southeast Region, St. Petersburg, FL (SAC) or his designee by telephone (813-570-5344) as to when the vessel will next be in port so that NMFS may arrange for installation of the VMS unit. During installation of the VMS unit, the owner or operator must provide NMFS access to the vessel's on-board power supply.

(3276) (3) After the VMS unit is installed, the vessel owner or operator must maintain power to the VMS unit when the vessel is at sea. When the vessel is in port, the owner or operator must provide access to the VMS unit for maintenance, repair, inspection, or removal.

(3277) (4) No person may interfere with, impede, delay, or prevent the installation, maintenance, repair, inspection, or removal of a VMS unit or interfere with, tamper with, alter, damage, disable, or impede the operation of a VMS unit, or attempt any of the same.

Subpart B—Effort Limitations

(3278) **§622.15 Wreckfish individual transferable quota (ITQ) system.**

(3279) The provisions of this section apply to wreckfish in or from the South Atlantic EEZ.

(3280) (a) *Percentage shares.* (1) In accordance with the procedure specified in the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region, percentage shares of the quota for wreckfish have been assigned. Each per-

son has been notified by the RA of his or her percentage share and shareholder certificate number.

(3281) (2) All or a portion of a person's percentage shares may be transferred to another person. Transfer of shares must be reported on a form available from the RA. The RA will confirm, in writing, each transfer of shares. The effective date of each transfer is the confirmation date provided by the RA. The confirmation date will normally be not later than 3 working days after receipt of a properly completed transfer form. A fee is charged for each transfer of shares. The amount of the fee is calculated in accordance with the procedures of the NOAA Finance Handbook, available from the RA, for determining the administrative costs of each special product or service provided by NOAA to non-Federal recipients. The fee may not exceed such costs and is specified with each transfer form. The appropriate fee must accompany each transfer form.

(3282) (b) *Lists of wreckfish shareholders and permitted vessels.* Annually, on or about March 1, the RA will provide each wreckfish shareholder with a list of all wreckfish shareholders and their percentage shares, reflecting share transactions on forms received through February 15. Annually by April 15, the RA will provide each dealer who holds a dealer permit for wreckfish, as required under §622.4(a)(4), with a list of vessels for which wreckfish permits have been issued, as required under §622.4(a)(2)(vii). Annually, by April 15, the RA will provide each wreckfish shareholder with a list of dealers who have been issued dealer permits for wreckfish. From April 16 through January 14, updated lists will be provided when required. Updated lists may be obtained at other times or by a person who is not a wreckfish shareholder or wreckfish dealer permit holder by written request to the RA.

(3283) (c) *ITQs.* (1) Annually, as soon after March 1 as the TAC for wreckfish for the fishing year that commences April 16 is known, the RA will calculate each wreckfish shareholder's ITQ. Each ITQ is the product of the wreckfish TAC, in round weight, for the ensuing fishing year, the factor for converting round weight to eviscerated weight, and each wreckfish shareholder's percentage share, reflecting share transactions reported on forms received by the RA through February 15. Thus, the ITQs will be in terms of eviscerated weight of wreckfish.

(3284) (2) The RA will provide each wreckfish shareholder with ITQ coupons in various denominations, the total of which equals his or her ITQ, and a copy of the calculations used in determining his or her ITQ. Each coupon will be coded to indicate the initial recipient.

(3285) (3) An ITQ coupon may be transferred from one wreckfish shareholder to another by completing the sale endorsement thereon (that is, the signature and shareholder certificate number of the buyer). An ITQ coupon may be possessed only by the shareholder to whom it has been issued, or by the shareholder's employee, contractor, or agent, unless the ITQ coupon has been transferred to another shareholder. An ITQ coupon that has been transferred to another shareholder may be possessed only by the shareholder whose signature appears on the coupon as the buyer, or by the shareholder's employee, contractor, or agent, and with all required sale endorsements properly completed.

(3286) (4) Wreckfish may not be possessed on board a fishing vessel–

(3287) (i) In an amount exceeding the total of the ITQ coupons on board the vessel;

(3288) (ii) That does not have on board a commercial vessel permit for wreckfish, as required under §622.4(a)(2)(vii); or

(3289) (iii) That does not have on board logbook forms for that fishing trip, as required under §622.5(a)(1)(iv)(B).

(3290) (5) Prior to termination of a trip, a signature and date signed must be affixed in ink to the "Fisherman" part of ITQ coupons in denominations equal to the eviscerated weight of the wreckfish on board. The "Fisherman" part of each such coupon must be separated from the coupon and submitted with the logbook forms required by §622.5(a)(1)(iv)(B) for that fishing trip.

(3291) (6) The "Fish House" part of each such coupon must be given to the dealer to whom the wreckfish are transferred in amounts totaling the eviscerated weight of the wreckfish transferred to that dealer. A wreckfish may be transferred only to a dealer who holds a dealer permit for wreckfish, as required under §622.4(a)(4).

(3292) (7) A dealer may receive a wreckfish only from a vessel for which a commercial permit for wreckfish has been issued, as required under §622.4(a)(2)(vii). A dealer must receive the "Fish House" part of ITQ coupons in amounts totaling the eviscerated weight of the wreckfish received; enter the permit number of the vessel from which the wreckfish were received, enter the date the wreckfish were received, enter the dealer's permit number, and sign each such "Fish House" part; and submit all such parts with the dealer reports required by §622.5(c)(5)(i).

(3293) (8) An owner or operator of a vessel and a dealer must make available to an authorized officer all ITQ coupons in his or her possession upon request.

(3294) (d) *Wreckfish limitations.* (1) A wreckfish taken in the South Atlantic EEZ may not be transferred at sea, regardless of where the transfer takes place; and a wreckfish may not be transferred in the South Atlantic EEZ.

(3295) (2) A wreckfish possessed by a fisherman or dealer shoreward of the outer boundary of the South Atlantic EEZ or in a South Atlantic coastal state will be presumed to have been harvested from the South Atlantic EEZ unless accompanied by documentation that it was harvested from other than the South Atlantic EEZ.

(3296) (3) A wreckfish may be offloaded from a fishing vessel only between 8 a.m. and 5 p.m., local time.

(3297) (4) If a wreckfish is to be offloaded at a location other than a fixed facility of a dealer who holds a dealer permit for wreckfish, as required under §622.4(a)(4), the wreckfish shareholder or the vessel operator must advise the NMFS, Office of Enforcement, Southeast Region, St. Petersburg, FL, by telephone (1-800-853-1964), of the location not less than 24 hours prior to offloading.

(3298) **§622.16 Red snapper individual transferable quota (ITQ) system.**

(3299) The ITQ system established by this section will remain in effect through March 31, 2000, during which time NMFS and the GMFMC will evaluate the effectiveness of the system. Based on the evaluation, the system may be modified, extended, or terminated.

(3300) (a) *Percentage shares.* (1) Initial percentage shares of the annual quota of red snapper are assigned to persons in accordance with the procedure specified in Amendment 8 to the Fishery Management Plan for the Reef Fish Fishery of the Gulf of Mexico (FMP) and in paragraphs (c)(1) through (c)(4) of this section. Each person is notified by the RA of his or her initial percentage shares. If additional shares become available to NMFS,

such as by forfeiture pursuant to subpart F of 15 CFR part 904 for rule violations, such shares will be proportionately reissued to shareholders based on their shares as of November 1, after the additional shares become available. If NMFS is required to issue additional shares, such as may be required in the resolution of disputes, existing shares will be proportionately reduced. This reduction of shares will be based on shares as of November 1 after the required addition of shares.

(3301) (2) All or a portion of a person's percentage shares may be transferred to another person who is a U.S. citizen or permanent resident alien. (See paragraph (c)(5) of this section for restrictions on the transfer of shares in the initial months under the ITQ system.) Transfer of shares must be reported on a form available from the RA. The RA will confirm, in writing, the registration of each transfer. The effective date of each transfer is the confirmation date provided by the RA. The confirmation of registration date will normally be not later than 3 working days after receipt of a properly completed transfer form. However, reports of share transfers received by the RA from November 1 through December 31 will not be recorded or confirmed until after January 1. A fee is charged for each transfer of percentage shares. The amount of the fee is calculated in accordance with the procedures of the NOAA Finance Handbook for determining the administrative costs of each special product or service provided by NOAA to non-Federal recipients. The fee may not exceed such costs and is specified with each transfer form. The appropriate fee must accompany each transfer form.

(3302) (3) On or about January 1 each year, the RA will provide each red snapper shareholder with a list of all red snapper shareholders and their percentage shares, reflecting share transfers as indicated on properly completed transfer forms received through October 31. Updated lists may be obtained at other times, and by persons who are not red snapper shareholders, by written request to the RA.

(3303) (b) *ITQs*. (1) Annually, as soon after November 15 as the following year's red snapper quota is established, the RA will calculate each red snapper shareholder's ITQ in terms of eviscerated weight. Each ITQ is the product of the red snapper quota, in round weight, for the ensuing fishing year, the factor for converting round weight to eviscerated weight, and each red snapper shareholder's percentage share, reflecting share transfers reported on forms received by the RA through October 31.

(3304) (2) The RA will provide each red snapper shareholder with ITQ coupons in various denominations, the total of which equals his or her ITQ, and a copy of the calculations used in determining his or her ITQ. Each coupon will be coded to indicate the initial recipient.

(3305) (3) An ITQ coupon may be transferred. If the transfer is by sale, the seller must enter the sale price on the coupon.

(3306) (4) Except when the red snapper bag limit applies, red snapper in or from the EEZ or on board a vessel that has been issued a commercial permit for Gulf reef fish, as required under §622.4(a)(2)(v), may not be possessed in an amount, in eviscerated weight, exceeding the total of ITQ coupons on board. (See §622.39(a) for applicability of the bag limit.)

(3307) (5) Prior to termination of a trip, the operator's signature and the date signed must be written in ink on the "Vessel" part of ITQ coupons totaling at least the eviscerated weight of the red snapper on board. An owner or operator of a vessel must separate the "Vessel" part of each such coupon, enter thereon the permit number of the dealer to whom the red snapper are transferred, and submit the "Vessel" parts with the logbook forms for that fishing trip. An owner or operator of a vessel must make available to an authorized officer all ITQ coupons in his or her possession upon request.

(3308) (6) Red snapper harvested from the EEZ or possessed by a vessel with a commercial permit for Gulf reef fish, as required under §622.4(a)(2)(v), may be transferred only to a dealer with a Gulf reef fish permit, as required under §622.4(a)(4). The "Fish House" part of each ITQ coupon must be given to such dealer, or the agent or employee of such dealer, in amounts totaling at least the eviscerated weight of the red snapper transferred to that dealer.

(3309) (7) A dealer with a Gulf reef fish permit may receive red snapper only from a vessel that has on board a commercial permit for Gulf reef fish. A dealer, or the agent or employee of a dealer, must receive the "Fish House" part of ITQ coupons totaling at least the eviscerated weight of the red snapper received. Immediately upon receipt of red snapper, the dealer, or the agent or employee of the dealer, must enter the permit number of the vessel received from and date and sign each such "Fish House" part. The dealer must submit all such parts as required by paragraph (d)(6) of this section. A dealer, agent, or employee must make available to an authorized officer all ITQ coupons in his or her possession upon request.

(3310) (c) *Procedures for implementation*–(1) *Initial shareholders*. The following persons are initial shareholders in the red snapper ITQ system:

(3311) (i) Either the owner or operator of a vessel with a valid permit on August 29, 1995, provided such owner or operator had a landing of red snapper during the period 1990 through 1992. If the earned income of an operator was used to qualify for the permit that is valid on August 29, 1995, such operator is the initial shareholder rather than the owner. In the case of an owner, the term "person" includes a corporation or other legal entity; and

(3312) (ii) A historical captain. A historical captain means an operator who meets all of the following qualifications:

(3313) (A) From November 6, 1989, through 1993, fished solely under verbal or written share agreements with an owner, and such agreements provided for the operator to be responsible for hiring the crew, who was paid from the share under his or her control.

(3314) (B) Landed from that vessel at least 5,000 lb (2,268 kg) of red snapper per year in 2 of the 3 years 1990, 1991, and 1992.

(3315) (C) Derived more than 50 percent of his or her earned income from commercial fishing, that is, sale of the catch, in each of the years 1989 through 1993.

(3316) (D) Landed red snapper prior to November 7, 1989.

(3317) (2) *Initial shares*. (i) Initial shares are apportioned to initial shareholders based on each shareholder's average of the top 2 years landings in 1990, 1991, and 1992. However, no person who is an initial shareholder under paragraph (c)(1) of this section will receive an initial percentage share that will amount to less than 100 lb (45.36 kg), round weight, of red snapper (90 lb (41 kg), eviscerated weight).

(3318) (ii) The percentage shares remaining after the minimum shares have been calculated under paragraph (c)(2)(i) of this section are apportioned based on each remaining shareholder's average of the top 2 years' landings in 1990, 1991, and 1992. In a case where a landing is associated with an owner and a historical captain, such landing is apportioned between the owner and historical captain in accordance with the share agreement in effect at the time of the landing.

(3319) (iii) The determinations of landings of red snapper during the period 1990 through 1992 and historical captain status are made in accordance with the data collected under Amendment 9 to the FMP. Those data identify each red snapper landing during the period 1990 through 1992. Each landing is associated with an owner and, when an operator's earned income was used to qualify for the vessel permit at the time of the landing, with such operator. Where appropriate, a landing is also associated with a historical captain. However, a red snapper landings record during that period that is associated solely with an owner may be retained by that owner or transferred as follows:

(3320) (A) An owner of a vessel with a valid commercial permit for Gulf reef fish on August 29, 1995, who transferred a vessel permit to another vessel owned by him or her will retain the red snapper landings record for the previous vessel.

(3321) (B) An owner of a vessel with a valid commercial permit for Gulf reef fish on August 29, 1995, will retain the landings record of a permitted vessel if the vessel had a change of ownership to another entity without a substantive change in control of the vessel. It will be presumed that there was no substantive change in control of a vessel if a successor in interest received at least a 50 percent interest in the vessel as a result of the change of ownership whether the change of ownership was –

(3322) (1) From a closely held corporation to its majority shareholder;

(3323) (2) From an individual who became the majority shareholder of a closely held corporation receiving the vessel;

(3324) (3) Between closely held corporations with a common majority shareholder; or

(3325) (4) From one to another of the following: Husband, wife, son, daughter, brother, sister, mother, or father.

(3326) (C) In other cases of transfer of a permit through change of ownership of a vessel, an owner of a vessel with a valid commercial permit for Gulf reef fish on August 29, 1995, will receive credit for the landings record of the vessel before his or her ownership only if there is a legally binding agreement for transfer of the landings record.

(3327) (iv) Requests for transfers of landings records must be submitted to the RA and must be postmarked not later than December 14, 1995. The RA may require documentation supporting such request. After considering requests for transfers of landings records, the RA will advise each initial shareholder or applicant of his or her tentative allocation of shares.

(3328) (3) *Notification of status.* The RA will advise each owner, operator, and historical captain for whom NMFS has a record of a red snapper landing during the period 1990 through 1992, including those who submitted such record under Amendment 9 to the FMP, of his or her tentative status as an initial shareholder and the tentative landings record that will be used to calculate his or her initial share.

(3329) (4) *Appeals.* (i) A special advisory panel, appointed by the GMFMC to function as an appeals board, will consider written requests from persons who contest their tentative status as an initial shareholder, including historical captain status, or tentative landings record. In addition to considering written requests, the board may allow personal appearances by such persons before the board.

(3330) (ii) The panel is only empowered to consider disputed calculations or determinations based on documentation submitted under Amendment 9 to the FMP regarding landings of red snapper during the period 1990 through 1992, including transfers of such landings records, or regarding historical captain status. In addition, the panel may consider applications and documentation of landings not submitted under Amendment 9 if, in the board's opinion, there is justification for the late application and documentation. The board is not empowered to consider an application from a person who believes he or she should be eligible because of hardship or other factors.

(3331) (iii) A written request for consideration by the board must be submitted to the RA, postmarked not later than December 27, 1995, and must contain documentation supporting the allegations that form the basis for the request.

(3332) (iv) The board will meet as necessary to consider each request that is submitted in a timely manner. Members of the appeals board will provide their individual recommendations for each appeal to the GMFMC, which will in turn submit its recommendation to the RA. The board and the GMFMC will recommend whether the eligibility criteria, specified in Amendment 8 to the FMP and paragraphs (c)(1) and (c)(2) of this section, were correctly applied in each case, based solely on the available record including documentation submitted by the applicant. The GMFMC will also base its recommendation on the recommendations of the board. The RA will decide the appeal based on the above criteria and the available record, including documentation submitted by the applicant and the recommendation of the GMFMC. The RA will notify the appellant of his decision and the reason therefor, in writing, normally within 45 days of receiving the GMFMC's recommendation. The RA's decision will constitute the final administrative action by NMFS on an appeal.

(3333) (v) Upon completion of the appeal process, the RA will issue share certificates to initial shareholders.

(3334) (5) *Transfers of shares.* The following restrictions apply to the transfer of shares:

(3335) (i) The transfer of shares is prohibited through September 30, 1996.

(3336) (ii) From October 1, 1996, through September 30, 1997, shares may be transferred only to other persons who are initial shareholders and are U.S. citizens or permanent resident aliens.

(3337) (d) *Exceptions/additions to general measures.* Other provisions of this part notwithstanding–

(3338) (1) Management of the red snapper ITQ system extends to adjoining state waters in the manner stated in paragraphs (d)(2) and (d)(3) of this section.

(3339) (2) For a dealer to receive red snapper harvested from state waters adjoining the Gulf EEZ by or possessed on board a vessel with a commercial permit for Gulf reef fish, the dealer permit for Gulf reef fish specified in §622.4(a)(4) must have been issued to the dealer.

(3340) (3) A copy of the dealer's permit must accompany each vehicle that is used to pick up from a fishing vessel red snapper from adjoining state waters harvested by or possessed on board a vessel with a commercial permit for Gulf reef fish.

(3341) (4) As a condition of a commercial vessel permit for Gulf reef fish, without regard to where red snapper are harvested or possessed, a vessel with such permit must comply with the red snapper ITQ requirements of paragraph (b) of this section; may not transfer or receive red snapper at sea; and must maintain red snapper with head and fins intact through landing, and the exceptions to that requirement contained in §622.38(d) do not apply to red snapper. Red snapper may be eviscerated, gilled, and scaled but must otherwise be maintained in a whole condition.

(3342) (5) As a condition of a dealer permit for Gulf reef fish, as required under §622.4(a)(4) or under paragraph (d)(2) of this section, without regard to where red snapper are harvested or possessed, a permitted dealer must comply with the red snapper ITQ requirements of paragraph (b) of this section.

(3343) (6) In any month that a red snapper is received, a dealer must submit the report required under §622.5(c)(3)(ii). The "Fish House" parts of red snapper individual transferable coupons, received during the month in accordance with paragraph (b) of this section, must be submitted to the SRD with the report.

(3344) (7) It is unlawful for a person to do any of the following:

(3345) (i) Receive red snapper from a fishing vessel without a dealer permit for Gulf reef fish.

(3346) (ii) Fail to carry a copy of the dealer's permit, as specified in paragraph (d)(3) of this section.

(3347) (iii) Fail to comply with a condition of a permit, as specified in paragraph (d)(4) or (d)(5) of this section.

(3348) (iv) Fail to report red snapper received, as specified in paragraph (d)(6) of this section.

(3349) **§622.17 South Atlantic golden crab controlled access.**

(3350) (a) *Applicability.* For a person aboard a vessel to fish for golden crab in the South Atlantic EEZ, possess golden crab in or from the South Atlantic EEZ, off-load golden crab from the South Atlantic EEZ, or sell golden crab in or from the South Atlantic EEZ, a commercial vessel permit for golden crab must be issued to the vessel and must be on board. It is a rebuttable presumption that a golden crab on board or off-loaded from a vessel in the South Atlantic was harvested from the South Atlantic EEZ.

(3351) (b) *Initial eligibility.* A vessel is eligible for an initial commercial vessel permit for golden crab if the owner meets the documentation requirements described in paragraph (c) of this section substantiating his or her landings of golden crab harvested from the South Atlantic EEZ in quantities of at least 600 lb (272 kg) by April 7, 1995, or at least 2,500 lb (1,134 kg) by September 1, 1995. Only the owner of a vessel at the time landings occurred may use those landings to meet the eligibility requirements described in this paragraph, except if that owner transferred the right to use those landings to a subsequent owner in writing as part of the vessel's sales agreement. If evidence of such agreement is provided to the RA, the subsequent owner may use those landings to meet the eligibility requirements instead of the owner of the vessel at the time the landings occurred.

(3352) (c) *Documentation of eligibility.* The documentation requirements described in this paragraph are the only acceptable means for an owner to establish a vessel's eligibility for an initial permit. Failure to meet the documentation requirements, including submission of data as required, will result in failure to qualify for an initial commercial vessel permit. Acceptable sources of documentation include: Landings documented by the trip ticket systems of Florida or South Carolina as described in paragraph (c)(1) of this section and data substantiating landings that occurred prior to establishment of the respective trip ticket systems or landings that occurred in North Carolina or Georgia as described in paragraph (c)(2) of this section.

(3353) (1) *Trip ticket data.* NMFS has access to records of golden crab landings reported under the trip ticket systems in Florida and South Carolina. No further documentation or submission of these records is required if the applicant was the owner of the harvesting vessel at the time of the landings documented by these records. An applicant will be given printouts of trip ticket records for landings made when the applicant owned the harvesting vessel, and an applicant will have an opportunity to submit records of landings he or she believes should have been included on such printouts or to clarify allocation of landings shown on such printouts. Landings reported under these trip ticket systems and received by the respective states prior to December 31, 1995, with such adjustments/clarifications for landings for which there is adequate documentation that they should have been included on the printouts, are conclusive as to landings in the respective states during the period that landing reports were required or voluntarily submitted by a vessel. For such time periods, landings data from other sources will not be considered for landings in these states.

(3354) (2) *Additional landings data.* (i) An owner of a vessel that does not meet the criteria for initial eligibility for a commercial vessel permit based on landings documented by the trip ticket systems of Florida or South Carolina may submit documentation of required landings that either occurred prior to the implementation of the respective trip ticket systems or occurred in North Carolina or Georgia. Acceptable documentation of such landings consists of trip receipts or dealer records that definitively show the species known as golden crab; the vessel's name, official number, or other reference that clearly identifies the vessel; and dates and amounts of South Atlantic golden crab landings. In addition, a sworn affidavit may be submitted to document landings. A sworn affidavit is a notarized written statement wherein the individual signing the affidavit affirms under penalty of perjury that the information presented is accurate to the best of his or her knowledge, information, and belief.

(3355) (ii) Documentation by a combination of trip receipts and dealer records is acceptable, but duplicate records for the same landings will not result in additional credit.

(3356) (iii) Additional data submitted under paragraph (c)(2) of this section must be attached to a Golden Crab Landings Data form, which is available from the RA.

(3357) (3) *Verification.* Documentation of golden crab landings from the South Atlantic EEZ and other information submitted under this section are subject to verification by comparison with state, Federal, and other records and information. Submission of false documentation or information may disqualify a person from initial participation under the South Atlantic golden crab controlled access program.

(3358) (d) *Application procedure.* Permit application forms are available from the RA. An application for an initial commercial vessel permit that is postmarked or hand-delivered after September 26, 1996, will not be accepted.

(3359) (1) An application for a commercial vessel permit must be submitted and signed by the vessel owner (in the case of a corporate-owned vessel, an officer or shareholder who meets the requirements of paragraph (b) of this section; in the case of a partnership-owned vessel, a general partner who meets these requirements).

(3360) (2) An owner must provide the following:

(3361) (i) A copy of the vessel's valid U.S. Coast Guard certificate of documentation or, if not documented, a copy of its valid state registration certificate.

(3362) (ii) Vessel name and official number.

(3363) (iii) Name, address, telephone number, and other identifying information of the vessel owner.

(3364) (iv) Documentation of initial eligibility, as specified in paragraphs (b) and (c) of this section.

(3365) (v) The fishing zone in which the vessel will fish, as specified in paragraph (h) of this section.

(3366) (vi) Any other information concerning the vessel, gear characteristics, principal fisheries engaged in, or fishing areas, as specified on the application form.

(3367) (vii) Any other information that may be necessary for the issuance or administration of the permit, as specified on the application form.

(3368) (e) *Issuance.* (1) The RA will mail an initial commercial vessel permit to an applicant no later than October 28, 1996, if the application is complete and the eligibility requirements specified in paragraph (b) of this section are met.

(3369) (2) Upon receipt of an incomplete application that is postmarked or hand-delivered on or before September 26, 1996, the RA will notify the applicant of the deficiency. If the applicant fails to correct the deficiency within 30 days of the date of the RA's notification, the application will be considered abandoned.

(3370) (3) The RA will notify an applicant, in writing, no later than October 28, 1996, if the RA determines that the applicant fails to meet the eligibility requirements specified in paragraph (b) of this section.

(3371) (f) *Appeals.* (1) An appeal of the RA's decision regarding initial permit eligibility may be submitted to an ad hoc appeals committee appointed by the SAFMC.

(3372) (2) The appeals committee is empowered only to deliberate whether the eligibility criteria specified in paragraph (b) of this section were applied correctly to the appellant's application. In making that determination, the appeals committee members will consider only disputed calculations and determinations based on documentation provided as specified in paragraph (c) of this section, including transfers of landings records. The appeals committee is not empowered to consider whether a person should have been eligible for a commercial vessel permit because of hardship or other factors.

(3373) (3) A written request for consideration of an appeal must be submitted within 30 days of the date of the RA's notification denying permit issuance and must provide written documentation supporting the basis for the appeal. Such a request must contain the appellant's acknowledgment that the confidentiality provisions of the Magnuson Act at 16 U.S.C. 1853(d) and subpart E of part 600 of this chapter are waived with respect to any information supplied by the RA to the SAFMC and its advisory bodies for purposes of receiving the recommendations of the appeals committee members on the appeal. An appellant may also make a personal appearance before the appeals committee.

(3374) (4) The appeals committee will meet only once to consider appeals submitted within the time period specified in paragraph (f)(3) of this section. Members of the appeals committee will provide their individual recommendations for each appeal to the RA. Members of the appeals committee may comment upon whether the eligibility criteria, specified in the FMP and in paragraph (b) of this section, were correctly applied in each case, based solely on the available record, including documentation submitted by the appellant. The RA will decide the appeal based on the initial eligibility criteria in paragraph (b) of this section and the available record, including documentation submitted by the appellant and the recommendations and comments from members of the appeals committee. The RA will notify the appellant of the decision and the reason therefore, in writing, normally within 30 days of receiving the recommendation from the appeals committee members. The RA's decision will constitute the final administrative action by NMFS on an appeal.

(3375) (g) *Display.* A commercial vessel permit issued under this section must be carried on board the vessel. The operator of a vessel must present the permit for inspection upon the request of an authorized officer.

(3376) (h) *Fishing zones.* (1) The South Atlantic EEZ is divided into three fishing zones for golden crab. A vessel owner must indicate on the initial application for a commercial vessel permit the zone in which the vessel will fish. A permitted vessel may fish for golden crab only in the zone shown on its permit. A vessel may possess golden crab only in that zone, except that other zones may be transited if the vessel notifies NMFS, Office of Enforcement, Southeast Region, St. Petersburg, FL, by telephone (813-570-5344) in advance and does not fish in an unpermitted zone. The designated fishing zones are as follows:

(3377) (i) Northern zone–the South Atlantic EEZ north of 28°N.

(3378) (ii) Middle zone–the South Atlantic EEZ from 25°N. to 28°N.

(3379) (iii) Southern zone–the South Atlantic EEZ south of 25°N.

(3380) (2) An owner of a permitted vessel may have the zone specified on a permit changed only when the change is from the middle or southern zone to the northern zone. A request for such change must be submitted to the RA with the existing permit.

(3381) (i) *Transfer.* (1) A valid golden crab permit may be transferred for use by another vessel by returning the existing permit(s) to the RA along with an application for a permit for the replacement vessel.

(3382) (2) To obtain a commercial vessel permit via transfer, the owner of the replacement vessel must submit to the RA a valid permit for a vessel with a documented length overall, or permits for vessels with documented aggregate lengths overall, of at least 90 percent of the documented length overall of the replacement vessel.

(3383) (j) *Renewal.* (1) In addition to the procedures and requirements of §622.4(h) for commercial vessel permit renewals, for a golden crab permit to be renewed, the SRD must have received reports for the permitted vessel, as required by §622.5(a)(1)(v), documenting that at least 5,000 lb (2,268 kg) of golden crab were landed from the South Atlantic EEZ by the permitted vessel during at least one of the two 12-month periods immediately prior to the expiration date of the vessel permit.

(3384) (2) An existing permit for a vessel meeting the minimum golden crab landing requirement specified in paragraph (j)(1) of this section may be renewed by following the procedure specified in paragraph (d) of this section. However, documentation of the vessel's initial eligibility need not be resubmitted.

(3385) **§622.18 South Atlantic snapper-grouper limited access.**

(3386) (a) *Applicability.* Beginning December 14, 1998, the only valid commercial vessel permits for South Atlantic snapper-grouper are those that have been issued under the limited access criteria in this section. A vessel may have either a transferable commercial permit or a trip-limited commercial permit for South Atlantic snapper-grouper.

(3387) (b) *Initial eligibility.* A vessel is eligible for an initial limited access commercial permit for South Atlantic snapper-grouper if the owner owned a vessel with a commercial vessel permit for South Atlantic snapper-grouper at any time from February 11, 1996, through February 11, 1997, and owned a per-

mitted vessel that had at least one landing of snapper-grouper from the South Atlantic from January 1, 1993, through August 20, 1996, as reported on fishing vessel logbooks received by the SRD on or before August 20, 1996. An owner whose permitted vessels had landings of snapper-grouper from the South Atlantic of at least 1,000 lb (453.6 kg), whole weight, in any one of the years 1993, 1994, or 1995, or in 1996 through August 20, as reported on fishing vessel logbooks received by the SRD on or before August 20, 1996, is eligible for an initial transferable permit. All other qualifying owners are eligible for an initial trip-limited permit.

(3388) (c) *Determinations of eligibility*–(1) *Permit history*. The sole basis for determining whether a vessel had a commercial vessel permit for South Atlantic snapper-grouper at any time from February 11, 1996, through February 11, 1997, is NMFS' permit records. An owner of a currently permitted vessel who believes he/she meets the February 11, 1996, through February 11, 1997, permit history criterion based on ownership of a vessel under a different name, as may have occurred when ownership has changed from individual to corporate or vice versa, must document his/her continuity of ownership. No more than one owner of a currently permitted vessel will be credited with meeting the permit history criterion based on a vessel's permit history.

(3389) (2) *Landings*. (i) Landings of snapper-grouper from the South Atlantic during the qualifying period are determined from fishing vessel logbooks received by the SRD on or before August 20, 1996. State trip ticket data may be considered in support of claimed landings provided such trip ticket data were received by the state on or before September 20, 1996.

(3390) (ii) Only landings when a vessel had a valid commercial permit for snapper-grouper and only landings that were harvested, landed, and sold in compliance with state and Federal regulations may be used to establish eligibility.

(3391) (iii) For the purpose of eligibility for a limited access commercial permit for snapper-grouper, the owner of a vessel that had a commercial snapper-grouper permit during the qualifying period retains the snapper-grouper landings record of that vessel during the time of his/her ownership unless a sale of the vessel included a written agreement that credit for such landings was transferred to the new owner. Such transfer of credit must be for the vessel's entire record of landings of snapper-grouper from the South Atlantic.

(3392) (d) *Implementation procedures*–(1) *Notification of status*. On or about July 27, 1998, the RA will notify each owner of a vessel that had a commercial permit for South Atlantic snapper-grouper at any time from February 11, 1996, through February 11, 1997, and each owner of a vessel that has a commercial permit for South Atlantic snapper-grouper on July 16, 1998, of NMFS' initial determination of eligibility for either a transferable or a trip-limited, limited access commercial permit for South Atlantic snapper-grouper. Each notification will include an application for such permit. Addresses for such notifications will be based on NMFS' permit records. A vessel owner who believes he/she qualifies for a limited access commercial permit for South Atlantic snapper-grouper and who does not receive such notification must obtain an application from the RA.

(3393) (2) *Applications*. (i) An owner of a vessel who desires a limited access commercial permit for South Atlantic snapper-grouper must submit an application for such permit postmarked or hand-delivered not later than October 14, 1998. Failure to apply in a timely manner will preclude permit issuance even when the vessel owner meets the eligibility criteria for such permit.

(3394) (ii) A vessel owner who agrees with NMFS' initial determination of eligibility, including type of permit (transferable or trip-limited), need provide no documentation of eligibility with his/her application.

(3395) (iii) A vessel owner who disagrees with the initial determination of eligibility or type of permit must specify, the type of permit applied for and provide documentation of eligibility. Documentation and other information submitted on or with an application are subject to verification by comparison with state, Federal, and other records and information. Submission of false documentation or information may disqualify an owner from initial participation in the limited access commercial South Atlantic snapper-grouper fishery and is a violation of the regulations in this part.

(3396) (iv) If an application that is postmarked or hand delivered in a timely manner is incomplete, the RA will notify the vessel owner of the deficiency. If the owner fails to correct the deficiency within 20 days of the date of the RA's notification, the application will be considered abandoned.

(3397) (3) *Issuance*. (i) If a complete application is submitted in a timely manner and the eligibility requirements specified in paragraph (b) of this section are met, the RA will issue an initial commercial vessel permit, transferable or trip-limited, as appropriate, and mail it to the vessel owner not later than December 3, 1998.

(3398) (ii) If the eligibility requirements specified in paragraph (b) of this section are not met, the RA will notify the vessel owner, in writing, not later than November 13, 1998, of such determination and the reasons for it.

(3399) (4) *Reconsideration*. (i) A vessel owner may request reconsideration of the RA's determination regarding initial permit eligibility by submitting a written request for reconsideration to the RA. Such request must be postmarked or hand delivered within 20 days of the date of the RA's notification denying initial permit issuance and must provide written documentation supporting permit eligibility.

(3400) (ii) Upon receipt of a request for reconsideration, the RA will forward the initial application, the RA's response to that application, the request for reconsideration, and pertinent records to an Application Oversight Board consisting of state directors (or their designees) from each state in the Council's area of jurisdiction. Upon request, a vessel owner may make a personal appearance before the Application Oversight Board.

(3401) (iii) If reconsideration by the Application Oversight Board is requested, such request constitutes the vessel owner's written authorization under section 402(b)(1)(F) of the Magnuson-Stevens Act for the RA to make available to the Application Oversight Board members such confidential catch and other records as are pertinent to the matter under reconsideration.

(3402) (iv) The Application Oversight Board may only deliberate whether the eligibility criteria specified in paragraph (b) of this section were applied correctly in the vessel owner's case, based solely on the available record, including documentation submitted by the owner. The Application Oversight Board may not consider whether an owner should have been eligible for a commercial vessel permit because of hardship or other factors. The Application Oversight Board members will provide individual recommendations for each application for reconsideration to the RA.

(3403) (v) The RA will make a final decision based on the eligibility criteria specified in paragraph (b) of this section and the available record, including documentation submitted by the vessel owner, and the recommendations and comments from members ofthe Application Oversight Board members. The RA may not consider whether a vessel owner should have been eligible for a commercial vessel permit because of hardship or other factors. The RA will notify the owner of the decision and the reason for it, in writing, within 15 days of receiving the recommendations from the Application Oversight Board members. The RA's decision will decision will constitute the final administrative action by NMFS.

(3404) (e) *Transfers of permits*. A snapper-grouper limited access permit is valid only for the vessel and owner named on the permit. To change either the vessel or the owner, an application for transfer must be submitted to the RA.

(3405) (1) *Transferable permits*. (i) An owner of a vessel with a transferable permit may request that the RA transfer the permit to another vessel owned by the same entity.

(3406) (ii) A transferable permit may be transferred upon a change of ownership of a permitted vessel with such permit from one to another of the following: Husband, wife, son, daughter, brother, sister, mother, or father.

(3407) (iii) A transferable permit may be transferred to a vessel whose owner had, as of August 20, 1996, a written contract for the purchase of a vessel that included a provision transferring to the new owner the rights to any limited access permit to which the former owner might become entitled under the provisions for initial issue of limited access permits. To be considered, any such written contract must be submitted to the RA postmarked or hand-delivered on or before December 14, 1998.

(3408) (iv) Except as provided in paragraphs (e)(1)(i), (ii), and (iii) of this section, a person desiring to acquire a limited access, transferable permit for South Atlantic snapper-grouper must obtain and exchange two such permits for one new permit.

(3409) (v) A transfer of a permit that is undertaken under paragraph (e)(1)(ii), (e)(1)(iii), or (e)(1)(iv) of this section will constitute a transfer of the vessel's entire catch history to the new owner.

(3410) (2) *Trip-limited permits*. An owner of a vessel with a trip-limited permit may request that the RA transfer the permit to another vessel owned by the same entity provided the length and gross tonnage of the replacement vessel are equal to or less than the length and gross tonnage of the replaced vessel.

(3411) (f) *Renewal*. NMFS will not reissue a commercial vessel permit for South Atlantic snapper-grouper if the permit is revoked or if the RA does not receive an application for renewal within 60 days of the permit's expiration date.

Subpart C—Management Measures

(3412) **§622.30 Fishing years.**

(3413) The fishing year for species or species groups governed in this part is January1 through December 31 except for the following:

(3414) (a) *Allowable octocoral*– October 1 through September 30.

(3415) (b) *King and Spanish mackerel*. The fishing year for the king and Spanish mackerel bag limits specified in §622.39(c)(1) is January 1 through December 31. The following fishing years apply only for the king and Spanish mackerel quotas specified in §622.42(c):

(3416) (1) *Gulf migratory group king mackerel*– July 1 through June 30.

(3417) (2) *All other migratory groups of king and Spanish mackerel* – April 1 through March 31.

(3418) (c) *Wreckfish*– April 16 through April 15.

(3419) **§622.31 Prohibited gear and methods.**

(3420) In addition to the prohibited gear/methods specified in this section, see §§622.33, 622.34, and 622.35 for seasonal/area prohibited gear/methods and §622.41 for species specific authorized and unauthorized gear/methods.

(3421) (a) *Explosives*. An explosive (except an explosive in a powerhead) may not be used to fish in the Caribbean, Gulf, or South Atlantic EEZ. A vessel fishing in the EEZ for a species governed in this part, or a vessel for which a permit has been issued under §622.4 or §622.17, may not have on board any dynamite or similar explosive substance.

(3422) (b) *Chemicals and plants*. A toxic chemical may not be used or possessed in a coral area, and a chemical, plant, or plant-derived toxin may not be used to harvest a Caribbean coral reef resource in the Caribbean EEZ.

(3423) (c) *Fish traps*. (1) A fish trap may not be used in the South Atlantic EEZ.

(3424) (2) A fish trap may not be used or possessed in the Gulf EEZ west of 85°30 'W. and, after February 7, 2007, may not be used or possessed in the Gulf EEZ.

(3425) (3) A fish trap used other than where authorized in paragraph (c) (1) or (2) of this section may be disposed of in any appropriate manner by the Assistant Administrator or an authorized officer.

(3426) (d) *Longlines for wreckfish*. A bottom longline may not be used to fish for wreckfish in the South Atlantic EEZ. A person aboard a vessel that has a longline on board may not retain a wreckfish in or from the South Atlantic EEZ. For the purposes of this paragraph, a vessel is considered to have a longline on board when a power-operated longline hauler, a cable of diameter suitable for use in the longline fishery longer than 1.5 mi (2.4 km) on any reel, and gangions are on board. Removal of any one of these three elements constitutes removal of a longline.

(3427) (e) *Poisons*. (1) A poison, drug, or other chemical may not be used to fish for Caribbean reef fish in the Caribbean EEZ.

(3428) (2) A poison may not be used to take Gulf reef fish in the Gulf EEZ.

(3429) (3) A poison may not be used to fish for South Atlantic snapper-grouper in the South Atlantic EEZ.

(3430) (f) *Power-assisted tools*. A power-assisted tool may not be used in the Caribbean EEZ to take a Caribbean coral reef resource or in the Gulf or South Atlantic EEZ to take allowable octocoral, prohibited coral, or live rock.

(3431) (g) *Powerheads*. A powerhead may not be used in the Caribbean EEZ to harvest Caribbean reef fish or in the EEZ off South Carolina to harvest South Atlantic snapper-grouper. The possession of a mutilated Caribbean reef fish in or from the Caribbean EEZ, or a mutilated South Atlantic snapper-grouper in or from the EEZ off South Carolina, and a powerhead is prima facie evidence that such fish was harvested by a powerhead.

(3432) (h) *Rebreathers and spearfishing gear*. In the South Atlantic EEZ, a person using a rebreather may not harvest South Atlantic snapper-grouper with spearfishing gear. The possession of such snapper-grouper while in the water with a rebreather is prima facie evidence that such fish was harvested with spearfishing gear while using a rebreather.

(3433) (i) *Sea bass pots.* A sea bass pot may not be used in the South Atlantic EEZ south of 28°35.1'N. (due east of the NASA Vehicle Assembly Building, Cape Canaveral, FL). A sea bass pot deployed in the EEZ south of 28°35.1'N. may be disposed of in any appropriate manner by the Assistant Administrator or an authorized officer.

(3434) (j) *Spears and hooks.* A spear, hook, or similar device may not be used in the Caribbean EEZ to harvest a Caribbean spiny lobster. The possession of a speared, pierced, or punctured Caribbean spiny lobster in or from the Caribbean EEZ is prima facie evidence of violation of this section.

(3435) **§622.32 Prohibited and limited-harvest species.**

(3436) (a) *General.* The harvest and possession restrictions of this section apply without regard to whether the species is harvested by a vessel operating under a commercial vessel permit. The operator of a vessel that fishes in the EEZ is responsible for the limit applicable to that vessel.

(3437) (b) *Prohibited species.* Prohibited species, by geographical area, are as follows:

(3438) (1) *Caribbean.* (i) Caribbean prohibited coral may not be fished for or possessed in or from the Caribbean EEZ. The taking of Caribbean prohibited coral in the Caribbean EEZ is not considered unlawful possession provided it is returned immediately to the sea in the general area of fishing.

(3439) (ii) Foureye, banded, and longsnout butterflyfish; jewfish; Nassau grouper; and seahorses may not be harvested or possessed in or from the Caribbean EEZ. Such fish caught in the Caribbean EEZ must be released immediately with a minimum of harm.

(3440) (iii) Egg-bearing spiny lobster in the Caribbean EEZ must be returned to the water unharmed. An egg-bearing spiny lobster may be retained in a trap, provided the trap is returned immediately to the water. An egg-bearing spiny lobster may not be stripped, scraped, shaved, clipped, or in any other manner molested, in order to remove the eggs.

(3441) (2) *Gulf.* (i) Gulf and South Atlantic prohibited coral taken as incidental catch in the Gulf EEZ must be returned immediately to the sea in the general area of fishing. In fisheries where the entire catch is landed unsorted, such as the scallop and groundfish fisheries, unsorted prohibited coral may be landed ashore; however, no person may sell or purchase such prohibited coral.

(3442) (ii) Jewfish may not be harvested or possessed in or from the Gulf EEZ.

(3443) (iii) Red drum and Nassau grouper may not be harvested or possessed in or from the Gulf EEZ. Such fish caught in the Gulf EEZ must be released immediately with a minimum of harm.

(3444) (3) *Mid-Atlantic.* Red drum may not be harvested or possessed in or from the Mid-Atlantic EEZ south of a line extending in a direction of 115° from true north commencing at a point at 40°29.6'N., 73°54.1'W., such point being the intersection of the New Jersey/New York boundary with the 3 nm line denoting the seaward limit of state waters. Red drum caught in such portion of the Mid-Atlantic EEZ must be released immediately with a minimum of harm.

(3445) (4) *South Atlantic.* (i) Gulf and South Atlantic prohibited coral taken as incidental catch in the South Atlantic EEZ must be returned immediately to the sea in the general area of fishing. In fisheries where the entire catch is landed unsorted, such as the scallop and groundfish fisheries, unsorted prohibited coral may be landed ashore; however, no person may sell or purchase such prohibited coral.

(3446) (ii) Jewfish and Nassau grouper may not be harvested or possessed in or from the South Atlantic EEZ. Jewfish and Nassau grouper taken in the South Atlantic EEZ incidentally by hook-and-line must be released immediately by cutting the line without removing the fish from the water.

(3447) (iii) Red drum may not be harvested or possessed in or from the South Atlantic EEZ. Red drum caught in the South Atlantic EEZ must be released immediately with a minimum of harm.

(3448) (iv) Wild live rock may not be harvested or possessed in the South Atlantic EEZ.

(3449) (v) It is intended that no female golden crabs in or from the South Atlantic EEZ be retained on board a vessel and that any female golden crab in or from the South Atlantic EEZ be released in a manner that will ensure maximum probability of survival. However, to accommodate legitimate incidental catch and retention, the number of female golden crabs in or from the South Atlantic EEZ retained on board a vessel may not exceed 0.5 percent, by number, of all golden crabs on board. See §622.45(f)(1) regarding the prohibition of sale of female golden crabs.

(3450) (vi) South Atlantic snapper-grouper may not be possessed in whole, gutted, or filleted form by a person aboard a vessel fishing for or possessing golden crab in or from the South Atlantic EEZ or possessing a golden crab trap in the South Atlantic. Only the head, fins, and backbone (collectively the "rack") of South Atlantic snapper-grouper may be possessed for use as bait.

(3451) (c) *Limited-harvest species.* A person who fishes in the EEZ may not combine a harvest limitation specified in this paragraph (c) with a harvest limitation applicable to state waters. A species subject to a harvest limitation specified in this paragraph (c) taken in the EEZ may not be transferred at sea, regardless of where such transfer takes place, and such species may not be transferred in the EEZ.

(3452) (1) *Cobia.* No person may possess more than two cobia per day in or from the Gulf or South Atlantic EEZ, regardless of the number of trips or duration of a trip.

(3453) (2) *Cubera snapper.* No person may harvest more than two cubera snapper measuring 30 inches (76.2 cm), TL, or larger, per day in the South Atlantic EEZ off Florida and no more than two such cubera snapper in or from the South Atlantic EEZ off Florida may be possessed on board a vessel at any time.

(3454) (3) *Speckled hind and warsaw grouper.* The possession of speckled hind and warsaw grouper in or from the South Atlantic EEZ is limited to one of each per vessel per trip.

(3455) **§622.33 Caribbean EEZ seasonal and/or area closures.**

(3456) (a) *Seasonal closures.* (1) *Mutton snapper spawning aggregation area.* From March 1 through June 30, each year, fishing is prohibited in that part of the following area that is in the EEZ. The area is bounded by rhumb lines connecting, in order the points listed.

Point	Latitude	Longitude
A.....	17°37.8'N.	64°53.0'W.
B.....	17°39.0'N.	64°53.0'W.
C.....	17°39.0'N.	64°50.5'W.
D.....	17°38.1'N.	64°50.5'W.
E.....	17°37.8'N.	64°52.5'W.

Point	Latitude	Longitude
A	17°37.8'N.	64°53.0'W.

(3457) (2) *Red hind spawning aggregation areas.* From December 1 through February 28, each year, fishing is prohibited in those parts of the following areas that are in the EEZ. Each area is bounded by rhumb lines connecting, in order, the points listed.

(3458) (i) East of St. Croix.

Point	Latitude	Longitude
A	17°50.2'N.	64°27.9'W.
B	17°50.1'N.	64°26.1'W.
C	17°49.2'N.	64°25.8'W.
D	17°48.6'N.	64°25.8'W.
E	17°48.1'N.	64°26.1'W.
F	17°47.5'N.	64°26.9'W.
A	17°50.2'N.	64°27.9'W.

(3459) (ii) West of Puerto Rico–(A) Bajo de Cico.

Point	Latitude	Longitude
A	18°15.7'N.	67°26.4'W.
B	18°15.7'N.	67°23.2'W.
C	18°12.7'N.	67°23.4'W.
D	18°12.7'N.	67°26.4'W.
A	18°15.7'N.	67°26.4'W.

(3460) (B) Tourmaline Bank.

Point	Latitude	Longitude
A	18°11.2'N.	67°22.4'W.
B	18°11.2'N.	67°19.2'W.
C	18°08.2'N.	67°29.2'W.
D	18°08.2'N.	67°22.4'W.
A	18°11.2'N.	67°22.4'W.

(3461) (C) Abrir La Sierra Bank.

Point	Latitude	Longitude
A	18°06.5'N.	67°26.9'W.
B	18°06.5'N.	67°23.9'W.
C	18°03.5'N.	67°23.9'W.
D	18°03.5'N.	67°26.9'W.
A	18°06.5'N.	67°26.9'W.

(3462) (3) *Queen conch closure.* From July 1 through September 30, each year, no person may fish for queen conch in the Caribbean EEZ and no person may possess on board a fishing vessel a queen conch in or from the Caribbean EEZ.

(3463) (b) *Year-round area closures.* (1) *Hind Bank Marine Conservation District (MCD).* The following activities are prohibited within the Hind Bank MCD: Fishing for any species, and anchoring by fishing vessels. The Hind Bank MCD is bounded by rhumb lines connecting, in order, the points listed.

Point	Latitude	Longitude
A	18°13.2'N.	65°06.0'W.
B	18°13.2'N.	64°59.0'W.
C	18°11.8'N.	64°59.0'W.
D	18°10.7'N.	65°06.0'W.
A	18°13.2'N.	65°06.0'W.

(3464) (2) [Reserved]

(3465) **§622.34 Gulf EEZ seasonal and/or area closures.**

(3466) (a) *Alabama SMZ.* The Alabama SMZ consists of artificial reefs and surrounding areas. In the Alabama SMZ, fishing by a vessel that is operating as a charter vessel or headboat, a vessel that does not have a commercial permit for Gulf reef fish, as required under §622.4(a)(2), or a vessel with such a permit fishing for Gulf reef fish is limited to hook-and-line gear with three or fewer hooks per line and spearfishing gear. A person aboard a vessel that uses on any trip gear other than hook-and-line gear with three or fewer hooks per line and spearfishing gear in the Alabama SMZ is limited on that trip to the bag limits for Gulf reef fish specified in §622.39(b) and, for Gulf reef fish for which no bag limit is specified in §622.39(b), the vessel is limited to 5 percent, by weight, of all fish on board or landed. The Alabama SMZ is bounded by rhumb lines connecting, in order, the following points:

Point	Latitude	Longitude
A	30°02.5'N.	88°07.7'W.
B	30°02.6'N.	87°59.3'W.
C	29°55.0'N.	87°55.5'W.
D	29°54.5'N.	88°07.5'W.
A	30°02.5'N.	88°07.7W.

(3467) (b) *Florida middle grounds HAPC.* Fishing with a bottom longline, bottom trawl, dredge, pot, or trap is prohibited year round in the area bounded by rhumb lines connecting, in order, the following points:

Point	Latitude	Longitude
A	28°42.5'N.	84°24.8'W.
B	28°42.5'N.	84°16.3'W.
C	28°11.0'N.	84°00.0'W.
D	28°11.0'N.	84°07.0'W.
E	28°26.6'N.	84°24.8'W.
A	28°42.5'N.	84°24.8'W.

(3468) (c) *Reef fish longline and buoy gear restricted area.* A person aboard a vessel that uses, on any trip, longline or buoy gear in the longline and buoy gear restricted area is limited on that trip to the bag limits for Gulf reef fish specified in §622.39(b)(1) and, for Gulf reef fish for which no bag limit is specified in §622.39(b)(1), the vessel is limited to 5 percent, by weight, of all fish on board or landed. The longline and buoy gear restricted area is that part of the Gulf EEZ shoreward of rhumb

lines connecting, in order, the points listed in Table 1, and shown in Figures 1 and 2, in Appendix B of this part.

(3469) (d) *Riley's Hump seasonal closure.* From May 1 through June 30, each year, fishing is prohibited in the following area bounded by rhumb lines connecting, in order, the following points:

Point	Latitude	Longitude
A	24°32.2'N.	83°08.7'W.
B	24°32.2'N.	83°05.2W.
C	24°28.7'N.	83°05.2'W.
D	24°28.7'N.	83°08.7'W.
A	24°32.2'N.	83°08.7W.

(3470) (e) *Shrimp/stone crab separation zones.* Five zones are established in the Gulf EEZ and Florida's waters off Citrus and Hernando Counties for the separation of shrimp trawling and stone crab trapping. Although Zone II is entirely within Florida's waters, it is included in this paragraph (e) for the convenience of fishermen. Restrictions that apply to Zone II and those parts of the other zones that are in Florida's waters are contained in Rule 46 –38.001, Florida Administrative Code. Geographical coordinates of the points referred to in this paragraph (e) are as follows.

Point	Latitude	Longitude
A	28°59.30'N.	82°45.36'W.
B	28°59.30'N.	82°00.10'W.
C	28°26.01'N.	82°59.47'W.
D	28°26.01'N.	82°56.54'W.
E	28°41.39'N.	82°55.25'W.
F	28°41.39'N.	82°56.09'W.
G	28°48.56'N.	82°56.19'W.
H	28°53.51'N.	82°51.19'W.
I[1]	28°54.43'N.	82°44.52'W.
J[2]	28°51.09'N.	82°44.00'W.
K	28°50.59'N.	82°54.16'W.
L	28°41.39'N.	82°53.56'W.
M[3]	28°41.39'N.	82°38.46'W.
N	28°41.39'N.	82°53.12'W.
O	28°30.51'N.	82°55.11'W.
P	28°40.00'N.	82°53.08'W.
Q	28°40.00'N.	82°47.58'W.
R	28°35.14'N.	82°47.47'W.
S	28°30.51'N.	82°52.55'W.
T	28°27.46'N.	82°55.09'W.
U	28°30.51'N.	82°52.09'W.

[1]Crystal River Entrance Light 1A
[2]Long Pt. (southwest tip).
[3]Shoreline.

(3471) (1) *Zone I* is enclosed by rhumb lines connecting, in order, points A, B, C, D, T, E, F, G, H, I, and J, plus the shoreline between points A and J. It is unlawful to trawl in that part of Zone I that is in the EEZ from October 5 through May 20, each year.

(3472) (2) *Zone II* is enclosed by rhumb lines connecting, in order, points J, I, H, K, L, and M, plus the shoreline between points J and M.

(3473) (3) *Zone III* is enclosed by rhumb lines connecting, in order, points P, Q, R, U, S, and P. It is unlawful to trawl in that part of Zone III that is in the EEZ from October 5 through May 20, each year.

(3474) (4) *Zone IV* is enclosed by rhumb lines connecting, in order, points E, N, S, O, and E.

(3475) (i) It is unlawful to place a stone crab trap in that part of Zone IV that is in the EEZ from October 5 through December 1 and from April 2 through May 20, each year.

(3476) (ii) It is unlawful to trawl in that part of Zone IV that is in the EEZ from December 2 through April 1, each year.

(3477) (5) *Zone V* is enclosed by rhumb lines connecting, in order, points F, G, K, L, and F.

(3478) (i) It is unlawful to place a stone crab trap in that part of Zone V that is in the EEZ from October 5 through November 30 and from March 16 through May 20, each year.

(3479) (ii) It is unlawful to trawl in that part of Zone V that is in the EEZ from December 1 through March 15, each year.

(3480) (f) *Southwest Florida seasonal trawl closure.* From January 1 to 1 hour after sunset on May 20, each year, trawling, including trawling for live bait, is prohibited in that part of the Gulf EEZ shoreward of rhumb lines connecting, in order, the following points:

Point	Latitude	Longitude
B[1]	26°16.0'N.	81°58.5'W.
C	26°00.0'N.	81°04.0'W.
D	26°09.0'N.	81°47.6'W.
E	24°54.5'N.	81°50.5'W.
M[1]	24°49.3'N.	81°46.4'W.

[1]On the seaward limit of Florida's waters.

(3481) (g) *Reef fish stressed area.* The stressed area is that part of the Gulf EEZ shoreward of rhumb lines connecting, in order, the points listed in Table 2, and shown in Figures 3 and 4, in Appendix B of this part.

(3482) (1) A powerhead may not be used in the stressed area to take Gulf reef fish. Possession of a powerhead and a mutilated Gulf reef fish in the stressed area or after having fished in the stressed area constitutes prima facie evidence that such reef fish was taken with a powerhead in the stressed area. The provisions of this paragraph do not apply to the following species: dwarf sand perch, hogfish, and sand perch.

(3483) (2) A roller trawl may not be used in the stressed area. Roller trawl means a trawl net equipped with a series of large, solid rollers separated by several smaller spacer rollers on a separate cable or line (sweep) connected to the footrope, which makes it possible to fish the gear over rough bottom, that is, in areas unsuitable for fishing conventional shrimp trawls. Rigid framed trawls adapted for shrimping over uneven bottom, in wide use along the west coast of Florida, and shrimp trawls with hollow plastic rollers for fishing on soft bottoms, are not considered roller trawls.

(3484) (3) A fish trap may not be used in the stressed area. A fish trap used in the stressed area will be considered unclaimed or abandoned property and may be disposed of in any appropriate

manner by the Assistant Administrator (including an authorized officer).

(3485) (h) *Texas closure.* (1) From 30 minutes after sunset on May 15 to 30 minutes after sunset on July 15, trawling, except trawling for royal red shrimp beyond the 100-fathom (183-m) depth contour, is prohibited in the Gulf EEZ off Texas.

(3486) (2) In accordance with the procedures and restrictions of the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, the RA may adjust the closing and/or opening date of the Texas closure to provide an earlier, later, shorter, or longer closure, but the duration of the closure may not exceed 90 days or be less than 45 days. Notification of the adjustment of the closing or opening date will be published in the Federal Register.

(3487) (i) *Tortugas shrimp sanctuary.* (1) The Tortugas shrimp sanctuary is closed to trawling. The Tortugas shrimp sanctuary is that part of the EEZ off Florida shoreward of rhumb lines connecting, in order, the following points:

Point	Latitude	Longitude
N[1]	25°52.9'N.	81°37.9'W.
F	24°50.7'N.	81°51.3'W.
G[2]	24°40.1'N.	82°26.7'W.
H[3]	24°34.7'N.	82°35.2'W.
P[4]	24°35.0'N.	82°08.0'W.

[1]Coon Key Light.
[2]New Ground Rocks Light.
[3]Rebecca Shoal Light.
[4]Manquessas Keys.

(3488) (2) The provisions of paragraph (i)(1) of this section notwithstanding–

(3489) (i) Effective from April 11 through September 30, each year, that part of the Tortugas shrimp sanctuary seaward of rhumb lines connecting the following points is open to trawling: From point T at 24°47.8' N., 82°01.0'W. to point U at 24°43.83'N., 82°01.00'W. (on the line denoting the seaward limit of Florida's waters); thence along the seaward limit of Florida's waters, as shown on the current edition of NOAA chart 11439, to point V at 24°42.55'N., 82°15.00'W.; thence north to point W at 24°43.6'N., 82°15.0'W.

(3490) (ii) Effective from April 11 through July 31, each year, that part of the Tortugas shrimp sanctuary seaward of rhumb lines connecting the following points is open to trawling: From point W to point V, both points as specified in paragraph (i)(2)(i) of this section, to point G, as specified in paragraph (i)(1) of this section.

(3491) (iii) Effective from May 26 through July 31, each year, that part of the Tortugas shrimp sanctuary seaward of rhumb lines connecting the following points is open to trawling: From point F, as specified in paragraph (i)(1) of this section, to point Q at 24°46.7'N., 81°52.2'W. (on the line denoting the seaward limit of Florida's waters); thence along the seaward limit of Florida's waters, as shown on the current edition of NOAA chart 11439, to point U and north to point T, both points as specified in paragraph (i)(2)(i) of this section.

(3492) (j) *West and East Flower Garden Banks HAPC.* Fishing with a bottom longline, bottom trawl, dredge, pot, or trap is prohibited year-round in the HAPC. The West and East Flower Garden Banks are geographically centered at 27°52'14.21"N., 93°48'54.79"W. and 27°55'07.44"N., 93°36'08.49"W., respectively. The HAPC extends from these centers to the 50-fathom (300-ft) (91.4-m) isobath.

(3493) (k) *Wild live rock area closures.* No person may harvest or possess wild live rock in the Gulf EEZ–

(3494) (1) North and west of a line extending in a direction of 235° from true north from a point at the mouth of the Suwannee River at 29°17.25'N., 83°09.90'W. (the Levy/Dixie County, FL, boundary); or

(3495) (2) South of 25°20.4'N. (due west from the Monroe/Collier County, FL, boundary).

(3496) (l) Closures of the commercial fishery for red snapper. The commercial fishery for red snapper in or from the Gulf EEZ is closed from January 1 to noon on February 1 and thereafter from noon on the 15th of each month to noon on the first of each succeeding month. All times are local times. During these closed periods, the possession of red snapper in or from the Gulf EEZ and in the Gulf on board a vessel for which a commercial permit for Gulf reef fish has been issued, as required under §622.4(a)(2)(v), without regard to where such red snapper were harvested, is limited to the bag and possession limits, as specified in §622.39(b)(1)(iii) and (b)(2), respectively, and such red snapper are subject to the prohibition on sale or purchase of red snapper possessed under the bag limit, as specified in §622.45(c)(1). However, when the recreational quota for red snapper has been reached and the bag and possession limit has been reduced to zero, such possession during a closed period is zero.

(3497) (m) *Closures of the commercial fishery for red snapper.* The commercial fishery for red snapper in or from the Gulf EEZ is closed from January 1 to noon on February 1 and thereafter from noon on the 15th of each month to noon on the first of each succeeding month. All times are local times. During these closed periods, the possession of red snapper in or from the Gulf EEZ and in the Gulf on board a vessel for which a commercial permit for Gulf reef fish has been issued, as required under §622.4(a)(2)(v), without regard to where such red snapper were harvested, is limited to the bag and possession limits, as specified in §622.39(b)(1)(vi) and (b)(2), respectively, and such red snapper are subject to the prohibition on sale or purchase of red snapper possessed under the bag limit, as specified in §622.45(c)(1). However, when the recreational quota for red snapper has been reached and the bag and possession limit has been reduced to zero, such possession during a closed period is zero.

(3498) **§622.35 South Atlantic EEZ seasonal and/or area closures.**

(3499) (a) Allowable octocoral closed area. No person may harvest or possess allowable octocoral in the South Atlantic EEZ north of 28°35.1'N. (due east of the NASA Vehicle Assembly Building, Cape Canaveral, FL).

(3500) (b) *Longline closed areas.* A longline may not be used to fish in the EEZ for South Atlantic snapper-grouper south of 27°10'N. (due east of the entrance to St. Lucie Inlet, FL); or north of 27°10'N. where the charted depth is less than 50 fathoms (91.4 m), as shown on the latest edition of the largest scale NOAA chart of the location. A person aboard a vessel with a longline on board that fishes on a trip in the South Atlantic EEZ south of 27°10'N., or north of 27°10'N. where the charted depth is less than 50 fathoms (91.4 m), is limited on that trip to the bag limit for South Atlantic snapper-grouper for which a bag limit is specified in §622.39(d)(1), and to zero for all other South Atlantic snapper-grouper. For the purpose of this paragraph, a vessel is considered to have a longline on board when a power-operated longline

hauler, a cable or monofilament of diameter and length suitable for use in the longline fishery, and gangions are on board. Removal of any one of these three elements constitutes removal of a longline.

(3501) (c) *Oculina Bank*–(1) HAPC. The Oculina Bank HAPC encompasses an area bounded on the north by 28°30'N. lat., on the south by 27°30'N. lat., on the east by the 100-fathom (183-m) contour, as shown on the latest edition of NOAA chart 11460, and on the west by 80°00'W. long.; and two adjacent areas: the first bounded on the north by 28°30'N. lat., on the south by 28°29'N. lat., on the east by 80°00'W. long., and on the west by 80°03'W. long.; and the second bounded on the north by 28°17'N. lat., on the south by 28°16'N. lat., on the east by 80°00'W. long., and on the west by 80°03'W. long. In the Oculina Bank HAPC, no person may:

(3502) (i) Use a bottom longline, bottom trawl, dredge, pot, or trap.

(3503) (ii) If aboard a fishing vessel, anchor, use an anchor and chain, or use grapple and chain.

(3504) (iii) Fish for rock shrimp or possess rock shrimp in or from the area on board a fishing vessel.

(3505) (2) *Experimental closed area.* Within the Oculina Bank HAPC, the experimental closed area is bounded on the north by 27°53'N. lat., on the south by 27°30'N. lat., on the east by 79°56'W. long., and on the west by 80°00'W. long. No person may fish for South Atlantic snapper-grouper in the experimental closed area, and no person may retain South Atlantic snapper-grouper in or from the area. In the experimental closed area, any South Atlantic snapper-grouper taken incidentally by hook-and-line gear must be released immediately by cutting the line without removing the fish from the water.

(3506) (d) *South Atlantic shrimp cold weather closure.* (1) Pursuant to the procedures and criteria established in the FMP for the Shrimp Fishery of the South Atlantic Region, when Florida, Georgia, North Carolina, or South Carolina closes all or a portion of its waters of the South Atlantic to the harvest of brown, pink, and white shrimp, the Assistant Administrator may concurrently close the South Atlantic EEZ adjacent to the closed state waters by filing a notification of closure with the Office of the Federal Register. Closure of the adjacent EEZ will be effective until the ending date of the closure in state waters, but may be ended earlier based on the state's request. In the latter case, the Assistant Administrator will terminate a closure of the EEZ by filing a notification to that effect with the Office of the Federal Register.

(3507) (2) During a closure, as specified in paragraph (d)(1) of this section–

(3508) (i) No person may trawl for brown shrimp, pink shrimp, or white shrimp in the closed portion of the EEZ (closed area); and no person may possess on board a fishing vessel brown shrimp, pink shrimp, or white shrimp in or from a closed area, except as authorized in paragraph (d)(2)(iii) of this section.

(3509) (ii) No person aboard a vessel trawling in that part of a closed area that is within 25 nm of the baseline from which the territorial sea is measured may use or have on board a trawl net with a mesh size less than 4 inches (10.2 cm), as measured between the centers of opposite knots when pulled taut.

(3510) (iii) Brown shrimp, pink shrimp, or white shrimp may be possessed on board a fishing vessel in a closed area, provided the vessel is in transit and all trawl nets with a mesh size less than 4 inches (10.2 cm), as measured between the centers of opposite knots when pulled taut, are stowed below deck while transiting the closed area. For the purpose of this paragraph, a vessel is in transit when it is on a direct and continuous course through a closed area.

(3511) (e) *SMZs.* (1) The SMZs consist of artificial reefs and surrounding areas as follows:

(3512) (i) *Paradise Reef* is bounded on the north by 33°31.59' N.; on the south by 33°30.51'N.; on the east by 78°57.55'W.; and on the west by 78°58.85'W.

(3513) (ii) *Ten Mile Reef* is bounded on the north by 33°26.65' N.; on the south by 33°24.80'N.; on the east by 78°51.08'W.; and on the west by 78°52.97'W.

(3514) (iii) *Pawleys Island Reef* is bounded on the north by 33°26.58'N.; on the south by 33°76'N.; on the east by 79°00.29'W.; and on the west by 79°01.24'W.

(3515) (iv) *Georgetown Reef* is bounded on the north by 33°14.90'N.; on the south by 33°13.85'N.; on the east by 78°59.45'W.; and on the west by 79°00.65'W.

(3516) (v) *Capers Reef* is bounded on the north by 32°45.45' N.; on the south by 32°43.91'N.; on the east by 79°33.81'W.; and on the west by 79°35.10'W.

(3517) (vi) *Kiawah Reef* is bounded on the north by 32°29.78' N.; on the south by 32°28.25'N.; on the east by 79°59.00'W.; and on the west by 80°00.95'W.

(3518) (vii) *Edisto Offshore Reef* is bounded on the north by 32°15.30'N.; on the south by 32°13.90'N.; on the east by 79°50.25'W.; and on the west by 79°51.45'W.

(3519) (viii) *Hunting Island Reef* is bounded on the north by 32°13.72'N.; on the south by 32°12.30'N.; on the east by 80°19.23'W.; and on the west by 80°21.00'W.

(3520) (ix) *Fripp Island Reef* is bounded on the north by 32°15.92'N.; on the south by 32°14.75'N.; on the east by 80°21.62'W.; and on the west by 80°22.90'W.

(3521) (x) *Betsy Ross Reef* is bounded on the north by 32°03.60'N.; on the south by 32°02.88'N.; on the east by 80°24.57'W.; and on the west by 80°25.50'W.

(3522) (xi) *Hilton Head Reef/Artificial Reef*–T is bounded on the north by 32°00.71'N.; on the south by 31°59.42'N.; on the east by 80°35.23' W.; and on the west by 80°36.37'W.

(3523) (xii) *Artificial Reef—A* is bounded on the north by 30°57.4'N., on the south by 30°55.4'N., on the east by 81°13.9'W.; and on the west by 81°16.3'W.

(3524) (xiii) *Artificial Reef—C* is bounded on the north by 30°52.0'N.; on the south by 30°50.0'N.; on the east by 81°08.5'W.; and on the west by 81°10.9'W.

(3525) (xiv) *Artificial Reef—G* is bounded on the north by 31°00.0'N.; on the south by 30°58.0'N.; on the east by 80°56.8'W.; and on the west by 80°59.2'W.

(3526) (xv) *Artificial Reef—F* is bounded on the north by 31°06.8'N.; on the south by 31°04.8'N.; on the east by 81°10.5'W.; and on the west by 81°13.4'W.

(3527) (xvi) *Artificial Reef—J* is bounded on the north by 31°36.7'N.; on the south by 31°34.7'N.; on the east by 80°47.3'W.; and on the west by 80°50.1'W.

(3528) (xvii) *Artificial Reef—L* is bounded on the north by 31°46.0'N.; on the south by 31°44.0'N.; on the east by 80°34.7'W.; and on the west by 80°37.1'W.

(3529) (xviii) *Artificial Reef—KC* is bounded on the north by 31°51.2'N.; on the south by 31°49.2'N.; on the east by 80°45.3'W.; and on the west by 80°47.7'W.

(3530) (xix) *Ft. Pierce Inshore Reef* is bounded on the north by 27°26.80'N.; on the south by 27°25.80'N.; on the east by 80°09.24' W.; and on the west by 80°10.36'W.

(3531) (xx) *Ft. Pierce Offshore Reef* is bounded by rhumb lines connecting, in order, the following points:

Point	Latitude	Longitude
A	27°23.68'N.	80°03.95'W.
B	27°22.80'N.	80°03.60'W.
C	27°23.94'N.	80°00.02'W.
D	27°24.85'N.	80°00.33'W.
A	27°23.68'N.	80°03.95'W.

(3532) (xxi) *Key Biscayne/Artificial Reef–H* is bounded on the north by 25°42.82'N.; on the south by 25°41.32'N.; on the east by 80°04.22'W.; and on the west by 80°05.53'W.

(3533) (xxii) *Little River Offshore Reef* is bounded on the north by 33°42.10'N.; on the south by 33°41.10'N.; on the east by 78°26.40'W.; and on the west by 78°27.10'W.

(3534) (xxiii) *BP-25 Reef* is bounded on the north by 33°21.70'N.; on the south by 33°20.70'N.; on the east by 78°24.80'W.; and on the west by 78°25.60'W.

(3535) (xxiv) *Vermilion Reef* is bounded on the north by 32°57.80'N.; on the south by 32°57.30'N.; on the east by 78°39.30'W.; and on the west by 78°40.10'W.

(3536) (xxv) *Cape Romaine Reef* is bounded on the north by 33°00.00'N.; on the south by 32°59.50'N.; on the east by 79°02.01'W.; and on the west by 79°02.62'W.

(3537) (xxvi) *Y-73 Reef* is bounded on the north by 32°33.20' N.; on the south by 32°32.70'N.; on the east by 79°19.10'W.; and on the west by 79°19.70'W.

(3538) (xxvii) *Eagles Nest Reef* is bounded on the north by 32°01.48'N.; on the south by 32°00.98'N.; on the east by 80°30.00'W.; and on the west by 80°30.65'W.

(3539) (xxviii) *Bill Perry Jr. Reef* is bounded on the north by 33°26.20'N.; on the south by 33°25.20'N.; on the east by 78°32.70'W.; and on the west by 78°33.80'W.

(3540) (xxix) *Comanche Reef* is bounded on the north by 32°27.40'N.; on the south by 32°26.90'N.; on the east by 79°18.80'W.; and on the west by 79°19.60'W.

(3541) (xl) *Artificial Reef—ALT* is bounded on the north by 31°18.6'N.; on the south by 31°16.6'N.; on the east by 81°07.0'W.; and on the west by 81°09.4'W.

(3542) (xli) *Artificial Reef—CAT* is bounded on the north by 31°40.2'N.; on the south by 31°38.2'N.; on the east by 80°56.2'W.; and on the west by 80°58.6'W.

(3543) (xlii) *Artificial Reef—CCA* is bounded on the north by 31°43.7'N.; on the south by 31°41.7'N.; on the east by 80°40.0'W.; and on the west by 80°42.3'W.

(3544) (xliii) *Artificial Reef—DRH* is bounded on the north by 31°18.0'N.; on the south 31°16.0'N.; on the east by 80°56.6'W.; and on the west by 80°59.0'W.

(3545) (xliv) *Artificial Reef—DUA* is bounded on the north by 31°47.8'N.; on the south by 31°45.8'N.; on the east by 80°52.1'W.; and on the west by 80°54.5'W.

(3546) (xlv) *Artificial Reef—DW* is bounded on the north by 31°22.8'N.; on the south by 31°20.3'N.; on the east by 79°49.8'W.; and on the west by 79°51.1'W.

(3547) (xlvi) *Artificial Reef—KBY* is bounded on the north 30°48.6'N.; on the south by 30°46.6'N.; on the east by 81°15.0'W.; and on the west by 81°17.4'W.

(3548) (xlvii) *Artificial Reef—KTK* is bounded on the north by 31°31.3'N.; on the south by 31°29.3'N.; on the east by 80°59.1'W.; and on the west by 81°01.5'W.

(3549) (xlviii) *Artificial Reef—MRY* is bounded on the north by 30°47.5'N.; on the south by 30°45.5'N.; on the east by 81°05.5'W.; and on the west by 81°07.8'W.

(3550) (xlix) *Artificial Reef—SAV* is bounded on the north by 31°55.4'N.; on the south by 31°53.4'N.; on the east by 80°45.2'W; and on the west by 80°47.6'W.

(3551) (l) *Artificial Reef—SFC* is bounded on the north by 31°00.8'N.; on the south by 30°59.8'N.; on the east by 81°02.2'W.; and on the west by 81°03.4'W.

(3552) (li) *Artificial Reef—WW* is bounded on the north by 31°43.5'N.; on the south by 31°42.2'N.; on the east by 79°57.7'W.; and on the west by 79°59.3'W.

(3553) (2) To determine what restrictions apply in the SMZs listed in §622.35(e)(1), follow this table:

IN SMZs SPECIFIED IN THE FOLLOWING PARAGRAPHS OF §622.35	THESE RESTRICTIONS APPLY
(e)(1)(i) through (x), (e)(1)(xx), and (e)(1)(xxii) through (xxxix)	Use of a powerhead to take South Atlantic snapper-grouper is prohibited. Possession of a powerhead and a mutilated South Atlantic snapper-grouper in, or after having fished in, one of these SMZs constitutes *prima facie* evidence that such fish was taken with a powerhead in the SMZ.
(e)(1)(i) through (xviii) and (e)(1)(xxii) through (li)	Fishing may only be conducted with handline, rod and reel, and spearfishing gear.
(e)(1)(i) through (li)	Use of a sea bass pot or bottom longline is prohibited.
(e)(1)xii) through (xviii) and (e)(1)(xl) through (li)	Possession of South Atlantic snapper-grouper taken with a powerhead is limited to the bag limits specified in §622.39(d)(1).
e)(1)(xix) and (e)(1)(xx)	A hydraulic or electric reel that is permanently affixed to the vessel is prohibited when fishing for South Atlantic snapper-grouper.
(e)(1)(xix) and (e)(1)(xxi)	Use of spearfishing gear is prohibited.

(3554) (f) *Golden crab trap closed areas*. In the golden crab northern zone, a golden crab trap may not be deployed in waters less than 900 ft (274 m) deep. In the golden crab middle and southern zones, a golden crab trap may not be deployed in waters less than 700 ft (213 m) deep. See §622.17(h) for specification of the golden crab zones.

(3555) **§622.36 Seasonal harvest limitations.**

(3556) (a) During March, April, and May, each year, the possession of greater amberjack in or from the Gulf EEZ and in the Gulf on board a vessel for which a commercial permit for Gulf reef fish has been issued, as required under §622.4(a)(2)(v), without regard to where such greater amberjack were harvested, is limited to the bag and possession limits, as specified in

§622.39(b)(1)(i) and (b)(2), respectively, and such greater amberjack are subject to the prohibition on sale or purchase of greater amberjack possessed under the bag limit, as specified in §622.45(c)(1).

(3557) (b) The following limitations apply in the South Atlantic EEZ:

(3558) (1) *Greater amberjack spawning season.* During April, each year, south of 28°35.1'N. (due east of the NASA Vehicle Assembly Building, Cape Canaveral, FL), the possession of greater amberjack in or from the EEZ on board a vessel that has a commercial permit for South Atlantic snapper-grouper is limited to three per person during a single day, regardless of the number of trips or the duration of a trip.

(3559) (2) *Mutton snapper spawning season.* During May and June, each year, the possession of mutton snapper in or from the EEZ on board a vessel that has a commercial permit for South Atlantic snapper-grouper is limited to 10 per person during a single day, regardless of the number of trips or the duration of a trip.

(3560) (3) *Wreckfish spawning-season closure.* From January 15 through April 15, each year, no person may harvest or possess on a fishing vessel wreckfish in or from the EEZ; offload wreckfish from the EEZ; or sell or purchase wreckfish in or from the EEZ. The prohibition on sale or purchase of wreckfish does not apply to trade in wreckfish that were harvested, offloaded, and sold or purchased prior to January 15 and were held in cold storage by a dealer or processor.

(3561) **§622.37 Minimum sizes.**

(3562) Except for undersized king and Spanish mackerel allowed in paragraphs (c)(2) and (3) of this section, a fish smaller than its minimum size, as specified in this section, in or from the Caribbean, Gulf, South Atlantic, and/or Mid-Atlantic EEZ, as appropriate, may not be possessed, sold, or purchased. An undersized fish must be released immediately with a minimum of harm. The operator of a vessel that fishes in the EEZ is responsible for ensuring that fish on board are no smaller than the minimum size limits specified in this section.

(3563) (a) *Caribbean reef fish*: Yellowtail snapper—12 inches (30.5 cm), TL.

(3564) (b) *Caribbean spiny lobster*—3.5 inches (8.9 cm), carapace length.

(3565) (c) *Coastal migratory pelagic fish.* (1) Cobia in the Gulf or South Atlantic —33 inches (83.8 cm), fork length.

(3566) (2) King mackerel in the Gulf, South Atlantic, or Mid-Atlantic—20 inches (30.5 cm), fork length, except that a vessel fishing under a quota for king mackerel specified in §622.42(c)(1) may possess undersized king mackerel in quantities not exceeding 5 percent, by weight, of the king mackerel on board.

(3567) (3) Spanish mackerel in the Gulf, South Atlantic, or Mid-Atlantic—12 inches (30.5 cm), fork length, except that a vessel fishing under a quota for Spanish mackerel specified in §622.42(c)(2) may possess undersized Spanish mackerel in quantities not exceeding 5 percent, by weight, of the Spanish mackerel on board

(3568) (d) *Gulf reef fish*–(1) *Snapper.* (i) Lane snapper—8 inches (20.3 cm), TL.

(3569) (ii) Vermilion snapper—10 inches (25.4 cm), TL.

(3570) (iii) Cubera, dog, gray, mahogany, and yellowtail snappers and schoolmaster—12 inches (30.5 cm), TL.

(3571) (iv) Red snapper—15 inches (38.1 cm), TL.

(3572) (v) Mutton snapper—16 inches (40.6 cm), TL.

(3573) (2) *Grouper.* (i) Scamp—16 inches (40.6 cm), TL.

(3574) (ii) Black, red, and yellowfin groupers and gag—20 inches, (50.8 cm), TL.

(3575) (3) *Other Gulf reef fish species.* (i) Gray triggerfish—12 inches (30.5 cm), TL.

(3576) (ii) Hogfish—12 inches (30.5 cm), fork length.

(3577) (iii) Banded rudderfish and lesser amberjack—14 inches (35.6 cm), fork length (minimum size); 22 inches (55.9 cm), fork length (maximum size).

(3578) (iv) Greater amberjack—28 inches (71.1 cm), fork length, for a fish taken by a person subject to the bag limit specified in §622.39(b)(1)(i); and 36 inches (91.4 cm), fork length, for a fish taken by a person not subject to the bag limit.

(3579) (e) *South Atlantic snapper-grouper.* (1) Black sea bass and lane snapper—8 inches (20.3 cm), TL.

(3580) (2) Vermilion snapper—10 inches (25.4 cm), TL, for a fish taken by a person subject to the bag limit specified in §622.39(d)(1)(v) and 12 inches (30.5 cm), TL, for a fish taken by a person not subject to the bag limit.

(3581) (3) Blackfin, cubera, dog, gray, mahogany, queen, silk, and yellowtail snappers; schoolmaster; and red porgy—12 inches (30.5 cm), TL.

(3582) (4) Gray triggerfish in the South Atlantic EEZ off Florida—12 inches (30.5 cm), TL.

(3583) (5) Hogfish—12 inches (30.5 cm), fork length.

(3584) (6) Mutton snapper—16 inches (40.6 cm), TL.

(3585) (7) Black, red, yellowfin, and yellowmouth grouper; scamp; gag; and red snapper —20 inches (50.8 cm), TL.

(3586) (8) Greater amberjack—28 inches (71.1 cm), fork length, for a fish taken by a person subject to the bag limit specified in §622.39(d)(1)(i) and 36 inches (91.4 cm), fork length, or, if the head is removed, 28 inches (71.1 cm), measured from the center edge at the deheaded end to the fork of the tail, for a fish taken by a person not subject to the bag limit. (See Appendix C of this part for deheaded fish length measurement.)

(3587) (f) *Gulf shrimp.* White shrimp harvested in the EEZ are subject to the minimum-size landing and possession limits of Louisiana when possessed within the jurisdiction of that State.

(3588) (g) *Caribbean queen conch*—9 inches (22.9 cm) in length, that is, from the tip of the spire to the distal end of the shell, and 3/8 inch (9.5 mm) in lip width at its widest point. A queen conch with a length of at least 9 inches (22.9 cm) or a lip width of at least 3/8 inch (9.5 mm) is not undersized.

(3589) **§622.38 Landing fish intact.**

(3590) The operator of a vessel that fishes in the EEZ is responsible for ensuring that fish on that vessel in the EEZ are maintained intact and, if taken from the EEZ, are maintained intact through offloading ashore, as specified in this section.

(3591) (a) The following must be maintained with head and fins intact: A cobia in or from the Gulf or South Atlantic EEZ; a king mackerel or Spanish mackerel in or from the Gulf, Mid-Atlantic, or South Atlantic EEZ; a South Atlantic snapper-grouper in or from the South Atlantic EEZ; a yellowtail snapper in or from the Caribbean EEZ; and, except as specified in paragraphs (c), (d), and (e) of this section, a finfish in or from the Gulf EEZ. Such fish may be eviscerated, gilled, and scaled, but must otherwise be maintained in a whole condition.

(3592) (b) A Caribbean spiny lobster in or from the Caribbean EEZ must be maintained with head and carapace intact.

(3593) (c) Shark, swordfish, and tuna species are exempt from the requirements of paragraph (a) of this section.

(3594) (d) In the Gulf EEZ:

(3595) (1) Bait is exempt from the requirement to be maintained with head and fins intact.

(3596) (i) For the purpose of this paragraph (d)(1), bait means–

(3597) (A) Packaged, headless fish fillets that have the skin attached and are frozen or refrigerated;

(3598) (B) Headless fish fillets that have the skin attached and are held in brine; or

(3599) (C) Small pieces no larger than 3 in^3 (7.6 cm^3) or strips no larger than 3 inches by 9 inches (7.6 cm by 22.9 cm) that have the skin attached and are frozen, refrigerated, or held in brine.

(3600) (ii) Paragraph (d)(1)(i) of this section notwithstanding, a finfish or part thereof possessed in or landed from the Gulf EEZ that is subsequently sold or purchased as a finfish species, rather than as bait, is not bait.

(3601) (2) Legal-sized finfish possessed for consumption at sea on the harvesting vessel are exempt from the requirement to have head and fins intact, provided–

(3602) (i) Such finfish do not exceed any applicable bag limit;

(3603) (ii) Such finfish do not exceed 1.5 lb (680 g) of finfish parts per person aboard; and

(3604) (iii) The vessel is equipped to cook such finfish on board.

(3605) (e) In the South Atlantic EEZ, a greater amberjack on or offloaded ashore from a vessel that has a permit specified in §622.4(a)(2)(vi) may be deheaded and eviscerated, but must otherwise be maintained in a whole condition through offloading ashore.

(3606) (f) A golden crab in or from the South Atlantic EEZ must be maintained in whole condition through landing ashore. For the purposes of this paragraph, whole means a crab that is in its natural condition and that has not been gutted or separated into component pieces, e.g., clusters.

(3607) (g) Cut-off (damaged) king or Spanish mackerel that comply with the minimum size limits in §622.37(c)(2) and (c)(3), respectively, and the trip limits in §622.44(a) and (b), respectively, may be possessed in the Gulf, Mid-Atlantic, or South Atlantic EEZ on, and offloaded ashore from, a vessel that is operating under the respective trip limits. Such cut-off fish also may be sold. A maximum of five additional cut-off (damaged) king mackerel, not subject to the size limits or trip limits, may be possessed or offloaded ashore but may not be sold or purchased and are not counted against the trip limit.

(3608) (h) A maximum of five cut-off (damaged) king mackerel may be possessed in the Gulf, Mid-Atlantic, or South Atlantic EEZ on, and offloaded ashore from, a vessel that is operating under a trip limit for king mackerel specified in §622.44(a). Such cut-off (damaged) king mackerel are not counted against the trip limit and may not be sold or purchased.

(3609) (i) In the South Atlantic EEZ, snapper-grouper lawfully harvested in Bahamian waters are exempt from the requirement that they be maintained with head and fins intact, provided valid Bahamian fishing and cruising permits are on board the vessel and the vessel is in transit through the South Atlantic EEZ. For the purpose of this paragraph (i), a vessel is in transit through the South Atlantic EEZ when it is on a direct and continuous course through the South Atlantic EEZ and no one aboard the vessel fishes in the EEZ.

(3610) **§622.39 Bag and possession limits.**

(3611) (a) *Applicability.* (1) The bag and possession limits apply for species/species groups listed in this section in or from the the EEZ. Unless specified otherwise, bag limits apply to a person on a daily basis, regardless of the number of trips in a day. Unless specified otherwise, possession limits apply to a person on a trip after the first 24 hours of that trip. The bag and possession limits apply to a person who fishes in the EEZ in any manner, except a person aboard a vessel in the EEZ that has on board the commercial vessel permit required under §622.4(a)(2) for the appropriate species/species group. However, see §622.32 for limitations on taking prohibited and limited-harvest species. The limitations in §622.32 apply without regard to whether the species is harvested by a vessel operating under a commercial vessel permit or by a person subject to the bag limits. The possession of a commercial vessel permit notwithstanding, the bag and possession limits apply when the vessel is operating as a charter vessel or headboat. A person who fishes in the EEZ may not combine a bag limit specified in this section with a bag or possession limit applicable to state waters. A species/species group subject to a bag limit specified in this section taken in the EEZ by a person subject to the bag limits may not be transferred at sea, regardless of where such transfer takes place, and such fish may not be transferred in the EEZ.

(3612) (2) Paragraph (a)(1) of this section notwithstanding, bag and possession limits also apply for Gulf reef fish in or from the EEZ to a person aboard a vessel that has on board a commercial permit for Gulf reef fish–

(3613) (i) When trawl gear or entangling net gear is on board. A vessel is considered to have trawl gear on board when trawl doors and a net are on board. Removal from the vessel of all trawl doors or all nets constitutes removal of trawl gear.

(3614) (ii) When a longline or buoy gear is on board and the vessel is fishing or has fished on a trip in the reef fish longline and buoy gear restricted area specified in §622.34(c). A vessel is considered to have a longline on board when a power-operated longline hauler, a cable of diameter and length suitable for use in the longline fishery, and gangions are on board. Removal of any one of these three elements, in its entirety, constitutes removal of a longline.

(3615) (iii) For a species/species group when its quota has been reached and closure has been effected.

(3616) (iv) When the vessel has on board or is tending any trap other than a fish trap authorized under §622.40(a)(2), a stone crab trap, or a spiny lobster trap.

(3617) (3) Paragraph (a)(1) of this section notwithstanding, the bag and other limits specified in §622.35(b) apply for South Atlantic snapper-grouper in or from the EEZ to a person aboard a vessel for which a commercial permit for South Atlantic snapper-grouper has been issued that has on board a longline in the longline closed area.

(3618) (b) *Gulf reef fish*–(1) *Bag limits.* (i) Greater amberjack—1.

(3619) (ii) Groupers, combined, excluding jewfish and Nassau grouper—5 per person per day, but not to exceed 1 speckled hind and 1 Warsaw grouper per vessel per day.

(3620) (iii) Red snapper—5.

(3621) (iv) Snappers, combined, excluding red, lane, and vermilion snapper—10.

(3622) (v) Gulf reef fish, combined excluding, those specified in paragraphs (b)(1)(i) through (b)(1)(iv) and paragraphs (b)(1)(vi) through (b)(1)(vii) of this section and excluding dwarf sand perch and sand perch—20.

(3623) (vi) Banded rudderfish and lesser amberjack, combined—5.

(3624) (vii) Hogfish—5.

(3625) (2) *Possession limits.* A person, or a vessel in the case of speckled hind or Warsaw grouper, on a trip that spans more than 24 hours may possess no more than two daily bag limits, provided such trip is on a vessel that is operating as a charter vessel or headboat, the vessel has two licensed operators aboard, and each passenger is issued and has in possession a receipt issued on behalf of the vessel that verifies the length of the trip.

(3626) (c) *King and Spanish mackerel*–(1) *Bag limits.* (i) Atlantic migratory group king mackerel–

(3627) (A) Mid-Atlantic and South Atlantic, other than off Florida–3.

(3628) (B) Off Florida—2, which is the daily bag limit specified by Florida for its waters (Rule 46 –12.004(1), Florida Administrative Code). If Florida changes its limit, the bag limit specified in this paragraph (c)(1)(i)(B) will be changed to conform to Florida's limit, provided such limit does not exceed 5.

(3629) (ii) Gulf migratory group king mackerel—2, except that for an operator or member of the crew of a charter vessel or headboat, the bag limit is 0.

(3630) (iii) Atlantic migratory group Spanish mackerel—10.

(3631) (iv) Gulf migratory group Spanish mackerel–

(3632) (A) Off Louisiana, Mississippi, and Alabama—10.

(3633) (B) Off Florida—10, which is the daily bag limit specified by Florida for its waters (Rule 46–23.005(1), Florida Administrative Code). If Florida changes its limit, the bag limit specified in this paragraph (c)(1)(iv)(B) will be changed to conform to Florida's limit, provided such limit does not exceed 10.

(3634) (C) Off Texas—7, which is the daily bag limit specified by Texas for its waters (Rule 31–65.72(c)(4)(A), Texas Administrative Code). If Texas changes its limit, the bag limit specified in this paragraph (c)(1)(iv)(C) will be changed to conform to Texas' limit, provided such limit does not exceed 10.

(3635) (2) *Possession limits.* A person who is on a trip that spans more than 24 hours may possess no more than two daily bag limits, provided such trip is on a vessel that is operating as a charter vessel or headboat, the vessel has two licensed operators aboard, and each passenger is issued and has in possession a receipt issued on behalf of the vessel that verifies the length of the trip.

(3636) (d) *South Atlantic snapper-grouper*–(1) *Bag limits.* (i) Greater amberjack—3.

(3637) (ii) Groupers, combined, excluding jewfish and Nassau grouper, and tilefishes—5.

(3638) (iii) Hogfish in the South Atlantic off Florida—5.

(3639) (iv) Snappers, combined, excluding cubera snapper measuring 30 inches (76.2 cm), TL, or larger, in the South Atlantic off Florida, and excluding vermilion snapper—10, of which no more than 2 may be red snapper. (See §622.32(c)(2) for limitations on cubera snapper measuring 30 inches (76.2 cm), TL, or larger, in or from the South Atlantic EEZ off Florida.)

(3640) (v) Vermilion snapper—10.

(3641) (2) *Possession limits.* Provided each passenger is issued and has in possession a receipt issued on behalf of the vessel that verifies the duration of the trip–

(3642) (i) A person aboard a charter vessel or headboat on a trip that spans more than 24 hours may possess no more than two daily bag limits.

(3643) (ii) A person aboard a headboat on a trip that spans more than 48 hours and who can document that fishing was conducted on at least 3 days may possess no more than three daily bag limits.

(3644) (3) *Longline bag limits.* Other provisions of this paragraph (d) notwithstanding, a person on a trip aboard a vessel for which the bag limits apply that has a longline on board is limited on that trip to the bag limit for South Atlantic snapper-grouper for which a bag limit is specified in paragraph (d)(1) of this section, and to zero for all other South Atlantic snapper-grouper. For the purpose of this paragraph (d)(3), a vessel is considered to have a longline on board when a power-operated longline hauler, a cable or monofilament of diameter and length suitable for use in the longline fishery, and gangions are on board. Removal of any one of these three elements constitutes removal of a longline.

(3645) (e) *Caribbean queen conch*–(1) *Applicability.* Paragraph (a)(1) of this section notwithstanding, the bag limit of paragraph (e)(2) of this section does not apply to a fisherman who has a valid commercial fishing license issued by Puerto Rico or the U.S. Virgin Islands. See §622.44 for the commercial daily trip limit.

(3646) (2) *Bag limit.* The bag limit for queen conch in or from the Caribbean EEZ is 3 per person or, if more than 4 persons are aboard, 12 per boat.

(3647) **§622.40 Limitations on traps and pots.**

(3648) (a) *Tending*–(1) *Caribbean EEZ.* A fish trap or Caribbean spiny lobster trap in the Caribbean EEZ may be pulled or tended only by a person (other than an authorized officer) aboard the fish trap or spiny lobster trap owner's vessel, or aboard another vessel if such vessel has on board written consent of the trap owner, or if the trap owner is aboard and has documentation verifying his identification number and color code. An owner's written consent must specify the time period such consent is effective and the trap owner's gear identification number and color code.

(3649) (2) *Gulf EEZ.* A fish trap in the Gulf EEZ may be pulled or tended only by a person (other than an authorized officer) aboard the vessel with the fish trap endorsement to fish such trap. If such vessel has a breakdown that prevents it from retrieving its traps, the owner or operator must immediately notify the nearest NMFS Office of Enforcement and must obtain authorization for another vessel to retrieve and land its traps. The request for such authorization must include the requested effective period for the retrieval and landing, the persons and vessel to be authorized to retrieve the traps, and the point of landing of the traps. Such authorization will be specific as to the effective period, authorized persons and vessel, and point of landing. Such authorization is valid solely for the removal of fish traps from the EEZ and for harvest of fish incidental to such removal.

(3650) (3) *South Atlantic EEZ.* A sea bass pot or golden crab trap in the South Atlantic EEZ may be pulled or tended only by a person (other than an authorized officer) aboard the vessel permitted to fish such pot or trap or aboard another vessel if such vessel has on board written consent of the owner or operator of the vessel so permitted. For golden crab only, a vessel with written consent on board must also possess a valid commercial vessel permit for golden crab.

(3651) (b) *Escape mechanisms*–(1) *Caribbean EEZ.* (i) A fish trap used or possessed in the Caribbean EEZ must have a panel located on each of two sides of the trap, excluding the top, bottom, and side containing the trap entrance. The opening covered by a panel must measure not less than 8 by 8 inches (20.3 by 20.3 cm). The mesh size of a panel may not be smaller than the mesh size of the trap. A panel must be attached to the trap with untreated jute twine with a diameter not exceeding 1/8 inch (3.2 mm). An access door may serve as one of the panels, provided it

is on an appropriate side, it is hinged only at its bottom, its only other fastening is untreated jute twine with a diameter not exceeding 1/8 inch (3.2 mm), and such fastening is at the top of the door so that the door will fall open when such twine degrades. Jute twine used to secure a panel may not be wrapped or overlapped.

(3652) (ii) A spiny lobster trap used or possessed in the Caribbean EEZ must contain on any vertical side or on the top a panel no smaller in diameter than the throat or entrance of the trap. The panel must be made of or attached to the trap by one of the following degradable materials:

(3653) (A) Untreated fiber of biological origin with a diameter not exceeding 1/8 inch (3.2 mm). This includes, but is not limited to tyre palm, hemp, jute, cotton, wool, or silk.

(3654) (B) Ungalvanized or uncoated iron wire with a diameter not exceeding 1/16 inch (1.6 mm), that is, 16 gauge wire.

(3655) (2) *Gulf EEZ.* A fish trap used or possessed in the Gulf EEZ must have at least two escape windows on each of two sides, excluding the bottom (a total of four escape windows), that are 2 by 2 inches (5.1 by 5.1 cm) or larger. In addition, a fish trap must have a panel or access door located opposite each side of the trap that has a funnel. The opening covered by each panel or access door must be 144 in^2 (929cm^2) or larger, with one dimension of the area equal to or larger than the largest interior axis of the trap's throat (funnel) with no other dimension less than 6 inches (15.2 cm). The hinges and fasteners of each panel or access door must be constructed of one of the following degradable materials:

(3656) (i) Untreated jute string with a diameter not exceeding 3/16 inch (4.8 mm) that is not wrapped or overlapped.

(3657) (ii) Magnesium alloy, time float releases (pop-up devices) or similar magnesium alloy fasteners.

(3658) (3) *South Atlantic EEZ.* (i) A sea bass pot that is used or possessed in the South Atlantic EEZ north of 28°35.1'N. (due east of the NASA Vehicle Assembly Building, Cape Canaveral, FL) is required to have on at least one side, excluding top and bottom, a panel or door with an opening equal to or larger than the interior end of the trap's throat (funnel). The hinges and fasteners of each panel or door must be made of one of the following degradable materials:

(3659) (A) Untreated hemp, jute, or cotton string with a diameter not exceeding 3/16 inch (4.8 mm).

(3660) (B) Magnesium alloy, timed float releases (pop-up devices) or similar magnesium alloy fasteners.

(3661) (C) Ungalvanized or uncoated iron wire with a diameter not exceeding 1/16 inch (1.6 mm), that is, 16 gauge wire.

(3662) (ii) A golden crab trap that is used or possessed in the South Atlantic EEZ must have at least one escape gap or escape ring on each of two opposite vertical sides. The minimum allowable inside dimensions of an escape gap are 2.75 by 3.75 inches (7.0 by 9.5 cm); the minimum allowable inside diameter of an escape ring is 4.5 inches (11.4 cm). In addition to the escape gaps–

(3663) (A) A golden crab trap constructed of webbing must have an opening (slit) at least 1 ft (30.5 cm) long that may be closed (relaced) only with untreated cotton string no larger than 3/16 inch (0.48 cm) in diameter.

(3664) (B) A golden crab trap constructed of material other than webbing must have an escape panel or door measuring at least 12 by 12 inches (30.5 by 30.5 cm), located on at least one side, excluding top and bottom. The hinges and fasteners of such door or panel must be made of either ungalvanized or uncoated iron wire no larger than 19 gauge (0.04 inch (1.0 mm) in diameter) or untreated cotton string no larger than 3/16 inch (4.8 mm) in diameter.

(3665) (c) *Construction requirements and mesh sizes*–(1) *Caribbean EEZ.* A bare-wire fish trap used or possessed in the EEZ that has hexagonal mesh openings must have a minimum mesh size of 1.5 inches (3.8 cm) in the smallest dimension measured between centers of 0pposite strands. A bare-wire fish trap used or possessed in the EEZ that has other than hexagonal mesh openings or a fish trap of other than bare wire, such as coated wire or plastic, used or possessed in the EEZ, must have a minimum mesh size of 2.0 inches (5.1 cm) in the smallest dimension measured between centers of opposite strands.

(3666) (2) *Gulf EEZ.* A fish trap used or possessed in the Gulf EEZ must meet all of the following mesh size requirements (based on centerline measurements between opposite wires or netting strands):

(3667) (i) A minimum of 2 in^2 (12.9 cm^2) opening for each mesh.

(3668) (ii) One-inch (2.5 cm) minimum length for the shortest side.

(3669) (iii) Minimum distance of 1 inch (2.5 cm) between parallel sides of rectangular openings, and 1.5 inches (3.8 cm) between parallel sides of square openings and of mesh openings with more than four sides.

(3670) (iv) One and nine-tenths inches (4.8 cm) minimum distance for diagonal measures of mesh.

(3671) (3) *South Atlantic EEZ.* (i) A sea bass pot used or possessed in the South Atlantic EEZ must have mesh sizes as follows (based on centerline measurements between opposite, parallel wires or netting strands):

(3672) (A) Hexagonal mesh (chicken wire)–at least 1.5 inches (3.8 cm) between the wrapped sides;

(3673) (B) Square mesh–at least 1.5 inches (3.8 cm) between sides; or

(3674) (C) Rectangular mesh–at least 1 inch (2.5 cm) between the longer sides and 2 inches (5.1 cm) between the shorter sides.

(3675) (ii) A golden crab trap deployed or possessed in the South Atlantic EEZ may not exceed 64 ft^3 (1.8 m^3) in volume in the northern zone or 48 ft^3 (1.4 m^3) in volume in the middle and southern zones. See §622.17(h) for specification of the golden crab zones.

(3676) (d) *Area-specific restrictions*–(1) *Gulf EEZ.* In the Gulf EEZ, a fish trap may be pulled or tended only from official sunrise to official sunset. The operator of a vessel from which a fish trap is deployed in the Gulf EEZ must retrieve all the vessel's fish traps and return them to port on each trip. A fish trap that is not returned to port on a trip, and its attached line and buoy, may be disposed of in any appropriate manner by the Assistant Administrator or an authorized officer. The owner of such trap and/or the operator of the responsible vessel is subject to appropriate civil penalties. A buoy that floats on the surface must be attached to each fish trap, or to each end trap of traps that are connected by a line, used in the Gulf EEZ. The maximum allowable size for a fish trap fished in the Gulf EEZ shoreward of the 50-fathom (91.4-m) isobath is 33 ft^3 (0.9 m^3) in volume. Fish trap volume is determined by measuring the external dimensions of the trap, and includes both the enclosed holding capacity of the trap and the volume of the funnel(s) within those dimensions. There is no size limitation for fish traps fished seaward of the 50-fathom (91.4-m) isobath. The maximum number of traps that may be assigned to, possessed, or fished in the Gulf EEZ by a vessel is 100.

(3677) (2) *South Atlantic EEZ.* (i) In the South Atlantic EEZ, sea bass pots may not be used or possessed in multiple configurations, that is, two or more pots may not be attached one to another so that their overall dimensions exceed those allowed for an individual sea bass pot. This does not preclude connecting individual pots to a line, such as a "trawl" or trot line.

(3678) (ii) Rope is the only material allowed to be used for a mainline or buoy line attached to a golden crab trap, except that wire cable is allowed for these purposes through January 31, 1998.

(3679) **§622.41 Species specific limitations.**

(3680) (a) *Aquacultured live rock.* In the Gulf or South Atlantic EEZ:

(3681) (1) Aquacultured live rock may be harvested only under a permit, as required under §622.4(a)(3)(iii), and aquacultured live rock on a site may be harvested only by the person, or his or her employee, contractor, or agent, who has been issued the aquacultured live rock permit for the site. A person harvesting aquacultured live rock is exempt from the prohibition on taking prohibited coral for such prohibited coral as attaches to aquacultured live rock.

(3682) (2) The following restrictions apply to individual aquaculture activities:

(3683) (i) No aquaculture site may exceed 1 acre (0.4 ha) in size.

(3684) (ii) Material deposited on the aquaculture site–

(3685) (A) May not be placed over naturally occurring reef outcrops, limestone ledges, coral reefs, or vegetated areas.

(3686) (B) Must be free of contaminants.

(3687) (C) Must be nontoxic.

(3688) (D) Must be placed on the site by hand or lowered completely to the bottom under restraint, that is, not allowed to fall freely.

(3689) (E) Must be placed from a vessel that is anchored.

(3690) (F) In the Gulf EEZ, must be distinguishable, geologically or otherwise (for example, be indelibly marked or tagged), from the naturally occurring substrate.

(3691) (G) In the South Atlantic EEZ, must be geologically distinguishable from the naturally occurring substrate and, in addition, may be indelibly marked or tagged.

(3692) (iii) A minimum setback of at least 50 ft (15.2 m) must be maintained from natural vegetated or hard bottom habitats.

(3693) (3) Mechanically dredging or drilling, or otherwise disturbing, aquacultured live rock is prohibited, and aquacultured live rock may be harvested only by hand. In addition, the following activities are prohibited in the South Atlantic: Chipping of aquacultured live rock in the EEZ, possession of chipped aquacultured live rock in or from the EEZ, removal of allowable octocoral or prohibited coral from aquacultured live rock in or from the EEZ, and possession of prohibited coral not attached to aquacultured live rock or allowable octocoral, while aquacultured live rock is in possession. See the definition of "Allowable octocoral" for clarification of the distinction between allowable octocoral and live rock. For the purposes of this paragraph (a)(3), chipping means breaking up reefs, ledges, or rocks into fragments, usually by means of a chisel and hammer.

(3694) (4) Not less than 24 hours prior to harvest of aquacultured live rock, the owner or operator of the harvesting vessel must provide the following information to the NMFS Law Enforcement Office, Southeast Area, St. Petersburg, FL, telephone (813) 570-5344:

(3695) (i) Permit number of site to be harvested and date of harvest.

(3696) (ii) Name and official number of the vessel to be used in harvesting.

(3697) (iii) Date, port, and facility at which aquacultured live rock will be landed.

(3698) (b) *Caribbean reef fish.* A marine aquarium fish may be harvested in the Caribbean EEZ only by a hand-held dip net or by a hand-held slurp gun. For the purposes of this paragraph, a hand-held slurp gun is a device that rapidly draws seawater containing fish into a self-contained chamber, and a marine aquarium fish is a Caribbean reef fish that is smaller than 5.5 inches (14.0 cm), TL.

(3699) (c) *Coastal migratory pelagic fish*–(1) *Authorized gear.* Subject to the prohibitions on gear/methods specified in §622.31, the following are the only fishing gears that may be used in the Gulf, Mid-Atlantic, and South Atlantic EEZ in directed fisheries for coastal migratory pelagic fish:

(3700) (i) King mackerel, Atlantic migratory group–

(3701) (A) North of 34°37.3'N., the latitude of Cape Lookout Light, NC–all gear except drift gillnet and long gillnet.

(3702) (B) South of 34°37.3'N.–automatic reel, bandit gear, handline, and rod and reel.

(3703) (ii) King mackerel, Gulf migratory group–hook-and-line gear and, in the southern Florida west coast subzone only, run-around gillnet. (See §622.42)(c)(1)(i)(A)(3) for a description of the southern Florida west coast subzone.)

(3704) (iii) Spanish mackerel, Atlantic migratory group–automatic reel, bandit gear, handline, rod and reel, cast net, run-around gillnet, and stab net.

(3705) (iv) Spanish mackerel, Gulf migratory group–all gear except drift gillnet, long gillnet, and purse seine.

(3706) (v) Cobia in the Mid-Atlantic and South Atlantic EEZ, dolphin in the South Atlantic EEZ, and little tunny in the South Atlantic EEZ south of 34°37.3'N.–automatic reel, bandit gear, handline, rod and reel, and pelagic longline.

(3707) (vi) Cero in the South Atlantic EEZ and little tunny in the South Atlantic EEZ north of 34°37.3'N.–all gear except drift gillnet and long gillnet.

(3708) (vii) Bluefish, cero, cobia, dolphin, and little tunny in the Gulf EEZ–all gear except drift gillnet and long gillnet.

(3709) (2) *Unauthorized gear.* Gear types other than those specified in paragraph (c)(1) of this section are unauthorized gear and the following possession limitations apply:

(3710) (i) *Long gillnets.* A vessel with a long gillnet on board in, or that has fished on a trip in, the Gulf, Mid-Atlantic, or South Atlantic EEZ may not have on board on that trip a coastal migratory pelagic fish.

(3711) (ii) *Drift gillnets.* A vessel with a drift gillnet on board in, or that has fished on a trip in, the Gulf EEZ may not have on board on that trip a coastal migratory pelagic fish.

(3712) (iii) *Other unauthorized gear.* Except as specified in paragraph (c)(2)(iv) of this section, a person aboard a vessel with unauthorized gear other than a drift gillnet in the Gulf EEZ or a long gillnet on board in, or that has fished in, the EEZ where such gear is not authorized in paragraph (c)(1) of this section, is subject to the bag limit for king and Spanish mackerel specified in §622.39(c)(1)(ii) and to the limit on cobia specified in §622.32(c)(1).

(3713) (iv) *Exception for king mackerel in the Gulf EEZ.* The provisions of this paragraph (c)(2)(iv) apply to king mackerel taken

in the Gulf EEZ and to such king mackerel possessed in the Gulf. Paragraph (c)(2)(iii) of this section notwithstanding, a person aboard a vessel that has a valid commercial permit for king mackerel is not subject to the bag limit for king mackerel when the vessel has on board on a trip unauthorized gear other than a drift gillnet in the Gulf EEZ, a long gillnet, or a run-around gillnet in an area other than the southern Florida west coast subzone. Thus, the following applies to a vessel that has a commercial permit for king mackerel:

(3714) (A) Such vessel may not use unauthorized gear in a directed fishery for king mackerel in the Gulf EEZ.

(3715) (B) If such a vessel has a drift gillnet or along gillnet on board or a run-around gillnet in an area other than the southern Florida west coast subzone, no king mackerel may be possessed.

(3716) (C) If such a vessel has unauthorized gear on board other than a drift gillnet in the Gulf EEZ, a long gillnet, or a run-around gillnet in an area other than the southern Florida west coast subzone, the possession of king mackerel taken incidentally is restricted only by the closure provisions of §622.43(a)(3) and the trip limits specified in §622.44(a). See also paragraph (c)(4) of this section regarding the purse seine incidental catch allowance of king mackerel.

(3717) (3) *Gillnets*–(i) *King mackerel.* The minimum allowable mesh size for a gillnet used to fish in the Gulf, Mid-Atlantic, or South Atlantic EEZ for king mackerel is 4.75 inches (12.1 cm), stretched mesh. A vessel in the EEZ, or having fished on a trip in the EEZ, with a gillnet on board that has a mesh size less than 4.75 inches (12.1 cm), stretched mesh, may possess on that trip an incidental catch of king mackerel that does not exceed 10 percent, by number, of the total lawfully possessed Spanish mackerel on board.

(3718) (ii) *Spanish mackerel.* The minimum allowable mesh size for a gillnet used to fish in the Gulf, Mid-Atlantic, or South Atlantic EEZ for Spanish mackerel is 3.5 inches (8.9 cm), stretched mesh. A vessel in the EEZ, or having fished on a trip in the EEZ, with a gillnet on board that has a mesh size less than 3.5 inches (8.9 cm), stretched mesh, may not possess on that trip any Spanish mackerel.

(3719) (B) On board a vessel with a valid Spanish mackerel permit that is fishing for Spanish mackerel in, or that possesses Spanish mackerel in or from, the South Atlantic EEZ off Florida north of 25°20.4'N., which is a line directly east from the Dade/Monroe County, FL, boundary –

(3720) (1) No person may fish with, set, place in the water, or have on board a gillnet with a float line longer than 800 yd (732 m).

(3721) (2) No person may fish with, set, or place in the water more than one gillnet at any one time.

(3722) (3) No more than two gillnets, including any net in use, may be possessed at any one time; provided, however, that if two gillnets, including any net in use, are possessed at any one time, they must have stretched mesh sizes (as allowed under the regulations) that differ by at least .25 inch (.64 cm).

(3723) (4) No person may soak a gillnet for more than 1 hour. The soak period begins when the first mesh is placed in the water and ends either when the first mesh is retrieved back on board the vessel or the gathering of the gillnet is begun to facilitate retrieval on board the vessel, whichever occurs first; providing that, once the first mesh is retrieved or the gathering is begun, the retrieval is continuous until the gillnet is completely removed from the water.

(3724) (5) The float line of each gillnet possessed, including any net in use, must have the distinctive floats specified in §622.6(b)(2).

(3725) (4) *Purse seine incidental catch allowance.* A vessel in the EEZ, or having fished in the EEZ, with a purse seine on board will not be considered as fishing, or having fished, for king or Spanish mackerel in violation of a prohibition of purse seines under paragraph (c)(1)(i)(B)of this section, or, in the case of king mackerel from the Atlantic migratory group, in violation of a closure effected in accordance with §622.43(a), provided the king mackerel on board does not exceed 1 percent, or the Spanish mackerel on board does not exceed 10 percent, of all fish on board the vessel. Incidental catch will be calculated by number and/or weight of fish. Neither calculation may exceed the allowable percentage. Incidentally caught king or Spanish mackerel are counted toward the quotas provided for under §622.42(c) and are subject to the prohibition of sale under §622.43(a)(3)(iii).

(3726) (d) *South Atlantic snapper-grouper*–(1) *Authorized gear.* Subject to the gear restrictions specified in §622.31, the following are the only gear types authorized in directed fishing for snapper-grouper in the South Atlantic EEZ: Bandit gear, bottom longline, buoy gear, handline, rod and reel, sea bass pot, and spearfishing gear.

(3727) (2) *Unauthorized gear.* All gear types other than those specified in paragraph (d)(1) of this section are unauthorized gear and the following possession and transfer limitations apply. Bandit gear, bottom longline, buoy gear, handline, rod and reel, sea bass pot, and spearfishing gear.

(3728) (i) A vessel with trawl gear on board that fishes in the EEZ on a trip may possess no more than 200 lb (90.7 kg) of South Atlantic snapper-grouper, excluding wreckfish, in or from the EEZ on that trip. It is a rebuttable presumption that a vessel with more than 200 lb (90.7 kg) of South Atlantic snapper-grouper, excluding wreckfish, on board harvested such fish in the EEZ.

(3729) (ii) Except as specified in paragraph (d)(3) of this section, a person aboard a vessel with unauthorized gear on board, other than trawl gear, that fishes in the EEZ on a trip is limited on that trip to:

(3730) (A) South Atlantic snapper-grouper species for which a bag limit is specified in §622.39(d)(1)–the bag limit.

(3731) (B) All other South Atlantic snapper-grouper–zero.

(3732) (iii) South Atlantic snapper-grouper on board a vessel with unauthorized gear on board may not be transferred at sea, regardless of where such transfer takes place, and such snapper-grouper may not be transferred in the EEZ.

(3733) (iv) No vessel may receive at sea any South Atlantic snapper-grouper from a vessel with unauthorized gear on board, as specified in paragraph (d)(2)(iii) of this section.

(3734) (3) *Possession allowance regarding sink nets off North Carolina.* A vessel that has on board a commercial permit for South Atlantic snapper-grouper, excluding wreckfish, that fishes in the EEZ off North Carolina on a trip with a sink net on board, may retain otherwise legal South Atlantic snapper-grouper taken on that trip with vertical hook-and-line gear or a sea bass pot. For the purpose of this paragraph (d)(3), a sink net is a gillnet with stretched mesh measurements of 3 to 4.75 inches (7.6 to 12.1 cm) that is attached to the vessel when deployed.

(3735) (4) *Possession allowance regarding bait nets.* A vessel that has on board a commercial permit for South Atlantic snapper-grouper, excluding wreckfish, that fishes in the South Atlantic EEZ with no more than one bait net on board, may retain,

without regard to the limits specified in paragraph (d)(2)(ii) of this section, otherwise legal South Atlantic snapper-grouper taken with bandit gear, buoy gear, handline, rod and reel, or sea bass pot. For the purpose of this paragraph (d)(4), a bait net is a gillnet not exceeding 50 ft (15.2 m) in length or 10 ft (3.1 m) in height with stretched mesh measurements of 1.5 inches (3.8 cm) or smaller that is attached to the vessel when deployed.

(3736) (5) *Possession allowance regarding cast nets.* A vessel that has on board a commercial permit for South Atlantic snapper-grouper, excluding wreckfish, that fishes in the South Atlantic EEZ with a cast net on board, may retain, without regard to the limits specified in paragraph (d)(2)(ii) of this section, otherwise legal South Atlantic snapper-grouper taken with bandit gear, buoy gear, handline, rod and reel, or sea bass pot. For the purpose of this paragraph (d)(5), a cast net is a cone-shaped net thrown by hand and designed to spread out and capture fish as the weighted circumference sinks to the bottom and comes together when pulled by a line.

(3737) (e) *South Atlantic golden crab.* Traps are the only fishing gear authorized in directed fishing for golden crab in the South Atlantic EEZ. Golden crab in or from the South Atlantic EEZ may not be retained on board a vessel possessing or using unauthorized gear.

(3738) (f) *Caribbean queen conch.* In the Caribbean EEZ, no person may harvest queen conch by diving while using a device that provides a continuous air supply from the surface.

(3739) (g) *Shrimp in the South Atlantic*–(1) *BRD requirement.* On a penaeid shrimp trawler in the South Atlantic EEZ, each trawl net that is rigged for fishing and has a mesh size less than 2.50 inches (6.35 cm), as measured between the centers of opposite knots when pulled taut, and each try net that is rigged for fishing and has a headrope length longer than 16.0 ft (4.9 m), must have a certified BRD installed. A trawl net, or try net, is rigged for fishing if it is in the water, or if it is shackled, tied, or otherwise connected to a sled, door, or other device that spreads the net, or to a tow rope, cable, pole, or extension, either on board or attached to a shrimp trawler.

(3740) (2) *Certified BRDs.* The following BRDs are certified for use by penaeid shrimp trawlers in the South Atlantic EEZ. Specifications of these certified BRDs are contained in Appendix D of this part.

(3741) (i) Extended funnel.

(3742) (ii) Expanded mesh.

(3743) (iii) Fisheye.

(3744) (h) *Shrimp in the Gulf*–(1) *BRD requirement.* (i) Except as exempted in paragraphs (h)(1)(ii) through (iv) of this section, on a shrimp trawler in the Gulf EEZ shoreward of the 100-fathom (183-m) depth contour west of 85°30'W., each net that is rigged for fishing must have a certified BRD installed. A trawl net is rigged for fishing if it is in the water, or if it is shackled, tied, or otherwise connected to a sled, door, or other device that spreads the net, or to a tow rope, cable, pole, or extension, either on board or attached to a shrimp trawler.

(3745) (ii) A shrimp trawler is exempt from the requirement to have a certified BRD installed in each net provided that at least 90 percent (by weight) of all shrimp on board or offloaded from such trawler are royal red shrimp.

(3746) (iii) A shrimp trawler is exempt from the requirement to have a BRD installed in a single try net with a headrope length of 16 ft (4.9 m) or less provided the single try net is either pulled immediately in front of another net or is not connected to another net.

(3747) (iv) A shrimp trawler is exempt from the requirement to have a certified BRD installed in up to two rigid-frame roller trawls that are 16 ft (4.9 m) or less in length used or possessed on board. A rigid-frame roller trawl is a trawl that has a mouth formed by a rigid frame and a grid of rigid vertical bars; has rollers on the lower horizontal part of the frame to allow the trawl to roll over the bottom and any obstruction while being towed; and has no doors, boards, or similar devices attached to keep the mouth of the trawl open.

(3748) (2) *Certified BRDs.* The fisheye BRD is certified for use by shrimp trawlers in the Gulf EEZ. Specifications of the fisheye BRD are contained in Appendix D of this part.

(3749) **§622.42 Quotas.**

(3750) Quotas apply for the fishing year for each species or species group. Except for the quotas for Gulf and South Atlantic coral, the quotas include species harvested from state waters adjoining the EEZ. Quotas for species managed under this part are as follows. (See §622.32 for limitations on taking prohibited and limited-harvest species. The limitations in §622.32 apply without regard to whether the species is harvested by a vessel operating under a commercial vessel permit or by a person subject to the bag limits.)

(3751) (a) *Gulf reef fish*–(1) *Commercial quotas.* The following quotas apply to persons who fish under commercial vessel permits for Gulf reef fish, as required under §622.4(a)(2)(v).

(3752) (i) Red snapper–4.65 million lb (2.11 million kg), round weight, apportioned in 1997 as follows:

(3753) (A) 3.06 million lb (1.39 million kg) available February 1, 1997.

(3754) (B) The remainder available at noon on September 2, 1997, subject to the closure provisions of §622.34(l) and §622.43(a)(1)(i).

(3755) (ii) Deep-water groupers (i.e., yellowedge grouper, misty grouper, warsaw grouper, snowy grouper, and speckled hind), and, after the quota for shallow-water grouper is reached, scamp, combined –1.60 million lb (0.73 million kg), round weight.

(3756) (iii) Shallow-water groupers (i.e., all groupers other than deep-water groupers, jewfish, and Nassau grouper), including scamp before the quota for shallow-water groupers is reached, combined –9.80 million lb (4.45 million kg), round weight.

(3757) (2) *Recreational quota for red snapper.* The following quota applies to persons who harvest red snapper other than under commercial vessel permits for Gulf reef fish and the commercial quota specified in paragraph (a)(1)(i) of this section–4.47 million lb (2.03 million kg), round weight.

(3758) (3) Shallow-water groupers, that is, all groupers other than deep-water groupers, jewfish, and Nassau grouper, including scamp before the quota for shallow-water groupers is reached. combined–9.8 million lb (4.4 million kg), round weight.

(3759) (b) *Gulf and South Atlantic allowable octocoral.* The quota for all persons who harvest allowable octocoral in the EEZ of the Gulf and South Atlantic is 50,000 colonies. A colony is a continuous group of coral polyps forming a single unit.

(3760) (2) *Wild live rock in the Gulf.* The quota for all persons who harvest wild live rock in the Gulf EEZ is 500,000 lb (226,796 kg). Commencing with the fishing year that begins January 1, 1997, the quota is zero.

(3761) (c) *King and Spanish mackerel.* King and Spanish mackerel quotas apply to persons who fish under commercial vesse

permits for king or Spanish mackerel, as required under §622.4(a)(2)(iii) or (iv). A fish is counted against the quota for the area where it is caught when it is first sold.

(3762) (1) *Migratory groups of king mackerel*–(i) *Gulf migratory group*. The quota for the Gulf migratory group of king mackerel is 3.39 million lb (1.54 million kg). The Gulf migratory group is divided into eastern and western zones separated by 87°31'06"W., which is a line directly south from the Alabama/Florida boundary. Quotas for the eastern and western zones are as follows:

(3763) (A) *Eastern zone*–2.34 million lb (1.06 million kg), which is further divided into quotas as follows:

(3764) (1) *Florida east coast subzone*–1,082,250 lb (490,900 kg).

(3765) (2) *Florida west coast subzone*–(i) Southern–1,082,250 lb (490,900 kg), which is further divided into a quota of 541,125 lb (245,450 kg) for vessels fishing with hook-and-line and a quota of 541,125 lb (245,450 kg) for vessels fishing with run-around gillnets.

(3766) (ii) *Northern*–175,500 lb (79,606 kg).

(3767) (3) *Description of Florida subzones*. The Florida east coast subzone is that part of the eastern zone north of 25°20.4'N. lat., which is a line directly east from the Miami-Dade/Monroe County, FL, boundary. The Florida west coast subzone is that part of the eastern zone south and west of 25°20.4'N. lat. The Florida west coast subzone is further divided into southern and northern subzones. From November 1 through March 31, the southern subzone is that part of the Florida west coast subzone that extends south and west from 25°20.4'N. lat. to 26°19.8'N. lat., a line directly west from the Lee/Collier County, FL boundary (i.e., the area off Collier and Monroe Counties). From April 1 through October 31, the southern subzone is that part of the Florida west coast subzone that is between 26°19.8'N. lat. and 25°48'N. lat., which is a line directly west from the Monroe/Collier County, FL, boundary (i.e., off Collier County). The northern subzone is that part of Florida west coast subzone that is between 26°19.8'N. lat. and 87°31'06"W. long., which is a line directly south from the Alabama/Florida boundary.

(3768) (B) *Western zone*–1.05 million lb (0.48 million kg).

(3769) (ii) *Atlantic migratory group*. The quota for the Atlantic migratory group of king mackerel is 2.52 million lb (1.14 million kg). No more than 0.4 million lb (0.18 million kg) may be harvested by purse seines.

(3770) (2) *Migratory groups of Spanish mackerel*–(i) *Gulf migratory group*. The quota for the Gulf migratory group of Spanish mackerel is 3.99 million lb (1.81 million kg).

(3771) (ii) *Atlantic migratory group*. The quota for the Atlantic migratory group of Spanish mackerel is 4.00 million lb (1.81 million kg).

(3772) (d) *Royal red shrimp in the Gulf*. The quota for all persons who harvest royal red shrimp in the Gulf is 392,000 lb (177.8 mt), tail weight.

(3773) (e) *South Atlantic snapper-grouper, excluding wreckfish*. The quotas apply to persons who are not subject to the bag limits. (See §622.39(a)(1) for applicability of the bag limits.)

(3774) (1) *Snowy grouper*–344,508 lb (156,266 kg), gutted weight, that is, eviscerated but otherwise whole.

(3775) (2) *Golden tilefish*–1,001,663 lb (454,347 kg), gutted weight, that is, eviscerated but otherwise whole.

(3776) (f) *Wreckfish*. The quota for wreckfish applies to wreckfish shareholders, or their employees, contractors, or agents, and is 2 million lb (907,185 kg), round weight. See §622.15 for information on the wreckfish shareholder under the ITQ system.

(3777) (g) *Gulf reef fish* (1) *Commercial quotas*. The following quotas apply to persons who fish under commercial vessel permits for Gulf reef fish, as required under §622.4(a)(2)(v).

(3778) (i) Red snapper–4.65 million lb (2.11 million kg), round weight, apportioned as follows:

(3779) (A) 3.06 million lb (1.39 million kg) available at noon on February 1 each year, subject to the closure provisions of §§622.34(m) and 622.43(a)(1)(i).

(3780) (B) The remainder is held in reserve.

(3781) (C) The Assistant Administrator may release all or any portion of the reserve specified in paragraph (g)(1)(i)(B) of this section effective September 1 by filing for publication a notification to that effect with the Office of the Federal Register. Determination of what portion, if any, of the reserve will be released will be based on the results of NMFS research regarding the effectiveness of BRDs in reducing shrimp trawl-induced mortality of juvenile red snapper. Release of reserve amounts will be determined as follows:

(3782) (1) If BRDs reduce shrimp trawl-induced mortality of juvenile red snapper by 50 perfect or less, none of the reserve specified in paragraph (g)(1)(i)(B) of this section will be released.

(3783) (2) If BRDs reduce shrimp trawl-induced mortality of juvenile red snapper by 60 percent or greater, the entire reserve specified in paragraph (g)(1)(i)(B) of this section will be released, subject to the closure provisions of §§622.34(m) and 622.43(a)(1)(i).

(3784) (3) If BRDs reduce shrimp trawl-induced mortality of juvenile red snapper by more than 50 percent but less than 60 percent, for each one percentage point increase in bycatch morality reduction within the 50 to 60 percent range, an additional 0.159 million lb (0.072 million kg) of the reserve specified in paragraph (g)(1)(i)(B) of this section will be released, subject to the closure provisions of §§622.34(m) and 622.43(a)(1)(i).

(3785) (ii) Deep-water groupers (i.e., yellowedge grouper, misty grouper, warsaw grouper, snowy grouper, and speckled hind), and after the quota for shallow-water grouper is reached, scamp, combined 1.60 million lb (0.73 million kg), round weight.

(3786) (iii) Shallow-water groupers (i.e., all groupers other than deep-water groupers, jewfish, and Nassau grouper), including scamp before the quota for shallow-water groupers is reached, combined 9.80 million lb (4.45 million kg), round weight.

(3787) (2) *Recreational quota for red snapper*. The following quota applies to persons who harvest red snapper other than under commercial vessel permits for Gulf reef fish and the commercial quota specified in paragraph (a)(1)(i) of this section 4.47 million lb (2.03 million kg), round weight apportioned as follows:

(3788) (i) 2.94 million lb (1.33 million kg) available January 1 each year, subject to the closure provisions of §622.43(a)(1)(ii).

(3789) (ii) The remainder is held in reserve.

(3790) (iii) The Assistant Administrator may release all or any portion of the reserve specified in paragraph (g)(2)(ii) of this section effective September 1 by filing a notification for publication to that effect with the Office of the Federal Register. Determination of what portion, if any, of the reserve will be released will be based on the results of NMFS research regarding effectiveness of BRDs in reducing shrimp trawl-induced mortality of juvenile red-snapper. Release of reserve amounts will be determined as follows:

(3791) (A) If BRDs reduce shrimp trawl-induced mortality of juvenile red snapper by 50 percent or less, none of the reserve specified in paragraph (g)(2)(ii) of this section will be released.

(3792) (B) If BRDs reduce shrimp trawl-induced mortality of juvenile red snapper by 60 percent or greater, the entire reserve specified in paragraph (g)(2)(ii) of this section will be released, subject to the closure provisions of §622.43(a)(1)(ii).

(3793) (C) If BRDs reduce shrimp trawl-induced mortaility of juvenile red snapper by more than 50 percent but less than 60 percent, for each one percentage point increase in bycatch mortality reduction within the 50 to 60 percent range, an additional 0.153 million lb (0.069 million kg) of the reserve specified in paragraph (g)(2)(ii) of this section will be released, subject to the closure provisions of §622.43(a)(1)(ii). Fractional percentage point increases in bycatch mortality reduction will be prorated accordingly.

(3794) **§622.43 Closures.**

(3795) (a) *General.* When a quota specified in §622.42 is reached, or is projected to be reached, the Assistant Administrator will file a notification to that effect with the Office of the Federal Register. On and after the effective date of such notification, for the remainder of the fishing year, the following closure restrictions apply:

(3796) (1) *Gulf reef fish*—(i) *Commercial quotas.* The bag and possession limits specified in §622.39(b) apply to all harvest or possession in or from the Gulf EEZ of the indicated species, and the sale or purchase of the indicated species taken from the Gulf EEZ is prohibited. In addition, the bag and possession limits for red snapper apply on board a vessel for which a commercial permit for Gulf reef fish has been issued, as required under §622.4(a)(2)(v), without regard to where such red snapper were harvested. However, the bag and possession limits for red snapper apply only when the recreational quota for red snapper has not been reached and the bag and possession limit has not been reduced to zero under paragraph (a)(1)(ii) of this section.

(3797) (ii) *Recreational quota for red snapper.* The bag and possession limit for red snapper in or from the Gulf EEZ is zero.

(3798) (2) *Gulf and South Atlantic allowable octocoral.* Allowable octocoral may not be harvested or possessed in the Gulf EEZ or South Atlantic EEZ and the sale or purchase of allowable octocoral in or from the Gulf EEZ or South Atlantic EEZ is prohibited.

(3799) (ii) *Wild live rock in the Gulf.* Wild live rock may not be harvested or possessed in the Gulf EEZ and the sale or purchase of wild live rock in or from the Gulf EEZ is prohibited.

(3800) (3) *King and Spanish mackerel.* The closure provisions of this paragraph (a)(3) do not apply to Atlantic migratory group Spanish mackerel, which are managed under the commercial trip limits specified in §622.44(b) in lieu of the closure provisions of this section.

(3801) (i) A person aboard a vessel for which a commercial permit for king and Spanish mackerel has been issued, as required under §622.4(a)(2)(iv), may not fish for king or Spanish mackerel in the EEZ or retain fish in or from the EEZ under a bag or possession limit specified in §622.39(c) for the closed species, migratory group, zone, subzone, or gear type, except as provided for under paragraph (a)(3)(ii) of this section.

(3802) (ii) A person aboard a vessel for which the permit indicates both commercial king and Spanish mackerel and charter vessel/headboat for coastal migratory pelagic fish may continue to retain fish under a bag and possession limit specified in §622.39(c), provided the vessel is operating as a charter vessel or headboat.

(3803) (iii) The sale or purchase of king or Spanish mackerel of the closed species, migratory group, zone, subzone, or gear type is prohibited, including such king or Spanish mackerel taken under the bag limits.

(3804) (4) *Royal red shrimp in the Gulf.* Royal red shrimp in or from the Gulf EEZ may not be retained, and the sale or purchase of royal red shrimp taken from the Gulf EEZ is prohibited.

(3805) (5) *South Atlantic snapper-grouper, excluding wreckfish.* There are no closure provisions for South Atlantic snapper grouper, other than for wreckfish. Golden tilefish and snowy grouper, for which there are quotas, are managed under the commercial trip limits specified in §622.44(a) in lieu of the closure provisions of this section.

(3806) (6) *Wreckfish.* Wreckfish in or from the South Atlantic EEZ may not be retained, and the sale or purchase of wreckfish taken from the South Atlantic EEZ is prohibited.

(3807) (b) *Exception to prohibition on sale/purchase.* (1) The prohibition on sale/purchase during a closure for Gulf reef fish, king and Spanish mackerel, royal red shrimp, or wreckfish in paragraph (a)(1), (a)(3)(iii), (a)(4), or (a)(6) of this section does not apply to the indicated species that were harvested, landed ashore, and sold prior to the effective date of the closure and were held in cold storage by a dealer or processor.

(3808) (2) The prohibition on sale/purchase during a closure for allowable octocoral in paragraph (a)(2) of this section does not apply to allowable octocoral that was harvested and landed ashore prior to the effective date of the closure.

(3809) (c) *Reopening.* When a fishery has been closed based on a projection of the quota specified in §622.42 being reached and subsequent data indicate that the quota was not reached, the Assistant Administrator may file a notification to that effect with the Office of the Federal Register. Such notification may reopen the fishery to provide an opportunity for the quota to be reached.

(3810) **§622.44 Commercial trip limits.**

(3811) Commercial trip limits are limits on the amount of the applicable species that may be possessed on board or landed, purchased, or sold from a vessel per day. A person who fishes in the EEZ may not combine a trip limit specified in this section with any trip or possession limit applicable to state waters. A species subject to a trip limit specified in this section taken in the EEZ may not be transferred at sea, regardless of where such transfer takes place, and such species may not be transferred in the EEZ. For fisheries governed by this part, commercial trip limits apply as follows:

(3812) (a) *King mackerel*—(1) *Atlantic group.* (i) North of 29°25'N., which is a line directly east from the Flagler/Volusia County, FL, boundary, king mackerel in or from the EEZ may not be possessed on board or landed from a vessel in a day in amounts exceeding 3,500 lb (1,588 kg).

(3813) (i) North of 29°25'N., which is a line directly east from the Flagler/Volusia County, FL, boundary, king mackerel in or from the EEZ may not be possessed on board or landed from a vessel in a day in amounts exceeding 3,500 lb (1,588 kg).

(3814) (ii) In the area between 29°25'N. and 28°47.8'N., which is a line directly east from the Volusia/Brevard County, FL, boundary, king mackerel in or from the EEZ may not be possessed on board or landed from a vessel in a day in amounts exceeding 3,500 lb (1,588 kg) from April 1 through October 31.

(3815) (iii) In the area between 28°47.8'N. and 25°20.4'N., which is a line directly east from the Dade/Monroe County, FL, boundary, king mackerel in or from the EEZ may not be possessed on board or landed from a vessel in a day in amounts exceeding 500 lb (227 kg) from April 1 through October 31.

(3816) (iv) In the area between 25°20.4'N. and 25°48'N., which is a line directly west from the Monroe/Collier County, FL, boundary, king mackerel in or from the EEZ may not be possessed on board or landed from a vessel in a day in amounts exceeding 1,250 lb (567 kg) from April 1 through October 31.

(3817) (2) *Gulf group.* Commercial trip limits are established in the eastern zone as follows. (See §622.42(c)(1)(i) for specification of the eastern zone and §622.42(c)(1)(i)(A)(3) for specifications of the subzones in the eastern zone.)

(3818) (i) *Eastern zone-Florida east coast subzone.* In the Florida east coast subzone, king mackerel in or from the EEZ may be possessed on board or landed from a vessel for which a commerical permit for king mackerel has been issued, as required under §622.4(a)(2)(iii), from November 1 each fishing year until the subzone's fishing year quota of king mackerel has been harvested or until March 31, whichever occurs first, in amounts not exceeding 50 fish per day.

(3819) (ii) *Eastern zone-Florida west coast subzone*–(A) *Gillnet gear.* (1) In the southern Florida west coast subzone, king mackerel in or from the EEZ may be possessed on board or landed from a vessel for which a commercial permit with a gillnet endorsement has been issued, as required under §622.4(a)(2)(ii), from July 1, each fishing year, until a closure of the southern Florida west coast subzone's fishery for vessels fishing with run-around gillnets has been effected under §622.43(a)–in amounts not exceeding 25,000 lb (11,340 kg) per day.

(3820) (2) In the southern Florida west coast subzone:

(3821) (i) King mackerel in or from the EEZ may be possessed on board or landed from a vessel that uses or has on board a run-around gillnet on a trip only when such vessel has on board a commerical permit for king mackerel with a gillnet endorsement.

(3822) (ii) King mackerel from the southern west coast subzone landed by a vessel for which such commercial permit with endorsement has been issued will be counted against the run-around gillnet quota of §622.42(c)(1)(i)(A)(2)(i).

(3823) (iii) King mackerel in or from the EEZ harvested with gear other than run-around gillnet may not be retained on board a vessel for which such commerical permit with endorsement has been issued.

(3824) (B) *Hook-and-line gear.* In the Florida west coast subzone, king mackerel in or from the EEZ may be possessed on board or landed from a vessel with a commerical permit for king mackerel, as required by §622.4(a)(2)(iii), and operating under the hook-and-line gear quotas in §622.42(c)(1)(i)(A)(2)(i) or (c)(1)(i)(A)(2)(ii):

(3825) (1) From July 1, each fishing year, until 75 percent of the respective northen or southern subzone's hook-and-line gear quota has been harvested–in amounts not exceeding 1,250 lb (567 kg) per day.

(3826) (2) From the date that 75 percent of the respective northern or southern subzone's hook-and-line gear quota has been harvested, until a closure of the respective northern or southern subzone's fishery for vessels fishing with hook-and-line gear has been effected under §622.43(a)–in amounts not exceeding 500 lb (227 kg) per day.

(3827) (iii) *Notice of trip limit changes.* The Assistant Administrator, by filing a notification of trip limit change with the Office of the Federal Register, will effect the trip limit changes specified in paragraphs (a)(2)(i) and (a)(2)(ii)(B) of this section when the requisite harvest level has been reached or is projected to be reached.

(3828) (b) *Spanish mackerel.* (1) Commercial trip limits are established for Atlantic migratory group Spanish mackerel as follows:

(3829) (i) North of 30°42'45.6"N., which is a line directly east from the Georgia/Florida boundary, Spanish mackerel in or from the EEZ may not be possessed on board or landed in a day from a vessel for which a permit for king and Spanish mackerel has been issued, as required under §622.4(a)(2)(iv), in amounts exceeding 3,500 lb (1,588 kg).

(3830) (ii) South of 30°42'45.6"N., Spanish mackerel in or from the EEZ may not be possessed on board or landed in a day from a vessel for which a permit for king and Spanish mackerel has been issued, as required under §622.4(a)(2)(iv)–

(3831) (A) From April 1 through October 31, in amounts exceeding 1,500 lb (680 kg).

(3832) (B) From November 1 until 75 percent of the adjusted quota is taken, in amounts as follows:

(3833) (1) Mondays, Wednesdays, and Fridays–unlimited.

(3834) (2) Tuesdays, Thursdays, Saturdays, and Sundays–not exceeding 1,500 lb (680 kg).

(3835) (C) After 75 percent of the adjusted quota is taken until 100 percent of the adjusted quota is taken, in amounts not exceeding 1,500 lb (680 kg).

(3836) (D) After 100 percent of the adjusted quota is taken through the end of the fishing year, in amounts not exceeding 500 lb (227kg).

(3837) (2) For the purpose of paragraph (b)(1)(ii) of this section, the adjusted quota is 3.75 million lb (1.70 million kg). The adjusted quota is the quota for Atlantic migratory group Spanish mackerel reduced by an amount calculated to allow continued harvests of Atlantic migratory group Spanish mackerel at the rate of 500 lb (227 kg) per vessel per day for the remainder of the fishing year after the adjusted quota is reached. By filing a notification with the Office of the Federal Register, the Assistant Administrator will announce when 75 percent and 100 percent of the adjusted quota is reached or is projected to be reached.

(3838) (3) For the purpose of paragraph (b)(1)(ii) of this section, a day starts at 6 a.m., local time, and extends for 24 hours. If a vessel terminates a trip prior to 6 a.m., but retains Spanish mackerel on board after that time, the Spanish mackerel retained on board will not be considered in possession during the succeeding day, provided the vessel is not underway between 6 a.m. and the time such Spanish mackerel are unloaded, and provided such Spanish mackerel are unloaded prior to 6 p.m.

(3839) (c) *South Atlantic snapper-grouper.* When a vessel fishes on a trip in the South Atlantic EEZ, the vessel trip limits specified in this paragraph (c) apply, provided persons aboard the vessel are not subject to the bag limits. See §622.39(a) for applicability of the bag limits.

(3840) (1) *Trip-limited permits.* A vessel for which a trip-limited permit for South Atlantic snapper-grouper has been issued is limited to 225 lb (102.1 kg) of snapper-grouper.

(3841) (2) *Golden tilefish.* (i) Until the fishing year quota specified in §622.42(e)(2) is reached, 5,000 lb (2,268 kg).

(3842) (ii) After the fishing year quota specified in §622.42(e)(2) is reached, 300 lb (136 kg).

(3843) (3) *Snowy grouper.* (i) Until the fishing year quota specified in §622.42(e)(1) is reached, 2,500 lb (1,134 kg).

(3844) (ii) After the fishing year quota specified in §622.42(e)(1) is reached, 300 lb (136 kg).

(3845) (d) *Gulf red snapper.* (1) The trip limit for red snapper in or from the Gulf for a vessel that has on board a valid commercial permit for Gulf reef fish and a valid Class 1 red snapper license is 2,000 lb (907 kg), round or eviscerated weight.

(3846) (2) The trip limit for red snapper in or from the Gulf for a vessel that has on board a valid commercial permit for Gulf reef fish and a valid Class 2 red snapper license is 200 lb (91 kg), round or eviscerated weight.

(3847) (3) The trip limit for red snapper in or from the Gulf for any other vessel for which a commercial permit for Gulf reef fish has been issued is zero.

(3848) (4) As a condition of a commercial vessel permit for Gulf reef fish, as required under Sec. 622.4(a)(2)(v), without regard to where red snapper are harvested or possessed, a vessel that has been issued such permit –

(3849) (i) May not possess red snapper in or from the Gulf in excess of the appropriate vessel trip limit, as specified in paragraphs (e)(1) through (3) of this section.

(3850) (ii) May not transfer or receive at sea red snapper in or from the Gulf.

(3851) (e) *Caribbean queen conch.* A person who fishes in the the Caribbean EEZ and is not subject to the bag limit may not possess in or from the Caribbean EEZ more than 150 queen conch per day.

(3852) **§622.45 Restrictions on sale/purchase.** In addition to restrictions on sale/purchase related to closures, as specified in §622.43 (a) and (b), restrictions on sale and/or purchase apply as follows.

(3853) (a) *Caribbean coral reef resource.* (1) No person may sell or purchase a Caribbean prohibited coral harvested in the Caribbean EEZ.

(3854) (2) A Caribbean prohibited coral that is sold in Puerto Rico or the U.S. Virgin Islands will be presumed to have been harvested in the Caribbean EEZ, unless it is accompanied by documentation showing that it was harvested elsewhere. Such documentation must contain:

(3855) (i) The information specified in subpart K of part 300 of this title for marking containers or packages of fish or wildlife that are imported, exported, or transported in interstate commerce.

(3856) (ii) The name and home port of the vessel, or the name and address of the individual, harvesting the Caribbean prohibited coral.

(3857) (iii) The port and date of landing the Caribbean prohibited coral.

(3858) (iv) A statement signed by the person selling the Caribbean prohibited coral attesting that, to the best of his or her knowledge, information, and belief, such Caribbean prohibited coral was harvested other than in the Caribbean EEZ or the waters of Puerto Rico or the U.S. Virgin Islands.

(3859) (b) *Caribbean reef fish.* A live red hind or live mutton snapper in or from the Caribbean EEZ may not be sold or purchased and used in the marine aquarium trade.

(3860) (c) *Gulf reef fish.* (1) A Gulf reef fish harvested in the EEZ on board a vessel that does not have a valid commercial permit for Gulf reef fish, as required under §622.4(a)(2)(v), or a Gulf reef fish possessed under the bag limits specified in §622.39(b), may not be sold or purchased.

(3861) (2) A Gulf reef fish harvested on board a vessel that has a valid commercial permit for Gulf reef fish may be sold only to a dealer who has a valid permit for Gulf reef fish, as required under §622.4(a)(4).

(3862) (3) A Gulf reef fish harvested in the EEZ may be purchased by a dealer who has a valid permit for Gulf reef fish, as required under §622.4(a)(4), only from a vessel that has a valid commercial permit for Gulf reef fish.

(3863) (d) *South Atlantic snapper-grouper.* (1) A person may sell South Atlantic snapper-grouper harvested in the EEZ only to a dealer who has a valid permit for South Atlantic snapper-grouper, as required under §622.4(a)(4).

(3864) (2) A person may purchase South Atlantic snapper-grouper harvested in the EEZ only from a vessel that has a valid commercial permit for South Atlantic snapper-grouper, as required under §622.4(a)(2)(vi), or from a person who has a valid commercial license to sell fish in the state where the purchase occurs.

(3865) (3) Except for the sale or purchase of South Atlantic snapper-grouper harvested by a vessel that has a valid commercial permit for South Atlantic snapper-grouper, the sale or purchase of such fish is limited to the bag limits specified in §622.39(d)(1).

(3866) (4) A warsaw grouper or speckled hind in or from the South Atlantic EEZ may not be sold or purchased.

(3867) (e) *Gulf and South Atlantic wild live rock.* Wild live rock in or from the Gulf EEZ or South Atlantic EEZ may not be sold or purchased. The prohibition on sale or purchase does not apply to wild live rock from the South Atlantic EEZ that was harvested and landed prior to January 1, 1996, or to wild live rock from the Gulf EEZ that was harvested and landed prior to January 1, 1997.

(3868) (f) *South Atlantic golden crab.* (1) A female golden crab in or from the South Atlantic EEZ may not be sold or purchased.

(3869) (2) A golden crab harvested in the South Atlantic EEZ on board a vessel that does not have a valid commercial permit for golden crab, as required under §622.17(a), may not be sold or purchased.

(3870) (3) A golden crab harvested on board a vessel that has a valid commercial permit for golden crab may be sold only to a dealer who has a valid permit for golden crab, as required under §622.4(a)(4).

(3871) (4) A golden crab harvested in the South Atlantic EEZ may be purchased by a dealer who has a valid permit for golden crab, as required under §622.4(a)(4), only from a vessel that has a valid commercial permit for golden crab.

(3872) (g) *South Atlantic rock shrimp.* (1) Rock shrimp harvested in the South Atlantic EEZ on board a vessel that does not have a valid commercial permit for rock shrimp, as required under §622.4(a)(2)(viii), may not be transferred, received, sold, or purchased.

(3873) (2) Rock shrimp harvested on board a vessel that has a valid commercial permit for rock shrimp may be transferred or sold only to a dealer who has a valid permit for rock shrimp, as required under §622.4(a)(4).

(3874) (3) Rock shrimp harvested in the South Atlantic EEZ may be received or purchased by a dealer who has a valid permit for rock shrimp, as required under §622.4(a)(4), only from a vessel that has a valid commercial permit for rock shrimp.

(3875) (h) *Cut-off (damaged) king or Spanish mackerel.* A person may not sell or purchase a cut-off (damaged) king or Spanish mackerel that does not comply with the minimum size limits specified in §622.37(c)(2) or (c)(3), respectively, or that is in excess of the trip limits specified in §622.44(a) or (b), respectively.

(3876) **§622.46 Prevention of gear conflicts.**

(3877) (a) No person may knowingly place in the Gulf EEZ any article, including fishing gear, that interferes with fishing or obstructs or damages fishing gear or the fishing vessel of another; or knowingly use fishing gear in such a fashion that it obstructs or damages the fishing gear or fishing vessel of another.

(3878) (b) In accordance with the procedures and restrictions of the FMP for the Shrimp Fishery of the Gulf of Mexico, the RA may modify or establish separation zones for shrimp trawling and the use of fixed gear to prevent gear conflicts. Necessary prohibitions or restrictions will be published in the Federal Register.

(3879) (c) In accordance with the procedures and restrictions of the FMP for Coastal Migratory Pelagic Resources, when the RA determines that a conflict exists in the king mackerel fishery between hook-and-line and gillnet fishermen in the South Atlantic EEZ off the east coast of Florida between 27°00.6'N. and 27°50.0'N., the RA may prohibit or restrict the use of hook-and-line and/or gillnets in all or a portion of that area. Necessary prohibitions or restrictions will be published in the Federal Register.

(3880) **§622.47 Gulf groundfish trawl fishery.**

(3881) Gulf groundfish trawl fishery means fishing in the Gulf EEZ by a vessel that uses a bottom trawl, the unsorted catch of which is ground up for animal feed or industrial products.

(3882) (a) Other provisions of this part notwithstanding, the owner or operator of a vessel in the Gulf groundfish trawl fishery is exempt from the following requirements and limitations for the vessel's unsorted catch of Gulf reef fish:

(3883) (1) The requirement for a valid commercial vessel permit for Gulf reef fish in order to sell Gulf reef fish.

(3884) (2) Minimum size limits for Gulf reef fish.

(3885) (3) Bag limits for Gulf reef fish.

(3886) (4) The prohibition on sale of Gulf reef fish after a quota closure.

(3887) (b) Other provisions of this part notwithstanding, a dealer in a Gulf state is exempt from the requirement for a dealer permit for Gulf reef fish to receive Gulf reef fish harvested from the Gulf EEZ by a vessel in the Gulf groundfish trawl fishery.

(3888) **§622.48 Adjustment of management measures.**

(3889) In accordance with the framework procedures of the applicable FMPs, the RA may establish or modify the following management measures:

(3890) (a) *Caribbean coral reef resources.* Species for which management measures may be specified; prohibited species; harvest limitations, including quotas, trip, or daily landing limits; gear restrictions; closed seasons or areas; and marine conservation districts.

(3891) (b) *Caribbean reef fish.* Size limits, closed seasons or areas, fish trap mesh size, and the threshold level for overfishing.

(3892) (c) *Coastal migratory pelagic fish.* For a species or species group: Age-structured analyses, target date for rebuilding an overfished species, MSY (or proxy), stock biomass achieved by fishing at MSY (B_{MSY}) (or proxy), maximum fishing morality threshold (MFMT), minimum stock size threshold (MSST), OY, TAC, quota (including a quota of zero), bag limit (including a bag limit of zero), size limits, vessel trip limits, closed seasons or areas and reopenings, gear restrictions (ranging from regulation to complete prohibition), reallocation of the commerical/recreational allocation of Atlantic group Spanish mackerel, permit requirements, definitions of essential fish habitat, and essential fish habitat HAPCs or Coral HAPCs.

(3893) (d) *Gulf reef fish.* (1) For a species or species group: Target date for rebuilding an overfished species, TAC, bag limits, size limits, vessel trip limits, closed seasons or areas, gear restrictions, quotas, MSY (or proxy), OY, and estimates of stock biomass achieved by fishing at MSY (B_{MSY}), minimum stock size threshold (MSST), and maximum fishing mortality threshold (MFMT).

(3894) (2) SMZs and the gear restrictions applicable in each.

(3895) (e) *Gulf royal red shrimp.* MSY, OY, and TAC.

(3896) (f) *South Atlantic snapper-grouper and wreckfish.* For species or species groups: Biomass levels, age-structured analyses, target dates for rebuilding overfished species, MSY, ABC, TAC, quotas, trip limits, bag limits, minimum sizes, gear restrictions (ranging from regulation to complete prohibition), seasonal or area closures, definitions of essential fish habitat, and essential fish habitat HAPCs or Coral HAPCs.

(3897) (g) *South Atlantic golden crab.* Biomass levels, age-structured analyses, MSY, ABC, TAC, quotas (including quotas equal to zero), trip limits, minimum sizes, gear regulations and restrictions, permit requirements, seasonal or area closures, time frame for recovery of golden crab if overfished, fishing year (adjustment not to exceed 2 months), observer requirements, authority for the RA to close the fishery when a quota is reached or is projected to be reached, definitions of essential fish habitat, and essential fish habitat HAPCs or Coral HAPCs.

(3898) (h) *South Atlantic shrimp.* Biomass levels, age-structured analyses, BRD certification criteria, BRD specifications, BRD testing protocol, certified BRDs, nets required to use BRDs, times and locations when the use of BRDs is required, definitions of essential fish habitat, and essential fish habitat HAPCs or Coral HAPCs.

(3899) (i) *Gulf shrimp.* Bycatch reduction criteria, BRD certification and decertification criteria, BRD testing protocol, certified BRDs, and BRD specifications.

(3900) (j) *Gulf red drum.* Target date for rebuilding an overfished species, MSY (or proxy), stock biomass achieved by fishing at MSY (B_{MSY}), OY, TAC, minimum stock size threshold (MSST), maximum fishing mortality threshold (MFMT), escapement rates for juvenile fish, bag limits, size limits, gear harvest limits, and other restrictions required to prevent exceeding allocations or quotas.

(3901) (k) *Atlantic coast red drum.* Definitions of essential fish habitat and essential fish habitat HAPCs or Coral HAPCs.

(3902) (l) *South Atlantic coral, coral reefs, and live/hard bottom habitats.* Definitions of essential fish habitat and essential fish habitat HAPCs or Coral HAPCs.

Appendix A to Part 622—Species Tables

Table 1 of Appendix A to Part 622—Caribbean Coral Reef Resource

(3903) **I. Sponges–Phylum Porifera**

(3904) **A. Demosponges–Class Demospongiae**

(3905) *Aphimedon compressa*, Erect rope sponge

(3906) *Chondrilla nucula*, Chicken liver sponge
(3907) *Cynachirella alloclada*
(3908) *Geodia neptuni*, Potato sponge
(3909) *Haliclona sp.*, Finger sponge
(3910) *Myriastra sp.*
(3911) *Niphates digitalis*, Pink vase sponge
(3912) **N. erecta**, Lavender rope sponge
(3913) *Spinosella policifera*
(3914) *S. vaginalis*
(3915) *Tethya crypta*
(3916) **II. Coelenterates–Phylum Coelenterata**
(3917) **A. Hydrocorals–Class Hydrozoa**
(3918) 1. Hydroids–Order Athecatae
(3919) Family Milleporidae
(3920) *Millepora* spp., Fire corals
(3921) Family Stylasteridae
(3922) *Stylaster roseus*, Rose lace corals
(3923) **B. Anthozoans–Class Anthozoa**
(3924) 1. Soft corals–Order Alcyonacea
(3925) Family Anthothelidae
(3926) *Erythropodium caribaeorum*, Encrusting gorgonian
(3927) *Iciligorgia schrammi*, Deepwater sea fan
(3928) Family Briaridae
(3929) *Briareum asbestinum*, Corky sea finger
(3930) Family Clavulariidae
(3931) *Carijoa riisei*
(3932) *Telesto* spp.
(3933) 2. Gorgonian corals–Order Gorgonacea
(3934) Family Ellisellidae
(3935) *Ellisella* spp., Sea whips
(3936) Family Gorgoniidae
(3937) *Gorgonia flabellum*, Venus sea fan
(3938) *G. mariae*, Wide-mesh sea fan
(3939) *G. ventalina*, Common sea fan
(3940) *Pseudopterogorgia acerosa*, Sea plume
(3941) *P. albatrossae*
(3942) *P. americana*, Slimy sea plume
(3943) *P. bipinnata*, Bipinnate plume
(3944) *P. rigida*
(3945) *Pterogorgia anceps*, Angular sea whip
(3946) *P. citrina*, Yellow sea whip
(3947) Family Plexauridae
(3948) *Eunicea calyculata*, Warty sea rod
(3949) *E. clavigera*
(3950) *E. fusca*, Doughnut sea rod
(3951) *E. knighti*
(3952) *E. laciniata*
(3953) *E. laxispica*
(3954) *E. mammosa*, Swollen-knob
(3955) *E. succinea*, Shelf-knob sea rod
(3956) *E. touneforti*
(3957) *Muricea atlantica*
(3958) *M. elongata*, Orange spiny rod
(3959) *M. laxa*, Delicate spiny rod
(3960) *M. muricata*, Spiny sea fan
(3961) *M. pinnata*, Long spine sea fan
(3962) *Muriceopsis* spp.
(3963) *M. flavida*, Rough sea plume
(3964) *M. sulphurea*
(3965) *Plexaura flexuosa*, Bent sea rod
(3966) *P. homomalla*, Black sea rod
(3967) *Plexaurella dichotoma*, Slit-pore sea rod
(3968) *P. fusifera*
(3969) *P. grandiflora*
(3970) *P. grisea*
(3971) *P. nutans*, Giant slit-pore
(3972) *Pseudoplexaura crucis*
(3973) *P. flagellosa*
(3974) *P. porosa*, Porous sea rod
(3975) *P. wagenaari*
(3976) 3. Hard Corals–Order Scleractinia
(3977) Family Acroporidae
(3978) *Acropora cervicornis*, Staghorn coral
(3979) *A. palmata*, Elkhorn coral
(3980) *A. prolifera*, Fused staghorn
(3981) Family Agaricidae
(3982) *Agaricia agaricities*, Lettuce leaf coral
(3983) *A. fragilis*, Fragile saucer
(3984) *A. lamarcki*, Lamarck's sheet
(3985) *A. tenuifolia*, Thin leaf lettuce
(3986) *Leptoseris cucullata*, Sunray lettuce
(3987) Family Astrocoeniidae
(3988) *Stephanocoenia michelinii*, Blushing star
(3989) Family Caryophyllidae
(3990) *Eusmilia fastigiata*, Flower coral
(3991) *Tubastrea aurea*, Cup coral
(3992) Family Faviidae
(3993) *Cladocora arbuscula*, Tube coral
(3994) *Colpophyllia natans*, Boulder coral
(3995) *Diploria clivosa*, Knobby brain coral
(3996) *D. labyrinthiformis*, Grooved brain
(3997) *D. strigosa*, Symmetrical brain
(3998) *Favia fragum*, Golfball coral
(3999) *Manicina areolata*, Rose coral
(4000) *M. mayori*, Tortugas rose coral
(4001) *Montastrea annularis*, Boulder star coral
(4002) *M. cavernosa*, Great star coral
(4003) *Solenastrea bournoni*, Smooth star coral
(4004) Family Meandrinidae
(4005) *Dendrogyra cylindrus*, Pillar coral
(4006) *Dichocoenia stellaris*, Pancake star
(4007) *D. stokesi*, Elliptical star
(4008) *Meandrina meandrites*, Maze coral
(4009) Family Mussidae
(4010) *Isophyllastrea rigida*, Rough star coral
(4011) *Isophyllia sinuosa*, Sinuous cactus
(4012) *Mussa angulosa*, Large flower coral
(4013) *Mycetophyllia aliciae*, Thin fungus coral
(4014) *M. danae*, Fat fungus coral
(4015) *M. ferox*, Grooved fungus
(4016) *M. lamarckiana*, Fungus coral
(4017) *Scolymia cubensis*, Artichoke coral
(4018) *S. lacera*, Solitary disk
(4019) Family Oculinidae
(4020) *Oculina diffusa*, Ivory bush coral
(4021) Family Pocilloporidae
(4022) *Madracis decactis*, Ten-ray star coral
(4023) *M. mirabilis*, Yellow pencil
(4024) Family Poritidae
(4025) *Porites astreoides*, Mustard hill coral
(4026) *P. branneri*, Blue crust coral
(4027) *P. divaricata*, Small finger coral

(4028) *P. porites*, Finger coral
(4029) Family Rhizangiidae
(4030) *Astrangia solitaria*, Dwarf cup coral
(4031) *Phyllangia americana*, Hidden cup coral
(4032) Family Siderastreidae
(4033) *Siderastrea radians*, Lesser starlet
(4034) *S. siderea*, Massive starlet
(4035) 4. Black Corals–Order Antipatharia
(4036) *Antipathes* spp., Bushy black coral
(4037) *Stichopathes* spp., Wire coral
(4038) 5. Anemones–Order Actiniaria
(4039) *Aiptasia tagetes*, Pale anemone
(4040) *Bartholomea annulata*, Corkscrew anemone
(4041) *Condylactis gigantea*, Giant pink-tipped anemone
(4042) *Hereractis lucida*, Knobby anemone
(4043) *Lebrunia* spp., Staghorn anemone
(4044) *Stichodactyla helianthus*, Sun anemone
(4045) 6. Colonial Anemones–Order Zoanthidea
(4046) *Zoanthus* spp., Sea mat
(4047) 7. False Corals–Order Corallimorpharia
(4048) *Discosoma* spp. (formerly *Rhodactis*), False coral
(4049) *Ricordia florida*, Florida false coral
(4050) **III. Annelid Worms–Phylum Annelida**
(4051) **A. Polychaetes–Class Polychaeta**
(4052) Family Sabellidae, Feather duster worms
(4053) *Sabellastarte* spp., Tube worms
(4054) *S. magnifica*, Magnificent duster
(4055) Family Serpulidae
(4056) *Spirobranchus giganteus*, Christmas tree worm
(4057) **IV. Mollusks–Phylum Mollusca**
(4058) **A. Gastropods–Class Gastropoda**
(4059) Family Elysiidae
(4060) *Tridachia crispata*, Lettuce sea slug
(4061) Family Olividae
(4062) *Oliva reticularis*, Netted olive
(4063) Family Ovulidae
(4064) *Cyphoma gibbosum*, Flamingo tongue
(4065) Family Ranellidae
(4066) *Charonia tritonis*, Atlantic triton trumpet
(4067) Family Strombidae, Winged conchs
(4068) *Strombus spp.* (except Queen conch, S. gigas)
(4069) **B. Bivalves–Class Bivalvia**
(4070) Family Limidae
(4071) *Lima* spp., Fileclams
(4072) *L. scabra*, Rough fileclam
(4073) Family Spondylidae
(4074) *Spondylus americanus*, Atlantic thorny oyster
(4075) **C. Cephalopods–Class Cephalopoda**
(4076) 1. Octopuses–Order Octopoda
(4077) Family Octopodidae
(4078) *Octopus* spp. (except the Common octopus, *O. vulgaris*)
(4079) **V. Arthropods–Phylum Arthropoda**
(4080) **A. Crustaceans–Subphylum Crustacea**
(4081) 1. Decapods–Order Decapoda
(4082) Family Alpheidae
(4083) *Alpheaus armatus*, Snapping shrimp
(4084) Family Diogenidae
(4085) *Paguristes* spp., Hermit crabs
(4086) *P. cadenati*, Red reef hermit
(4087) Family Grapsidae
(4088) *Percnon gibbesi*, Nimble spray crab
(4089) Family Hippolytidae
(4090) *Lysmata* spp., Peppermint shrimp
(4091) *Thor amboinensis*, Anemone shrimp
(4092) Family Majidae, Coral crabs
(4093) *Mithrax* spp., Clinging crabs
(4094) *M. cinctimanus*, Banded clinging
(4095) *M. sculptus*, Green clinging
(4096) *Stenorhynchus seticornis*, Yellowline arrow
(4097) Family Palaemonida
(4098) *Periclimenes* spp., Cleaner shrimp
(4099) Family Squillidae, Mantis crabs
(4100) *Gonodactylus* spp.
(4101) *Lysiosquilla* spp.
(4102) Family Stenopodidae, Coral shrimp
(4103) *Stenopus hispidus*, Banded shrimp
(4104) *S. scutellatus*, Golden shrimp
(4105) **VI. Bryozoans–Phylum Bryozoa**
(4106) **VII. Echinoderms–Phylum Echinodermata**
(4107) **A. Feather stars–Class Crinoidea**
(4108) *Analcidometra armata*, Swimming crinoid
(4109) *Davidaster* spp., Crinoids
(4110) *Nemaster* spp., Crinoids
(4111) **B. Sea stars–Class Asteroidea**
(4112) *Astropecten* spp., Sand stars
(4113) *Linckia guildingii*, Common comet star
(4114) *Ophidiaster guildingii*, Comet star
(4115) *Oreaster reticulatus*, Cushion sea star
(4116) **C. Brittle and basket stars–Class Ophiuroidea**
(4117) *Astrophyton muricatum*, Giant basket star
(4118) *Ophiocoma* spp., Brittlestars
(4119) *Ophioderma* spp., Brittlestars
(4120) *O. rubicundum*, Ruby brittlestar
(4121) **D. Sea Urchins–Class Echinoidea**
(4122) *Diadema antillarum*, Long-spined urchin
(4123) *Echinometra* spp., Purple urchin
(4124) *Eucidaris tribuloides*, Pencil urchin
(4125) *Lytechinus* spp., Pin cushion urchin
(4126) *Tripneustes ventricosus*, Sea egg
(4127) **E. Sea Cucumbers–Class Holothuroidea**
(4128) *Holothuria* spp., Sea cucumbers
(4129) **VIII. Chordates–Phylum Chordata**
(4130) **A. Tunicates–Subphylum Urochordata**
(4131) **IX. Green Algae–Phylum Chlorophyta**
(4132) *Caulerpa* spp., Green grape algae
(4133) *Halimeda* spp., Watercress algae
(4134) *Penicillus* spp., Neptune's brush
(4135) *Udotea* spp., Mermaid's fan
(4136) *Ventricaria ventricosa*, Sea pearls
(4137) **X. Red Algae–Phylum Rhodophyta**
(4138) **XI. Sea grasses–Phylum Angiospermae**
(4139) *Halodule wrightii*, Shoal grass
(4140) *Halophila* spp., Sea vines
(4141) *Ruppia maritima*, Widgeon grass
(4142) *Syringodium filiforme*, Manatee grass
(4143) *Thalassia testudium*, Turtle grass

Table 2 of Appendix A to Part 622–Caribbean Reef Fish

(4144) **Acanthuridae–Surgeonfishes**
(4145) Ocean surgeonfish, *Acanthurus bahianus*

(4146) Doctorfish, *Acanthurus chirurgus*
(4147) Blue tang, *Acanthurus coeruleus*
(4148) **Antennariidae–Frogfishes**
(4149) Frogfish, *Antennarius* spp.
(4150) **Apogonidae–Cardinalfishes**
(4151) Flamefish, *Apogon* maculatus
(4152) Conchfish, *Astrapogen* stellatus
(4153) **Aulostomidae–Trumpetfishes**
(4154) Trumpetfish, *Aulostomus maculatus*
(4155) **Balistidae–Leatherjackets**
(4156) Scrawled filefish, *Aluterus scriptus*
(4157) Queen triggerfish, *Balistes vetula*
(4158) Whitespotted filefish, *Cantherhines macrocerus*
(4159) Ocean triggerfish, *Canthidermis sufflamen*
(4160) Black durgon, *Melichthys niger*
(4161) Sargassum triggerfish, *Xanthichthys rigens*
(4162) **Blenniidae–Combtooth blennies**
(4163) Redlip blenny, *Ophioblennius atlanticus*
(4164) **Bothidae–Lefteye flounders**
(4165) Peacock flounder, *Bothus lunatus*
(4166) **Carangidae–Jacks**
(4167) Yellow jack, *Caranx bartholomaei*
(4168) Blue runner, *Caranx crysos*
(4169) Horse-eye jack, *Caranx latus*
(4170) Black jack, *Caranx lugubris*
(4171) Bar jack, *Caranx ruber*
(4172) Greater amberjack, *Seriola dumerili*
(4173) Almaco jack, *Seriola rivoliana*
(4174) **Chaetodontidae–Butterflyfishes**
(4175) Longsnout butterflyfish, *Chaetodon aculeatus*
(4176) Foureye butterflyfish, *Chaetodon capistratus*
(4177) Spotfin butterflyfish, *Chaetodon ocellatus*
(4178) Banded butterflyfish, *Chaetodon striatus*
(4179) **Cirrhitidae–Hawkfishes**
(4180) Redspotted hawkfish, *Amblycirrhitus pinos*
(4181) **Dactylopteridae–Flying gurnards**
(4182) Flying gurnard, *Dactylopterus volitans*
(4183) **Ephippidae–Spadefishes**
(4184) Atlantic spadefish, *Chaetodipterus faber*
(4185) **Gobiidae–Gobies**
(4186) Neon goby, *Gobiosoma oceanops*
(4187) Rusty goby, *Priolepis hipoliti*
(4188) **Grammatidae–Basslets**
(4189) Royal gramma, *Gramma loreto*
(4190) **Haemulidae–Grunts**
(4191) Porkfish, *Anisotremus virginicus*
(4192) Margate, *Haemulon album*
(4193) Tomtate, *Haemulon aurolineatum*
(4194) French grunt, *Haemulon flavolineatum*
(4195) White grunt, *Haemulon plumieri*
(4196) Bluestriped grunt, *Haemulon sciurus*
(4197) **Holocentridae–Squirrelfishes**
(4198) Squirrelfish, *Holocentrus adscensionis*
(4199) Longspine squirrelfish, *Holocentrus rufus*
(4200) Blackbar soldierfish, *Myripristis jacobus*
(4201) Cardinal soldierfish, *Plectrypops retrospinis*
(4202) **Labridae–Wrasses**
(4203) Spanish hogfish, *Bodianus rufus*
(4204) Creole wrasse, *Clepticus parrae*
(4205) Yellowcheek wrasse, *Halichoeres cyanocephalus*
(4206) Yellowhead wrasse, *Halichoeres garnoti*
(4207) Clown wrasse, *Halichoeres maculipinna*
(4208) Puddingwife, *Halichoeres radiatus*
(4209) Pearly razorfish, *Hemipteronotus novacula*
(4210) Green razorfish, *Hemipteronotus splendens*
(4211) Hogfish, *Lachnolaimus maximus*
(4212) Bluehead wrasse, *Thalassoma bifasciatum*
(4213) **Lutjanidae–Snappers**
(4214) Black snapper, *Apsilus dentatus*
(4215) Queen snapper, *Etelis oculatus*
(4216) Mutton snapper, *Lutjanus analis*
(4217) Schoolmaster, *Lutjanus apodus*
(4218) Blackfin snapper, *Lutjanus buccanella*
(4219) Gray snapper, *Lutjanus griseus*
(4220) Dog snapper, *Lutjanus jocu*
(4221) Mahogany snapper, *Lutjanus mahogani*
(4222) Lane snapper, *Lutjanus synagris*
(4223) Silk snapper, *Lutjanus vivanus*
(4224) Yellowtail snapper, *Ocyurus chrysurus*
(4225) Wenchman, *Pristipomoides aquilonaris*
(4226) Vermilion snapper, *Rhomboplites aurorubens*
(4227) **Malacanthidae–Tilefishes**
(4228) Blackline tilefish, *Caulolatilus cyanops*
(4229) Sand tilefish, *Malacanthus plumieri*
(4230) **Mullidae–Goatfishes**
(4231) Yellow goatfish, *Mulloidichthys martinicus*
(4232) Spotted goatfish, *Pseudupeneus maculatus*
(4233) **Muraenidae–Morays**
(4234) Chain moray, *Echidna catenata*
(4235) Green moray, *Gymnothorax funebris*
(4236) Goldentail moray, *Gymnothorax miliaris*
(4237) **Ogcocephalidae–Batfishes**
(4238) Batfish, *Ogcocepahalus spp.*
(4239) Ophichthidae–*Snake eels*
(4240) Goldspotted eel, *Myrichthys ocellatus*
(4241) **Opistognathidae–Jawfishes**
(4242) Yellowhead jawfish, *Opistognathus aurifrons*
(4243) Dusky jawfish, *Opistognathus whitehursti*
(4244) **Ostraciidae–Boxfishes**
(4245) Spotted trunkfish, *Lactophrys bicaudalis*
(4246) Honeycomb cowfish, *Lactophrys polygonia*
(4247) Scrawled cowfish, *Lactophrys quadricornis*
(4248) Trunkfish, *Lactophrys trigonus*
(4249) Smooth trunkfish, *Lactophrys triqueter*
(4250) **Pomacanthidae–Angelfishes**
(4251) Cherubfish, *Centropyge argi*
(4252) Queen angelfish, *Holacanthus ciliaris*
(4253) Rock beauty, *Holacanthus tricolor*
(4254) Gray angelfish, *Pomacanthus arcuatus*
(4255) French angelfish, *Pomacanthus paru*
(4256) **Pomacentridae–Damselfishes**
(4257) Sergeant major, *Abudefduf saxatilis*
(4258) Blue chromis, *Chromis cyanea*
(4259) Sunshinefish, *Chromis insolata*
(4260) Yellowtail damselfish, *Microspathodon chrysurus*
(4261) Dusky damselfish, *Pomacentrus fuscus*
(4262) Beaugregory, *Pomacentrus leucostictus*
(4263) Bicolor damselfish, *Pomacentrus partitus*
(4264) Threespot damselfish, *Pomacentrus planifrons*
(4265) **Priacanthidae–Bigeyes**
(4266) Bigeye, *Priacanthus arenatus*
(4267) Glasseye snapper, *Priacanthus cruentatus*

(4268) **Scaridae–Parrotfishes**
(4269) Midnight parrotfish, *Scarus coelestinus*
(4270) Blue parrotfish, *Scarus coeruleus*
(4271) Striped parrotfish, *Scarus croicensis*
(4272) Rainbow parrotfish, *Scarus guacamaia*
(4273) Princess parrotfish, *Scarus taeniopterus*
(4274) Queen parrotfish, *Scarus vetula*
(4275) Redband parrotfish, *Sparisoma aurofrenatum*
(4276) Redtail parrotfish, *Sparisoma chrysopterum*
(4277) Redfin parrotfish, *Sparisoma rubripinne*
(4278) Stoplight parrotfish, *Sparisoma viride*
(4279) **Sciaenidae–Drums**
(4280) High-hat, *Equetus acuminatus*
(4281) Jackknife-fish, *Equetus lanceolatus*
(4282) Spotted drum, *Equetus punctatus*
(4283) **Scorpaenidae–Scorpionfishes**
(4284) **Serranidae–Sea basses**
(4285) Rock hind, *Epinephelus adscensionis*
(4286) Graysby, *Epinephelus cruentatus*
(4287) Yellowedge grouper, *Epinephelus flavolimbatus*
(4288) Coney, *Epinephelus fulvus*
(4289) Red hind, *Epinephelus guttatus*
(4290) Jewfish, *Epinephelus itajara*
(4291) Red grouper, *Epinephelus morio*
(4292) Misty grouper, *Epinephelus mystacinus*
(4293) Nassau Grouper, *Epinephelus striatus*
(4294) Butter hamlet, *Hypoplectrus unicolor*
(4295) Swissguard basslet, *Liopropoma rubre*
(4296) Yellowfin grouper, *Mycteroperca venenosa*
(4297) Tiger grouper, *Mycteroperca tigris*
(4298) Creole-fish, *Paranthias furcifer*
(4299) Greater soapfish, *Rypticus saponaceus*
(4300) Orangeback bass, *Serranus annularis*
(4301) Lantern bass, *Serranus baldwini*
(4302) Tobaccofish, *Serranus tabacarius*
(4303) Harlequin bass, *Serranus tigrinus*
(4304) Chalk bass, *Serranus tortugarum*
(4305) **Soleidae–Soles**
(4306) Caribbean tonguefish, *Symphurus arawak*
(4307) **Sparidae–Porgies**
(4308) Sea bream, *Archosargus rhomboidalis*
(4309) Jolthead porgy, *Calamus bajonado*
(4310) Sheepshead porgy, *Calamus penna*
(4311) Pluma, *Calamus pennatula*
(4312) **Syngnathidae–Pipefishes**
(4313) Seahorses, *Hippocampus spp.*
(4314) Pipefishes, *Syngnathus spp.*
(4315) **Synodontidae–Lizardfishes**
(4316) Sand diver, *Synodus intermedius*
(4317) **Tetraodontidae–Puffers**
(4318) Sharpnose puffer, *Canthigaster rostrata*
(4319) Porcupinefish, *Diodon hystrix*

Table 3 of Appendix A to Part 622–Gulf Reef Fish

(4320) **Balistidae–Triggerfishes**
(4321) Gray triggerfish, *Balistes capriscus*
(4322) Queen triggerfish, *Balistes vetula*
(4323) **Carangidae–Jacks**
(4324) Greater amberjack, *Seriola dumerili*
(4325) Lesser amberjack, *Seriola fasciata*
(4326) Almaco jack, *Seriola rivoliana*
(4327) Banded rudderfish, *Seriola zonata*
(4328) **Labridae–Wrasses**
(4329) Hogfish, *Lachnolaimus maximus*
(4330) **Lutjanidae–Snappers**
(4331) Queen snapper, *Etelis oculatus*
(4332) Mutton snapper, *Lutjanus analis*
(4333) Schoolmaster, *Lutjanus apodus*
(4334) Blackfin snapper, *Lutjanus buccanella*
(4335) Red snapper, *Lutjanus campechanus*
(4336) Cubera snapper, *Lutjanus cyanopterus*
(4337) Gray (mangrove) snapper, *Lutjanus griseus*
(4338) Dog snapper, *Lutjanus jocu*
(4339) Mahogany snapper, *Lutjanus mahogoni*
(4340) Lane snapper, *Lutjanus synagris*
(4341) Silk snapper, *Lutjanus vivanus*
(4342) Yellowtail snapper, *Ocyurus chrysurus*
(4343) Wenchman, *Pristipomoides aquilonaris*
(4344) Vermilion snapper, *Rhomboplites aurorubens*
(4345) **Malacanthidae–Tilefishes**
(4346) Goldface tilefish, *Caulolatilus chrysops*
(4347) Blackline tilefish, *Caulolatilus cyanops*
(4348) Anchor tilefish, *Caulolatilus intermedius*
(4349) Blueline tilefish, *Caulolatilus microps*
(4350) Tilefish, *Lopholatilus chamaeleonticeps*
(4351) **Serranidae–Groupers**
(4352) Dwarf sand perch, *Diplectrum bivittatum*
(4353) Sand perch, *Diplectrum formosum*
(4354) Rock hind, *Epinephelus adscensionis*
(4355) Speckled hind, *Epinephelus drummondhayi*
(4356) Yellowedge grouper, *Epinephelus flavolimbatus*
(4357) Red hind, *Epinephelus guttatus*
(4358) Jewfish, *Epinephelus itajara*
(4359) Red grouper, *Epinephelus morio*
(4360) Misty grouper, *Epinephelus mystacinus*
(4361) Warsaw grouper, *Epinephelus nigritus*
(4362) Snowy grouper, *Epinephelus niveatus*
(4363) Nassau grouper, *Epinephelus striatus*
(4364) Black grouper, *Mycteroperca bonaci*
(4365) Yellowmouth grouper, *Mycteroperca interstitialis*
(4366) Gag, *Mycteroperca microlepis*
(4367) Scamp, *Mycteroperca phenax*
(4368) Yellowfin grouper, *Mycteroperca venenosa*

Table 4 of Appendix A to Part 622–South Atlantic Snapper-GrouperBalistidae –Triggerfishes

(4369) Gray triggerfish, *Balistes capriscus*
(4370) Queen triggerfish, *Balistes vetula*
(4371) Ocean triggerfish, *Canthidermis sufflamen*
(4372) **Carangidae–Jacks**
(4373) Yellow jack, *Caranx bartholomaei*
(4374) Blue runner, *Caranx crysos*
(4375) Crevalle jack, *Caranx hippos*
(4376) Bar jack, *Caranx ruber*
(4377) Greater amberjack, *Seriola dumerili*
(4378) Lesser amberjack, *Seriola fasciata*
(4379) Almaco jack, *Seriola rivoliana*
(4380) Banded rudderfish, *Seriola zonata*
(4381) **Ephippidae–Spadefishes**
(4382) Spadefish, *Chaetodipterus faber*

(4383) **Haemulidae–Grunts**
(4384) Black margate, *Anisotremus surinamensis*
(4385) Porkfish, *Anisotremus virginicus*
(4386) Margate, *Haemulon album*
(4387) Tomtate, *Haemulon aurolineatum*
(4388) Smallmouth grunt, *Haemulon chrysargyreum*
(4389) French grunt, *Haemulon flavolineatum*
(4390) Spanish grunt, *Haemulon macrostomum*
(4391) Cottonwick, *Haemulon melanurum*
(4392) Sailors choice, *Haemulon parrai*
(4393) White grunt, *Haemulon plumieri*
(4394) Blue stripe grunt, *Haemulon sciurus*
(4395) **Labridae–Wrasses**
(4396) Hogfish, Lachnolaimus maximus
(4397) Puddingwife, Halichoeres radiatus
(4398) **Lutjanidae–Snappers**
(4399) Black snapper, *Apsilus dentatus*
(4400) Queen snapper, *Etelis oculatus*
(4401) Mutton snapper, *Lutjanus analis*
(4402) Schoolmaster, *Lutjanus apodus*
(4403) Blackfin snapper, *Lutjanus buccanella*
(4404) Red snapper, *Lutjanus campechanus*
(4405) Cubera snapper, *Lutjanus cyanopterus*
(4406) Gray snapper, *Lutjanus griseus*
(4407) Mahogany snapper, *Lutjanus mahogoni*
(4408) Dog snapper, *Lutjanus jocu*
(4409) Lane snapper, *Lutjanus synagris*
(4410) Silk snapper, *Lutjanus vivanus*
(4411) Yellowtail snapper, *Ocyurus chrysurus*
(4412) Vermilion snapper, *Rhomboplites aurorubens*
(4413) **Malacanthidae–Tilefishes**
(4414) Blueline tilefish, *Caulolatilus microps*
(4415) Golden tilefish, *Lopholatilus chamaeleonticeps*
(4416) Sand tilefish, *Malacanthus plumieri*
(4417) **Percichthyidae–Temperate basses**
(4418) Wreckfish, *Polyprion americanus*
(4419) **Serranidae–Sea Basses and Groupers**
(4420) Bank sea bass, *Centropristis ocyurus*
(4421) Rock sea bass, *Centropristis philadelphica*
(4422) Black sea bass, *Centropristis striata*
(4423) Rock hind, *Epinephelus adscensionis*
(4424) Graysby, *Epinephelus cruentatus*
(4425) Speckled hind, *Epinephelus drummondhayi*
(4426) Yellowedge grouper, *Epinephelus flavolimbatus*
(4427) Coney, *Epinephelus fulvus*
(4428) Red hind, *Epinephelus guttatus*
(4429) Jewfish, *Epinephelus itajara*
(4430) Red grouper, *Epinephelus morio*
(4431) Misty grouper, *Epinephelus mystacinus*
(4432) Warsaw grouper, *Epinephelus nigritus*
(4433) Snowy grouper, *Epinephelus niveatus*
(4434) Nassau grouper, *Epinephelus striatus*
(4435) Black grouper, *Mycteroperca bonaci*
(4436) Yellowmouth grouper, *Mycteroperca interstitialis*
(4437) Gag, *Mycteroperca microlepis*
(4438) Scamp, *Mycteroperca phenax*
(4439) Tiger grouper, *Mycteroperca tigris*
(4440) Yellowfin grouper, *Mycteroperca venenosa*
(4441) **Sparidae–Porgies**
(4442) Sheepshead, *Archosargus probatocephalus*
(4443) Grass porgy, *Calamus arctifrons*
(4444) Jolthead porgy, *Calamus bajonado*
(4445) Saucereye porgy, *Calamus calamus*
(4446) Whitebone porgy, *Calamus leucosteus*
(4447) Knobbed porgy, *Calamus nodosus*
(4448) Red porgy, *Pagrus pagrus*
(4449) Longspine porgy, *Stenotomus caprinus*
(4450) Scup, *Stenotomus chrysops*

Appendix B to Part 622—Gulf Areas

TABLE 1 OF APPENDIX B TO PART 622.—SEAWARD COORDINATES OF THE LONGLINE AND BUOY GEAR RESTRICTED AREA

Point No. and reference location[1]		Latitude	Longitude
1	Seaward limit of Florida's waters north of Dry Tortugas	24°48.0'N.	82°48.0'W.
2	North of Rebecca Shoal	25°07.5'N.	82°34.0'W.
3	Off Sanibel Island—Offshore	26°26.0'N	82°59.0'W.
4	West of Egmont Key	27°30.0'N.	83°21.5'W.
5	Off Anclote Keys—Offshore	28°10.0'N.	84°45.0'W.
6	Southeast corner of Florida Middle Ground	28°11.0'N.	84°00.0'W.
7	Southwest corner of Florida Middle Ground	28°11.0'N.	84°07.0'W.
8	West corner of Florida Middle Ground	28°26.6'N.	84°24.8'W.
9	Northwest corner of Floirda Middle Ground	28°42.5'N.	84°24.8'W.
10	South of Carrabelle	29°05.0'N.	85°47.0'W.
11	South of Cape St. George	29°02.5'N.	85°09.0'W.
12	South of Cape San Blas lighted bell buoy—20 fathoms	29°21.0'N.	85°30.0'W.
13	South of Cape San Blas lighted bell buoy—50 fathoms	28°58.7'N.	85°30.0'W.
14	De Soto Canyon	30°06.0'N.	86°55.0'W.
15	South Pensacola	29°46.0'N.	87°19.0'W.
16	South of Perdido Bay	29°29.0'N.	87°27.5'W.
17	East of North Pass of the Mississippi River	29°14.5'N.	88°28.0'W.
18	South of Southwest Pass of the Mississippi River	28°46.5'N.	89°26.0'W.
19	Northwest tip of Mississippi Canyon	28°38.5'N.	90°08.5'W.
20	West side of Mississippi Canyon	28°34.5'N.	89°59.5'W.
21	South of Timbalier Bay	28°22.5'N.	90°02.5'W.
22	South of Terrebonne Bay	28°10.5'N.	90°31.5'W.
23	South of Freeport	27°58.0'N.	95°00.0'W.
24	Off Matagorda Island	27°43.0'N.	96°02.0'W.
25	Off Aransas Pass	27°30.0'N.	96°23.5'W.
26	Northeast of Port Mansfield	27°00.0'N.	96°39.0'W.
27	East of Port Mansfield	26°44.0'N.	96°37.5'W.
28	Northeast of Port Isabel	26°22.0'N.	96°21.0'W.
29	U.S./Mexico EEZ boundary	26°00.5'N.	96°24.5'W.
Thence westerly along U.S./Mexico EEZ boundary to the seaward limit of Texas' waters.			

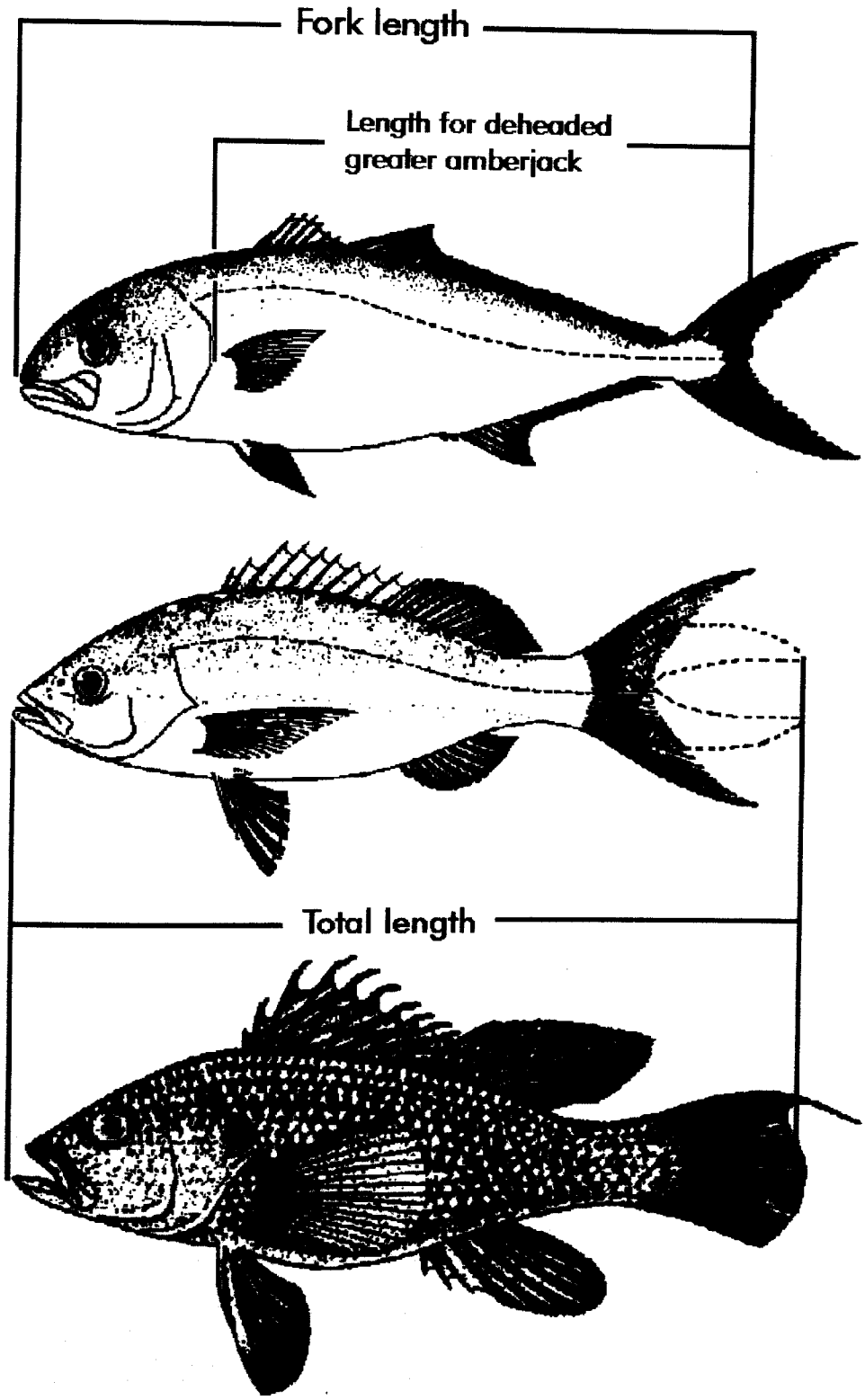
[1]Nearest identifiable landfall, boundary, navigational aid, or submarine area.

TABLE 2 OF APPENDIX B TO PART 622.—SEAWARD COORDINATES OF THE STRESSED AREA

Point No. and reference location[1]		Latitude	Longitude
1	Seaward limit of Florida's waters northeast of Dry Tortugas	24°45.5'N.	82°41.5'W.
2	North of Marquesas Keys	24°48.0'N.	82°06.5'W.
3	Off Cape Sable	25°15.0'N	82°02.0'W.
4	Off Sanibel Island—Inshore	26°26.0'N.	82°29.0'W.
5	Off Sanibel Island—Offshore	26°26.0'N.	82°59.0'W.
6	West of Egmont Key	27°30.0'N.	83°21.5'W.
7	Off Anclote Key—Offshore	28°10.0'N.	83°45.0'W.
8	Off Anclote Key—Inshore	28°10.0'N.	83°14.0'W.
9	Off Deadman Bay	29°38.0'N.	84°00.0'W.
10	Seawared limit of Florida's waters east of Cape St. George	29°35.5'N.	84°38.6'W.
Thence westerly along the seaward limit of Florida's waters to:			
11	Seaward limit of Florida's waters south of Cape San Blas	29°32.2'N.	85°27.1'W.
12	Southwest of Cape San Blas	29°30.5'N.	85°52.0'W.
13	Off St. Andrew Bay	29°53.0'N.	86°10.0'W.
14	De Soto Canyon	30°06.0'N.	86°55.0'W.
15	South of Florida/Alabama border	29°34.5'N.	87°38.0'W.
16	Off Mobile Bay	29°41.0'N.	88°00.0'W.
17	South of Alabama/Mississippi border	30°01.5'N.	88°23.7'W.
18	Horn/Chandeleur Islands	30°01.5'N.	88°40.5'W.
19	Chandeleur Islands	29°35.5'N.	88°37.0'W.
20	Seaward limit of Louisiana's waters off North Pass of Mississippi River	29°16.3'N.	89°00.0'W.
Thence southerly and westerly along the seaward limit of Louisiana's waters to:			
21	Seaward limit of Louisiana's waters off Southwest Pass of the Mississippi River	28°57.3'N.	89°28.2'W.
22	Southeast of Grand Isle	29°09.0'N.	89°47.0'W.
23	Quick flashing horn buoy south of Isles Dernieres	28°32.5'N.	90°42.0'W.
24	Southeast of Calcasieu Pass	29°10.0'N.	92°37.0'W.
25	South of Sabine Pass—10 fathoms	29°09.0'N.	93°41.0'W.
26	South of Sabine Pass—30 fathoms	28°21.5'N.	93°28.0'W.
27	East of Aransas Pass	27°49.0'N.	96°19.5'W.
28	East of Baffin Bay	27°12.0'N.	96°51.0'W.
29	Northeast of Port Mansfield	26°46.5'N	96°52.0'W.
30	Northeast of Port Isabel	26°21.5'N.	96°35.0'W.
31	U.S./Mexico EEZ boundary	26°00.5'N.	96°36.0'W.
Thence westerly along U.S./Mexico EEZ boundary to the seaward limit of Texas' waters.			

[1]Nearest identifiable landfall, boundary, navigational aid, or submarine area.

Appendix C to Part 622—Fish Length Measurements



3. CAPE HENRY TO KEY WEST

(1) The Atlantic Coast of the United States from Cape Henry to Cape Florida is low and sandy, backed by woods. From Cape Florida to Key West the coast is formed by a long chain of small islands known as the Florida Keys. The Florida Reefs extend seaward of the keys and are nearly parallel to them.

(2) The coastline of Virginia from Cape Henry southward to the boundary of North Carolina is firm land for 13 miles; then it becomes a barrier beach, covered with sand dunes for 11 miles. The boundary between Virginia and North Carolina is the only marked boundary on this section of the coast. The easternmost boundary monument is a granite shaft 6 feet high about 0.5 mile west of the beach.

(3) The coastline of North Carolina is a long barrier beach. The islands are known as the **Outer Banks.** The banks are constantly shifting sand dunes varying in height. Three capes, with their offshore shoals, project from the islands, namely: Hatteras, Lookout, and Fear. Behind the barrier beach a chain of sounds, including Currituck, Roanoke, Albemarle, Pamlico, Core, and Bogue, stretch along the entire 300 miles of coastline of the State.

(4) Bordering the sounds on the mainland is a belt from 30 to 80 miles wide, where the land is level and sometimes swampy. On the north a portion of the Great Dismal Swamp spreads across the border of Virginia into North Carolina. Between Albemarle Sound and Pamlico River the swamplands are locally known as **Dismals** and **Pocosins.** They occur on the divides or watersheds between the rivers and sounds. In the southeast section of North Carolina are the **Savannas,** treeless prairie land with a thick growth of grass and wild flowers; they have been formed by a lack of drainage and a close impervious soil.

(5) The coastline of South Carolina from Little River Inlet to Winyah Bay is practically an unbroken beach. Cape Romain, just south of Winyah Bay, and the shoal extending seaward from it, form the southern point of indentations which has its northern point at Cape Fear. From Winyah Bay to Savannah River, the boundary between South Carolina and Georgia, the coastline is a border of sandy barrier islands. The large sounds so characteristic of the North Carolina coast are missing.

(6) The coastline of Georgia between Savannah River on the north and St. Marys River on the south is partly submerged at flood tide, and is broken by tidal rivers and marshes covered with dense grasses. The most important sandy islands off the coast are Tybee, Wassaw, Ossabaw, St. Catherines, Sapelo, St. Simons, Jekyll, and Cumberland.

(7) The coastline of Florida is a long, low, barrier beach from the border of Georgia south to Cape Florida. Many of the leading tourist resorts have been built on this beach, while the business districts are often on the mainland.

(8) Under the sand and the lagoons is a limestone called **Coquina,** which is soft while in its native state, but becomes a hard building stone when exposed to the air.

(9) Below Cape Florida the Florida Keys and Florida Reefs extend for about 134 miles in a southwesterly curve to Sand Key Light, and about 58 miles in a westerly direction to Loggerhead Key. These keys and reefs are of sand, shell, and coral formation. The keys are generally low and covered with mangrove.

(10) **Disposal Sites** and **Dumping Grounds.**–These areas are rarely mentioned in the Coast Pilot, but are shown on the nautical charts. (See Dump Sites and Dumping Grounds, chapter 1, and charts for limits.)

(11) **Aids to navigation.**–Lights are on or near the dangerous capes, at the entrance to the harbors, and along the Florida Reefs. The critical dangers are buoyed. The coast is well covered by loran. Radiobeacons are at most of the principal light stations. Radar, though always a valuable navigational aid, is generally of less assistance in navigation along this coast due to the relatively low relief; the accuracy of radar ranges to the beach cannot be relied upon. Coastal buoys equipped with radar reflectors are of help in this regard. It is sometimes possible to obtain a usable radar return from the larger lighthouses, but positive target identification is usually difficult. There are numerous aerolights along the coast that are useful for navigation, but they should not be confused with the marine lights.

(12) **COLREGS Demarcation Lines.**–Lines have been established to delineate those waters upon which mariners must comply with the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) and those waters upon which mariners must comply with the Inland Navigation Rules Act of 1980 (Inland Rules). The waters inside of the lines are **Inland Rules Waters,** and the waters outside of the lines are **COLREGS Waters.** (See **Part 80,** chapter 2, for specific lines of demarcation.)

(13) **Ports and Waterways Safety.**–(See **Part 160,** chapter 2, for regulations governing vessel operations and requirements for notification of arrivals, departures, hazardous conditions, and certain dangerous cargoes to the Captain of the Port.)

(14) **Harbor entrances.**–The entrance to every harbor on this stretch of the coast is more or less obstructed by a shifting sandbar over which the channel depth is changeable. The entrance channels of the larger and more important harbors have been improved by dredging; in some cases jetties have been built from both sides of the entrance. Many of the dredged channels in this area have a tendency to shoal soon after dredging because of the shifting sandy bottom.

(15) The buoys on many of the bars are not charted because they are moved from time to time to indicate the changing channel. They are liable to be dragged out of position and cannot always be replaced immediately, so a stranger must use the greatest caution. If possible, a stranger should enter a harbor or inlet on a rising tide.

(16) The tidal currents have considerable velocity in all of the entrances, and their direction is affected by the force and direction of the wind; sailing vessels entering the harbors and sounds require a fair working breeze during the ebb.

(17) Strangers should not attempt to enter the harbors without the assistance of a pilot during easterly gales when the sea breaks on most of the bars.

(18) **Depths.**–Between Cape Henry and Jupiter Inlet frequent soundings will give the mariner timely warning of his approach to the land from seaward.

(19) Northward of Cape Hatteras the 20-fathom curve is from 13 to 45 miles offshore, but inside of 15 fathoms the depths are irregular and many holes of limited extent are inside the general limits of corresponding depths; 10 to 14 fathoms are found in places only 1.5 miles offshore. This irregularity of depth is apt to confuse the mariner and lead him into danger in thick weather; the greatest caution should therefore be used inside of a depth of 20 fathoms. By keeping over 6 miles from the beach all dangers

will be avoided, but the strong currents which sometimes set along the shore must be considered, especially after a gale.

(20) Southeastward of Cape Hatteras, and off the end of the shoals which extend seaward about 8 miles, the 20-fathom curve is from 12 to 15 miles offshore, and the 30-fathom curve is only a short distance farther. In thick weather, soundings of 20 fathoms or less should warn the mariner to keep offshore.

(21) From Cape Hatteras to Jupiter Inlet, the 20-fathom curve is fairly regular and for a greater part of the distance is from 40 to 55 miles offshore. Northward of St. Johns River, the water shoals uniformly to the 10-fathom curve, which, excepting in the two great bights between Cape Hatteras and Cape Fear, is from 10 to 30 miles offshore. Vessels bound for any of the harbors between Cape Fear and St. Johns River should approach the land with caution when in 10 fathoms of waters; inside the 10-fathom curve depths are irregular and spots of 5 fathoms or less will be found from 6 to 12 miles offshore. In thick weather vessels standing along the coast should keep a general depth of 10 fathoms between Cape Fear and St. Johns River.

(22) In a heavy sea, depths of less than 6 fathoms show discolored water; deep-draft vessels should be cautious about passing over such spots.

(23) Southward of St. Johns River, the 20-fathom curve draws inshore gradually and at Jupiter Inlet is only 4 miles from the beach, and the 100-fathom curve a little over 8 miles. Southward of Jupiter Inlet, both curves draw closer inshore, and along the Florida Reefs the 20-fathom curve is close in to the reefs, while the 100-fathom curve is at an average distance of about 7 miles outside the reefs. The 10-fathom curve between St. Johns River and Jupiter Inlet is irregular and of no use in determining distance from shore. Approaching Florida Reefs southward of Jupiter Inlet, soundings are of little use unless taken frequently as the water shoals rapidly from seaward.

(24) In the approach to the Bahama Banks along the Straits of Florida, the discolored water is the best indication the mariner has to warn him of shoal water; the 100-fathom curve at some points is only 1 or 2 miles from the shoal water of the banks.

(25) **Tropical waters.**–The most remarkable feature is the exceeding clearness of the sea water, enabling the bottom to be seen from aloft at considerable depths and at some distance. The navigation of the banks is consequently conducted almost entirely by the eye, but care must be taken not to run with the sun ahead of the vessel as that prevents the banks from being seen.

(26) The charts indicate clearly the positions of the many shoal heads, but considerable experience is required in identifying the patches by the color of the water. Small clouds, moving slowly and known to the pilots as **Flyers**, are apt to deceive the inexperienced, their reflection on the surface of the sea over the clear white sandy bottom has every appearance of rocky shoals. It is prudent to avoid a dark spot.

(27) **Bank Blink** is a phenomenon in tropical waters described as a bright reflected light hanging over the clear white sandbanks, serving to point them out from a considerable distance. From experience, it has been found to be untrustworthy, however, and should not be depended on in place of a lookout aloft. Soundings, dead reckoning, and fixes should be carefully checked and evaluated.

(28) **Anchorages.**–Vessels may find refuge at a number of places along the coast according to draft. The more important places are Lookout Bight, Beaufort Inlet, Cape Fear River, Winyah Bay, Charleston Harbor, Port Royal Sound, Savannah River, Sapelo Sound, St. Simons Sound, Cumberland Sound, St. Johns River, Fort Pierce Inlet, Lake Worth Inlet, Port Everglades, Miami, and Key West. A number of anchorage areas have been established by Federal regulations within the area of this Coast Pilot. (See **Part 110**, chapter 2, for limits and regulations.)

(29) **Dangers.**–Along the coast are a number of wrecks that are obstructions to navigation. Most of the dangerous wrecks are marked with lighted buoys. A careful check should be made of the chart to insure that dangerous wrecks are not along the routes selected.

(30) Trawlers or other vessels should exercise caution while dragging the ocean floor within a 25-mile radius of Cape Canaveral, Fla., since it is known that missile debris exist in the area, some of which may contain unexploded ordnance.

(31) Mariners are also cautioned against possible hazards of a weather rocket impact area that extends more than 50 miles offshore at Cape Canaveral, Fla. Falling rocket casings may be hazardous during the hours of 1930-2100 e.s.t., Monday through Friday.

(32) **Pipelaying barges.**–With the increased number of pipeline laying operations, operators of all types of vessels should be aware of the dangers of passing close aboard, close ahead, or close astern of a jetbarge or pipelaying barge. Pipelaying barges and jetbarges usually move at 0.5 knot or less and have anchors which extend out about 3,500 to 5,000 feet in all directions and which may be marked by lighted anchor buoys. The exposed pipeline behind the pipelaying barge and the area in the vicinity of anchors are hazardous to navigation and should be avoided. The pipeline and anchor cables also represent a submerged hazard to navigation. It is suggested, if safe navigation permits, for all types of vessels to pass well ahead of the pipelaying barge or well astern of the jetbarge. The pipelaying barge, jetbarge, and attending vessels may be contacted on VHF-FM channel 16 for passage instructions.

(33) **Danger zones** have been established within the area of this Coast Pilot. (See **Part 334**, chapter 2, for limits and regulations.) Submarine operating areas and transit lanes are off the North and South Carolina coasts. The areas are shown on the charts.

(34) **Drawbridges.**–The general regulations that apply to all drawbridges are given in **117.1 through 117.49**, chapter 2, and the specific regulations that apply only to certain drawbridges are given in **Part 117**, Subpart B, chapter 2. Where these regulations apply, references to them are made in the Coast Pilot under the name of the bridge or the waterway over which the bridge crosses.

(35) The drawbridge opening signals (see **117.15**, chapter 2) have been standardized for most drawbridges within the United States. The opening signals for those few bridges that are nonstandard are given in the specific drawbridge regulations. The specific regulations also address matters such as restricted operating hours and required advance notice for openings.

(36) The mariner should be acquainted with the general and specific regulations for drawbridges over waterways to be transited.

(37) **Routes – East coast of the United States to Key West.**–Proceed as direct as safe navigation permits to 35°08'N., 75°15'W., off Diamond Shoal Light, thence on rhumb lines through the following positions:

(38) Outer route to Jupiter Inlet Light

(39) 33°00'N., 75°35'W.
(40) 28°00'N., 79°00'W.
(41) 26°57'N., 80°00'W., off Jupiter Inlet Light
(42) Inner route to Jupiter Inlet Light
(43) 33°27'N., 77°32'W., off Frying Pan Shoals
(44) 32°00'N., 80°00'W.
(45) 31°00'N., 80°30'W.
(46) 29°30'N., 80°30'W.
(47) 28°39'N., 80°17'W., off Hetzel Shoal Lighted Whistle Buoy 8
(48) 27°24'N., 80°02'W., about 5.5 miles eastward of St. Lucie Shoal Lighted Whistle Buoy 12
(49) 26°57'N., 80°00'W., off Jupiter Inlet Light
(50) Thence follow the coast of Florida and the Florida Keys as close as safe navigation permits to Key West, with the following exception. Tank vessels and vessels greater than 50 meters (164 feet) in length are prohibited from entering the **Area To Be Avoided Off the Coast of Florida**. See Area To Be Avoided Off the Coast of Florida, indexed as such, this chapter. Vessel operators should exercise caution when entering Northern right whale critical habitat. See Northern right whales, indexed as such, this chapter.

(51) **Key West to east coast of the United States via Gulf Stream.** Follow the Gulf Stream in the Straits of Florida about 8 miles off the Florida Reefs, passing Fowey Rocks Light at a distance of 10 to 12 miles and Jupiter Inlet Light 15 miles, thence follow the main axis of the Gulf Stream in the Atlantic Ocean through the following positions:
(52) 30°25'N., 79°40'W.
(53) 31°11'N., 79°15'W.
(54) 34°00'N., 75°49'W.
(55) 35°08'N., 75°05'W., off Diamond Shoal Light;
(56) Thence as direct as safe navigation permits to destination.

(57) Southbound vessels from Diamond Shoal Light to Jupiter Inlet Light use either the outer route or the inner route to avoid the full northerly set of the Gulf Stream. Most of the regular lines bound for the Straits of Florida use the route outside the Gulf Stream. All vessels bound to any port as far south as the St. Johns River follow the coast inside the Gulf Stream. Currents up to 4.5 knots have been observed at 35°05.3'N., 75°19.7'W. (former position of Diamond Shoal Lightship). High current velocities usually occur during heavy or long continued gales. Currents produced by onshore winds are likely to set toward the shore. Details of the wind-driven currents are given in the Tidal Current Tables.

(58) The course from Diamond Shoal Light to 33°00'N., 75°35'W., along the outer route crosses the Gulf Stream. Under ordinary conditions an average allowance should be made for a 1-knot current setting northeastward for the entire run; with northeasterly winds there may be practically no current, whereas southerly, and especially southwesterly winds, may increase it considerably. Frequent fixes should be obtained.

(59) There is uncertainty as to the currents that may be expected on the course from 33°00'N., 75°35'W., to 28°00'N., 79°00'W., along the outer route. Frequent fixes should be obtained to guard against being set off course by the variable currents and also to insure clearing Matanilla Shoal.

(60) When crossing the Gulf Stream for Jupiter Inlet Light, **Matanilla Shoal** should be given a wide berth. The bank in the vicinity of the shoal is extremely dangerous, as the bottom is rocky and covered with dark seaweed, the water is not discolored, and the sea does not break. The current for some distance northward of the shoal is very uncertain and near the edge of the bank sets strongly toward it.

(61) **Caution.**–The charted position, size, shape, and orientation of the islands, banks, and shoals in the Bahama Islands are unreliable. Extraordinary caution should be exercised in the navigation of this area.

(62) When on the course northwestward of Matanilla Shoal an allowance should be made for a northerly current, averaging about 2.5 knots for the entire run of about 80 miles. It will, therefore, be necessary to shape the course sufficiently southward of Jupiter Inlet Light to allow for the northerly set. When fixing the position by bearings on the light, keep in mind that while outside the 100-fathom curve the vessel is probably in the full strength of the Gulf Stream, where the northerly current may average a velocity of 4 knots. If the light is on the starboard bow, the vessel will be much closer to it than indicated by the distance run between the successive bearings on it.

(63) The courses southward of Diamond Shoal Light on the inner route to Hetzel Shoal Lighted Whistle Buoy 8 have depths of 17 to 20 fathoms. In approaching and passing the shoals off Cape Canaveral, care must be exercised. The current of the Gulf Stream may be expected under ordinary conditions to set against the vessel for the entire run with a velocity of about 0.5 to 1 knot, the direction of the current following the curve of the coast. It must be remembered, however, that the effect of winds is almost immediately felt on the currents and that with northerly and especially northeasterly winds, a current of possibly 1 knot will set southward along the coast. Southerly, and especially southwesterly winds, increase the velocity of the Gulf Stream.

(64) On the inner route from Hetzel Shoal to Jupiter Inlet Light, the 15-fathom curve is a good guide. The current of the Gulf Stream may be expected under ordinary conditions to have a velocity of about 1 knot off Cape Canaveral increasing to 1.5 or 2 knots off Jupiter Inlet Light.

(65) Except for tank vessels and vessels greater than 50 meters (164 feet) in length, southbound vessels from Jupiter Inlet Light to Fowey Rocks Light usually follow the coast at a distance offshore of 1 to 1.5 miles to Hillsboro Inlet Light, thence 1.5 to 2 miles offshore, passing 1 mile eastward of Miami Lighted Whistle Buoy M and Fowey Rocks Light. A northward current can be expected near the coast from northward of Jupiter Inlet to Fowey Rocks. The velocity of the current gradually increases as the axis of the Gulf Stream is approached.

(66) Southbound vessels from Fowey Rocks Light to Key West usually follow a course 1 to 2 miles off the Florida Reefs in the daytime and 2 to 4 miles off at night. The position should be checked on the aids as passed and on the lights and sectors at night. Care must be taken not to get inside of the line of reefs, daybeacons, buoys or lights, especially when passing parts of the reef that are well back of the edge and do not break or show near the surface. The color of the water does not always mark the edge of the reefs.

(67) **Warning.**–The **Area To Be Avoided Off the Coast of Florida** extends farther out from the Florida Reefs than 4 miles. As tank vessels and vessels greater than 50 meters (164 feet) are prohibited from entering the **Area To Be Avoided Off the Coast of Florida** the guidelines of standing off the Florida Reef "1 to 2 miles in daytime and 2 to 4 miles at night" do not apply to these vessels. See Area To Be Avoided Off the Coast of Florida, indexed as such, this chapter.)

(68) Except in the vicinity of Fowey Rocks, where the 100-fathom curve is only about 2 miles outside the reef, the 50-fathom curve is from 2 to 4 miles from Florida Reefs, and this is about the least depth that can be depended upon to insure safety in skirting them. To be useful, soundings must be taken very frequently when navigating this region; a recording echo-sounder should be of great value.

(69) The reefs are fringed in places with broken ground, which, as a measure of safety, should be avoided by deep-draft vessels where the depths are less than 10 or 12 fathoms.

(70) A number of vessels have been lost on the reefs between The Elbow and Molasses Reef, and extra caution should be observed in this locality. The extremely variable current against the vessel should be carefully considered in determining the position off Carysfort Reef Light from which to shape the course to lead well clear of The Elbow.

(71) Vessels bound for Habana generally shape the course for that port when abreast of Alligator Reef Light.

(72) Any crossing of the Gulf Stream should be regarded as difficult on account of the strong current of variable velocity, for which it may not be possible to make a proper allowance, and the abrupt shoaling inside the 100-fathom curve. The axis of the Gulf Stream is nearest the reefs from about 10 miles northward of Carysfort Reef Light to Molasses Reef Light 10.

(73) Northbound vessels from Key West to Cape Hatteras follow the Gulf Stream. The velocity of the current varies greatly in different localities and is also subject to sudden changes, due to wind, differences in barometric pressure, and the like, so that no fixed hourly rate can be given. Often high velocities will be carried between certain points and will suddenly drop off between others. Frequent fixes should be obtained to determine accurately the speed of advance. The greatest velocity is between Carysfort Reef and Jupiter Inlet, ranging from 2 to 4.5 knots.

(74) The course between Jupiter Inlet Light and 30°25'N., 79°40'W., should lead from 6 to 30 miles outside the 100-fathom curve. Northward currents of 1.5 to 3.5 knots may be expected. It is reported that between latitude 30°30' and 32°30'N. heavy tide rips will be experienced, indicating a change in the direction of the stream and not an increase in the velocity, and creating in stormy weather a very uncomfortable sea.

(75) When approaching Diamond Shoal great care must be taken to determine accurately the position of the vessel. The currents are subject to wide variations as indicated by observations taken from the former Diamond Shoal Lightship. At times during both summer and winter the Gulf Stream has great velocity; at other times none will be found, or a southerly set may be experienced with northerly winds. The general direction of the stream is northeast with a velocity of 1 to 2 knots, but on nearing 35°05.3'N., 75°19.7'W. (former position of Diamond Shoal Lightship), the current is reported to set well to the east-northeast and at other times nearly north. In northerly and northeasterly weather a dangerous heavy cross and confused sea usually is encountered in the stream between Jupiter Inlet and Cape Hatteras.

(76) **Note.**–The courses described above for using or avoiding the Gulf Stream are based on long term averages of the location of the stream and take into consideration the main shipping routes between the east and Gulf coasts. Mariners desiring to make fullest use of the stream should obtain the latest information on its location from NOAA Weather Radio stations. (See Location of the Gulf Stream, this chapter.)

(77) **Area to Be Avoided.**–The **Area to Be Avoided Off the Coast of Florida** (ATBAOCF) has been established. The ATBAOCF has been established in order to reduce the risk of large vessel groundings which are found to constitute a serious threat to the continued vitality of the marine environment of the Florida Keys. The ATBAOCF has been established under the authority of the Florida Keys National Marine Sanctuary and Protection Act, Public Law 101-605 (November 16, 1990). The ATBAOCF has also been adopted by the International Maritime Organization (IMO), effective November 16, 1991.

(78) Operation of tank vessels and vessels greater than 50 meters (164 feet) in length is prohibited within the ATBAOCF. The term "tank vessel" is defined to mean "a vessel that is constructed or adapted to carry, or that carries, oil or hazardous material in bulk as cargo or cargo residue"; 46 U.S.C. subpart 2101(39).

(79) Consistent with generally recognized principles of international law, and National Oceanic and Atmospheric Administration (NOAA)'s jurisdiction under section 307 of the Marine Protection Research and Sanctuaries Act, 16 U.S.C. subpart 1437, enforcement actions may include assessment of civil penalties of not more than $50,000 per violation. The above prohibition does not apply to necessary operations of public vessels, including operations essential for national defense, law enforcement, and responses to emergencies that threaten life, property, or the environment.

(80) The ATBAOCF is coterminous with the boundaries of the Florida Keys National Marine Sanctuary. The sections (four) of the ATBAOCF are defined by the following groups of co-ordinates.

(81) In order to avoid risk of pollution and damage to the environment of this sensitive area, all vessels with cargoes of oil and hazardous materials, and all vessels greater than 50 meters (164 feet) in length should avoid the area bounded by a line connecting the following points.

(82) **In the Vicinity of the Florida Keys.**–Reference NOS charts 11450 and 11466.

(83) (1) 25°45.00'N., 080°06.10'W.
(84) (2) 25°38.70'N., 080°02.70'W.
(85) (3) 25°22.00'N., 080°03.00'W.
(86) (4) 25°00.20'N., 080°13.40'W.
(87) (5) 24°37.90'N., 080°47.30'W.
(88) (6) 24°29.20'N., 081°17.30'W.
(89) (7) 24°22.30'N., 081°43.17'W.
(90) (8) 24°28.00'N., 081°43.17'W.
(91) (9) 24°28.70'N., 081°43.50'W.
(92) (10) 24°29.80'N., 081°43.17'W.
(93) (11) 24°33.10'N., 081°35.15'W.
(94) (12) 24°33.60'N., 081°26.00'W.
(95) (13) 24°38.20'N., 081°07.00'W.
(96) (14) 24°43.20'N., 080°53.20'W.
(97) (15) 24°46.10'N., 080°46.15'W.
(98) (16) 24°51.10'N., 080°37.10'W.
(99) (17) 24°57.50'N., 080°27.50'W.
(100) (18) 25°09.90'N., 080°16.20'W.
(101) (19) 25°24.00'N., 080°09.10'W.
(102) (20) 25°31.50'N., 080°07.00'W.
(103) (21) 25°39.70'N., 080°06.85'W.
(104) (22) 25°45.00'N., 080°06.10'W.

(105) **In the Vicinity of Key West Harbor.**–Reference NOS chart 11434.

(106) (23) 24°27.95'N., 081°48.65'W.

(107) (24) 24°23.00'N., 081°53.50'W.
(108) (25) 24°26.60'N., 081°58.50'W.
(109) (26) 24°27.75'N., 081°55.70'W.
(110) (28) 24°29.35'N., 081°50.00'W.
(111) (29) 24°27.95'N., 081°48.65'W.

(112) **Area Surrounding the Marquesas Keys.**–Reference NOS chart 11434. (The Marquesas Keys are discussed in United States Coast Pilot 5.)

(113) (30) 24°26.60'N., 081°59.55'W.
(114) (31) 24°23.00'N., 082°03.50'W.
(115) (32) 24°23.60'N., 082°27.80'W.
(116) (33) 24°34.50'N., 082°37.50'W.
(117) (34) 24°43.00'N., 082°26.50'W.
(118) (35) 24°38.31'N., 081°54.06'W.
(119) (36) 24°37.91'N., 081°53.84'W.
(120) (37) 24°36.15'N., 081°51.78'W.
(121) (38) 24°34.40'N., 081°50.60'W.
(122) (39) 24°33.44'N., 081°49.73'W.
(123) (40) 24°31.20'N., 081°52.10'W.
(124) (41) 24°28.70'N., 081°56.80'W.
(125) (42) 24°26.60'N., 081°59.55'W.

(126) **Area Surrounding Dry Tortugas.**–Reference NOS chart 11434. (Dry Tortugas is described in United States Coast Pilot 5.)

(127) (43) 24°34'00"N., 082°54'00"W.
(128) (44) 24°34'00"N., 082°56'00"W.
(129) (45) 24°34'00"N., 082°58'00"W.
(130) (46) 24°36'30"N., 082°58'00"W.
(131) (47) 24°39'00"N., 082°58'00"W.
(132) (48) 24°40'20"N., 082°56'40"W.
(133) (49) 24°41'40"N., 082°55'20"W.
(134) (50) 24°43'00"N., 082°54'00"W.
(135) (51) 24°43'32"N., 082°52'00"W.
(136) (52) 24°43'32"N., 082°50'00"W.
(137) (53) 24°43'32"N., 082°48'00"W.
(138) (54) 24°42'00"N., 082°46'00"W.
(139) (55) 24°40'00"N., 082°46'00"W.
(140) (56) 24°38'25"N., 082°47'05"W.
(141) (57) 24°37'00"N., 082°48'00"W.
(142) (58) 24°36'00"N., 082°50'00"W.
(143) (59) 24°35'00"N., 082°52'00"W

(144) **Northern right whales** are the world's most endangered large whale. The largest population, perhaps fewer than 300 animals, occurs along the east coast of the United States and Canada. Because right whales rest and nurse their young at the surface, and calves are unable to dive deeply, and often do not move out of the way of oncoming ships, they are highly vulnerable to being struck by ships. Ship strikes are one of the known sources of human-related mortality of right whales. Two of the best documented ship strikes involved whales struck and killed by vessels steaming in excess of 14 knots. One vessel was steaming in clear weather and calm seas, just before dusk, and well off the Mid-Atlantic coast, when a small pod a whales surfaced 50 yards off the starboard bow. A juvenile with the pod, was struck by the ship's propellers and killed. The second vessel was steaming in thick fog, inshore off the southeast coast in early January, when striking a juvenile, apparently dead-on.

(145) *Seasonal occurrence of northern right whales:* In seasons and in areas that right whales may occur, vessel operators should maintain a sharp lookout for right whales. Coastal waters off Georgia and northeastern Florida are the species' only known calving grounds; the calving season is generally December through March. In March and April, right whales accompanied by calves migrate northward, often within 20 miles of the coast to summer feeding grounds off New England. Seasonal right whale advisories and sighting reports are broadcast periodically for these areas by Coast Guard Broadcast Notice to Mariners, NAVTEX, and other means.

(146) *Description of northern right whale:* The species reaches lengths of 45 to 55 feet and is black in color. The best field identification marks are a broad back with no dorsal fin, irregular bumpy white patches (callosities) on the head, and a distinctive two-column V-Shaped blow. They have paddle-like flippers nearly as wide as they are long, and a broad, deeply notched tail, see diagrams following.

(147) *Early Warning System:* As weather and conditions permit, a dedicated seasonal-program of overflights and vessel surveys from Savannah River, Georgia south to Sebastian Inlet, Florida provide whale sighting information to the Coast Guard and others for broadcast purposes. Many right whales however, go undetected.

(148) *Precautions:* The National Marine Fisheries Service-appointed Southeast Implementation Team recommends the following precautionary measures be taken to avoid northern right whales. Consult with local pilots' association for additional precautionary measures.

When transiting right whale critical habitat during right whale calving season:

(149) As soon as possible prior to entering right whale critical habitat, check Coast Guard Broadcasts Notice to Mariners, NAVTEX, and other sources for recent right whale sighting reports.

(150) To the extent possible, review right whale identification materials and maintain a sharp watch with lookouts familiar with spotting whales.

(151) If a right whale is reported within 20 nautical miles of a ship's position within the previous 24 hours, mariners should exercise caution and proceed at a safe speed, bearing in mind that reduced speed may minimize the risk of ship strikes. Consult with local pilots for additional precautions.

(152) Whenever practical, minimize travel distances through the critical habitats.

(153) When the ability to spot whales is reduced (e.g. night, fog, rain, etc.), mariners should bear in mind that reduced speed may minimize the risk of ship strikes.

(154) Local ships' pilots may also provide additional information on the location of right whales and local safe vessel operating procedures.

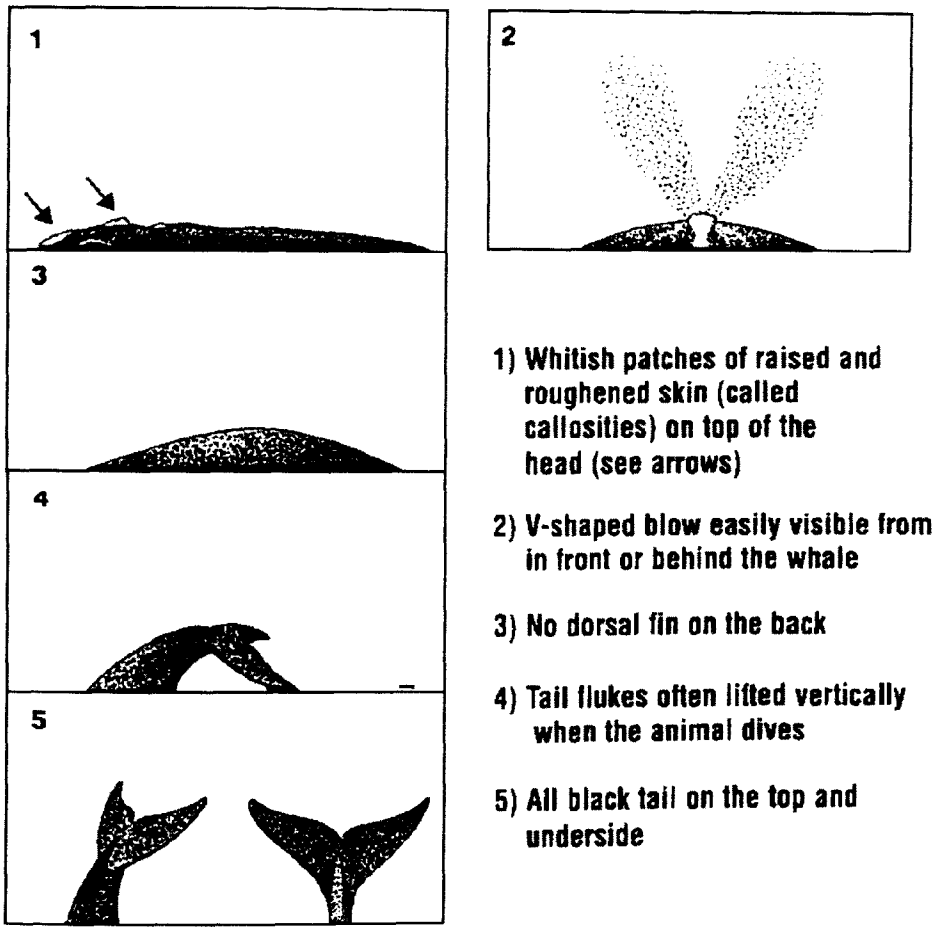
In all coastal and offshore waters along the east coast:

(155) If a right whale sighting is reported within 20 nautical miles of a ship's position, post a lookout familiar with spotting whales.

(156) If a right whale is sighted from the ship, or reported along the intended track of a large vessel, mariners should exercise caution and proceed at a safe speed within a few miles of the sighting location, bearing in mind that reduced speed may minimize the risk of ship strikes.

(157) When planning passage along the southeast coast attempt to avoid transit through right whale critical habitat during calving

Northern right whale



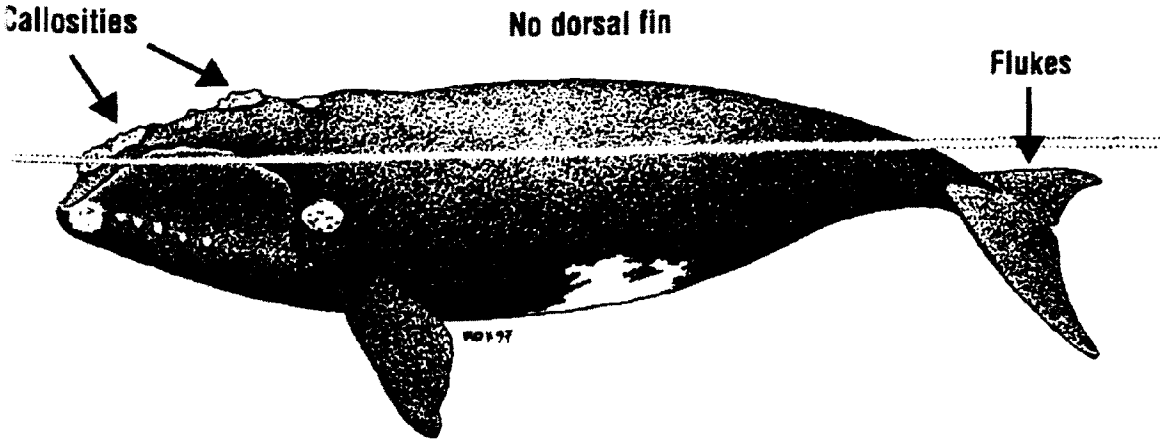
1) Whitish patches of raised and roughened skin (called callosities) on top of the head (see arrows)

2) V-shaped blow easily visible from in front or behind the whale

3) No dorsal fin on the back

4) Tail flukes often lifted vertically when the animal dives

5) All black tail on the top and underside



season by remaining offshore, and plan to minimize travel distances through the critical habitat when entering or leaving port.

(158) Do not assume right whales will move out of your way. Right whales are generally slow moving and seldom travel faster than 5-6 knots. Consistent with safe navigation, maneuver around observed right whales or recently reported sighting locations. It is illegal to approach closer than 500-yards of any right whale (see **50 CFR 222.32**, chapter 2 for limits, regulations and exceptions).

(159) Any whale accidentally struck, any dead whale carcass, and any whale observed entangled should be reported immediately to the Coast Guard noting the precise location, date, and time of the accident or sighting. In the event of a strike or sighting, the following information should be provided to the Coast Guard:

(160) location, date, and time of the accident or sighting or of a carcass or entangled whale,

(161) speed of the vessel,

(162) size of the vessel,

(163) water depth,

(164) wind speed and direction,

(165) description of the impact,

(166) fate of the animal, and

(167) species and size, if known.

(168) Right whales can occur anywhere along the east coast. Therefore, mariners are urged to exercise prudent seamanship in their efforts to avoid right whales.

(169) **Mandatory Ship Reporting Systems (WHALESNORTH and WHALESSOUTH)**, Mandatory Ship Reporting (MSR) systems require all vessels, 300 gross tons or greater, to report to the U.S. Coast Guard prior to entering two designated reporting areas off the east coast of the United States. (See **33 CFR 169**, chapter 2, for limits and regulations.) Sovereign immune vessels are exempt from the requirement to report, but are encouraged to participate.

(170) The two reporting systems will operate independently of each other. The system in the northeastern United States will operate year round and the system in the southeastern United States will operate each year from November 15 through April 15. Reporting ships are only required to make reports when entering a reporting area during a single voyage (that is, a voyage in which a ship is in the area). Ships are not required to report when leaving a port in the reporting area nor when exiting the system.

(171) Vessels shall make reports in accordance with the format in IMO Resolution A.858 (20) in accordance with the International Convention for the Safety of Life at Sea 1974 (SOLAS 74). (See 33 CFR 169.135 and 169.140, chapter 2, for additional information.) Vessels should report via INMARSAT C or via alternate satellite communications to one of the following addresses:

(172) Email: RightWhale.MSR@noaa.gov or Telex: 236737831

(173) Vessels not equipped with INMARSAT C or Telex should submit reports to the U.S. Coast Guard's Communication Area Master Station Atlantic (CAMSLANT) via narrow band direct printing (SITOR) or HF voice. Vessels equipped only with VHF-FM voice communications should submit reports to the nearest U.S. Coast Guard activity or group.

(174) Example Reports:

(175) **WHALESNORTH** - To: RightWhale.MSR@noaa.gov

(176) WHALESNORTH//

(177) M/487654321//

(178) A/CALYPSO/NRUS//

(179) B/031401Z APR//

(180) E/345//

(181) F/15.5//

(182) H/031410Z APR/4104N/06918W//

(183) I/BOSTON/032345Z APR//

(184) L/WP/4104N/06918W/15.5.//

(185) L/WP/4210N/06952W/15.5//

(186) L/WP/4230N/07006W/15.5//

(187) **WHALESSOUTH** - To: RightWhale.MSR@noaa.gov

(188) WHALESSOUTH//

(189) M/412345678//

(190) A/BEAGLE/NVES//

(191) B/270810Z MAR//

(192) E/250//

(193) F/17.0//

(194) H/270810Z MAR/3030N/08052W//

(195) I/MAYPORT/271215Z MAR//

(196) L/RL/17.0//

(197) **Inside Navigation.**–Navigation on the waterways covered by this volume requires a knowledge of the channel conditions and other factors restricting navigation. General items of interest to the vessel operator are indicated in the paragraphs that follow; details are given in the text.

(198) **Speed.**–Regulations are given in **162.65**, chapter 2.

(199) **Bends or Curves.**–In the Intracoastal and adjoining waterways there are many sharp bends which are dangerous to vessels meeting or passing. On approaching a bend, a vessel should reduce speed sufficiently to be able to stop within half the distance to a ship coming from the opposite direction. Under no circumstances should a vessel attempt to overtake and pass another at a bend. Even with sufficient view of the channel ahead and after proper exchange and understanding of signals, the overtaken vessel may suddenly sheer from current action. This is even more pronounced with larger vessels and tows.

(200) **Crosscurrents.**–Where two streams cross, the current will have a greater velocity in the deeper channel. This is noticeable along the Intracoastal Waterway where it follows a dredged canal cutting across a winding stream. Crosscurrents will also be noticed where either an inlet from the ocean or a drainage canal enter the waterway.

(201) Crosscurrents are especially strong at New River Inlet and Bogue Inlet, N.C. Failure to allow for cross currents when passing these and other inlets is the cause of many rescue calls to the Coast Guard.

(202) **Spoil banks.**–Nature quickly covers her scars. This is true of the spoil banks made by dredging. In the northern areas when awash these banks are often covered by grass, while in the southern areas they are covered by bushes and sometimes fairly large trees.

(203) **Water hyacinth** is a floating freshwater plant which infests numerous streams tributary to the South Atlantic and Gulf coasts. It has bright green leaves and a purple flower. It propagates from seeds and suckers, spreads quickly in most localities, and may cause complete suspension of navigation if not removed. The hyacinths form in mats or jams and float around driven by the wind or current. In open water these mats often resemble small islands. At times some of the bays and tributaries may be changed in appearance because of hyacinth jams. Where the water is apt to be brackish, an attempt can be made to force a boat through the mat. In doing so, however, care should be taken that any logs that might

be floating in the weeds are not struck with force enough to damage the hull. Snakes may also be found on the hyacinth mats. The work of removing this growth is undertaken by the various Corps of Engineers districts and the State of Florida by the processes of spraying, cutting, and the use of booms.

(204) **Mangrove.**–Three distinct types of mangrove are found in the southern section of this area. Yellow or white mangrove grows to a height of about 4 feet and is found principally on the sand flats in front of the fast land. Along the shores of Biscayne Bay, the red mangroves commonly grow to a height of 20 to 30 feet, with occasional stands 40 to 50 feet tall along the mainland coast south of Miami. Along the shores of Florida Bay, red mangroves generally grow 10 to 15 feet tall, but occasionally grow to 25 feet. They are rooted in water most of the time. Black mangrove grows on sand ridges and higher ground which cover only at very high water or storm tides. The black mangrove sometimes grows to a height of 50 to 60 feet.

(205) **Stumps and sunken logs.**–Reports are frequently made that vessels have struck shoals or rocks in rivers which have later proved to be stumps or sunken logs. Mariners are warned against navigating too close to the banks of streams where submerged stumps are known or may be expected to exist.

(206) **Hurricane moorings.**–On receiving advisory notice of a tropical disturbance small boats should seek shelter in a small winding stream whose banks are lined with trees, preferably cedar or mangrove. Moor with bow and stern lines fastened to the lower branches; if possible snug up with good chafing gear. The knees of the trees will act as fenders and the branches, having more give than the trunks, will ease the shocks of the heavy gusts. If the banks are lined only with small trees or large shrubs, use clumps of them within each hawser loop. Keep clear of any tall pines as they generally have shallow roots and are more apt to be blown down.

(207) **Manatees.**–The West Indian Manatee is a marine mammal protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. These acts make it illegal to harass, hunt, capture, or kill any marine mammal. The manatee is a large slow-moving herbivorous animal that resembles a blunt-nosed, stubby-flippered seal. These animals mainly inhabit the waters of Florida, although they have been sighted from south Virginia around the Gulf coast to Texas. They are quite docile and have no natural enemies, but are an endangered species, mostly because collisions with boat propellors cause a large number of deaths each year. In the winter, manatees move from the cooler waters of the Atlantic Ocean and the Gulf of Mexico and congregate, sometimes in large numbers, in warmer freshwater rivers and streams and near the cooling water discharge outlets of powerplants. It is during these high concentration periods that most manatee deaths occur.

(208) The Florida Manatee Sanctuary Act has been established to regulate motorboat speeds and operations in critical areas of manatee concentration between November 15 and March 31. The **regulated zones** are marked by large reflective signs. In these zones, boat operators must reduce their speed to "slow" or "idle", and no person shall intentionally or negligently annoy, molest, harass, disturb, collide with, injure, or harm manatees. Copies of the regulations are available from the Florida Department of Natural Resources, Division of Marine Resources, 3900 Commonwealth Blvd., Tallahassee, FL 32399. **Regulated zones** within the area covered by this Coast Pilot are in the St. Johns River at the confluence with Blue Springs Run; in the Caloosahatchee River from San Carlos Bay to the Edison Memorial Bridge (U.S. 41); in the Orange River and at its confluence with Caloosahatchee River; in Turkey Creek off Indian River; in the Indian River from St. Lucie Inlet to Jupiter Inlet and in the vicinity of powerplants at Delespine, Frontenac, Vero Beach, and Fort Pierce; in Lake Worth in the vicinity of the powerplant at Rivera Beach, the entire Port Everglades turning basin west of the line between Light 11 and Light 12 and south along the Intracoastal Waterway through and including the Dania Cut-off Canal.

(209) The U.S. Fish and Wildlife Service has established **regulated zones** within the Merritt Island National Wildlife Refuge to protect the large number of manatees that occupy these waters from April through mid-November. "Idle speed" and/or "slow speed/minimum wake" areas are in Haulover Canal, Bairs Cove on the southeast side of Haulover Canal, Banana Creek at the north end of Merritt Island, and in the channel and basin at the Kennedy Athletic and Recreation Society marina on the west side of Banana River 1.5 miles north of Canaveral Barge Canal. The area on the east side of Banana River immediately south of the NASA Parkway is closed to all motorized craft from April 1 through November 14 annually. The **regulated zones** are well marked by signs that indicate the speed limit. The regulations are contained in **50 CFR 26** (not carried in this Coast Pilot). Maps delineating the **regulated zones** are available from the Merritt Island National Wildlife Refuge, P.O. Box 6504, Titusville, Fla. 32780.

(210) **Tides.**–On the outer coast the mean range of tide increases from 2.8 feet at Cape Henry to 5.9 feet at Edisto Beach. In the sounds and rivers south to Florida the range is generally greater, reaching 8.0 feet or more at some locations. Along the east coast of Florida the average tide range is about 2.5 feet, and in the Florida Keys the ranges vary from 0.2 feet to 2.4 feet. (See Tide Tables for more detailed information.)

(211) **Currents.**–It appears that, except during northerly and northeasterly winds, a current of about 0.5 knot average velocity, setting northeastward with the trend of the coast, may be expected outside the 10-fathom curve between Cape Canaveral and Cape Hatteras. Farther offshore the velocity of the northeastward flow increases as the axis of the Gulf Stream is approached.

(212) Strong currents are produced by the wind along the coast during northeasterly and southerly gales, reversing or greatly increasing the normal current. Their velocity and direction depend upon the direction, strength, and duration of the wind. (See the Tidal Current Tables for detailed information.)

(213) The **Gulf Stream System** is the most famous of the principal ocean currents. The name was first used by Benjamin Franklin in 1769. In general, as the swift current of the Gulf Stream issues into the sea through Straits of Florida, its waters are characterized by a deep blue color, high-salinity, high temperature in the upper stratum, and presence of phosphorescence. Except near shoals where waves may stir up bottom sediments, Gulf Stream water is very clear, enabling visual penetration to unusually great depths. At its junction with coastal seawater, the edges may frequently be recognized in moderate weather by ripples, as well as by the difference in color. Northward, in the cooler regions, the evaporation from its surface, when the temperature of the air is lower than that of the water, is apparent as "sea smoke." In addition, the stream may carry with it some **Gulf weed** (Sargassum), which is olive brown, branched seaweed with berrylike air vessels.

(214) The upstream extent of the Gulf Stream System can be traced to the Yucatan Strait where a well-established current enters the Gulf of Mexico. The current in the Gulf of Mexico is called the **Loop Current.** The position of the Loop Current is quite variable, but there is some evidence of a cyclical pattern of about 290 days. The Loop Current begins with a short flow pattern protruding into the Gulf of Mexico, then it slowly builds up, gradually protruding northward and westward into the Gulf and reaching as far as 28°N and 90°W before shedding a large warm ring. The remaining Loop Current has a shortened flow path and begins the process anew. The large detached warm ring will drift about 1.5 miles per day west to southwestward into the western Gulf of Mexico where it will eventually dissipate. Gulf of Mexico warm rings average about 120 miles in diameter. The warm ring has a clockwise flow with a maximum current close inside its periphery of 0.5 to 1.5 knots.

(215) After entering the Straits of Florida between Cuba and the Florida Keys, the Gulf Stream System's path becomes much more stable. The major variation of the current from off Key West to off Little Bahama Bank appears to be a meandering of the axis of the current within the narrow confines of the Straits. The current within the Straits and slightly to the north is frequently referred to as the **Florida Current.**

(216) Shortly after emerging from the Straits of Florida, the Gulf Stream is joined by the **Antilles Current,** which flows northwesterly along the open ocean side of the West Indies. The Antilles Current, like the Gulf Stream, carries warm, highly saline waters of clear indigo blue. The union of the two currents gives rise to a broad and deep current possessing about the same characteristics as the Florida Current except that the velocity is somewhat reduced. The Gulf Stream from the Florida Straits flows northward, then northeastward, paralleling the general trend of the 100-fathom contour up to Cape Hatteras. From 32°N to Cape Hatteras the stream shows some lateral meandering which does not generally exceed one stream width, or about 40 miles.

(217) Beyond Cape Hatteras the Gulf Stream flows eastward away from the coast and into much deeper water. As it moves into progressively deeper water, the stream is subject to increased meandering which can have as large a north-south extent as 270 miles. The wavelike meanders of the stream propagate eastward at speeds of about 3 to 5 miles per day. These meanders occasionally shed detached current rings or eddies which are found north and south of the stream and which are respectively warmer and cooler than the surrounding waters. Rings are generally formed east of 65°W.

(218) Warm rings average about 70 miles in diameter and are found north of the stream between it and the continental shelf. Warm rings rotate in a clockwise direction with a maximum flow of about 1.6 knots located about 2/3-3/4 from the center of the eddy. Warm rings generally move about 1.5 miles per day westward after formation in the region between the stream and the continental shelf to about 70°W. From 70°W the rings generally move southwestward along the continental shelf and eventually are absorbed into the stream near Cape Hatteras. Many warm rings are absorbed by the stream well before they reach Cape Hatteras. About 20 warm rings are formed each year and average about a 20-week life cycle. Cold rings average about 60 miles in diameter and are found south of the stream in the Sargasso water region. Cold rings rotate in a counterclockwise direction with a maximum flow of about 1.6 knots located 2/3-3/4 from the center. Cold ring velocities can be significantly higher than 1.6 knots. Cold rings tend to move about 1.5 miles per day southwestward after formation and are eventually absorbed back into the Gulf Stream. About 20 cold rings are formed each year and average about a 1.5 year life cycle.

(219) Eastward of the Grand Banks of Newfoundland, the whole surface is slowly driven eastward and northeastward by the prevailing westerly winds to the coastal waters of northwestern Europe. For distinction, this broad and variable wind-driven surface movement is sometimes referred to as the **North Atlantic Drift.**

(220) On its western or inner side, the Gulf Stream is separated from the coastal waters by a zone of rapidly falling temperature, to which the term **north wall (west wall** from Georgia south) has been applied. The abrupt change in the temperature of the waters separated by the north wall (west wall) is frequently very striking and is a definite indication of the edge of the stream. It is most clearly marked north of Cape Hatteras but extends, more or less well defined, from the Straits of Florida to the Grand Banks of Newfoundland. In the vicinity of the Grand Banks, the north wall represents the dividing line between the warm current of the Gulf Stream and the cold waters of the **Labrador Current,** which according to observations, turns sharply, between 42°-43°N and 51°-52°W, and flows parallel to the Gulf Stream.

(221) Throughout the whole stretch from the Florida Keys to past Cape Hatteras the stream flows with considerable velocity. Characteristic average surface speed is on the order of 2.5 knots, increasing to about 4.5 knots off Cape Florida where the cross sectional area of the channel is least. These values are for the axis of the stream where the current is a maximum, the speed of the stream decreasing gradually from the axis as the edges of the stream are approached. The axis of the stream is estimated to be about 3-15 miles seaward of the north wall. Both the speed and position of the axis of the stream fluctuate from day to day, hence description of both position and speed are averages.

(222) Crossing the stream at Jupiter or Fowey Rocks, an average allowance of 2.5 knots in a northerly direction should be made for the current.

(223) Crossing the stream from Habana, a fair allowance for the average current between 100-fathom curves is 1 knot in an east-northeasterly direction.

(224) A vessel bound from Cape Hatteras to Habana, or the Gulf ports, crosses the stream off Cape Hatteras. A fair allowance to make in crossing the stream is 1 to 1.5 knots in a northeasterly direction for a distance of 40 miles from the 100-fathom curve.

(225) Earlier systematic observations on the Gulf Stream dealt with the temperature of the water rather than its motion, and the axis was taken to be along the line of highest temperature obtained. Later the axis was taken to mark the line of greatest velocity. Ordinarily it is assumed that these two axes coincide, but this is by no means certain. The thermometer, although it indicates the limits of the stream in a general way, is therefore only an approximate guide to the velocity of the currents.

(226) The lateral boundaries of the current within the Straits of Florida are fairly well fixed, but as the stream crosses 32°N its eastern boundary becomes somewhat vague. On the western side the limits can be defined approximately since the waters of the stream differ in color, temperature, salinity, and flow from the inshore coastal waters. On the east, however, the Antilles Current combines with the Gulf Stream so that its waters here merge gradually with the waters of the open Atlantic. Observations of

the National Ocean Service indicate that, in general, the average position of the inner edge of the Gulf Stream from the Straits of Florida to Cape Hatteras lies inside the 100-fathom curve.

(227) At the western end of the Straits of Florida the limits of the Gulf Stream are not well defined. Between Fowey Rocks and Jupiter Inlet the inner edge lies very close to the shoreline.

(228) Along the Florida Reefs between Alligator Reef and Dry Tortugas the distance of the northerly edge of the Gulf Stream from the edge of the reefs gradually increases toward the westward. Off Alligator Reef it is quite close inshore, while off Rebecca Shoal and Dry Tortugas it is possibly 15 to 20 miles south of the 100-fathom curve. Between the reefs and the northern edge of the Gulf Stream the currents are ordinarily tidal and are subject at all times to considerable modification by local winds and barometric conditions. This neutral zone varies in both length and breadth; it may extend along the reefs a greater or lesser distance than stated, and its width varies as the northern edge of the Gulf Stream approaches or recedes from the reefs.

(229) **Location of the Gulf Stream.**–The approximate position of the Gulf Stream for various regions is shown on the following NOS charts: 11013, Straits of Florida; 411, South Carolina to Cuba; 11460, Cape Canaveral to Key West; 11420, Alligator Reef to Habana. Chart 11009 shows the axis and the position of the inner edge of the Gulf Stream from Cape Hatteras to Straits of Florida.

(230) Up-to-date information on the location, width, and maximum surface temperature of the Gulf Stream System is available in a variety of ways. Such information is broadcast by NOAA Weather Radio stations from Key West, Florida, to Cape Hatteras, North Carolina. The times of these broadcasts and their formats vary from station to station, but in general, all give the distance to the inshore edge of the Stream with reference to a navigational light or buoy, the width of the Stream when that is known, and the maximum temperature. This information is derived largely from infrared satellite imagery, and it is unfortunately not available during the warmer summer months south of about Jupiter Inlet. (See Appendix for a list of NOAA Weather Radio stations.)

(231) For ships in port or with telecopy equipment, an analysis of the Gulf Stream System from the central Gulf of Mexico to Cape Hatteras which includes an estimated location of the maximum current is prepared on Mondays, Wednesdays, and Fridays by Tropical Storm Analysis Center, National Weather Service, NOAA, 1320 South Dixie Highway, Coral Gables, Fl 33146, 305-665-4707. These analysis are available to anyone with a telecopy receiver compatible with a Group 3 compatible automatic telecopier by simply telephoning 305-661-0738.

(232) An analysis of the Gulf Stream System from the western Gulf of Mexico to Cape Hatteras (South Panel) and from Cape Hatteras to Nova Scotia (North Panel) is prepared by Ocean Products Center, National Ocean Service, NOAA, World Weather Building, 5200 Auth Road, Washington, DC 20233, 301-763-8294.

(233) The North Panel is generated on Mondays, Wednesdays, and Fridays, while the South Panel is generated on Tuesdays and Thursdays. A subscription to these analysis is available upon application, to Satellite Data Services Branch, National Environmental Satellite, Data, and Information Service, World Weather Building, Room 100, 5200 Auth Road, Washington, DC 20233, 301-763-8111. These analysis are available via Xerox Model 410 automatic telecopier by telephoning 301-899-1139. They are also transmitted by KWX, Lewes, DE, via radiofax on 4223 kHz at 0645Z and 1845Z. Contact National Weather Service Forecast Office, Washington, DC, at 301-763-8088 or 8239, to ascertain any changes to the above telecopier and radiofax schedules.

(234) **Wind-driven currents** are very complicated. Their velocities and directions depend upon a number of factors such as the velocity, direction, and duration of the wind, the proximity of the coast and the direction of the coastline. Generally in the Northern Hemisphere the wind-driven current sets somewhat to the right of the wind, but in coastal waters there are many exceptions to this general rule, the current often setting to the left of the wind, due to the tendency of the current to follow the direction of the coastline or to other local conditions.

(235) The velocity of the wind current relative to that of the wind also varies with the locality. (See the Tidal Current Tables for information on wind-currents.)

(236) **Weather.**–From hurricanes to "Nor'easters" these coastal waters are plagued with potential weather hazards year-round. The Gulf Stream, local currents and numerous shoals complicate matters. The following text describes the weather problems that face the mariner. The individual chapters contain information on local weather hazards. Government radio stations that transmit weather information and National Weather Service offices are listed in the appendix. Climatological tables for coastal locations and ocean areas, compiled from ship observations, follow the appendix. This text was produced by the National Oceanographic Data Center.

(237) Coastal Warning Display locations are listed on NOS charts and shown on the Marine Weather Services Charts published by the National Weather Service. The Marine Weather Services Charts, which also show radio stations that transmit marine weather broadcasts and additional information of interest to mariners, are available from National Ocean Service, Distribution Branch (N/CG33). (See Appendix for address).

(238) **Extratropical Cyclones.**–One of the more frequent weather features the mariner encounters along the coast is the winter storm or "Nor'easter." These Extratropical systems can develop in any month. Their size can vary from an insignificant wave along a front to a gigantic circulation that covers most of the western North Atlantic. Winds can reach hurricane force and seas of 40 feet (12 m) and more have been encountered. While these storms are usually well forecasted they can develop or deepen explosively, particularly off Cape Hatteras, over the Gulf Stream, giving rise to the term "Hatteras Storms."

(239) These winter storms, present in all months, are most frequent and intense from November through March. December, January and February are the heart of the season, when an average of four to six storms per month roam these waters. Many systems develop in the Gulf of Mexico, move across central or northern Florida, then up the East Coast. Some of the most intense storms have developed early and late in the season. In March 1962 a slow moving, late winter coastal storm combined with spring tides and wrought tremendous destruction from Florida to New England. Persistent northeasterlies and a long fetch raised spring tides to near record levels and generated high seas in the open ocean. Several ships were caught, including a tanker which broke in two off Cape Hatteras. During the Veterans Day storm in November 1968 a ship near Ocracoke Inlet ran into 35-foot seas in 60-knot winds.

(240) In March 1993, the "Storm of the Century", a slow moving late winter coastal storm, combined with spring tides and

wrought tremendous destruction from Florida to New England. From hurricane-type storm surge and winds along the upper Gulf Coast of Florida to record snowfalls in the southern and central Appalachians and a first-time-ever interruption of air travel at every airport east of the Mississippi, the March 1993 extra tropical low pressure system will be a storm long remembered.

(241) **Cold Fronts.**–These, often sharp, boundaries between relatively warm air ahead and cold air behind usually approach this coast from the west through north. Ahead of the front, winds are usually squally and often blow out of the south through southwest. Cirrus clouds give way to Altocumulus or Altostratus and Nimbostratus, then Cumulonimbus. Pressure falls moderately and showers, and perhaps thunderstorms, occur. Seas become choppy. With the frontal passage winds shift rapidly to the west and northwest. Strong gusts and squalls continue. Clearing usually occurs a short distance behind the front as the cold air moves in. Cold fronts can move through the northern part of the area quite rapidly. Their speeds vary from about 10 to 20 knots in summer up to 40 knots in winter. Often, cold fronts remain north of this coast. Their frequency decreases with latitude. During the winter season strong arctic and polar outbreaks occasionally push southward to Florida and in rare instances cold fronts reach the Florida Keys. In other seasons these outbreaks are not strong enough to reach the southern part of this coast.

(242) During the spring and summer when the air ahead of the cold front may be very unstable, a line of thunderstorms, known as a squall line, may develop. These instability lines can form 50 to 300 miles (93 to 555 km) ahead of a fast moving front. They may even contain tornadoes or waterspouts. These storms can inflict considerable damage on fishing vessels and small craft.

(243) **Tropical Cyclones.**–A tropical cyclone is a warm core, low pressure system that develops over tropical oceans. It exhibits a rotary, counterclockwise circulation in the Northern Hemisphere around a center or "eye." In small tropical cyclones the diameter of the area of destructive winds may not exceed 25 miles (46 km) while in the greatest storms the diameter may reach 500 miles (925 km). At the center is a comparatively calm, sometimes clear, area known as the eye. The diameter of the eye can vary from about 5 to 25 miles (9 to 46 km). Winds are usually strongest near the center. They can reach 175 knots or more in an intense hurricane. In the North Atlantic Region (West Indies, Caribbean Sea, Gulf of Mexico and waters off the U.S. east coast) the following terminology is used in tropical cyclone warnings issued by the National Hurricane Center (National Weather Service):

(244) (1) Tropical Depression. A tropical cyclone in which the maximum sustained surface wind (1-minute mean) is 33 knots or less.

(245) (2) Tropical Storm. A tropical cyclone in which the maximum sustained surface wind (1-minute mean) ranges from 34 knots to 63 knots.

(246) (3) Hurricane. A tropical cyclone in which the maximum sustained surface wind (1-minute mean) is 64 knots or more.

(247) While the following term is not normally used in tropical cyclone advisories it may appear in related products.

(248) Tropical Wave–A minor cyclonic circulation in the easterly tradewinds, which could develop into a tropical depression but lacks evidence of a closed circulation; also known as easterly wave.

(249) With the advances in observations through satellite, a hybrid storm, called a subtropical cyclone, has been discovered. The character of this storm lies between the tropical and Extratropical cyclone. It is often short lived and dissipates without developing beyond the depression stage. Those that intensify occasionally change character and become tropical storms or hurricanes. While subtropical they are designated as a depression or storm (no upper wind limit) similar to tropical systems.

(250) Along the coast greater damage may be inflicted by water than by wind. Prolonged winds blowing toward shore can increase water levels from about 3 to 10 feet (1 to 3 m) above normal. This storm tide may begin when the tropical cyclone center is 500 miles (925 km) or more away. It gradually increases until the winds change direction. On top of this the low pressure in the storm's center can create a ridge or wall of water known as a surge. This will move in the direction of the storm's movement and can be disastrous. The effect may be similar to that of a tsunami (seismic sea wave) caused by earthquakes in the ocean floor. Storm surges can push these tides to 20 feet (6 m) or more above normal. About 3 or 4 feet (.9 or 1.2 m) of this is due to the decrease of atmospheric pressure and the rest to the strong winds. Additional water damage results from the pounding of sea and swell. Torrential rains, generated by tropical cyclones, can cause both flash floods and river floods from inland rains.

(251) **Tropical cyclone climatology.**–In an average season nine or ten tropical cyclones develop and five of these reach hurricane strength; about two hurricanes reach the U.S. While they may develop in any month, June through November is generally considered the tropical cyclone season, with a peak in August, September and October. Early and pre-season storms, from May through mid-July, are most likely to originate in the western Caribbean Sea and Gulf of Mexico. From mid-July through late September this development is spread through the main basin of the tropical Atlantic and a much more persistent westerly movement is noticeable. From late September through November, activity gradually confines itself to the Caribbean and Gulf of Mexico. A northerly movement, similar to early season storms, becomes more apparent. However, because of the large reservoir of heat available at the end of the season, these storms are often more intense than their early season counterparts.

(252) The most common path is curved, the storms first moving in a general westward direction, turning later to the northwestward and finally toward the northeast. A considerable number, however, remain in low latitudes and do not turn appreciably toward the north. Freak movements are not uncommon, and there have been storms that described loops, hairpin-curved paths, and other irregular patterns. Movement toward the southeast is rare, and, in any case, of short duration. The entire Caribbean area, the Gulf of Mexico, the coastal regions bordering these bodies of water, and the Atlantic coast are subject to these storms during the hurricane season.

(253) The average speed of movement of tropical cyclones is about 10 to 15 knots. This speed, however, varies considerably according to the storm's location, development, and the associated surface and upper air patterns. The highest rates of speed usually occur in the middle and higher latitudes and range up to 40 to 50 knots. Storms are slowest during recurvature or when looping. They can also become stationary in the absence of steering currents.

(254) **Hurricane Warnings and Forecasts.**–The civilian hurricane warning service for the North Atlantic is provided by the National Hurricane Center/Tropical Prediction Center, Miami, Florida. They collate ship, aircraft, radar and satellite data to produce and issue tropical cyclone warnings and forecasts for the

North Atlantic Ocean, including the Caribbean Sea and Gulf of Mexico. The principal product is the Tropical Cyclone Advisory message especially tailored for marine, aviation, military and public interests. They are issued every 6 hours with intermediate bulletins provided when needed.

(255) For tropical storms and hurricanes threatening to cross the coast of the U.S., coastal warnings are issued to the public by the National Hurricane Center through local Hurricane Warning Offices in order that defense against damage, and perhaps evacuation, can be implemented. Two levels of warnings are employed. The "Hurricane Watch" is a preliminary alert that a hurricane may threaten a specified portion of the coast. It is issued approximately 36 hours before landfalls could occur. The second level is the "Hurricane Warning", which indicates that hurricane conditions are expected within 24 hours in advance of landfall. It is aimed at providing the best compromise between timeliness and accuracy for civil defense purposes so that its warning may be too late to allow ocean-going vessels to get underway and complete a successful evasion in open water. To compensate for this, the Marine Advisory contains additional guidance in the form of probabilities of hurricane strikes, for coastal locations and even offshore coordinates, and storm position forecasts for up to 72 hours in advance.

(256) **Hurricane Havens.**–The text for this section has been condensed from the **Hurricane Havens Handbook for the Atlantic Ocean** published by the Naval Environmental Prediction Research Facility at Monterey, Calif. The navigation information may be applied to extratropical cyclones as well. Summaries for individual ports, where available, can be found in the appropriate chapters. The complete publication is available through the National Technical Information Service, Springfield, Virginia 22161 (http://www.ntis.gov).

(257) The classical doctrine held by most mariners is that ocean-going ships should leave ports that are threatened by a hurricane. Despite this natural caution, ships continue to be damaged in port or after leaving port, as a result of tropical cyclone encounters. This often stems from the difficulty in forecasting tropical cyclone movement, although these forecasts have improved significantly in the past two decades. In addition to evaluating the forecast it is necessary to assess the risks of remaining in port or putting to sea according to the circumstances of the threat, the facilities of the port and the capabilities of the vessel and crew. For an evaluation as to a course of action several factors are important. The risk of a particular port experiencing a hurricane is often dependent on seasonal and geographic influences. Forecasts of hurricane movements are more reliable in some areas, particularly the lower latitudes. In the midlatitudes where storms are often recurving, the difficulty increases. It is important to know the sheltering capabilities of the port that is being considered and the speed of advance of tropical cyclones in the latitudes that you may be sailing. When the tropical cyclone speeds approach or exceed vessel speed, options become limited.

(258) Large changes in the balance of these factors that may affect a leave/stay decision are evident all along the Atlantic coast. At Charleston, S.C. for example the threat of a hurricane is moderate as is the average forecast error. The speed of storm advance is relatively low for both average and extreme values. These factors suggest a relatively low risk of damage at sea if an evasion is executed as early as possible. Ports in the Mayport area have the potential of being fairly good hurricane havens despite their conspicuous lack of shelter, because of the rarity of serious hurricane threats and the prospects of a safe escape to sea when needed; this is due to the low speeds of advance of near-coastal storms and relatively low forecast error. Two ports with a high risk of hurricane threats, Key West and Morehead City, show a large contrast in the remaining leave/stay decision factors. Hurricanes at Key West appear predictable and easy to evade at sea. However, the combination of unpredictability and relatively high speed of advance of near-coastal storms affecting North Carolina, marks Morehead City as a less secure port to occupy during the hurricane season than Key West, and one from which evasion at sea carries a higher risk of damage.

(259) In the northeast, certain ports have the potential to offer good hurricane haven qualities because of the low risk of a hurricane threat in conjunction with topographic shelter. In addition the risk of misjudging the threat, due to relatively large forecast errors, is considerable. Furthermore, the risk of sustaining damage in attempting to evade at sea is increased by the usually, fast-moving storms. This combination should encourage mariners in this region to regard evasion at seas as a last resort.

(260) Along the U.S. Gulf of Mexico coast there is a reduced flexibility in evasion options created by the shape of the Gulf. This biases the leave/stay decision in favor of an early departure, which effectively reduces the accuracy of the threat prediction. The large range of possible speeds of storms affecting the coast from Pensacola to New Orleans should encourage even earlier departure. The net result is that Gulf ports should be considered "high risk" ports similar to Key West and Morehead City. Additionally, local factors in the Gulf area further diminish the security of many ports. For example, the strong impact of the storm surge, in many places, leads to the closure of ports due to sudden silting of their long, dredged approach channels.

(261) A sudden unexpected change in the speed or direction of movement of a tropical cyclone, or a change in its intensity, may call for a hasty departure from port in deteriorating weather.

(262) However, limitations in manpower, port tug facilities or the state of readiness of the ship's machinery will increase the risk of the vessel being damaged during departure. Furthermore, the chances of gaining sufficient sea room in heavy weather to avoid damage after leaving port, are also decreased. The odds for preventing serious damage to the vessel in these circumstances, swing in favor of using the resources available to secure the ship firmly to her berth. These measures should include laying anchors into the channel or basin to hold her away from the pier or wharf face. This is particularly important in preventing damage to both vessel and pier if storm tides flood the wharf. These tidal effects will require lines to the pier to be tended until the hurricane threat is well passed. Certain merchant vessels may also consider ballasting down if the bottom at the berth is likely to be clear of obstacles. Under pressure of these circumstances, proceeding to anchor or moor is a less attractive alternative unless both the resources to accomplish the move safely and the assurance of an authenticated hurricane mooring or anchorage, are available.

(263) Of the 81 tropical cyclones that threatened Cape Hatteras (came within 50 nautical miles (93 km)) during the period 1842-1995, 67 occurred during the months of August, September, and October. As with the entire Atlantic basin, the main threat is in September. Due to the location of the Cape, its' extension out into the Atlantic from the mainland, the predominate direction from which storms arrive is from the South or Southeast. Since 1950, 32 storms have come within 50 nm (93 km) of the

Cape. Perhaps the two most memorable storms of recent times are hurricane Donna in 1960 and hurricane Gloria in 1985. Donna, in September 1960, came ashore near Morehead City with highest sustained winds of 95 knots and passed about 50 nm miles (93 km) west of Cape Hatteras while maintaining that intensity. Gloria passed directly over the Cape on September 27, 1985 with 90-knot winds. The maximum wind at Cape Point was 64 knots.

(264) Of the 60 tropical cyclones that threatened Charleston during the period 1842-1995, 46 occurred during the months August, September, and October. By far the greatest threat is in September. The predominate direction from which the storm arrives is from the Southwest and usually has weakened greatly since making initial landfall along the Gulf Coast and crossing several hundred miles (>450 km) of land. Since 1950, 23 storms have come within 50 nm (93 km) of Charleston. Perhaps the two most memorable storms of recent times are hurricane David in 1979 and hurricane Hugo in 1989. David came ashore near Savannah Beach, Georgia and raked the Charleston area with gusts of 85 knots. Ten years later, Hugo came ashore at Sullivans Island, just north of Charleston, with peak winds of 120 knots. Downtown Charleston reported winds of 76 knots with gusts to 94 knots while the airport had sustained winds of 68 knots with gusts to 85 knots. The maximum one-minute wind at Bulls Bay, near the point of impact, was estimated in excess of 120 knots.

(265) Of the 59 tropical cyclones that threatened Daytona Beach during the period 1842-1995, 47 occurred during the months August, September, and October. By a narrow margin, the greatest occurrence is in September. The predominate direction from which the storm arrives is from the South or Southwest. Since 1950, 22 storms have come within 50 nm of Daytona Beach. Hurricane Donna is likely the most memorable storm to effect the Daytona Beach area in recent memory. On September 11, 1960, Donna crossed the central Keys moving to the northwest and abruptly turned northward crossing the southwest Florida coast near Naples. From there, Donna continued north-northeastward, up the spine of the peninsula, moving back out over open water north of Daytona Beach. The maximum wind at landfall was estimated near 135 miles per hour (60 m/s) with gusts to 150 miles per hour (67 m/s) and winds were still 90 miles per hour (40 m/s) by the time the storm reached the Daytona Beach area.

(266) Of the 58 tropical cyclones that threatened Miami during the period 1842-1995, 52 occurred during the months August, September, and October. At this latitude, along with the proximity of the Caribbean Sea and much warmer water, October is the most likely month of occurrence. The predominate direction from which the storm arrives is from the south or southeast. Since 1950, 24 storms have come within 50 nm of Miami. Hurricane Cleo in 1964 and Hurricane Andrew in 1992 are likely the most noteworthy storms to affect Miami in recent memory. Hurricane Cleo was a very small storm and did little damage. It passed near Miami on August 27, 1964. It is perhaps most noteworthy due to it's punch. Maximum winds were 110 miles per hour (49 m/s) with gusts to 135 miles per hour (60 m/s). Hurricane Andrew passed just south of Miami on August 24, 1992. Andrew goes on record as being the storm having the third lowest air pressure at landfall of any storm in U.S. history. Andrew ravaged Homestead, Florida, in the early morning hours of August 24 with winds in excess of 150 knots on a path that took it across south Florida in four hours. Andrew ranks as the most costly natural disaster to date for the United States.

(267) **Tropical cyclones at sea.**–Few experiences rival that of encountering a full blown hurricane at sea. However, even if there were no transmitted advisories, nature provides its own tropical warnings. Several days before its arrival, the hurricane heralds its existence. Swells that were passing the ship at ten to fifteen per minute increase in length and now pass at about two to five per minute. The direction from which they arrive marks the relative bearing of the storm. A second rough fix may be obtained by adding 115° (Northern Hemisphere) to the direction from which the wind is blowing. Another indicator is the barometer. In the tropics there is a normal rise and fall of barometric pressure with the high points at about 1000 and 2100 LST. When the storm is 500 to 1,000 miles (925 to 1850 km) away the barometer may rise slightly and then a pumping action may begin. When it starts a steady fall, activity is brewing. When the storm is about 300 to 600 miles (555 to 1110 km), away white, fibrous, cirrus clouds ("mare's tails") appear in a nearly cloudless sky. These seem to converge in the direction from which the storm is approaching, particularly at sunrise and sunset. The barometer continues to fall. The cirrus gives way to a veil of cirrostratus followed by altostratus, then stratocumulus. Mist-like rain is interrupted by an occasional shower as the barometer drops about 4 millibars. Winds become gusty and increase to about 22 to 40 knots. On the horizon appears a dark wall of heavy cumulonimbus, the bar of the storm. Portions of this cloud occasionally break off and drift across the sky accompanied by gusty rain squalls. As the bar approaches, from the direction of the storm's center, the barometer falls more rapidly. Windspeeds increase. Seas become steeper. Squall lines sweep past in ever-increasing number and intensity. The arrival of the bar is accompanied by dark skies, nearly-continuous squalls, a steep-falling barometer and rapidly increasing winds. The hurricane center may still be 100 miles (185 km) away. As the center approaches, winds whip through the superstructure. Seas become mountainous. Wave tops are blown off to mingle with torrential rain that fills the air with water. Visibility drops to near zero. Survival becomes the prime consideration.

(268) The eye brings a sudden drop in winds. Rain stops and skies may clear enough to see the sun. Mountainous seas approach from all sides. The barometer reaches its lowest point which may be 50 to 100 millibars below normal. As the wall cloud on the opposite side of the eye arrives, the full fury of the storm returns as suddenly as it ceased, with winds blowing from the opposite direction. The sequence of conditions is reversed and passes more quickly as the circulation is usually smaller in the rear of the storm.

(269) **Maneuvering for a tropical cyclone.**–Knowledge is the most important aid when a tropical cyclone is threatening. It is vital to know the storm's position, intensity, projected movement and how to react to this information. By plotting the center as provided in the warnings, possibly even adjusting its position with a radar fix or local signs, its position in relation to the vessel can be determined.

(270) Shipboard radar provides the mariner with an advantage and if radio-facsimile charts are available the advantage is even greater. The mariner is even more fortunate if his ship has the appropriate satellite receiving-recorder, either facsimile or photographic, to position the cloud patterns of the storm as it moves. If,

despite warning systems and forecasts, a storm catches up with the ship, prepare for the worst.

(271) There are three major schools of thought concerning ship handling in hurricanes. They may be described as active, passive and defensive:

(272) Active: Take an evasive course and get out of the storm.

(273) Passive: Shut down and wallow.

(274) Defensive: Just maintain steerageway, keeping the wind and seas either off the bow or the quarter.

(275) The course of action will depend on the size and intensity of the storm, the nature and condition of the ship, the proximity to shoal water, and other factors which can only be determined by the master. While the vessel can still make considerable way through the water, a course should be selected to take it as far as possible from the center. If the vessel can move faster than the storm, it is a relatively simple matter to outrun the storm if sea room permits. But when the storm is faster, the solution is not as simple. In this case, the vessel, if ahead of the storm, will pass closer to the center. The problem is to select a course that will produce the greatest possible minimum distance. This is best determined by means of a relative movement plot.

(276) In the Northern Hemisphere, that part of the circulation to the right of the storm track (facing in the direction toward which the storm is moving) is called the dangerous semicircle. It is considered dangerous because (1) the actual wind speed is greater than that due to the pressure gradient alone, since it is augmented by the forward motion of the storm, and (2) the direction of the wind and sea is such as to carry a vessel into the path of the storm (in the forward part of the semicircle). The circulation to the left of the storm track is known as the navigable semicircle, where the wind is slowed by the storm's motion and vessels are pushed away from the path. Seas are usually lower in this portion. In an ideal situation the following general guidelines could be used:

(277) **Right or dangerous semicircle.**–Bring the wind broad on the starboard bow (045° relative), hold course, and make as much way as possible. If obliged to heave to, do so with head to the sea.

(278) **Left or navigable semicircle.**–Bring the wind onto the starboard quarter (135° relative), hold course, and make as much way as possible. If obliged to heave to, do so with stern to the sea.

(279) **On storm track, ahead of center.**–Bring the wind two points abaft the starboard quarter (157½° relative), hold course, and make as much way as possible. When well within the navigable semicircle, maneuver as indicated above.

(280) **On storm track, behind center.**–Avoid the center by the best practical course, keeping in mind the tendency of tropical cyclones to curve northward and eastward.

(281) If the storm maintains its direction and speed, the ship's course should be maintained as the wind shifts. In all cases, one should be alert to changes in the direction of movement of the storm center, particularly in the area where the track normally curves toward the north.

(282) If it becomes necessary for a vessel to heave to, the characteristics of the vessel should be considered. A ship is concerned primarily with damage by direct action of the sea. A good general rule is to heave to with head to the sea in the dangerous semicircle or stern to the sea in the navigable semicircle. This will result in the greatest amount of headway from the storm center, and the least amount of leeway toward it. If a vessel handles better with the sea astern or on the quarter, it may be placed in this position in the navigable semicircle or in the rear half of the dangerous semicircle; movement should be slow. It has been reported that when the wind reaches hurricane speed and the seas become confused, some ships ride out the storm best if the engines are stopped, and the vessel is permitted to seek its own position. In this way, it is said, the ship rides with the storm instead of fighting against it.

(283) In a sailing vessel, while attempting to avoid a storm center, one should steer courses as near as possible to those prescribed above for power vessels. However, if it becomes necessary for such a vessel to heave to, the wind is of greater concern than the sea. A good general rule always is to heave to on whichever tack permits the shifting wind to draw aft. In the Northern Hemisphere this is the starboard tack in the dangerous semicircle and the port tack in the navigable semicircle.

(284) **Waves.**–In early March of 1980 a series of frontal atmospheric waves moved across Florida from the Gulf of Mexico. One persisted until it reached the Gulf Stream where it deepened rapidly into a powerful extratropical storm as it headed east-northeastward. Off Cape Hatteras three ships reported 40-foot seas (12 m) while several others encountered wave heights of 25 to 35 feet (8 to 11 m). The National Data Buoy Center's buoy 41001 (35.0°N., 72.0°W.) recorded a maximum wave height of 33 feet (10 m). Extra tropical and tropical cyclones are responsible for potentially similar conditions in the deep waters off this entire coast year-round. Fortunately these situations are infrequent. However, it has been calculated that in an average 5-year period, significant wave heights of 40 to 50 feet (12 to 15 m) and extremes of 70 to 90 feet (21 to 27 m) are possible. These figures decrease with latitude (40 feet and 70 feet (12 and 21 m) off southern Florida.)

(285) The table below (extracted from Marine Weather of Western Washington, Kenneth E. Lilly, Jr., Commander, NOAA, Starpath School of Navigation, 1983), shows the relationship between significant and other wave heights.

Wave Heights from Significant Wave Heights (SWH)	
Most frequent wave heights:	0.5 x SWH
Average wave heights:	0.6 x SWH
Significant wave height (average height of highest 33%)	1.0 x SWH
Height of highest 10% of the waves:	1.3 x SWH
One wave in 1,175 waves:	1.9 x SWH
One Wave in 300,000 waves:	2.5 x SWH

(286) This table can be used to project a range of wave heights that might be expected in deep water. If significant wave heights of of 10 feet (3 m) are forecast then the most frequently observed waves should be in the 5 to 6 foot (2 to 3 m) range while one wave in 100 should reach 17 feet (5 m). A giant or rogue wave might reach 25 feet (8 m) in these circumstances. These rogue or "Killer" waves occur when the large number of different waves that make up a sea occasionally reinforce each other. This action creates a wave that is much steeper and higher than the surrounding waves. These rogue waves often occur in a stormy sea and are described by mariners who have experienced them, as coming out of nowhere and disappearing just as quickly. If significant wave heights are observed at 20 feet (6 m) then a rogue wave could reach 50 feet (15 m) if the water depth could support it.

(287) In general, sea conditions are roughest from about October through March or April. Seas of 8 feet (>2 m) or more can be expected along deep water coastal routes north of Florida about 15 to 30 percent of the time and 5 to 15 percent of the time off Florida.

(288) Steep waves are often more dangerous than high waves with a gentle slope. Waves appear menacing when the ratio of wave height to length reaches about 1/18. They begin to break when this ratio is about 1/10. Steepest waves develop when strong winds first begin to blow or early in a storm's life. The ship no longer rides easily but is slammed. Steep waves are particularly dangerous to small craft. When wave heights are greater than 5 feet (1.5 m), periods of less than 6 seconds can create problems for boats under 100 feet (30 m) in length. Waves of 10 feet (3 m) or more with periods of 6 to 10 seconds can affect comfort in vessels 100- to 200-feet (30 to 60 m) in length and provide a rough ride for larger ships.

(289) Waves moving into shallow water become steeper and break when the depth is about 1.3 times the wave height. Areas such as Diamond Shoals and Mantilla Shoal are dangerous in heavy weather as are most of the inlets along this coast. Wave steepness is also increased by tidal currents, particularly when they oppose the wind.

(290) Swells can create problems for larger vessels. About one-half of the waves of 10 feet (3 m) or more, in these waters, are swells from distant storms. They are uncomfortable to ships that roll or pitch in sympathy. Swells with 500- to 1,000 foot (152 to 305 m) wave lengths affect ships of these lengths. When steaming into such swells a resonance is set up until the bow digs into the waves. The resulting pitch will cause more of a power loss than a roll caused by a sea. Swells with wave lengths that range from about three-fourths to twice the ship's length can have this effect. Pitching is heaviest when the ship's speed produces synchronism between the period of encounter and the ship's natural pitching period. This often occurs at or near normal ship speeds.

(291) When running before a following sea the greatest danger arises when your speed is equal to that of the waves or when the waves overtake the ship so slowly that an almost static situation is created with the vessel lying on the wave crest. In this latter case, stability is so reduced that a small vessel could capsize. Waves on the quarter or astern can also result in very poor steering quality. As seas move along the vessel from aft to forward the rudder is less effective and the boat may be slewed across the face of a sea filling the decks with water as she broaches. She could lose her stability and capsize, particularly if the boat is trimmed by the head.

(292) The Gulf Stream not only affects the winds of coastal storms but modifies waves by their interaction with the currents. This interaction is enhanced in the North Wall, a narrow, horizontal band of extreme water temperature change marking the north edge of the Gulf Stream. The North Wall also indicates the region where strong northeasterly currents will be encountered; they reach a maximum value 10 to 20 miles (19 to 37 km) farther into the Gulf Stream. Particularly during February and March, when water temperature gradients are steepest to the north, a coastal storm may draw cold Arctic air across the slope water and along the coast to Cape Hatteras by strong northeasterly winds. An 18° to 20°F (10° to 11°C) jump in water temperature occurs creating highly unstable air and increased surface winds with more gustiness and turbulence. Higher waves are generated by the windspeed increase and these waves are likely to be more confused due to the turbulence. In addition to this wave height increase, more serious changes in the wave characteristics are produced by the currents. Northeasterly seas encounter opposing currents of from 3 to 5 knots and, as is commonly observed in inlets when incoming waves encounter an ebbing tide, the result is sharply increased wave heights and much steeper wave slopes. If the opposing current is sufficiently strong the waves will even break. This steepening action causes problems for small craft navigating inlets with waves only a few feet high; with 20- to 30-foot (6 to 9 m) waves the result may be dangerous to any ship. To avoid this problem it is suggested that in late winter and spring cross the Gulf Stream as far east as possible, where it is likely that the cold air would have modified somewhat and thus reduce the instability effect.

(293) **Visibilities.**–Visibilities are generally good throughout the year, particularly offshore south of Charleston. Fog is the principal restriction to visibility. Onshore and along the coast this is often a radiation type fog, which forms shortly after sunset on cool, calm, clear nights. These fogs generally do not extend any great distance seaward, but may seriously restrict harbor activities. They often burn off during the morning hours. Sea fogs occasionally drift onshore on hot summer days, persisting for many hours in a shallow layer along the coast. Foggy conditions vary widely at coastal locations depending upon exposure. In general, the number of days that visibilities fall to ¼ mile or less, ranges from 20 to 40 days annually, north of Cape Canaveral. These conditions are most likely from October through April.

(294) West of the Gulf Stream sea fog may occur over cooler waters when warm air is brought in from the south. These conditions are most likely over coastal waters from Norfolk to Charleston during January, February and March. During these months visibilities drop below ½ mile on 1 to 5 percent of all ship observations. Conditions are worst from Cape Henry to Cape Hatteras. In addition to fog, precipitation occasionally reduces visibility over both land and water while haze and smoke sometimes restrict it over land.

(295) **Winds.**–Along most of the southern Atlantic Coast, winds are determined by migratory high and low pressure systems; in summer the semipermanent Azores High is an important factor. Most of the Florida coast lies in the easterly trade wind system at least part of the year. Other influences include the Appalachian Mountains and local coastal topography. Strongest winds are generated by the tropical and Extratropical low pressure systems and cold fronts. Locally, thunderstorms can cause short periods of strong, gusty winds.

(296) In the offshore waters, gales are most likely from October through April. North of about 30°N., along the coastal routes, they can be expected 5 to 10 percent of the time. Winds are variable although those with northerly and westerly components are most frequent. To the south, gale frequencies drop off to about 5 percent or less, decreasing with latitude; south of 30°N., winds in the 22- to 33-knot range are encountered about 10 to 15 percent of the time. Winds are variable but southwesterlies through northeasterlies are common. Easterlies become increasingly frequent south of Jacksonville. Summer winds in offshore waters are steadier but weaker, mainly due to the dominance of the Azores High. North of 30°N., southerlies and southwesterlies prevail. Gales are infrequent and even windspeeds in the 22- to 33-knot range occur less than 10 percent of the time. South of Jacksonville, easterlies and southeasterlies predominate with average speeds of about 8 to 10 knots. It isn't usually until late Sep-

tember, when the Azores High recedes, accompanied by an increase in migratory pressure systems, that winds become stronger and more variable.

(297) Coastal winds are more complex due to topographical influences and the land-sea breeze effect. Along the coast a daily shift in wind direction is often observed. During the warmest part of the day winds blow from the ocean toward shore (known as a sea breeze), and during the coolest, from the land toward the sea (land breeze). Offshore winds, unless they are exceptionally strong, are generally considered most favorable for coastal navigation. Onshore winds have a more pronounced effect upon the surface, particularly when they have been blowing from the same direction for a long period of time. A strong sea breeze can cause heavy or choppy seas and swells, and frequently makes navigation difficult for small vessels.

(298) Windspeeds along the southeastern coast of the U.S. are generally moderately light, averaging 8 to 12 knots over the year. Monthly averages vary in summer from 6 to 10 knots and 8 to 15 knots in winter. Wide departures from these averages should be expected in all seasons. In the immediate coastal area, the windward side of the promontories may be lashed by gales and heavy seas, while the lee side is relatively protected. Averages do not show these variations. The area from Cape Hatteras to Cape Henry, exposed as it is to the ocean, is subject to severe northeasterly ocean storms as well as migratory continental pressure systems. Cape Hatteras is particularly exposed to the winds, with open sea from north through east to southwest. South of Cape Hatteras gales are much less frequent, occurring generally on less than 15 days annually. The frequency of calms is dependent upon season, exposure, and time of day. They are least frequent during the afternoon when they occur less than 5% of the time along the entire southeastern Atlantic coast; in many locations calms are recorded less than 2% of the time. During the morning hours, particularly in summer and fall, they occur 5 to more than 15% of the time. Calms are least frequent at Cape Hatteras. Daytona Beach records the largest range in July, August and September, when morning calms occur about 25% of the time, compared to less than 2% of the time during the afternoon.

(299) Extreme windspeeds are a hazard in any month. Though winds greater than 34 knots are infrequent, they have been recorded all along the southeastern U.S. coast almost any time of the year. Gales usually accompany sharply defined frontal systems, tropical storms, hurricanes and severe local thunderstorms.

(300) **Temperature.**–The temperature regime of the southern Atlantic coast varies from temperate in the north to subtropical in the south. The gradation from north to south is regular, increasing with decreasing latitude. Another interesting variation is the general modification process of the ocean and coastal temperatures by each other. Along the coast, sheltered land stations have warmer summers and cooler winters than stations with greater exposure to the water.

(301) Temperatures along the southeastern seaboard region are conducive to a long season of small-craft operation. The southern Atlantic coast annual mean air temperatures range from 59.5°F (15.3°C) at Norfolk, VA, to 77.7°F (25.4°C) at Key West, FL. January is the coldest month at most stations; July the warmest. Mean monthly air temperatures range from 39.9°F (4.4°C) at Norfolk in January to 84.5°F (29.2°C) at Key West in July.

(302) Over the water the coldest month is February and the warmest is August. Exposed coastal stations experience mean air temperatures more like those over the water. The daily variation in temperature ranges from 10° to 17°F (5.6° to 9.5°C) at coastal stations throughout the year and is less over the water. The largest daily variation occurs during the winter and early spring and the smallest during late summer and fall.

(303) Very little data on extreme temperatures for the ocean areas are available. At coastal stations temperatures above 100°F (37.8°C), while not common, have been recorded. The highest during the period of record considered was 105°F (40.6°C) at Jacksonville, FL, in July. The lowest recorded temperature was 5°F (-15°C) at Norfolk, VA, in January.

(304) **Precipitation.**–Along the southeastern Atlantic coast precipitation is moderately heavy, averaging about 45 to 60 inches (1,143 to 1,524 mm) a year. Monthly departures may be large in any individual year, but over a long period of record, a fairly uniform pattern prevails. Since the area is within both temperate and subtropical regions, the precipitation pattern shows differences in both type and amount from north to south. Irregularities are often due to differences of exposure at the observing stations. Year-to-year variation is caused by overall departures from the average, general circulation.

(305) In the northern part of the area, maximum rainfall occurs normally during July and August, with a minimum in November. In the southern section, however, maximums occur in September or October, and the least in February. Average monthly totals at most stations range from 2 to 6 inches (51 to 152 mm) throughout the year. During the months of greatest hurricane frequency, excessive rains of 9 to 15 inches (229 to 381 mm) in a 24-hour period have recorded. These may occur at any point along the coast, but are most common in the southern part of the area.

(306) The monthly mean number of days with 0.01 inch (0.254 mm) or more of precipitation in the northern part of the area ranges from about 8 days per month in the fall to 10 to 12 days per month in the summer and winter. In the central part of the area the most rainy days are in summer, 11 to 16 days per month, and the least in spring and fall, 6 to 9 days per month. The most rainy days along the Florida coast, 14 to 18 days per month, generally occur in late summer and early fall, and the minimum number, 5 to 8 days per month, from February through April.

(307) Much of the precipitation, like cloudiness, is associated with cyclonic activity throughout the year. During the winter, precipitation is usually steady, but may come with an occasional thunderstorms along a front. Frontal systems originating or developing in the Gulf region result from the interaction of a moist tropical air mass with colder continental masses. They move eastward or northeastward and bring extensive precipitation to the seaboard region. During the summer, when the area is dominated by the Azores High and cumulus clouds predominate, precipitation is localized and is showery in nature. Heaviest precipitation occurs over land and near coastal waters in the afternoon; over open water it is most likely during the night.

(308) Thunderstorms along the coast occur on an average of from 40 days per year in the north to 80 days per year in the south. Maximum occurrence is from June through August, and an average of 7 to 18 thunderstorms per month occur during this season. In summer, cumulus clouds frequently develop into thunderstorms over the land and drift seaward late in the afternoon.

(309) Snow falls from December through March in the northern part of the area on 1 or 2 days per month. So far as coastal operations are concerned, snow conditions are not significant since most of the area is entirely free from snow the year-round.

(310) **Cloudiness.**–Mean cloudiness over the area is moderate to moderately high throughout the year, averaging from 35 to 65

percent sky cover. In general, however, the cloudiest month is January in the northern sections and over most of the water areas, and may be any month from June through September in the south. At most locations in the north the least cloudiness occurs in October, and in the extreme southern part in February or March. Since the air is usually moist, only a small decrease in temperature may cause condensation and cloud formation. At the edge of the warm, northward moving Gulf Stream and the cool southward moving countercurrent which skirts the shore from Cape Hatteras, N.C. to Jacksonville, Fla., sharp contrasts in temperatures result in the formation of heavy stratus clouds which may appear very much as a cold front. These clouds may persist for days at a time if the wind is light and may be carried inland by northeasterly winds. Such cloudiness is common during the spring when the gradient between shore water and Gulf Stream temperatures are steepest. The fact that maximum cloudiness for the year occurs during the winter at the northern coastal stations may be explained by the maximum frequency of storms passing northward or northeastward from the central or south-central section during the season. These rarely affect the extreme southern part of the area.

(311) Much of the cloudiness over the entire area is of the cumulus type, resulting from either the unstable conditions that accompany cyclonic activity in all seasons, or the general air mass instability during the summer. Such clouds frequently form over land during the day and drift seaward at night.

(312) **Immersion Hypothermia.**–Immersion hypothermia is the loss of heat when a body is immersed in water. With few exceptions, humans die if their normal rectal temperature of approximately 99.7°F drops below 78.6°F. Cardiac arrest is the most common direct cause of death. Except in tropical waters warmer than 68° to 77°F, the main threat to life during prolonged immersion is cold or cold and drowning combined.

(313) Cold lowers body temperature, which in turn slows the heartbeat, lowers the rate of metabolism, and increases the amount of carbon dioxide in the blood. Resulting impaired mental capacity is a major factor in death by hypothermia. Numerous reports from shipwrecks and accidents in cold water indicate that people can become confused and even delirious, further decreasing their chances of survival. The length of time that a human survives in water depends on the water temperature and, to a lesser extent, on a person's behavior. The table below shows the approximate human survival time in the sea. Body type can cause deviations, since thin people become hypothermic more rapidly than fat people. Extremely fat people may survive almost indefinitely in water near 32°F if they are warmly clothed.

Survival Time versus Water Temperature

Water Temperature	Exhaustion or Unconsciousness	Expected Time of Survival
32°F	15 min.	15-45 min.
32°-41°F	15-30 min.	30-90 min.
41°-50°F	30-60 min.	1-3 hrs.
50°-59°F	1-2 hrs.	1-6 hrs.
59°-68°F	2-7 hrs.	2-40 hrs.
68°-77°F	3-12 hrs.	3 hrs. - indef.
77°F and above	indefinite	indefinite

(314) The cooling rate can be slowed by the person's behavior and insulated gear. In a study which closely monitored more than 500 immersions in the waters around Victoria B.C., temperatures ranged from 39° to 60°F. Using this information it was reasoned that if the critical heat loss areas could be protected, survival time would increase. The Heat Escape Lessening Posture (HELP) was developed for those in the water alone and the Huddle for small groups. Both require a life preserver. HELP involves holding the upper arms firmly against the sides of the chest, keeping the thighs together, and raising the knees to protect the groin area. In the Huddle, people face each other and keep their bodies as close as possible. These positions improve survival time in 48°F water to 4 hours, approximately two times that of a swimmer and one and one-half times that of a person in the passive position. The U.S. Coast Guard has an easy to remember rule of thumb for survival time: 50 percent of people submersed in 50°F water, will die within 50 minutes.

(315) Near-drowning victims in cold water (less than 70°F) show much longer periods of revivability than usual. Keys to a successful revival are immediate cardiopulmonary resuscitation (CPR) and administration of pure oxygen. Don't bother with total rewarming at first. The whole revival process may take hours and require medical help. Don't give up!

(316) **Wind Chill and Frostbite.**–When the body is warmer than its surroundings it begins to lose heat. The rate of loss depends on barriers such as clothing and insulation, the speed of air movement and the air temperature. Heat loss increases dramatically in moving air that is colder than skin temperature (91.4°F). Even a light wind increases heat loss while a strong wind can actually lower the body temperature if the rate of loss is greater than the body's heat replacement rate.

(317) The equivalent wind chill temperature relates a particular wind and temperature combination to whatever temperature would produce the same heat loss at about 3 knots, the normal speed of a person walking. At extremely cold temperatures, wind and temperature effect may account for only two-thirds of the heat loss from the body. For example, in 40°F temperatures about one-third of the heat loss from the body occurs through the lungs in the process of breathing. On the other hand, heat loss is not as great in bright sunlight.

(318) When the skin temperature drops below 50°F, there is a marked constriction of the blood vessels leading to vascular stagnation, oxygen want, and some cellular damage. The first indication that something is wrong is a painful tingling. Swelling of varying extent follows, provided freezing has not occurred. Excruciating pain may be felt if the skin temperature is lowered rapidly, but freezing of localized portions of the skin may be painless when the rate of change is slow. Cold allergy is a term applied to the welts which may occur. Chilblains usually affect the fingers and toes and appear as reddened, warm, itching, swollen patches. Trench foot and immersion foot present essentially the same picture. Both result from exposure to cold and lack of circulation. Wetness can add to the problem as water and wind soften the tissues and accelerate heat loss. The feet swell, discolor, and frequently blister. Secondary infection is common and gangrene may result.

(319) Injuries from the cold may, to a large extent, be prevented by maintaining natural warmth through the use of proper footgear and adequate, dry clothing; by avoiding cramped positions and constricting clothing; and by active exercise of the hands, legs and feet.

(320) Frostbite usually begins when the skin temperature falls within the range 14 to 4°F. Ice crystals form in the tissues and small blood vessels. Once started, freezing proceeds rapidly and may penetrate deeply. The rate of heat loss determines the rate of freezing, which is accelerated by wind, wetness, extreme cold, and poor blood circulation. Parts of the body most susceptible to freezing are those with surfaces large in relation to their volume, such as toes, fingers, ears, nose, chin and cheeks.

(321) **Dew Point.**–The temperature at which condensation to water droplets occurs is called the dew point. If this dew point is above freezing, condensation will be in the form of water. When the dew point reaches freezing, ice crystals will be deposited on cold surfaces. Knowledge of the dew point along the cargo temperature and moisture content is vital for hold ventilation decisions. It is also a parameter used in forecasting fog formation.

(322) **Cargo Care.**–When free air has a dew point temperature higher than the temperature of the surface with which it comes in contact, the air is often cooled sufficiently below its dew point to release moisture. When this happens on board ship, condensation will take place on relatively cold cargo or on the ship's structure within the hold where it later drips onto the cargo. Thus, if cargo is stowed in a cool climate and the vessel sails into warmer waters, ventilation of the hold with outside air will likely lead to sweat damage in any cargo sensitive to moisture. Under such conditions external ventilation should, as a rule, be closed off entirely, unless the cargo generates internal heat, that hazard being greater than sweat damage. In the opposite case, when a vessel is loaded during a warm period, and moves into cooler weather, vulnerable cargo should be ventilated.

(323) A safe rule for ventilation directed toward moisture control may be stated as follows: Whenever accurate measurements show the outside air has a dew point below the dew point of the air surrounding the cargo to be protected, such outside air is capable of removing moisture from the hold and the ventilation process can be safely started. Whenever the reverse is true, and the outside dew point is higher than the dew point temperature around the cargo, then ventilation will increase the moisture content of the hold and may readily result in sweating within the ship. The above does not take into account possible fumes or gases in the compartment. In such case discretion must be used.

(324) **Principal ports.**–The ports within the area of this Coast Pilot which have deep-draft commercial traffic are Morehead City, N.C.; Wilmington, N.C.; Georgetown, S.C.; Charleston, S.C.; Port Royal, S.C.; Savannah, Ga.; Brunswick, Ga.; Fernandina Beach, Fla.; Jacksonville, Fla.; Port Canaveral, Fla.; Fort Pierce, Fla.; Port of Palm Beach (near West Palm Beach), Fla.; Port Everglades (Fort Lauderdale), Fla; Miami, Fla.; and Key West, Fla. The larger ports of the group are Wilmington, Charleston, Savannah, Jacksonville, Port Everglades, and Miami. Jacksonville is the largest port on the east coast south of Hampton Roads and is a major ship repair center.

(325) **Pilotage, general.**–Pilotage is compulsory for all foreign vessels and U.S. vessels under register in the foreign trade at the ports where state pilots are available. Pilotage is optional for coastwise vessels who have on board a pilot properly licensed by the Federal Government. Only at Wilmington, Charleston, Savannah, and Jacksonville is there a pilot station which is manned 24 hours daily; at the other ports, arrangements for pilots must be made well in advance. Detailed information on pilotage procedures is given in the text for the ports concerned.

(326) Local boatmen or fishermen competent to act as pilots for parts of the Intracoastal Waterway and interior waters can usually be found at the larger cities and towns along the route or near the entrances to the various tributaries.

(327) **Towage.**–Tugs are available at most of the major ports; they can usually be obtained for the smaller ports on advance notice if none are available locally. Arrangements for tugs should be made in advance through the ships' agents or the pilots. See the text for the ports concerned as to the availability of tugs.

(328) **Vessel Arrival Inspections.**–Quarantine, customs, immigration, and agricultural quarantine officials are stationed in most major U.S. ports. (See Appendix for addresses.) Vessels subject to such inspections generally make arrangements in advance through ships' agents. Unless otherwise directed, officials usually board vessels at their berths.

(329) **Harbormasters** are appointed for some of the principal ports. They have charge of enforcing harbor regulations, and in some instances are in charge of the anchorage and berthing of vessels.

(330) **Supplies.**–Fuel oil, diesel oil, and all other supplies and services for large vessels are available at Morehead City, Wilmington, Charleston, Savannah, Jacksonville, Port Everglades, and Miami. Fuel oil and diesel oil are available locally, or can be barged or trucked in from another port, at Georgetown, Port Royal, Brunswick, Fernandina Beach, Fort Pierce, Port of Palm Beach, and Key West; other supplies and services for ships are limited at these ports.

(331) **Repairs.**–Large oceangoing vessels can be drydocked and have major repair work done at Cainhoy (Near Charleston), Savannah and Jacksonville with the largest drydock capacity of 33,000 tons (Jacksonville). Smaller vessels from 300 to 1,200 tons may also be drydocked at New Bern, Wilmington, Johns Island, Mayport, Miami, and at Safe Harbor. (See text for details.)

(332) **Small-craft facilities.**–Supplies, and repair facilities for small craft are at all the ports and at numerous places along the Intracoastal Waterway and on the tributaries branching from it. For isolated places and small cities, the Coast Pilot describes the more important of these facilities; for large port areas, where individual facilities are too numerous to mention, the information given is more general. Additional information may be obtained from the series of small-craft charts published for the many places, and from various local small-craft guides.

(333) **A vessel of less than 65.6 feet (20 meters) in length or a sailing vessel shall not impede the passage of a vessel that can safely navigate only within a narrow channel or fairway. (Navigation Rules, International-Inland Rule 9(b).)**

(334) **Standard time.**–The area covered by this Coast Pilot uses eastern standard time (e.s.t.), which is 5 hours slow of Greenwich mean time (G.m.t.). Example: When it is 1000 at Greenwich it is 0500 along this coast.

(335) **Daylight saving time.**–Throughout the area of this Coast Pilot, clocks are advanced 1 hour on the first Sunday in April and are set back to standard time on the last Sunday in October.

(336) **Legal public holidays.**–New Year's Day, January 1; Martin Luther King, Jr.'s Birthday, third Monday in January; Washington's Birthday, third Monday in February; Memorial Day, last Monday in May; Independence Day, July 4; Labor Day, first Monday in September; Columbus Day, second Monday in October; Veterans Day, November 11; Thanksgiving Day, fourth Thursday in November; and Christmas Day, December 25. The national holidays are observed by employees of the Federal Gov-

ernment and the District of Columbia, and may not be observed by all the states in every case.

(337) In the areas covered by this Coast Pilot, other holidays are observed: Lee-Jackson Day, third Monday in January, in Virginia; Robert E. Lee's Birthday, January 19, in all states except Virginia; Arbor Day, third Friday in January, Florida; Good Friday, Florida; Easter Monday, North Carolina; April 2, Pascua Florida Day, Florida; April 12, Halifax Day, North Carolina; April 14, Pan American Day, Florida; April 26, Confederate Memorial Day, Georgia and Florida; May 10, Confederate Memorial Day, North Carolina and South Carolina; May 20, Mecklenburg Day, North Carolina; June 3, Jefferson Davis' Birthday, South Carolina, Georgia, and Florida; General Election Day, first Tuesday after the first Monday in November, all states.

4. CAPE HENRY TO CAPE LOOKOUT

(1) **Charts 12200, 11520.**–This chapter describes a 190-mile section of the Virginia and North Carolina coastline between Cape Henry and Cape Lookout, known as The Outer Banks, and the series of sounds and tributary waters behind the banks through which the Intracoastal Waterway passes from Chesapeake Bay southward. The Outer Banks, a line of long, low, and narrow islands, include the Portsmouth Islands, the uninhabited Core Banks, and Bodie, Hatteras, and Ocracoke Islands, parts of which comprise the Cape Hatteras National Seashore. The Intracoastal Waterway is described in chapter 12.

(2) There are no deepwater ports along this stretch of the coast. Oregon, Hatteras, and Ocracoke Inlets provide the main entrances to the shallow, sandy-bottom waters behind The Outer Banks. These inlets are used principally by fishing vessels.

(3) Discussed in this chapter are the waters of Albemarle Sound and its tributaries Little, Perquimans, Chowan, and Roanoke Rivers, and the towns of Hertford, Edenton, and Plymouth; Croatan and Roanoke Sounds, Roanoke Island, and the towns of Kitty Hawk, Nags Head, Manteo, and Wanchese; Pamlico Sound and the towns of Rodanthe, Avon, Buxton, Hatteras, and Ocracoke which are on the western side of The Outer Banks; Pamlico River and the towns of Swanquarter, Bath, and Washington; Neuse River and the town of New Bern; and Core Sound, Cedar Island, and the towns of Atlantic, Sealevel, Davis, and Marshallberg. These ports and waters support considerable traffic in barges and pleasure craft, and a large fishing and boatbuilding industry.

(4) There are many off-lying shoals and other hazards along this coast including Diamond Shoals and Cape Lookout Shoals. Deep-draft vessels should give these dangers a wide berth.

(5) Many **restricted** and **danger areas** are located offshore and in the inland waters. (See **165 and 334**, chapter 2 for rules and regulations.)

(6) The low sandy beaches of the coastline do not present any good radar targets. However, four Navy-maintained offshore towers, 16 to 32 miles east to northeast of Oregon Inlet, are reported to be prominent and to be good radar targets. The towers, each 72 feet high and marked by lights and fog signals, are in about

(7) 35°57'00"N., 75°15'58"W.;

(8) 36°13'35"N., 75°15'01"W.;

(9) 36°03'53"N., 74°58'59"W.; and

(10) 35°47'11"N., 75°05'42"W.

(11) **The Traffic Separation Scheme at the entrance to Chesapeake Bay is described in United States Coast Pilot 3, Atlantic Coast–Sandy Hook to Cape Henry.**

(12) **COLREGS Demarcation Lines.**–The lines established for this part of the Virginia and North Carolina coasts are described in **80.515 and 80.520**, chapter 2.)

(13) **Weather, Cape Henry to Cape Lookout and vicinity.** This stretch of coast is subject to strong winds and rough seas from both tropical and extratropical storms and occasionally to dense, spring, sea fog which hugs coastal routes landward of the Gulf Stream. Rough weather and numerous shoals have combined to give the seas off the Outer Banks the reputation of "Graveyard of the Atlantic."

(14) Winter (November through April) provides the greatest likelihood of rough weather, due to the frequent extratropical storms. Fueled by the Gulf Stream, about 3 to 6 storms per month affect these waters. Their predominant movement is toward the northeast or east at 25 to 30 knots. Not all of these systems are severe weather producers, but, in winter, gales blow about 5 percent of the time near Diamond Shoals and up to 10 percent to the east and northeast. From December through March, seas of 8 feet (2.4 m) or more are encountered about 20 to 25 percent of the time near Diamond Shoals and even more often to the east. Conditions improve somewhat in other directions. Maximum wave heights have been estimated at more than 40 feet (12 m). Steep waves of 5 feet or more (1.5 m) with periods of less than 6 seconds are uncommon. However, those of 5 feet or more (1.5 m) with 6- to 9-second periods occur about 30 percent of the time creating problems for vessels in the 100- to 400-foot (31 to 122 m) range. Winter storms also produce rain and snow which can hamper visibility along the routes through this region. Visibilities drop below 0.5 mile (<0.9 km) less than 3 percent of the time, except in late winter and spring.

(15) During March, April and May the air is often warmer than the water between Cape Charles and Oregon Inlet, sometimes creating sea fog; visibilities drop below 0.5 mile (<0.9 km) about 2 to 5 percent of the time in spring. Farther out to sea the warmer Gulf Stream inhibits fog formation. To the south, fog occasionally develops west of the Gulf Stream.

(16) Tropical cyclones, while infrequent, can create havoc when they strike. Hurricanes are most likely along this coast during August and September.

COASTAL TROPICAL CYCLONES (1842-1995)
Within 50 nm of the indicated site

	Cape Fear	Cape Lookout	Cape Hatteras	Nags Head	False Cape
June-July	18	14	13	13	12
August	17	21	26	20	15
September	25	26	34	24	23
October	18	21	20	12	14
Nov.-Dec.	5	4	3	2	1

(17) In addition to winds of 100 knots or more and waves of 30 feet (9 m) or more, hurricanes can generate extreme storm tides, which cause damage to coastal facilities. These tides can also occur in severe extratropical storms. From the Virginia-North Carolina border to Cape Lookout it has been estimated that in an average 100-year period, tides could reach 8 to 10 feet (2.4 to 3 m) above mean sea level. South to the North Carolina-South Carolina border, they could reach 10 to a little more than 13 feet (3 to 4 m) above mean sea level.

(18) **Charts 12207, 12205.**–The summer resort of **Virginia Beach** is about 5 miles southward of Cape Henry Light. Many high-rise buildings and two water tanks are prominent. Some of these are lighted at night. A hotel cupola, 3.4 miles south of Cape Henry Light, is distinctive.

(19) **Rudee Inlet,** at the southern end of Virginia Beach and about 6 miles south of Cape Henry Light, is protected by two jetties at the entrance. A dredged channel leads between the jetties to a basin just inside the jetties, thence westward to a safety area about 0.2 mile above the jetties, thence northwestward to Lake Rudee. In May 1999, the controlling depths were 9½ feet (10 feet

at midchannel) in the entrance channel to the safety area, thence in May 1998, natural depths of 5½ to 7 feet in the safety area and in the short channel to the narrow jettied entrance to Lake Rudee, thence in 1995, 12 feet in the basin inside Lake Rudee entrance jetties, except for lesser depths along the south and west edges. Rudee Inlet is marked by lights off the end of both jetties. A lighted whistle buoy is about 1 mile east-northeast of the jetty lights.

(20) The inlet leads northward to **Lake Rudee,** and southward to **Lake Wesley.** A fixed highway bridge with a clearance of 28 feet crosses the arm of the inlet leading to Lake Rudee. Several overhead power and telephone cables with a least known clearance of 54 feet cross eastward of the bridge. A municipal marina and two private marinas are on the north shore of Lake Rudee west of the bridge. Berths, electricity, gasoline, diesel fuel, water, ice, and marine supplies are available; engine and electrical repairs can be made.

(21) **Local magnetic disturbance.**–Differences of as much as 6° from the normal variation have been observed 3 to 17 miles offshore from Cape Henry to Currituck Beach Light.

(22) A **naval restricted area** extends northward, eastward, and southeastward from Cape Henry. (See **334.320**, chapter 2, for limits and regulations.)

(23) A **naval prohibited area** is off Camp Pendleton, 7.4 miles southward of Cape Henry. (See **334.400**, chapter 2, for limits and regulations.)

(24) **Danger zones of naval firing ranges** are about 8 and 9 miles southward of Cape Henry. (See **334.380 and 334.390**, chapter 2, for limits and regulations.)

(25) Two radar towers and a blue water tank, 158 feet above the water, are prominent at the Dam Neck Naval Station about 9 miles southward of Cape Henry Light.

(26) **Sandbridge Beach,** about 11 miles south of Cape Henry Light, has a tower and a green water tank that are prominent. There are about 3 miles of beach residences south of Sandbridge Beach.

(27) Part of Back Bay National Wildlife Refuge extends from 15 to 18.5 miles south of Cape Henry Light along The Outer Banks.

(28) **False Cape,** so called because of its resemblance to Cape Henry when approaching from southward, is about 22 miles southward of Cape Henry Light. Several spots with depths of 10 to 17 feet are 0.8 to 1.5 miles offshore from False Cape.

(29) Sand dunes in this area have a tendency to alternately erode and then build up again as the seasons change, generally working to the southward; they should not be depended upon as navigational marks.

(30) **Charts 12204, 12205.–Currituck Beach Light** (36°22.6'N., 75°49.8'W.), 158 feet above the water, is shown from a red conical tower on the beach near the settlement of **Corolla.**

(31) **Local magnetic disturbance.**–Differences of as much as 11° from the normal variation have been observed 5 to 7 nautical miles offshore from Currituck Beach Light to Wimble Shoals (36°22.6'N., to 35°35.0'N.).

(32) Many homes are prominent along the beach from **Duck** to **Whalebone,** 17 miles and 31 miles south of Currituck Beach Light, respectively. A conspicuous steel tower is just eastward of Kitty Hawk, 20 miles southward of Currituck Beach Light. **Wright Monument,** a high stone memorial on the highest of the **Kill Devil Hills,** 3.5 miles southward of Kitty Hawk, is very prominent and is a good landmark on this low sandy coast. Water tanks at Kill Devil Hills and Nags Head, 1 mile north and 5.6 miles south of Wright Monument, respectively, are also prominent.

(33) **Bodie Island Light** (35°49.2'N., 75°33.8'W.), 156 feet above the water, is shown from a conical tower, with alternate white and black horizontal bands above the granite base, about 2 miles northward of the southern end of Bodie Island, and 36 miles southward of Currituck Beach Light. A water tank 1.2 miles north of Bodie Island Light is prominent.

(34) **Oregon Inlet,** about 2.5 miles southward of Bodie Island Light, is entered over a shifting bar. A lighted whistle buoy marks the approach; other buoys, not charted, are frequently shifted in position to mark the best water. A fish haven is about 4.5 miles southeast of the lighted whistle buoy. The inlet, used by local fishing vessels, but not recommended to strangers, requires continuous dredging; it deepens with northwest winds and fills in with northeast winds. Tidal currents in the inlet are reported to be as much as 5 knots, but with southwesterly winds as much as 6 to 8 knots.

(35) The Herbert C. Bonner (State Route 12) highway bridge crosses the inlet; the fixed channel span has a clearance of 65 feet over the main channel. **Oregon Inlet Coast Guard Station** is on the south side of the inlet. **Oregon Inlet Light** (35°46.1'N., 75°31.4'W.), 54 feet above the water, is shown from the Coast Guard station lookout tower.

(36) Three marked dredged channels with a Federal project depth of 12 feet lead from Oregon Inlet into Pamlico Sound. **Oregon Inlet Channel** leads westward from the inlet to a junction with **Old House Channel,** which then leads southwestward into Pamlico Sound. From the junction, the inlet channel continues northward to a junction with **Roanoke Sound Channel,** which continues northward to a turning basin at Manteo. A side channel of the same project depth leads westward to a turning basin at Wanchese at the south end of Roanoke Island. A connecting channel with a project depth of 6 feet continues northward into Albemarle Sound from the north end of the Roanoke Sound Channel. (See Notice to Mariners and latest editions of charts for controlling depths.)

(37) On the southern end of Bodie Island, just west of the bridge, there is a National Park Service small-boat basin operated by a concessionaire. A channel, marked by lights and daybeacons, leads east-northeastward passing through **Walter Slough**, ending at the small-boat basin. In November 1998, the midchannel controlling depths were 3½ feet in the channel and 5 to 6½ feet in the middle of the basin. Gasoline, diesel fuel water, ice, sewage pump-out, marine supplies, and launching ramps are available. The service station and store are prominent. Vessels wishing to dock here should make advance reservations.

(38) **Pea Island,** on the south side of the entrance to Oregon Inlet, and the waters to the westward of the island, have been designated as a **National Wildlife Refuge.** Pea Island is the northern extension of Hatteras Island.

(39) **Roanoke Island,** close westward of Bodie Island, separates Roanoke Sound on the east from Croatan Sound on the west.

(40) **Wanchese** is a small town near the south end of Roanoke Island west of the entrance to **Mill Landing Creek (Mill Creek).** Gasoline, diesel fuel, water, limited marine supplies, and small charter boats can be obtained at the fishhouses and small docks.

A 75-ton mobile lift in Mill Landing Creek can haul out boats to 120 feet for hull and engine repairs.

(41) Just south of Mill Landing Creek is a marine railway that can haul out craft up to 50 feet; there is a small-boat launching ramp.

(42) A marine railway that can handle craft up to 60 feet and a 25-ton mobile lift are on the unnamed creek on the western side of Roanoke Island opposite Mill Landing Creek, about 500 yards southward of Baum Creek. Berthage, electricity, gasoline, diesel fuel, water, and a surfaced launching ramp are available, and hull and engine repairs can be made.

(43) The Washington Baum highway bridge over Roanoke Sound connects Roanoke Island with Bodie Island and U.S. Route 64-264 highway to Norfolk. It has a fixed span with a clearance of 65 feet.

(44) An unnamed creek on Roanoke Island just north of the bridge is privately dredged with a reported depth of 8 feet in 1993. A marina in the creek has transient berths, water, electricity, ice, diesel fuel, gasoline, Sewage pump-out, limited marine supplies, and a launching ramp.

(45) **Manteo,** the principal town on Roanoke Island and the seat of Dare County, is at the head of **Shallowbag Bay,** which indents the island near its northeast end. A large elevated tank in the town is conspicuous. Berths, electricity, water, ice, diesel fuel, gasoline, hull and engine repairs, sewage pump-out, a mobile lift that can handle craft to 26 feet in length, marine supplies, and a launching ramp are available in Manteo. Oil is barged into an oil terminal at Manteo.

(46) **Fort Raleigh National Historic Site** is at the northern end of Roanoke Island in **Fort Raleigh City.**

(47) **Nags Head** is a summer resort on the east side of Roanoke Sound, 3.5 miles northeastward of Manteo. Other inland waters are described in another section.

(48) **Platt Shoals,** consisting of several spots covered 30 to 39 feet, are east-southeastward of Oregon Inlet and 2.5 to 4 miles offshore. Between the shoals and the shoal water off the shore the depths are 30 to 71 feet. In easterly gales the shoaler spots are marked by breakers.

(49) **Wimble Shoals,** 15 miles southward of Oregon Inlet, are a number of ridges extending offshore about 4 miles, with depths ranging from 21 to 36 feet. In easterly gales the shoaler parts are marked by breakers. A lighted buoy is outside the shoals.

(50) **Local magnetic disturbance.**–Differences of as much as 8° from the normal variation have been observed in 35°32.0'N., 75°21.2'W. (chart 11555). Differences of as much as 3° from the normal variation have been observed 6 to 12 miles offshore from Wimble Shoals to Cape Hatteras.

(51) A microwave tower at **Waves** about 12.8 miles southward of Oregon Inlet Light is a prominent object.

(52) **Chart 11555.–Cape Hatteras,** where the coast makes a sharp turn westward, is low and sandy. **Cape Hatteras Light** (35°15.3'N., 75°31.2'W.), 191 feet above the water, is shown from a black and white spirally banded tower on red brick base. About 1 mile northwest of Cape Hatteras Light, a telephone tower, a green water tower, and a radar sphere, in close proximity to each other, are prominent.

(53) **Weather, Cape Hatteras and vicinity.** Due to its maritime exposure and proximity to the Gulf Stream this area has a marine climate with an average of only five days when summer temperatures climb above 90°F (32.2°C); freezing temperatures are about one-half as frequent as at inland stations and average only 29 days each year. In addition, rain occurs on 8 to 12 days per month on the average. Rainfall reaches a maximum in July, August and September when it often occurs as brief, heavy showers or thunderstorms. Occasionally rains are prolonged and are associated with offshore storms, either tropical or extra tropical. Both types can generate strong winds and extreme tides along the Outer Banks where the average elevation is less than 10 feet (3 m) above mean sea level.

(54) The average temperature for Cape Hatteras is 62.6°F (17°C). July is the warmest month with average extremes of 85°F (29.4°C) and 72°F (22.2°C). January is the coldest month with average extremes of 53°F (11.7°C) and 38°F (3.3°C). The warmest temperature on record is 96°F (35.6°C) recorded in July 1992. The coldest temperature on record is 6°F (-14.4°C) recorded in January 1985.

(55) The annual average precipitation is 57 inches (1,448 mm). The wettest month, August, averages 6.24 inches (158 mm) and the driest month, April, averages 3.27 inches (83 mm). Due to the coastal location, the annual average snowfall totals only two inches (51 mm). Historical distribution is relatively uniform for the months December through March, each averaging about one-half inch (13 mm). Snow has fallen in each month, November through April. The 24-hour record snowfall is 8.2 inches (208 mm) recorded in December 1989.

(56) Prevailing wind direction varies with the seasons. During the cooler season, prevailing winds are from the North through Northeast and during the summer, Southwest winds are dominate.

(57) Since 1842, 81 tropical systems have passed within 50 nautical miles of Cape Hatteras, North Carolina. The most infamous of recent time was Hurricane Gloria in 1985. Gloria passed nearly overhead on the morning of September 27th. Highest winds reported were 119 knots at Cape Point. Less than 48-hours earlier, the lowest pressure ever recorded in a North Atlantic storm had been documented by a reconnaissance aircraft (919 mb). Due to geographical orientation, nearly all tropical systems approach the coastline from the south or southeast.

(58) (See page T-2 for Cape Hatteras climatological table.)

(59) **Diamond Shoals** extend off Cape Hatteras in a southeasterly direction for about 9 miles. Depths of 3 feet have been found on the shoaler parts. Diamond Shoals include **Hatteras Shoals, Inner Diamond Shoal,** and **Outer Diamond Shoal.** Hatteras Shoals, with little water over them, are usually marked by breakers. Outer Diamond Shoal consists of irregular patches, with depths of 3 to 18 feet, which are usually marked by breakers. A buoy marks the east extremity of Outer Diamond Shoal.

(60) **Caution.**–Hydrography is not charted on Diamond Shoals due to the changeable nature of the area. Navigation in the area is extremely hazardous for all types of craft. During strong winds the currents set across the shoals with great velocity.

(61) The difficulty of making proper allowance for the Gulf Stream, and the strong currents near the shoals, may cause considerable error in the reckoning. When approaching in thick weather, and uncertain of the position, care should be taken to stay in at least 120 feet, or preferably 180 feet. Diamond Shoal Light is the guide for clearing the shoals.

(62) **Diamond Shoal Light** (35°09.1'N., 75°17.9'W.), 125 feet above the water, is shown from an orange tower on white deckhouse constructed on a four-legged metal structure, in 54 feet of water about 12.5 miles southeast of Cape Hatteras Light.

The name DIAMOND is displayed in white letters on all four sides of the structure. A fog signal is at the light.

(63) The submerged wreckage of the Civil War Ironclad **MONITOR,** about 10.4 miles south-southwest of Diamond Shoal Light, has been designated **USS Monitor National Marine Sanctuary,** by the Secretary of Commerce. The sanctuary, administered by the Administrator, NOAA, Department of Commerce, is about 1 mile in diameter centered in 35°00'23"N., 75°24'32"W. (See **15 CFR 922**, chapter 2, for limits and regulations.)

(64) From Cape Hatteras to Cape Lookout the coast trends generally southwestward for 64 miles and is broken by several inlets. For 6 miles from Cape Hatteras it is thickly wooded near the beach, and between the woods and the beach is a range of sand dunes 10 to 40 feet high. For the remainder of the distance the coast is a narrow barrier beach with numerous sand dunes. The coast is fairly bold, and depths of 4 to 7 fathoms will be found within 0.5 mile offshore, except off Hatteras Inlet, where shoals extend out 1.2 miles, and off Ocracoke Inlet, where they make out 1.6 miles.

(65) **Hatteras Inlet,** 11 miles westward of Cape Hatteras Light, is entered over a shifting bar which is subject to continual change; local knowledge is recommended. The approach is marked by a lighted buoy; buoys marking the channel over the bar are not charted because they are frequently shifted in position. An 88-foot lookout tower showing a white light on the east side of the inlet is a conspicuous mark.

(66) **Hatteras,** a town 3 miles northeast of Hatteras Inlet, has several stores, a hotel, several motels, and restaurants. **Hatteras Inlet Coast Guard Station** is on **Austin Creek,** 0.8 mile southwest of the town. There are several small wharves in the basin at Hatteras where berths, gasoline, diesel fuel, and limited marine supplies can be obtained. A mobile lift can handle craft up to 45 feet for emergency repairs. Extensive repairs can be made at Wanchese.

(67) **Hatteras Inlet Channel** is a dredged channel that leads from Hatteras Inlet to **Rollinson Channel** in the vicinity of the basin entrance at Hatteras. The channel is reported to shoal rapidly between dredgings. In 1981-May 2000, the controlling depth was 6 feet. (For information on the latest reported shoaling, consult the Coast Guard Local Notice to Mariners.) The channel is marked by lights, buoys, and daybeacons. In September 1999, a side channel to Austin Creek had a controlling depth of 5½ feet to the Coast Guard pier and the ferry landing. The creek channel is marked by two lights.

(68) Rollinson Channel, the approach to Hatteras from Pamlico Sound, is discussed later in this chapter.

(69) A small ferry carries vehicles and passengers across Hatteras Inlet from Austin Creek to Ocracoke Island.

(70) **Tides.**–The mean range of tide is 2 feet on the bar. In the channels the height of the water depends upon the direction and force of the wind. (See the Tide Tables for predictions.)

(71) **Currents.**–The tidal currents in the channel through the inlet are influenced by winds and attain velocities of about 2 knots. (For predicted times and velocities see the Tidal Current Tables.)

(72) Other channels in Pamlico Sound are described in another part of this chapter.

(73) **Chart 11550.–Ocracoke Inlet,** 27 miles west-southwest of Cape Hatteras Light (chart 11555), is entered over a shifting bar between the southern end of Ocracoke Island and the northern end of Portsmouth Island; the bar is subject to frequent changes. A lighted whistle buoy marks the approach. Other buoys marking the inlet are not charted, because they are frequently shifted in position; local knowledge is advised.

(74) **Ocracoke Light** (35°06.5'N., 75°59.2'W.), 75 feet above the water, is shown from a white tower near a clump of woods on the western part of Ocracoke Island and about 3 miles northeastward of Ocracoke Inlet. **Ocracoke Coast Guard Station** is 0.4 mile north of the light.

(75) A microwave tower about 1 mile east-northeast of Ocracoke Light is reported to be prominent.

(76) Several channels or sloughs lead from Ocracoke Inlet through the shoals to deep water in Pamlico Sound. Teaches Hole Channel follows the western side of Ocracoke Island and connects with Silver Lake through a dredged channel at Ocracoke. It also joins **Big Foot Slough Channel** northwest of Ocracoke which leads to Pamlico Sound. In 1977-June 1978, the midchannel controlling depth in the entrance channel to Silver Lake was 10 feet. Teaches Hole Channel is subject to frequent changes; buoys are frequently shifted in position. In April 1998, the controlling depth in Big Foot Slough Channel was 11 feet except for shoaling along the eastern edge; dangerous shoaling to much lesser depths is in the east half of the channel between Daybeacon 12 and Light 10. The channel is reported to shoal considerably between dredgings. Strong currents have been experienced in these channels. Mariners are advised to exercise caution while navigating in the area.

(77) A swash channel, marked by a light and daybeacons, connects Big Foot Slough Channel with **Nine Foot Shoal Channel,** which leads off in a northwesterly direction. The controlling depth is about 5 feet through the swash channel to Pamlico Sound. Some local vessels use this channel as a short cut, but Big Foot Slough Channel is the recommended channel.

(78) There are other unmarked shallow channels leading from Ocracoke Inlet to Pamlico Sound, but they should not be used without local knowledge because of the shifting shoals.

(79) The town of **Ocracoke,** 3.5 miles inside the inlet, is frequented by numerous fishing vessels. Supplies in limited quantities are available. Gasoline, diesel fuel, water, and ice may be obtained at the piers.

(80) A toll ferry transports passengers and autos daily from Ocracoke to a ferry landing on the north side of Cedar Island, about 12 miles by road north of Atlantic on the mainland and also to a ferry landing at Swanquarter, about 25 miles north-northwest of Ocracoke. There are several motels and restaurants in the village. There are numerous points of interest on the island, and the National Park Service has a museum at the village and also maintains camp sites for tourists. Facilities for repairing boats are limited.

(81) **Silver Lake,** a circular basin at Ocracoke, affords good anchorage in depths of 12 feet, and has several wharves extending from the shore to depths of 10 or more feet. Vessels are requested to anchor only in the southern end of the lake so as not to interfere with ferry traffic. Diesel fuel, gasoline, marine supplies, and a launching ramp are available nearby. The National Park Service piers on the north side of the basin have berths with electricity and water.

(82) **Portsmouth** is a small abandoned town overseen by the National Park Service on the west shore of Ocracoke Inlet. A

spire and a cupola here are prominent landmarks. The inactive Coast Guard Station, the largest building, is near the inlet.

(83) **Tides.**–The mean range of tide is 1.9 feet over the bar at Ocracoke Inlet and 1 foot in Silver Lake. In the channels, the height of the water depends upon the direction and force of the wind. (See the Tide Tables for predictions.)

(84) **Currents.**–The currents in the inlet and connecting channels are influenced by the winds. The ebb current usually has a greater velocity than the flood. Velocities up to 4 knots have been observed. Current predictions for several locations in the channels may be obtained from the Tidal Current Tables.

(85) **Drum Inlet** (see chart 11545), 19 miles southwestward of Ocracoke Inlet, is an opening in the barrier beach leading to deep water in Core Sound. The channel is not maintained by dredging and is constantly shifting. In July 1983, the inlet was reported to be dangerous and not recommended for use by anyone.

(86) **Chart 11544.–Cape Lookout** is the extremity of a long and very narrow sand beach projecting into the sea where the coast angles sharply westward. **Cape Lookout Light** (34°37.3'N., 76°31.5'W.), 156 feet above the water, is shown from a black and white diagonally checkered tower on the north point of the cape.

(87) **Cape Lookout Shoals** extend about 9 miles south-southeastward from the cape where they are marked by a lighted bell buoy. Their greatest width is about 2 miles, and depths over the shoals range from 2 to 18 feet. **Lookout Breakers** is the local name for the ridge, covered 2 feet, about 4 miles out on the shoals south of the cape. Between Lookout Breakers and the cape are several other spots which break heavily.

(88) Outside the shoals proper is an irregular shoal with a depth of 29 feet over it in about 34°25'26"N., 76°23'41"W.; thence about 3 miles south-southeastward there is a wreck cleared to 39 feet. These can be avoided by passing south of the lighted bell buoy about 18 miles south-southeastward of the cape. In thick weather a vessel should stay in 14 fathoms or more if uncertain of its position. A number of wrecks and fish havens with varying depths over them are in the vicinity of the shoals; some are marked.

(89) **Chart 11545.–Lookout Bight,** on the west side of Cape Lookout, affords good anchorage for large vessels, except with winds from south through west to northwest. **Power Squadron Spit,** the west side of Lookout Bight, is subject to continual change and is partially protected by a rubblestone breakwater awash at low water and hardly visible when a heavy sea is running; its outer end is marked by a lighted buoy about 300 yards northwestward of its seaward end. Mariners should give it a wide berth in bad weather.

(90) Large oceangoing vessels usually anchor north or northwest of the breakwater in 39 to 45 feet, soft sand and mud bottom.

(91) Good anchorage for small vessels can be had in the inner bight northeast of **Catfish Point** in 7 to 14 feet, good holding ground of soft mud. Prevailing swell from the southwest is effectively excluded, but the surrounding terrain is too low to greatly restrain the force of wind. A severe blow from the northerly direction may cause a vessel to drag, but most boats drop an extra anchor if the wind reaches gale force from any direction.

(92) There is a marina on the southeast shore of the bight where gasoline, water, ice, and some marine supplies may be obtained. There are restrooms and a snack bar at the head of the pier, which has 2 feet of water alongside.

(93) A Federal project provides for a channel 7 feet deep from deep water in Lookout Bight through **Barden Inlet** and **Lighthouse Bay** to deep water in Back Sound. The channel is very unstable and has a tendency to fill. In February 1981, the controlling depth in the dredged section from Lighthouse Bay to Back Sound was 5½ feet. The channel is well marked; however, the uncharted buoys and daybeacons through Barden Inlet are frequently shifted in position to mark the best water. Local knowledge is advised.

(94) The channels in Back Sound and Core Sound are described in another section.

INLAND WATERS

(95) **COLREGS Demarcation Lines.**–The lines established for the inlets, rivers, and bays of this part of the coast are described in **80.515 through 80.525**, chapter 2.

(96) **Charts 12207, 12204, 12205.–Currituck Sound** is a narrow and shoal body of water which extends for 25 miles in a north-south direction behind the barrier beach near Currituck Beach Light. The southern part of the sound is navigable for craft drawing 4 or 5 feet to the junction with Albemarle Sound, but navigation among the extensive shoals depends on local knowledge of the channels and on the level of the water. The northern part of the sound is practically unnavigable due to dense grass. There are no periodic tides in Currituck Sound; the water level depends upon the force and direction of the winds.

(97) There are several small-craft facilities on **Knotts Island** at the northern end of Currituck Sound. Berths, electricity, water, ice, and launching ramps are available.

(98) **Charts 12207, 12205.–Back Bay** and its connections with Currituck Sound extends a little over 10 miles northward from the northeastern end of the sound. This shoal bay is navigable only for small boats. Northward of Back Bay are shallow **Shipps Bay** and **North Bay.** Facilities with small-boat launching ramps, and some with gasoline, water, ice, and bait and tackle, are along the western shore of Back Bay.

(99) **North Landing River** extends in a north-northwesterly direction from the north end of Currituck Sound. The river is a part of the Intracoastal Waterway and is described in chapter 12.

(100) Naval aircraft bombardment **target areas** are in North Landing River off Troublesome Point, and in Currituck Sound east of Bell Point. (See **334.410**, chapter 2, for limits and regulations.)

(101) **Charts 12204, 12205.**–Several landings are on the east shore of **Whale Head Bay,** just southward of Currituck Beach Light (36°22.6'N., 75°49.8'W.).

(102) A cable area, marked by private daybeacons, crosses Currituck Sound from Corolla to Aydlett.

(103) The landing at **Poplar Branch,** on the western shore of Currituck Sound, about 6 miles south-southwestward of Currituck Beach Light, is frequented by local fishermen and duck hunters. In July 1983, depths of 3 feet were reported in the approach to the pier and 7 feet alongside. In July 1983, a midchannel controlling depth of 2 feet was reported in the channel to **Gaffy Landing,** about 2 miles south of Poplar Branch.

(104) **Piper Hill,** on the outer beach, about 4 miles east of Poplar Branch, is approached through **Lone Oak Channel** and **Beasley Bay.** Lights mark the channel. In July 1983, the reported midchannel controlling depth was 2 feet. Dense grass covers the whole area.

(105) **Wright Memorial (U.S. Route 158) Highway Bridge** over the south end of Currituck Sound between **Sampson Point** and the outer beach, has a 40-foot fixed span over the navigation channel with a clearance of 35 feet.

(106) **Charts 12205, 12206, 11553, 12204.–Albemarle Sound** is about 45 miles long in an east-west direction, and in width ranges from 11 miles near its eastern end to 3 miles about 10 miles from the western end. The sound has good navigable depths for any vessel able to pass through the canals and, with its numerous tributaries, forms the approach to many towns and landings.

(107) There are depths of 10 to 18 feet along the routes from North River and Pasquotank River to Croatan Sound and Alligator River, and less water farther eastward. Fish stakes and nets, extending long distances from shore are often found on the shoals, especially at the northern entrance to Croatan Sound. The shores of Albemarle Sound are low and generally wooded; there are no prominent natural features.

(108) A naval aircraft bombardment **target area** is on the south side of Albemarle Sound westward of the entrance to Alligator River. (See **334.410**, chapter 2, for limits and regulations.)

(109) The eastern end of Albemarle Sound, which is separated from the Atlantic Ocean by the barrier beach about 15 miles north of Bodie Island Light, is connected northward with Currituck Sound and southward with Croatan and Roanoke Sounds, and by the latter sounds with Pamlico Sound.

(110) Westward of Laurel Point, about 33 miles from the east end of Albemarle Sound, the water is usually fresh or slightly brackish. The rise and fall of the water level depends on the direction of the winds.

(111) **Charts 12204, 12205.–Kitty Hawk Bay,** with depths of about 3 to 8 feet, is at the east end of Albemarle Sound. Daybeacons mark the best water into the bay. Kitty Hawk is a small town on the north side of the bay. There are several private landings along its shores. A public marina is at **Avalon Beach** at the southeastern end of the bay; berths, electricity, water, ice, and a launching ramp are available during the summer.

(112) **North River,** on the north side of Albemarle Sound near the eastern end, is a part of the Intracoastal Waterway and is described in chapter 12.

(113) **Chart 12206.–Pasquotank River Entrance Light** (36°09.4'N., 75°58.7'W.), 23 feet above the water and shown from a pile with a black and white diamond-shaped daymark with a yellow triangle, marks the entrance to **Pasquotank River.** A light is about 2.2 miles westward of the entrance light. The river, entered between **Wade Point** on the west and Camden Point on the east, and Elizabeth City are described in connection with the Dismal Swamp Route of the Intracoastal Waterway, chapter 12.

(114) **Chart 12205.–Flatty Creek,** about 7.5 miles westward of Pasquotank River Entrance Light (36°09.4'N., 75°58.7'W.), is shoal and little used. In July 1983, depths were reported to be 2 feet over the bar, thence 3 feet for a distance of 3.5 miles.

(115) **Little River** is on the north side of Albemarle Sound and 4 miles westward of Flatty Creek. The channel at the entrance is about 0.3 mile wide between shoals, and is marked by a daybeacon. The river has a general northwesterly trend to the village of **Nixonton,** which is on the east bank 7 miles above the entrance. There are no facilities at the village. In July 1983, depths of 5 feet were reported to the village. Spits, with little water over them and generally steep-to, make out some distance in places from the shores, especially off the points. The channel in the upper reaches of the river is well marked by the outer ends of the fishweir stakes which make out from shore. A launching ramp and limited supplies are available to sport fishermen in **Hall Creek,** about 1.5 miles above Nixonton.

(116) **Perquimans River,** on the north side of Albemarle Sound, about 4 miles westward of Little River, has its entrance between **Harvey Point** on the west and **Reed Point** on the east. A light is about 1.2 miles southward of Reed Point, and a light is close eastward of Harvey Point. Numerous submerged piles are south and southeastward of Harvey Point. A depth of about 9 feet can be carried to Hertford, about 11.5 miles above the entrance, thence about 7 feet for about 1 mile to the Norfolk Southern railroad bridge.

(117) Two other bridges cross Perquimans River. U.S. Route 17 bypass highway bridge, between **Ferry Point** and **Crow Point,** about 10.5 miles above the entrance, has a fixed span with a clearance of 33 feet, and U.S. Route 17 highway swing bridge, about 0.6 mile above and crossing the narrow part of the river at Hertford, has a clearance of 7 feet. (See **117.1 through 117.59 and 117.835**, chapter 2, for drawbridge regulations.)

(118) Obstructions have been reported near midriver about 0.5 mile and 1 mile below the highway fixed bridge.

(119) **Hertford,** on the southwest bank of Perquimans River, has rail connections with the Norfolk Southern Railway and highway connections with U.S. Route 17 to Edenton and Elizabeth City. Oil is barged into Hertford to an oil pier on the south side of the river just above the highway swing bridge. A marina is on the north side of the river between the two highway bridges. Gasoline, water, ice, limited marine supplies, and a launching ramp are available. The river water is fresh at Hertford.

(120) Above Hertford the river is narrow and crooked, but has fairly good depths for about 8 miles to a point near **Goodwin Creek.** Navigation is restricted to very small boats, about a mile above the highway swing bridge, by the Norfolk Southern railroad bridge, which has a 22-foot fixed span with a clearance of 3 feet.

(121) **Yeopim River,** 6 miles west of Perquimans River, is shoal and unimportant. A shoal area, marked at its southeastern extremity by a daybeacon, extends from the entrance. Stumps and other obstructions are near the center of the shoal. This area should be avoided. In crossing the shoal, mariners should leave the daybeacon to the eastward and slightly favor **Drummond Point,** the southern entrance point of Yeopim River. Local knowledge is advised.

(122) A marina at **Snug Harbor,** on the north side of the entrance, has berths, gasoline, electricity, water, ice, limited marine supplies, and a launching ramp.

(123) Six miles southwestward from Drummond Point, State Routes 32-37 highway bridge crosses Albemarle Sound from **Sandy Point** to the south shore. The fixed span has a clearance of

65 feet. About 4 miles W of the highway bridge, an overhead power cable crosses the sound. The cable clearance is 94 feet over the main channel and 54 feet elsewhere.

(124) **Edenton Bay** is on the north side of Albemarle Sound just westward of the ruins of the railroad trestle which crosses the sound. **Edenton,** a town at the head of the small bay, has rail and highway communications with Norfolk and the south. Lumber is shipped by rail, truck, and by barge. The main industries are peanuts, lumber, veneer, inks, textiles, plywood, and boatbuilding. The river water is fresh.

(125) Two large water tanks in the town are the most prominent objects from the sound. Also prominent is a radio tower near the city wharf.

(126) A dredged channel leads from deep water in Albemarle Sound to the head of the bay where it separates into dredged reaches leading in northwesterly and northeasterly directions along the town waterfront. In June 1977, the midchannel controlling depths were 7 ½ feet in the entrance channel, thence 7 ½ feet in the eastern portion of the northwestern reach, and 5 ½ feet in the remainder of the northwestern reach and in the northeasterly reach. The channel is well marked by lights and daybeacons.

(127) The inner anchorage, close eastward of the channel entrance, has a depth of 9 feet, but is small. The larger anchorage is on the western side of the entrance. Numerous fish stakes, some of which are covered at low water, are reported inside the 12-foot contour on the west side of the entrance to Edenton Bay from Reedy Point eastward.

(128) The city wharf, which has a light, is at the head of the entrance channel. In July 1983, depths of 10 feet were reported alongside the west bulkhead. A fish wharf and an oil wharf are close westward of the city wharf; depths of 10 feet were reported alongside in July 1983.

(129) **Pembroke Creek** is a small nontidal stream flowing easterly into the head of Edenton Bay. U.S. Route 17 highway bridge, 0.6 mile above the mouth of the creek, has a 20-foot fixed span with a clearance of 5 feet. With local knowledge a draft of 5 feet can be carried to the bridge. In August 1978, a submerged obstruction was reported in the channel near the mouth of the creek in about 36°03'25"N., 76°37'04"W. At a marina on the northeast bank of the creek, just below the bridge, berthage, electricity, gasoline, water, diesel fuel, ice, and some marine supplies can be obtained. A 10-ton mobile lift is available for hull and engine repairs, and there is a small-boat launching ramp. About 0.1 mile below the bridge is a U.S. Fish Hatchery.

(130) **Chowan River** empties into the western end of Albemarle Sound from northward, and with its tributaries forms one of the largest rivers in North Carolina. In June 1977, the controlling depth was 12 feet to Winton, about 32 miles above the mouth, and to the confluence of Blackwater and Nottoway Rivers, 45 miles above the mouth. For about 17 miles above its mouth, Chowan River has an average width of 1.5 miles. Snags, many of which are underwater, are generally found on the shoals in this part of the river; the worst place, known as **Stumpy Reach,** is between Colerain Landing and **Bennetts Creek,** a distance of about 6 miles. The channel must be followed closely passing through this reach.

(131) Chowan River is marked by lights and daybeacons to a point about a mile below Winton.

(132) Traffic on the river is mainly in pulpwood barges, and there is some commercial fishing. Gasoline, limited supplies, and launching ramps are available for small craft at various marinas along the river as far as Winton.

(133) **Salmon Creek** is a small stream which flows easterly into the west side of Chowan River just above the mouth. The entrance to the creek is a good harbor for boats of drafts up to 6 feet. **Avoca** is a village on the south bank about a mile above the entrance. In 1963, the controlling depth was 7 feet to Avoca, thence 5 feet for another 0.5 mile.

(134) The U.S. Route 17 highway bridge, between Emperor Landing and Edenhouse Point, about 2 miles above the mouth of Chowan River, has a fixed span with a clearance of 65 feet. The removal of the old U.S. Route 17 drawbridge commenced in November 1999 and is scheduled for completion by July 2000. Caution is advised when transiting through the work area.

(135) Gasoline, berthing, limited supplies, and a launching ramp are available at a marina in **Rockyhock Creek** on the east bank of the river about 6 miles above the mouth. Depths in the approaches and alongside were reported to be 4 feet in July 1983.

(136) **Colerain Landing,** on the west bank of the Chowan River, 12 miles above the entrance, is the site of a large herring factory. Just above it is an oil dock. The village of **Colerain** is on a hill 0.5 mile inland.

(137) Limited supplies, gasoline, and a launching ramp are available at a marina on the south bank of the river about 20 miles above the mouth.

(138) **Tunis** is a landing on the south bank of Chowan River 30 miles above the mouth. An overhead power cable at Tunis has a clearance of 74 feet. Gasoline, limited supplies, and a launching ramp are available at a marina on the west side of **Catherine Creek** just above the overhead power cable.

(139) **Winton** is a small town on the west bank of the river 32 miles above the mouth. U.S. Route 13 highway bridge at Winton has a fixed span with a clearance of 35 feet. A small wharf is below the bridge on the south bank and eastward of a ramp used by barges for loading pulpwood.

(140) **Meherrin River** joins the Chowan River from westward 2.5 miles above Winton. A **cable ferry** crosses Meherrin River about 0.4 mile above the mouth. The ferry, operated during daylight hours only, carries passengers and vehicles. The ferry is guided by a cable that passes over pulleys 3 feet above the water at each end of the ferry and then runs below the water surface about 15 feet from each end of the ferry. The cable is dropped to the bottom when the ferry is not underway. Warning signs are posted 1 mile from each side of the crossing. **DO NOT ATTEMPT TO PASS A MOVING CABLE FERRY. Murfreesboro** is a small town 10.5 miles above the mouth. U.S. Route 258 highway bridge here has a fixed span with a clearance of 24 feet. In 1965, the controlling depth was 10 feet to Murfreesboro; the turning basin here had a controlling depth of about 12 feet.

(141) About 13 miles above Winton, Chowan River is formed by the confluence of **Blackwater River** and **Nottoway River** near the Virginia State line. In July 1983, the controlling depth in Blackwater River was reported to be 9 feet to **Franklin,** Va. There are reports of numerous snags in the river. Small craft are able to reach **Burdette,** Va., 10.5 miles above Franklin. A highway bridge across Blackwater River, 8 miles above its mouth at South Quay, has a swing span with a clearance of 15 feet. (See **117.1 through 117.59 and 117.999**, chapter 2, for drawbridge regulations.) In January 1980, a fixed highway bridge with a design clearance of 35 feet was under construction on Blackwater

River about 9 miles above its mouth. Five other bridges cross the river between Franklin and Burdette; the fixed bridges have a minimum channel width of 22 feet and a minimum clearance of 12 feet. Navigation of Nottoway River is restricted by seven fixed bridges; the minimum channel width of the bridges is 13 feet and the clearance 7 feet.

(142) **Roanoke River** rises in the Blue Ridge Mountains, west of Roanoke, Va., and flows southeasterly into **Batchelor Bay**, a shoal bight at the southwestern end of Albemarle Sound; about halfway it is joined by the **Dan River,** its principal tributary. There are a number of flood control and power dams on the rivers. The largest of these, about 17 miles below Clarksville, Va., forms the John H. Kerr Reservoir. The reservoir extends upstream about 48 miles on the Roanoke and about 30 miles on the Dan River. Another dam is at **Roanoke Rapids** about 120 miles from the mouth of the river.

(143) In June 1977, the midchannel controlling depth was 10 feet at midchannel from Albemarle Sound to Plymouth, thence 2 ½ feet to Hamilton, 52 miles above the mouth, with shoaling to bare between Hamilton and Palmyra Landing, 67 miles above the mouth. The river is marked by lights and daybeacons to a mile below Plymouth. In May 1982, a foul area was reported between Daybeacon 12 and Light 13. Traffic on the river is mainly in petroleum products, and some plywood products hauled by barges.

(144) A fixed highway bridge, which spans the Roanoke, Middle, and Cashie Rivers, crosses the Roanoke 2.5 miles above the mouth with a clearance of 50 feet.

(145) **Plymouth** is an important town 6 miles above the mouth of Roanoke River. The town has good highway and rail connections. Water, gasoline, diesel fuel, marine supplies, and a launching ramp are available. There are several small wharves at Plymouth with 12 feet reported alongside. A veneer factory is on the river front below the town, and 1 mile above the town is the large wharf of a pulpmill, which has 15 to 18 feet of water alongside.

(146) **Williamston** is 26 miles above the mouth of the river. U.S. Routes 13 and 17 highway bridge at Williamston has a fixed span with a clearance of 45 feet. Just below the bridge are a fertilizer plant and an oil dock. Several oil piers are above the bridge. Logs and oil comprise most of the shipping.

(147) About 9 miles above Hamilton, a fixed bridge with a clearance of 14 feet crosses the river.

(148) **Cashie River** flows southeasterly for about 50 miles to its intersection with the **Thorofare,** connecting Cashie and Roanoke Rivers; thence it flows northeasterly for about 6 miles and empties into Batchelor Bay. In June 1977, the midchannel controlling depth was 9 feet to Windsor. Mariners are advised, however, that shoaling and many obstructions have been reported in Cashie River. A fixed highway bridge, which spans the Cashie, Middle, and Roanoke Rivers, crosses the Cashie River about 1 mile above Batchelor Bay and has a clearance of 16 feet.

(149) A **cable ferry** crosses Cashie River about 6 miles above the mouth. The ferry, operated during daylight hours only, carries passengers and vehicles. The ferry is guided by a cable that passes over pulleys 3 feet above the water at each end of the ferry and then runs below the water surface about 15 feet from each end of the ferry. The cable is dropped to the bottom when the ferry is not underway. Warning signs are posted 1 mile from each side of the crossing. **DO NOT ATTEMPT TO PASS A MOVING CABLE FERRY.**

(150) The Thorofare has several sharp bends, and at its junction with the Cashie River there are two small islands. Pass eastward of the islands. The head of navigation in Cashie River is the fixed highway bridge at **Windsor.** Gasoline is available. An overhead power cable crossing the river about 0.5 mile below the bridge has a clearance of 55 feet.

(151) **Kendrick Creek** is on the south side of Albemarle Sound just westward of the railroad trestle which crosses the sound. Several fishhouses with gasoline and marine supplies, and a launching ramp are on the creek. In June 1977, the midchannel controlling depth was 5½ feet to Mackeys, about 0.5 mile above the entrance, thence, in 1963, 7 feet for a distance of 4 miles up the creek, which is the head of navigation; the creek is obstructed by trees and logs above this point. The entrance is marked by a light and daybeacon.

(152) The channel into Kendrick Creek is marked on either side by rows of piles. There are stumps in places on the shoals at the mouth of the creek. The Norfolk Southern Railway bridge, just above the mouth, has a 32-foot fixed span with a clearance of 3 feet. An overhead power cable just above the railroad bridge has a clearance of 47 feet. **Mackeys** is a small town 0.5 mile above the entrance. The highway bridge about 0.5 mile above Mackeys has a 34-foot fixed span with a clearance of 8 feet. An overhead power cable just south of the bridge has a reported clearance of 9 feet.

(153) **Bull Bay** is on the south side of Albemarle Sound, about 13 miles eastward of Kendrick Creek. **Bunton Creek (Bull Creek)** and **Deep Creek** empty into the western side of the bay. A channel, with a reported depth of 5 feet in July 1983, leads through the flats to the entrance of Bunton and Deep Creeks.

(154) **Scuppernong River** empties into the eastern end of Bull Bay from southeastward. Lights, a buoy, and daybeacons mark the channel from the bay to Columbia. In June 1977, the midchannel controlling depths were 8½ feet in the bar channel, thence 7 feet to Columbia, thence 3 feet to Spruills Bridge, thence 2½ feet to a turning basin at **Cherry,** about 16 miles above the mouth. A marina on the south side of the river, 3 miles above the mouth, has berths with electricity, gasoline, diesel fuel, ice, some marine supplies, and a launching ramp. A 40-ton mobile lift is available; hull and engine repairs can be made.

(155) **Columbia,** a small town 4 miles above the mouth of the river, has two inactive oil docks and several landings. The landings have depths of 14 to 16 feet alongside, but are in poor condition and not able to accommodate more than one boat at a time. A marina, on the east side of the river close above the first highway swing bridge, has gasoline, diesel fuel, some supplies, and a launching ramp.

(156) The U.S. Route 64 highway bridge, about 4.3 miles above the entrance, has a 35-foot fixed span with a clearance of 12 feet; the navigation span of this bridge is removable.

(157) **Cross Landing Bridge,** 12 miles above the mouth of Scuppernong River, has a fixed span with a channel width of 32 feet and a clearance of 5 feet. **Spruills Bridge,** 15 miles above the mouth near **Creswell,** has a 32-foot removable span with a clearance of 6 feet. An overhead power cable at the bridge has a clearance of 25 feet.

(158) **Charts 12205, 11553.–Alligator River** is on the south side of Albemarle Sound directly opposite Pasquotank River. For about 18 miles above the mouth (see also chart 11548), Alligator River has a southerly direction, is 2 to 3 miles wide, and has general depths of 8 to 11 feet. Above this, the river has a further length of about 24 miles, is narrow and crooked, but, in July

1983, had a reported centerline controlling depth of 8 feet to **Cherry Ridge Landing**; the upper part, however, is too narrow to turn in.

(159) Good anchorages in depths of about 6 to 8 feet are reported in **Milltail Creek, Whipping Creek,** and **Swan Creek,** which make into the east side of Alligator River about 10 miles, 19 miles, and 20 miles above its mouth, respectively. Mariners should take care to avoid stumps along the banks of these creeks.

(160) The entrance to Alligator River is full of shoals, but the channel of the Intracoastal Waterway, described in chapter 12, has been dredged through the shoals and along the entire length of the wider part of the river. Numerous fish stakes are reported to exist on the east side of the river extending about 0.5 mile offshore. In November 1983, a submerged obstruction was reported on the east side of the river in about 35°46'38.5"N., 76°00'00"W.

(161) On the eastern side of Alligator River and just above the mouth is the entrance to **East Lake** and **South Lake** (see also chart 12204), which in July 1983, had reported depths of 6 feet. The village of **East Lake** is on the east side of Alligator River, 4 miles above the mouth. U.S. Route 64 highway bridge crossing the river at East Lake has a swing span with a clearance of 14 feet. VHF-FM channel 16 and 13 are monitored at the bridge. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.)

(162) **Little Alligator River** empties into Alligator River from westward just inside the entrance. The narrow, crooked channel of Little Alligator River, in July 1983, had a reported controlling depth of 4 feet to the head of the river, 6 miles above the mouth. The river is reported to be a good anchorage for boats drawing 3 feet or less.

(163) **Charts 12204, 12205.–Croatan Sound,** between Roanoke Island and the mainland, connects Albemarle and Pamlico Sounds. In July 2000, the controlling depth through the dredged channel was 7.6 feet. The channel is well marked, but strangers should not attempt passage at night. Fish stakes are numerous in season.

(164) Height of water in Croatan Sound depends entirely on the wind, which under exceptional conditions may lower or raise the level as much as 1.5 feet from normal; easterly winds lower the water and westerly winds raise it. Strong northerly or southerly winds produce currents which are especially marked when the wind shifts suddenly to the opposite direction.

(165) There is a good harbor in **Peter Mashoes Creek,** westward of Croatan Sound Approach Light 3, but entrance is possible only for small craft. In July 1983, no activity was observed in the creek. The fixed highway bridge (U.S. Routes 64 and 264) between **Redstone Point** on the mainland and **Weir Point** on Roanoke Island has a clearance of 45 feet.

(166) A marina just below the bridge at Redstone Point has berths, electricity, gasoline, diesel fuel, water, ice, and a launching ramp.

(167) In August 1998, a fixed highway bridge with a designed clearance of 65 feet was under construction across Croatan Sound about 2.75 miles southward of the U.S. Routes 64/264 fixed highway bridge.

(168) Roanoke Sound and the towns on the east side of Roanoke Island are described in another section.

(169) **Charts 12204, 11548, 11555.–Pamlico Sound,** the largest body of water in North Carolina, extends from Roanoke Island to Cedar Island. On the east it is separated from the Atlantic Ocean by a narrow barrier beach extending from Oregon Inlet to the southern end of Portsmouth Island. To the west it is joined by the Pamlico and Neuse Rivers, and to the south by Core Sound. It is about 65 miles long and has a maximum width of about 25 miles. Oregon, Hatteras, and Ocracoke Inlets pierce the narrow beach, giving access to the ocean, but all are blocked by inside bars with little water over them; they are described in another section.

(170) **Caution.**–Numerous fishtraps, stakes, and pound nets have been reported in Pamlico Sound; some may be submerged. Small craft should use caution when operating outside the main channel. Pamlico Sound Light PS (35°25.5'N., 75°50.0'W.), 35 feet above the water, shown from a multipile structure with a red and white octagonal-shaped daymark, marks a dangerous wreck, reported covered 12 feet.

(171) The northern and western shores of Pamlico Sound are broken by numerous small bays and two large rivers, Pamlico River and Neuse River. General depths in the middle of the sound are 14 to 24 feet, but shoals extend miles from shore in many places. **Bluff Shoal,** northward of Ocracoke Inlet, has 7 to 12 feet over it and extends completely across the sound. It is marked by a light. A dangerous wreck, reported covered 4 feet, is close northward of the light.

(172) In the exposed parts of the sound, strong winds from any direction raise a short, choppy sea uncomfortable to small craft and even dangerous to open boats; but protected anchorage for small craft can be found in the many bays along the northern shore, and along the southern shore in several sloughs which lead to sheltered berths in the lee of shoals. Middletown Anchorage and the anchorage in the bight formed by the hook of Royal Shoal can be made either day or night, with caution.

(173) Tides at the inlets have a mean range of 2 feet. (For daily predictions see the Tide Tables.) In other parts of the sound the periodic tide is less than 0.5 foot. Easterly and westerly winds produce the greatest change in water level. Currents are negligible except in the vicinity of the inlets.

(174) **Chart 12204.–Stumpy Point Bay,** on the west side of Pamlico Sound 10 miles from the south end of Roanoke Island and about 11 miles southwestward of Oregon Inlet, affords good anchorage in depths of about 3 to 4 feet. A dredged channel leads from Pamlico Sound to a turning basin at **Lake Worth,** the small town at the head of the bay. In 1977-July 1979, the midchannel controlling depth was 8 feet to the basin, thence in July 1979, 10 feet in the basin except for shoaling along the southeast edge. The channel is well marked by lights and daybeacons. Two fishhouses at the upper end of the basin have diesel fuel, gasoline, water, ice, and marine supplies.

(175) **Stumpy Point,** a small town on the east side of Stumpy Point Bay, has gasoline, diesel fuel, water, limited supplies, and a launching ramp.

(176) **Long Shoal River,** which flows southerly into Pamlico Sound about 8 miles southwestward of Stumpy Point Bay, is 1.5 miles wide at the mouth and is a good anchorage for vessels with drafts of 8 feet or less. Shoals with 1 to 2 feet over them on both sides of the entrance break up the sea from southward. In July 1983, the channel had a reported controlling depth of 7 feet to the anchorage off **Pains Bay,** thence 7 feet for another mile, thence 4 feet for 2 miles. **Long Shoal,** to the east of the entrance, and **Pingleton Shoal,** on the west, are marked by lights, and daybeacons mark the points of shoals in the entrance. In June 1984, shoaling to 5 feet was reported about 150 yards northward

of Pingleton Shoal Light 1 PS. In May 1985, shoaling to 6 feet was reported extending southeast from Long Shoal Light. With the aid of the chart, strangers should have little difficulty entering Long Shoal River in daytime. The **danger zone** of a naval ordnance test area is centered at targets on Long Shoal. (See **334.410**, chapter 2, for limits and regulations.)

(177) **Rodanthe** is a town on the narrow barrier beach on the east side of Pamlico Sound 12 miles southward of Oregon Inlet and nearly opposite Stumpy Point Bay. **Chicamacomico Channel** is a dredged channel leading from the sound to the basin at Rodanthe. Two landings are in the basin in addition to the bulkheaded area. Shoaling to 2 feet was reported in the channel in June 1977, and depths of 3 feet were reported available in the basin in July 1983. The channel approach and channel are marked by lights, daybeacons, and a lighted buoy.

(178) **Chart 11555.–Avon** is a town on the barrier beach on the southeast side of Pamlico Sound 5.7 miles northward of Cape Hatteras Light (35°15.3'N., 75°31.2'W.). Shoal water extends about 3 miles from shore. A dredged channel leads from Pamlico Sound to the basin at Avon. In March 1977, the midchannel controlling depth was 5 feet; thence in 1973, 6 feet in the basin. In July 1985, shoaling to less than 1 foot was reported in the channel. The channel is marked by lights and daybeacons. Gasoline and diesel fuel are available at a fishhouse landing in the basin.

(179) **Cape Channel (Buxton Harbor Channel),** a natural opening in the shoal about 5 miles southwestward of Avon, was formerly part of a channel leading to Avon. It is now used by local fishermen passing from Pamlico Sound to anchorage north of Buxton. Local knowledge is advised. The channel is partially marked by lights and daybeacons.

(180) **Buxton** is a small town about a mile north-northwest of Cape Hatteras Light. The town of **Frisco** is about 4 miles westward, on the southeast side of Pamlico Sound. There are no wharves at either place, and anything but light-draft vessels must anchor well offshore. Local fishermen usually approach Buxton through Cape Channel.

(181) **Rollinson Channel,** about 12 miles southwestward of Avon, is a dredged channel leading from deep water in Pamlico Sound to the basin at Hatteras; it also joins with Hatteras Inlet Channel which leads to Hatteras Inlet. In 1977-February 1988, the midchannel controlling depth was 4 feet in the channel, thence in March 1977, 6 feet in the basin. In June 1984, shoaling to 1 foot was reported in the northeast part of the basin. The channel is well marked by lights. In July 1983, it was reported that the lights were difficult to distinguish from the background lights on shore. Caution is advised, and strangers should not attempt passage at night. A light, off the end of **Oliver Reef,** is about 1.5 miles southwestward of the Pamlico Sound entrance to Rollinson Channel.

(182) Hatteras Inlet, Hatteras Inlet Channel, and the facilities at Hatteras were described previously in another section.

(183) **Far Creek** (35°30.5'N., 75°58.0'W.) is on the northwest side of Pamlico Sound between Pingleton Shoal and **Gibbs Shoal**. A dredged channel leads from deep water in the sound to the basin at the town of **Engelhard**. In 1977, the midchannel controlling depth was 6 feet to the basin, thence 11 feet in the basin. The channel is marked by lights and daybeacons.

(184) An oil dock and several piers, with depths of 7 to 12 feet alongside, are on the south side of the basin just below U.S. Route 264 fixed highway bridge at Engelhard. There is barge traffic in oil, grain, and sand and gravel. Fishing vessels unload here, and seafood is shipped from the town by truck. Gasoline, diesel fuel, ice, and some marine supplies are available.

(185) **Middletown Anchorage,** a broad open bight in the northwestern shore of Pamlico Sound just southward of Far Creek, has depths of 9 to 13 feet and is sheltered from eastward by Gibbs Shoal, which has 1 to 4 feet over it. There is no shelter from southeasterly or southerly winds. The anchorage is large and easy of access, and is used by tows and other vessels. **Middletown,** a short distance inland from the anchorage, is reached by light-draft boats by way of **Middletown Creek** (see chart 11548). In July 1983, the reported controlling depth over the bar and to the fixed bridge over the creek at Middletown was 3 feet. Vessels must pass south of the light on the southeast end of Gibbs Shoal in entering. Gasoline is obtainable in the town.

(186) Caution should be used in approaching Middletown Anchorage at night, as the low marshy shore extends long distances from the woods in places and does not show well. In rough weather vessels with drafts less than 4 feet prefer to pass inside Gull Shoal Light GS when bound southwestward from Middletown Anchorage. They enter Wysocking Bay, pass westward of Gull Rocks, and thence eastward of the light 0.4 mile eastward of **Hog Island.**

(187) **Wysocking Bay,** about 7.5 miles southwestward of Far Creek, indents the north shore of Pamlico Sound northwestward of Gull Shoal Light GS. It is a convenient anchorage for small craft drawing less than 5 feet when following the north shore of the sound. In July 1983, the bay had reported depths of 5 feet from the entrance to its head. The entrance is obstructed by shoals. Daybeacons and lights mark the channel which leads northward of **Gull Shoal** and into the bay. **Gull Rocks,** on the south side of the entrance to the bay, are covered at ordinary water levels.

(188) **Nebraska Canal** (see chart 11548) leads from the head of Wysocking Bay to a fixed bridge south of **Nebraska,** 2 miles inland. The privately maintained canal is marked by a light at its entrance, and, in July 1983, had a reported depth of 1 foot. Local knowledge is advised in the canal.

(189) **Chart 11548.–Bluff Point Shoal Light** (35°19.3'N., 76°07.2'W.), 15 feet above the water, shown from a pile with a white and black diamond shaped daymark, marks the end of the shoal making eastward about 1.8 miles from **Bluff Point.** The point, low and marshy, separates **East Bluff Bay and West Bluff Bay,** two unimportant bights southwestward of Wysocking Bay. A daybeacon marks the 4-foot shoal 2 miles south-southeastward of Bluff Point. Extending southward from Bluff Point is a large area of shoal water, a tongue of which, called **Bluff Shoal,** extends completely across Pamlico Sound. Depths of Bluff Shoal are 7 to 12 feet. A light is near the middle of the shoal. Close northward of this light is a wreck reported covered 4 feet. A 12-foot slough through the shoal is about 1 mile northward of the light.

(190) **Juniper Bay,** on the north side of Pamlico Sound 4 miles westward of Bluff Point, is about 1.5 miles wide at the entrance, but narrows gradually toward its head, to a narrow, crooked stream 3 miles above the entrance. Shoals extend from both shores. A light marks the shoal extending from the east point at the entrance. The bay has considerable traffic in small craft with drafts less than 5 feet; these make the passage to and from

Belhaven by way of Swanquarter Narrows, Swanquarter Bay, and **The Haulover** to Deep Bay.

(191) **Great Island,** on the west side of the approach to Juniper Bay, is low and grassy. A light marks the shoal extending southeast from the island. **Swanquarter Narrows**, between Great Island and the mainland to the north, had a reported centerline controlling depth of 5 feet in July 1983. A light marks the western entrance to the narrows.

(192) **Swanquarter Bay,** northwestward of Great Island, is about 2 miles wide at the mouth, but narrows gradually toward its head 4 miles above. Oyster beds are numerous in the bay. A water tank, painted orange, near the northwest end of town in about 35°24.5'N., 76°19.9'W., is reported prominent from the bay.

(193) A privately dredged channel leads through Swanquarter Bay to a ferry terminal basin at Swanquarter just north of Long Point. In July 1983, the channel had a reported controlling depth of 5 feet. Another dredged channel leads from near the northern end of the bay to a boat basin at Swanquarter. In August 1977, the midchannel controlling depth was 7½ feet in the entrance channel with 6½ feet available in the basin in 1973. The channels through Swanquarter Bay are marked by lights and a daybeacon.

(194) **Swanquarter,** the seat of Hyde County, is the center of trade for much of this area. Gasoline, diesel fuel, water, marine supplies, and a launching ramp are available in the basin. The town has highway connections with U.S. Route 264.

(195) A dredged channel leads through a land cut, known as **The Haulover,** from the west side of Swanquarter Bay, about 3.5 miles above the entrance, and connects with Deep Bay to the westward. In August 1976, the controlling depth through The Haulover was 5 feet. A light is at each end of the cut. Local vessels use this route.

(196) **Rose Bay,** westward of Swanquarter Bay on the north side of the entrance to Pamlico River, is 1.8 miles wide at the entrance, but shoals extending from both sides restrict the entrance channel to a width of 0.6 mile. A small marina is at the head of the bay. Berths, gasoline, water, limited marine supplies, and two launching ramps are available. A light is at the entrance, and daybeacons and lights mark the best water in the bay. The bay is used mostly by local fishing boats.

(197) **Deep Bay,** leading eastward from just inside the entrance of Rose Bay, is the approach to The Haulover, a dredged land cut to Swanquarter Bay which was described previously. Local vessels use this route. **The Blowout** is a privately maintained channel cut through the narrow neck of **Judith Island** from Deep Bay to Deep Cove on the Pamlico Sound side. The channel is used considerably by local fishermen; strangers should not attempt it. In July 1983, the reported controlling depth through The Blowout was 1½ to 2 feet.

(198) **Charts 11548, 11554.–Pamlico River** and **Tar River** are the two names applied to the same river; it is known as the Pamlico below Washington, N.C., and as the Tar above that point. The river rises in Person County, flows in a general southeasterly direction, and empties into the northwestern part of Pamlico Sound. Pamlico River, in 1963, had depths of 12 feet or more for a distance of 20 miles above the mouth to a point just above Core Point.

(199) Above this point a dredged channel leads to Washington, and, in Tar River, a natural channel leads for about 15 miles to the entrance to Hardee Creek, thence for another 3 miles to Greenville. In October 1975, the midchannel controlling depth in the dredged channel was 9 feet to a point about 0.4 mile above the second bridge at Washington; thence in Tar River, in 1956-October 1975, centerline depths of 2½ feet to Hardee Creek, except for shoaling to less than 1 foot at the entrance to Hardee Creek, and thence 2½ feet from Hardee Creek to Greenville. The channel is marked by lights to Washington.

(200) Pamlico River is nontidal; variations in the water level at Washington, due to prevailing winds, seldom exceed 2 feet. The extreme range of the flood or freshet stage for Tar River is 34 feet at Tarboro, 75 miles above the mouth. For the lower section, the extreme range due to winds is 8.5 feet.

(201) **Charts 11548, 11553.–Pungo River** empties into Pamlico River from northward about 5 miles above the mouth. The channel through the lower 15 miles of the river, part of the Intracoastal Waterway, is well marked by lights and daybeacons. Above the Intracoastal Waterway, the river narrows. In July 1983, the reported centerline controlling depth in this section of the river was 5 feet to **Leechville,** a town 18 miles above the mouth. The U.S. Route 264 highway bridge at Leechville has a 30-foot fixed span with a clearance of 7 feet. An overhead power cable on the north side of the bridge has a clearance of about 28 feet. Tributaries to the Pungo River include several navigable creeks. The most important in order of ascension are Wright, Slade, Pungo, Pantego, and Wilkerson, which empty into the northeast end of the river. The route of the Intracoastal Waterway, described in chapter 12, follows Pungo River from Wilkerson Creek to and across Pamlico River.

(202) **Wright Creek** empties into the west side of Pungo River 2 miles above the mouth and about 8 miles south of Belhaven. The creek is entered from deep water in Pungo River through a dredged channel that leads to a turning basin at the head of **North Prong,** about 1.1 miles above the entrance. In July 1977, the channel had a midchannel controlling depth of 8 feet; thence in July 1983, a reported depth of 4 feet in the basin. The channel is marked by lights and daybeacons.

(203) Two small marinas are on North Prong. Berths with electricity, diesel fuel, limited marine supplies, gasoline, and launching ramps are available; minor hull repairs can be made.

(204) **Slade Creek,** which empties into Pungo River from eastward about 4 miles above the mouth, in July 1983, had reported depths of 6 feet or more for 2 miles from the mouth, and 7 feet for 2 miles farther. A pile was reported in the creek entrance about 0.2 mile NNW of July Point at about 35°27'32"N., 76°33'21"W. An unmarked fish haven is about 1 mile northwest of the creek entrance in about 35°28'15"N., 76°34'18"W.

(205) **Pungo Creek** (see also chart 11554) empties into Pungo River from westward about 8 miles above the mouth of the river and 1.5 miles southwestward of Belhaven. A highway bridge, 2.5 miles above the mouth of the creek, has a 32-foot fixed span with a clearance of 8 feet. The overhead power cable just north of the bridge has a clearance of 35 feet. In July 1983, the creek had reported depths of 7 feet or more to the bridge and thence 5 feet for about 2 miles. A light and a daybeacon mark the entrance to the creek.

(206) **Pantego Creek** (see also chart 11554) just northward of Pungo Creek, empties into Pungo River northward about 9 miles above the mouth of the river. Timber breakwaters, in fair condition, extend from both shores of the entrance. The outer ends of the breakwaters are marked by lights.

(207) A dredged channel leads from Pungo River through the breakwaters and to the basin at Belhaven just below State Route 92 highway bridge. In 1984, the centerline controlling depth to the basin was 9 feet. Above the dredged channel, in 1963, there were depths of about 7 feet for 1 mile above the bridge, thence 4 feet to the highway bridge at the town of **Pantego;** lights and daybeacons mark the dredged channel. State Route 92 highway bridge at Belhaven has a 32-foot fixed span with a clearance of 13 feet.

(208) **Belhaven,** on the northeastern side of the entrance to Pantego Creek, has an excellent harbor for small craft. The town is connected with the interior by highway and railroad. Seafood, grain, and lumber are shipped from here. Marine supplies can be obtained in the town, and hotel accommodations are available.

(209) Berthage, electricity, gasoline, diesel fuel, water, ice, and marine supplies can be obtained at the small-craft facilities on the north side of the creek at Belhaven, just inside of the breakwater. One of the facilities has a marine railway that can handle craft up to 60 tons for engine and hull repairs. A launching ramp is also available.

(210) **Goose Creek,** opposite the entrance to Pungo River, empties into Pamlico River from southward about 7 miles above the mouth of the river. The dredged channel of the Intracoastal Waterway crosses the shoals, which obstruct the mouth of the creek, and passes southward to **Upper Spring Creek** and the land cut which connects with Bay River.

(211) **Chart 11554.–South Creek,** about 11 miles above the entrance to Pamlico River, empties into the river from the southward. The deeper entrance is southward of **Indian Island** and the shoal extending westward from that island to **Hickory Point** (35°21.8'N., 76°41.9'W.), the north point at the entrance to the creek. In July 1983, a reported draft of 5 feet could be taken through the channel across the shoal west of Indian Island; a light and a daybeacon mark the best water. The creek has depths of 7 feet or more for 4 miles above Hickory Point. Above this point, a dredged channel leads to Aurora, and thence to Idalia, about 9 miles above Hickory Point. In June 1977, the midchannel controlling depth was 4 feet to Aurora; thence in October 1976, a centerline depth of 3½ feet to Idalia. The channel is marked by daybeacons as far as Aurora.

(212) **Aurora** is a town on the west side of South Creek, about 7 miles above Hickory Point. An oil dock here is in ruins. State Route 33 highway bridge, with a 37-foot fixed span and a clearance of 5 feet, crosses the creek at Aurora. Small boats use the creek as far as **Idalia,** about 2 miles above Aurora.

(213) A channel, marked by private daybeacons, leads to a barge slip at a phosphate plant on the north side of South Creek about 3.9 miles southwest of Hickory Point. In July 1983, the slip had reported depths of 10 feet.

(214) **Bond Creek** and **Muddy Creek** share a common entrance close eastward of South Creek, about 1 mile southward of Hickory Point. The town of **South Creek,** about 0.5 mile above the entrance, is bordered on the west by Bond Creek, and on the east by Muddy Creek. The entrance is marked by daybeacons. A crabmeat packinghouse is on the east side of town. In July 1983, a reported depth of 5 feet could be taken in Bond Creek for about 2.3 miles. In June 1990, an obstruction was reported in Bond Creek in about 35°20'26"N., 76°41'49"W. Gasoline and diesel fuel are available at the crabmeat packinghouse pier on Muddy Creek.

(215) **North Creek** empties into Pamlico River directly opposite South Creek. The channel had a reported centerline depth of 4 feet for about 1.5 miles in July 1983, and is marked by a light and daybeacons, but its navigation should not be attempted by strangers. In East Fork, the channel, in July 1983, had a reported centerline depth of 5 feet for 1.5 miles above the entrance.

(216) A ferry, operated by the State Roads Commission, crosses Pamlico River about 15 miles above the mouth. The marked channels leading to the northern terminal in **Gaylord Bay,** about 3.5 miles westward of North Creek, and to the southern terminal about 3 miles westward of Hickory Point, had reported depths of 7 feet in July 1983.

(217) A privately dredged channel leads to a basin of a phosphate plant on the south side of Pamlico River, about 15.5 miles above the mouth and 4 miles westward of Hickory Point. The channel is marked by private daybeacons. In July 1983, the reported controlling depth was 10 feet. The structures at the plant are the most conspicuous objects in the area.

(218) **Durham Creek** empties into Pamlico River from southward 17.5 miles above the mouth and 6.5 miles westward of Hickory Point. In July 1983, local knowledge was advised to pass over the bar across the entrance to the creek, thence depths of 3 feet were reported available to Bonnerton, 4 miles above the entrance. A fixed highway bridge with a clearance of 2 feet crosses the creek at Bonnerton. A daybeacon marks the entrance.

(219) **Bayview** is a pleasure resort on the north bank of Pamlico River 6.5 miles northwestward of Hickory Point and about 2 miles eastward of the entrance to Bath Creek. Small tourist cabins are available, and a good secondary road connects with State Route 92 highway northward. The nearest rail connections are at Washington, about 20 miles distant by highway. Gasoline and some supplies are available at Bayview, and there is a small-boat launching ramp. All of the docks at Bayview are in ruins. An unmarked fish haven is about 0.7 mile southwest of Bayview in about 35°25'55"N., 76°48'25"W.

(220) **Bath Creek,** opposite Durham Creek, flows southward into Pamlico River 8 miles northwestward of Hickory Point. In July 1983, the reported controlling depths were 5 feet to the bridge at the town of Bath, thence 4 feet for about another 1.7 miles. The most difficult part of the channel to Bath is the entrance, where a shoal extends halfway across from the west side and drops off abruptly. The channel is marked by lights and daybeacons to a point about 0.35 mile southward of the highway bridge. The outer edge of the shoal is marked by a light. Numerous fish traps are off the creek entrance during the fishing season from January through May.

(221) The State Route 92 highway bridge at Bath has a 37-foot fixed span with a clearance of 13 feet. An overhead cable close northward of the bridge has a clearance of 36 feet. In July 1983, the bulkhead below the bridge had a reported depth of 6 feet alongside, and a small dock north of the bridge had a reported depth of 3 feet alongside. Gasoline and some supplies are available at Bath, and there is a small-boat launching ramp.

(222) **Back Creek** empties into the east side of Bath Creek about 1 mile above its mouth. A highway bridge with a 41-foot fixed span and a clearance of 7½ feet crosses the creek about 0.5 mile above the mouth. An overhead power cable with a clearance of 43 feet crosses the creek just west of the bridge. A launching ramp is available just below the bridge.

(223) Pamlico River above Bath Creek is usually fresh.

(224) **Blounts Creek** flows northward into **Blounts Bay**, which is on the south side of Pamlico River, about 25 miles above the mouth. A highway bridge, 0.2 mile above the entrance of the creek, has a 36-foot fixed span with a clearance of 15 feet. Overhead power and telephone cables immediately southward of the bridge have a reported clearance of 18 feet. The entrance to the creek is marked by a buoy, however, local knowledge is advised. Above the entrance, the creek, in 1963, had depths of 5½ feet or more for about 1 mile above the bridge and 3 feet for an additional 2 miles.

(225) **Broad Creek,** on the north side of Pamlico River opposite Blounts Bay, in April 1975, had a reported centerline controlling depth of 5 feet from the entrance to the **Washington Yacht and Country Club,** a distance of 1 mile, thence 4 feet for another 1.3 miles. The channel is marked by lights, daybeacons, and "no wake" markers. Gasoline, water, and electricity are available at the piers of the private club, which has 4 feet of water alongside. Just south of the yacht club is a pier with 4 feet alongside where only covered storage is available. Two marinas about 0.25 mile below the yacht club have berths with electricity, gasoline, diesel fuel, marine supplies, and launching ramps. Both marinas have mobile 30-ton lifts; hull, engine, and electronic repairs can be made. An overhead power cable with a reported clearance of 30 feet crosses the creek about 0.3 mile northward of the yacht club.

(226) **Whichard Beach** is on the south side of the Pamlico River about 4 miles above Blounts Bay and about 0.4 mile above **Fork Point** at the junction of Pamlico River and **Chocowinty Bay.** A marina at Whichard Beach has berths, gasoline, limited marine supplies, water, ice, provisions, and launching ramps. Hull and outboard engine repairs can be made.

(227) **Runyon Creek** is on the north side of Pamlico River at Washington. N.C. Route 32 highway bridge and the Norfolk Southern railroad bridge crossing the creek just above the mouth have 18-foot fixed spans and a clearance of 4 feet. In July 1983, there was reported depth of 4 feet available in the channel immediately north of the highway bridge. A launching ramp near the bridge is available.

(228) **Washington,** 32 miles above the mouth of Pamlico River, is the seat of Beaufort County and an important business center with communications extending to nearly all points on Pamlico River and Pamlico Sound. The town has restaurants, hotels, and motels. Marine supplies are available.

(229) Barge traffic in gasoline, oil, pulpwood, and lumber constitutes the principal commerce at Washington.

(230) Two swing bridges cross the river at Washington. The Norfolk Southern railroad bridge has a clearance of 7 feet; the west draw is closed to navigation. The U.S. Route 17 highway bridge, about 0.7 mile above, has a clearance of 6 feet. (See **117.1 through 117.59 and 117.831**, chapter 2, for drawbridge regulations.) The overhead power cable close westward of the highway bridge has a clearance of 75 feet.

(231) A county hospital is at Washington.

(232) Most of the wharves and piers at Washington handle barge traffic. These privately operated facilities extend along the southwest waterfront of the town between the railroad and highway bridges. A marina and a marine railway are also here. Gasoline, diesel fuel, water, ice, and marine supplies are available. The marine railway can handle craft up to 50 feet for minor hull and engine repairs. The city-owned bulkhead, about 750 feet long, is on the southwest waterfront about 0.3 mile southeastward of the highway bridge; depths of 5 feet are reported alongside. The bulkhead is restricted to pleasure craft not exceeding 50 feet in length or 20 feet in width. Craft drawing more than 5 feet are subject to damage due to the stone riprap which extends from the bottom of the bulkhead.

(233) Washington has rail connections with the Seaboard System Railroad and the Norfolk Southern Railway, and highway connections with U.S. Route 17 and N.C. Route 32.

(234) A highway swing bridge with a clearance of 5 feet at extreme high water and 10 feet at low-water stage crosses the Tar River at **Grimesland,** about 7 miles above Washington. (See **117.1 through 117.59 and 117.831**, chapter 2, for drawbridge regulations.) An overhead power cable about 5 miles above Grimesland has a clearance of 77 feet.

(235) **Chart 11548.–Mouse Harbor, Big Porpoise Bay,** and **Middle Bay** are small unmarked shallow bays on the east side of **Goose Creek Island** on the western side of Pamlico Sound between **Pamlico Point Light PP** (35°18.8'N., 76°27.0'W.) and Jones Bay. The light marks the south side of the entrance to Pamlico River, and is shown 40 feet above the water from piles with a green square daymark. Mouse Harbor Ditch and **Leary Canal** are two small-boat passages which connect Mouse Harbor with Clark Creek on Pamlico River, and Big Porpoise Bay with Middle Bay. These passages are not being maintained, and are used only by shallow-draft skiffs; local knowledge is advised. The three bays are frequented only by local fishermen.

(236) **Jones Bay** is on the western side of Pamlico Sound about 7 miles southward of Pamlico Point Light PP and just northward of the entrances of Bay and Neuse Rivers. In July 1983, the bay had reported depths of 6 feet or more for 4 miles above its mouth. The entrance is somewhat obstructed by shoals through which a marked channel leads into the bay. On the north side, near the head of the bay, is the town of **Hobucken**. Small craft bound for the town can land in the cove 0.8 mile above **Drum Creek,** which indents the north shore of the bay about 3.5 miles above the entrance.

(237) **Ditch Creek,** on the opposite side of Jones Bay from Drum Creek, leads to an old canal through which small boats can be taken at high water to Bay River. Hobucken is discussed further in chapter 12 in connection with the Intracoastal Waterway which crosses the head of Jones Bay and links it with Goose Creek on the north and Bay River on the south. **Hobucken Coast Guard Station** fronts the Intracoastal Waterway at Hobucken.

(238) The approach to Jones Bay from eastward is over or around **Brant Island Shoal,** which extends for 10 miles in a southeasterly direction from the north side of the entrance to the bay. For 6 miles southeastward to Brant Island Slue Light 1, the shoal has depths of 2 to 3 feet; between that light and Brant Island Shoal Light BI at the outer end are depths of 5 to 8 feet. The wreck of the GOVERNOR SCOTT FERRY is about 0.7 mile east of Light BI and is marked by a light. In November 1991, a sunken wreck was reported between Brant Island Shoal and Royal Shoal in about 35°07'14"N., 76°12'44"W. Other wrecks and obstructions are west and south of Brant Island Shoal Light BI.

(239) The **danger zone** of a bombing and rocket firing area is in Pamlico Sound westward of the entrance to Jones Bay. Numerous lights and daybeacons mark the perimeter of the danger zone. (See **334.420,** chapter 2, for limits and regulations.) In July 1983, Brant Island (35°12.6'N., 76°26.5 'W.) was reported no longer visible at low water.

(240) **Charts 11544, 11548, 11552.–Bay River** about 10 miles southward of Pamlico Point Light PP (35°18.8'N., 76°27.3'W.), empties into the western part of Pamlico Sound between Jones Bay and the mouth of Neuse River. The natural channel, from the entrance to off the mouth of Trent Creek about 12 miles above the entrance, is marked by lights and daybeacons and, in 1963, had depths of 9 feet or more. It can be followed readily. Above this point, a dredged channel leads to Bayboro, which is practically the head of navigation. In July 1983, the reported controlling depth was 10 feet. The dredged channel is marked by daybeacons to Stonewall. An overhead power cable crossing the river about 0.3 mile below Bayboro has a clearance of 65 feet.

(241) In February 1986, a visible piling extending about 10 feet above the water was reported to be about 500 yards east of Bay River Light 1 in about 39°09'47"N., 76°31'42"W.; caution is advised.

(242) The route of the Intracoastal Waterway is along Bay River for 4 miles, thence northward through Gale Creek.

(243) **Vandemere** is a town on the north side of Bay River 8 miles above the mouth. Gasoline, diesel fuel, a launching ramp, and some supplies are available. There are two marine railways that can haul out vessels up to 65 feet in length for hull repairs and there is a machine shop with engine repair service. In July 1983, the reported controlling depth was 8 feet to Vandemere, and thence 8 feet alongside the piers and 4 feet at end of railways.

(244) **Stonewall** is a small town on the south side of the river 14 miles above the mouth; most of its docks are in ruins.

(245) **Bayboro,** 15 miles above the mouth of the river, has docks in fair condition on the east side of the creek leading to Mill Pond. In July 1983, depths of 7 feet were reported alongside the oil and fish docks. Gasoline, ice, and some supplies are obtainable here. Lumber and pulpwood are shipped out by Norfolk Southern Railway. Navigation above Bayboro is restricted by fixed bridges at the town.

(246) **Neuse River** rises in the northern part of North Carolina and flows for about 250 miles in a general east-southeasterly direction into the western end of Pamlico Sound. Its mouth is about 5 miles wide, but is reduced to a navigable width of about 2 miles by shoals which extend from either side. The river has natural depths of 13 feet or more for 25 miles above its mouth.

(247) Above this point, Neuse River has been improved by dredging. In November 1974, the controlling depths were 8½ feet at midchannel to the junction with the channel leading along New Bern's south waterfront on Trent River, thence 8 feet for a midwidth of 100 feet along the east side of the city to the Norfolk Southern railroad bridge, thence, in December 1974, 10 feet at midchannel to about 1.3 miles above the railroad bridge, and thence, 4 feet for 23 miles above the city. The channel is marked to about 4 miles above the city. Strangers should not attempt to navigate the river above that point.

(248) **Tides.**–Neuse River has practically no tide, the variation in water level being due principally to winds. Easterly winds cause high water and westerly winds low water, the maximum variations with heavy gales amounting to about 2 feet above or below the normal in the lower part of the river, and about 3 or 4 feet at New Bern. Freshets of 10 to 20 feet occur in the upper reaches of the river above New Bern, but have little effect at or below the town.

(249) **Broad Creek** empties into the north side of Neuse River about 4 miles above the mouth. In July 1983, the reported controlling depth in the creek was 5 feet for 2.5 miles, thence 4 feet to Whortonsville. A light marks the entrance to the creek. **Pamlico** is a village on the south side of the creek, 3 miles above the entrance. **Whortonsville** is on the east side of the entrance to **Brown Creek** about 0.5 mile northeast of Pamlico, and on the opposite side of Broad Creek. Berthage, electricity, water, limited marine supplies and a launching ramp are available at the pier which has a depth of 5 feet alongside.

(250) **South River** flows into the south side of Neuse River about 8 miles above the mouth. The entrance is marked by lights. In July 1983, the channel had reported depths of 6 feet for about 6 miles above the entrance, thence 5 feet for another 1.5 miles, April 1975.

(251) The **danger zones** of several bombing, rocket firing, and strafing areas are in Turnagain Bay and Rattan Bay, in Neuse River, and in Long Bay and West Bay in Pamlico Sound. (See **334.420**, chapter 2, for limits and regulations.)

(252) **Charts 11552, 11541.–Garbacon Shoal** extends halfway across Neuse River from the southern shore 10 miles above the mouth, leaving a clear width of about 0.8 mile between the 12-foot contours. The outer end of the shoal is marked by a light.

(253) **Whittaker Creek,** on the north side of Neuse River opposite Garbacon Shoal, is marked by lights and daybeacons. In June 1999, the privately dredged entrance channel had a reported controlling depth of 7 feet. In 1994, shoaling to 3 feet was reported and an uncharted private range marked the entrance channel. Several small-craft facilities are in the creek. (See the small-craft facilities tabulation on chart 11541 for services and supplies available.)

(254) **Oriental** is a small town at the entrance to **Smith Creek** on the north bank of the Neuse River about 11 miles above the mouth. Fishing is the principal industry and seafood is trucked to the interior. The harbor is protected by a rubble-mound breakwater marked by a light off the end.

(255) A dredged channel, marked by lights and daybeacons, leads from Neuse River to a basin at Oriental. In March 1977, the midchannel controlling depth to the basin was 8½ feet with 8½ feet in the basin. In July 1992, shoaling to 3 feet was reported northeast of Windmill Point, on the west side of the channel in about 35°01'14"N., 76°42'00"W. The harbor provides excellent anchorage for small craft.

(256) A marina with a reported depth of 6 feet alongside is on the east side of the basin. Berths, electricity, gasoline, diesel fuel, water, ice, a launching ramp, and limited marine supplies are available.

(257) A fixed highway bridge 0.2 mile above the entrance to Smith Creek has a clearance of 45 feet. An abandoned railroad bridge, in ruins, crosses **Morris Creek** about 1 mile above the highway bridge. **Greens Creek** joins Smith Creek at **Dewey Point** just above the highway bridge. Good anchorage was reported in Greens Creek for vessels drawing less than 4 feet.

(258) **Adams Creek** empties into the south side of Neuse River about 13 miles above the mouth. The creek is part of the Intracoastal Waterway and is described in chapter 12.

(259) **Clubfoot Creek** flows into Neuse River from southward about 15 miles above the mouth. The approach is marked by a daybeacon and the entrance by a light and daybeacons. The channel southward of the light is narrow with shoals rising abruptly on both sides. Depths in the channel, in July 1983, were reported to be 5 feet or more for 3 miles above the light.

(260) **Dawson Creek,** on the north side of Neuse River about 14 miles above the mouth, is entered through a dredged channel, marked by daybeacons, that leads from the river to the mouth of the creek. In July 1983, the reported controlling depth was 5 feet. A highway bridge with a 32-foot fixed span and a clearance of 11 feet crosses the mouth of the creek at **Janeiro.**

(261) A ferry crosses Neuse River about 18 miles above the mouth between Cherry Point and **Minnesott Beach.**

(262) **Hancock Creek** is on the south side of Neuse River about 20 miles above the mouth. In July 1983, the reported controlling depths were 7 feet through the narrow entrance channel to the Marine Corps Air Station basin just inside the mouth, thence 12 feet in the basin. Lights and daybeacons mark the channel. A launching ramp and pier are on the east side of the creek about 1.5 miles above the mouth.

(263) A **restricted area** at the Cherry Point Marine Corps Air Station, which includes Hancock and Slocum Creeks and their tributaries, is described in **334.430**, chapter 2.

(264) A water tank at the air station is conspicuous.

(265) **Slocum Creek,** on the south side of Neuse River 22 miles above the mouth, in July 1983, had a reported controlling depth of 4 feet for 4 miles to the forks, and up the East Prong 0.1 mile to a foot bridge across the creek which obstructs passage for further navigation. A light and daybeacons mark the critical parts of the channel at the entrance to the creek. A highway bridge with 32-foot fixed span and a vertical clearance of 3 feet crosses 3 miles above the entrance. An overhead cable with a clearance of 39 feet crosses the creek just below the bridge.

(266) **Beard Creek** is on the north side of Neuse River opposite Slocum Creek. The mouth of the creek is marked by a daybeacon. The reported controlling depth from the entrance to the highway bridge, 2.3 miles upstream, was 4 feet in July 1983. The bridge has a fixed span and a clearance of about 4 feet. Good anchorage may be found off the eastern side of the entrance.

(267) **Goose Creek,** on the northeast side of Neuse River 27 miles above the mouth, in July 1983, had reported depths of 5 feet or more to **Wood Landing,** 3 miles above the entrance. **Upper Broad Creek,** on the northeast side of Neuse River 28 miles above the mouth, had reported depths of 5 feet or more, in July 1983, to **Lees Landing** 4 miles above the entrance. Overhead power cables about 1.4 miles above the mouth and at the landing have clearances of 35 feet and 40 feet, respectively. The entrance is marked by daybeacons.

(268) **Fairfield Harbour** is a resort and residential community on the east side of **Northwest Creek,** about 1 mile west of Upper Broad Creek. The entrance to Northwest Creek is marked by a light; depths of 4 feet can be carried through the unmarked creek. A marina is on the east side of the creek, about 0.7 mile above the entrance. In July 1983, depths of about 6 feet were alongside the marina piers; berths, electricity, gasoline, diesel fuel, water, supplies, engine repairs, and a launching ramp are available.

(269) **New Bern,** a city on the west bank of Neuse River 34 miles above the mouth, is the seat of Craven County and an important center for this area. The city has many points of historical interest including Tryon Palace, an 18th century restoration. A county hospital is here, and there are numerous restaurants, hotels, and motels. Gasoline, diesel fuel, water, ice, marine supplies, and provisions are available.

(270) Barge traffic in petroleum products, crushed rock, pulpwood, and chemicals constitutes the principal commerce at New Bern. In addition to vessel repairs, the city supports a considerable boat and barge building industry.

(271) The rectangular lighted clock tower atop City Hall is visible for about 6 miles downriver and is an excellent landmark. Vessels proceeding up the river to New Bern are advised to stay in the channel because of the numerous fish traps scattered indiscriminately throughout the unmarked areas. The river is slightly brackish except during freshets.

(272) **Weather, New Bern and vicinity.** New Bern's climate is influenced by both the Atlantic Ocean and Pamlico Sound, particularly in the winter. Winds blowing from a southerly or easterly direction have a moderating effect on temperatures.

(273) The long hot summers begin in May when afternoon temperatures occasionally reach 90°F (32.2°C), and reach a peak in July when they average 89°F (31.7°C); they begin to fall off by the end of September. The average high temperature in New Bern is 73°F (22.8°C) and the average low is 52°F (11.1°C). July is the warmest month with an average high of 80°F (26.7°C) and an average low of 71°F (21.7°C). January is the coolest month with an average high of 55°F (12.8°C) and an average low of 34°F (1.1°C). Each month, May through September has recorded temperatures in excess of 100°F (37.8°C) while each month, October through May has had temperatures below freezing. The warmest temperature on record in New Bern is 106°F (41.1°C) recorded in July 1952 while the coldest temperature on record is -4°F (-20°C) recorded on Christmas Morning 1989. The average number of days with a maximum temperature of 90°F (32.2°C) or warmer is 41 while the average number of days with a minimum temperature of 32°F (0°C) or cooler is 50.

(274) Rainfall averages 52 inches (1,321 mm) annually; with July through September contributing most. The wettest month is July with 6.77 inches (172 mm) and the driest month is April with an average of 2.97 inches (75.4 mm). An average of 2 inches (51 mm) of snow falls at New Bern each winter and can be expected any time between late November and early April. The greatest snowfall during a 24-hour period was 13 inches (330.2 mm) in January 1965. Snowfall amounts in excess of one foot (304.8 mm) have been recorded in January and February.

(275) Most of the wharves and piers at New Bern handle barge traffic. These privately operated facilities are on the south side of the city on Trent River, and on the east side on Neuse River.

(276) A shipyard, on the Trent River just westward of the Norfolk Southern railroad bridge, has four marine railways that can handle vessels up to 250 feet long or 1,200 tons. Major hull, engine, electrical, and electronic repairs can be made. Most of the work done is on vessels engaged in the Intracoastal Waterway trade.

(277) A marina on the south side of Trent River just southwestward of the railroad bridge has three 100-foot-long piers with depths of 9 feet alongside. Berths, electricity, gasoline, diesel fuel, water, and dry storage are available; hull and engine repairs can be made.

(278) New Bern is served by two railroads; the Norfolk Southern and the CSX. The city is also served by commercial airlines.

(279) U.S. Route 17 Highway bridge over Neuse River at New Bern has a swing span with a clearance of 13 feet. (See **117.1 through 117.59 and 117.823**, chapter 2, for drawbridge regulations.) The Norfolk Southern Railway bridge, 0.9 mile above the highway bridge, has a swing span with a clearance of 0 feet at extreme high water and 2 feet at low water. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) In 1984, the

northeast draw of the bridge was reported closed to navigation. The overhead power cable at the railroad bridge has a clearance of 50 feet over the main channel.

(280) A small-craft repair facility is on the northeast side of the river just above the bridge at **Bridgeton,** opposite New Bern. A 35-ton mobile hoist and surfaced ramp are available. Hull, engine, sail, electrical, and electronic repairs can be made.

(281) **Trent River** empties into Neuse River on the south side of New Bern. A dredged channel leads westward from Neuse River along the waterfront on the south side of New Bern. In January 1974, the controlling depth was 7 feet at midchannel in the dredged section, thence in August 1977, 2 feet to Pollocksville, and thence, in 1957, 3½ feet to Trenton, 33 miles above the mouth. The channel above New Bern is marked by lights and daybeacons for a distance of about 6.5 miles.

(282) U.S. Route 70 highway swing bridge over Trent River at the mouth has a clearance of 5 ½ feet. (See **117.1 through 117.59 and 117.843**, chapter 2, for drawbridge regulations.) The Norfolk Southern railroad bridge, about 0.2 mile westward of the highway bridge has a swing span with a channel width of 43 feet and a clearance of 3 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) Fixed twin highway bridges about 0.3 mile southwest of the Norfolk Southern railroad swing bridge, have clearances of 45 feet. Overhead power cables cross Trent River about 1.8, 4.8, 8.8, and 14 miles above its mouth; clearances are 65 feet, 48 feet, 55 feet, and 63 feet, respectively.

(283) At **Pollocksville,** 15 miles above the mouth, U.S. Route 17 highway bridge has a 48-foot fixed span with a clearance of 5 feet.

(284) A fixed highway bridge with a 32-foot span and a clearance of 2 feet at high water and 12 feet at low water crosses Trent River, about 6.5 miles above Pollocksville.

(285) **Brice Creek** enters Trent River from the east about 1.7 miles above the mouth. In July 1983, the reported controlling depth to the highway bridge 1 mile above the mouth was 5 feet. The highway bridge has a 35-foot fixed channel span with a clearance of 15 feet. An overhead power cable with a clearance of 14 feet is just north of the bridge.

(286) **Chart 11548.–West Bay** is a large irregularly shaped body of water on the southwest side of Pamlico Sound west of Cedar Island and just southeastward of Neuse River entrance. The shores of the bay and its numerous branches are marshy, and it is of little importance other than for its oyster beds. In July 1983, a reported depth of 6 feet could be taken into the three principal arms of the bay through narrow and devious channels. Lights and daybeacons mark the entrance to West Bay and the channels in **West Thorofare Bay** and **Long Bay,** the middle and west arms, respectively.

(287) Hooked-shaped **Royal Shoal** extends northwestward from the vicinity of Ocracoke Inlet. The shoal, which bares in one place and is covered 1 to 4 feet elsewhere, is marked by four lights and a daybeacon. Tows and other vessels sometimes anchor inside the hook when the seas are too rough to make headway in the sound. In July 1983, however, it was reported that this anchorage was not a good one.

(288) A dangerous sunken wreck is reported to be about 0.4 mile north of Royal Shoal Light 5RS in about 35°09.8'N., 76°09.5'W. Caution is advised.

(289) **Charts 11550, 11545.–Core Sound** extends southwesterly along and just inside the barrier beach from the south side of Pamlico Sound to Cape Lookout, a distance of about 27 miles; the width varies between 2 and 3 miles. The sound is mostly shoal, but an improved channel, well marked by lights, extends along its entire length. Behind Cape Lookout, Core Sound is joined by Back Sound and The Straits, both of which connect with Beaufort Harbor.

(290) **Channels.**–The main route from Pamlico Sound to Beaufort Harbor is via a marked channel through Wainwright Slue, Core Sound, The Straits, and Taylor Creek. The alternate route to Beaufort Harbor is via a marked channel which leads southward along the east side of Harkers Island from a point just eastward of The Straits, thence southward of the island through Back Sound, thence along the westerly side of the island where it rejoins the main route. In 1983, the midchannel controlling depth in the dredged sections was 4 feet in the main route, thence in May 1998, 8 feet was reported in the alternate route from Harkers Island East Channel Light 14 to Daybeacon 1.

(291) From The Straits, the main route to Beaufort Harbor leads southwestward to the junction with the alternate route, westward of Harkers Island, thence westward along the north side of **Middle Marshes** to abeam **Lenoxville Point** where it turns sharply northward and then westward into **Taylor Creek.** The route is then westward through Taylor Creek to the wharves at Beaufort.

(292) **Tides.**–The mean range of tide in Core Sound is less than ½ foot, except near the inlets. Tidal currents of 1 to 2 knots may be experienced in the southern part of Core Sound.

(293) The channels from Core Sound to Beaufort Inlet via The Straits and Back Sound are described later in this chapter.

(294) **Chart 11550.–Wainwright Slue** is a small anchorage used by local mariners in the northeastern entrance to Core Sound. Shelter from the sea is provided by surrounding shoals that have depths of 1 to 3 feet over them. The reported depth in the anchorage was 8 feet in July 1983. The marked channel into Core Sound is through Wainwright Slue and east of **Wainwright Island.**

(295) **Cedar Island Bay,** off the northeast side of Cedar Island, makes into the northwest side of Core Sound. The bay is used mainly by fishing boats. An improved channel leads from the entrance, about 2.8 miles southwestward of Wainwright Island, to a small-craft basin on the west side of the bay. In July 1996, the reported centerline depth was 4 feet to the basin; thence in 1973, 5 feet in the basin. The channel is marked by lights and daybeacons, and by a light at the entrance. Gasoline, diesel fuel, and water can be obtained at the pier at the head of the basin. A radar dish antenna and a telephone tower are conspicuous on the south entrance point to the bay.

(296) The terminal of the Ocracoke-Cedar Island ferry, marked by private lights at the entrance, is at the north end of Cedar Island about 5.2 miles westward of Wainwright Island. The passenger and vehicle ferry operates daily to Ocracoke on the outer beach.

(297) **Thorofare Bay,** on the northwest side of Core Sound and 8 miles from the northeastern entrance, indents the eastern shore of Cedar Island about 3 miles southward of Cedar Island Bay. The bay is connected with West Thorofare Bay by a land cut known as the **Thorofare.**

(298) A dredged channel leads through Thorofare Bay, and thence through the Thorofare to West Thorofare Bay. This passage

provides a convenient route to local fishermen from Core Sound to West Bay and to the mouth of Neuse River. In September 1977, the controlling depth was 3 feet for a midwidth of 40 feet from West Thorofare Bay to Core Sound. The critical part of the channel is marked by lights and daybeacons.

(299) A fixed highway bridge near the eastern end of the Thorofare has a clearance of 45 feet.

(300) **Atlantic,** a town on the northwest side of Core Sound about 2 miles southwestward of the eastern entrance to Thorofare Bay, has a restaurant and a motel. A cluster of four aluminum-colored fuel storage tanks on the beach and a tall church spire are prominent from seaward.

(301) A marked, dredged channel leads northeastward from the main channel in Core Sound to a basin at Atlantic, about 0.5 mile above the entrance, thence continues northeastward behind a breakwater extending from **White Point** for another 0.3 mile to a basin at **Little Port Brook**. In June 1984, the controlling depth was 5 feet to the basin at Atlantic with 3½feet in the basin; thence in 1977-December 1999, 3 feet (3½ feet at midchannel) to the basin at Little Port Brook, and in 1973, 7 feet in the basin. The basin at Atlantic is used mainly by fishing boats. Gasoline, diesel fuel, water, ice, provisions, and limited marine supplies are available. A spur channel, with a reported depth of 6 feet, leads to a marine railway just southward of the basin; craft up to 45 feet can be handled for hull repairs.

(302) U.S. Route 70 highway connects with Beaufort and Morehead City.

(303) **Chart 11545.–Sealevel** is a small fishing community about 3 miles southwestward of Atlantic on the west shore of Core Sound. A restaurant and a motel are in town. A dredged channel leads from the sound to a basin at Sealevel. In 1982, the controlling depth was 2½ feet to the basin, with 2 feet in the basin. The channel is marked by lights.

(304) A private hospital is in Sealevel.

(305) A pier, used mainly by fishing vessels, is in the basin; depths of 8 feet are reported alongside. Gasoline, diesel fuel, water, and ice are available. Limited amounts of marine supplies can be obtained in town.

(306) Sealevel is connected with Beaufort and Morehead City by U.S. Route 70 highway.

(307) **Davis,** another small fishing community, 5 miles southwestward of Sealevel, ships seafood to the interior by truck. A dredged channel leads from Core Sound to a basin at Davis. In 1982, the controlling depth to the basin was 3 feet, with 3 to 4 feet in the basin. Gasoline, diesel fuel, water, and ice are available at a pier in the basin; depths of 4 feet are reported alongside. There are cabins and a restaurant at Davis; limited amounts of marine supplies also can be obtained here.

(308) Davis is connected with Beaufort and Morehead City by U.S. Route 70 highway.

(309) A pier, with reported depth of 6 feet alongside, is on the north side of **Oyster Creek,** about 1 mile northward of Davis. The entrance channel into the creek is marked by a light and a daybeacon. A machine shop, near the pier, is available for engine repairs. U.S. Route 70 highway bridge, about 0.4 mile above the entrance, crosses Oyster Creek just above the pier. The bridge has a 41-foot fixed span with a clearance of 7 feet.

(310) **Marshallberg,** about 6 miles southwestward of Davis, is on the west shore of Core Sound and on the north side of the eastern entrance to The Straits. A dredged channel leads from the main channel in Core Sound to a basin at Marshallberg. In July 1978, the midchannel controlling depth was 6 feet to and in the basin. The channel is marked by daybeacons. A boatyard on the south side of the basin has two marine railways. The longest can handle craft to 200 tons or 200 feet for complete hull and engine repairs. In July 1983, depths of 9 feet were reported alongside the boatyard. A boatyard is immediately westward of the marina. A marine railway here can handle vessels up to 125 feet in length for complete hull and engine repairs. Depths of 6 feet are reported alongside the marina and boatyard. A boatyard, about 900 yards west of the mouth of **Sleepy Creek,** 0.6 mile northwest of the basin at Marshallberg, has a marine railway that can handle craft up to 20 tons or 50 feet long for hull repairs. In July 1983, the reported controlling depth to the railway was 4 feet.

(311) **Back Sound,** southward of Harkers Island, and **The Straits,** which parallel Back Sound on the opposite side of the island, provide two marked routes from Core Sound to a junction with the Morehead City Harbor Channel at Beaufort Inlet. The northern route leads westward through The Straits and along the northerly side of Middle Marshes; the southerly route leads westward through Back Sound and along the southerly side of Middle Marshes. Both routes have several shoals close to the channels. The chart is the best guide.

(312) The improved channel from Back Sound to Lookout Bight has been discussed previously.

(313) The Straits, with an average width of about 0.5 mile, but in places only 100 yards wide in the channel, also affords a through passage from Core Sound to Beaufort Harbor. The passage has been discussed previously in this chapter. A highway bridge over the western end of The Straits has a swing span with a channel width of 36 feet and a clearance of 14 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) The overhead power cable close eastward of the fixed bridge has a clearance of 70 feet.

(314) **Westmouth Bay** is a cove on The Straits side of Harkers Island. A marine railway at a boatbuilding yard at the head of the bay can handle vessels to 40 feet for hull repairs. The town of **Harkers Island** in the central part of the island, has piers both on Back Sound and at the head of Westmouth Bay; depths to the piers were reported to be 3 feet in July 1983. Gasoline, diesel fuel, water, ice, and some provisions may be obtained at the piers, and there is also a small machine shop. In Westmouth Bay, depths to the piers were reported to be 3 feet in July 1983. Gasoline, diesel fuel, water, ice, and some marine supplies may be obtained at the piers.

(315) Several marinas are at **Shell Point,** at the eastern end of Harkers Island. Berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, launching ramps, and wet and dry storage is available.

(316) Seafood is shipped by truck and boat from Harkers Island.

(317) A marina on the southwest point of the island has gasoline, water, ice, and some marine supplies.

5. CAPE LOOKOUT TO CAPE FEAR

(1) This chapter describes the deepwater ports of Morehead City and Wilmington, and the smaller ports of Beaufort, Swansboro, Jacksonville, Wrightsville Beach, Wrightsville, Carolina Beach, and Southport. These smaller ports are principally engaged in barge, fishing, and small-craft traffic.

(2) Also discussed are the waters of Cape Fear River and its tributaries; Bogue, Stump, and Topsail Sounds; and Beaufort, Bogue, and New River Inlets, including some of the lesser inlets.

(3) The section of the Intracoastal Waterway from Morehead City to Cape Fear River is described in chapter 12.

(4) **COLREGS Demarcation Lines.**–The lines established for this part of the coast are described in **80.525**, chapter 2.

(5) **Weather.**–The southwesterly curve of this coastline often enables it to escape direct hits from both extratropical and tropical cyclones. This sheltering effect is reflected in the mean wind speeds of Wilmington (7.7 knots) and Morehead City (8.2 knots) compared to that of Cape Hatteras (9.9 knots). This coast is also subjected to less cloud and rain than the Outer Banks while its waters are calmer.

(6) From November through March gales blow about 1 to 3 percent of the time in deeper waters. Shoreward of the 100 fathom line, from October through April, maximum winds of 45 to 55 knots have been encountered while seas of 6 feet (2 m) or more occur 30 to 45 percent of the time; maximum seas are in the 20- to 35-foot (6 to 11 m) range. Hurricanes can bring stronger winds and higher waves but usually affect this portion of the coast about once in 15 to 20 years. An exception occurred when Hurricane Bonnie ravaged the coastline from Cape Fear to Cape Lookout in August 1998 with maximum winds of 115 knots and near-record rainfall totals. Hurricanes Bertha and Fran, in 1996, made landfall within miles of each other only six weeks apart. Both ravaged the coastline from the south of Wilmington to Cape Lookout. Bertha made landfall near Surf City, North Carolina, in the late afternoon of July 12th with maximum winds of 90 knots. Then at midnight on September 6th, Fran made landfall near Cape Fear with maximum winds of 100 knots. Both storms created severe wind damage, major flooding, and near-record storm surges for the area. In September 1985, Gloria generated winds estimated at 110 knots and 40-foot (12 m) seas in these waters as it paralleled the coast before making initial landfall over Cape Hatteras.

(7) Fog is most likely during late winter and early spring when warm air occasionally moves across the relatively cool water shoreward of the Gulf Stream. Visibilities drop below 0.5 mile (0.9 km) about 2 to 3 percent of the time. Radiation fog may drift out over the coastal waters from fall through spring when land stations record visibilities below 0.5 mile (0.9 km) on 1 to 4 days per month.

(8) **Chart 11520.**–From Cape Lookout the coast extends 8 miles in a northwesterly direction and then curves gradually westward and southward to Cape Fear. This section, nearly 100 miles long, is similar to that between Capes Hatteras and Lookout, but the strips of land which form it are separated from the mainland by much narrower bodies of water. As a consequence, the thick woods of the mainland can be seen from much farther seaward. The beach areas from Beaufort Inlet to Bogue Inlet and from New River Inlet to Cape Fear are undergoing rapid development. Many multistoried buildings can be seen in these areas.

(9) Depths along this stretch of coast are regular, and 4 to 6 fathoms can be taken to within 1.5 miles of the beach. The 10-fathom curve, about 10 miles offshore, is nearly parallel to the shore until eastward of Cape Fear where it bends southeastward around Frying Pan Shoals. The 20-fathom curve is from 20 to 45 miles offshore.

(10) There are numerous charted wrecks along this section of the coast, some extending as much as 75 miles offshore; the more dangerous ones are marked.

(11) A **danger zone,** near the northern end of Onslow Bay, extends offshore from Bear Inlet to about 8 miles southward of New River Inlet. (See **334.440**, chapter 2, for limits and regulations.)

(12) Between Beaufort Inlet and Cape Fear River are several inlets through which 4 to 10 feet can be carried to sheltered anchorage, but all are obstructed by shifting bars on which the sea breaks when at all rough. A sea breeze, even if light, will cause a heavy break on the bars, while a land breeze may be heavy without making the bars dangerous. Strangers bound southward in small craft should not leave a sheltered anchorage with the wind anywhere between southeast and southwest, and should find anchorage as soon as possible after the wind begins to blow from those directions. The best guide for entering or leaving the inlets is the appearance of the water, as breakers always form on the shoal areas; strangers should not attempt to enter an inlet when breakers form entirely across it.

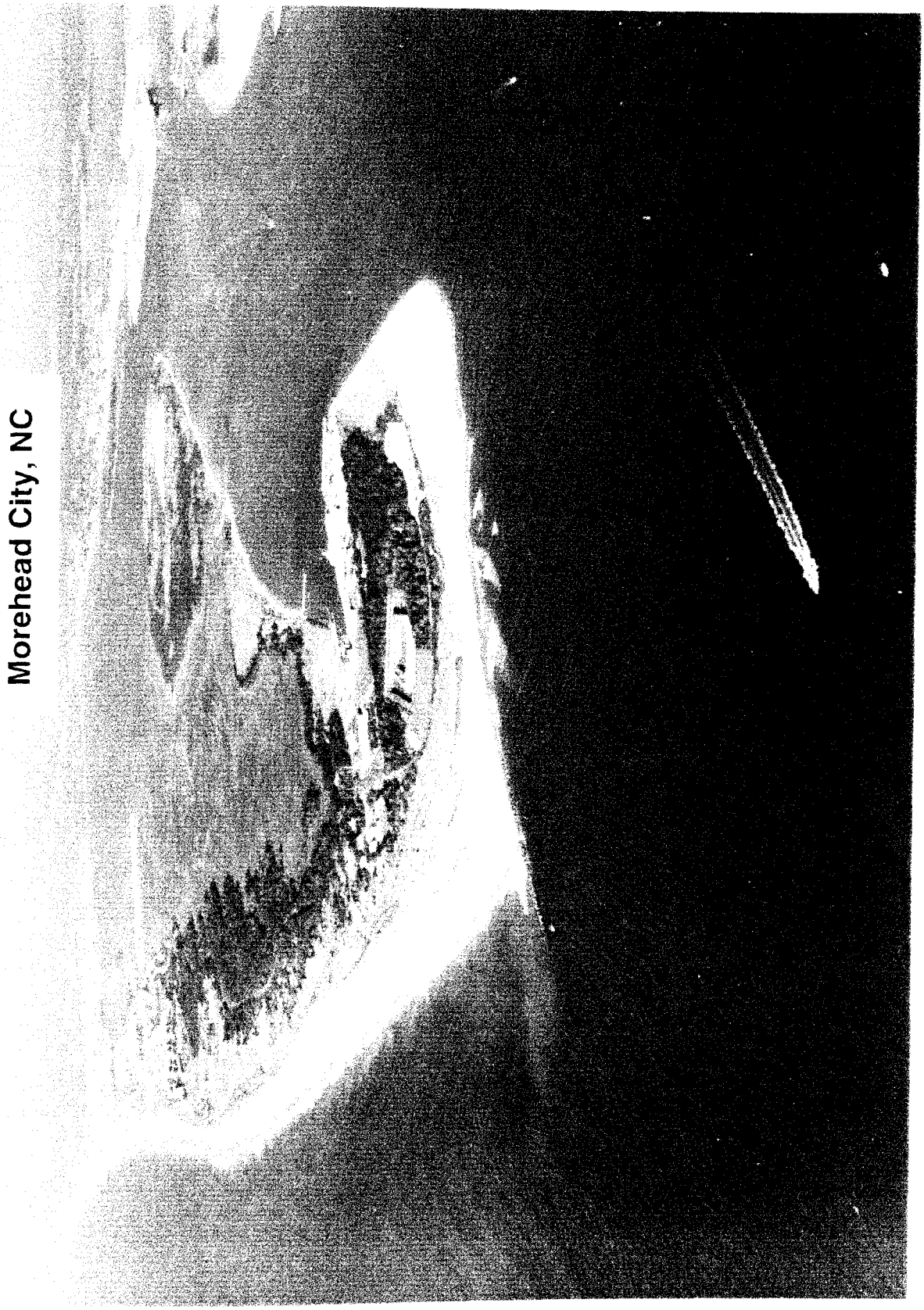
(13) This section of the coast, due to its low relief, presents no good radar targets except for the structure of Frying Pan Shoals Light.

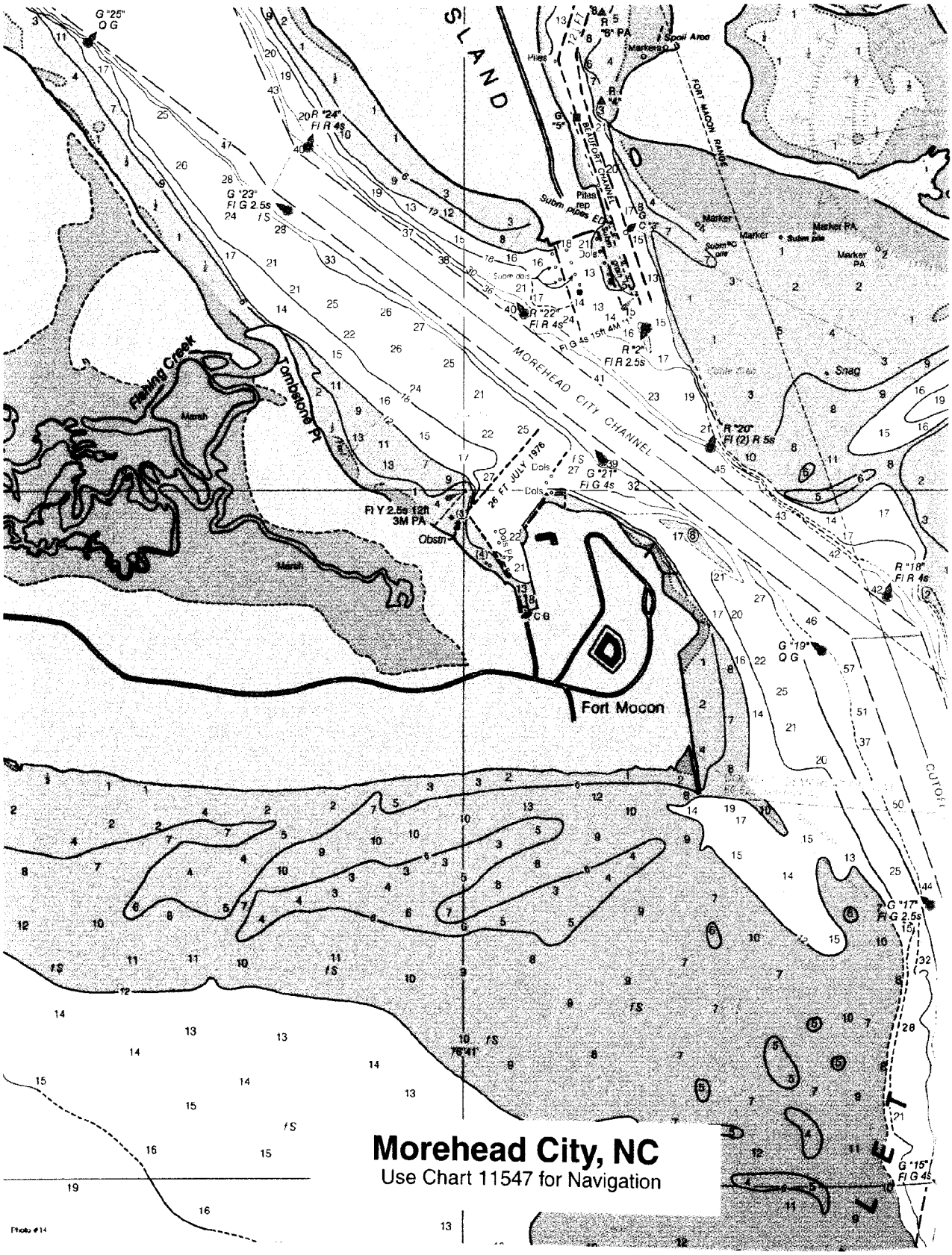
(14) **Charts 11545, 11547.**–Beaufort Inlet is about 220 miles southwestward of the Chesapeake Bay entrance and the same distance northeastward of Charleston. It is the approach to **Morehead City Harbor,** the most important coastal harbor between Cape Henry and the Cape Fear River. The ports of Morehead City and Beaufort are on the west and east sides of the harbor, respectively.

(15) **Morehead City,** about 4 miles above the Beaufort Inlet channel entrance, is a modern resort city, with marine, shopping, and service facilities, and hotels, motels, and restaurants. It is 249 miles south of Norfolk, Va., and 154 miles north of Wilmington, N.C., by coastwise routes.

(16) The port of Morehead City, the first deep-draft port south of Norfolk, Va., serves as a cargo transshipment point for oceangoing vessels, barges plying the Intracoastal Waterway, rail, and trucks. Exports include general cargo, phosphates, tobacco, pulpwood, logs, asphalt, salt, urea, potash, fishmeal, animal feed, and fertilizers. Imports are petroleum products (including fuel oils and asphalts), fishmeal, chemicals, rubber, fertilizers, and lumber.

(17) **Prominent features.**–The phosphate building and the tallest water tank at the State Ports Authority Terminal, Highway 70 bridge over the Newport River, and water tanks at Beaufort, Atlantic Beach, and on Harkers Island are the most conspicuous landmarks from seaward. It is reported that under ideal conditions Cape Lookout Light and the configuration of Cape Lookout prove of some value as radar targets in making the approach to Beaufort Inlet; these targets, however, should not be relied upon too strongly.


Morehead City, NC



Morehead City, NC
Use Chart 11547 for Navigation

(18) **Fort Macon State Park** is on the west side of Beaufort Inlet. The Fort Macon Coast Guard Base is close westward of the fort on **Fort Macon Creek.**

(19) **COLREGS Demarcation Lines.**–The lines established for Beaufort Inlet are described in **80.525**, chapter 2.

(20) **Channels.**–A Federal project provides for a channel 47 feet deep over the ocean bar at Beaufort Inlet, thence 42 feet to a turning basin off the North Carolina State Ports Authority Terminal at Morehead City with 40 feet in the turning basin's east leg and 35 feet in the west leg; thence a 12-foot channel and turning basin westward along the Morehead City waterfront as far as Tenth Street; thence a 6-foot channel to the Intracoastal Waterway in Bogue Sound. The entrance and main channels and all of Beaufort Inlet are subject to continual change. Lighted ranges and lighted buoys mark the main channel, and a radiobeacon is close northwest of Fort Macon. Lights, buoys, and daybeacons mark the minor channels. (See Notice to Mariners and latest editions of the charts for controlling depths.)

(21) **Anchorage.**–Vessels required to anchor to await a pilot are advised to select an anchorage on a line east of the position 34°38'25"N., 76°39'26"W. Good anchorage for large vessels also may be found in the area from the sea buoy eastward to Cape Lookout in good sand-shell holding bottom. All of the anchorages are exposed from the southwest quadrant.

(22) **Dangers.**–Cape Lookout Shoals, previously described in chapter 4, are the principal danger in the approach to Beaufort Inlet. Discontinued spoil areas are on both sides of the approach to the entrance channel, and a spoil area is immediately northward of the one on the west side. Lesser depths than charted may exist in these areas; caution is advised. A number of wrecks, some of which are marked, are in the approaches. A fish haven is about 3.8 miles west-northwestward of the sea buoy.

(23) **Tides.**–The mean range of tide at Morehead City is 3.1 feet. (See the Tide Tables for daily predictions.)

(24) **Currents.**–Tidal currents along Beaufort Inlet Channel attain velocities of up to about 2 knots. They usually set along the channels, but, at the entrance to Morehead City Channel, they usually set across the channel near the end of the flood period and beginning of the next ebb.

(25) Heavy swells build up in Beaufort Inlet Channel with northerly or southerly winds, making boating hazardous and entry or departure of ships difficult during unfavorable tidal conditions. Tidal conditions are hazardous near and under the causeway north of the State Ports Authority Terminal. It was reported in July 1983, that the current will attain a velocity of 4 to 5 knots off the southwest corner of the State Ports Authority Terminal, and whirlpools will develop off the southeast corner at maximum tides. (See the Tidal Current Tables for predictions.)

(26) **Weather, Cherry Point/Morehead City and vicinity.** The marine influence at Cherry Point/Morehead City is reflected by the average number of days the temperature reaches 90°F (32.2°C) (35 days) and falls to 32°F (0°C) or below (40 days). In midsummer, average highs reach the upper 80's (30.1° to 32.2°C) with nighttime lows about 10° to 15°F (5.6° to 8.4°C) cooler. Winters are mild as maximum temperatures usually climb to the mid 50's (12.2° to 13.3°C) with nighttime readings in the mid 30's (1.1° to 2.2°C). July is the warmest month with an average high of 88°F (31.1°C) and an average low of 72°F (22.2°C). January is the coolest month with an average high of 55°F (12.8°C) and an average low of 36°F (2.2°C). The warmest temperature on record is 104°F (40°C) recorded in June 1993 while the lowest temperature on record is -2°F (-18.9°C) recorded in January 1985. Each month, May through September, has recorded temperatures of 100°F (37.8°C) while each month, October through April, has had temperatures below freezing. The average number of days with a maximum temperature of 90°F (32.2°C) or greater is 35, while the average number of days with a minimum temperature of 32°F (0°C) or cooler is 40.

(27) More than one-third of the average 55 inches (1,397 mm) of rain falls during July, August and September, often as heavy, brief showers or thunderstorms. Measurable precipitation falls on 4 to 7 days per month on the average. July is the wettest month averaging 7.37 inches (187.2 mm) while April is the driest month averaging 2.68 inches (68.1 mm) of rainfall. Over 9 inches (228.6 mm) of precipitation fell during one 24-hour period in September 1946.

(28) Snowfall averages only 2.5 inches (63.5 mm) each year and has fallen in each month, November through April. The greatest 24-hour snowfall was 16 inches (406.4 mm) which occurred in March 1980.

(29) Visibilities are usually good although a steady southerly blow can produce haze and mist.

(30) The southerly exposure of Cherry Point/Morehead City, with only a slender, low barrier island as protection, makes it vulnerable to the destructive winds and tides of hurricanes. An average of 1.2 tropical cyclones annually, have passed within 150 miles (278 km) of Morehead City during the past 153 years (1842-1995). Most approach from the southwest or south. The principal threat of destructive winds and exceptionally high tides comes from tropical cyclones that originate in the tropical North Atlantic during August and September; particularly those that recurve northward so that the last 300 miles (556 km) or more of their approach lies over water and, which subsequently strike or pass close to the port. They also pose an additional threat of destructive tidal currents if they accelerate to forward speeds of 20 knots or more, after recurving, and make landfall within 100 miles (185 km) west of the port. The strongest recorded winds at Morehead City were 77 knots with gusts to 112 knots during Helene in September 1958. This was probably exceeded during Ione in September 1955 but no record was made; sustained winds were estimated at 82 knots with gusts to 93 knots.

(31) The exposure to the destructive winds and tides of many recurving tropical cyclones makes Morehead City unsuitable as a hurricane haven for both small craft and large ocean-going vessels. There are no sheltered berths or hurricane anchorages for deep-draft vessels. These ships should evade at sea if hurricane force winds (64 knots or more) are expected. Vessels with a large sail area should evade if winds of 48 knots or more are expected. Small recreational craft should, if possible, be removed from the water and firmly secured in a sheltered location ashore when a "Hurricane Watch" is issued. Bearing in mind that bridges will remain closed to waterborne traffic during a hurricane threat, larger shallow draft vessels should secure in those creeks and waterways farther inland, which offer the shelter of surrounding woodland.

(32) Peletier and Spooners Creeks off the Intracoastal Waterway in Bogue Sound are bounded by good piling, and the nearby woodland offers some protection from destructive winds. Damage is more likely, this close to the open ocean, from a storm surge, which may be associated with seas over-topping Bogue Banks in the case of a near strike by a hurricane. Furthermore, recent development along Bogue Banks presents the strong possibility that

approaches to these creeks, via the Intracoastal Waterway, will be blocked with debris from mobile home parks and other structures on the dunes, for a considerable period after a hurricane strike. For these reasons, many craft, including fishing vessels, prefer to secure to trees long the Adams Creek Canal section of the Intracoastal Waterway just south of the Core Creek swing bridge. More detailed information may be found in the **Hurricane Havens Handbook for the North Atlantic Ocean** as mentioned in Chapter 3.

(33) **Pilotage, Morehead City.**–Pilotage is compulsory for all foreign vessels and U.S. vessels under register in the foreign trade. Pilotage is optional for U.S. coastwise vessels which have on board a pilot licensed by the Federal Government.

(34) Pilotage is available from Morehead City Pilots Association, Inc., Maritime Building, 113 Arendell Street, Morehead City, NC 28557, telephone 919-726-4068, fax 919-726-9044, radiotelephone VHF-FM channels 14 and 16.

(35) The pilot boat is 44 feet long, and has a black hull with a white top and the word PILOT displayed on the sides of the house. At night, the pilot boat displays a white light over a red light. The pilot boat monitors VHF-FM channels 13, 14, and 16, and works channel 14. Pilots board vessels in the vicinity of Beaufort Inlet Lighted Whistle Buoy BM (34°34.8'N., 76°41.5'W.) and east of Beaufort Inlet Channel in position 34°38.4'N., 76°39.4'W. from the pilot boat, day or night. Vessels should maintain a speed of about 5 knots and provide a pilot ladder 1 meter above the water. Deeper draft vessels may be required to anchor east of Beaufort Inlet Channel east of the previously mentioned pilot boarding position, or east of channel Buoy 6, and wait on tides before entering. (See anchorage.)

(36) Arrangements for pilot services are usually made well in advance through ship's agents or direct to the pilot office. Vessels are requested to give a 2-hour advance notice before ETA.

(37) **Towage.**–Tugs up to 4,000 hp are available; tugs are required for docking oceangoing vessels. Arrangements for such services are usually made well in advance through ships' agents.

(38) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(39) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) There is a county hospital in Morehead City.

(40) Beaufort-Morehead City is a **customs port of entry.**

(41) **Harbor regulations.**–The port of Morehead City is administered by the North Carolina State Ports Authority, which is represented by the manager of the North Carolina State Ports Authority Terminal. The manager's office is at the terminal. There are no formal harbor regulations.

(42) **Wharves.**–The facilities described at the port of Morehead City include the North Carolina State Ports Authority Terminal and a privately operated oil terminal on the east side of the basin on Radio Island.

(43) The alongside depths for the facilities described are reported depths. (For information on the latest depths, contact the State Ports Authority or the private operator.) Unless otherwise indicated, the facilities mentioned are owned and/or operated by the State Ports Authority.

(44) Most of the other facilities in the port are used by fishing vessels and small craft. For a complete description of the port facilities, refer to Port Series No. 12, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

(45) **Facility on Radio Island:**

(46) **Aviation Fuel Terminals Tanker Wharf** (34°42'53"N., 76°41'29"W.): on west of Radio Island; 100-foot face, 650 feet with dolphins; 34 feet alongside; deck height, 12 feet; handles petroleum products, sulfur, and liquid fertilizer.

(47) **Facilities on north side of Bogue Sound:**

(48) **North Carolina State Ports Authority Berth No. 1** (34°43'06"N., 76°41'44"W.): 350-foot south face, 80-foot east face; 36 feet alongside; deck height, 10 feet, 2 feet at ramps at west end of south face.

(49) **North Carolina State Ports Authority, Berths Nos. 2 and 3**, adjoining Berth No. 1 to the southwest; 1,000-foot face; 40 feet alongside; deck height, 10 feet; shiploader with overhead clearance of 45 feet; belt-conveyor system, loading rate 3,000 tons per hour; handles phosphoric acid and dry bulk materials including phosphate; operated by North Carolina State Ports Authority and Morehead City Exports Terminals.

(50) **North Carolina State Ports Authority Berths Nos. 4 and 5**: adjoining Berths Nos. 2 and 3 to the west; 1,281-foot face; 35 feet alongside; deck height, 10 feet; mobile cranes to 30 tons; handle general cargo, asphalt, salt, and fishemeal; various operators.

(51) **North Carolina State Ports Authority Berths Nos. 6 and 7**: adjoining Berths Nos. 4 and 5 to westward; 1,090-foot face; 35 feet alongside; deck height, 10 feet; two traveling 115-ton gantry cranes; use of mobile equipment from Berths Nos. 4 and 5; handles general cargo and dry bulk materials including lumber, steel, paper products, machinery, potash, urea, fishmeal, and heavy lift items; various operators.

(52) **North Carolina State Ports Authority Berths Nos. 8 and 9**: adjoining Berths Nos. 6 and 7 to the northward; 1,350-foot face with 100-foot roll-on/roll-off ramp at north end; 35 feet alongside; deck height, 10 feet, 8 feet at roll-on/roll-off ramp; use of gantry cranes from Berths Nos. 6 and 7 and mobile equipment from Berths Nos. 4 and 5; handles general, heavy-lift, containerized, and roll-on/roll-off cargo.

(53) A Navy staging area and three LST loading ramps are at the southern end of Radio Island. Three rows of mooring dolphins separate the loading ramps. A submerged groin extends southward along the easterly side of the easterly row of dolphins.

(54) **Supplies.**–Bunker C fuel oil is available at North Carolina State Ports Authority Berth No. 1. Diesel fuel is obtained by truck. Marine supplies and provisions are available in Morehead City.

(55) **Repairs.**–There are no drydocking or major repair facilities for deep-draft vessels in the port; the nearest facilities are at Newport News and Norfolk, Va. Several machine shops, off the waterfront, can make limited above-the-waterline repairs. The largest of these shops is equipped to perform general welding and fabricating, and produce shafts up to 20 feet in length.

(56) A boatyard about 0.55 mile west of North Carolina State Ports Authority Berths Nos. 8 and 9 has a 300-ton vertical lift. A 10-ton crane is at the yard. Hull and engine repairs can be made to small vessels.

(57) **Small-craft facilities.**–Most of the small-craft facilities are along the southern waterfront of Morehead City. A yacht basin is on the north side of the city, off the northwest side of the North Carolina State Ports Authority Terminal. Other small-craft facilities are at nearby Beaufort and Radio Island, and westward of the city along the Intracoastal Waterway.

(58) (See the small-craft facilities tabulation on chart 11541 for services and supplies available.) Restaurants and living accommodations are along the Morehead City waterfront.

(59) **Communications.**–The port is served by U.S. Route 70 and State Route 24. The city is linked to the Southern Railway System through the Atlantic and East Carolina Railway. The 3-mile Beaufort and Morehead Railroad connects the city with nearby Beaufort.

(60) **Beaufort** (pronounced BO-furt), on the eastern side of Morehead City Harbor, has considerable fishing and boatbuilding activity. It is reached from Beaufort Inlet through Beaufort Channel and from the Intracoastal Waterway through Gallants Channel. The Taylor Creek Channel is described in chapter 4.

(61) A Federal project provides for channel depths of 15 feet in **Beaufort Channel,** 12 feet in **Gallants Channel** from the Intracoastal Waterway to the first turn just north of Town Creek, thence 15 feet in the lower part of the channel to the junction with Beaufort Channel, and thence 15 feet from the junction through a 12-foot basin in front of the town of Beaufort, and thence through Taylor Creek to a point 0.2 mile westward to Lenoxville Point. The channels are subject to shoaling between dredging, and lesser depths may be found. (See Notice to Mariners and latest editions of charts for controlling depths.) The channels are well marked by lights, buoys, and daybeacons. A submerged groin extends southward between the westerly edges of Beaufort Channel and the easterly row of dolphins at the southeastern end of Radio Island.

(62) A dredged channel leads eastward from Gallants Channel to a basin at the head of **Town Creek,** north of Beaufort. In June 1996, the midchannel controlling depth to the basin was 3 feet; thence in 1966, 10 feet in the basin.

(63) Beaufort is connected by a highway bridge across Gallants Channel to **Radio Island** and thence to Morehead City by bridges over the Intracoastal Waterway. Minimum clearance is 4 feet for the bridges with bascule spans over Gallants Channel. (See **117.1 through 117.49 and 117.822**, chapter 2, for drawbridge regulations.) An overhead power cable close northward of the highway bridge has a clearance of 87 feet. The bridges over the Intracoastal Waterway are described in chapter 12.

(64) **Small-craft facilities.**–Most of the facilities are along the southwest waterfront of Beaufort. There are also facilities near the northern end of Radio Island. (See the small-craft facilities tabulation on chart 11541 for services and supplies available.) Machine shops in Beaufort can make engine repairs.

(65) **Charts 11543, 11541.–Bogue Sound** extends about 22 miles westward along the coast from Beaufort Inlet to Bogue Inlet. It is shallow and separated from the ocean by **Bogue Banks,** a wooded beach 0.1 to 1 mile wide. The sound is about 2 miles wide midway of its length, but narrow at each end; the western end has numerous marshy islets. The Intracoastal Waterway route is through the north side of the sound. The mean range of tide in Bogue Sound is about 2.5 feet near the inlets, and about a foot where the tides meet near the middle. Strong south and southwest winds may raise the tide a foot or more, and north to northwest winds lower it the same amount.

(66) **Bogue Inlet,** 22 miles west of Beaufort Inlet, is the seaward approach to the town of Swansboro, which can be seen from outside. The entrance is used almost exclusively by local fishermen. The inlet is between a high wooded ridge on the west and a long low spit on the east. On the inside of the spit, about a mile eastward of the inlet, is **Swansboro Coast Guard Station.** The entrance to the inlet, obstructed by a shifting bar extending about 0.5 mile seaward, is subject to frequent change. The channel is marked by uncharted lighted and unlighted buoys which are frequently shifted to mark the best water. Strangers should wait for a rising tide and never attempt to enter when the bar is breaking. If local fishermen happen to be coming in, it is advisable to follow them. The channels inside the inlet are also subject to considerable change, particularly during southeast and southwest storms.

(67) The mean range of tide is 2.2 feet in the inlet; high water occurs 2 hours earlier than at the head of the marshes inside. (See the Tide Tables for daily predictions.)

(68) A fish haven, covered 15 feet, is about 4 miles southeastward of Bogue Inlet in about 34°36'42"N., 77°02'18"W.

(69) **Swansboro,** a small town on the west bank of White Oak River 3 miles north of Bogue Inlet, is reached by the shifting channel from the inlet, and from Bogue Sound and Cape Fear River through the Intracoastal Waterway. Numerous fishermen base at Swansboro. State Route 24 highway bridge over White Oak River at the town has a 30-foot fixed span with a clearance of 12 feet. The highway bridge over the easterly channel, about 0.3 mile southeastward, has a 30-foot fixed span with a clearance of 6 feet. Swansboro is described in more detail in connection with the Intracoastal Waterway, chapter 12.

(70) For 4 miles above Swansboro, **White Oak River** has a width of 1 mile or more through which there is a narrow tortuous channel between the flats and oyster rocks. Farther up, the river is narrow and deep and leads between marshes to the fixed bridge at the town of **Stella,** about 8 miles above Swansboro. The river above State Route 24 highway bridge is unmarked and has many logs and snags; navigation is limited to shallow-draft skiffs only.

(71) **Bear Inlet** and **Browns Inlet,** 3 and 6 miles westward of Bogue Inlet, respectively, are unmarked and used by local boats only; neither is recommended to strangers.

(72) The **danger zones** of firing ranges are in the ocean between Bear Inlet and New River Inlet and in New River. (See **334.440**, chapter 2, for limits and regulations.)

(73) **Chart 11542.–New River Inlet,** 35 miles westward of Beaufort Inlet, is considered dangerous by local pilots, and entrance should not be attempted except under the most favorable conditions. A strong ebb current from the inlet causes a break on the bar when there is a sea outside. The break is especially bad when the ebb sets against a south or southeast wind. The mean range of tide at the inlet is 3 feet. At the head of the marshes, 2 miles above the entrance, the range is about 1 foot. (See Tide Tables for daily predictions.)

(74) The bar channel is subject to continual change and local knowledge is advised. The inlet is marked at the entrance by a lighted whistle buoy; other buoys marking the bar channel are not charted because they are frequently shifted in position. An unmarked fish haven is about 1.9 miles southwestward of the southern entrance point to New River Inlet.

(75) **New River** has a width of 1 to 2 miles from the head of the marshes above the inlet to within 2 miles of Jacksonville, above which it is a narrow stream. There is practically no periodic tide in the river. It has been reported, however, that the wind can vary the height of the water 3 to 4 feet at the State Route 172 highway bridge, 3 miles above the Intracoastal Waterway.

(76) A dredged channel in New River leads from the Intracoastal Waterway to a point about 0.65 mile below U.S. Route 17 highway bridge at Jacksonville. In 1977-April 2000, the midchannel controlling depth was 5½ feet. In 1982, shoaling to 3 feet was reported in the eastern half of the channel between Light 27 and Daybeacon 28. The channel is well marked by lights and daybeacons. Spoil areas, some discontinued, extend close along the easterly side of the channel for almost its entire length. In 1980, depths of 2 to 6 feet could be carried to Jacksonville with local knowledge.

(77) **Fulcher Landing,** used mainly by fishermen, is on the west side of New River about 1.5 miles above the Intracoastal Waterway. There are numerous piers at seafood-packing houses at the landing where gasoline, diesel fuel, water, electricity, and marine supplies may be obtained. Cabins and a restaurant are nearby. Two marine railways here can haul out boats up to 50 feet for engine and hull repairs.

(78) State Route 172 highway bridge over New River, 3 miles above the Intracoastal Waterway, has a fixed span with a clearance of 65 feet.

(79) A small-craft facility is just below the bridge on the south side of the river; berths, gasoline, water, and limited marine supplies are available. In July 1983, depths of 3 feet were reported alongside the facility. A marine railway that can handle craft up to 60 feet long is 0.25 mile below the bridge on the south side of the river. In July 1983, depths of 5 feet were reported available to the railway.

(80) **Jacksonville,** on the east bank of New River about 17 miles above the Intracoastal Waterway, is a city with a county hospital. Limited amounts of marine supplies are available here. Pulpwood is shipped by rail and also by barge down the Intracoastal Waterway.

(81) There are several barge docks and a marina on the east side of the river at Jacksonville. Berthage, electricity, gasoline, diesel fuel, water, ice, marine supplies, and a launching ramp are available at the marina. A trailer can haul out craft to 28 feet for hull and engine repairs.

(82) Jacksonville has highway connections with U.S. Route 17 and State Routes 24, 53, and 258.

(83) U.S. Route 17 highway bridge over New River at Jacksonville has a 33-foot fixed span with a clearance of 10 feet. An overhead power cable with a clearance of 18 feet is just south of the U.S. Route 17 bridge. Above the U.S. Route 17 bridge, the overhead power cables have a minimum clearance of 20 feet. A highway bridge, about 200 yards below U.S. Route 17 highway bridge, has a 40-foot fixed span with a clearance of 15 feet. In February 1998, a fixed highway bridge with a designed clearance of 46 feet was under construction across New River at the southern entrance to **Wilson Bay**, about 1.5 miles below the U.S. Route 17 highway bridge.

(84) **Chaney Creek** extends eastward about 300 yards north of the U.S. Route 17 bridge. A privately marked channel leads to a marina about 0.7 mile above the mouth. Depths of 1 to 3 feet can be carried to the fixed bridges just above the marina. The fixed spans have minimum clearances of 8 feet horizontal and 6 feet vertical. The marina has berths with electricity, gasoline, water, ice, and marine supplies; hull and engine repairs can be made.

(85) **Charts 11539, 11541.–New Topsail Inlet,** 19 miles southwestward of New River Inlet, is entered through a marked channel over a shifting bar. The bar channel leads to a junction with two dredged channels inside the entrance. The buoys marking the bar channel are frequently shifted in position to mark the best water, and therefore not charted; caution is advised. The inlet should not be entered by strangers. A southwesterly or northwesterly storm totally changes the configuration of the inlet. Information on existing conditions can be had by contacting the **Wrightsville Beach Coast Guard Station**. The mean range of tide is 3 feet.

(86) An unmarked fish haven is about 2.2 miles eastward of the northern entrance point to New Topsail Inlet.

(87) The dredged channels inside the entrance are well marked. One channel leads northeastward through Topsail Sound for about 5.5 miles to a junction with the Intracoastal Waterway; in 1977, the midchannel controlling depth was 3 feet. **Howards Channel** leads northwestward for about 1.1 miles to a junction with the Intracoastal Waterway; in February 1999, the controlling depth was 7 feet. Both channels are subject to continual change, and local knowledge is advised.

(88) **Topsail Sound** extends northeastward from New Topsail Inlet along the northwesterly side of the barrier beach. There are several marinas on the southeasterly side of the sound where berthage, electricity, gasoline, water, ice, and limited amounts of marine supplies can be obtained; launching ramps also are available.

(89) **Little (Old) Topsail Inlet,** 1.5 miles southwestward of New Topsail Inlet, is constantly changing and was reported closed in July 1983. The shore on both sides is a low sand beach without distinguishing marks.

(90) **Rich Inlet,** about 4.5 miles southwestward of New Topsail Inlet, is constantly changing and was reported closed in July 1983.

(91) An unmarked fish haven is about 2.7 miles southward of the southern entrance point to Rich Inlet.

(92) **Mason Inlet** is 8.5 miles southwestward of New Topsail Inlet. The inlet is constantly changing and was reported closed in July 1983.

(93) **Wrightsville Beach** is a summer resort about 11.5 miles southwestward of New Topsail Inlet. Two tanks and many multistoried buildings on the beach and on Harbor Island are prominent from seaward. The facilities on the inside of the barrier beach are reached through Masonboro Inlet.

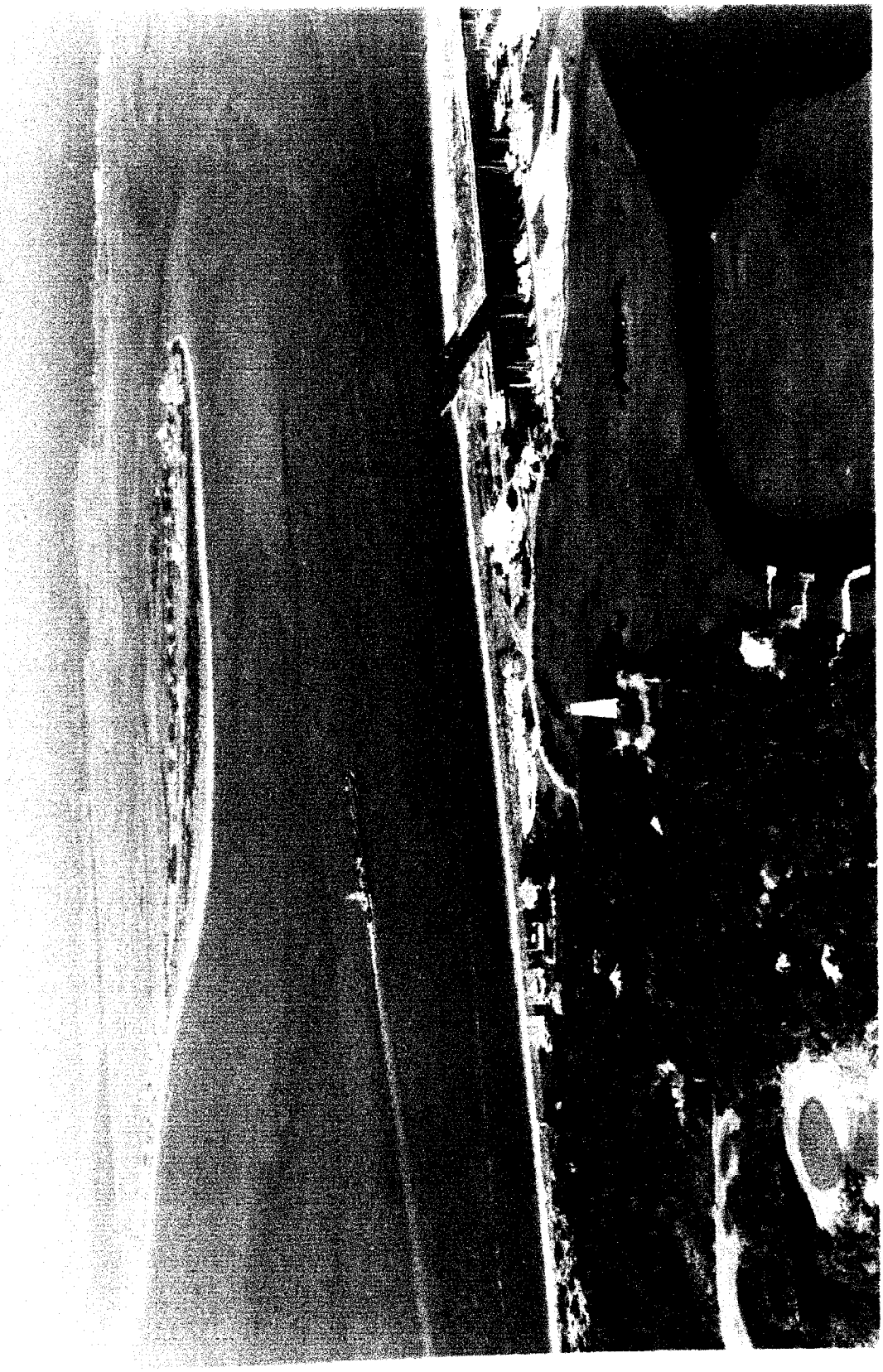
(94) **Wrightsville Beach Coast Guard Station** is at the southern end of Wrightsville Beach at Masonboro Inlet.

(95) **Masonboro Inlet,** about 12.5 miles southwestward of New Topsail Inlet and 22.3 miles north-northeastward of Cape Fear, is protected by jetties. A lighted whistle buoy is off the entrance.

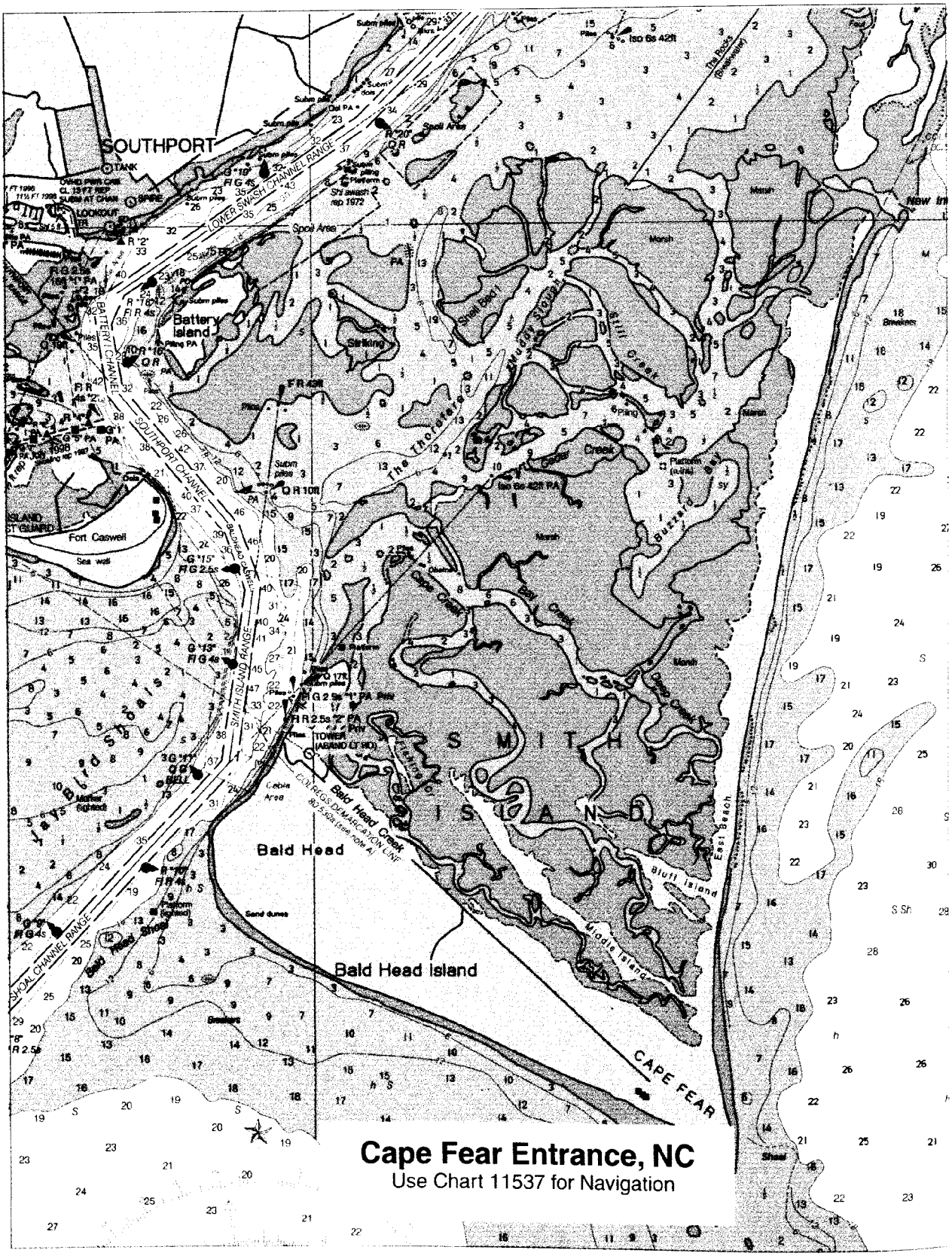
(96) A channel leads between the jetties at Masonboro Inlet, thence northward through dredged **Banks Channel** and **Motts Channel** to a junction with the Intracoastal Waterway at Wrightsville. The buoys marking the bar channel are frequently shifted to mark the best water, and therefore not charted; caution and local knowledge are advised. Banks and Motts Channels are well marked by lights and daybeacons.

(97) Strong tide rips form on the ebb current. The mean range of tide on the bar is 3.8 feet. (See Tide Tables for daily predictions.)

(98) The municipal dock at Wrightsville Beach, just southward of U.S. Route 74-76 highway bridge, is 120 feet long with a reported depth of 4 feet alongside; water and electricity are



Cape Fear Entrance, NC



Cape Fear Entrance, NC
Use Chart 11537 for Navigation

available. Charter fishing boats use the wharf. There is bus service between Wrightsville Beach, Wrightsville, and Wilmington.

(99) Several small-craft facilities are on the north side of Motts Channel between Wrightsville Beach and **Wrightsville.** (See the small-craft facilities tabulation on chart 11541 for services and supplies available.)

(100) Other marinas along the Intracoastal Waterway at Wrightsville are discussed in chapter 12.

(101) **Charts 11539, 11534.–Carolina Beach Inlet** is about 7 miles south of Masonboro Inlet. A lighted buoy marks the approach to the inlet. The inlet is marked by unlighted buoys and is used as an access to the Intracoastal Waterway. The inlet is subject to continual change and should be used only with local knowledge. In January 1989, a 1-foot shoal was reported in the approach to the inlet in about 34°04'26"N., 77°51'53"W.

(102) **Carolina Beach** is a resort about 3 miles southward of Carolina Beach Inlet and 12 miles northward of Cape Fear. A dredged channel connects the landlocked basin at the town with Myrtle Grove Sound and the Intracoastal Waterway. In March-April 1996, the controlling depth was 6 feet. Daybeacons mark the channel.

(103) A marina at the mouth of the basin can provide berthage, electricity, gasoline, diesel fuel, water, ice, and some marine supplies; a launching ramp is also available. A 50-ton marine railway that can handle boats to 60 feet and a 10-ton mobile lift are available for hull and engine repairs. Depths of 8 feet are reported alongside the marina.

(104) Some of the more prominent landmarks that can be seen from seaward along this section of the coast are: a group of four loran towers centered in 34°03.8'N., 77°54.8'W., about 2 miles north-northwestward of Carolina Beach; a water tank at Carolina Beach; a tank and radar domes at **Kure Beach,** 3.8 miles and 5 miles southward of the loran towers, respectively; and the stack, microwave tower, and buildings of the nuclear powerplant on the west side of the Cape Fear River, 7.4 miles southwestward of the loran towers.

(105) **New Inlet,** about 17.5 miles south of Masonboro Inlet and 4.7 miles north-northeast of Cape Fear, is constantly changing and was reported closed in July 1983.

(106) **Chart 11536.–Cape Fear** is a low, sharp, sandy point 85 miles southwestward of Cape Lookout at the southern extremity of **Smith Island.** This island, on the eastern side of the entrance of Cape Fear River, is mostly low and marshy, but on the western side has a thick growth of trees and a 99-foot-high octagonal tower of an abandoned light.

(107) **Frying Pan Shoals,** extending south-southeastward from Cape Fear, are bare in spots near the shore and have general depths of 2 to 12 feet in an unbroken line to a point 10 miles from the cape; for 6 miles farther the shoals are broken with depths ranging from 10 to 20 feet. Broken ground with depths of 5 to 7 fathoms extends from the shoals proper almost to Frying Pan Shoals Light. A natural channel, known as **Frying Pan Shoals Slue,** cuts through the shoals about 11.5 miles southward of Cape Fear. The slue is marked at the northeastern approach by a lighted whistle buoy, about midway of its length by two buoys, and at its southwestern approach by a lighted buoy. A depth of about 20 feet can be carried through the channel with the aid of the chart. The channel is used by fishing boats and other small craft.

(108) **Frying Pan Shoals Light** (33°29.1'N., 77°35.4'W.), 118 feet above the water, is shown from a dark green tower on the corner of a four-legged metal structure painted yellow with the words FRYING PAN on the north, east, and south sides in 46 feet of water about 28.5 miles southeastward of Cape Fear. A fog signal is at the light.

(109) A wreck, covered 12 feet, is on Frying Pan Shoals about 16 miles west-northwestward of the light.

(110) **Chart 11537.–Cape Fear River,** 370 miles long and the approach to the city of Wilmington, empties into the sea immediately westward of Cape Fear. Barge traffic is active as far as **Fayetteville,** about 125 miles above the mouth.

(111) **Wilmington,** 24 miles above the mouth, on the east bank of Cape Fear River, is the leading port of North Carolina. It is 363 miles south of Norfolk, Va., and 315 miles north of Jacksonville, Fla., by coastwise routes. Exports are tobacco, woodpulp, bulk cement, fabricated metal products, and scrap metal. Imports are petroleum products, fertilizers, ferrous and non-ferrous ores, lumber, paper, salt, sulfur, textiles, iron and steel products, fabricated metal products, and bulk chemicals. There are many tourist attractions and points of historical interest in the city and vicinity, including the USS NORTH CAROLINA, a World War II memorial, which is berthed on the west bank of Cape Fear River opposite Wilmington.

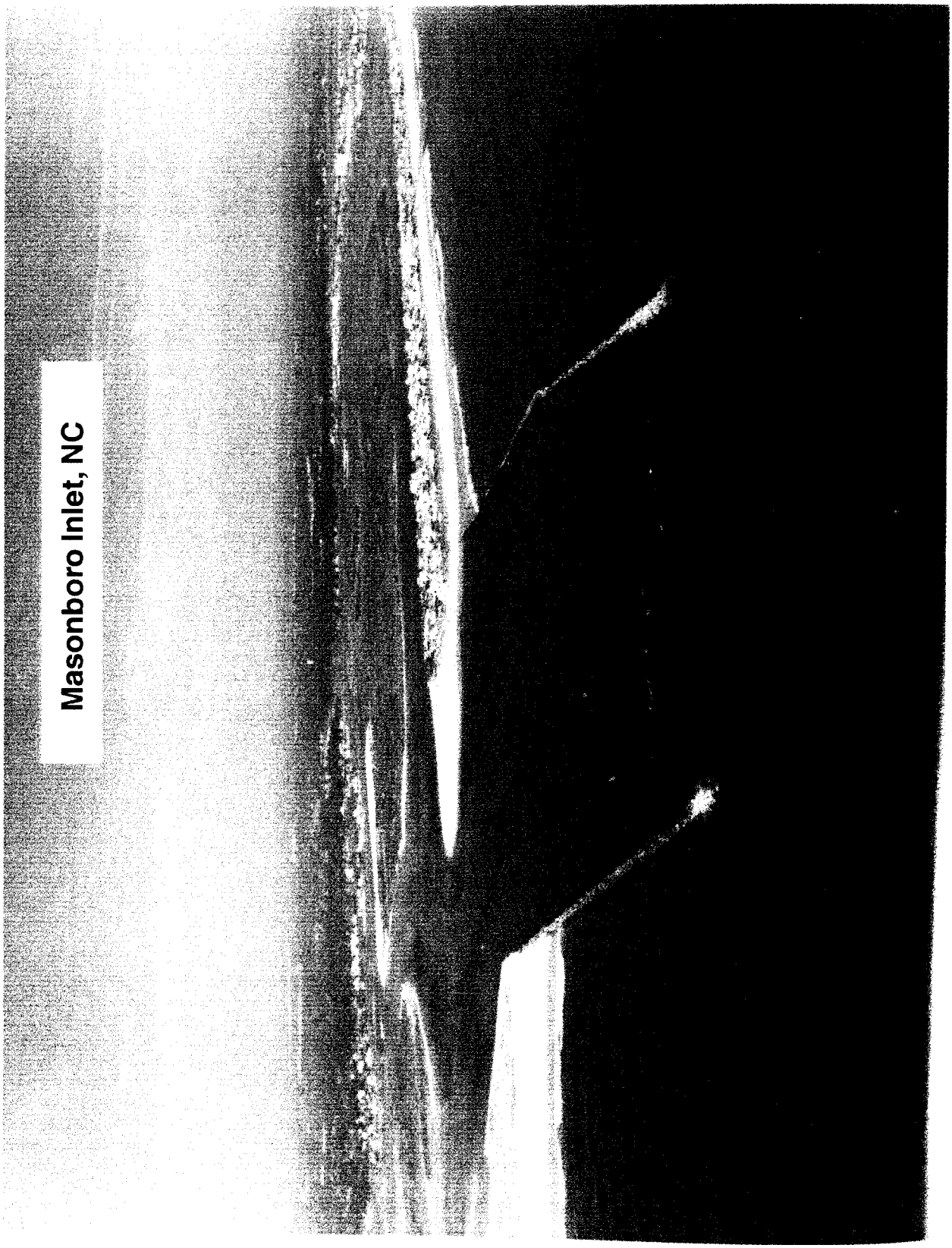
(112) **Prominent features.–Oak Island Light** (33°53.6'N., 78°02.1'W.), 169 feet above the water, is shown from a 155-foot cylindrical tower, upper part black, middle white, and lower part gray, on Oak Island on the western side of Cape Fear River entrance; a radiobeacon is at the light. It is the most conspicuous object in the approach. The abandoned lighthouse, known as "Old Baldy", on the west side of Smith Island, and the buildings of the **Oak Island Coast Guard Station,** westward of Fort Caswell, are also conspicuous.

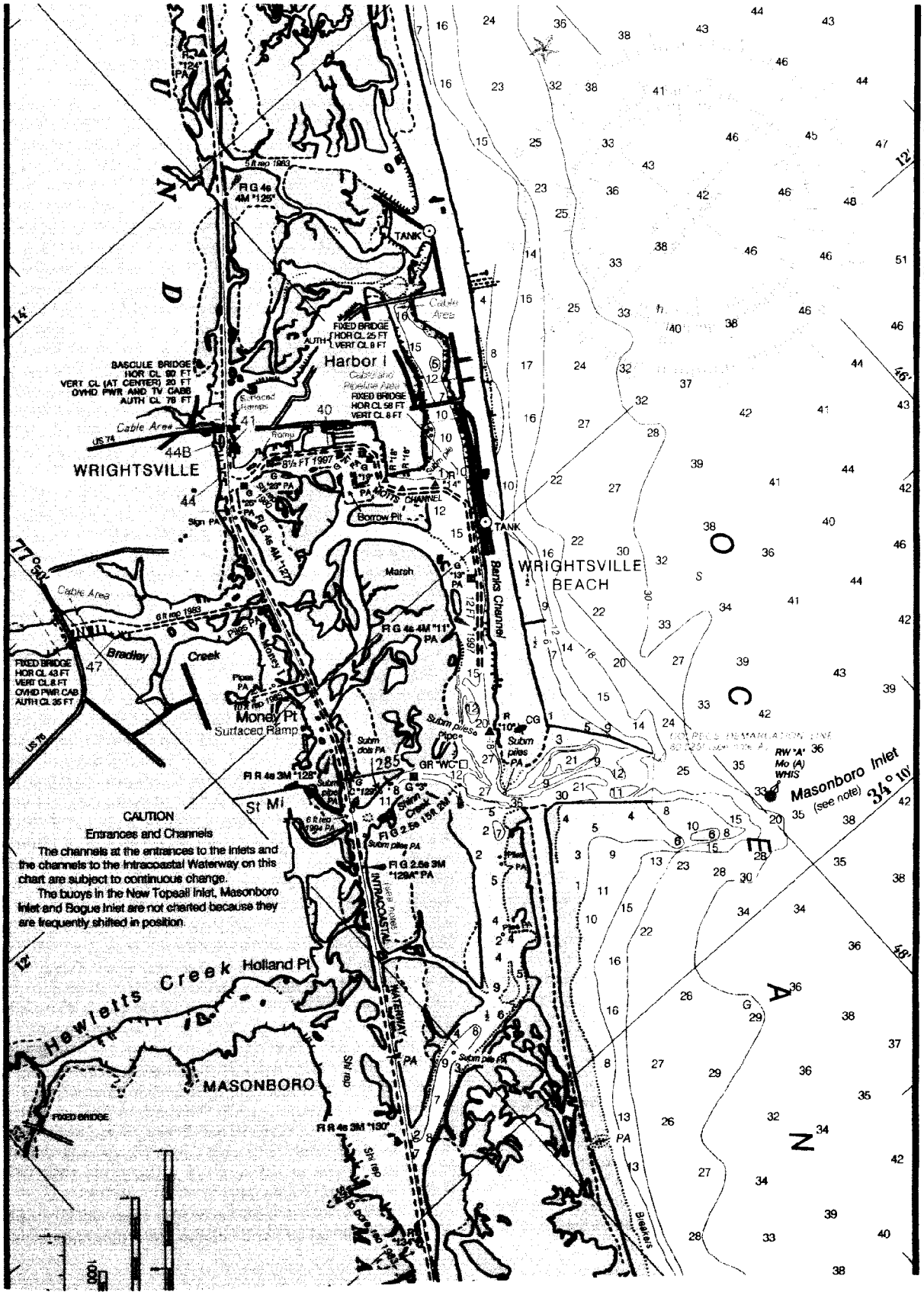
(113) Water tanks at Yaupon Beach, Southport and at Kure Beach and two silver radar domes about 1.3 miles southward of the tank at Kure Beach are visible well to seaward. The floodlights at the buildings on the beach about 1 mile westward of Oak Island Light are reported to be highly visible at night. The lights on the stack, microwave tower, and on the buildings of the nuclear powerplant, on the west side of Cape Fear River 2.5 miles above Southport, are prominent at night.

(114) Frying Pan Shoals Light structure is reported to be a good radar target in the approach to Cape Fear River. It is also reported that under ideal conditions the configuration of Cape Fear and Oak Island Light prove of some value as radar targets when closer in; these targets, however, should not be relied upon too strongly.

(115) **COLREGS Demarcation Lines.**–The lines established for Cape Fear River are described in **80.530,** chapter 2.

(116) **Channels.**–A Federal project provides for a channel 40 feet deep over the ocean bar, thence 38 feet for 24 miles to Wilmington including the turning basin off the southerly part of the city; thence in Northeast Cape Fear River 32 feet to and including a turning basin 0.4 mile above the mouth, thence 32 feet to Hilton Bridge about 1.2 miles above the mouth, and thence 25 feet to the upstream limit of the Federal project about 1.5 miles above the bridge, including a turning basin about 1 mile above the bridge. (See Notice to Mariners and latest editions of charts for controlling depths.) The channel is well marked with lighted ranges and other aids.


Masonboro Inlet, NC


WRIGHTSVILLE
WRIGHTSVILLE BEACH
Harbor I
Money Pt
Surfaced Ramp
Bradley Creek
Hewletts Creek
Holland Pt
MASONBORO
Masonboro Inlet
(see note)
Banks Channel
Marsh
Borrow Pit
Cable Area
TANK
FIXED BRIDGE
HOR CL 25 FT
VERT CL 8 FT
FIXED BRIDGE
HOR CL 58 FT
VERT CL 8 FT
BASCULE BRIDGE
HOR CL 90 FT
VERT CL (AT CENTER) 20 FT
OVHD PWR AND TV CABS
AUTH CL 76 FT
FIXED BRIDGE
HOR CL 43 FT
VERT CL 8 FT
OVHD PWR CAB
AUTH CL 35 FT
FIXED BRIDGE
Fl G 4s 4M "125"
Fl R 4s 3M "128"
Fl G 2.5s 3M "129A" PA
Fl R 4s 3M "130"
Fl G 4s 4M "11" PA
Fl G 4s 4M "127"
Fl G 2.5s 15ft 2M
INTRACOASTAL WATERWAY
Shinn Creek
Shi rep
Breakers
RW "A" Mo (A) WHIS
CAUTION
Entrances and Channels
The channels at the entrances to the inlets and the channels to the Intracoastal Waterway on this chart are subject to continuous change.
The buoys in the New Topsail Inlet, Masonboro Inlet and Bogue Inlet are not charted because they are frequently shifted in position.

(117) **Western Bar Channel,** close to **Fort Caswell** on the western side of the entrance to Cape Fear River, is used considerably by small craft bound westward along the coast. This unmarked channel had a reported depth of 8 feet in July 1983, and the best water was about 50 yards offshore. The channel is not stable, and local knowledge is advised for boats drawing over 6 feet. Abreast **Oak Island Coast Guard Station**, the shore should not be approached closer than 0.3 miles. A dredged channel from Cape Fear River to the Coast Guard wharf had a reported midchannel controlling depth of 4 ½ feet in July 1998. The channel is marked by daybeacons and lights.

(118) A ferry, operated by the N.C. State Highway Commission, crosses the river from Price Creek about 4.5 miles above the mouth to Federal Point on the east side of the river about 3 miles south-southwest of **Kure Beach.** The channels leading to the ferry terminals are marked by pilings with reflectors and are maintained by the Highway Commission. In 1991, Price Creek ferry channel had a reported controlling depth of 10 feet. In August 1985, Federal Point ferry channel had a reported controlling depth of 7 feet.

(119) An overhead power cable with a clearance of 165 feet over the main channel crosses Cape Fear River about 18.8 miles above the mouth.

(120) U.S. Route 74/76 highway lift bridge with a clearance of 65 feet down and 135 feet up crosses Cape Fear River at Wilmington, about 23.5 miles above the mouth. The bridgetender monitors VHF-FM channel 16 and works on channels 13 and 18; telephone 910-251-5773. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) Bridges crossing Cape Fear River above Wilmington are discussed later in this chapter.

(121) **Anchorages.**–Fair anchorage is available in the Cape Fear River abreast the town of Southport. The holding ground is good, but because of strong tidal currents vessels should anchor with a good scope of chain. This anchorage is sometimes used as a harbor of refuge in the winter by coasting vessels.

(122) Vessels awaiting entrance to the river may find good holding ground in about 7 fathoms within 0.6 mile southeastward of the sea buoy (Cape Fear River Entrance Lighted Whistle Buoy CF). The area to the northwestward of the sea buoy is reported to be rocky and foul, and some vessels have lost anchors or broken flukes in the area.

(123) **Dangers.**–Frying Pan Shoals are the principal danger in the approaches to Cape Fear River. Isolated wrecks, some marked, and obstructions with varying depths over them are in the approaches.

(124) In April 1984, shoaling to 28 feet was reported in about 33°43.5'N., 78°01.5'W.

(125) **Bald Head Shoal** and **Jay Bird Shoals (Middle Ground)** are dangerous shoals on either side of the bar channel.

(126) **Caution** should be exercised in Cape Fear River at times when tides are higher than normal and after heavy rains as logs and floating debris may be encountered.

(127) A **restricted area** of the Sunny Point Army Terminal is 9 miles above the mouth of Cape Fear River. (See **334.450**, chapter 2, for limits and regulations.)

(128) **Routes.**–On the approach to Cape Fear River from northward, the safer course, and the one generally used by deep-draft vessels, is outside of Frying Pan Shoals Light.

(129) From southward, deep-draft vessels should set a course to pass outside the broken ground extending offshore between Cape Romain and Winyah Bay. When clear of this broken ground, the course can be shaped for Cape Fear River Entrance Lighted Bell Buoy 2CF. When approaching from southward an overrun of as much as 0.5 knot may be expected except during northeasterly winds.

(130) **Tides and currents.**–The mean range of tide at the entrance is 4.3 feet; at Southport 4.1 feet, and at Wilmington, 4.1 feet. Daily predictions for Wilmington are given in the Tide Tables; predictions for a number of places on the river and in the vicinity are also in the tables.

(131) The tidal currents on the bar run with considerable velocity and as a rule set nearly in the direction of the channels, but on the last of the flood and first of the ebb they set to the eastward across the channel and on the beginning of the flood they set to the westward. In the river their set is generally in the direction of the channel. The relative velocities of flood and ebb depend upon the stage of the river. During freshets the flood at times is completely overcome by the river current and the ebb is greatly increased. At low-river stages, a strong flood is felt for a considerable distance above Wilmington, where it runs 5 ½ hours to nearly 7 hours of ebb; downriver from Wilmington, the periods of flood and ebb become more nearly equal. Current predictions for a number of locations in Cape Fear River may be obtained from the Tidal Current Tables.

(132) **Weather, Wilmington and vicinity**. A maritime location makes Wilmington's climate unusually mild for its latitude. Warm, humid summers are tempered by sea breezes while cold, winter outbreaks are moderated by winds off a relatively warm ocean. The average temperature in Wilmington is 64°F (17.8°C). The average high is 74°F (23.3°C) and the average low is 53°F (11.7°C). July is the warmest month with an average high of 90°F (32.2°C) and an average low of 72°F (22.2°C). January is the coolest month with an average high of 56°F (13.3°C) and an average low of 36°F (2.2°C). The warmest temperature on record is 104°F (40°C) recorded in June 1952 while the coldest temperature on record is 0°F (-17.8°C) recorded on Christmas morning, 1989. Each month, June, July, and August, has had maximum temperatures in excess of 100°F (37.8°C) and each month, October through April, has recorded temperatures below freezing. During any given year, 46 days will have maximums above 90°F (32.2°C) while 42 days will have minimums below 32°F (0°C).

(133) Sea fog is likely from November through April with southerly or southeasterly winds. It may hang on for several days until a west wind brings clearing. After a warm day with a large nighttime drop in temperature, fog may settle on the river, but will usually burn off in the forenoon. It may be thick on the bar and outside, while clear on the river from 2 or 3 miles (3.2 to 4.8 km) above the entrance. Rainy days are common throughout the year with a slight maximum in summer. However, summer precipitation is often in the form of a brief, heavy shower or thunderstorm in the late afternoon. Average annual precipitation in Wilmington is 55 inches (1,397 mm) and precipitation falls an average 153 days each year. July is the wettest month averaging nearly 8 inches (203.2 mm), mostly from thunderstorms. April is the driest month averaging under 3 inches (76.2 mm). Average annual snowfall is less than 2 inches (51 mm) but snow has fallen in each month, November through April. The greatest snowfall during any 24-hour period occurred in December 1989 when nearly 10 inches (254 mm) fell.

(134) Since 1842, 66 tropical storms have come within 50 miles (93 km) of Wilmington, North Carolina, 26 of these storms since

1950. The most noteworthy in recent time was Hurricane Bonnie which made landfall at Cape Fear with 115-knot maximum winds early in the afternoon of August 26th 1998. The storm center shifted northeastward up the coastline and finally moved inland over neighboring Pender and Onslow Counties. Due to the slow forward speed (less than 10 knots most of the time), rainfall amounts were staggering and isolated reports in excess of 20 inches (508 mm) were noted. Wind damage inland was minimal but coastal damage from Surf City to Cape Lookout was major due to a combination of the storm's slow forward speed and the occurrence of two abnormally high tides. Bonnie took almost the same path as Hurricane Bertha had taken only two years prior. Hurricane Bertha made landfall northeast of Wilmington in Pender County with 90-knot winds on July 12th, 1996. Six weeks later, Hurricane Fran made landfall at Cape Fear on September 2nd packing 100-knot winds. (See Page T-3 for the Wilmington climatological table.)

(135) **Freshets** occur any time from November through April, but no appreciable rise in the water level has been reported at Wilmington. They do have a marked effect on the tidal currents and sometimes overcome the flood current entirely in the river almost to the entrance. The velocity of the ebb current is greatly increased during freshets.

(136) **Pilotage, Wilmington.**–Pilotage is compulsory from the bar to the limit of navigation on the Cape Fear River (which is above Wilmington), for all foreign vessels and U.S. vessels under register in the foreign trade. Pilotage is optional for U.S. coastwise vessels which have on board a pilot licensed by the Federal Government. Pilotage is available from the Wilmington Cape Fear Pilots Association, P.O. Box 10070, Southport, NC 28461, telephone 919-457-6909 (Southport) or 919-763-4931 (Wilmington), FAX 919-457-9291, cable address CAPFRPILOT. The Association maintains three pilot boats, CAPE FEAR PILOT, 44 feet long, CAPE FEAR PILOT III, 50 feet long, and CAPE FEAR PILOT IV, 31 feet long; each boat has a dark hull and white house with the word "PILOT" on the sides. Pilots board vessels day or night about 1 mile seaward of Cape Fear River Entrance Lighted Whistle Buoy CF (33°48.2'N., 78°05.2'W.); the buoy is equipped with a racon. Vessels drawing more than 34 feet are taken in on a rising tide; boarding times may be obtained through the pilots or the vessels agents. Vessels should maintain a speed of about 6 to 8 knots and provide a pilot ladder 1 meter above the water. The pilots monitor VHF-FM channels 16 and 18A and use channels 18A and 12 for working. Arrangements for pilots can be made through ships' agents or direct to the Association. Use telephone or FAX or cable address (above) or VHF-FM channels 16 or 18A, or via the marine operator on channel 26. At least 2 hours advance notice of arrival is requested.

(137) **Towage.**–Vessels seldom find it necessary to employ tugs between the sea buoy and the turning basin off the southerly part of Wilmington, but tugs are generally used to assist in docking and movement within the port or to upriver facilities. Inbound vessels are usually met by the tugs just below the terminal they are bound for or off the State Ports Authority Terminal wharf. Tugs up to 3,800 hp are available.

(138) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(139) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) A county hospital is at Wilmington.

(140) Wilmington is a **customs port of entry.**

(141) **Coast Guard.**–A **Marine Safety Office** is in Wilmington. (See appendix for address.)

(142) **Harbor Regulations.**–There are no formal harbor regulations at Wilmington or Southport. The State Ports Authority Terminal in Wilmington is administered by the North Carolina State Ports Authority. The Operations Manager maintains an office at the State Ports Authority Terminal.

(143) **Wharves.**–Only the major port facilities at Wilmington are described. These include North Carolina State Ports Authority Terminal wharf, the port's only general cargo facility, several oil terminals, and bulk-handling facilities for cement, asphalt products, molasses, liquid chemicals, sulfur, fertilizers, and liquid sugar. Most of the piers and wharves have railroad and highway connections, and water and electricity. Cargo is generally handled by ship's tackle; special handling equipment, if available, is mentioned in the description of the particular facility. The alongside depths given for each facility described are reported depths. (For information on the latest depths, contact the operator.) There are many smaller facilities at Wilmington which are used by barges and small vessels, as vessel repair berths, and for scrapping operations; these facilities are not described. For a complete description of the port facilities, refer to Port Series No. 12, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

(144) **East side of Cape Fear River:**

(145) **Gold Bond Building Products Wharf** (34°10'25"N., 77°57'27"W.): 30-foot face, 810 feet of berthing space with anchors; 35 feet alongside; deck height, 11 feet; electric conveyor, unloading rate 1,000 tons per hour; handles gypsum.

(146) **Exxon Co. USA Wharf** (34°10'35"N., 77°57'26"W.): 82-foot T-head pier, 836 feet with dolphins; 40 feet alongside; deck height, 13 feet; handles petroleum products and bunkering vessels; owned and operated by Exxon Co. USA.

(147) **Mobile Oil Corp. Wharf**: about 0.35 mile north of Exxon Co. USA Wharf; 40-foot T-head pier, 240 feet with dolphins; 34 feet alongside; deck height, 11 feet; handles petroleum products and asphalt; owned and operated by Mobil Oil Corp. and American Oil Corp.

(148) **Petroleum Fuel and Terminal Co. Wharf**: about 0.3 mile northward of Mobil Oil Corp. Wharf; 120-foot T-head pier, 800 feet with mooring dolphins, 32 feet alongside; deck height, 10 feet; handles petroleum products and petrochemicals; bunkering vessels; owned and operated by Petroleum Fuel and Terminal Co., and Carolina Power and Light Co.

(149) **North Carolina State Ports Authority Fuel Wharf**: about 0.25 mile northward of Petroleum Fuel and Terminal Co. Wharf; 122-foot T-head pier, 350 feet with dolphins; 34 feet alongside; deck height, 16 feet; handles petroleum products and petrochemicals; operated by Koch Fuels, Inc.

(150) **North Carolina State Ports Authority**: Berths 6, 7, and 8 (34°11'38"N., 77°57'20"W.): 1,640-foot face; 38 feet alongside; deck height, 12 feet; four 40-ton container cranes; traveling, revolving gantry cranes to 225 tons; 140-ton mobile crane; handles general and containerized cargo, heavy-lift items, and various dry bulk commodities.

(151) **North Carolina State Ports Authority**: Berths 1, 2, 3, 4, and 5: 2,900-foot face; 38 feet alongside; deck height, 12 feet; use of cargo handling equipment from Berths 6, 7, and 8; handles general and containerized cargo, heavy-lift items, and various

dry bulk commodities; operated by North Carolina State Ports Authority and Cargill, Inc.

(152) **North Carolina State Ports Authority**: Berths A and B; adjoining Berths 1, 2, 3, 4, and 5 to northward; 1,213-foot face; 38 feet alongside; deck height, 12 feet; use of cargo handling equipment from Berths 6, 7, and 8; general and containerized cargo, heavy-lift items, and various dry bulk commodities.

(153) **Paktank Corp. Wharf**: 0.1 mile northward of the northern end of States Ports Authority Berths A and B; 70-foot T-head pier, 1,010 feet with mooring dolphins; 38 feet alongside; deck height, 12 feet; handles liquid chemicals.

(154) **Chevron U.S.A. Wharf**: about 0.25 mile northward of the northern end of State Ports Authority Berths A and B; 35-foot T-head pier, 240 feet with dolphins; 24 feet alongside; deck height, 10 feet; handles asphalt.

(155) **Amerada Hess Corp. Wharf**: about 0.6 mile northward of the northern end of State Ports Authority Berths A and B; 60-foot T-head pier, 550 feet with mooring dolphins; 34 feet alongside; deck height, 8 feet; handles petroleum products.

(156) **Cape Fear Terminal Wharf**: about 0.85 mile northward of the northern end of State Ports Authority Berths A and B; three T-head piers, 30, 151, and 60 feet long, 620 feet total with dolphins; 34 feet alongside; deck height, 10 feet; handles petroleum products and petrochemicals; various operators.

(157) **Cape Fear Technical Institute Wharf** (34°14'23"N., 77°57'09"W.): 233-foot face, 322 feet usable with dolphons; 20 feet alongside; deck height, 10 feet; mooring of the institute's training vessels.

(158) **East side of Northeast Cape Fear River**:

(159) **Seaboard System Railroad Co. Diesel Fuel Wharf** (34°14'30"N., 77°57'10"W.): at the mouth of the river; 198-foot face, 450 feet with mooring dolphins; 28 feet alongside; deck height, 11 feet; handles diesel fuel and liquid fertilizer; operated by Seaboard System Railroad and Trans Carolina Terminal Corp.

(160) **Almont Shipping Co., North Berth**: about 0.25 mile north of Seaboard System Railroad Co. Diesel Fuel Wharf; 523-foot face, 600 feet with dolphins; 35 feet alongside; deck height, 10 feet; traveling gantry crane with clamshell bucket, electric belt conveyor, unloading rate 450 tons per hour; handles fertilizer, iron and chrome ores.

(161) **West side of Northeast Cape Fear River**:

(162) **Horton Iron and Metal Co. Pier**: about 1.6 miles above Point Peter (34°14'27"N., 77°57'20"W.); 235-foot face, 27 feet alongside; north and south sides 750 feet long with 400 feet of berthing space, 27 feet alongside; deck height, 10 feet; cranes to 50 tons; handles scrap metal.

(163) **W.R. Grace and Co. Wharf**: about 2.3 miles above Point Peter; 45-foot T-head pier, 790 feet with mooring dolphins; 25 feet alongside; deck height, 12 feet; handles anhydrous ammonia and liquid fertilizer

(164) **West side of Cape Fear River below Wilmington**:

(165) **Pfizer Inc. Pier**: 5.7 miles above the mouth of Cape Fear River, and about 400 yards above the Southport ferry slip; 200-foot face, 670 feet with dolphins; 35 feet alongside; handles petroleum products and other liquid cargo.

(166) **Military Ocean Terminal** (Wharf No. 1, No. 2, and No. 3): at Sunny Point, about 9 miles above the mouth; three identical 2,000-foot long wharves, about 0.4 miles apart; 20 to 34 feet alongside; deck heights, 16 feet; open storage areas; cranes up to 40 tons; truck unloading and railroad trackage at each wharf; highway connections; terminal railroad connects with Seaboard System Railroad; handles military supplies.

(167) **Supplies.**–All manner of marine supplies and provisions are obtainable at Wilmington. Potable water is available at most of the berths. Bunker C oil is available to oceangoing vessels at Exxon Company U.S.A. Wharf, Petroleum Fuel and Terminal Co. Wharf, Amerada Hess Corp. Wharf, and by barge. Diesel oil is available by truck.

(168) **Repairs.**–There are two shipyards at Wilmington, on the west bank of Northeast Cape Fear River, about 0.1 mile below the highway bridge and about 0.4 mile above the railroad bridge, respectively. A 1,000-ton marine railway that can haul out craft up to 245 feet is available. A 100-ton boat lift, and three crawler cranes to 35 tons are available. Hull and engine repairs can be made, and there are machine, carpenter, and electrical repair shops; repairs to propellers to 8 feet in diameter can also be made. The shipyard north of the railroad bridge has two floating drydocks; the largest can handle vessels to 180 feet long and 60 feet wide.

(169) There are also several machine shops at Wilmington, on and off the waterfront, that can fabricate shafts, perform welding, and repair shafts and propellers. The largest propeller that can be repaired is 8 feet in diameter; the largest shaft that can be produced is 36 inches by 21 feet.

(170) **Small-craft facilities.**–Berths and other facilities for small craft are limited at Wilmington due to the heavy commercial traffic. Extensive small-craft facilities are at Southport, which is mentioned later in the chapter. Municipal ramps are eastward of the channel just north of U.S. Route 74/76 highway lift bridge.

(171) **Communications.**–Wilmington is served by U.S. Routes 17, 117, 74–76, 421, and State Routes 132 and 133, and has railroad connections with the Seaboard System Railroad. A commercial airline serves the local airport.

(172) **Southport,** on the west bank of Cape Fear River 3 miles above the mouth, is a town where marine supplies can be obtained. Along its waterfront there are several fish wharves, service wharves, a yacht basin, and a small-boat harbor, as well as restaurants and motels. Berthage with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available at these facilities.

(173) The Wilmington Cape Fear Pilots Association maintains an office and a lookout tower (33°55.0'N., 78°01.2'W.) adjacent to the town pier, which had 18 feet reported alongside in July 1983. A yacht basin is on the north side of the Intracoastal Waterway about 0.2 mile westward of the lookout tower. In March 1998, the controlling depth was 11 feet in the basin, except for depths of 5 to 9½ feet near the pier at the head. The small-boat harbor, 0.45 mile westward of the lookout tower, has a 30-ton mobile hoist and facilities for hull, engine, and electrical repairs. In April 1998, depths of 3 to 5 feet were in the small-boat harbor with lesser depths in the east part and along the edges. A storm barrier on the south bank of the Intracoastal Waterway protects the harbor.

(174) From Southport the Intracoastal Waterway leads northward and follows the main ship channel in Cape Fear River to a point about 11.5 miles above the mouth of the river where it leaves the main ship channel and leads northeasterly to the west end of a landcut, known as **Snows Cut,** thence through the landcut to Myrtle Grove Sound. In September 1996, severe shoaling across the entire channel in Snows Cut Channel was reported

in the vicinity of Daybeacon 165. Mariners should use extreme caution when in this area.

(175) A dredged channel in Cape Fear River above Wilmington leads northwesterly for 3.5 miles to a turning basin at **Navassa,** thence to **Fayetteville,** the head of navigation, 100 miles above Wilmington. Three locks and dams are between Navassa and Fayetteville. A copy of the operating schedule for the locks is available from the U.S. Army Corps of Engineers, Wilmington District. (See appendix for address.) In 1975, the midchannel controlling depths were 11 feet to the turning basin at Navassa with 10 feet in the turning basin, thence in August 1976, 9 feet to **Acme** about 26 miles above the confluence of Cape Fear and Northeast Cape Fear Rivers, thence in August 1977, 4 feet to Fayetteville. The locks have a usable length of 200 feet, a width of 40 feet, and a depth over miter sills of 9 feet.

(176) U.S. Route 421 highway bridge over Cape Fear River opposite Wilmington has a fixed span with a clearance of 55 feet. An overhead power cable 0.25 mile above the Route 421 bridge has a clearance of 125 feet. The Seaboard System Railroad (SCL) bridge at Navassa has a bascule span with a clearance of 6 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) The least known high water clearance of the fixed bridges crossing Cape Fear River between Navassa and Fayetteville is 13 feet.

(177) **Black River** flows into Cape Fear River about 12 miles above Wilmington. It has been reported that drafts of not more than 3 feet can be taken to **Still Bluff,** about 10.4 miles above the mouth.

(178) **Northeast Cape Fear River** empties into Cape Fear River from northward at Point Peter (34°14'27"N., 77°57'20"W.), near the northern end of Wilmington. Above the turning basin, about 2 miles above the mouth, it is reported that natural depths of 6 feet can be taken for 42 miles, and thence 3 feet for 7 miles to **Crooms Bridge. Traffic on the river is mainly in petroleum products.**

(179) U.S. Route 117 highway bridge over Northeast Cape Fear River 0.6 mile above its mouth has a bascule span with a clearance of 26 feet. VHF-FM channels 16 and 13 are monitored at the bridge. In July 1978, a bascule highway bridge with a design clearance of 40 feet was under construction immediately upstream of the Route 17 bridge. When completed it will replace the existing bridge. The Hilton (Seaboard System Railroad (SCL)) bridge, about 1 mile above the mouth, has bascule span with a clearance of 4 feet. State Route 117 highway bridge at **Castle Hayne,** about 23.4 miles above the mouth, has a fixed span with a clearance of 23 feet at low water stage. The Seaboard System Railroad (SCL) bridge just above it has a swing span with a clearance of 7 feet at low water stage. (See **117.1 through 117.59 and 117.829**, chapter 2, for drawbridge regulations.) The twin fixed spans of the Interstate Route 40 bridge, close above the railroad bridge, have a clearance of 28 feet.

(180) **Smith Creek** empties into Northeast Cape Fear River from eastward about 1.5 miles above the river mouth. In July 1983, the reported controlling depth was 5 feet over the bar to the junction with Burnt Mill Creek, thence 1 foot to the walkway crossing the creek at the airport. The creek was foul with stumps, logs, and submerged piling from the entrance to its head. U.S. Route 117 highway bridge, 1.3 miles above the mouth, has a swing span with a channel width of 45 feet and a clearance of 3 feet. (See **117.1 through 117.59 and 117.841**, chapter 2, for drawbridge regulations.) The Seaboard System Railroad (SCL) bridge, about 2 miles above the mouth, has a fixed span with a clearance of 12 feet. An overhead power cable just above the bridge has a clearance of 30 feet.

(181) **Freshets.**–Low-water stages prevail in the rivers above Wilmington from 2 to 4 months during the summer, and freshets usually occur as often as once a month during the remainder of the year, but with no regularity.

6. CAPE FEAR TO CHARLESTON HARBOR

(1) This chapter describes the coast of North and South Carolina from Cape Fear to Charleston Harbor.

(2) Also discussed are the deepwater ports of Charleston and Georgetown, S.C.; several smaller ports of which Wando and Mount Pleasant are the more important; Winyah Bay and its tributary rivers; the waters of Ashley, Wando, and Cooper Rivers and their tributaries; several of the minor rivers; and the shallow inlets which make into this section of the coast, including Shallotte, Little River, Dewees, North, Price, and Capers.

(3) The section of the Intracoastal Waterway from Cape Fear River to Charleston Harbor is described in chapter 12.

(4) There are numerous wrecks along this section of the coast; the most dangerous are marked.

(5) **COLREGS Demarcation Lines.**–The lines established for this part of the coast are described in **80.530 through 80.710**, chapter 2.

(6) **Weather.**–This stretch of coast lies close to one of the main winter storm tracks while tropical cyclones are infrequent but dangerous visitors. Along with rough seas, fog can be a problem in winter.

(7) During December, January and February, extratropical cyclones from the Gulf of Mexico often move across northern Florida and then northeastward, just off the South Carolina coast on their way to Cape Hatteras. While these storms, and frontal systems from more northerly storms, produce gale force winds that occur less than 5 percent of the time, wave heights of 8 feet (>2 m) or more occur 20 to 30 percent of the time and wave heights of 25 feet (7.6 m) have been recorded. Weather conditions can also get rough in April when warm air from the Gulf of Mexico collides with cold arctic air.

(8) Occasionally warm tropical air blows across the cooler waters that lie shoreward of the Gulf Stream in this area. Visibilities below 0.5 mile (0.9 km) are reported about 1 to 3 percent of the time in winter, compared to less than 1 percent farther out. These poor visibilities are most likely from December through March.

(9) Tropical cyclones are most likely along this coast from June through October. Although a few have occurred in May, November and December, the peak threat is in September and October. On the average about one or two storms threaten this coast each year. Many of these tropical cyclones have recurved and are heading northward or notheastward at about 15 to 18 knots. Hurricane force winds are most likely when the storm is over open water.

(10) **Chart 11520.**–From Cape Fear the coast curves gradually westward and southward for 80 miles to Winyah Bay Entrance. This section of the coast is a sand beach, with numerous sand dunes, separated from the heavily wooded mainland by small streams and marshes. From offshore, the woods appear to extend to the outer beach. The coast is clear, and a depth of 3 fathoms can be taken to within a mile of the beach, except at Murrells Inlet where, about 2 miles offshore, there is a 16-foot spot. The 10-fathom curve is from 11 to 25 miles offshore, and inside it the water shoals gradually as the shore is approached.

(11) The character of the coast changes from Winyah Bay to Charleston Harbor. Here the coastline trends southwestward for about 45 miles and is a border of sandy barrier islands with off-lying shoal areas which include Romain Shoal, Bull Breakers, and Rattlesnake Shoal. These shoal areas should be given a wide berth. The 10-fathom curve along this section of the coast extends from 11 to 21 miles offshore.

(12) **Charts 11536, 11534.–Lockwoods Folly Inlet** is entered over a shifting bar 11 miles westward of Cape Fear River. Strangers should not attempt it as the inlet is enclosed by breakers at virtually all stages of tide and wind. Due to frequent changes, mariners are advised to seek local knowledge before entering the inlet. The approach to the inlet is marked by a lighted whistle buoy. The buoys marking the inlet are not charted, because they are frequently shifted in position to mark the best water. There are three charted wrecks, all showing at low water, near the entrance to the inlet; two are at the mouth, and the other is about 0.3 mile to the westward 200 yards offshore. A high sand dune is east of the inlet.

(13) **Lockwoods Folly River** is navigable from the ocean to the Intracoastal Waterway, at the head of the marshes inside the inlet, and thence to a fixed highway bridge at **Supply,** which is at the practical head of navigation 16 miles above the waterway. The channel is narrow, bordered on both sides by oyster bars covered at high water, and not maintained. The mean range of tide is 4.2 feet at the inlet and about 2 feet at Supply. In December 1999, the controlling depth was 3½ feet from the Intracoastal Waterway to Lockwoods Folly River Daybeacon 9; thence 1 foot to Daybeacon 16; thence in 1977-1988, the centerline controlling depth was less than 1 foot to Supply. The river channel is marked by daybeacons to a pier at **Varnumtown,** about 1.6 miles northward of the Intracoastal Waterway where gasoline and water can be obtained. The river is used by commercial shrimp boats to Varnumtown.

(14) An **explosives anchorage** is centered about 3.5 miles southwestward of Lockwoods Folly Inlet. (See **110.170**, chapter 2, for limits and regulations.)

(15) **Shallotte Inlet,** 19 miles westward of Cape Fear River, is entered over a shifting bar and has a winding entrance. A lighted whistle buoy marks the entrance. The bar channel is subject to continual change, and the buoys marking it are shifted frequently to mark the best water, and therefore not charted. The inlet, used only by local fishermen and not recommended to strangers, provides an access from the sea to the Intracoastal Waterway and to **Shallotte River.** The river is navigable to the town of **Shallotte,** about 8 miles above the inlet. In June 1993, the reported controlling depth over the bar and to the Intracoastal Waterway was 4 feet, and thence in June 1983, 4 feet to Shallotte. In June 1983, it was reported that only outboard motorboats were using the river to Shallotte. The mean range of tide is 4.6 feet near the inlet and about 3 feet at Shallotte.

(16) Berthage, electricity, gasoline, diesel fuel, water, ice, launching ramps, and some marine supplies can be obtained at two small-craft facilities on the west bank of Shallotte River, about 0.6 mile and 1.3 miles above the Intracoastal Waterway. A marine railway at the southerly facility can handle craft up to 40 feet for hull and engine repairs. The facilities at Bowen Point are described with the Intracoastal Waterway in chapter 12.

(17) **Tubbs Inlet,** 6 miles westward of Shallotte Inlet, is seldom used. It is unmarked and not recommended to strangers.

(18) **Charts 11535, 11534.–Little River Inlet,** 28 miles westward of Cape Fear River, is entered between **Waties Island** on the west and **Bird Island** on the east. A lighted whistle buoy is off the entrance. A submerged wreck is off the entrance at 33°50'00"N., 78°33'00"W. The entrance to the inlet is protected by jetties, each marked on the outer end by a light. The channel into the inlet has been realigned and is marked by buoys, ranges, and daybeacons. In October 1998, there was a reported mid-channel controlling depth of 13 feet from the lighted whistle buoy to the jetty entrance lights, thence 7 feet leading northward of the eastern end of Waties Island for about 1.5 miles to the junction with the Intracoastal Waterway. There is a large sand bar centered at 33°51'25"N., 78°32'50"W. Extreme caution is advised when entering and leaving the inlet. The mean range of tide at the inlet is about 5 feet.

(19) Three fish havens, marked by a buoy, are about 2.5 miles southeastward of Little River Inlet in about 38°48.9'N., 78°30.2'W.

(20) Between Little River Inlet and Murrells Inlet are many piers, most of which are marked by lights and extend out some 400 to 1,000 feet into the ocean.

(21) **Myrtle Beach,** a summer resort, is on the outer beach nearly 20 miles southwestward of Little River Inlet and 32 miles north-northeastward from Georgetown Light. Numerous tanks in the area are conspicuous. Hotels and motels along the beach are also prominent. Several radio antennas close-to, marked by red lights, can be seen seaward.

(22) **Murrells Inlet,** 12 miles southwest of Myrtle Beach and 20 miles north-northeastward of Georgetown Light, connects with **Main Creek** and **Oaks Creek,** which drain a considerable area of marsh between the mainland and the outer beach. The entrance to the inlet is protected by jetties. A lighted whistle buoy is off the entrance, and lights mark the outer ends of the jetties. The dredged entrance channel and the channel through Main Creek to a turning basin about 2.9 miles above the entrance are marked by lights and daybeacons. In 1981-May 1984, the controlling depths were 9 feet in the entrance channel, thence 5 ½ feet at midchannel to the turning basin except for shoaling to bare in the vicinity of Daybeacon 2A. In April 1981, a wreck was reported off the entrance to the inlet in about 33°31.4'N., 79°01.5'W. Inside the inlet, where the channel turns sharply to northward into Main Creek, the tide rips are strong at full ebb or flood current. Local fishermen use this inlet, but strangers should not enter without local knowledge.

(23) There are three marinas on Main Creek; two are at the landing, and the other is eastward of the landing on the west side of the barrier beach. Berthage, electricity, gasoline, diesel fuel, water, ice, launching ramps, and some marine supplies are available at all facilities; hull repairs can be made at all the facilities. Depths in the approaches and alongside the piers at the marinas are reported to be about 3 feet. Restaurants and motels are available.

(24) Three fish havens, marked by buoys, are about 3.8 miles east-southeastward, about 10 miles southeastward, and about 5.3 miles southward of Murrells Inlet.

(25) **Charts 11532, 11535, 11531.–North Inlet,** about 14 miles southward of Murrells Inlet and 6 miles northward of Georgetown Light, connects with Winyah Bay by way of both **Town Creek** and **Jones Creek.** Some local fishermen use the inlet, but strangers should not. In July 1983, the reported controlling depth over the bar was 3 feet. The inlet and the creeks are unmarked. There is little water on the Winyah Bay side, and navigation is restricted to shallow-draft craft. In July 1983, Jones Creek, the southerly of the two, was found to bare in places, and numerous oyster bars were reported.

(26) **Winyah Bay** is the first harbor southward of Cape Fear River, a distance of 70 miles, that is navigable for vessels drawing up to 25 feet. It is entered between **North Island** and **South Island.** The entrance is protected by jetties. The entrance is not safe for small craft except in favorable weather. Heavy tide rips prevail near the ends of the jetties, and heavy seas run in moderate weather. The south jetty is visible only at low water.

(27) **Georgetown,** 14 miles above the entrance to Winyah Bay, is on the north bank about 1.5 miles above the entrance to Sampit River. It is 392 miles south of Norfolk and 247 miles north of Jacksonville by coastwise routes. It is a city of growing commercial importance and has a large pulpmill, a chemical plant, a steel fabrication plant and rolling mill, and several seafood processing plants. The principal exports are paper products and fabricated metal products. Pulpwood, logs, and general cargo are imported. It is the terminus of a branch of the Seaboard System Railroad, and considerable ocean shipping calls at the port. It has schools, banks, motels, markets, restaurants, a hospital, and many landmarks of historical interest.

(28) **Prominent features.–Georgetown Light** (33°13.4'N., 79°11.1'W.), 85 feet above the water, is shown from a white cylindrical tower on the north side of Winyah Bay entrance. Four 400-foot stacks, at a generating plant west of Winyah Bay and about 4 miles southwestward of Georgetown, have prominent strobe lights at the tops. There are few other prominent objects in the vicinity, and the land is low on both sides of the entrance.

(29) **COLREGS Demarcation Lines.**–The lines established for Winyah Bay are described in **80.703**, chapter 2.

(30) **Channels.**–Federal project depth is 28 feet from the sea to South Island Bend; thence 29 feet to Range C; thence 28 feet to Range D; thence the project provides for a depth of 27 feet to the turning basin off the three deepwater terminals on Sampit River. The channel is well marked by lighted ranges, buoys, and other aids. The channel is maintained at or near project depth, but during freshets from February to April it is reported that silting occurs in the turning basin and in the entrance channel; annual dredging is necessary to maintain this portion at project depths. (See Notice to Mariners and latest editions of charts for controlling depths.)

(31) An unmarked dredged side channel leads from the main river channel along the easterly and northerly sides of the horseshoe-shaped bypassed portion of Sampit River fronting the city of Georgetown to the north end of another turning basin on the westerly side of the horseshoe. Mariners are advised to exercise caution to avoid submerged pilings along the east side of the channel. The turning basin, marked by lights and buoys, can also be entered from the main river channel. In 1997, the controlling depth was 10 feet in the side channel, with 15 feet in the turning basin. The channel has a tendency to shoal between dredgings.

(32) **Anchorages.**–There are no anchorages in Winyah Bay or Sampit River for deep-draft vessels. The recommended anchorage, as reported by the local pilots, is 0.5 mile northeast of the sea buoy (Winyah Bay Lighted Whistle Buoy WB) in about 6 fathoms, sand and mud bottom.

(33) **Dangers.**–The principal dangers in the approach to Winyah Bay are: **East Bank,** covered 6 feet and marked by a

buoy, about 2 miles south of the end of the south jetty; an unmarked shoal, with a least depth of 14 feet, about 4 miles southward of East Bank; **Hector Wreck,** cleared to a depth of 9 feet and marked by a lighted bell buoy, about 12 miles southward of the sea buoy (Winyah Bay Lighted Whistle Buoy WB); a wreck, with 19 feet over it and marked by a lighted bell buoy, about 13 miles southeastward of the sea buoy; a fish haven marked by private buoys about 5 miles northeast of the sea buoy; and an obstruction, reported covered 20 feet, 300 yards northward of the sea buoy. Vessels approaching the entrance at night should remain in the vicinity of the sea buoy until the pilot boards. Some vessels, mistaking Winyah Bay Range B Lights for Range A Lights, have approached the entrance too closely at night and only with difficulty have cleared the outer end of the south jetty. Mariners are advised to familiarize themselves with the characteristics of these ranges before making the approach.

(34) The local pilots report that at high water the north jetty at the entrance to Winyah Bay is partially submerged and only the three rock mounds along the south jetty are visible. At low water, parts of the south jetty just inshore of the outermost mound remain submerged. Extreme caution is advised. The pilots also report that the southwest tip of North Island just inside the jetties is building up and is encroaching southward to near the easterly edge of the channel; caution is advised.

(35) **Tides and currents.**–The mean range of tide on the bar off the end of the south jetty is 4.6 feet; in the channel opposite the south end of North Island is 3.8 feet; and at Georgetown, 3.7 feet. The force and direction of the wind has marked influence on the range of the tide. Continuing easterly winds bringing abnormal high tides and westerly winds much lower tides.

(36) The tidal currents are affected by variations in the flow of the tributary rivers. The velocity is greatest between the jetties where the average is between 2 and 3 knots. The set is diagonally across the south jetty. During freshets in the rivers, also with westerly winds, the velocity of the ebb current between the jetties is reported to be very strong at times and the channel buoys between the jetties are nearly towed under. In the channel in Winyah Bay, from the entrance to Georgetown, the tidal current averages about 2 knots, but during freshets the ebb current is considerably stronger and the flood weaker. Near the mouth of Sampit River, the tidal current averages about 1 knot with somewhat stronger ebb current velocities during freshets. When approaching the turning basin from Sampit Point Channel, it has been reported that the flood current sets towards South Carolina State Ports Authority Terminal Pier 31 with considerable velocity and the ebb current sets towards the small island northeast of State Pier 31. Outside the jetties, with fresh to strong northeast winds, a strong southerly current is reported to set across the entrance channel and with southerly and southwesterly winds a northerly set is experienced. (See the Tidal Current Tables for current predictions for a number of places in Winyah Bay and vicinity.)

(37) **Weather, Myrtle Beach and vicinity.**–The climate is usually mild and except in severe winters little ice is seen and then only along the banks. The channels are never obstructed. Fog is observed during the fall and spring and usually sets in during southwesterly weather, when it may persist for several days. Nighttime fog, due to a large drop in temperature, usually burns off in the forenoon. Sea fog sometimes hangs offshore or in the entrance when it is clear inside.

(38) Winter temperatures average near 60°F (15.6°C) during the day and in the upper 30's (2.8° to 3.9°C) at night. Temperatures drop to freezing or below only on about 28 days per year; a 4°F (-15.6°C) temperature was recorded one February. Precipitation averages about 3 to 4 inches (76 to 102 mm) per month during the winter and falls on 4 to 6 days per month; snow is rare and about one-half inch (13 mm) is recorded annually..

(39) Summer maximum temperatures usually climb to the upper 80's (30.6° to 31.7°C), while minimums range in the 70's (21.7° to 22.8°C). Temperatures reach 90°F (32.2°C) or higher on about 55 days annually; a reading of 104°F (40°C) was recorded in both June and August. June through August is generally considered the rainy season; about half of the 50-inch (1,270 mm) annual average occurs during these months.

(40) Since 1842, 55 tropical storms have come within 50 miles (93 km) of Myrtle Beach, South Carolina, 18 of these storms since 1950. The most noteworthy likely was Hurricane Hazel which made landfall just north of Myrtle Beach near the border with North Carolina around mid-day on October 15, 1954. With a forward speed of nearly 50 mph (80 km/h), Hazel destroyed nearly everything in its path. Making landfall north of Myrtle Beach lessened damage to the local area, but damage was catastrophic at the nearby North Carolina communities.

(41) **Routes.**–Vessels from the northward usually make for the sea buoy from Frying Pan Shoals Light. When coming from the southward, they should stay outside Cape Romain Lighted Whistle Buoy 6 and Hector Wreck Lighted Bell Buoy WR4, shaping for the entrance, taking care to avoid the wreck, marked by a lighted bell buoy, about 9 miles east-northeastward of Hector Wreck Lighted Bell Buoy WR4. Some vessels in closing the entrance have mistaken the ranges and come too close to the south jetty; they should remain in the vicinity of the sea buoy until the pilot boards.

(42) **Pilotage, Georgetown.**–Pilotage is compulsory for all foreign vessels and for U.S. vessels under register in the foreign trade. Pilotage is optional for U.S. vessels in the coastwise trade which have on board a pilot licensed by the Federal Government.

(43) Georgetown Bar & Harbor Pilots, P.O. Box 594, Georgetown, S.C. 29440; telephone 843-527-4136, 843-527-4233, or 843-527-2131; FAX 843-527-4136 *51 serve the entrance through the bar, Winyah Bay and vicinity.

(44) The pilot boat, WINYAH BAY, is 48 feet long and has a black hull and white superstructure. The alternate pilot boat, PILOT FISH, is 31 feet long and has a black hull and white superstructure. The pilot boats monitor VHF-FM channel 16 and use channel 9 as a working frequency. Vessels are requested to contact the pilot boat approximately 2 hours before scheduled inbound transit for pilot boarding information. Pilots will board day or night from the pilot boat just east of the sea buoy, Winyah Bay Lighted Whistle Buoy WB in 33°11.6'N., 79°05.2'W.

(45) Arrangements for pilots should be made in advance by telephone and/or fax, by radiotelephone, or through ships' agents.

(46) **Towage.**–Tugs up to 2,000 hp are available in Georgetown, and up to 4,000 hp are available with 24-hour notice. Tugs are required for docking and undocking large oceangoing vessels; tugs meet vessels just below Georgetown. Arrangements for such services are usually made well in advance through ships' agents.

(47) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(48) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) There is a county hospital at Georgetown.

(49) Georgetown is a **customs port of entry.**

(50) **Coast Guard.**–Georgetown Coast Guard Station is on the west bank of the Great Pee Dee River about 0.25 mile south of U.S. Route 17 highway bridge. A **Marine Safety Office** is at Charleston. (See appendix for address.)

(51) **Harbor regulations.**–The South Carolina State Ports Authority exercises jurisdiction over the port facilities through the manager of the State Ports Authority Terminal at Georgetown. The manager's office is at the terminal.

(52) **Wharves.**–Only the major port facilities at Georgetown are described. The wharves have highway connections, and most have railroad connections, and water and electrical shore power available. General cargo is handled at the port by ship's tackle; special handling equipment, if available, is mentioned in the description of the particular facility. The alongside depths given for each facility described are reported depths. (For information on the latest depths, contact the manager.) There are several seafood-handling and small-craft service wharves along the city waterfront. For a complete description of the port facilities, refer to Port Series No. 13, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

(53) **Georgetown Terminal Pier 32** (33°22'00"N., 79°17'30"W.): northwest side of bypassed portion of Sampit River; marginal wharf with 600-foot face; 712 feet usable with dolphins; 27 feet alongside; deck height, 15 feet; cranes to 90 tons; handles scrap metal, ore, charcoal, and steel products; owned by South Carolina State Ports Authority and operated by Georgetown Steel Corp.

(54) **Georgetown Terminal Pier 31, Berth 2** (33°21'47"N., 79°17'19"W.): south-southwest side of bypassed portion of Sampit River; 700-foot face; 27 feet alongside; deck height, 10 feet; handles conventional general cargo, salt, lumber, and steel; operated by South Carolina State Ports Authority and International Salt Co.

(55) **Georgetown Terminal Pier 31, Berth 1** (33°21'35"N., 79°17'15"W.): north side of turning basin; marginal type wharf with 500-foot face; 27 feet alongside; deck height, 12 feet; handles conventional general cargo, lumber, steel, and paper products; operated by the South Carolina State Ports Authority and Marine Contracting and Towing Co.

(56) **Pier 31 Cement Berth**: on north side of turning basin just west of Pier 31, Berth 1 92-foot face; 192 feet of berthing space with dolphins; 27 feet alongside; deck height, 11 feet; handles cement; operated by Delta Cement Co.

(57) **International Paper Co., Ship Dock:** north side of turning basin, about 350 yards westward of Pier 31: marginal type wharf with 475-foot face; 27 feet alongside; deck height, 10 feet; handles paper products.

(58) **International Paper Co., Upper Wharf:** north side of Sampit River about 0.9 mile westward of Pier 31; 350- and 153-foot faces, 1,653 feet usable berthing space with dolphins; 10 feet alongside; deck height, 10 feet; mooring barges.

(59) **Supplies.**–Marine supplies and provisions can be obtained at Georgetown. Diesel fuel is trucked to the deepwater piers or barged in from Charleston.

(60) **Repairs.**–There are no facilities available at the port of Georgetown for making major repairs or drydocking large, deep-draft vessels; the nearest such facilities are at Charleston, S.C. The International Paper Co. has two marine railways at its marine repair piers on the north side of Sampit River, about 0.3 mile westward of the State Ports Authority Terminal. These facilities are for maintaining and repairing company-owned floating equipment, but are available to the public in an emergency or by prior arrangement. Each railway can handle vessels up to 95 tons.

(61) There are machine repair shops in Georgetown; minor above-the-waterline hull and engine repairs can be made.

(62) **Small-craft facilities.**–There are several facilities on the east side of the bypassed portion of the river along the city waterfront. Gasoline, diesel fuel, berthage with electricity, water, ice, provisions, marine supplies, and launching ramps are available. A boatyard is on the east side of the bypassed channel about 0.4 mile northward of the junction with the main ship channel. The yard has two marine railways, the largest of which can handle craft up to 60 feet or 50 tons. Hull and engine repairs can be arranged. Another 50-ton marine railway is available at a marina close south of the boatyard. A 4-ton fixed lift is available at a marina about 250 yards above the boatyard; hull, engine, and electrical repairs can be made here. Another marina is at **Belle Isle Garden** on the west side of Winyah Bay, about 3.3 miles below Georgetown. Berths, electricity, gasoline, diesel fuel, water, ice, a launching ramp, and marine supplies are available; engine and electronic repairs can be made. In June 1983, depths of 8 feet were reported alongside the berths.

(63) **Communications.**–Georgetown is served by several good highways, and by the Seaboard System Railroad.

(64) Above Georgetown the principal landing on **Sampit River** is at **Sampit** about 10 miles above the river mouth. U.S. Routes 17 and 701 highway bridge crossing the river at Georgetown has a fixed span with a clearance of 65 feet. The overhead power cable about 0.9 mile above the bridge has a clearance of 61 feet. In May 1975, the reported controlling midchannel depth from the bridge to **Sampit Landing** was 7 ½ feet. Sampit River above Georgetown is not marked.

(65) **Waccamaw River** rises at Lake Waccamaw, N.C., and flows southwestward into Winyah Bay just above Georgetown. The river is little used, except for that section which is a part of the route of the Intracoastal Waterway described in chapter 12. The route of the waterway leaves Waccamaw River near Enterprise Landing, about 24 miles above the mouth.

(66) The controlling depth in Waccamaw River from Enterprise Landing to **Conway,** 36 miles above the mouth, was reported to be 5 feet in June 1983. This section of the river is marked by daybeacons to near Conway. Above Conway the river is obstructed by logs, snags, and sandbars. The mean range of tide at the river entrance is 3.6 feet and 1.2 feet at Conway. The head of the tidal reach is at **Bellamys Landing,** 80 miles above the mouth. (For predictions see the Tide Tables.) The freshet range at Conway is about 13.5 feet.

(67) **Bridges.**–About a mile below Conway, the US 501 Bridge, a fixed bridge, with a clearance of 35 feet, crosses the Waccamaw River. The US 501 (business) Bridge, at Conway, is a fixed bridge with a clearance of 36 feet. The Waccamaw Coastline Railroad Bridge, also at Conway, is a swing bridge, with a clearance of 1 foot. (See 117.1 through 117.59 and 117.938, chapter 2, for drawbridge regulations.)

(68) **Cables.**–An overhead power cable with a clearance of 76 feet crosses the Waccamaw River about 3 miles above Enterprise Landing. An overhead cable of unknown clearance crosses the river about 0.8 mile below the US 501 Bridge. An overhead cable of unknown clearance crosses the river at Savannah Bluff, about 400 yards below the US 501 Bridge. An overhead power cable with a clearance of 59 feet crosses the river just above the US 501 Bridge.

(69) **Kingston Lake** enters Waccamaw River at Conway. The Mid Atlantic Railroad Bridge, a fixed bridge, with a clearance of 3 feet crosses Kingston Lake about 100 yards north of its junction with Waccamaw River. An overhead power cable near this bridge has a clearance of 50 feet.

(70) **Great Pee Dee River** rises in the North Carolina mountains and flows generally southeastward into Winyah Bay just westward of Waccamaw River. A marina at **Georgetown Landing**on the west side of the Great Pee Dee River, just below the U.S. Route 17 fixed bridge, provides berths, electricity, gas, diesel, water, ice, and marine supplies. In June 1989, the reported approach depth was 16 feet. U.S. Route 17 fixed highway bridge over Great Pee Dee River just above the mouth at Georgetown has a clearance of 20 feet. About 300 yards northward of this bridge the 80-foot swing span of the former Route 17 highway swing bridge has been removed; the fixed portions of the bridge on either side of the channel remain as fishing piers. The channel between the piers is marked by lights. The velocity of the current at the former bridge is about 1 knot. (For predictions see Tidal Current Tables.) At **Yauhannah,** 28 miles above the mouth, the river is crossed by U.S. Route 701 fixed highway bridge with a clearance of 25 feet.

(71) The Seaboard System Railroad bridge near **Poston,** about 62 miles above the mouth, is the head of commercial navigation. The river is unmarked.

(72) **Black River** empties into Great Pee Dee River from northward about 3 miles above the mouth of the latter and is navigable for a distance of 44 miles. The river is unmarked. The bridges over Black River have minimum channel widths of 16 feet and minimum clearances of 1 foot. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) The mean range of tide in Great Pee Dee River is 3.3 feet at the mouth and 0.2 feet at the mouth of Little Pee Dee River, 33 miles above. **Mingo Creek** flows into Black River about 22 miles above the mouth of the latter. When last ascertained, the controlling depth in this creek was 8 feet. The mean range of tide is 2 feet, and the freshet range is 4.5 feet.

(73) **Chart 11531.**–Between Winyah Bay and Charleston Harbor are several rivers and inlets which are changeable in character, and local knowledge is essential to enter even under favorable conditions. Some dry at low water, and in the others the depths range between 1 and 6 feet. Suitable anchorages for small craft can be found inside these inlets or in their tributary waters. At most entrances, the channels trend in northerly directions, and shoals and breakers generally mark the channel edges inside the bars. Entrances to North Santee River and Bulls Bay are less difficult of navigation than the other entrances in this locality, but these should be entered only at high water under favorable weather conditions.

(74) Between Winyah Bay entrance and Cape Romain, broken ground, with depths of less than 5 fathoms, extends 11 miles offshore. In addition, East Bank, Hector Wreck, and a 14-foot spot about 6 miles offshore, all previously mentioned as dangers in the approach to Winyah Bay, should be avoided.

(75) **Santee River,** formed by the confluence of **Congaree River** and **Wateree River,** flows generally southeast and enters the ocean between Winyah Bay and Cape Romain. Its two mouths, known as **North Santee River** and **South Santee River,** are both obstructed by shifting bars with little depth. In the tidal reach are several privately owned landings which are used infrequently. The river is closed to navigation at Wilson Landing, 75 miles above the mouth, by the Santee Dam.

(76) Vessels bound for Santee River are advised to enter by way of Winyah Bay and the Intracoastal Waterway. Navigation between the coast and points on Santee River above the dam is possible by way of Cooper River and the Santee-Cooper project. The U.S. Route 17 twin fixed highway bridges over North and South Santee Rivers, about 12 miles above the mouths, have clearances of 29 feet over North Santee River and 15 feet over South Santee River.

(77) **Cape Romain,** the southeasterly extremity of Cape Island, is about 14.5 miles southwestward of the entrance to Winyah Bay.

(78) **Cape Romain Shoal,** with depths of 4 to 18 feet over it, extends 4 miles southeastward from Cape Romain. The outer end of the shoal is marked by a buoy. The twin towers of an abandoned lighthouse, the taller 165 feet high, stand on the east end of **Lighthouse Island,** northwestward of Cape Romain. A 335-foot microwave tower and a 108-foot lookout tower at McClellanville, about 6 miles inland, are also conspicuous from seaward.

(79) **Cape Romain Harbor,** with depths of 1 to 2 feet, is an unimportant cove indenting the western shore of **Cape Island.** The harbor, used only by small local fishing craft, is approached from northward through a narrow, crooked, unmarked channel leading from sea around the north end of Cape Island. In June 1983, the reported controlling depth was 3 feet. In June 1983, the approach leading from the south between Cape Romain and Lighthouse Island to Cape Romain Harbor was reported closed. **Casino Creek** is one of several creeks and connecting passages that lead from inside of Cape Island to the Intracoastal Waterway; in July 1983, the reported controlling depth was 1½ feet in Casino Creek. The use of the creeks requires local knowledge; the chart is the best guide.

(80) **Five Fathom Creek,** about 4.2 miles westward of the southwestern extremity of Cape Island, is entered westward of **Sandy Point** at the western end of **Raccoon Key.** In April 1988, the entrance channel through Bulls Bay had a controlling depth of 3 feet (5 feet at midchannel), thence in 1983, a reported controlling depth of 3½ feet to the Intracoastal Waterway. In January-April 1985, shoaling to an unknown extent was reported between Bulls Bay Range B Front Light 6 and Five Fathom Creek Light 9A. Narrow and crooked at its upper end, the creek has deeper water throughout from the entrance to within 1 mile of the waterway. The dredged channel through Bulls Bay is marked by lighted and unlighted buoys, lights, and a **001.5°** lighted entrance range, and the creek is marked by a light and daybeacons. The outer bar is subject to change, and strangers should not attempt it.

(81) In September 1997, a new and more direct dredged channel was completed through an opening just northeast of Sandy Point, at **Sandy Point Beach.** The channel is connected to Five Fathom Creek through **Clark Creek.** In July 2000, the reported depth in the entrance channel was 4½ feet; thence in 1997, the

controlling depth was 7½ feet to Five Fathom Creek. The channel is marked by buoys.

(82) **Bulls Bay**, southwest of Raccoon Key, is entered between Sandy Point on the north, and **Northeast Point** on the south. The bay is broad and shallow, and has numerous shoals, many of which are bare at low water. A 56-foot steel skeleton fire lookout tower west of the bay is conspicuous from seaward. In June 1983, the narrow channel into **Bull Creek**, at the southwest side of the bay, had a reported controlling depth of about 7 feet over the bar, thence 2 feet from **Northeast Point** to **Bull Narrows.** In June 1983, it was reported that shoaling to bare extends 1.1 miles eastward from Northeast Point. The creek is used occasionally as an anchorage. Local knowledge is advised. **Bull Breakers** extend 4 miles southward from **Bull Island**, on the southwest side of the entrance to Bulls Bay, and are marked at their outer end by a buoy. The 131-foot steel skeleton lookout tower of the former Bull Island Lifeboat Station is prominent.

(83) **Chart 11521.–Price Inlet** (32°52.5'N., 79°39.1'W.), between Bull Island and **Capers Island**, had a reported depth of about 3 feet over the bar in June 1983. The channel is unmarked, and breakers have been observed across the entire area. The controlling depth in **Price Creek** from the inner edge of the bar to the Intracoastal Waterway was reported to be 5 feet in June 1983. The inlet, the best between Bulls Bay and Charleston, is used by local fishermen. With average weather conditions, there are heavy breakers on the shoal on the eastern side of the channel and small breakers on the west side. Good anchorage is available in Price Creek. An overhead power cable with a clearance of 85 feet crosses Price Creek about 0.5 mile above the mouth.

(84) **Capers Inlet**, between Capers Island and **Dewees Island**, in June 1983, had a reported depth of about 1 ½ feet over the bar, and breakers extended across the entire entrance. In June 1983, the reported controlling depth was 8 feet in **Capers Creek** from the inner edge of the bar to the Intracoastal Waterway. The channel is narrow and unmarked. Because of the shoal that extends eastward on the south side of the inlet and breaks the southwesterly seas, the channel can be entered when the wind is southwest. A shoal bare at about half tide extends southward along the eastern side of the inlet. There are numerous stumps and snags outside the high waterline in Capers Creek. An overhead power cable over Capers Inlet has a clearance of 86 feet.

(85) **Dewees Inlet**, between Dewees Island and Isle of Palms, had a depth of about 2 feet over the bar in June 1983, thence deeper water inside to the Intracoastal Waterway via **Dewees Creek.** The channel is narrow, unmarked, and seldom used. Breakers extend across the entrance to the inlet. An overhead power cable over Dewees Inlet has a clearance of 87 feet.

(86) A water tower at the pleasure resort near the southwest end of the Isle of Palms and a lookout tower on Dewees Island are prominent. An unmarked fishing pier projects seaward from the resort. Two wrecks, about 0.35 mile apart, are off the eastern shore of the Isle of Palms about 1.5 miles 107°30' and 1.6 miles 120°30' respectively, of the water tower. The wrecks are believed to be the remains of Confederate ships which were apparently sunk by Union forces as they sought to slip into blockaded Charleston Harbor; they are unmarked and are covered 6 feet and 4 feet, respectively. An obstruction, covered 9 feet and unmarked, is about 2.55 miles 125° from the water tower. Caution is advised in this area.

(87) **Breach Inlet** is between Isle of Palms and Sullivans Island. There is very little water over the bar, and breakers extend entirely across the entrance under almost all weather conditions. Currents are extremely strong in this inlet. A highway bridge over the inlet has a fixed span with a clearance of 5 feet.

(88) **Charts 11523, 11524, 11521.–Charleston Harbor**, 264 miles southwestward of Cape Hatteras and 65 miles northeastward of Savannah River, is the approach to the city of Charleston and to the Cooper, Wando and Ashley Rivers. The harbor is easy of access day or night in clear weather, and is one of the best harbors of refuge on the South Atlantic coast.

(89) **Caution.**–The areas generally to the east and southeast of Charleston Harbor are used extensively by the U.S. Navy and other military services to conduct various types of surface, subsurface, and aircraft training exercises. Fleet Area Control and Surveillance Facility (FACSFAC), Jacksonville, FL, exercises cognizance of the operating areas, makes area assignments, insures promulgation of firing notices, issues schedules, and prescribes necessary additional regulations.

(90) **Charleston**, the largest city and port in South Carolina, is at the confluence of Cooper and Ashley Rivers. The distance from the end of the jetties to the southernmost wharves at Charleston is about 7 miles. The city is a center of a rich agricultural district for which it is the distributing point. Numerous manufacturing plants are in and near the city. The principal wharves are along the west bank of Cooper River and the east bank of the Wando River. Imports are building cement, plywood, wool, bananas, nonferrous ores, chemicals, fertilizer, frozen meats, automobiles, steel products, naval stores and petroleum products. Exports are soybeans, clay, paper products, corn, woodpulp, lumber, heavy machinery, chemicals, fertilizer, textiles, automobiles and general cargo.

(91) **Prominent features.**–The entrance to Charleston Harbor is between converging jetties which extend nearly 3 miles seaward. Prominent to the northward of the entrance are several tanks on Sullivans Island and one on Isle of Palms, and the Charleston Light. **Fort Moultrie** and the town of **Sullivans Island** are on the north side of the entrance; the 155-foot conical tower of the abandoned old Charleston Lighthouse on Morris Island is south of the entrance; **Fort Sumter** is on the southwest side of the channel just inside the entrance.

(92) The prominent fixed red lights marking the top of the central span of the more northerly of the Cooper River twin bridges can be seen from the channel between the jetties, and are useful in connection with Mount Pleasant Range. When Mount Pleasant Range line is extended northwestward to the bridge, it intersects the bridge just west of the midpoint between the two bridge lights. Prominent fixed red lights also mark the top of the central span of the northerly bridge where it and the southerly bridge cross Town Creek, west of Drum Island.

(93) **Charleston Light** (32°45.5'N., 79°50.6'W.), 163 feet above water, is shown from a triangular tower, upper half black, lower half white, on Sullivans Island. A radiobeacon is at the light.

(94) **COLREGS Demarcation Lines.**–The lines established for Charleston Harbor are described in **80.710**, chapter 2.

(95) **Charleston Harbor Navigational Guidelines.**– In recent years, a substantial number of oceangoing vessels of increased size and draft have begun calling at the Port of Charleston. Although the waterways of Charleston Harbor com-

pare favorably with other ports of the same approximate volume of shipping, the maritime interests of the port have prudently considered the publication of a number of safe navigational practices and procedures that have evolved in recent years. These practices and procedures are known as the Charleston Harbor Navigational Guidelines.

(96) It is recommended that all vessels, particularly those which must navigate in the channel because of draft constraints, hereafter referred to as deep-draft vessels, strictly adhere to these guidelines. Nothing in them shall supersede nor alter any applicable laws or regulations. In construing and complying with these guidelines, regard shall be had to all dangers to navigation and collision and to any special circumstances, including the limitations of the vessels involved, which may make a departure from the guidelines necessary to avoid immediate danger.

(97) For purposes of these guidelines, **poor-handling vessels** are those, which because of their configuration, history of loss of controllability, or steering characteristics, or low power, are unable to consistently navigate within the channel half width or cannot maintain a speed of 8 knots through the water. If an adequate number of tugs are made fast to provide maneuverability, power, and a capable speed through the water of at least 8 knots, the assisted vessel will not be considered a poor handling vessel. Tandem tows, except for small scows and nondescript vessels which operate outside the main channel should not be attempted.

(98) For the purposes of these guidelines, the inbound approach to the U.S. Route 17 twin fixed bridge spans over Hog Island Reach commences at Buoy 2 (32°46.3'N., 79°53.2'W.) on Rebellion Reach. Inbound vessels intending to transit the Cooper River upstream of the twin bridges should give a Security call on VHF-FM channel 13 upon entering Mount Pleasant range (32°44.4'N., 79°50.7'W.). Commercial vessels outbound from piers above the twin bridges should give a similar Security call when unmoored or beginning the downbound transit. Poor-handling vessels intending to transit reaches of the Cooper River above Rebellion Reach should be prepared to delay their transit to allow other vessels to clear outbound or to allow full-powered and more maneuverable vessels to precede them. Inbound poor-handling vessels should not proceed in Rebellion Reach past Buoy 2 but rather should anchor or heave-to out of the channel to await the passage of outbound vessels or more maneuverable inbound vessels. Outbound poor-handling vessels should not depart their berths until inbound vessels have passed clear of their berths, or until other vessels scheduled to depart have left their berths and have preceded them down the reaches of the Cooper River.

(99) The maritime interests at the Port of Charleston construe that the navigation safety regulations contained in Title 33, Code of Federal Regulations, Part 162.65, exist to preserve the safety of the port and waterways of Charleston. These regulations are supported by these local interests and reports of violations of those regulations on the part of noncomplying vessel operators will be reported to Coast Guard authorities.

(100) **Draft limitations.**–While the project depths for Charleston Bar and Charleston Harbor are published as 42 feet and 40 feet, respectively, private dredging operations and natural influences have normally permitted vessels of slightly greater draft than 40 feet to transit the main channels of Charleston Harbor. Tidal ranges average 5.2 feet in most harbor locations. Bar and harbor pilots at Charleston consider actual depths based upon recent soundings, the state of the tide, and the need for under keel clearances to allow for both static and dynamic hydraulic effects between harbor bottom, hull, and the ship's propeller(s). The pilots generally require a four foot margin for clearance, between the lowest point on the vessel's hull and the harbor bottom, for vessels transiting Charleston's waterways at normal harbor speeds. The pilot office provides guidance on all vessel movements in which the vessel's deepest draft is greater than 36 feet, and for tank vessels with deepest drafts over 34 feet.

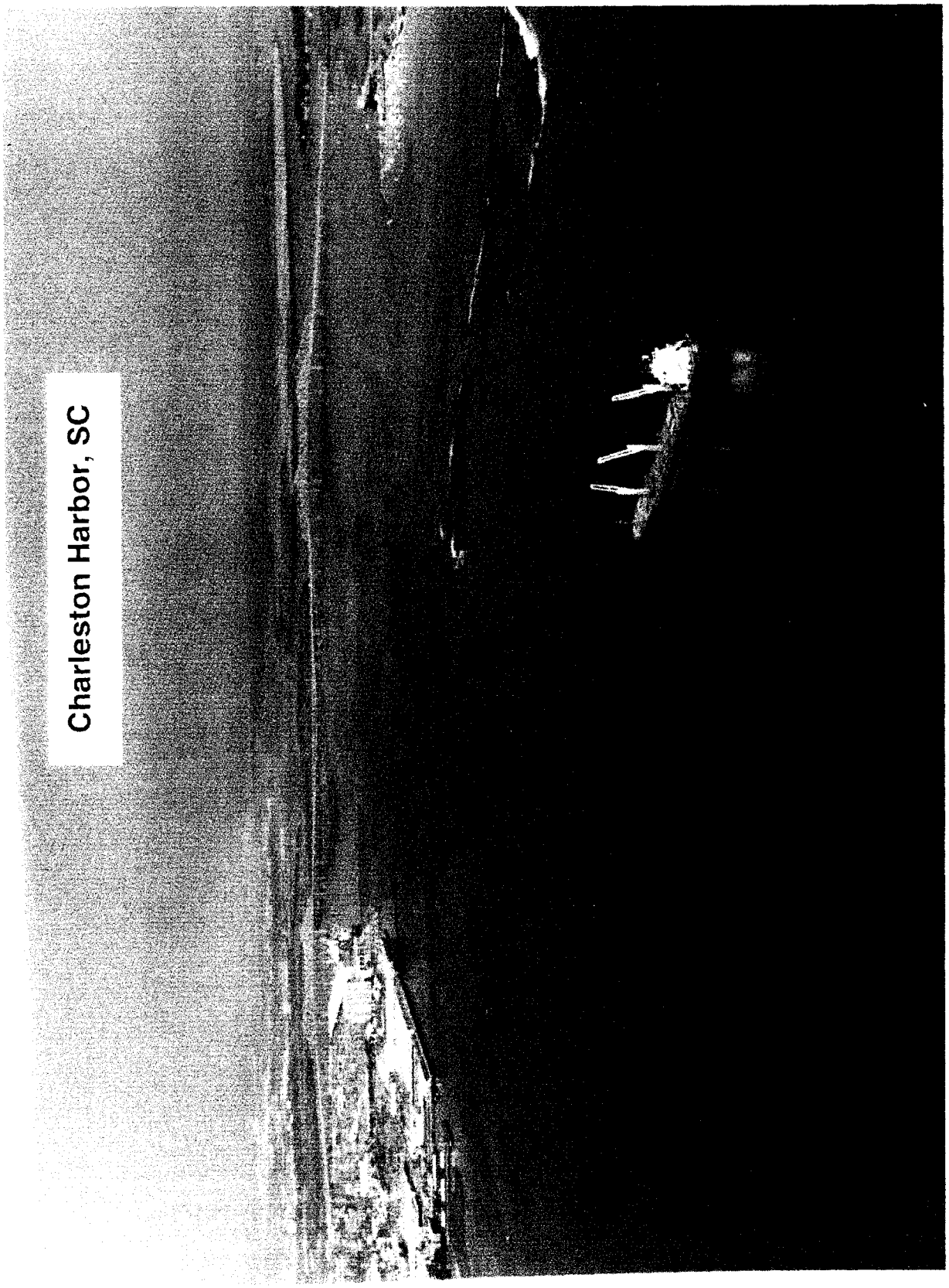
(101) **Low visibility.**–Not infrequently, portions of Charleston Harbor are affected by poor visibility. This occurs during line squalls of heavy rain accompanying the passage of frontal systems, rare snow squalls, and fog. Fog associated with a generalized weather pattern occasionally settles over the entire port area including the fairways offshore. Fog over only a part of the harbor, however, is a reasonably frequent occurrence. Vessels, having unmoored in good visibility, may find during their transit that visibility has become reduced to a few yards. Similarly, vessels proceeding inbound from the sea buoy may commence the transit in good visibility only to lose it while transiting the Charleston Harbor.

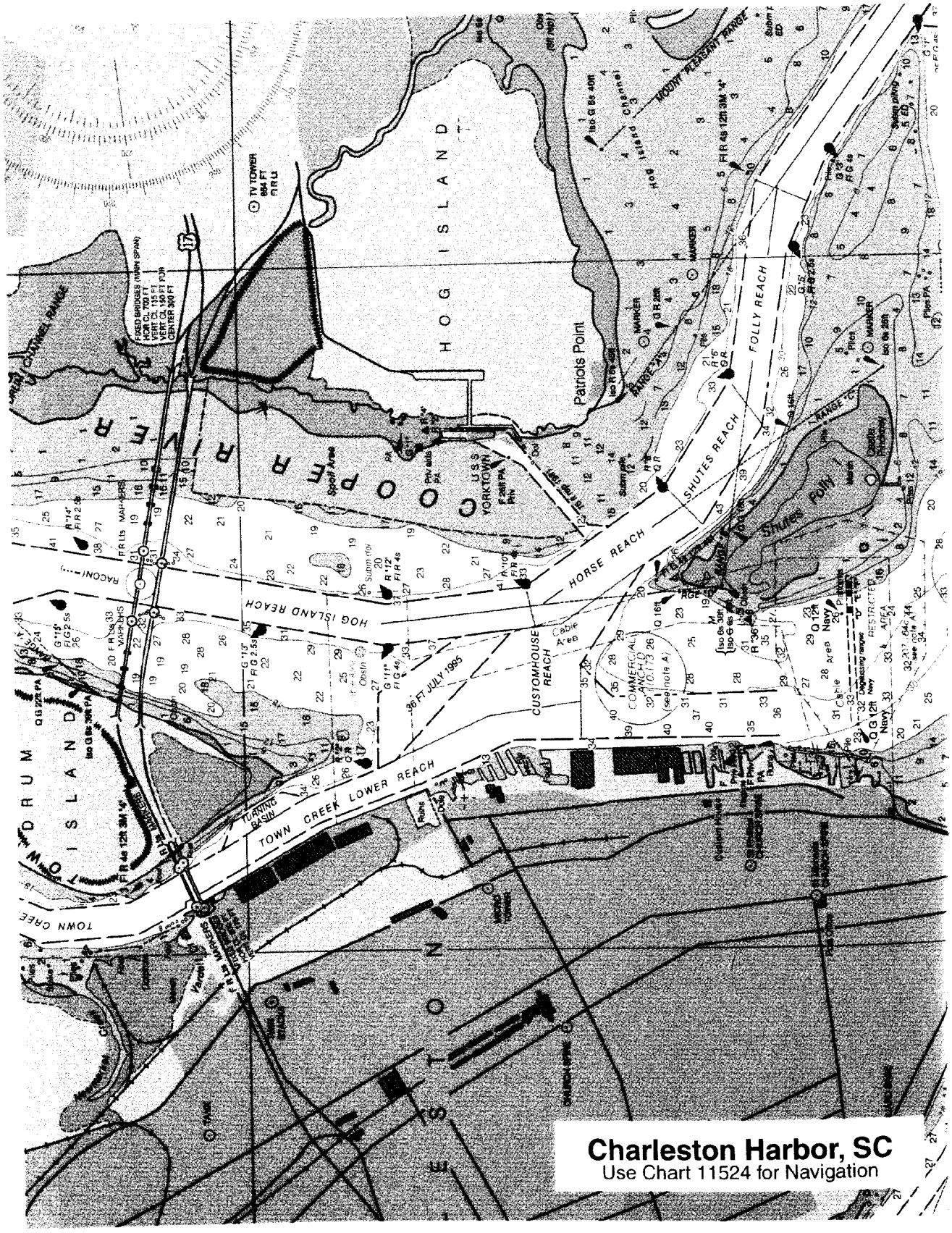
(102) These aforementioned reduced visibility conditions may last for only several hours or they may extend to several days. The purpose of these guidelines is not to amend nor negate the application of the Rules of the Road and good navigational practice, but to assist vessels underway in transiting the harbor expeditiously and with minimum risk to themselves and to the port. The Commissioners of Pilotage for the Port of Charleston have issued policy guidance to pilots that whenever visibility is less than 1,000 yards, pilots should not knowingly get a vessel underway outbound, or proceed inbound inshore of Buoys 1 and 2 on Rebellion Reach, unless an emergency or other special circumstance exists. The pilots licensed by the Commissioners are required to comply with such policy.

(103) During periods of low visibility, the Charleston Branch Pilots provide information to Navy Port Services Division and the National Weather Service on actual visibility conditions experienced at the Pilot Office, located on the Battery (32°46.4'N., 79°55.5'W.), on board the Association pilot boats, and on board oceangoing vessels being piloted by Charleston Branch Pilots. The pilot office monitors VHF-FM channels 13, 14, 16 and 18A on a continuous basis.

(104) The Charleston Branch Pilots Office provides information on visibility and vessel movements to mariners, when requested, and when such information is available. The Charleston Branch Pilots do not accept responsibility for financial losses resulting from information that is provided by their office, nor do they accept liability in the event that deaths, injuries and/or property damages may result from the use or misuse of information provided by the pilot office. The pilot office is, however, in the best position to determine when reduced visibility exists in the Lower Harbor. At times when reduced visibility exists, regulatory action by the Coast Guard Captain of the Port may be necessary. The Charleston Branch Pilots Association in coordination with the U.S. Navy may contact the Captain of the Port and recommend such action as may be necessary consistent with the policy guidance of the Commissioners of Pilotage.

(105) At no time shall the Navigation Rules, International-Inland be abridged or amended by these low visibility navigational guidelines. These guidelines are intended to enhance safety under conditions wherein navigation is not otherwise constrained.


Charleston Harbor, SC


HOG ISLAND
COOPER RIVER
Patriots Point
FOLLY REACH
SHUTES REACH
HORSE REACH
HOG ISLAND REACH
CUSTOMHOUSE REACH
TOWN CREEK LOWER REACH
TURNING BASIN
Shutes Folly
MOUNT PLEASANT RANGE
Hog Island Channel
Spoil Area
36 FT JULY 1995
Cable Area
COMMERCIAL ANCHOR
RESTRICTED AREA
Charleston Harbor, SC
Use Chart 11524 for Navigation

(106) **Areas of Particular Concern.**–Four areas in the Cooper River are considered to be particularly troublesome. These areas are listed in order of ascension when proceeding from sea.

(107) (1) **Intracoastal Waterway** (32°45.7'N., 79°52.3'W.). This represents the eastern conjunction of this waterway with Rebellion Reach. Westbound vessels proceeding on the waterway into Charleston Harbor are not readily visible to vessels inbound from sea until they are clear of the northernmost part of Sullivans Island. This waterway is extensively used by tows, and its junction with the harbor of Charleston is subject to strong and unpredictable crosscurrents at various stages of the tide. Westbound tows intending to enter Charleston Harbor from the Intracoastal Waterway should give a Security call on VHF-FM channel 13, 15 minutes prior to entry, or upon clearing the Ben Sawyer Bridge (32°46.3'N., 79°50.5'W.), and adjust speed so as to enter the harbor when the channel is clear. Every effort, including holding, should be made to avoid unduly restricting deep-draft vessels transiting the main ship channel, and allow them to clear this area when either inbound or outbound.

(108) (2) **Drum Island Turn** (32°48.8'N., 79°54.9'W.). Navigation of this turn is complicated by (a) poor visibility caused by Drum Island blocking the view of vessels approaching one another, (b) close proximity, 700 yards, to the fixed bridge spans over Hog Island Reach, and the vulnerability of the bridge to collision in the event vessel control is lost, and (c) crosscurrents on ebb tide from the confluence of the Cooper and Wando Rivers. Vessels should make every effort to avoid meeting at this turn, which includes Hog Island Reach above Buoy 11 (32°47.6'N., 79°55.1'W.). Commercial vessels should give another Security call on VHF-FM channel 13, 15 minutes prior to arriving at this turn. The vessel with the fair tide should initiate a proposal for meeting or passing and the vessel stemming the tide should hold as necessary. Any departure from this procedure should be agreed to by both vessels in a timely manner. Poor-handling vessels should not attempt to navigate this turn, except when a suitable number of tugs are immediately available for assistance, because such vessels are likely to become unmanageable, raising a substantial risk of collision with the bridge abutments and, thereby, becoming a threat to the lives of persons in the vehicles on the bridge. Local knowledge is necessary to predict current effects as they tend to set across the channel on both the flood and ebb.

(109) (3) **Shipyard Creek Junction** (32°49.7'N., 79°55.8'W.). This junction is complicated by the movement of vessel traffic in and out of Shipyard Creek and by ebb currents of unusually high velocity. Upbound low-powered vessels, particularly tugs with deep-draft tows, should not attempt transit of this area, except on flood tide, as their speed over the ground will be so slow that they will effectively restrict the main channel for hours. Tankships moored at the oil terminal facing on the lower portion of Daniel Island Reach are susceptible to current surges and suction from passing deep-draft vessels. Tankships mooring at that facility should employ an array of suitable mooring lines including wire ropes and winches with manually or hydraulically set brakes. It is recommended that a listening watch be maintained on VHF-FM channel 13 so that mooring lines can be tended during the passing of deep-draft vessels whose Security broadcasts have announced their intention to transit the upper Cooper River. In addition, vessels so moored may advise the Office of the Charleston Branch Pilots Association of their working frequencies so that such VHF communications between piloted vessels and moored vessels may be facilitated.

(110) (4) **North Charleston and Filbin Creek Reaches** (32°52.2'N., to 32°53.8'N., 79°57.9'W.). The main channel in these reaches is immediately adjacent to the pier heads of a number of oil terminals which receive tank vessels. The channel in these reaches is minimally 500 feet in width, thus the passage of deep-draft vessels often occurs in close proximity to moored tank vessels transferring bulk liquid inflammable, combustible and hazardous cargoes. The presence of the Route I-526 highway bridge and its vertical structures that are surrounded by a "rip-rap" protective fender system, further restricts navigation. When tank vessels are moored at any of these facilities, the situation becomes complicated by (a) the wake effect and suction from passing vessels upon cargo hose and mooring lines of moored tank vessels, or (b) the possibility of collision between a passing vessel and a moored tank vessel resulting in fire and explosion, deaths and injuries on board the vessels and ashore, and marine pollution; and (c) the possible loss of visibility of the bridge structure owing to the disbursement of large quantities of water vapor into the atmosphere from a nearby industrial plant. To provide the maximum distance between moored and passing vessels, the area encompassed by these reaches should be limited to one way traffic with respect to the transit of deep-draft vessels past any tank vessel moored at one, or more, of the several oil terminal docks. Likewise, no deep-draft vessel should overtake and pass another vessel in these reaches in the vicinity of moored tank vessels. Deep-draft commercial vessels intending to transit these reaches should make a Security call on VHF-FM channel 13, 15 minutes prior to the intended transit and shall adjust speed so as to avoid a meeting or passing situation in the vicinity of moored tank vessels. While passing moored tank vessels, transiting deep-draft vessels shall give due regard for the wake and suction effects upon the moored vessels. Local knowledge is necessary to predict current effects as they tend to set across the channel on both flood and ebb. Poor-handling vessels should be assisted by a suitable number of assist tugs when transiting these reaches to avoid collision with tank vessels moored at the oil terminals. It is recommended that moored tank vessels maintain a listening watch on VHF-FM channel 13 to be alert to the intentions of deep-draft vessels to transit these reaches, and thereby have line handlers prepared to tend mooring lines during the transit. In addition, vessels so moored should advise the Office of the Charleston Branch Pilots Association of their working frequencies so that such VHF communications between piloted vessels and moored vessels may be facilitated.

(111) To prevent problems which might arise from failure to exchange information necessary for safe meeting and passing on the river, the Coast Guard Captain of the Port conducts spot check monitoring of VHF-FM channel 13.

(112) **Seagoing Tugs and Barges.**–Seagoing tugs and barges arriving at or departing Charleston Harbor should, upon arrival, make a **security call** 15 minutes prior to entering Fort Sumter Range, or upon departing a dock or anchorage, make a security call 15 minutes before getting underway. Such security calls should be made on VHF-FM channel 13. It is recommended that such vessels further call the Charleston Branch Pilots' Association on VHF-FM channel 16 to ascertain the presence and movement of other vessels on the bar and in the harbor.

(113) **Small-craft Precautions.**–Small craft should comply with the Federal Regulations of **33 CFR 162.65(b)**, Chapter 2.

Small craft should take precautions whenever anchoring or mooring in close proximity to the main shipping channels by always maintaining a proper lookout, displaying proper navigational lights, and exercising good seamanship. Such small craft are subject to the hydraulic and hydrodynamic effects generated by deep-draft vessels passing in the main shipping channels even when such deep-draft vessels are proceeding at minimally slow speeds necessary to maintain steerageway. These effects can cause extreme surging and, in shallow water, can generate high waves. Vessels anchored in shallow water seeing the approach of a deep-draft vessel should get underway and meet these potential hydraulic and dynamic effects in a safe and seamanlike manner. Small craft should never anchor by the stern nor should they moor to the rock jetties, aids to navigation or bridge abutments.

(114) **Procedures for docking and undocking in Charleston Harbor.**–The procedures for docking and undocking deep-draft vessels in Charleston Harbor have been developed by the local docking tug companies in Charleston with the advice of the Charleston Branch Pilots Association. These procedures were developed with conventional vessels in mind; they do not preclude case-by-case consideration of other vessels representing the application of advanced technology in ship controllability systems. The general rules regarding vessels moored at commercial vessel berths are:

(115) (1) Ships to be docked must have a 25-foot horizontal clearance at both bow and stern from ships already docked at berths adjacent to the intended berthing space.

(116) (2) To prevent marine casualties and possible pollution incidents, shoreside container cranes must be positioned so as not to interfere with the movement of the vessel during docking and undocking.

(117) Vessels intending to berth at the following Charleston Harbor terminals are subject to certain procedural operating restrictions as a result of local tidal conditions and channel configuration limitations:

(118) **Columbus Street:** There are no restrictions on docking either portside-to or starboardside-to on flood tide. There are no restrictions on docking portside-to on either flood or ebb tide. There are the following restrictions for docking starboardside-to on ebb tide: (a) Restricted to vessels less than 565 feet in length or 20 feet in draft (certain other ships not meeting this criteria, up to 700 feet, can be docked by going around Drum Island. Consult the Charleston Branch Pilots Association and your tugboat company). (b) Restricted in Berths No. 4 and No. 5 to times when there is no other ship in the adjacent berth.

(119) **Allied Terminal:** Vessels over 40 feet in draft, when docking, shall arrive at the terminal in such time so as to complete mooring operations prior to the commencement of ebb tide. There are no undocking restrictions. Vessels with a draft of 34 feet or less may dock at any time.

(120) **Shipyard River Coal Terminal, Chevron, Braswell and Detyens Shipyards, Salmons:** There are no undocking restrictions at these facilities. Docking shall be accomplished on flood tide only (off mouth of Shipyard Creek).

(121) **McCalloy:** Docking shall be accomplished at flood tide only (off mouth of Shipyard Creek). Vessels over 535 feet in length shall undock only during daylight. The maximum length of vessels that can be accommodated is 580 feet. There are no other undocking restrictions.

(122) **Navy Facilities:** Former Naval Station Pier "K"; North side; docking and undocking of vessels shall be during slack water or flood tide. South side; docking and undocking of vessels shall be on slack water only. Navy small craft are exempt from this restriction. Naval Weapons Station (NWS), Pier "A", 950' "Bob Hope"–class, flood tide only.

(123) **South Carolina State Ports Authority North Charleston Terminal ("Port Terminal "), Grain Dock and the "TC" Dock:** There are no undocking restrictions. There are no docking restrictions on vessels less than 700 feet in length. Ships 700 feet and over should not be docked starboardside-to during ebb tide.

(124) **Koch, Alumax, Fina, North Hess, Marathon, Texaco:** No restrictions on docking or undocking, except that deep loaded tankships shall not be docked starboardside-to during ebb tide.

(125) There are no restrictions at any other commercial terminal in Charleston Harbor (i.e., Amoco, Westvaco) provided that adequate depths of water are maintained at dockside.

(126) In construing and complying with these docking restrictions, regard shall be had to all special circumstances which may make a departure from these guidelines necessary to avoid danger.

(127) Published tide tables provide tidal conditions at certain selected locations. For specific tidal conditions at the various berths, mariners are urged to consult the docking tug companies.

(128) **Channels.**–The entrance to Charleston Harbor is between converging jetties, the inner portions of which are submerged. An opening in the south jetty is marked by buoys.

(129) A Federal project provides for a channel 42 feet deep over the Bar (Ft. Sumter Range) and through the Harbor entrance and, thence, 40 feet deep into the major reaches of Cooper River, Wando River and Town Creek to Goose Creek, 13.6 miles above the mouth; and a connecting channel into Shipyard Creek 32 feet deep. A 35-foot Navy-maintained channel extends from the head of the Federal project in Cooper River to a turning basin at a naval facility, about 2.6 miles above Goose Creek; thence 30 feet for another 0.8 mile. The channels require constant dredging to maintain them at or near project depths, due to the silting of Cooper River. (See Notice to Mariners and latest editions of charts for controlling depths.) **South Channel,** from the main channel to off the Battery, is no longer maintained. In September-October 1996, the controlling depths were 24 feet from a junction with Rebellion Reach to a junction with Ashley River channel, thence 24 feet to off the Battery. The channels are well marked by lighted ranges and other aids to navigation. Charleston Entrance Lighted Whistle Buoy C (32°39.6'N., 79°40.9'W.) is about 10 miles southeast of Charleston Light and is equipped with a racon.

(130) **Anchorages.**–The principal anchorage for deep-draft vessels is in the triangle westward of the junction of Rebellion Reach of the main channel with South Channel. (See **110.173,** chapter 2, for limits and regulations.)

(131) **Dangers.**–The danger area of a former World War II minefield is off the entrance to Charleston Harbor. The area is open to unrestricted surface navigation but all vessels are cautioned not to anchor, dredge, trawl, lay cables, bottom, or conduct any similar type of operation because of residual danger from mines on the bottom. An **"anchor at your own risk"** anchorage, within the danger area, is on the north side of the entrance channel, close northward of Charleston Entrance Lighted Whistle Buoy C. The rectangular anchorage is enclosed by the following points:

(132) 32°42.9'N., 79°42.8'W.;

(133) 32°41.3'N., 79°39.3'W.;

(134) 32°39.9'N., 79°40.2'W.; and

(135) 32°41.6'N., 79°43.7'W.

(136) The area has been searched on many occasions and no unexploded ordnance has been discovered. Vessels have routinely anchored in this offshore anchorage for many years without mishap.

(137) **A regulated navigation area** extends northeastward and southeastward along the northern side of the entrance channel from Charleston Entrance Channel Lighted Buoy 8. (See **165.714**, chapter 2, for limits and regulations.)

(138) Vessels approaching Charleston Harbor must guard against an inshore set which may amount to a knot or more due to indraft of current into the various inlets. In this area, preceding a northeasterly or following a southerly gale, a hazy atmospheric condition may be encountered, which results in low visibility of lights even in fine weather when it is clear overhead. During the periods when this condition prevails, it is reported that excessive inshore sets have been experienced.

(139) **Rattlesnake Shoal,** 3 miles offshore and the same distance east-northeastward of the north jetty at the entrance to Charleston Harbor, is about 2 miles long east and west; its least depth is 10 feet. A buoy is E of the outer end of the shoal.

(140) Two unmarked rectangular drill minefields are about 6.7 miles northeastward and 6.1 miles east-northeastward of the sea buoy (Charleston Entrance Lighted Whistle Buoy C). Depths of 30 feet were reported in the southern minefield in 1967 and in the northern in 1969. A lighted buoy is between the drill minefields and marks a wreck and fish haven area. Another drill minefield is about 8.7 miles southwestward of the sea buoy. There are several unmarked charted dangers inside the sea buoy; caution is advised in this area.

(141) **Routes.**–From northward, the safer approach to Charleston Harbor, and the one generally used by deep-draft vessels, is outside Frying Pan Shoals Light. The course should be shaped west-southwesterly to pick up Cape Romain Lighted Whistle Buoy 6, and then the Charleston sea buoy. From southward, a northeast course, from a point about 3 miles southeastward of Savannah Light, will lead to the Charleston sea buoy.

(142) **Tides.**–The mean range of tide at Charleston and Fort Sumter is about 5 feet. At Fort Sumter the tides occur about 10 minutes earlier than at Charleston. (See Tide Tables for daily predictions.) It is reported that northeasterly winds or storms of long duration can increase tides by 2 to 3 feet. Increases in tide level can also be expected with southerly winds and falling barometric pressure. Westerly winds and rising pressure tend to reduce tide levels.

(143) **Currents.**–Off the entrance to Charleston Harbor the tidal currents are rotary with velocities of about 1 knot. Near the entrance to the jetties the current sets fair with the channel at strengths of flood and ebb and can be expected to set across the channel with a velocity of about 0.2 knot about 3 hours after strength of flood and ebb, setting northeastward and southwestward, respectively.

(144) It is reported that tide rips, hazardous to small craft, may be encountered off the jetties when wind and current are opposed.

(145) It is reported that with a west-northwesterly storm the ebb current off Fort Sumter and north of Drum Island attains a velocity of about 4 knots.

(146) In the channel between the west end of the south jetty and the submerged jetty, the average velocities of the current at strengths of flood and ebb are about 1.2 knots and 2.8 knots, respectively.

(147) Daily predictions for Charleston Harbor, off Fort Sumter, are contained in the Tidal Current Tables, and predictions for a number of other locations in the harbor and tributaries can be obtained through the use of Table 2 of the Tidal Current Tables. Tidal Current Charts are available for Charleston Harbor, including the entrance thereto, and Wando, Cooper, and Ashley Rivers.

(148) **Weather, Charleston and vicinity.**–The temperate climate is modified by its exposure to the ocean. This is most noticeable in winter, when minimum temperatures are often 10° to 15°F (5.6° to 84.4°C) warmer on the peninsula than at the airport. Summers are warm and humid although sea breezes keep 100°F (37.8°C) readings a rarity. This is the rainiest season but most of the precipitation falls as brief, heavy showers or thundershowers. Prevailing winds are generally southerly in summer and spring, compared to the more frequent northerlies of fall and winter. Gales are infrequent and are most likely associated with local spring storms or hurricanes, which may also produce severe thunderstorms and tornadoes. From late September through early November weather is often sunny and pleasant except for the threat of a hurricane, which also exists in summer.

(149) The average temperature at Charleston is 66°F (18.9°C) with an average high of 76°F (24.4°C) and an average low of 55°F (12.8°C). January is the coolest month with an average high of 59°F (15°C) and an average low of 38°F (3.3°C). July is the warmest month with an average high of 90°F (32.2°C) and an average low of 72°F (22.2°C). The warmest temperature on record is 104°F (40°C) recorded in July 1986 and the coolest temperature on record is 6°F (-14.4°C) recorded in January 1985. June, July, and August have each recorded temperatures in excess of 100°F (37.8°C) while each month, November through April, has recorded temperatures below freezing. Temperatures above 90°F (32.2°C) can be expected on 53 days during any given year while temperatures below 32°F (0°C) can be expected on 33 days during any given year.

(150) The average annual precipitation of Charleston is 52 inches (1,321 mm). Thanks to an abundance of thunderstorms, averaging 14 each year during July, July is the wettest month with 7.25 inches (184.2 mm). November is the driest month averaging about 2.5 inches (63.5 mm). Snowfall is rare in Charleston averaging less than one inch (25.4 mm) in any given year. However snow has fallenin each month, November through March. The greatest snowfall in a 24-hour period was 6 inches (152.4 mm) in December 1989.

(151) Charleston Harbor offers few of the characteristics of a haven during hurricane force winds. The following recommendations along with more detailed information can be found in the **Hurricane Havens Handbook for the North Atlantic Ocean** mentioned in chapter 3. Large ships should evade at sea or seek shelter elsewhere when a hurricane threatens. During a severe tropical storm (50-63 knots), some moorings along the Cooper River, Shipyard Creek and Town Creek may be adequate unless the vessel has a large sail area. While anchorage for deep-draft vessels is available in the triangle westward of the confluence of Rebellion Reach (of the main channel) with South Channel, use of this anchorage is not recommended because of the restricted scope while riding at anchor, the hazards of collision, and the difficulty of leaving if necessary.

(152) The topography of the entire harbor area is nearly flat and at sea level provides little shelter from wind and tide. The highest

accurate storm tide on record was 11.2 feet (3.4 m) above mean low water in the August 1893 storm. Smaller vessels, fishing boats and sailing craft should stay fast or seek shelter along the west side of the Cooper River, northward of the Battery.

(153) Since 1842, 58 tropical storms have come within 50 miles (93 km) of Charleston, 34 of these since 1950. The most noteworthy of recent memory was Hurricane Hugo in 1989. Hugo made landfall near Sullivan's Island, north of Charleston, early in the morning of September 22nd. Highest sustained winds in Charleston were 68 knots with gusts to 85 knots, however local reports noted gusts as high as 94 knots.

(154) The National Weather Service Office is at the Municipal Airport about 12 miles outside of the city. **Barometers** may be compared there. (See page T-4 for the **Charleston climatological table.)**

(155) **Pilotage, Charleston.**–Pilotage is compulsory for all foreign vessels and for all U.S. vessels under register in the foreign trade. This compulsory pilotage is regulated pursuant to 46 USC 8501 and Title 54, Chapter 15 of the 1976 South Carolina Code, as amended, and Chapter 136 of the South Carolina Code of Regulations. The State pilotage regulatory agency is the Commissioners of Pilotage, Port of Charleston, P.O. Box 20096, Charleston, SC 29413; telephone 843-577-8659. Pilotage is optional for U.S. vessels in the coastwise trade which have on board a pilot licensed by the Federal Government pursuant to the Federal pilotage requirements of 46 USC 8502 and 46 CFR 15. Both Federal and State pilotage is available from the Charleston Branch Pilots Association, 6 Concord Street, Charleston, SC 29401, telephone 843-577-6695, FAX 843-577-0632. The Association maintains two offshore pilot boats, the CAROLINA and the PALMETTO STATE. They also have a third pilot boat, SIS used primarily as a shuttle and for other Harbor work. These three boats have black hulls and aluminum superstructures, and have the word "PILOT" on their sides. Pilots board vessels day or night from the pilot boats in the vicinity of the sea buoy (Charleston Entrance Lighted Whistle Buoy C, 32°39.6'N., 79°40.9'W.). Vessels are requested to maintain a speed of 8 to 10 knots and provide a ladder 2 meters above the water on the leeward side. The pilot boats are equipped with radar and maintain radiotelephone communications on VHF-FM channels 13, 14, 16, and 18A. The pilot office at Charleston monitors these channels on a 24-hour basis. Pilots may be obtained directly by telephone, FAX (above), through the Charleston Marine Operator, or by prior arrangement through ships' agents. The usual practice is for ship agents to FAX orders directly to the pilot office, at 843-557-0632. At least 3 hours advance notice for orders of arrival at the sea buoy and departure from the port is required.

(156) Public vessels such as Navy and Coast Guard ships are exempt from pilotage requirements but their commanding officers frequently request pilots in an advisory capacity. When pilots are taken, naval vessels may use either federally licensed civilian employees of the Navy or pilots from the Charleston Branch Pilots Association as pilots on their vessels. The Port Services Division of U.S. Naval Station, Charleston, coordinates pilotage for naval vessels through the two groups of pilots.

(157) **Towage.**–Tugs are required for docking and undocking. Tugs up to 5,100 hp are available at all hours by arrangements through ships' agents. They usually meet vessels bound for Charleston proper at or near the Customhouse Reach, and vessels bound for North Charleston at or near North Charleston Reach. Tugs can also be engaged for salvage or deep-sea towing.

(158) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(159) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) The quarantine office is in the Federal Building. There are several large public and private hospitals in Charleston.

(160) Charleston is a **customs port of entry.**

(161) **Coast Guard.**–A **Marine Safety Office** is at the Coast Guard Base (32°46.4'N., 79°56.6'W.) on the east side of the Ashley River. (See appendix for address.)

(162) **Harbor regulations.**–The Coast Guard exercises jurisdiction over the Port of Charleston through the Captain of the Port. The South Carolina State Ports Authority exercises jurisdiction over the authority's facilities through its Executive Director at the headquarters building, located at 176 Concord Street. The ports authority berthing office is manned at all times and can be reached at at 843-557-8659 or call Port Harbormaster on VHF-FM channel 16. Additional information can be obtained through the State Ports Authority's Harbormaster at 843-577-8192 or VHF-FM channel 16, call sign, KBP 636. The Commissioners of Pilotage, Port of Charleston, have issued policy guidelines for safe vessel movement to the pilots regulated by that State agency in the Commissioners of **Pilotage Policies** and **Procedures Manual**. Chapter 136 of South Carolina State Code of Regulations contains regulations concerning vessel traffic restrictions, docking and undocking.

(163) **Wharves.**–Only the major facilities at Charleston and North Charleston are described. These facilities are all northward of the Battery along the west side of Cooper River and Town Creek, and in Shipyard Creek and the east bank of the Wando River. All of the berths have highway connections and most have either direct or beltline rail connections with the Seaboard System Railroad or the Southern Railway System. Water is also available at most berths. General cargo at the port can be handled by ship's tackle or special equipment which is available at most facilities. Special equipment, if available, is mentioned in the description of the particular facility.

(164) There are many smaller facilities in Charleston which are used by barges and small vessels, and as vessel-repair berths; these are not described. For a complete description of the port facilities, see Port Series No. 13, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

(165) **Facilities at Charleston proper, along the west side of Cooper River and Town Creek, northward of the Battery** (32°46'08"N., 79°55'44"W.):

(166) **State Pier 2, Union Pier**: 0.75 mile north of the Battery; 2,620 feet of berthing space with dolphin off of the south end; 35 feet alongside; deck height, 12 feet; handles general cargo and heavy machinery; passenger terminal; owned and operated by South Carolina State Ports Authority.

(167) **State Pier 8, Columbus Street Terminal**: about 1.4 miles north of the Battery; 3,440 feet of berthing space; 40 feet alongside; deck height, 12 feet; three gantry cranes to 125 tons; handles general and containerized cargo including heavy lift items; owned and operated by South Carolina State Ports Authority. Three container cranes are also available.

(168) **State Pier 9:** joining State Pier 8 to the northward; marginal type wharf with 437-foot face and 30-foot apron; 35 feet alongside; deck height, 12 feet.

(169) **Allied Terminal Wharf and Barge Dock:** 3.4 miles northward of the Battery, just below the entrance to Shipyard Creek; offshore wharf with 78-foot face, 1,000 feet of berthing space with mooring dolphins; 40 feet alongside; deck height, 10 feet; handles asphalt and petroleum products; bunkering vessels.

(170) **Facilities in Shipyard Creek, on the west side of Cooper River about 3.8 miles northward of the Battery**:

(171) **Shipyard River Terminal**: south side of Shipyard Creek, just inside the entrance; marginal wharf with 390-foot face; 44 feet alongside; deck height, 14 feet; one 16-ton electric crane; handles miscellaneous liquid and dry bulk commodities including coal and stone.

(172) **Chevron Terminal Wharf**: west side of Shipyard Creek about 400 yards westward of Shipyard River Terminal Wharf; 130-foot face, berthing for 660-foot vessels with dolphins; 44 feet alongside; deck height, 13 feet; handles petroleum products and bunkering vessels.

(173) **Facilities at North Charleston, along the west side of Cooper River, northward of the Battery**:

(174) **Thomas Cement Terminal:** (32°52'47"N., 79°58'05"W.): L-shaped offshore wharf with 250-foot face, 550 feet with dolphins; 40 feet alongside; deck height, 11.5 and 16.5 feet; handles petroleum products.

(175) **Alumax Terminal Wharf**: about 250 yards of northward of Koch Terminal Wharf; 520-foot face, 700 feet of berthing space with dolphins; 40 feet alongside; deck height, 14 feet; handles liquid chemicals and alumina.

(176) **Texaco Wharf**: about 550 yards northward of Koch Terminal Wharf; offshore wharf with 142-foot face, 257 feet of berthing space with dolphins; 40 feet alongside; deck height, 13 feet; handles petroleum products.

(177) **Marathon Petroleum Co. Wharf**: about 300 yards northward of Texaco Wharf; offshore wharf with 50-foot face, 275 feet with dolphins; 40 feet alongside; deck height, 14 feet; handles petroleum products .

(178) **Amerada Hess Corp. North Terminal**: about 200 yards northward of Marathon Petroleum Co. Wharf; offshore wharf with 68-foot face, 600 feet of berthing space with mooring dolphins; 40 feet alongside; deck height, 12 feet; handles petroleum products.

(179) **Westvaco Corp. Wharf**: about 0.65 mile northward of Amerada Hess Corp. North Terminal; marginal type wharf with 480-foot face; 655 feet usable with dolphins; 40 feet alongside; deck height, 12 feet; handles paper products.

(180) **State Pier 15, South Carolina State Ports Authority North Charleston Terminal**: joining Westvaco Corporation wharf to the northward; marginal wharf with 2,460-foot face; 40 feet alongside; deck height, 12 feet; six container cranes, container handlers and toploaders; handles general cargo, RO/RO, and frozen products; owned and operated by South Carolina State Ports Authority.

(181) **South Carolina State Ports Authority Grain Wharf**: about 0.4 mile northward of State Pier 15; marginal type wharf with 380-foot face; 40 feet alongside; deck height, 12 feet; handles dry bulk cargo; operated by South Carolina Farm Bureau Marketing Association.

(182) **Charleston Army Storage Activity**: about 0.2 mile northward of the South Carolina State Ports Authority Grain Wharf: marginal type wharf with a 1,500-foot face; 40 feet alongside. (For further information contact the operator.)

(183) The piers at the former Navy Base, and Navy Yard are now under the operation of other government agencies and private corporations. The Maritime Administration uses several of these piers as lay berths for their ships. The U.S. Coast Guard also berths vessels at these piers. Pier "Zulu" is used by commerical vessels for cargo handling. Detyens Shipyard operates drydock facilities and berths at the former Navy Yard.

(184) **Cargo facilities on east bank of Wando River, east of Cooper River**:

(185) **State Pier 41, Wando Terminal**: about 1.7 miles north of Drum Island; 3,800-foot face; 40 feet alongside; deck height, 15½ feet; nine 40-long ton container cranes, container handlers and toploaders; handles containerized general cargo; operated by South Carolina State Ports Authority.

(186) **Supplies.**–All types of marine supplies and provisions can be obtained in Charleston. Water is available at most of the berths; diesel fuel is available by barge or truck.

(187) **Repairs.**–Detyens Shipyard, Inc., offers drydocking services at its facilities at the former Navy Yard, and at Cainhoy on the upper Wando Rier, which is described later in this chapter. Another commercial repair facility with a 1,000-ton capacity marine railway is on the south side of Stono River on the Intracoastal Waterway at Mile 476.4. This facility is discussed in chapter 12.

(188) Several shops, on and off the waterfront, can make above-the-waterline hull repairs, and repairs to gasoline and diesel engines and electronic equipment anywhere in the harbor; the largest shafts that can be produced are 30 feet by 48 inches.

(189) Wrecking and salvage gear is available at Charleston for normal operations and special equipment can be brought in.

(190) Repair facilities for small craft are on the Wando and Stono Rivers.

(191) **Communication.**–The port of Charleston is served by the CSX Transportation and the Southern Railway System, which connect with most of the wharves either directly or through three beltline railroads. A number of steamship lines connect the port with principal foreign ports; frequent sailings are maintained by most of the lines. The Municipal Airport 12 miles northwestward of the Battery is served by four commercial airlines. Truck and bus lines serve the port. There are excellent highway connections with Interstate Route 26 and U.S. Routes 17, 701, 52, 52A, and 78.

(192) **Chart 11524.–Ashley River** empties into Charleston Harbor from the northwestward on the southwest side of Charleston.

(193) **Channels.**–A dredged channel in Ashley River leads from a point about 1 mile southeastward of the Battery (32°46'08"N., 79°55'44"W.) to a turning basin about 5.8 miles above the Battery. In 1996-June 1998, the controlling depths were 15 feet to the U.S. Route 17 fixed highway bridge, thence 12 feet to the turning basin, thence 5 to 16 feet in the turning basin from north to south. Local knowledge is advised for vessels navigating above the turning basin. The river is marked by a lighted approach range, and by buoys and daybeacons to the fixed highway bridge about 8.4 miles above the Battery.

(194) **Charleston Coast Guard Base** is on the east side of Ashley River, about 0.9 mile above the Battery.

(195) A municipal marina is on the northeast side of the Ashley River 1.3 miles above the Battery and 0.3 mile north of the entrance to **Wappoo Creek,** which is a part of the Intracoastal Waterway. Berthage, electricity, gasoline, diesel fuel, water, ice,

a launching ramp, and some marine supplies are available. In June 1983, depths of 12 feet were reported alongside the berths. In June 1983, good anchorage for small craft was reported on the east side of the river just northward of the municipal marina.

(196) A **special anchorage** is adjacent southward of the municipal marina. (See **110.1 and 110.72d**, chapter 2, for limits and regulations.)

(197) **A slow, no-wake speed zone** is marked by a buoy just south of the municipal marina.

(198) **Bridges.**–Several bridges cross the Ashley River above the Battery. The two U.S. Route 17 highway bascule bridges, 100 yards apart, cross about 2 miles above the Battery. The first has a clearance of 18 feet and the second, 14 feet. A fixed highway bridge with a reported clearance of 56 feet is about 0.3 mile southward of the bascule bridges. State Route 7 highway fixed bridge, 6.2 miles above the Battery, has a clearance of 50 feet at the center span. The overhead power cable 0.4 mile above the bridge has a clearance of 70 feet at the two main spans. The fixed highway bridge about 8.4 miles above the Battery has a clearance of 35 feet. The CSX bridge, 10 miles above the Battery, has a bascule span with a clearance of 3 feet. The overhead power cable just below this bridge has a clearance of 74 feet. (See **117.1 through 117.59 and 117.915**, chapter 2, for drawbridge regulations.)

(199) An overhead power cable with a clearance of 70 feet crosses the Ashley River about 0.6 mile below Greggs Landing.

(200) **Shem Creek,** on the lower east side of Charleston Harbor, is entered from the south through **Mount Pleasant Channel,** a marked dredged channel that leads to a terminal basin about 1.9 miles above the channel entrance and just below the Route 17 highway bridge at **Mount Pleasant.** In September 1998, the controlling depth was 5 feet to the highway bridge. Shem Creek can be approached from westward via unmarked Hog Island Channel, used by local boatmen only at high water. A Marina about 1.2 miles above the dredged channel entrance has berths with water, gasoline, ice, marine supplies, and a launching ramp. A forklift can haul out boats to 2 ½ tons for hull, engine, and electrical repairs. Other wharves on the creek are used by fishing vessels. U.S. Route 17 highway bridge has a 36-foot fixed span with a clearance of 12 feet. An overhead power cable with a clearance of 40 feet crosses the creek about 0.2 mile above the bridge.

(201) **Cooper River** enters Charleston Harbor from northward on the eastern side of Charleston; the main channel of the harbor extends several miles up this river. **Drum Island** is 2 miles above the mouth of the river. The channel on the westerly side of this island is known as **Town Creek.**

(202) A U.S. Government degaussing range, marked by lighted and unlighted dolphins, crosses the channel between **Shutes Folly Island** and Charleston, about 0.3 mile northward of the Battery. A **restricted area** has been established in the immediate vicinity of the range. (See **334.470**, chapter 2, for limits and regulations.)

(203) **Bridges.**–Two fixed bridges, about 5.7 miles above the mouth and parallel to each other, span Town Creek, Drum Island, and Cooper River on the east side of Charleston. Clearances for both bridges are: over Town Creek, 135 feet; Cooper River, 150 feet for a width of 300 feet and 135 feet for a width of 700 feet.

(204) The I-526 fixed highway bridge has a clearance of 155 feet and crosses Cooper River, at Filbin Creek Reach, about 6.7 miles above the two fixed bridges. The I-526 fixed highway bridge over the Wando River has a vertical clearance of 138 feet and crosses the Wando River about 3.5 miles abut the junction of the Cooper and Wando Rivers.

(205) **Shipyard Creek** joins Cooper River from the west 3.8 miles above the Battery. There is considerable traffic in oil, bulk fertilizer materials, and ore on this waterway.

(206) **Facilities of the U.S. Government** extends along the west side of the Cooper River from 4 to 8 miles above the Battery. The large water tank, red and white, is conspicuous at the facility.'

(207) **Restricted areas** are in the northern portion of Shipyard Creek, and in the Cooper River at the U.S. Government facility. (See **334.460 and 334.470**, chapter 2, for limits and regulations.)

(208) **North Charleston,** just north of the government facility, is the site of several oil wharves, a general cargo terminal, several bulk commodity wharves, and the U.S. Army Storage Activity; these facilities have been described earlier under Wharves.

(209) **Chart 11527.**–In 1977, depths of 20 feet or more were available in Cooper River from the upper limit of the Navy-maintained channel about 3.4 miles above Goose Creek to **The Tee,** 26 miles above the Battery. There is ship traffic to and from the Amoco Terminal about 14 miles above the Battery, ship movement is subject to certain restrictions by the Pilots' Association. There is daylight-only ship traffic upstream as far as the Nucor Steel Terminal about 18.5 miles above the Battery. These ships are limited in size to 580 feet long with a 25 foot draft, and subject to certain tidal and current restrictions by the Pilots' Association. This section of the river is bordered by marshland, with occasional bluffs 15 to 20 feet high. A **restricted area** is off the U.S. Naval Ammunition Depot, on the west side of Cooper River about 10 miles northward of the Battery. (See **334.460**, chapter 2, for limits and regulations.)

(210) An overhead power cable with a clearance of 75 feet crosses Cooper River about 21.1 miles above the Battery.

(211) In **East Branch** the reported controlling depth in June 1983 was 7 feet to **Pompion Hill Chapel,** 6 miles above The Tee. The channel is narrow and follows the ebbtide bends. In **West Branch,** the reported controlling depth in May 1975 was 15 feet to the CSX bridge 4 miles above The Tee. The first bend west of The Tee is a bad spot; deep water is on the inner side of the bend. The railroad bridge has a swing span with a channel width of 30 feet and a clearance of 8 feet. (See **117.1 through 117.59 and 117.925**, chapter 2, for drawbridge regulations.) Extreme caution is necessary at the bridge; the current is strong, and about 40 minutes is needed to open the draw. An overhead power cable at the bridge has a clearance of 85 feet. The mean range of tide at the bridge is 4.2 feet.

(212) About 12 miles above The Tee, a tailrace canal enters West Branch from **Lake Moultrie.** The distance along the canal from West Branch to the lake is about 4 miles. Two bridges cross the canal with minimum clearance of 50 feet. A marginal wharf 200 feet long is on the west side of the canal about a mile above the junction with West Branch. The wharf has gasoline available; in June 1987, a reported controlling depth of 3 feet was alongside. In 1987, very strong currents were reported to exist in the canal.

(213) A depth of about 11 feet is available from the CSX bridge over West Branch to the tailrace canal and thence to the dam. The lock in the dam has a length of 180 feet, a width of 60 feet, and a depth over the miter sills of 12 feet; the vertical lift is 75 feet. A draft of 14 feet has been taken to the lake with favoring tides. Light-draft vessels can navigate to Columbia, S.C., by way of

Lake Moultrie, Lake Marion, and the Congaree River. The last 18 miles are treacherous because of the twisting channel and varying water levels caused by a dam above Columbia. The lakes are fouled by submerged trees. Navigation should not be attempted by strangers.

(214) **Charts 11524, 11526.–Wando River** empties from the northeast into Cooper River eastward of Drum Island.

(215) Wando River Terminal, previously described, is on the east side of Wando River about 1.7 miles above Drum Island. The channel to the facility is marked by lighted buoys and a private **223°** lighted range.

(216) A fixed highway bridge with a clearance of 138 feet is about 3.5 miles above Drum Island.

(217) **Nowell Creek** empties into the west side of Wando River, about 4.5 miles above Drum Island. The creek, about 5.5 miles above its mouth, joins **Beresford Creek.** Together they form a connection between Wando River and Cooper River. In 1973, shoaling to 2 feet was reported on the east side of the entrance to Nowell Creek.

(218) An overhead power cable with a clearance of 145 feet crosses Wando River about 8.9 miles above Drum Island.

(219) **Cainhoy** is a town on Wando River about 9 miles above Drum Island. Depths of about 17 feet can be taken to Cainhoy and thence, with local knowledge, 11 feet to the mouth of Guerin Creek 1.5 miles above State Route 41 highway bridge at Cainhoy, thence 8 feet for another 3.4 miles, thence 2 feet to Wards Bridge. The channel is marked as far as Cainhoy by buoys and unlighted ranges. In November 1976, shoaling to 10 feet was reported in about 32°52'51"N., 79°50'51"W. along the west edge of the the channel in the vicinity of Daybeacon 25.

(220) A shipyard on the south side of the river at Cainhoy has three floating drydocks, a large sandblasting facility, and welding, shipfitting, machine, rigging, electrical, carpenter, steel fabrication, and pipe shops. Also, the yard is equipped to handle industrial-type work, and can provide repair services to vessels outside the yard. Water, and electrical shore power and telephone connections are available, as well as a 15-ton floating crane, two 25-ton mobile cranes, and a 25-ton gantry crane that is alongside the largest drydock. The three floating drydocks have the following dimensions; (1) 9,800-ton lifting capacity, 450-foot overall length, 410-foot length on blocks, 114-foot overall width, 86-foot maximum clear width for vessels, and a maximum depth of 24 feet at mean high water over the blocks; (2) 1,000-ton lifting capacity, 231-foot overall length, 161-foot length on the blocks, 82-foot overall width, 61-foot maximum clear width for vessels, and a maximum depth of 17 feet at mean high water over the blocks; and (3) 6,400-ton lifting capacity, 407-foot overall length, 372-foot length on the blocks, 116-foot overall width, 86-foot maximum clear width for vessels, and a maximum depth of 24 feet at mean high water over the blocks. In June 1983, depths of 17 to 28 feet were reported alongside the shipyard repair piers.

(221) State Route 41 bridge and an overhead power cable cross the river about 0.4 mile above Cainhoy; the highway bridge has a swing span with a clearance of 6 feet and the overhead power cable has a clearance of 85 feet. (See **117.1 through 117.59 and 117.939**, chapter 2, for drawbridge regulations.)

(222) Wando River continues for about 7 miles to **Wards Bridge** at the head of navigation. An overhead power cable crossing the river about a mile south of the bridge has a clearance of 30 feet. **Guerin Creek** flows into Wando River from the northeast about 2 miles above Cainhoy. **Guerin Bridge,** a fixed structure at the head of navigation, is some 3 miles above the mouth of the creek.

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7. CHARLESTON HARBOR TO SAVANNAH RIVER

(1) **Charts 11480, 11521, 11513.**–This chapter describes the coastline from Charleston Harbor to Savannah River. The coast, low and timbered, trends in a southwesterly direction for 65 miles and is broken by St. Helena, Port Royal, and Calibogue Sounds, and by numerous inlets from which there is access to the interior by way of the rivers emptying into them. Shoal water extends 3 to 8 miles offshore.

(2) Numerous fish havens, some marked by private buoys, are from 3 to 12 miles off the coasts of South Carolina and Georgia.

(3) This section of the coast, due to its low relief, presents no good radar targets except for the structure of Savannah Light.

(4) Included in this chapter are the deepwater ports of Savannah and Port Royal; the fishing and small-craft port of Beaufort, S.C.; Stono, and North Edisto Rivers; the tributary waters of the various sounds of which South Edisto, Coosaw, Beaufort, Broad, and Savannah Rivers are the more important; and several small towns along these waterways.

(5) The section of the Intracoastal Waterway from Charleston to Savannah is described in chapter 12.

(6) **Caution.**–The areas generally to the east and southeast of Charleston Harbor are used extensively by the U.S. Navy and other military services to conduct various types of surface, subsurface, and aircraft training exercises. The Commander, Submarine Group Six, Charleston, S.C., has cognizance of the operating areas through the Charleston Operating Area Coordinator (COAC).

(7) **COLREGS Demarcation Lines.**–The lines established for this part of the coast are described in **80.712 through 80.715**, chapter 2.

(8) **Weather.**–A major winter storm track extending east-northeastward from the Gulf of Mexico crosses this coastline. Often these extratropical systems are in a developing stage and intensify after crossing the Gulf Stream in the Atlantic. Therefore, gale force winds are infrequent in these coastal waters; they blow 1 to 3 percent of the time from November through March. Maximum winds for most months are in the 40- to 50-knot range generated by extratropical or tropical storms, and cold fronts in spring. Steep waves are infrequent, but waves of 8 feet (2.4 m) or more can be expected about 15 to 30 percent of the time from November through March. Maximum heights are in the 18- to 25-foot (5 to 8 m) range.

(9) Tropical cyclones are most likely from June through October with a peak threat during September and October. About one to two cyclones threaten this coast in an average year. Many of these storms have recurved and some have traveled across the Gulf states and weakened. However heavy rains, storm tides, strong winds, high waves and even tornadoes are a possibility when a tropical cyclone is near.

(10) Coastal fog can plague the mariner, particularly in late winter and spring when warm air moves in over the still cool, coastal waters. Beyond 50 miles (93 km) the warmer waters of the Gulf Stream tend to inhibit sea fog. In those areas, a midwinter cold air outbreak could produce fog. Visibilities are also restricted in rain and showers.

(11) **Charts 11522, 11521.–Lighthouse Inlet** (32°41.2'N., 79°53.0'W.), between **Morris Island** and **Folly Island** has no channel across the bar; entrance should be attempted only with local knowledge on a rising tide with a smooth sea. In June 1983, the reported controlling depth over the bar and upstream to **Secessionville** was 3 feet; the inlet is unmarked and used only by local fishermen. Small craft pass into Charleston Harbor by way of **Lighthouse Creek** and also into numerous sloughs north of Folly Island. **Folly Beach,** an amusement park on Folly Island, is connected by highway with Charleston. The buildings and lights are prominent from seaward.

(12) **Stono Inlet,** 10 miles southwestward of Charleston Harbor entrance, is entered over a shifting bar between Folly Island and **Kiawah Island.** A lighted gong buoy is southward of the entrance. The inlet is subject to continual change and should not be attempted without local knowledge. The entrance buoys are not charted, because they are frequently shifted in position to mark the best water. Local fishermen use the inlet.

(13) A fish haven, marked by a buoy and covered 15 feet, is in about 32°29.0'N., 80°00.3'W., about 5.6 miles southwestward of the drill minefield.

(14) **Stono River,** which joins Stono Inlet from northward, is of little commercial importance except in its upper reach above **Elliott Cut,** where it forms part of the Intracoastal Waterway. In June 1983, the reported controlling depth from inside the inlet bar for about 12 miles to the highway bridge was 11 feet, thence 7 feet to a junction with the Intracoastal Waterway at Elliott Cut. Vessels usually enter the river by way of the waterway from Charleston. In the summer, numerous pleasure craft use Stono River and Folly River to reach Folly Beach. The highway bridge about a mile below Elliott Cut has a swing span with a clearance of 8 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) An overhead power cable about 0.95 mile below the bridge has a clearance of 91 feet at the center of the river.

(15) Marinas on the west side of Stono River at the highway bridge provide berths with electricity, gasoline, diesel fuel, water, ice, marine supplies, and wet storage.

(16) **Folly River** flows into Stono Inlet from the northeast and **Kiawah River** from the west. Both are relatively unimportant. Folly River is used by pleasure craft and local fishermen desiring to reach Folly Beach. A dredged channel, marked by a light and daybeacons, leads about 2.3 miles upriver from the junction with Stono River at **Bird Key.** In January-March 1999, the controlling depth was 3½ feet in the south half and 6½ feet in the north half of the channel to Buoy 13, thence 1 foot to the end of the project. The dredged channel between Daybeacons 11 and 15 is subject to continual change. Local knowledge is advised when transiting the area. On the southeast side of the river about 2 miles above the entrance, a seafood plant has diesel fuel, water, ice, and marine supplies. State Route 171 highway bridge about 3.1 miles above the entrance has a fixed span with a clearance of 10 feet. An overhead power cable close eastward of the bridge has a clearance of 46 feet. **Folly Creek** enters Folly River from the north about 2.7 miles above the mouth. State Route 171 highway bridge about 2.9 miles above the creek mouth has a fixed span with a clearance of 10 feet. An overhead power cable at the bridge has a clearance of 40 feet and another overhead power cable 0.4 mile above the bridge has a clearance of 48 feet.

(17) **North Edisto River,** about 10 miles southwestward of Stono Inlet and 20 miles southwestward of Charleston Harbor entrance, is of little commercial importance and rarely used. Shoals extend offshore from the entrance as much as 3 miles and form a shifting bar. Flats, which bare at low water and are contin-

ually changing in character, are on both sides of the entrance; caution is advised. In April 1991, the reported controlling depth over the bar was 10 feet. The entrance is marked by a lighted whistle buoy, and the channel by a **314°** lighted range and by buoys which are moved, when practicable, to indicate the best water. The entrance is well defined by breakers. A water tank about 1.7 miles northeastward of the entrance is prominent.

(18) Two tributaries of North Edisto River, **Wadmalaw River** from eastward and **Dawho River** from westward, are part of the Intracoastal Waterway. **Bohicket Creek** entrance is about 2.5 miles above the entrance to North Edisto River. **Rockville,** a town about 1.1 miles above the mouth of Bohicket Creek, has several piers and wharves with 5 to 11 feet of water alongside at which fresh water can be obtained. A marina at Rockville has berths with electricity and 16 feet reported alongside; gasoline, diesel fuel, water, ice, marine supplies, and a 3-ton lift are available. Hull, engine, and radio repairs are available. In 1980, the centerline controlling depth was 9 feet up the creek to Rockville. **Adams Creek,** west of Rockville, has several shrimp-boat piers and wharves with depths of 6 to 9 feet alongside. A boatyard close to the piers, has a marine railway that can handle craft to 75 feet for hull and engine repairs. A 60-ton mobile lift can handle craft to 55 feet for hull and engine repairs. A marina, about 3.3 miles above the mouth of Bohicket Creek, has various services and a reported centerline controlling depth of 6 feet in 1991. **Steamboat Creek** entrance, 6 miles above North Edisto River entrance, is marked by a light and daybeacons.

(19) The mean range of tide in North Edisto River entrance is 5.8 feet. On the bar the direction of the current is generally across the channel. The flood current sets about westward, and the ebb eastward; both have considerable velocity. Inside the bar, in the channel between the breakers, the ebb current is to be guarded against, especially when it sets across the north breakers. Predicted currents for the North Edisto River entrance may be obtained from the Tidal Current Tables.

(20) **Charts 11517, 11521, 11513.**–The entrance to **St. Helena Sound** is 7 miles wide between **Bay Point,** the southern extremity of **Edisto Island,** on the northeast and **Hunting Island** on the southwest. The 132-foot Hunting Island Light (32°22.5'N., 80°26.3'W.), and the elevated tank on the northern part of Hunting Island make good landmarks. There are several channels through the shoals which extend about 6 miles seaward from the sound entrance. In June 1983, the buoyed channel had a reported depth of 15 feet; caution is advised. The mean range of tide on the bar and in the entrance to the sound is about 6 feet. In 1973, a survey revealed depths of 1 foot to 14 feet less than those charted across the entrance to St. Helena Sound. Caution is advised in navigating this area. In November 1992, a partially submerged wreck was 2.0 miles northeast of South Edisto River Approach Lighted Buoy A in about 32°26.0'N., 80°16.0'W.

(21) Most important of the several navigable rivers emptying into the sound are South Edisto, Ashepoo, Coosaw, Morgan, and Harbor Rivers; the first three are links in the route of the Intracoastal Waterway.

(22) **Northern Right Whales.**–Northern right whales have been sighted as far north as Savannah River in the calving season, generally, December through March. In March and April, right whales accompanied by calves migrate northward from the critical habitat, often within 20 miles of the coast to summer feeding grounds off New England. (See Northern right whales, indexed as such, chapter 3.) It is illegal to approach closer than 500 yards of any right whale. (See **50 CFR 222.32**, chapter 2 for limits, regulations, and exceptions.)

(23) **COLREGS Demarcation Lines.**–The lines established for St. Helena Sound are described in **80.712**, chapter 2.

(24) **South Edisto River,** which empties into St. Helena Sound immediately westward of Bay Point, is of little commercial importance. The approach to the river is marked by buoys. The river above its junction with **Dawho River,** about 18 miles above Bay Point, is known as **Edisto River. Big Bay Creek** is unmarked and empties into the east side of South Edisto River just above Bay Point. It has been reported that small craft have run aground at night when making Big Bay Creek from the northward by using the street and house lights on **Edisto Beach** as guides; extreme caution is advised.

(25) **Edisto Beach State Park** is about 2 miles northeastward of Bay Point. A marked channel into South Edisto River, about 3 miles southeastward of Bay Point, has depths of 12 to 16 feet over the ocean bar.

(26) An unmarked fish haven is on the northeast side of South Edisto River about 4.5 miles above Bay Point in about 32°32.3'N., 80°23.3'W.

(27) The Intracoastal Waterway leads through South Edisto River from landcuts at **Fenwick Cut** and **Watts Cut,** about 5.3 miles and 11.3 miles above Bay Point, respectively. This section of the river, between Fenwick Cut and Watts Cut, is marked in accordance with Intracoastal Waterway markings. In June 1983, the reported controlling depth from Bay Point to the junction with the Intracoastal Waterway at Fenwick Cut was 10 feet, and from Watts Cut to **Willtown Bluff,** about 20 miles above Bay Point, the reported controlling depth was 10 feet.

(28) The river is usually entered from the Intracoastal Waterway; the entrance from the ocean is rarely used. The mean range of tide is about 6 feet in the lower part of the river. Currents at the entrance have a velocity of about 2 knots; predictions may be obtained from the Tidal Current Tables.

(29) A draft of about 3 feet can be taken for about 8 miles above Willtown Bluff to **Jacksonboro.**

(30) **Ashepoo River,** about 4.5 miles westward of Bay Point, flows into St. Helena Sound from northward on the west side of **Otter Islands.** A highway bridge over the river, 13 miles above the mouth, has a fixed span with a clearance of 20 feet. The side piers of a former swing bridge adjacent westward of the fixed bridge are used as fishing piers. An overhead power cable just westward of the bridge has a clearance of 63 feet, and another overhead power cable 4 miles above the bridge has a clearance of 84 feet. Mariners are advised to navigate with caution, because depths vary greatly in the river.

(31) **Coosaw River,** which enters the head of St. Helena Sound from westward, is important only as a link in the Intracoastal Waterway. The river channel is irregular in depth, partly because of the phosphate dredges which once operated here.

(32) **Chart 11519.–Combahee River,** 3 miles above the mouth of Coosaw River, had a reported controlling depth of 8 feet, in June 1983, for a distance of 9 miles above the entrance. The river is navigable for craft drawing up to 5 feet to U.S. Route 17 highway bridge 20 miles above the entrance. The highway bridge has a fixed span with a clearance of 14 feet. The mean range of tide is 6.4 feet at Fields Point, about 5.6 miles above the mouth of the river, and 4.4 feet at the highway bridge.

(33) **New Chehaw River,** on the north side of the entrance to Combahee River, is unimportant and has no traffic. **Old Chehaw River** enters the Combahee River from northward about 2 miles above New Chehaw River. The town of **Wiggins** is about a mile above the junction of Old and New Chehaw Rivers.

(34) **Bull River** enters Coosaw River from the northward about 5 miles above the latter's mouth. Two miles above its mouth, Bull River divides into **Williman Creek** and **Wimbee Creek,** which pass north and south, respectively, of **Williman Islands** and rejoin 4.5 miles above the lower junction. The upper section of Williman Creek where it rejoins Wimbee Creek is known as **Schooner Channel.**

(35) **Chisolm** is a small town on the south bank of Wimbee Creek about 1.5 miles above the lower junction with Williman Creek. In June 1983, the reported controlling depth to Chisolm was 8 feet. A section of a former railroad bridge, now used as a fishing pier, is on the west side of Wimbee Creek, 1 mile above the upper junction with Schooner Channel. An overhead power cable with a clearance of 80 feet crosses the creek at this point. In June 1983, the reported controlling depth was 8 feet to the fishing pier by way of Bull River, Williman Creek, and Schooner Channel; between Chisolm and the upper junction with Schooner Channel, Wimbee Creek is nearly dry in places at low water.

(36) **Parrot Creek,** which enters Coosaw River on the south side directly opposite Bull River, is a 2-mile link between Coosaw and Morgan Rivers. The reported controlling depth through the creek was 11 feet in 1994-March 1999. Daybeacons mark the north entrance. In February 1999, shoaling to bare was reported just NNW of Daybeacon 2 in the N entrance to Parrot Creek.

(37) **Lucy Point Creek,** about 2 miles westward of Parrot Creek, also connects Coosaw and Morgan Rivers. In 1994-March 1999, the reported controlling depth in the creek was 8 feet, for about 0.3 mile. Currents in the creek are reported to be very changeable and unpredictable. A highway bridge crossing the creek 0.3 mile from the entrance has a fixed span with a clearance of 14 feet. The adjacent power and telephone cables have a clearance of 28 feet. There is a surfaced launching ramp close N of the fixed bridge. A daybeacon marks the entrance.

(38) **Charts 11516, 11517, 11519, 11513, 11518.–Morgan River** flows into St. Helena Sound from westward. The river is about 8 miles long and at its head connects with Chowan Creek, a tributary of Beaufort River; at the divide, this passage is nearly dry at low water where U.S. Route 21 highway bridge has a 28-foot fixed span with a clearance of 4 feet. The mean range of tide near the head of Morgan River is about 7 feet. **Coffin Creek,** on the south side of Morgan River near the mouth, has a shrimp-packing plant 1.7 miles above the creek mouth. In June 1985, the reported controlling depth was 2 feet across the bar at the mouth, thence 8 feet in midchannel to the plant. On **Village Creek,** about 0.8 mile above Coffin Creek, there are two shrimp-packing plants where diesel fuel and supplies may be obtained, in an emergency only. In June 1985, using local knowledge, a reported depth of 5 feet was available from the entrance to the shrimp-packing plants 1.5 miles upstream. **Edding Creek,** is about 1.5 miles west of Village Creek. In June 1983, the reported controlling depth in the creek was 5 feet for a distance of 2.5 miles.

(39) On **Jenkins Creek,** about 2.1 miles westward of Edding Creek, are two shrimp-packing plants on the east side of the creek about 1.5 to 2 miles above the mouth. In 1994-March 1999, the reported controlling depth was 11 feet to these plants where diesel fuel, water, and ice can be obtained in an emergency.

(40) **Chart 11517.–Johnson Creek,** at the northern end of Hunting Island, was reported closed at low water in 1973. Extensive shoals, bare at low water, are eastward and northeastward of the mouth of the creek. The area should be used only at high water by shallow-draft vessels with local knowledge.

(41) **Fripp Inlet,** reported to be marked by private buoys, is south of St. Helena Sound between Hunting Island and **Fripp Island.** Two spherical water tanks on cylindrical supports, on Fripp Island southwestward of the inlet, are prominent. The entrance is well defined by breakers, and flats which show at low water. The entrance is subject to continual change; entrance should not be attempted without local knowledge. A highway bridge across the inlet has a fixed span with a clearance of 15 feet. On **Old House Creek,** about 0.3 mile westward of the bridge and on the south side of the inlet, is a marina where gasoline, diesel fuel, water, ice, a launching ramp, some marine supplies, and a 2-ton mobile hoist are available. In June 1983, the reported controlling depth was 6 feet from the entrance to the marina 1.6 miles above the mouth and 12 feet alongside the float. Just southeastward of the marina is the Fripp Island Sea Rescue Heliport. In cases of emergency, the heliport can be contacted through the marina or Fripp Island security on VHF-FM channel 16; telephone 843-838-2832, 843-838-2334. **Harbor River,** at the head of the inlet, connects with St. Helena Sound to the eastward, and **Story River** connects the inlet with Trenchards Inlet and Station Creek to the westward. In June 1983, the reported controlling depth was 5 feet in Harbor River and 5 feet in Story River. U.S. Route 21 highway bridge over Harbor River, 0.5 mile above the mouth, has a swing span with a clearance of 15 feet. An overhead power cable crossing along the southwest side of the bridge has a clearance of 110-feet. **Wards Creek,** on the north side of Harbor River 0.25 mile above the highway bridge, has a shrimp-packing plant about 1.2 miles above the mouth where emergency supplies may be obtained. In June 1983, the reported controlling depth was 4 feet.

(42) **Skull Inlet,** 3 miles southwest of Fripp Inlet, is a narrow passage with little water over the bar.

(43) **Chart 11516.–Pritchards Inlet** (32°17.0' N., 80°33.0' W.), 5 miles northeast of Port Royal Sound, is a narrow passage from the ocean to **Moon Creek** which connects with the upper part of Trenchards Inlet; there is very little water over the bar.

(44) **Trenchards Inlet,** just northeast of Port Royal Sound, has a bar which extends about 2 miles from shore; the narrow unmarked channel over the bar had a reported controlling depth of 3 feet in June 1983. Local knowledge is advised. This inlet is connected at its head by Station Creek, which joins Port Royal Sound to the westward.

(45) **Port Royal Sound,** one of the largest deepwater harbors on the Atlantic Coast between Cape Henry and Key West, has an entrance about 2 miles wide between **Bay Point** on the northeast and **Hilton Head** on the southwest. It is about 50 miles southwest of Charleston and is the ocean entrance to Port Royal and Beaufort.

(46) **COLREGS Demarcation Lines.**–The lines established for Port Royal Sound are described in **80.712**, chapter 2.

(47) **Prominent features.**–Three water tanks on Hilton Head Island are the most prominent objects at the entrance to Port Royal Sound. The entrance is between shoals that extend up to 10 miles offshore. The land on both sides of the entrance is low and marshy, and fringed by sand beaches and timbered land. The breaking shoals are prominent. **Port Royal Sound Lighted Whistle Buoy P** (32°05.1'N., 80°35.0'W.) marks the entrance.

(48) **Channels.**–A Federal project provides for a dredged channel 27 feet deep across the bar and through the sound to Bay Point, thence 24 feet in Beaufort River to a 27-foot turning basin in Battery Creek at Port Royal. (See Notice to Mariners and latest editions of the charts for controlling depths.) Several unmarked channels, all requiring local knowledge, lead through the breakers. **South Channel** to the westward of the dredged channel and **Southeast Channel,** between Martins Industry and St. Michaels Breaker just north of it, are the more important. The dredged channel is well marked by lights, lighted ranges, and buoys. The channel in Beaufort River, from the dredged channel northward to Beaufort, is part of the Intracoastal Waterway and had a reported controlling depth of 12 feet in June 1983. (See chart 11518.)

(49) **Anchorages.**–Port Royal Sound has natural depths of from 26 to 50 feet and is sometimes used as a harbor of refuge in winter. The best anchorage is off the mouth of Beaufort River westward of Bay Point northwest of Lighted Bell Buoy 25. The holding ground on the rocky bottom south of Bay Point is poor. There is also good anchorage in 22 to 26 feet to the eastward of the dredged channel off the mouth of Chowan Creek.

(50) **Dangers.**–The breaking shoals extending almost 10 miles off Bay Point, eastward of the entrance channel, and for about 8 miles off Hilton Head Island, are the principal dangers. In thick weather, vessels should not approach the entrance too closely before picking up the pilot, especially on the flood, when the current sets directly onto the shoals: **Martins Industry,** the outermost shoal, **St. Michaels Breakers,** just north of it, and the **Great North Breakers,** between it and Bay Point. **Gaskin Banks, Fishing Bank,** and **Joiner Bank** are to the westward of the entrance channel. In November 1995, a submerged wreck was about 1.5 miles southwest of Port Royal Sound Lighted Whistle Buoy P, in about 32°04'05"N., 80°36'14"W.; and submerged obstructions were about 0.35 mile southward and 1 mile south-southwestward of Lighted Whistle Buoy P., in about 32°04'51"N., 80°34'57"W., and 32°04'18"N., 80°35'31"W., respectively.

(51) **Danger zones** of rifle and pistol ranges are in Broad River, Archers Creek, and Ribbon Creek. (See **334.480**, chapter 2, for limits and regulations.)

(52) **Tides and currents.**–The mean range of tide is 6.4 feet on the bar, 7.2 feet at Port Royal, and 7.4 feet at Beaufort. The tidal currents on the bar have a velocity of 1.5 knots, off Hilton Head 1.8 knots, and at Beaufort River entrance 1.4 knots. Winds greatly influence the velocity of the tidal current, especially on the runout after prolonged easterlies, which on the ebb often reaches 5 knots. The current generally sets fair with the channel, except at the turn from the entrance channel into Bay Point Reach, where a strong current sets diagonally across the channel. Here, on the ebb, vessels should exercise caution lest they be set onto St. Michaels Breakers, eastward of the bar channel. The tidal currents in the sound have a velocity of 2 knots or more at times. The tide rips on Fishing Rip sometimes have the appearance of breakers. Predictions for a number of places in Port Royal Sound and vicinity are given in the Tidal Current Tables.

(53) **Weather, Beaufort, Port Royal Sound, and vicinity.**–Beaufort and Port Royal Sound have a pleasant climate where summers are warm and humid while winters are mild. Winds are generally from the northeast in fall and winter and southerly in spring and summer; the average wind speed is around 10 knots.

(54) The average high temperature at Beaufort is 76°F (24.4°C) while the average low is 57°F (13.9°C). July is the warmest month with an average high of 91°F (32.8°C) and an average low of 74°F (23.3°C). January is the coolest month with an average high of 58°F (14.4°C) and an average low of 39°F (3.9°C). Each month, June, July, and August has reported temperatures in excess of 100°F (37.8°C) and the all-time warmest temperature of 106°F (41.1°C) occurred in June 1985 and July 1986. Each month, October through April, has recorded minimums of freezing or lower and the coolest reading on record is 5°F (-15°C), recorded in January 1985 In any given year, 90°F (32.2°C) or warmer temperatures can be expected on 56 days while temperatures below freezing can be expected on 25 days..

(55) Summer is the rainy season (June-August) during which 38 percent of the annual rainfall is accumulated on about 7-9 days per month, mostly in the form of showers and thunderstorms. The annual average precipitation for Beaufort is 50 inches (1,270 mm). August is the wettest month averaging over 7 inches (178 mm) and November is the driest month averaging 2.4 inches (61 mm). Snowfall is rare in Beaufort averaging less than 1 inch (25 mm) each year. Snow has fallen in each month, December through March and nearly 6.5 inches (165.1 mm) fell in one 24-hour period during February 1973.

(56) Since 1842, 66 tropical storms have come within 50 miles (93 km) of Beaufort, South Carolina, 25 of these storms since 1950. The most noteworthy in recent time was in 1959 when Hurricane Gracie made landfall just east of Beaufort near Edisto Island at noon on September 29. The Marine Corps Air Station at Beaufort reported sustained winds of 84 knots with gusts to 120 knots. Wind damage for the Beaufort area was the worst on record and flooding was extensive.

(57) Fog occurs mostly in the winter and may be experienced from October to April, or after a very warm day when there is a sharp drop in temperature at night. It usually burns off in the forenoon. Easterly winds bring in the fog and westerly winds clear it away.

(58) **Pilotage, Beaufort/Port Royal.**–Pilotage is compulsory for all foreign vessels and for U.S. vessels under register in the foreign trade. Pilotage is optional for U.S. vessels which have on board a pilot licensed by the Federal Government. Pilotage is available from Port Royal Bar Pilots Association, 1110 Brotherhood Road, Beaufort, SC 29902, telephone 843-522-0805 (if no answer contact Charleston Branch Pilots Association, Inc., 843-577-6695). The pilots board vessels from a 25-foot outboard motorboat or a fishing trawler equipped with VHF-FM channel 16 at Port Royal Sound Lighted Whistle Buoy P (32°05.2'N., 80°35.0'W.), or Lighted Whistle Buoy 24. Arrangements for the pilot are made in advance by telephone, through the Charleston Marine Operator, or through ships' agents. The pilot will take vessels in day or night. A 24-hour notice of time of arrival is requested, because there is only one pilot.

(59) **Towage.**–There are no tugs at Port Royal or Beaufort. If required, they may be obtained from Charleston or Savannah by prior arrangements through ships' agents.

(60) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(61) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(62) **Harbor regulations.**–There are no harbor regulations at Port Royal and Beaufort. The State Ports Authority Terminal at Port Royal is under the jurisdiction of the Director of the South Carolina State Ports Authority.

(63) **Wharves.**–The South Carolina State Ports Authority Terminal (Pier 21), on the northeast side of the turning basin in Battery Creek at Port Royal, is the only deepwater facility in the area. It is owned by the Authority and operated by Port of Port Royal, Inc. The 500-foot marginal wharf at the terminal had reported depths of 27 feet alongside in June 1983. A transit shed and a warehouse with 60,000 square feet and 8,500 square feet of storage area, respectively, are available at the terminal. Cargo is handled by shoreside cranes. Cranes to 90 tons and forklift trucks are available. The terminal has highway connections, and rail trackage connections with the Seaboard System Railroad at the rear of the transit shed. Lumber and agri-chemicals are shipped from the terminal. The other facilities at Port Royal include several small wharves and piers used by fishing vessels. There are only small-craft facilities at Beaufort; these are described later in this chapter.

(64) **Supplies.**–Some marine supplies and provisions are available through ship chandlers in Savannah. Bunker C fuel oil and diesel oil are brought in by barge or truck from Savannah. Freshwater is piped to the South Carolina State Ports Authority Terminal.

(65) **Repairs.**–There are no drydocking or major repair facilities for oceangoing vessels at Port Royal and Beaufort; the nearest such facilities are at Charleston and Savannah.

(66) **Communications.**–Rail freight and bus connections are available. There are good highways to the outer islands and to Savannah, Charleston, and inland places.

(67) **Beaufort River,** which flows into Port Royal Sound from northward just inside Bay Point, is the approach to the U.S. Marine Corps Recruit Training Depot on Parris Island, Port Royal, and Beaufort. The river is a link in the Intracoastal Waterway; above the improved portion depths of 12 feet or more can be taken to the city of Beaufort.

(68) **Station Creek** joins Beaufort River from eastward 1 mile above Bay Point. An inside route used only by local fishermen leads from Port Royal Sound to St. Helena Sound through Station Creek, Story River, and Harbor River. In June 1983, the reported controlling depths were 5 feet in Story River and Harbor River and in December 1999, the reported controlling depth in Station Creek was 3.5 feet. The entrance to Station Creek is marked by a daybeacon.

(69) **Cowen (Chowan) Creek,** which empties into Beaufort River from northeastward about 5 miles above Bay Point, connects at its head with Morgan River. Passage to Morgan River is restricted about 5 miles above the mouth of Cowen Creek by U.S. Route 21 highway bridge and by the shoals in that vicinity.

(70) **Parris Island,** on the west side of the entrance to Beaufort River, is the site of a U.S. Marine Corps Recruit Training Depot. The dock on Parris Island opposite the mouth of Cowen Creek had a reported least depth of 6 feet alongside in June 1983. The remains of an old U.S. Naval graving dock are adjacent to the pier. Several tanks and the many large buildings on the island are prominent.

(71) **Battery Creek** empties into Beaufort River from northwestward 7 miles above Bay Point. Above the turning basin at Port Royal, the creek, in November 1999, had a reported controlling depth of 12 feet to State Route 802 highway bridge, and thence in 1983, 7 feet in a narrow winding channel to about a half mile below the railroad bridge. At this point, 4.4 miles above the mouth, overhead power cables crossing the creek have a clearance of 12 feet. The highway bridge has a fixed span with a clearance of 45 feet.

(72) **Archers Creek,** a narrow passage leading westward from the mouth of Battery Creek to Broad River, is shoal at its eastern end. There is exposed piling at its western end. About midway of its length, a highway bridge has a 34-foot fixed span with a clearance of 16 feet. An overhead power cable is close eastward of the bridge; clearance is not known. The creek, along with **Ribbon Creek,** is included in the danger zone of a rifle range. (See **334.480**, chapter 2, for limits and regulations.)

(73) **Port Royal,** a town on the north bank of the entrance to Battery Creek, is one of the oldest settlements on the Atlantic and of marked historical interest. The large modern State Ports Authority Terminal, described earlier, is here. Several plants above and below the terminal process shrimp, crab, oysters, and fish for shipment inland. Port Royal is the terminus of a branch of the Seaboard System Railroad.

(74) **Beaufort** (pronounced Bew-fert), on the point of land jutting eastward into Beaufort River 11 miles above Bay Point, is a city of great historical interest. The city can also be reached from the northward via the Intracoastal Waterway. There are motels, banks, a hospital, and numerous small businesses. A good portion of the commercial life of the city is dependent on the proximity of a U.S. Naval hospital, the Marine Corps Recruit Training Depot, and the Marine Corps Air Station. It has good highway connections with the mainland and the other islands and beaches. It is served by a branch of the Seaboard System Railroad. Principal commodities handled are fish, crabs, and oysters, which are trucked inland after processing, and truck farming. There is fair anchorage in the stream off the wharf westward of U.S. Route 21 highway bridge.

(75) The hospital at Beaufort maintains a pier with a floating landing stage on the south side of Beaufort, westward approximately 1.5 miles from U.S. Route 21 highway bridge. In June 1989, the alongside depth was reported as 12 feet. A phone on the pier connects directly to the emergency room.

(76) **Small-craft facilities.**–A municipal marina and a marina just to westward are on the south side of Beaufort westward of U.S. Route 21 highway bridge. Other marinas are eastward of the bridge just inside the entrances to nearby **Factory Creek** and **Broomfield Creek.** Berths, electricity, gasoline, diesel fuel, water, ice, launching ramps, and marine supplies are available at the marinas. The facility on Factory Creek has a marine railway that can handle craft to 65 feet for hull repairs. In August 1991, a partially submerged wreck was reported in the center of Factory Creek in about 32°25'12"N., 80°39'27"W. The marina on Broomfield Creek has a 50-ton lift that can handle craft for complete hull and engine or do-it-yourself repairs.

(77) **Charts 11516, 11519, 11513.–Broad River,** which enters Port Royal Sound on the west side of Parris Island, extends northwestward about 16 miles. The river is not difficult to navigate as far as Whale Branch, about 13 miles above the entrance. A **danger zone** of a pistol range is on the west side of Parris Island. (See **334.480**, chapter 2, for limits and regulations.) State Route 170 highway swing bridge with a clearance of 12 feet crosses Broad River about 7 miles above the entrance. (See **117.1 through 117.59 and 117.921**, chapter 2, for drawbridge regulations.) Archers Creek, about 4 miles above the entrance of Broad River, connects Broad River with Beaufort River to the eastward; the creek was described earlier in this chapter.

(78) **Charts 11519, 11513.**–The Seaboard System Railroad (SCL) bridge, which crosses Broad River about 15 miles above the entrance and 2 miles above the junction with Whale Branch, has a swing span with a clearance of 7 feet. (See **117.1 through 117.59 and 117.921**, chapter 2, for drawbridge regulations.) **Pocotaligo River, Tulifiny River,** and **Coosawhatchie River** are shallow streams which empty into the head of Broad River.

(79) **Whale Branch,** which connects Broad River with Coosaw River to the eastward, had a reported controlling depth of 5 feet in June 1983. Overhead power cables crossing the branch have a minimum clearance of 40 feet; the cable with this least clearance crosses the branch immediately eastward of U.S. Route 21 highway bridge about 5.5 miles above the mouth. The Seaboard System Railroad (SCL) bridge over the branch, 4 miles from Broad River, has a swing span with a clearance of 5 feet. The U.S. Route 21 highway bridge, 1.5 miles above the railroad bridge, has a fixed span with a clearance of 20 feet.

(80) **Brickyard Creek,** 5 miles eastward of the highway bridges over Whale Branch, connects Coosaw River with Beaufort River to the southward and is a link in the Intracoastal Waterway. The mean range of tide is 7.3 feet at the mouth of the creek.

(81) **Chart 11516.–Chechessee River** empties into Port Royal Sound from westward. The State Route 170 highway bridge crossing the river 10 miles above the mouth has a fixed span with a clearance of 20 feet. In June 1983, the reported controlling depth was 20 feet from the mouth of the Chechessee River to just above **Copps Landing** on the **Colleton River,** 5 miles above the mouth. These rivers are of no commercial importance.

(82) **Mackay Creek** joins Chechessee River from westward about 1 mile above its mouth. The creek, partially marked by a private light and daybeacons, connects Port Royal Sound with Calibogue Sound. This passage is more difficult, narrow, and erratic than the route through Skull Creek. Local knowledge is advised. In February 2000, the reported controlling depth in Mackay Creek was 7 feet. State Route 46 highway bridge over Mackay Creek from **Buckingham Landing** to **Last End Point** has twin fixed spans with clearances of 25 feet. An overhead power cable crossing the river just north of the bridge has a clearance of 43 feet.

(83) **Skull Creek,** a link in the Intracoastal Waterway, enters Port Royal Sound from southwestward about 4 miles above Hilton Head and is described in chapter 12.

(84) **Chart 11512.–Calibogue Sound** is entered between Hilton Head Island and **Daufuskie Island,** about 5 miles northward of Tybee Light (32°01.3'N., 80°50.8'W.). The entrance is obstructed by shifting shoals through which are several crooked channels. The best channel extends from Tybee Roads northward between Bloody Point Range Front Light and the northwest end of the submerged breakwater 1.9 miles northeast of Tybee Light. The channel into the sound is marked by lights, a buoy, and daybeacons. In June 1983, the reported controlling depth was 6½ feet on the bar. Inside the bar, depths are ample.

(85) **COLREGS Demarcation Lines.**–The lines established for Calibogue Sound are described in **80.715**, chapter 2.

(86) **Cooper River,** of importance only as a section of the Intracoastal Waterway, empties into Calibogue Sound from westward about 3 miles above the entrance to the sound.

(87) **Chart 11516.–May River,** which empties into Calibogue Sound from westward about 6 miles above the entrance, is the approach to the town of **Bluffton,** 7 miles above the mouth. The reported controlling depth in the river to Bluffton was 10 feet in June 1983. The river is marked by daybeacons as far as Bluffton. **Brighton Beach,** a small town about 3 miles downriver from Bluffton, has two small-boat launching ramps. The overhead power cable near **Buck Point** has a clearance of 35 feet over the narrow northern channel and 68 feet over the southern channel. The clearances for the power cable west of Bluffton (chart 11513) are 53 feet over the northern channel and 48 feet over the southern. Passage is sometimes made from May River to Cooper River by way of unmarked **Bull Creek**. An overhead cable with a clearance of 46 feet crosses Bull Creek between Bull and Savage Islands. The tides meet in Bull Creek, forming flats. In June 1983, the creek was reported to be bare at low water at the junction of **Savage Creek,** thence the reported depth was 1 foot to a junction with May River.

(88) **Broad Creek** flows into Calibogue Sound from eastward, about 1.2 miles above the entrance to the sound, and extends 6 miles into Hilton Head Island. In June 1983, the reported controlling depth was 9 feet for a distance of 5 miles. The creek is marked by private lights and daybeacons for about 5.3 miles above the mouth.

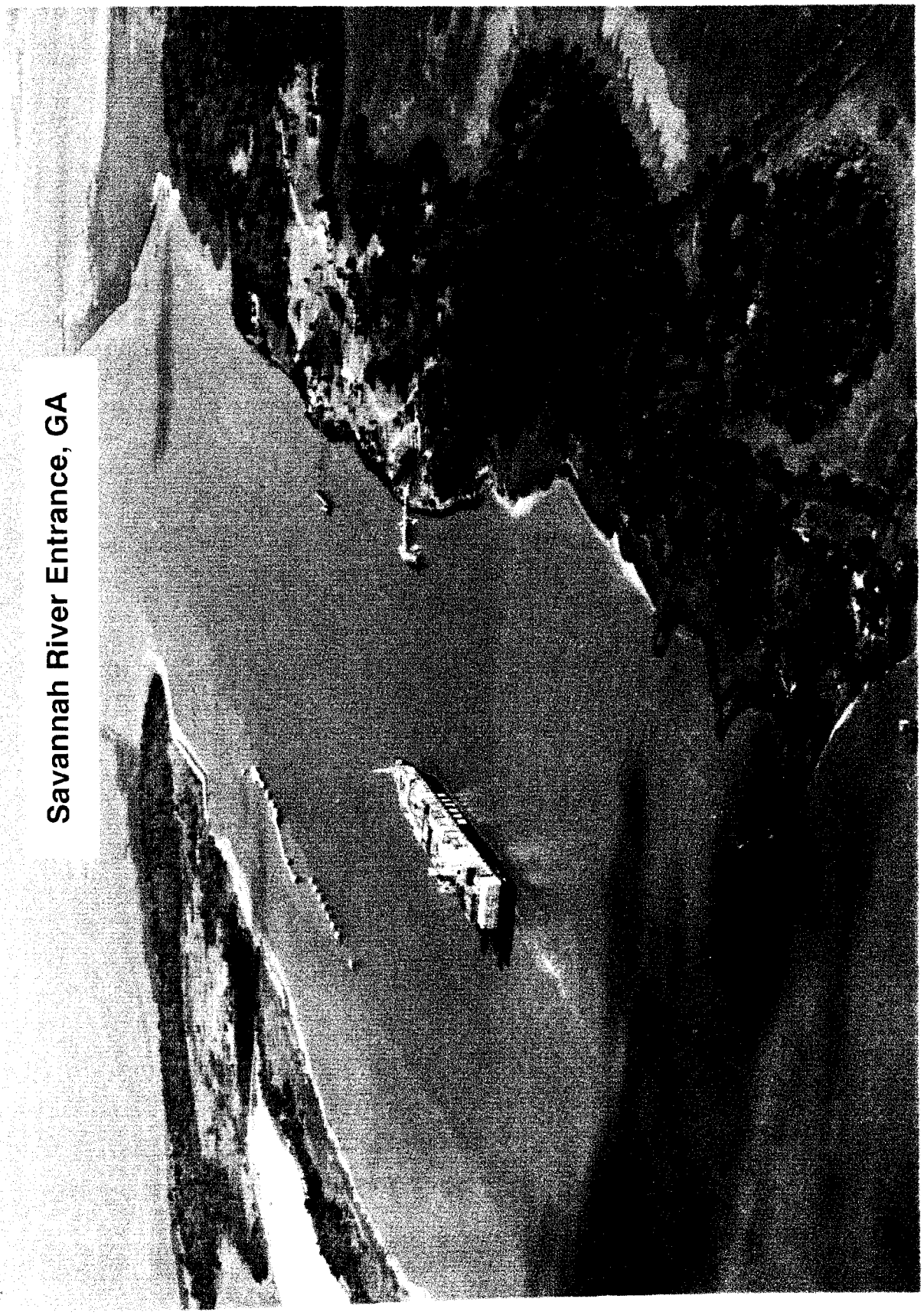
(89) The fixed highway bridge, 3.3 miles above the mouth to Broad Creek has a clearance of 65 feet.

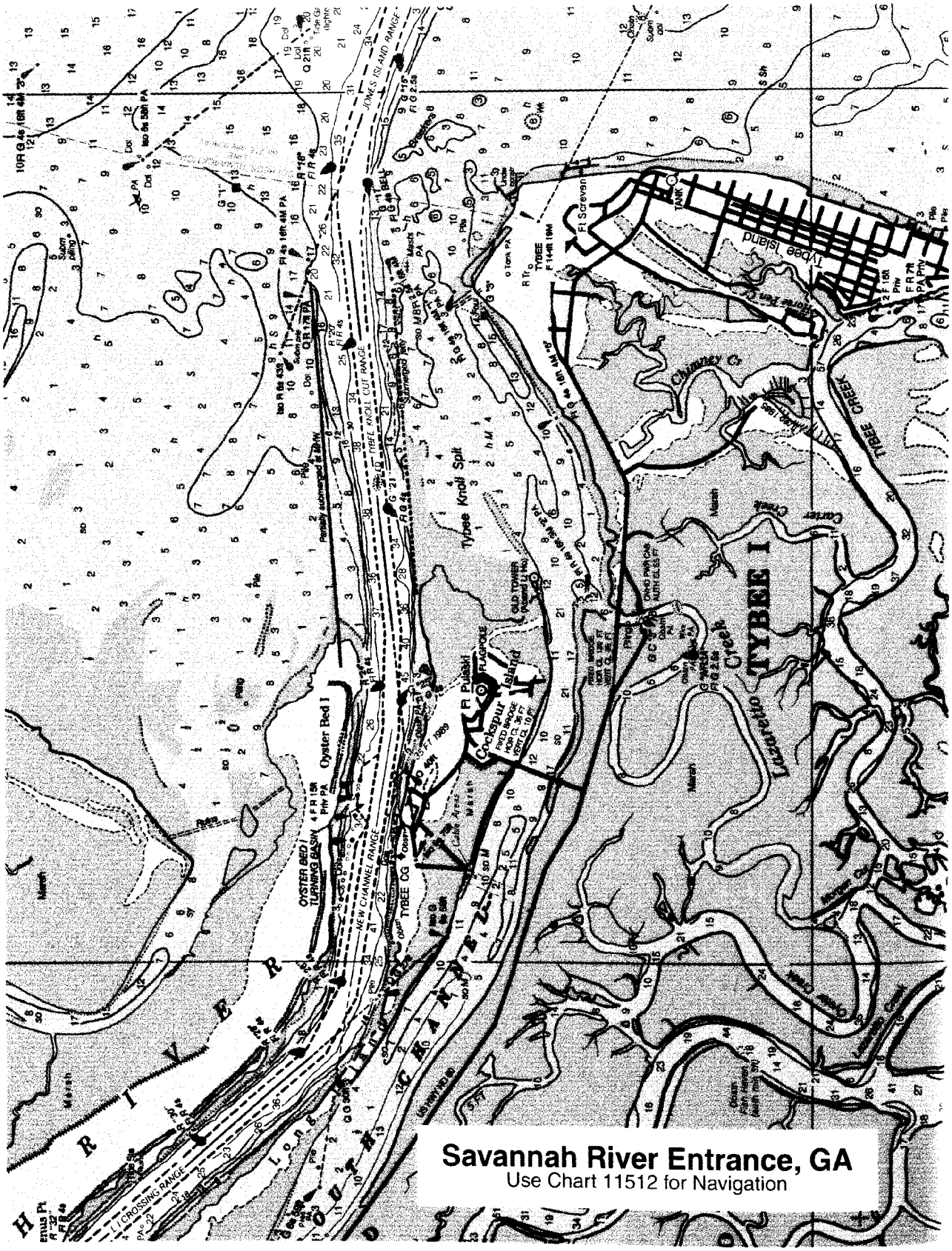
(90) The yacht basin at **Harbour Town,** just southward of the entrance to Broad Creek, has a marina at which berths, electricity, gasoline, diesel fuel, water, and ice are available. In February 1994, the privately marked and maintained channel and yacht basin had a reported controlling depth of 8½ feet.

(91) A marina, on the south side of Broad Creek about 3.5 miles above the entrance, has berthage with electricity, gasoline, diesel fuel, water, ice, marine supplies, and mobile cranes to 50 tons are available. Hull, engine, and electrical repairs can be made.

(92) **Chart 11512.–Savannah River,** the boundary between the States of South Carolina and Georgia, is 65 miles southwestward of Charleston Harbor and 105 miles northward of the entrance to St. Johns River. It is navigable for deep-draft vessels to the upper end of Savannah Harbor, 19 miles above the outer ends of the entrance jetties, and for barges to the city of Augusta, 172 miles above the entrance. Deep-draft vessels approach the entrance from outside Savannah Light.

(93) **Savannah,** on the south bank of Savannah River about 15 miles above the outer end of the jetties, is the second largest city and chief port of the State of Georgia. It is a leading southern port


Savannah River Entrance, GA


Savannah River Entrance, GA
Use Chart 11512 for Navigation
TYBEE I
Tybee Island
Tybee Knoll Spit
Cockspur Island
Oyster Bed I
Ft Pulaski
Ft Screven
TYBEE CREEK
Chimney Cr
Carter Creek
Lazaretto Creek
NEW CHANNEL RANGE
TYBEE KNOLL CUT RANGE
JONES ISLAND RANGE
L I CROSSING RANGE
OYSTER BED I TURNING BASIN
TYBEE CG
Marsh

and is the main distributing point for the surrounding country. The city has considerable coastwise and foreign trade, and is connected with coastal cities to the north and south by the Intracoastal Waterway which crosses Savannah River several miles below the waterfront terminals. The climate is equable, and high-velocity winds are infrequent. The water-borne commerce is of a widely varied nature. Imports include petroleum products, sugar, lumber, cement, gypsum, fertilizer materials, nonferrous ores, textiles, plywood, molten sulfur, chemicals, agricultural machinery, and iron and steel products; exports include petroleum products, kaolin clay, woodpulp, vegetable oil, peanuts, grain, naval stores, paper products, tall oil, oil seeds, scrap iron, and agricultural machinery.

(94) **Prominent features.–Savannah Light** (31°57.0'N., 80°41.0'W.), 85 feet above the water, is shown from a tower on white house on piles in 50 feet of water, about 10 miles east-southeastward of Tybee Light. On each of the sides is the word "SAVANNAH" in black letters and a red daymark. A fog signal and a racon are at the light.

(95) **Tybee Light** (32°01.3'N., 80°50.8'W.), 144 feet above water, is shown from an octagonal brick tower, lower one third white and upper two thirds black, on the northeast end of Tybee Island.

(96) The three water tanks on **Hilton Head Island** are prominent in the approach from northward. Also prominent from seaward, are the water tank at Tybee Island, the flashing red lights atop the three WBMQ radio towers on **Oatland Island,** the large chemical plant southwestward of **Mackey Point,** and the three 200-foot-high tanks on **Elba Island,** about 9 miles above the entrance.

(97) **COLREGS Demarcation Lines.**–The lines established for Savannah River are described in **80.715**, chapter 2.

(98) **Channels.**–A Federal project provides for a 44-foot channel across the bar through Tybee Roads to the jetties, thence 42 feet for about 16 miles in the main channel to the turning basin at Kings Island, thence 36 to 42 feet for about 1 mile, thence 30 feet for another 1.4 miles to the head of the project about 500 yards below U.S. Route 17 highway bridge. (See Notice to Mariners and latest editions of the charts for controlling depths.) The channels are well marked by lighted ranges, lights, and lighted and unlighted buoys.

(99) A 2.1-mile-long sediment trap is in Back River on the north side of Hutchinson Island. A tide gate is at the head of the sediment trap.

(100) **Anchorages.**–Most vessels anchor northward or northwestward of the sea buoy, Tybee Lighted Whistle Buoy T (31°57.9'N., 80° 43.2'W.), where depths range from 19 to 45 feet with good holding ground. There is no anchorage in Savannah River except in an emergency.

(101) **Dangers.**–The set of the tidal current in and out of the various sounds and inlets should be carefully considered by vessels approaching Savannah by the inshore route. There are several unmarked obstructions in the approaches. The **danger area** of an Air Force air-to-air and air-to-water gunnery and bombing range is about 15 miles seaward of the light. (See **334.490**, chapter 2, for limits and regulations.)

(102) The entrance to the Savannah River is protected by jetties. The north jetty is unmarked and awash at mean high water and marked about 0.2 mile seaward of its east end by a light. The south jetty is submerged at mean high water and marked at the east end by a light.

(103) **Bridges.**–An overhead power cable with a clearance of 221 feet crosses the main channel of the Savannah River at Fig Island about 10.3 miles above the mouth. The Eugene Talmadge Memorial Highway bridge near the western edge of the city waterfront, 13 miles above the mouth, has a fixed span with a clearance of 185 feet over the center span width of 500 feet. U.S. Route 17A highway served by this bridge also crosses Back River to the northeastward over a trestle with a 34-foot fixed span which has a clearance of 10 feet. The CSX bridge crosses Back River about 1.2 miles above the Eugene Talmadge Memorial Highway bridge on a trestle with a 30-foot fixed span which has a clearance of 11 feet; an overhead power cable on the south side of this bridge has a clearance of 15 feet. An overhead power cable with a clearance of of 208 feet crosses the main channel of the Savannah River at Port Wentworth about 4.3 miles above the Eugene Talmadge Memorial Highway bridge, and another cable with a clearance of 55 feet crosses the mouth of Middle River just to the east of the main channel. The U.S. Route 17 (Houlihan) highway bridge about a mile above Port Wentworth at the head of the Federal project, has a swing span with a clearance of 8 feet. The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign, WHV-879. (See **117.1 through 117.59 and 117.371**, chapter 2, for drawbridge regulations.) The highway continues on across Middle River and Little Back River. A bridge across Middle River has a 17-foot fixed span with a clearance of 5 feet, and a bridge across Little Back River has a 40-foot fixed span with a clearance of 8 feet.

(104) **Tides and currents.**–Daily predictions for both Savannah River entrance and Savannah are given in the Tide Tables. At the bar, high and low waters occur about 30 minutes earlier than at the river entrance. The mean range of tide is 6.8 feet at Tybee Light and 7.9 feet at Savannah.

(105) The velocity of the ebb current from the entrance jetties to Savannah is from 2.2 to 3.1 knots. The flood current has a velocity of from 1.6 to 2.4 knots. The current is considerably influenced by winds and freshets. The predicted times of slack water and the times and velocities of strength of flood and ebb at the entrance to Savannah River are given in the Tidal Current Tables. Predictions for a number of other places in Savannah River may be obtained from data in the tables.

(106) Currents set in the direction of the channel except at the entrance near Tybee Light, where the flood sets northwestward across the channel. Between the jetties the flood sets 260°. Freshets occasionally occur in the spring, but do not endanger shipping at the wharves.

(107) It is reported that currents in the river can reach 7 to 8 knots in the vicinity of Garden City Terminal Berths 1-2 (southwest side of the river just below the U.S. Route 17A bridge) and Colonial Oil Berths 50-51 (southwest side of river about 2.5 miles above the 17A bridge).

(108) A tide gate structure crosses Back River about 2.3 miles above its junction with Savannah River. The tide gate allows water to enter Back River above the structure on the tidal flood, and at high water slack the gate is closed and the accumulated water is allowed to flow back into the Savannah River northwestward of Hutchinson Island. The tide gate operates automatically, and the area immediately upstream and downstream has been designated a restricted area and is marked by buoys and signs.

(109) **Weather, Savannah and vicinity.**–This area features a temperate climate with mild winters and warm, humid summers. The average high temperature at Savannah is 77°F (25°C) and the

average low is 56°F (13.3°C). July is the warmest month with an average high of 92°F (33.3°C) and an average low of 72°F (22.2°C). January is the coolest month with an average high of 60°F (15.6°C) and an average low of 38°F (3.3°C). Each month, May through August has recorded temperatures in excess of 100°F (37.8°C) while each month, October through April has recorded temperatures of freezing or lower. The record high temperature at Savannah is 105°F (40.6°C) recorded in July 1986 and the all-time minimum is 3°F (-16.1°C) recorded in January 1985. The average number of occurrences of maximum temperatures of 90°F (32.2°C) or warmer is 70 days for any one year and the average number days of occurrences of 32°F (0°C) or colder minimum temperature is 29 days.

(110) Hurricanes and tropical storms are most likely from June through October. While September and October are the peak months for all tropical cyclones, those of hurricane intensity have shown a preference for August. Since 1842, 68 tropical storms have come within 50 miles (93 km) of Savannah, Georgia, 25 of these storms since 1950. Due to the geographical location and the indention of the Georgia coastline, a direct hit is rare and the distribution is fairly equal for storms approaching from the south and are weakened by the Florida coastline, and those approaching from the southwest and are weakened from having made landfall along the northeastern Gulf Coast . One of Savannah's worst storms occurred in August 1911 when sustained winds reached 83 knots and for 3 hours remained between 70 and 80 knots. Winds on the coast can be expected to be about 20 knots higher in hurricane conditions. Of the seven major hurricanes to directly affect Savannah, five occurred in August while one each struck in September and October. Rainfall from tropical cyclones has exceeded 20 inches (508 mm). Storm tides reached 12 feet (3.65 m) above mean low water at Savannah Beach during the October 1947 hurricane.

(111) Gale force winds occur in thunderstorms, which sometimes organize into squall lines either ahead of, or along a cold front. These can be particularly violent in spring when cold and warm air masses collide.

(112) The local climate varies significantly between the coast and the city region. The lessening Atlantic influence upriver result in about twice as many 90°F (32.2°C) days in summer and twice as many freezing nights in winter, as compared to the coast. In general, the city receives about 5 to 6 more inches (127 to 152 mm) of precipitation on 5 to 10 more days , annually, than the coast. Heavy fog at the airport occurs on an average of 4 to 5 days per month from September through January. This is usually a radiation fog so that visibilities are poorest in the early morning hours but improve during the day. This clearing is retarded by industrial pollutants. Along the coast this type of fog is less frequent, but a more persistent sea fog may hamper visibility in winter and spring.

(113) (See page T-5 for **Savannah climatological table.**)

(114) The National Weather Service Office is at the Municipal Airport, 9 miles outside the city, where **barometers** are compared.

(115) **Pilotage, Savannah.**–Pilotage is compulsory for all foreign vessels and U.S. vessels under register in the foreign trade. Pilotage is optional for U.S. vessels in the domestic trade which have on board a pilot licensed by the Federal Government. Pilotage is available from the Savannah Bar Pilots Association, Inc., 550 East York Street, Savannah, GA 31412, telephone 912-236-0226, FAX 912-236-6571. The pilots maintain two pilot boats; the 77-foot GEORGIA and the 65-foot SAVANNAH PILOT. Both have blue hulls and white superstructures, fly the code flag **H**, and are equipped with VHF-FM channels 18A, 16, 14, 13, and 11. The boats are in direct communication with the pilot office in Savannah. Communications on channels 18A, 16, and 14 are monitored by the pilot's office on a 24-hour basis, and by the pilot boats at all hours when working ships. Pilots board from the pilot boat in the vicinity of the sea buoy (Tybee Lighted Whistle Buoy T, 31°57.9'N., 80°43.2'W.). Ships are taken in day or night; deeper draft vessels are taken in on a rising tide. Pilots are arranged for in advance by telephone or FAX (above), through the Savannah Marine Operator, through radio, or through ships' agents.

(116) The Savannah River Pilots Association participates in the northern right whale Early Warning System (see Northern right whales, indexed as such, chapter 3.)

(117) Pilotage for enrolled and public vessels is available from Coastal Line Handling and Piloting, P.O. Box 15095, Savannah, GA 31416, telephone (912) 354-0800. This association will shift any flag vessel in port that does not require tug assistance. A six hour advance notice is requested. The Coastal Pilots monitor VHF-FM channels 16 and 18A.

(118) **Towage.**–Tugs up to 3,900 hp are available at Savannah on a 24-hour basis; services must be arranged for in advance. Vessels usually proceed from the bar to Savannah without assistance. Tugs are available for docking, undocking, and when shifting berths. Vessels are met by tugs just below their assigned berths, or elsewhere in the harbor as required.

(119) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(120) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) There are public and private hospitals in the city.

(121) **Coast Guard.**–A **Marine Safety Office** is in Savannah. (See appendix for address.) **Tybee Coast Guard Station** is on the north side of Cockspur Island at the mouth of the river and **Savannah Coast Guard Air Station** is at Hunter Army Airfield, south of the city.

(122) Savannah is a **customs port of entry.**

(123) **Harbor regulations.**–The Savannah Port Authority has jurisdiction over Savannah Harbor and the port district. Port and harbor regulations are enforced within the port and port district by the **harbormaster** who can be reached at City Hall or through the Savannah Port Authority, and by the county and municipal police forces. Copies of the port and harbor regulations are available from the Savannah Port Authority, 42 E. Bay Street. A **speed limit** of 4 m.p.h., against the current, and 6 m.p.h., with the current, is in force within the harbor limits. The Georgia Ports Authority owns and operates the State docks and warehouses.

(124) **Wharves.**–There are numerous wharves of all types at Savannah; only the major ones are described. For a complete description of the port facilities, refer to Port Series No. 14, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) Most of the facilities have highway and railroad connections as well as water and electrical shore power. The smaller facilities at Savannah are used by barges and small vessels, and as vessel repair berths; these are not described. Cargo is generally handled by ship's tackle; special cargo handling equipment, if available, is mentioned in the description of the particular facility. The alongside depths given for each facility

described are reported depths. (For information on the latest depths, contact the operator.)

(125) **Facilities on the south side of Savannah River below the Eugene Talmadge Memorial Bridge:**

(126) **Southern Energy Co. Wharf:** on the north side of Elba Island, about 6.5 miles below Eugene Talmadge Memorial Bridge; 1,255 feet of berthing space with dolphins; 38 feet alongside; deck height, 21 feet; storage tanks for about 1 ¼ million barrels; receipt of liquefied natural gas; vessels dock portside-to; owned and operated by Southern Energy Co.

(127) **Chevron U.S.A. Savannah Light Bulk Facility Dock:** 0.4 mile above Fort Jackson; 54-foot face; 600 feet of berthing space with dolphins; 29 feet alongside; deck height, 17 feet; storage tanks with 307,700-barrel capacity; receipt of petroleum products; owned and operated by Chevron U.S.A. Inc.

(128) **UNOCAL Corp. Savannah Terminal Dock:** 0.5 mile above Fort Jackson; 658 feet of berthing space with dolphins; 34 feet alongside; deck height, 15 feet; storage tanks with 344,000-barrel capacity; receipt and shipment of petroleum products; owned and operated by UNOCAL Corp.

(129) **Savannah Marine Services Dock:** 0.6 mile above Fort Jackson; 40-foot face; 850 feet of berthing space with dolphins; 40 feet alongside; deck height, 15 feet; storage tanks with 460,000-barrel capacity; receipt and shipment of petroleum products, mooring vessels for repair, and handling construction materials and supplies; owned by Savannah Marine Services, Inc.; various operators.

(130) **Domtar Gypsum Savannah Dock:** about 0.9 mile west of Fort Jackson; 514-foot marginal wharf; 33 feet alongside; deck height, 14 feet; traveling 8-ton bucket equipped crane with 800-ton-per-hour unloading capacity; open storage area for 250,000 tons of gypsum rock; receipt of gypsum rock; railroad tracks connection with tracks of CSX Rail Transport; owned by Savannah Port Authority and operated by Domtar Gypsum.

(131) **Savannah River Wharf Corp. Dock:** about 1.4 miles west of Fort Jackson; 1,100 feet of berthing space with dolphins; 36 feet alongside; deck height, 15 feet; storage area for 110,000 tons of wood chips; vessel loading spout with 700-ton-per-hour capacity; shipment of dry bulk commodities and wood chips; owned and operated by Savannah River Corp.

(132) **East Coast Terminal Wharf, Berths 3 through 7:** about 1.7 miles west of Fort Jackson; 1,890-foot marginal wharf, 1,990 feet with dolphins; 32 to 30 feet alongside; deck height, 15 feet; four transit sheds, total 203,000 square feet storage area; pipelines extend from wharf to storage tanks in rear, 26,000-ton capacity; receipt and shipment of general and containerized cargo; steel products, woodpulp, lineboard, tall oil; receipt of liquid sulphur; owned by East Coast Terminal Co.; various operators.

(133) **Facilities on the north side of Savannah River at Hutchinson Island below the Eugene Talmadge Memorial Bridge:**

(134) **Haig Point Ferry Terminal** (32°05'10"N., 81°05'22"W.): about 0.6 mile below Eugene Talmadge Memorial Bridge; all deck heights 13.5 feet.

(135) Available at the terminal: 15 acres of open storage, 350,000 square feet covered storage area; landing for passengers; shipment and occasional receipt of dry bulk commodities; owned and operated by International Paper Realty Corp. of South Carolina.

(136) **Facilities on the Southwest side of Savannah River above Eugene Talmadge Memorial Bridge:**

(137) **Savannah State Docks-Ocean Terminal:** just below Eugene Talmadge Memorial Bridge. A 45-ton mobile crane and forklifts with various attachments are shared by all berths at the terminal. Traveling gantry to 175 tons are available at Berths 13 through 20. Railroad tracks at the rear of transit sheds and on the aprons connect with Norfolk Southern Corp. Railway System; receipt and shipment of general and containerized cargo; owned and operated by Georgia Ports Authority.

(138) **Berth 13:** 0.2 mile above Eugene Talmadge Memorial Bridge; 975 feet long; 38 feet alongside; deck height, 15 feet; 342,000 square feet covered storage; receipt and shipment of general cargo.

(139) **Berths 14-15:** southeastern side of Slip No. 2; 1,128 feet long with 57-foot apron; 34 feet alongside; deck height, 34 feet; transit sheds, 206,800 square feet total storage area.

(140) **Berths 16-17:** northwestern side of Slip No. 2; 1,041 feet long; 34 feet alongside; deck height, 15 feet; transit sheds, 116,640 square feet total storage area.

(141) **Berths 18-20:** immediately northward of Slip No. 2, about 0.4 mile above Eugene Talmadge Memorial Bridge; 1666 feet of berthing space; 38 feet alongside; deck height, 15 feet; 57,000 square feet covered storage; about 20 acres open storage.

(142) **Colonial Oil Industries, Savannah Plant No. 1 Upper Wharf:** about 0.75 mile above Eugene Talmadge Memorial Bridge; 674 feet of berthing space with dolphins; 38 feet alongside; deck height, 12½ feet; storage tanks with 1½-million-barrel capacity; receipts and shipment of petroleum products, petrochemicals, and chemicals; owned and operated by Colonial Oil industries, Inc.

(143) **Colonial Oil Industries, Savannah Plant No. 2 Wharf:** about 1.3 miles above Eugene Talmadge Memorial Bridge; 750 feet of berthing space with dolphins; 38 feet alongside; deck height, 15 feet; storage tanks with 500,000-barrel capacity; receipt and shipment of liquid and dry bulk commodities, petroleum products, and petrochemicals; owned and operated by Colonial Oil Indutries, Inc.

(144) **CITGO Asphalt Refining, Co. Savannah Refinery Wharf** (32°06'35"N., 81°07'28"W.): about 1.8 miles above Eugene Talmadge Memorial Bridge; 200-foot face, 675 feet of berthing space with dolphins; 32 feet alongside; deck height, 12 feet; pipelines extend from wharf to storage tanks with 1 ¼-million-barrel capacity; receipt of crude oil and receipt and shipment of petroleum products and asphalt; owned and operated by CITGO Asphalt Refining Co.

(145) **Southern Bulk Industries Slip:** south side of Dundee Canal; 730 feet of berthing space; 34 feet alongside; deck height, 14 feet; conveyor system from warehouse with loading rate of 350 tons per hour; 110,000 square feet of covered storage; shipment of kaolin; owned and operated by Southern Bulk Industries.

(146) **Southern Minerals Corp. Slip:** inner end of south side of Dundee Canal; 730 feet of berthing space; 34 feet alongside; deck height, 14 feet; shiploader with rate of 2,400 tons per hour; open storage for 250,000 tons of coal; shipment of coal; owned and operated by Southern Minerals Corp.

(147) **National Gypsum Co. Wharf:** about 2.2 miles above Eugene Talmadge Memorial Bridge; 400-foot face with open apron; 28 feet alongside; deck height, 12 feet; open storage area with a capacity for 100,000 tons gypsum rock; one hopper for use of self-unloading vessels connects with belt-conveyor system; pipelines from wharf to storage tanks in rear with 40,000-barrel capacity; receipt of gypsum rock, bauxite, and asphalt oil; owned

by National Gypsum Co., and operated by National Gypsum Co. and GAF Corp.

(148) **Savannah State Docks-Garden City Terminal:** extends along the southwest side of Savannah River from 2.4 to 3.7 miles above the Eugene Talmadge Memorial Bridge. Mobile cranes to 45 tons and forklifts with various attachments are shared by all the general cargo berths at the terminal. The terminal is connected by the Savannah State Docks Railroad with the major railroads that serve the port.

(149) **Berth 50:** southeast end of terminal; 90-foot offshore wharf, 686 feet usable space when used with dolphins and with Berth 51 to the northwestward; 36 feet alongside; deck height, 15 feet; hose-handling derricks; pipelines extend from wharf to storage tank farm in rear with over 1¾-million-barrel capacity; receipt and shipment of petroleum products, petrochemicals, fertilizers, naval stores, and tallow.

(150) **Berth 51:** immediately northeastward of Berth 50; 1,447 feet of berthing space, 15 feet alongside; deck height, 15 feet; two transit sheds, 111,000 square feet total storage area; about 60 acres of open storage; cranes to 100 tons; receipt and shipment of general cargo and bulk liquid latex; pipelines extend to storage tanks with 750,000-gallon capacity.

(151) **Container Wharf, Berths 1-5:** immediately northwestward of Berth 51; 4,836 feet of berthing space; 38 feet alongside; deck height, 15 feet; 245-acre container storage area; nine 45-ton container cranes; receipt and shipment of containerized and roll-on and roll-off general cargo.

(152) **Ammonia Dock, Berth 61:** (32°07'49"N., 81°08'25"W.); 600 feet of berthing space with dolphins; 38 feet alongside; deck height, 15 feet; storage tank with 50,000-ton capacity; receipt of anhydrous ammonia.

(153) **Dry Bulk Wharf, Berth 62:** immediately north of Berth 61; offshore wharf 800 feet of berthing space with dolphins; 38 feet alongside; deck height, 15 feet; shiploader with 1,500-ton-per-hour capacity; covered storage for 45,000 tons of grain and 30,000 tons of ores and clay; Continental Grain Co. grain elevator; conveyor boom loader with rate of 30,000 bushels per hour; 1-million-bushel storage capacity; shipment of dry bulk materials.

(154) Savannah State Docks Garden City Terminal is owned and operated by Georgia Ports Authority.

(155) **Facilities on the west side of Savannah River (Port Wentworth):**

(156) **Koch Materials Co. Dock:** (32°08.3'N., 81°08.7'W.); 30-foot offshore wharf, 680 feet of berthing space with dolphins; 30 feet alongside; deck height, 12 feet; swivel-jointed loading arm; pipelines extend from wharf to storage tanks in the rear with 245,000-barrel capacity; receipt of asphalt; owned and operated by Koch Materials Co.,Inc.

(157) **Savannah Sugar Refinery Wharf:** about 0.3 mile northward of Koch Materials Co. Dock; 300-foot offshore wharf with 600 feet of berthing space with dolphins; 32 feet alongside; deck height, 18 feet; bulk raw sugar is unloaded by mobile cranes into three 15-ton portable hoppers served by conveyor belts extending from wharf to refinery in rear; pipelines extend from wharf to storage tanks in the rear with over 3-million-gallon capacity; covered storage for 150,000 tons of raw sugar; used for receipt of raw sugar, molasses, and fuel oil; owned and operated by Savannah Sugar Refinery.

(158) **Atlantic Wood Industries Wharf:** about 0.4 mile northward of Koch Materials Co. Wharf; 217-foot wharf, 400 feet with dolphins; 26 feet alongside; deck height, 12 feet; three 30-ton diesel locomotive cranes; one diesel switch engine; receipt and shipment of timber and timber products; owned and operated by Atlantic Wood Industries, Inc.

(159) **Georgia Pacific Corp., Savannah Wharf** (32°09'06"N., 81°09'09"W.): 200-foot offshore wharf, 600 feet of berthing space with dolphins; 25 feet alongside; deck height, 16 feet; 20,000 square feet covered storage; forklifts up to 4 tons, mobile cranes rented as needed; receipt and shipment of general cargo, paper rolls, lumber, plywood, supplies, and equipment; owned by Georgia Pacific Corp. and operated by Georgia Steamship Co., Inc.

(160) **Stone Savannah River Pulp and Paper Wharf:** about 0.3 mile northwestward of Georgia Pacific Corp. Wharf; 240-foot marginal wharf, 405 feet with dolphins; 30 feet alongside; deck height, 16 feet; about 103,000 square feet of covered storage; shipment of linerboard; receipt and shipment of black liquor; owned and operated by Stone Savannah River Pulp and Paper, Inc.

(161) **Supplies.**–All kinds of marine supplies and provisions are available at Savannah. Large vessels are usually bunkered at berth in the harbor from barges. Freshwater is available at most of the berths.

(162) **Repairs.**–There are two major marine repair facilities at Savannah that can make all types of hull, engine, electrical, and electronic repairs to oceangoing vessels. Both facilities are on the southwest side of the river, about 200 feet and 0.85 mile above the Eugene Talmadge Memorial Bridge, respectively. A graving dock, 540 feet long, 73 feet wide, and 20 feet over the keel blocks at mean low water, is at the more northerly facility; cranes up to 50 tons are available here. The other facility has a 180-foot marine railway; cranes to 60 tons are available here. Machine, electronic, electrical, sheet metal, and welding repair shops are off the waterfront at Savannah. Floating cranes up to 75 tons are available.

(163) **Communications.**–Savannah has excellent rail, water, highway, and air transportation facilities. Two railroads, the Seaboard System Railroad and the Central of Georgia Railroad, a subsidiary of the Southern Railway operate out of the city. There is regular scheduled steamship service to all parts of the world, and considerable shipping coastwise and along the Intracoastal Waterway. Two major airlines, several bus lines, and numerous truck lines serve Savannah. The city has highway connections with Interstate Routes 16 and 95, and with U.S. Routes 17, 17A, and 80.

(164) **Small-craft facilities.**–Water and electricity are available at the Municipal Dock, the only small-craft facility at Savannah. The dockmaster can be contacted at City Hall. The nearest place where gasoline, diesel fuel, and other services can be obtained is on the Intracoastal Waterway south of Savannah at Thunderbolt, or at Isle of Hope. (See chapter 12 for details.)

(165) **Charts 11514, 11515.**–The Savannah River above Savannah is navigable to the city of **Augusta,** 172 miles (198 statute miles) above the mouth. A Federal project provides for a 9-foot channel over a width of 90 feet from near U.S. Route 17 highway bridge, 18.8 miles (21.6 statute miles) above the mouth, to Augusta. (See Notice to Mariners and latest editions of the charts for controlling depths.) Daybeacons mark some of the shoal and critical spots in the river, but the best guide for the mariner is the use of the chart to carry the best water. The river is swift and

tortuous; daybeacons are sometimes carried away. Numerous foul areas exist near the shore, and floating debris is a constant danger to navigation. Local knowledge is advised.

(166) The freshet variation above the normal pool level of the **New Savannah Bluff Lock and Dam,** 162.7 miles (187.2 statute miles) above the mouth, is about 13 feet ordinarily, with an extreme of 34 feet. The lock is 360 feet long, 56 feet wide, and has a depth over the lower miter sill of 10 feet. The depth over the upper miter sill at normal pool level is 13½ feet; the vertical lift is 15 feet. Anyone desiring lockage must contact the lock operator at least 24 hours in advance at the New Savannah Bluff Lock and Dam Office, 404-798-4644, or the James B. Messerly Wastewater Treatment Plant, 404-793-1691. Calls to either location should be made between 0800 and 1630, Monday through Friday, except on designated holidays for City of Augusta offices. The lock will be operated seven days a week between the hours of 0800 and sunset on appointment. There is no navigation lock in the dam about 4 miles above Augusta.

(167) **Bridges.**–Between U.S. Route 17 highway bridge and the lock and dam, the limiting clearances of the drawbridges are 7 feet, and 27 feet for the fixed bridges. Between the lock and the head of navigation the limiting drawbridge clearances are 12 feet and the fixed bridges 26 feet at normal pool level. The bridgetender of the Seaboard System Railroad bridge at Clyo, about 53 miles above the mouth, monitors VHF-FM channel 16 and works on channel 13; call sign, WKB-679. (See **117.1 through 117.59, 117.371, and 117.937**, chapter 2, for drawbridge regulations.) Overhead power cables with clearances of 76 feet and 53 feet cross the river 169.7 miles (195.3 statute miles) and 174.8 miles (201.1 statute miles) above the mouth, respectively.

(168) There are numerous landings between Savannah and Augusta without wharves or rail connections. At New Savannah Bluff Lock, fuel, supplies, and services can be arranged for by telephone. Fuel, supplies, and services are available at Augusta.

(169) A city wharf, a Georgia State barge terminal, and an oil terminal, are at Augusta.

(170) The barge terminal has a depth of 9 feet alongside and a transit shed with 40,000 square feet of storage space. Modern freight handling equipment up to 10-ton lifting capacity is available, and the terminal is served by rail and truck connections.

(171) The traffic on the river above Savannah is mainly barges carrying petroleum products.

8. SAVANNAH RIVER TO ST. JOHNS RIVER

(1) This chapter describes the coasts of South Carolina, Georgia, and Florida from Savannah River to St. Johns River, and includes the deepwater ports of Brunswick, Ga., and Fernandina Beach, Fla. Also discussed are Wassaw, Ossabaw, St. Catherines, Sapelo, Doboy, Altamaha, St. Simons, St. Andrew, Jekyll, Cumberland, and Nassau Sounds, and their tributaries, and several of the small towns along these waterways.

(2) The Intracoastal Waterway for this section of the coast is described in chapter 12.

(3) **Weather**–The southerly latitude and maritime exposure influence the climate of this coast. Winters are mild and short. Polar air masses are moderated although unusually strong, cold air outbreaks can cause foggy conditions along the coast. Cold spells seldom last more than 2 or 3 days. The occasional winter storm results in strong winds and rough seas from October through April. Waves of 8 feet (2.4 m) or more are reported about 20 to 30 percent of the time in deep water, but gales occur less than 1 percent of the time. However, winds of 40 to 50 knots have been recorded in all of these months.

(4) From May through September peak winds offshore are usually in the 30- to 40-knot range, although they could climb higher in a severe thunderstorm or tropical cyclone. Despite the low latitude, tropical cyclones are infrequent along this coast. They are most likely from June through October and one can be expected to move through some part of Georgia each year, usually from the Gulf of Mexico. This fact holds coastal effects to a minimal. The most dangerous are those from the east through south. Because this portion of the coast lies parallel to the mean track of most recurving storms, the incidence of coastal crossing tropical cyclones is extremely low. In addition to strong winds, high tides and rough seas, these storms can trigger torrential rains, severe thunderstorms and even tornadoes or waterspouts. In general, however, summers are warm but a persistent cooling sea breeze is usually present from afternoon into the early evening. Showers and thunderstorms are common along this coast and can reduce visibilities for brief periods. Obstructions to visibilities are most likely to be caused during winter and early spring by fog. This occurs when warm air moves across the cool coastal waters that lie shoreward of the Gulf Stream. Visibilities of less than 0.5 mile (0.9 km) have been observed about 3 to 5 percent of the time from December through February in these waters.

(5) **Charts 11509, 11502, 11488.**–The coast from Savannah River to St. Johns River extends in a south-southwesterly direction for about 100 miles. Islands separated by numerous sounds and rivers constitute the entire coast. In general these islands are heavily wooded with marshy areas bordering them on their western sides. The 5-fathom curve extends about 7 miles offshore except in the vicinity of St. Simons Sound where 5 fathoms can be found as much as 12 miles offshore.

(6) Caution must be observed along this section of the coast because of the inshore sets caused by the numerous rivers and sounds.

(7) Private lighted and unlighted buoys mark several fish havens that have been established as much as 27 miles offshore along this section of the coast.

(8) This section of the coast, due to its low relief, presents no good radar targets.

(9) **COLREGS Demarcation Lines.**–The lines established for this part of the coast are described in **80.717 through 80.723**, chapter 2.

(10) **Northern Right Whales.**–The northern limit of the right whale critical habitat is just south of Altahama Sound **31°15'N** from the coast out 15 nautical miles (see **50 CFR 226.13(c)**, chapter 2). Right whales have been sighted as far north as Savannah River in the calving season generally December through March. In March and April, right whales accompanied by calves migrate northward from the critical habitat, often within 20 miles of the coast to summer feeding grounds off New England. (See Northern right whales, indexed as such, chapter 3). It is illegal to approach closer than 500 yards of any right whale. (See **50 CFR 222.32**, chapter 2 for limits, regulations, and exceptions.)

(11) **Danger areas** for air-to-air and air-to-water gunnery and bombing ranges are off the Georgia coast; see **334.490**, chapter 2, for limits and regulations. (See chart 11480.)

(12) **Chart 11512.**–From Savannah River to Wassaw Sound, a distance of about 7 miles, the coast is formed by the shores of **Tybee Island** and **Little Tybee Island** which lie in a southwesterly direction. Dangerous shoals extend from the shores of the islands for a distance of 4.5 miles.

(13) On the north side of Tybee Island, the **South Channel** of the Savannah River extends from the main channel at the east end of **Cockspur Island** to the southwest end of Elba Island where it again joins the main channel. The east entrance is marked by lights. In 1979, the east entrance had a controlling depth of 2 feet, thence in 1975, the reported controlling depth was 5 feet to the junction with the Intracoastal Waterway. In June 1983, it was reported that greater depths could be carried through the east entrance with local knowledge. In December 1991, a submerged wreck was reported 0.25 mile westward of Jones Island Range Lighted Bell Buoy 17 in about 32°02'09"N., 80°50'48"W. **McQueens Island** is west of Tybee Island along the south side of South Channel. **Fort Pulaski National Monument** includes Cockspur and McQueens Islands. **Fort Pulaski** on Cockspur Island was built during the period 1829-1847. **Tybee Coast Guard Station** is on the north side of Cockspur Island. The Intracoastal Waterway crosses the South Channel through Elba Island Cut. The highway bridge crossing the channel between Cockspur and McQueens Islands has a 36-foot fixed span with a clearance of 10 feet. A fixed highway bridge with a clearance of 35 feet crosses the channel between Elba Island and Savannah, 1.5 miles northwestward of Elba Island Cut. An overhead power cable with a clearance of 60 feet is immediately southeastward of the bridge.

(14) **Tybee Island,** a summer resort at the eastern end of Tybee Island, is conspicuous from seaward. An inside approach to the beach is made from South Channel through **Lazaretto Creek** and **Tybee Creek.** U.S. Route 80 highway fixed bridge crosses Lazaretto Creek just inside its entrance from South Channel; clearance is 35 feet. An overhead power cable with a clearance of 55 feet crosses the creek about 300 yards southward of the bridge. In 1979, the controlling depth in Lazaretto Creek was 6 feet from South Channel to about 0.2 mile south of Route 80 highway bridge; thence in June 1983, 3 feet was reported to the junction with Tybee Creek; and thence 10 feet was reported in Tybee Creek to Tybee Island.

(15) Small craft occasionally transit the Tybee Inlet entrance. Due to breakers and dangerous, shifting shoals, caution is advised when transiting the area.

(16) In December 1986, a partially submerged wreck was reported about 0.3 mile south of the bridge in about 32°00'40"N., 80°53'00"W.

(17) **Chimney Creek** extends north from Tybee Creek. A fish camp on the creek has berths with electricity, gasoline, water, ice, limited marine supplies, and a 4-ton lift. In June 1983, 2 feet was reported available in the creek, but local knowledge is advised.

(18) The remaining portions of Tybee and Little Tybee Islands are generally low and marshy, although they have many wooded hummocks with numerous creeks winding among them. Several creeks flow into the sea, but they are of little importance as their mouths are obstructed by shoals with crooked channels of 2 to 3 feet in depth.

(19) The southwest part of Little Tybee Island, separated from the main body by a stretch of marsh, is **Beach Hammock.** It is distinguishable by a large and heavily wooded hummock which marks the northern point of the entrance to Wassaw Sound.

(20) The entrance to **Wassaw Sound** is about 9.5 miles southward of Tybee Light (32°01.3'N., 80°50.8'W.). Shoals extend offshore a distance of 4 to 4.5 miles from the entrance, forming a shifting bar. In June 1983, the reported controlling depth was 10 feet through the marked bar channel. The entrance, used only by small boats, is marked by a lighted buoy and the bar channel by lighted and unlighted buoys. A private unlighted buoy marks a fish haven about 5 miles eastward of the entrance buoy.

(21) In December 1994, a sunken wreck about 1.2 miles southeast of Wassaw Sound Buoy 9 was reported in about 31°53'00.5"N., 80°52'57.4"W. At low water, the pilot house is fully exposed.

(22) **COLREGS Demarcation Lines.**–The lines established for Wassaw Sound are described in **80.717**, chapter 2.

(23) After crossing the bar at the entrance to Wassaw Sound, a channel with depths of 18 to 43 feet leads through the southern part of the sound and for 6 miles up Wilmington River to the Intracoastal Waterway. The channel is marked by lights in its southern part.

(24) **Tides and currents.**–The mean range of tide varies from about 6.9 feet in the sound to about 7.8 feet up the rivers. The tidal currents in Wassaw Sound reach velocities up to 2.2 knots. Predictions for a number of places in the sound and vicinity may be obtained from the Tidal Current Tables.

(25) **Bull River** flows into Wassaw Sound from northward. It is connected with the South Channel of the Savannah River 5 miles below the city of Savannah by St. Augustine Creek, the upper part of Wilmington River, and Elba Island Cut. The mouth of the river is obstructed by shoals. In June 1983, the reported controlling depth was 10 feet from the mouth through St. Augustine Creek to a junction with the Intracoastal Waterway. The entrance is marked by a daybeacon. U.S. Route 80 highway bridge, 5.7 miles above the mouth, has a fixed span with a clearance of 20 feet. An overhead power cable with a clearance of 55 feet crosses the river close northwestward of the bridge.

(26) **Wilmington River** flows into Wassaw Sound from northwestward. The upper end of the river from the junction with Skidaway River is part of the Intracoastal Waterway. **Turner Creek,** which connects the Wilmington and Bull Rivers, had a reported controlling depth of 3 feet in August 1980, until near its junction with **Richardson Creek** where it dries. U.S. Route 80 highway bridge over Turner Creek, 1.6 miles above the mouth, has a fixed span with a clearance of 35 feet. An overhead power cable on the northeastern side of the bridge has a clearance of 55 feet. The highway bridge 3 miles above the mouth has a clearance of 34 feet. An overhead power cable on the southwest side of the bridge has a clearance of 55 feet.

(27) From Turner Creek, Richardson Creek winds generally in a westward direction for about 4 miles to Wilmington River. Two highway bridges crossing Richardson Creek about 2.3 miles from its eastern entrance have fixed spans with a minimum width of 13 feet and a minimum clearance of 5 feet. Overhead power cables at the bridges and 0.3 mile westward have minimum clearances of 35 feet. Boatyards and marinas on the creek can handle craft to 24 feet for hull and engine repairs. Gasoline, diesel fuel, water, and ice are available at several of the marinas and piers along the creek. Berthing with electricity and wet and dry storage is available. The velocity of the tidal current at the entrance to Wilmington River varies from 1 to 2 knots. Predictions may be obtained from the Tidal Current Tables.

(28) The coast between Wassaw and Ossabaw Sounds is formed by **Wassaw Island,** which is triangular in shape and has a length of about 4.5 miles and a width of about 3.5 miles in its widest part. In general, the island is low and marshy; the strip of firm land forming the coastline is only 0.3 to 0.8 mile wide. The firm land is heavily wooded and has a broad sand beach backed by sand dunes. From this shore dangerous shoals extend to a distance of 3 to 4 miles. The marshy portion of the island is cut by numerous creeks winding among the heavily wooded hummocks. **Romerly Marsh Creek,** and **Odingsell River** separate the island from the islands to the westward.

(29) **Chart 11511.–Ossabaw Sound,** entered between the southern end of Wassaw Island on the north and **Bradley Point** (31°49.4'N., 81°02.9'W.) on the south, is a broad opening in the coast about 15 miles southwestward of Tybee Light. Most of the sound is shallow, and shifting shoals extend seaward about 4 miles. The entrance to the sound is marked by a buoy. **North Channel** and **South Channel** lead through the shoals into the sound. North Channel is marked by buoys, and South Channel is marked by buoys, a daybeacon, and a light. Small local fishing craft are the principal traffic seaward from the sound. Strangers are advised not to enter as breakers sometimes extend clear across the entrance. Vernon River, Ogeechee River, and numerous smaller rivers and creeks enter the sound.

(30) A fish haven is about 2 miles east-southeastward of Ossabaw Sound Entrance Lighted Buoy OS.

(31) **Chart 11512.–Vernon River** enters Ossabaw Sound from the northwestward. The Intracoastal Waterway traverses a portion of this river. **Burnside River, Little Ogeechee River,** and several creeks enter the Vernon River. **Montgomery,** a town on Vernon River 5 miles above the mouth, has highway connections with Savannah.

(32) **Charts 11511, 11509.–Ogeechee River** flows into the western part of Ossabaw Sound. The river drains an extensive area and is subject to flood conditions which continually change the channel. Navigation to the Seaboard System Railroad bridges, about 27 miles above the sound, is possible with local knowledge. In June 1985, the reported controlling depth was 6 feet to the first railroad bridge. This bridge has a 40-foot fixed

span with a clearance of 14 feet. The second railroad bridge, parallel to and immediately northward of the first, has a lift span with a clearance of 4 feet down and 41 feet up. (See **117.1 through 117.59 and 117.367**, chapter 2, for drawbridge regulations.) The overhead power cable close northward of the more northerly bridge has a clearance of 50 feet. There is a large pulpwood loading dock with 13 feet alongside 5 miles downriver from the railroad bridges. The dock was not in use in 1985.

(33) A dock with a reported depth of 10 feet alongside is at **Fort McAllister,** about 11 miles above the river entrance; gasoline, ice, and supplies are available.

(34) The currents in the Ogeechee River and Ossabaw Sound have considerable velocity, particularly the ebb setting out of the river. Current predictions for several locations in Ossabaw Sound and vicinity can be obtained from the Tidal Current Tables. The mean range of tide is about 7 feet, decreasing to about 1 foot at the highway bridge, 28.5 miles above the sound.

(35) **Chart 11511.**–The coastline between Ossabaw Sound and St. Catherines Sound is formed by the eastern shore of **Ossabaw Island,** which lies in a southwesterly direction and has a length of 8 miles and a width of 6 miles. The eastern half of the island is heavily wooded. The north end forms the south shore of Ossabaw Sound.

(36) The seaward side of the island appears unbroken by streams, and shows as a white sand beach backed by heavy woods. Dangerous shoals extend offshore nearly 5 miles.

(37) The southwestern point of the island borders on St. Catherines Sound and is thickly wooded. The western half is almost entirely marshy and is cut up by numerous creeks which provide access to the higher ground to the eastward. On the west the island is separated from the marshes of the mainland by Bear River and **Florida Passage.**

(38) **St. Catherines Sound** is about 22 miles southwestward of Tybee Light. The entrance is over a shifting bar which extends 5 miles offshore. The entrance lighted buoy is about 7 miles offshore. In June 1983, the reported controlling depth in the marked bar channel was 8 feet. The points on its northern and southern sides are wooded.

(39) **COLREGS Demarcation Lines.**–The lines established for St. Catherines Sound are described in **80.717**, chapter 2.

(40) There are no towns on the sound, and strangers seldom enter. Except for light-draft fishing craft, little traffic crosses St. Catherines Bar. Channels with depths of 13 to 38 feet lead from inside the bar into the entrances of its tributaries. The main body of the sound is exposed and becomes quite rough in moderately bad weather. Protected anchorage for small vessels is in **Walburg Creek** on the south side of the entrance to the sound.

(41) The mean range of tide in the sound is 7.1 feet, increasing to 7.8 feet at Belfast and 7.9 feet at **Kilkenny Club.** (See the Tide Tables.) Tidal currents have considerable velocity at the entrance and in the tributary rivers. The Tidal Current Tables should be consulted for current predictions.

(42) The Intracoastal Waterway crosses St. Catherines Sound just inside the entrance, and affords passage northward through Bear River and Florida Passage to Ossabaw Sound, and southward through North Newport River and Johnson Creek to Sapelo Sound.

(43) Three main rivers enter the sound. **Bear River** and **North Newport River,** which form a portion of the Intracoastal Waterway, flow into the sound from the northwestward and southwestward, respectively. **Medway River** enters the sound from the westward. In June 1983, there was a reported controlling depth of 10 feet to **Sunbury,** a small settlement on the western shore 7 miles above the mouth of Medway River. Water can be obtained at the wharf which serves an oyster plant and has a depth of 6 ½ feet alongside.

(44) **Ashley Creek** makes into the south side of Medway River about 3 miles above the mouth. A fish camp, about 2.7 miles above the mouth of the creek at **Yellow Bluff,** has berths with electricity, gasoline, water, a 2-ton mobile lift, and limited marine supplies. In June 1983, a reported depth of about 3 feet could be carried to the fish camp dock.

(45) **Kilkenny Creek** empties into the west side of Bear River about 3.3 miles above the mouth. A fish camp, about 1.8 miles above the mouth of the creek, has berths, gasoline, diesel fuel, water, ice, a 4-ton mobile lift, and limited marine supplies. In June 1983, a reported depth of 10 feet could be carried to the fish camp.

(46) **Belfast,** a town on **Belfast River,** is reached by way of the Medway River and Belfast River. In June 1983, the reported controlling depth in Belfast River was 4 feet to Belfast. A pile of rocks, bare about 3 feet at low water, stands in the midchannel with surrounding depths of 8 ½ feet off the bluff at Belfast.

(47) A marina, on the north side of North Newport River about 8.6 miles above the mouth at **Colonels Island,** has berths with electricity, gasoline, diesel fuel, water, ice, a 3 ½-ton mobile lift, engine repairs, and limited marine supplies. In June 1983, a reported depth of about 10 feet could be carried to the marina via **Timmons River.** A fish haven, with a minimum depth of 3 feet, is on the north side of Timmons River about 1.9 miles above its mouth; caution is advised.

(48) **Charts 11511, 11510.–St. Catherines Island,** which forms the coast from St. Catherines Sound to Sapelo Sound, lies in a nearly north and south line, and has a length of 9 miles and a width at its widest part of about 3 miles. The island is flat and much of it is marshy with the higher part heavily wooded.

(49) When viewed from a distance seaward, only dense woods in level silhouette are to be seen on St. Catherines Island. Closer inspection reveals a white sand beach, with sand dunes 20 feet high near the center of the island which show up from some directions. A prominent sand dune, 3 miles south of the north end of the island and about 1 mile north of McQueen Inlet, is reported to show well from seaward. **McQueen Inlet,** the only break in the shoreline visible from seaward, is unimportant, as it is blocked by shoals at low water. Dangerous shoals extend offshore for 5 miles.

(50) The island is separated from the marshes lying between it and the mainland by Walburg Creek, Johnson Creek, and South Newport River. The entrance to Sapelo Sound is between the south point of this island and the north point of Blackbeard Island.

(51) **Chart 11510.–Sapelo Sound** is about 33 miles southwestward of Tybee Light.

(52) **COLREGS Demarcation Lines.**–The lines established for Sapelo Sound are described in **80.717**, chapter 2.

(53) A lighted whistle buoy is 15 miles off the entrance. (See chart 11509.) About 8 miles from the entrance the break in the shore can be seen on a clear day. The tower of the abandoned lighthouse is 10 miles southwestward of the sound. Vessels

should stay in a depth of over 5 fathoms until the bar channel buoys are seen because shoals extend about 5 miles offshore.

(54) With the aid of the chart, and on a rising tide and a smooth sea, vessels should have no difficulty in entering during daylight by following the buoys. In May 1975, the reported controlling depth on the bar was 15 feet. A comparison of the surveys made since 1859 shows virtually no change in the bar except in the vicinity of the shoalest part of **Experiment Shoal,** which has moved more than 0.25 mile southward. The slough between the shoal and St. Catherines Island also has deepened and extended, and now shows up as a swash channel with a least depth of 5 feet. Another unmarked channel south of the main channel has a reported depth of 8 feet and is used by fishing boats. In October 1981, a sunken wreck was reported in the entrance to the south channel in about 31°30'00"N., 81°07'50"W.

(55) No towns of any importance are on the sound or tributaries. In northeasterly weather, anchorage can be made in the lower part of South Newport River with fair protection.

(56) The mean range of tide is 6.9 feet. (See the Tide Tables for tidal differences on Sapelo River and its tributaries.) In the entrance to the sound the velocities of flood and ebb are 2.1 and 2.5 knots, respectively. The Tidal Current Tables should be consulted for current predictions.

(57) The Intracoastal Waterway enters Sapelo Sound from the northward through South Newport River and continues southward to Doboy Sound through Sapelo River, Front River, Creighton Narrows, and Old Teakettle Creek.

(58) **South Newport River** flows into the sound from northward just inside the entrance. In June 1983, the reported controlling depth in the river was 5 feet through **Cross Tide Creek** to its junction with North Newport River, thence 5 feet down that river to the Intracoastal Waterway. **Sapelo River,** entering the sound from westward, is used only by small fishing boats, except for the lower part below **Front River** which forms a part of the Intracoastal Waterway.

(59) In 1963, a draft of 13 feet could be carried from the deeper waters of Sapelo River into the mouth of Front River, at the head of which a dredged channel through **Creighton Narrows** offers passage to Old Teakettle Creek and thence to Doboy Sound. The Intracoastal Waterway follows this route.

(60) **Mud River,** flowing into the head of Sapelo Sound from southward, is a broad shallow body of water.

(61) **Julienton River** enters Sapelo River from the northwest about 3 miles above the mouth. Shrimp boats base at **Shellman Bluff** on **Broro River,** locally known as **Shellman Creek,** which enters Julienton River about 4.5 miles above its mouth. Berths with electricity, gasoline, water, ice, two 2-ton lifts, and limited marine supplies are available. In June 1983, it was reported that with local knowledge 5 feet could be carried up Julienton River and Broro River to the shrimp dock. Other facilities are at **Continment Bluff** and **Dallas Bluff** on Julienton River, a short distance above Broro River. These include gasoline, diesel fuel, water, ice, provisions, and lodging.

(62) **Pine Harbor** is on Sapelo River about 10.5 miles above the mouth. In June 1983, the reported controlling depth was 1 foot from the junction of Sapelo River and the Intracoastal Waterway to the landing at Pine Harbor.

(63) The coastline from Sapelo Sound to Doboy Sound is formed by the shores of **Blackbeard Island** and **Sapelo Island. Blackbeard Creek,** which empties into **Cabretta Inlet.** From all directions, they appear as a single island and are described as such. Taken together they are 10 miles long in a south-southwesterly direction and 4 miles wide. Large portions of both islands are heavily wooded. These islands present no well-marked distinguishing features, except the usual sand beach backed by dense woods in level outline and the abandoned lighthouse tower near the south point of Sapelo Island. The western part of Sapelo Island consists almost entirely of broad marshes with numerous creeks. Most important of these is Duplin River, which has deep water for several miles and affords means of communication to the island. Sapelo Island is separated from the marshes lying between it and the mainland by Mud River and New Teakettle Creek.

(64) Blackbeard Island and the marshes surrounding Blackbeard Creek make up **Blackbeard Island National Wildlife Refuge.**

(65) **Grays Reef National Marine Sanctuary** (see chart 11509) has been established to protect and preserve the live bottom ecosystem and other natural resources of Grays Reef. The sanctuary comprises a 16.7-square-mile area about 18 miles east of Sapelo Island. (See **15 CFR 938,** chapter 2, for limits and regulations.)

(66) **Doboy Sound** is 45 miles southwestward of Tybee Light and 16 miles northeastward of St. Simons Light. The entrance, between Sapelo Island and Wolf Island, is about 1 mile wide and obstructed by shifting shoals extending about 4.5 miles offshore. When approaching the sound, vessels should stay in a depth of 5 fathoms or more until the entrance buoys are sighted. If there is too much sea to cross the bar, vessels are advised to enter via St. Simons Sound and the Intracoastal Waterway.

(67) A cluster of fish havens is eastward of Doboy Sound; the outermost is marked by a private unlighted buoy about 20 miles eastward of the entrance to the sound. (See chart 11509.) A sunken wreck is about 6.5 miles east of the entrance to the sound in about 31°21'24"N., 81°09'06"W.

(68) The marked channel over the bar at the entrance to Doboy Sound is not considered safe for strangers except on a rising tide and a smooth sea. The bar has been changing over the past years. In June 1983, the reported controlling depth was 5 feet. An unmarked swash channel with a least depth of 5 feet makes into the sound close under the south point of Sapelo Island. The channels are used by local shrimp boats.

(69) Doboy Sound extends northwestward about 5 miles from the bar with a width of about 0.8 mile. The mean range of tide is about 6.8 feet in the sound and about 7.3 feet at Darien. Tidal currents in the sound have a velocity of 2 knots at the entrance. Predicted currents may be obtained from the Tidal Current Tables. Good anchorage is found anywhere in the channel of the sound upstream from **Commodore Island** except in the cable area.

(70) The Intracoastal Waterway enters Doboy Sound through Old Teakettle Creek and passes southward through North River, Darien River, Rockdedundy River, and Little Mud River to Altamaha Sound.

(71) **Duplin River,** entering Doboy Sound from northward, is a small stream about 5 miles long. Submerged piling extend off the northwest side of the entrance. In June 1983, the reported midchannel controlling depth was 9 feet from the entrance to **Pumpkin Hammock,** thence 6 feet for another 2 miles. A ferry from the mainland docks on the eastern bank of the river, 0.3 mile upstream from the entrance. The dock has a depth of 15 feet alongside. An overhead power cable with a clearance of 38 feet crosses the river about 1.7 miles above the mouth.

(72) **Sapelo Island,** locally known as **Sapelo, is a town on the southerly end of Sapelo Island at the head of Lighthouse Creek.** The town is reached on high tide only. In an emergency some services and supplies can be obtained here. In June 1983, the reported depth was less than 2 feet at the creek entrance and bare halfway to the town.

(73) **Old Teakettle Creek** enters the sound from northward about 1 mile northwestward of Duplin River and forms a part of the Intracoastal Waterway. **Shellbluff Creek,** which enters Old Teakettle Creek from the westward about 0.7 mile from its northern entrance, in June 1983, had a reported controlling depth of 5 feet to the small packing plant at **Valona.** The docks are privately owned by a shrimp-boatbuilding yard with a small marine railway for hauling them out. Diesel fuel, water, and ice are available.

(74) **Atwood Creek** and **Hudson Creek** are small streams emptying into the head of Doboy Sound from the northwestward. In June 1983, the reported controlling depth in Atwood Creek was 5 feet for a distance of 2 miles, and 6 feet in Hudson Creek to the mouth of the small creek leading to a small shrimp-packing plant at **Meridian Landing,** which is about 1.5 miles by road from **Meridian. Gasoline,** diesel fuel, water, and ice are available from the plant only in an emergency. A ferry to Sapelo Island docks in Hudson Creek. In November 1981, a sunken wreck was reported in Hudson Creek about 1.4 miles above the mouth.

(75) **Carnigan River** enters the head of the sound from southwestward and is connected with North River by a branch known as **Buzzard Roost Creek. North River** enters Doboy Sound west of Doboy Island. It extends westward 6 miles to the town of **Ridgeville,** where it joins **May Hall Creek,** which, running southward, connects with Darien River 5 miles above its mouth. Overhead power cables with a minimum clearance of 51 feet cross May Hall Creek at Ridgeville and 0.5 mile above its junction with Darien River. A small-boat landing at the town has gasoline, diesel fuel, and water. **Doboy Island** is wooded and has several buildings on its southwest end. A small private landing is on the west side of the island.

(76) **Back River,** on the southern side of Doboy and Commodore Islands, forms another and little used entrance from the sound to North and Darien Rivers.

(77) **South River,** also little used, empties into Doboy Sound from southwestward about 0.8 mile inside the entrance. It extends in a general westerly direction for 3 miles, where it joins **Little Mud River,** a part of the Intracoastal Waterway.

(78) **Darien River** extends southwestward for a distance of 11.5 miles, where it joins the Altamaha River. In June 1983, the reported controlling depth was 7 feet from Doboy Sound through the Intracoastal Waterway and Darien River to the highway bridge at Darien. Care is necessary when navigating this river due to the shoals and numerous floating snags. Water is fresh in the river at Darien after the ebb has been running for about 3 hours. The best route from Doboy Sound to the Darien River is via the Intracoastal Waterway.

(79) **Darien** is 9 miles above Doboy Island on the north bank of Darien River. Fishing and pulpwood are the main industries. Some shrimp and shad fishermen base here. A good highway passes through the town from Savannah to Brunswick, 18 miles away. Gasoline, diesel fuel, ice, fresh water, and supplies are available. Two marine railways, owned by a packing company, can haul out fishing boats up to 75 feet. The reported depth of water alongside the wharves was 8 to 15 feet in June 1983. U.S. Route 17 highway bridge crossing the river at the town has a fixed span with a clearance of 31 feet. The overhead cable about 100 yards west of the bridge has a clearance of 51 feet.

(80) **Chart 11508.**–Between Doboy Sound and Altamaha Sound is **Wolf Island,** which is about 2.5 miles long in a north-south direction. The island, part of Wolf Island National Wildlife Refuge, is almost entirely marsh, cut by numerous creeks.

(81) **Altamaha Sound** is 48 miles southwestward of Tybee Light and 12 miles northeastward of St. Simons Light. The entrance and the sound are obstructed by shoals which are dangerous to navigation. A shifting channel through the shoals extends 4 miles from the entrance. It is advisable to enter Altamaha Sound via the Intracoastal Waterway. The mean range of tide in the entrance is 6.6 feet. (For current predictions, see the Tidal Current Tables.)

(82) **Altamaha River** is formed by the confluence of the **Oconee River** and **Ocmulgee River,** 110 miles above the town of Darien and 119 miles above its mouth, and flows in a general southeasterly direction, entering the western end of Altamaha Sound. The river is subject to freshets, and depths change radically.

(83) In June 1983, the reported controlling depth was 3 feet during 8 months of the year to **Milledgeville,** a city on the Oconee River 126 miles above the junction with the Altamaha River, and 3 feet to Macon, a city on the Ocmulgee River 178 miles above the junction. The depths are 2 to 12 feet less during the summer low-water period.

(84) U.S. Route 17 highway bridge over **South Altamaha River,** 2.5 miles south of Darien, has a fixed span with a clearance of 35 feet. An overhead power cable on the west side of the bridge has a clearance of 55 feet. Interstate Route 95 highway bridge crossing South Altamaha River, about 1.2 miles westward of U.S. Route 17 highway bridge, has a clearance of 35 feet. (See **117.1 through 117.59, 117.351, 117.363, and 117.365**, chapter 2, for drawbridge regulations for drawbridges crossing the Altamaha, Oconee, and Ocmulgee Rivers.)

(85) **Little Mud River** enters Altamaha Sound from northward about 2.5 miles inside the entrance. The Intracoastal Waterway passes through it. **Buttermilk Sound,** which enters Altamaha Sound from the southwestward, has an average width of 0.5 mile. At its head the sound connects with Frederica River and Mackay River; the latter connects with Back River. These three rivers enter the western end of St. Simons Sounds from northward, and Mackay River with Buttermilk Sound forms part of the Intracoastal Waterway.

(86) **Chart 11502.**–The coast between Altamaha and St. Simons Sounds is formed by the shores of **Little St. Simons Island, Sea Island,** and St. Simons Island. These islands are separated only by stretches of marsh traversed by small streams, and from seaward appear as one body of land although from certain points the marshes, alternating with patches of trees, give the land an unusually broken appearance.

(87) **St. Simons Island** is the main body of land between the two sounds, and in general description the other two islands may be considered as parts of it. The three taken together are 11 miles long and 6 miles wide at the northern end, diminishing gradually to 2.5 miles near the southern end. Immediately along the coast and in the central parts it is heavily wooded. Between the two wooded portions is a stretch of marsh from 1 to 1.5 miles wide

extending nearly the whole length of the island, and to the westward it is separated from the mainland by extensive marshes, through which flow the Frederica and Mackay Rivers, joining Altamaha and St. Simons Sounds.

(88) **Charts 11508, 11506.**–The northern portion of St. Simons Island is marshy and traversed by **Hampton River,** a sizable stream flowing in an easterly and southeasterly direction, which separates St. Simons and Little St. Simons Islands and enters the sea 5 miles below Altamaha Sound. The dangerous shoals on both sides of the channel are unmarked; strangers should not attempt entrance from seaward without local knowledge. In June 1983, the reported controlling depth was 3 feet from Buttermilk Sound to Village Creek.

(89) **Village Creek** flows into Hampton River from the southward, about 1.5 miles above its mouth. It goes through a stretch of marsh separating Sea Island and St. Simons Island. After a crooked course of several miles, it joins the **Blackbank River,** a narrow and twisting stream flowing to the southward between the two islands and entering the sea 4 miles south of Hampton River. In June 1983, the reported controlling depth was 4 feet for about 4.6 miles above the mouth, thence 1 foot to and through the cut to Blackbank River and the Sea Island Bridge. Village Creek is dry above the cut at low water. The highway bridge crossing Blackbank River to Sea Island has a 15-foot fixed span with a clearance of 7 feet; overhead cables about 200 feet south of the bridge have a clearance of 16 feet.

(90) **Charts 11506, 11502.–St. Simons Sound,** 0.8 mile wide at the entrance, is 61 miles southwestward of Tybee Light and 27 miles northward of Amelia Island Light. The sound forms a good harbor and is the approach to the city of Brunswick. The entrance is obstructed by dangerous shifting shoals, forming a bar which extends for a distance of 5.5 miles offshore.

(91) **Brunswick** is on the eastern bank of East River and Academy Creek opposite Andrews Island, 7.5 miles above St. Simons Light. It is 4.5 miles west of the Intracoastal Waterway route which connects it with ports to the north and south. The city is the second largest port of commercial importance in Georgia. It is 104 miles south of Savannah and 82 miles north of Jacksonville by coastwise routes. The principal commodities handled in the port are seafood, woodpulp, salt, gypsum rock, petroleum products, fertilizer, and chemicals. The principal industries are wood creosoting, seafood processing and manufacture of naval stores, paints, marine and stationary boilers, steel fabrication, woodpulp, and chemicals.

(92) **Brunswick Harbor** comprises the improved channel across the bar, St. Simons Sound, Brunswick River, and Turtle River.

(93) **Brunswick River** enters the sound from southwestward just inside the entrance and provides access for oceangoing vessels to the city of Brunswick. For a distance of 2.8 miles above its mouth, the river has an average width of 1.3 miles, but the deepwater channel averages only 0.3 mile in width. Above **Brunswick Point** the river has an average width of 0.7 mile to **Andrews Island,** which divides it into two branches. The southern branch is known as **Turtle River** and the northern branch, on which the city of Brunswick is situated, is known as **East River** to the mouth of **Academy Creek.**

(94) **Bridges.**–The only bridge crossing the main channel is the Sidney Lanier (U.S. Route 17) highway bridge at Brunswick, 5.4 miles above the mouth, which has a lift span with a clearance of 24 feet down and 139 feet up. (See **117.1 through 117.49,** chapter 2, for drawbridge regulations.) State Route 303 highway bridge, crossing Turtle River just above the head of the improvement, has a fixed span with a clearance of 35 feet at the center; the nearby overhead power cable clearance is 55 feet over the main channel. The twin fixed spans of Interstate 95 highway bridge, 0.6 mile upstream, have a clearance of 35 feet. There is little river traffic above these bridges.

(95) **Prominent features.–St. Simons Light** (31°08.0'N., 81°23.6'W.), 104 feet above the water, is shown from a white conical tower attached to a brick dwelling on the north side of the entrance to the sound. **St. Simons Island Coast Guard Station** is 1.2 miles northeastward of the light. The abandoned lighthouse on the north end of Little Cumberland Island, at the entrance to St. Andrew Sound, and the five tanks on Jekyll Island can be seen to the southward. Near the beach eastward and northeastward of St. Simons Light are many homes and summer residences extending to the vicinity of Hampton River. The three water tanks on St. Simons Island about 0.4 mile and 3.5 miles north of the light, the towers of the lift bridge crossing Brunswick River, and the tall stacks of the Hercules Powder Company in Brunswick, and the pulpmill complex in northwestern Brunswick are prominent.

(96) **COLREGS Demarcation Lines.**–The lines established for St. Simons Sound are described in **80.720**, chapter 2.

(97) **Brunswick Harbor Navigational Guidelines.**– The Brunswick Bar Pilots, with the concurrence of various maritime interests, have established voluntary navigational safety guidelines for the Port of Brunswick. These guidelines are intended to minimize the risk of collision or grounding by vessels using the various waterways associated with the Port of Brunswick. They are not intended to supersede or contravene any law, regulation, or rule promulgated by competent authority.

(98) **(1) Transiting the Sidney Lanier (U.S. Route 17) Bridge:** Vessels over 500 gross registered tons (GRT) departing the Port of Brunswick must abide by the regulations provided for by the **regulated navigation area** established for this area. (See **165.1 through 165.33 and 165.735** in chapter 2.) In addition, the advice and recommendations of the Brunswick Bar Pilots should be followed by mariners intending to transit the Sidney Lanier Bridge, regardless of whether they are affected by these regulations or not. Specifically:

(99) (a) Mariners required by regulations or advised by the pilots to have their vessels shaped up for a transit of the Sidney Lanier Bridge before reaching Turtle River Lighted Buoy 1, should head upstream and shape up their vessel in the turning basin on the Turtle River, about 1.5 miles upstream from the confluence of the Turtle and East Rivers;

(100) (b) Mariners should exercise extreme caution in making a right turn into the Turtle River from the East River because of shoaling reported on Brandy Point;

(101) (c) Certain large vessels departing the East River, regardless of tidal stage, may require the assistance of one or more tugs in shaping up for a transit of the Sidney Lanier Bridge. All mariners should comply with the recommendations of the pilots in this regard.

(102) **(2) Transiting St. Simons Sound and the Intracoastal Waterway (IW):** The convergence of the deep draft ship channel of St. Simons Sound and the IW can pose significant hazards to oceangoing ships and tug and tows transiting these waterways.

To preclude unplanned encounters between vessels in these waterways, it is recommended that every transiting vessel initiate a SECURITE call on VHF-FM channel 13 at the following locations:

(103) (a) Inbound–upon passing the St. Simons Lighted Whistle Buoy STS;

(104) (b) Upon departing any dock in the Port of Brunswick;

(105) (c) Northbound on the IW - upon passing Jekyll Creek Light 19:

(106) (d) Southbound on the IW - upon transiting the fixed bridge over the Mackay River at Lanier Island (IW statue mile 674.5). The context of the SECURITE call should include: The identity of the vessel, its destination, expected ETA to the aforementioned converging waterways, and any special information concerning its maneuverability.

(107) (3) **Docking or undocking vessels at Colonels Island:** The Georgia Ports Authority facility on Colonels Island is a major terminal for automobile importation. This terminal has two berths, each parallel to the south bank of the South Brunswick River and is accessed from the Turtle River via a 0.9 mile channel approximately 400 feet in width. Vehicle carriers calling at this facility are brought up the full length of the channel stern first with tug assistance. Docking and undocking from either berth should not be attempted whenever the wind is from the northeast at 25 knots or greater.

(108) (4) **Meeting and passing on narrow waterways:** Ocean-going vessels over 400 feet LOA or drawing more than 20 feet and tug and tows with a combined tonnage of over 500 GRT should not meet or pass vessels of like size on the following narrow waterways in the Port of Brunswick area.

(109) (a) Cedar Hammock Range

(110) (b) Turtle River Lower Range

(111) (c) Colonels Island Terminal Access Channel

(112) (d) The St. Simons Outer Bar

(113) **Channels.**–A Federal project provides for a channel 32 feet deep through the bar, thence 30 feet deep in Brunswick River and East River to the foot of Second Avenue, thence 27 feet to Academy Creek, and thence 24 feet in Academy Creek to the dam 0.6 mile above the mouth; and 30 feet deep in Turtle River to the LCP Chemicals-Georgia Wharf. (See Notice to Mariners and latest editions of the charts for controlling depths.)

(114) Lighted whistle buoys are about 14.5 and 7.5 miles off the entrance to St. Simons Sound. The channel through the bar is marked by **303° directional lights, a 285°** lighted range, and lighted and unlighted buoys, and the channels inside the sound are marked with lighted ranges, lights, and lighted and unlighted buoys.

(115) **Dangers.**–An unmarked wreck, reported covered 24 feet, is in 31°03'10"N., 81°13'45"W., about 1.4 miles eastward of the entrance to the bar channel. Fish havens, marked by private unlighted buoys, are 3 miles northeastward and 16 miles east-southeastward, respectively, of the entrance to the bar channel. Shoal areas and spoil areas are in the approaches from the outer lighted whistle buoy to the midchannel lighted whistle buoy at the entrance to the bar channel. These should be avoided in heavy weather.

(116) A rock ledge, about 600 to 800 feet long and covered 20 feet, is parallel to the south side of Cedar Hammock Range in about 31°06'27"N., 81°25'53"W.

(117) A **regulated navigation area** has been established in the southern part of Brunswick Harbor. (See **165.1 through 165.13 and 165.735,** chapter 2, for limits and regulations.)

(118) **Anchorages.**–There is good anchorage anywhere along the sides of the channel off the range lines in St. Simons Sound or Brunswick River. Depths of 22 to 79 feet may be found in the sound between Jekyll Island and St. Simons Islands, and depths of 17 to 30 feet in the Brunswick River directly westward of Jekyll Island. In the area westward of the Brunswick Harbor Range, across the channel from Brunswick, anchorage is only for small craft.

(119) **Tides and currents.**–The mean range of tide is about 6.5 feet on the bar and 7.2 feet at Brunswick. Tidal currents normally follow the general direction of the dredged channel across the bar with a velocity of 2 knots. During northeasterly weather there is a strong southerly set across the bar channel and in southeasterly weather a strong northerly set. Current predictions for a number of locations in the vicinity of St. Simons Sound may be obtained from the Tidal Current Tables.

(120) **Weather, Brunswick and vicinity.** –The effect of the Atlantic on Brunswick is reflected in warmer winter-minimum and cooler summer-maximum temperatures than inland locations. There is even a slight, but noticeable, difference between the immediate coast and the city. On St. Simons Island temperatures are a few degrees cooler than in Brunswick, particularly in summer. This results in more 90°F (32.2°C) days in the city, but this average, of 78 days, is still a 15- to 20-day improvement over cities farther inland. However, St. Simons records about 16 days each year where minimums drop to freezing or below, compared to about 11 days in the city. The average high temperature in Brunswick is 76°F (24.4°C) and the average low is 59°F (15°C). July is the warmest month with an average high of 90°F (32.2°C) and an average low of 75°F (23.9°C). January is the coldest month with an average high of 61°F (16.1°C) and an average low of 43°F (6.1°C). Each month, May through August has record temperatures at or above 100°F (37.8°C) and the all-time extreme maximum is 103°F (39.4°C) recorded in June 1985 and July 1980. Each month, November through March has recorded temperatures below freezing and the recorded minimum is 6°F (-14.4°C) recorded in January 1985.

(121) Rainfall differences between coastal and land sites are less noticeable than temperature differences and approximately 50 inches (1270 mm) is recorded annually at Brunswick. Nearly half the annual precipitation occurs as showers and thunderstorms on about 8 to 10 days per month from June through September. September is the wettest month averaging 7.3 inches (185.4 mm) of rainfall while November is the driest averaging less than 2.5 inches (63.5 mm). Snowfall is almost nonexistent but has been recorded in each month, December through March. Four inches (101.6 mm) fell in December 1989. Fog is common from November through March. On the coast, visibilities drop below 0.5 mile (0.9 km) on 2 to 4 days per month. This type of fog is most frequent in the early morning hours and usually lifts by late afternoon. Any large drop in temperature may bring fog.

(122) Since 1842, 69 tropical storms have come within 50 miles (93 km) of Brunswick, Georgia, 22 of these storms since 1950. No major hurricane has made a direct hit at Brunswick, but numerous weaker storms have made their presence known. The distribution of direction is rather uniform. Nearly as many storms have made initial landfall in the northeastern Gulf of Mexico and

crossed northern Florida before affecting the Brunswick area as those that approach the city from the south or southeast.

(123) **Northern Right Whales.**–Approaches to the entrance to Brunswick Harbor lie within designated critical habitat for endangered northern right whales (See **50 CFR 226.13(c)**, chapter 2). The area is a calving grounds from generally December through March. It is illegal to approach right whales closer than 500 yards. (See **50 CFR 222.32**, chapter 2 for limits, regulations, and exceptions.) Special precautions may be needed to protect and avoid these animals. (See Northern right whales, indexed as such, chapter 3.)

(124) **Pilotage, Brunswick.**–Pilotage is compulsory for all foreign vessels and U.S. vessels over 200 gross tons. Pilotage is optional for U.S. vessels in coastwise trade which have on board a pilot licensed by the Federal Government.

(125) The area is served by Brunswick Bar Pilots Association, at 411 Arnold Road, St. Simons Island, Georgia 31522; telephone 912-638-2380 (24 hours), fax 912-638-4503. The office monitors VHF-FM channels 11, 12, and 16. The Brunswick Coast Guard Station on VHF-FM channel 16 will relay messages; telephone, 912-267-7999.

(126) The pilot boats are stationed in Frederica River just below the causeway bridge. The pilot boats monitor VHF-FM channels 11, 12, 13, and 16, and work channels 11, 12, and 13. The pilot boats are GRAYFEN, 42 feet long, gray hull, white superstructure, and the word PILOT on the hull, and SALTY DOG, 31 feet long with a yellow hull; both boats display the standard day and night pilot signals. The pilot boarding and cruising area is near St. Simons Lighted Whistle Buoy STS (31°03.2'N., 81°15.1'W.): the buoy is equipped with a racon. Pilots board 24 hours a day from the pilot boats. Some delays may be incurred because of fog. Sailings may be delayed during ebb tides when departing East River. Vessels drawing in excess of 27 feet may need to wait for favorable tides. Contact the pilot office for specific sailing times. Incoming vessels are requested to rig the pilot ladder 1 meter above the water, and cruise at a speed of about 5 to 9 knots.

(127) Pilotage should be arranged in advance, normally, through ships' agents; a 2-hour minimum ETA is requested.

(128) The Brunswick Bar Pilots Association participates in the northern right whale Early Warning System. (See Northern right whales, indexed as such, chapter 3.)

(129) **Towage.**–Tugs up to 4,000 hp are available on a 24-hour basis; tugs are required for docking and undocking oceangoing vessels. Arrangements for tugs are made in advance through ships' agents.

(130) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(131) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) Brunswick has a city hospital.

(132) Brunswick is a **customs port of entry.**

(133) **Harbor regulations** are under the control of the Brunswick Port Authority and the Georgia Ports Authority and are enforced by the **harbormaster,** who can be contacted through the port authorities' offices or by telephone (912-265-2624). The harbormaster boards all vessels on arrival at their berths.

(134) **Wharves.**–Only the major deepwater port facilities at Brunswick are described. These include the facilities along the southwest side of the city which are owned and operated by the Brunswick Port Authority and the Georgia Ports Authority, and one privately operated facility on the east side of Turtle River above Brunswick. These facilities have rail and highway connections, and water and electrical shore power connections. Cargo is generally handled by ship's tackle; special handling equipment, if available, is mentioned in the description of the particular facility. The alongside depths given for each facility described are reported depths. (For information on the latest depths, contact the operator.) The remainder of the facilities along the Brunswick waterfront and on the east side of Turtle River are used for servicing commercial fishing vessels and small craft, and for handling seafood and barge traffic; these are not described. For a complete description of the port facilities at Brunswick, refer to Port Series No. 14, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

(135) **East side of East River:**

(136) **Brunswick Port Authority Lanier Dock** (31°07'44"N., 81°29'32"W.): the southerly 500-foot section of a 2,140-foot marginal wharf; 50-foot apron; 30 feet alongside; deck height, 13 feet; unloading tower, equipped with 6-cubic-yard grab bucket and with an unloading rate of 500 tons per hour, straddles railroad tracks on wharf; tower can load railroad hopper cars or trucks directly, or can be used with 40-ton capacity hopper which connects with conveyor belt system extending to open and covered storage areas in the rear; open storage for 75,000 tons of gypsum rock; covered storage for 26,000 tons of potash and 20,000 tons of perlite; oil pipeline extends to tanks with 310,000-barrel capacity; receipt of gypsum rock, salt, potash, perlite, and various dry bulk commodities; owned and operated by Georgia Port Authority.

(137) **Georgia Ports Authority Brunswick Terminal (Berths 1, 2, and 3):** joining Brunswick Port Authority Lanier Dock to the northward; 1,640 feet of berthing space with 52-foot apron; 30 feet alongside; deck height, 13 feet; two transit sheds, total 132,000 square feet storage area; 19 acres of open storage; 27-ton gantry crane; bulk unloader with 8-cubic-yard bucket with an unloading rate of 750 tons per hour; receipt and shipment of general cargo; receipt of dry bulk materials and shipment of naval stores; owned by Georgia Ports Authority and operated by Georgia Ports Authority and Marine Ports Terminals, Inc.

(138) **East side of Turtle River:**

(139) **LCP Chemicals-Georgia Wharf** (31°10'42"N., 81°31'24"W.): offshore wharf with 347-foot face and 30-foot apron, 647 feet usable space with dolphins; 30 feet alongside; deck height, 12 feet; two traveling hoppers on wharf serve belt conveyor system extending to open salt storage area in rear with 28,000-ton capacity; pipeline extends from wharf to storage tanks in rear with 2,400-ton capacity; receipt of salt and shipment of general cargo; owned and operated by Linden Chemicals and Plastics, Inc.

(140) **Supplies.**–Provisions and some marine supplies are available at Brunswick. Oceangoing vessels can obtain Bunker C oil by barge, and diesel oil by truck. Gasoline and diesel fuel are available to commercial fishing vessels and recreational craft.

(141) **Repairs.**–There are no drydocking or major repair facilities for oceangoing vessels in the port; the nearest such facilities are at Jacksonville, Fla., or Savannah, Ga. Machine, welding, and electrical shops off the waterfront can make limited above-the-waterline repairs. Two marine railways, about 0.55 mile northward of the Brunswick Port Authority Lanier Dock, can handle vessels to 100 tons or 75 feet for repairs to wooden hulls and other minor repairs.

(142) There are no special facilities at the port for use in wrecking or salvage operations. Such equipment can be obtained from Savannah or Jacksonville.

(143) **Communications.**–The port is served by the Seaboard System Railroad, the Southern Railway, several bus and truck lines, and by U.S. Highway Routes 17, 25, and 84. A commercial airline serves the airport on St. Simons Island, about 6 miles east of Brunswick.

(144) **Small-craft facilities.**–Berthage with electricity, gasoline, diesel fuel, water, ice, and some marine supplies are available at Brunswick. Facilities along the Intracoastal Waterway, eastward of the city, are described in chapter 12.

(145) **St. Simons Island** and **St. Simons** are summer resort towns on the southeast and south sides of St. Simons Island, respectively. The concrete T-head fishing pier at St. Simons had reported depths of 14 to 21 feet alongside in May 1983.

(146) **Frederica River** joins St. Simons Sound from the northward about 1 mile inside the entrance. Above its junction with Mackay River at the north end of Lanier Island, Frederica River extends northeastward for about 7 miles and rejoins Mackay River. This section is an alternate route of the Intracoastal Waterway. In 1983, the reported controlling depth was 7 feet from Lanier Island to the northerly junction with Mackay River.

(147) The fixed highway bridge crossing Frederica River from St. Simons Island to Lanier Island has a clearance of 9 feet. A strong east-to-west ebb current sets across the channel.

(148) During flood tide, the current flows northward in the direction of the channel and is very strong. Vessels should exercise great caution while passing through this bridge, especially with a light tow proceeding south. When proceeding with the tide, tows should stop at the dolphins to await favorable current or be broken up and taken through singly.

(149) On **Lanier Island,** just south of the highway bridge, there is a boatyard with a 420-foot pier with reported depths of 20 feet alongside. The yard has berthage with electricity, gasoline, diesel fuel, water, and ice. Electronic and engine repairs can be made.

(150) A **special anchorage** is close southwest of the highway bridge. (See **110.72b**, chapter 2, for limits and regulations.)

(151) **Mackay River,** which enters the sound from northward, is crossed about 1.5 miles above the mouth, at Lanier Island, by a fixed highway bridge with a clearance of 65 feet. The overhead power cables near the bridge have a least clearance of 97 feet. Mackay River joins Frederica River at the north end of Lanier Island; the rivers then join St. Simons Sound close southward of the island. Mackay River is part of the Intracoastal Waterway.

(152) **Little River** is west of Mackay River and flows into Back River. A highway bridge about 0.7 mile above the mouth has a 30-foot fixed span with a clearance of 6 feet. An overhead power cable immediately south of the bridge has a clearance of 33 feet.

(153) **Back River,** an alternate route of the Intracoastal Waterway, enters St. Simons Sound from northward. In July 1998, the channel in Back River had a midchannel controlling depth of 3 feet to its junction with Mackay River. The fixed highway bridge about 1.5 miles above the mouth has a clearance of 40 feet. Above the bridge the channel to the head of the improvement is marked by daybeacons.

(154) **Terry Creek** flows into Back River 0.5 mile above the highway bridge and leads westward 1.5 miles to the city of Brunswick and to a yacht club basin on the east side of the city. The channel through Terry Creek has been dredged for a distance of about 1.1 miles from Back River, at which point it junctions with a dredged section that leads northwestward into **Dupree Creek** for about 0.35 mile. In 1995,Terry Creek had a midchannel controlling depth of about 3 feet, thence depths of less than 1 foot were in Dupree Creek. About 1.3 miles above the mouth, Terry Creek is crossed by a highway bridge with 30-foot fixed span and a clearance of 6 feet. The overhead power cable close southward of the bridge has a clearance of 26 feet. The yacht club basin is within the city limits of Brunswick and offers good protection from storms; it has 450 feet of dock space and a float with 10 feet alongside. Gasoline, ice, and water are available; provisions and diesel fuel may be delivered from the city.

(155) The basin has a small-boat launching ramp and a 2-ton lift.

(156) **Plantation Creek**and **Clubbs Creek** offer a protected short cut between Back River and Brunswick River, and can be used safely by small craft on a rising tide. In July 1998, the midchannel controlling depth was 2½ feet in Plantation Creek, and in May 1983, 8 feet was reported in Clubbs Creek.

(157) **South Brunswick River** enters Turtle River from westward opposite Andrews Island. The I-95 highway bridge, 2.8 miles above the mouth, has twin spans with a clearance of 15 feet. State Route 303 highway bridge, 3 miles above the mouth, has a 36-foot fixed span with a clearance of 15 feet. Overhead power cables on the east and west sides of the latter bridge have a least clearance of 30 feet.

(158) **Fancy Bluff Creek,** a tug and barge route from Little Satilla River, enters South Brunswick River from the southwest 1.3 miles above the mouth. U.S. Routes 17 and 84 highway bridge, about 2.3 miles from the north entrance, has a fixed span with a clearance of 18 feet. The overhead power cable close southwest of the bridge has a clearance of 44 feet. A railroad bridge with a 20-foot fixed span and a 10-foot clearance is about 0.2 mile northward of the highway bridge. The reported controlling depth through the creek to Little Satilla River was 4 feet in May 1983.

(159) **Cedar Creek** enters Brunswick River from the south, about 1.2 miles from Brunswick Point. State Route 50 highway bridge, 1 mile above the entrance, has a 30-foot fixed span with a clearance of 10 feet. An overhead power cable immediately west of the bridge has a clearance of 35 feet. The reported controlling depth was 3 feet in May 1983.

(160) **Jekyll Creek** enters Brunswick River from southward about 2.5 miles above its mouth. With Jekyll and St. Andrew Sounds, it forms part of the Intracoastal Waterway to Fernandina Beach. (See chapter 12.)

(161) **Chart 11504.**–From St. Simons Island to St. Andrew Sound the coast is formed by the shores of Jekyll Island which extends nearly north and south for a distance of 6.5 miles and has a width of 2 miles. **Jekyll Island** is a State Park; several large park buildings, formerly private homes, are on the west side of the island, and on the east side are large motels and recreational buildings, bath houses, and the large prominent Aquarama (a large indoor swimming pool and auditorium). The island is wooded all along its eastern shore, and dark woods which are quite level in silhouette stand out in the background. Several fishhavens are within 13 miles eastward and southeastward of Jekyll Island. Shoals extend 3 to 5 miles offshore. Three conspicuous gold spherical water tanks on top of slender green standpipes are about 2.2, 3.1, and 4.6 miles from the north end of the island.

The towers of the lift bridge over the Intracoastal Waterway on the west side of the island can be seen offshore.

(162) The western portion of Jekyll Island at the north and south ends is marshy, bordered by Brunswick River, Jekyll Creek, and Jekyll Sound. A marina on the Intracoastal Waterway on the west side of the island is described in chapter 12.

(163) **St. Andrew Sound,** between Jekyll Island and Little Cumberland Island, is about 7 miles southward of St. Simons Sound and 17 miles northward of St. Marys Entrance.

(164) **COLREGS Demarcation Lines.**–The lines established for St. Andrew Sound are described in **80.720**, chapter 2.

(165) The entrance to the sound is over a shifting bar which extends about 5 miles offshore. Vessels should stay in 5 fathoms or more until the outer buoy is sighted. The channel into the sound is marked by buoys. Vessels with a draft of about 10 feet should have little difficulty entering the sound. In May 1983, the reported controlling depth was 12 feet in the buoyed entrance channel. The entrance is used only by local shrimp boats. An abandoned lighthouse is on the north end of Little Cumberland Island.

(166) In April 1985, a sunken wreck was reported about 1.9 miles eastward of the abandoned lighthouse in about 30°58'32"N., 81°22'37"W.

(167) In the sound are extensive shoals, between which channels lead to the principal tributaries: Jekyll Sound on the north, Satilla River on the west, and Cumberland River on the south.

(168) **Tides and currents**–The mean range of tide is 6.6 feet. The current velocity is about 2 knots in the entrance; predictions are given in the Tidal Current Tables.

(169) The best anchorage in the sound is in the channel on the western side of Little Cumberland Island. The anchorage has depths of 17 to 27 feet with good holding ground. Good anchorage is also found in the entrance of Jekyll Point.

(170) The Intracoastal Waterway, which crosses the sound, enters from the northward through Jekyll Creek and Jekyll Sound and passes southward through Cumberland River to Cumberland Sound and into Amelia River.

(171) **Jekyll Sound,** which enters St. Andrew Sound from northward just inside the entrance, has many shoals. Three channels lead to its three principal tributaries.

(172) Good anchorage is found in the entrance to Jekyll Sound westward of Jekyll Point. **Jekyll Creek** enters the sound from northward, forming a part of the Intracoastal Waterway. Its northern part connects with Brunswick River. **Jointer Creek** (see also chart 11506) enters Jekyll Sound from northwestward. It is crooked and has several narrow branches, all of which except Cedar Creek are blocked by the Jekyll Island Highway. A small boat can navigate from Brunswick River to Jekyll Sound by way of Cedar and Jointer Creeks, or through Turtle River, South Brunswick River, Fancy Bluff Creek, and Little Satilla River.

(173) **Little Satilla River** (see also chart 11506) enters Jekyll Sound from westward. In May 1983, it was reported that with local knowledge about 10 feet could be taken from the entrance to Fancy Bluff Creek. Small craft going to landings on the river enter from South Brunswick River through Fancy Bluff Creek.

(174) **Satilla River** enters St. Andrew Sound from the westward through a narrow channel in the shoals. In 1963 and May 1975, shoaling to 1 foot was reported to exist just below the bend 9 miles above the entrance. Shrimp boats going to **Woodbine,** 22 miles above the mouth, use Bailey Cut, which was reported to have a controlling depth of about 4 feet, in May 1983, at its eastern entrance. The river is crossed by twin fixed highway bridges with clearances of 44 feet about 19.2 milesabove the mouth. U.S. Route 17 highway bridge at Woodbine has a fixed span with a clearance of 43 feet. The Seaboard System Railroad (SCL) bridge adjacent to the westward has a swing span with a clearance of 5 feet. (See **117.1 through 117.59 and 117.369**, chapter 2, for drawbridge regulations.) Overhead power cables are 0.8 mile and 0.5 mile east of the bridges. The easternmost cable has a clearance of 57 feet, and clearance for the other cable is not known. The overhead power cable between the bridges has a clearance of 61 feet. Traffic in the area consists mainly of sand tows and shrimp fishermen. A boatyard and shrimp dock on the south bank about 0.4 mile east of the highway bridge has a marine railway that can haul out craft up to 70 feet. There is 8 to 10 feet of water at the 90-foot T-head pier. Diesel fuel and freshwater are on the dock, and gasoline can be obtained by truck. Hull and engine repairs can be made in an emergency. Food, lodging, and marine supplies can be obtained in the town. The water is brackish at Woodbine with no worms and fresh above Burnt Fort. In 1963, the controlling depth was about 6 feet from Woodbine to **Burnt Fort,** 45 miles above the mouth of the river. State Route 252 highway bridge at Burnt Fort has a fixed span with a clearance of 16 feet.

(175) The mean range of tide is 6.7 feet about 5 miles above the mouth and 3.2 feet at Burnt Fort. The freshet variation at **Waycross,** 142 miles above the mouth, is about 12 feet. There is reported to be no appreciable rise at Woodbine during freshets.

(176) **Cumberland River** enters St. Andrew Sound from southward just inside Little Cumberland Island. Its general direction is southerly for a distance of 11 miles, where it joins Cumberland Sound. The Intracoastal Waterway follows this route, which is well marked by ranges in the more difficult sections.

(177) **Brickhill River** branches from Cumberland River about 5 miles above the mouth and rejoins it at **Cumberland Dividings. Floyd Creek** enters Cumberland River from westward about 4.5 miles above the north end of Little Cumberland Island, and joins with Satilla River through a cut to form an alternate passage to the Intracoastal Waterway.

(178) **Crooked River** enters Cumberland River from the westward about 10.6 miles above the mouth. A State park boat landing is at **Elliotts Bluff,** 4.3 miles above the mouth. Local fishing boats tie up at the private piers just above the park. In May 1983, the reported controlling depth was 4 feet to the boat landing.

(179) **Chart 11502.**–Between St. Andrew Sound and St. Marys Entrance, the coastline, extending in a southerly direction for about 16 miles, is formed by the shores of Little Cumberland and Cumberland Islands. These two islands are separated only by a stretch of marsh and **Christmas Creek,** and appear as one island from seaward. The coastline shows a broad white sand beach backed by an almost continuous range of sand dunes with dense woods backing them.

(180) The north end of **Little Cumberland Island,** heavily wooded, has a prominent buff colored bluff and is marked by an abandoned lighthouse.

(181) **Cumberland Island** is almost entirely covered by woods, though somewhat marshy to the westward. The island is separated from the mainland by extensive marshes through which flow the Cumberland and Brickhill Rivers. The extreme southern point of the island, which forms the north side of the entrance to Cumberland Sound, has several conspicuous sand dunes.

(182) From the north end for about 9 miles from the entrance to St. Andrew Sound, the coast is bordered by dangerous shoals extending 3 to 5 miles offshore. For the remaining distance to St. Marys Entrance there is a depth of 3 fathoms to within 1 mile of the beach.

(183) **Chart 11503.–St. Marys Entrance** and **Cumberland Sound** are 16 miles southward of St. Andrew Sound and 19 miles northward of St. Johns River. The sound is the approach to the city of Fernandina Beach, the city of St. Marys, the Naval submarine support base in Kings Bay, and an inland passage to St. Andrew Sound through its connection with the Cumberland River.

(184) **Fernandina Beach,** the principal city on Cumberland Sound, is on the east bank of Amelia River, 2 miles south of the entrance. It is the shipping port for woodpulp and paper products. Some coastwise and foreign shipping serve the port. A large shrimp boat fleet operates out of Fernandina Beach.

(185) **Prominent features.–Amelia Island Light** (30°40.4'N., 81°26.5'W.), 107 feet above the water, is shown from a 64-foot white conical tower 2 miles southward of the entrance to Cumberland Sound. It is reported that the light is difficult to distinguish above the surrounding tree line during the daytime. Also prominent from seaward are the homes along the beach 2 to 3 miles south of the entrance, the condominiums about 5 miles south of the entrance, and a 295-foot-high processing tower southward of the entrance, about 0.9 mile 309° from Amelia Island Light. The tower is marked at night by flashing red lights. A lighted 1,500-foot fishing pier at the inner end of the south jetty is also prominent. The smoke from the stacks of the paper companies at Fernandina Beach and St. Marys make them easily visible from all directions.

(186) **Fort Clinch,** on the south side of the entrance at the north end of Amelia Island, is a State Park, museum, and recreation area. The old fort and a large red brick building near the inshore end of the south jetty are conspicuous. Camping facilities and a small-craft launching ramp are at the northwest end of the island on the east side of the channel to Fernandina Harbor.

(187) **COLREGS Demarcation Lines.**–The lines established for St. Marys River are described in **80.720**, chapter 2.

(188) **Channels.**–A federal project provides for a depth of 46 feet in the entrance channel, thence 42 feet northward through Cumberland Sound to two turning basins of the same depth in Kings Bay about 9.0 and 10.0 miles, respectively, above the outer ends of the jetties. Turning basins are located on the north and south sides of the entrance channel, about 1.7 miles above the jetties, and have project depths of 42 feet. A channel leads from inside the bar southward in **Amelia River** with a project depth of 36 feet to a turning basin; thence 35 feet through the turning basin; thence 28 feet to a turning basin off Rayonier Wharf, about 5.8 miles above the jetties. In 1992, the project above Seaboard Reach was reported to be no longer maintained. (See Notice to Mariners and the latest editions of the charts for controlling depths.)

(189) The entrance to Cumberland Sound is between two stone jetties. The jetties are reported to be in very poor condition with both almost entirely submerged at mean high water. The north jetty is marked off its outer end by a lighted buoy and the south jetty is marked off its outer end by an unlighted buoy. Both jetties are marked on their outer sides by unlighted buoys, and on the inner sides by daybeacons. Each unlighted buoy is a white can with orange bands near the top and waterline and the word "Jetty" in an orange diamond. The diamond-shaped white daybeacons have the words "Danger Submerged Jetty." Mariners are advised to exercise caution in this area, as the jetties are a menace to navigation when visibility is limited. Currents are strong off the ends of the jetties. The natural channel between the jetties is subject to frequent change. The currents scour out the channel during spring tides, but the shoals build up again during neap tides.

(190) St. Marys Approach Lighted Buoy STM (30°40.8'N., 81°11.7'W.) is 10.9 miles eastward of St. Marys Entrance. The channel through the bar and the channels inside the sound are marked with lighted ranges, lights, and lighted buoys.

(191) Fishing vessels going northward out of the sound use the natural channel off the end of the north jetty marked by a buoy. Strangers are warned against using it as there is danger of being set into the end of the jetty. In April 1981, a sunken wreck was reported southeast of the outer end of the north jetty in about 30°42.9'N., 81°24.1'W.

(192) **Anchorages.**–Vessels anchor outside St. Marys Entrance about 1 mile northward of the approach range in about 5 to 9 fathoms, sand and mud bottom with good holding ground. Inside the entrance fair anchorage is along the sides of the channels in Cumberland Sound and in the Amelia River according to draft.

(193) **Tides and currents.**–The mean range of tide is 5.8 feet at the entrance and 6 feet at Fernandina Beach. The tidal currents at the entrance have considerable velocity and are dangerous at times, especially on the flood which generally sets northwestward and on the ebb which sets southeastward except during northeast winds when there is a strong southerly set off the end of the jetties on both tides. It has been reported that this set sometimes attains a velocity exceeding 5 knots. Maximum current velocities are reported to be 2.0 to 3.9 knots in St. Marys Entrance and 1.0 to 2.5 knots in the Cumberland Sound channel. Large vessels are cautioned not to enter the entrance channel before the pilot boards. Freshets in the St. Marys River may cause the ebb to run 7 or 8 hours. Current predictions for Cumberland Sound vicinity may be obtained from the Tidal Current Tables.

(194) **Weather, Cumberland Sound and vicinity.**–The climate features short, mild winters and warm, humid summers with fog likely on cool, clear winter mornings. About 50 inches (1270 mm) of rain falls on some 70 days annually. Much of the precipitation occurs in showers or thunderstorms from June through September. Temperatures climb above 90°F (32.2°C) on about 55 days and drop to 32°F (0°C) or below on just 10 days, on the average. By far the biggest threat to this pleasant climate are hurricanes, which are most likely, from June through November. While the area is vulnerable to this threat, direct landfalling hurricanes are rare, and those that pass offshore cause relatively minor damage.

(195) The most dangerous tropical cyclones are those that cross the coast from the east through southeast and those that approach from the south through southwest. During hurricane Dora (September 1964) winds of 85 knots or more extended from St. Augustine to Fernandina Beach. Unusually high tides were generated by prolonged onshore winds. The Amelia River tide gauge recorded readings to 10 feet (3 m) above normal. From experience it can be suggested that, when winds reach 50 knots or more and tides surge to 8 to 10 feet (2 to 3 m) above normal at the Amelia River gauge, there is a likelihood of sudden shoaling in the St. Marys River entrance. A severe threat to shipping should be anticipated when a hurricane is expected to make landfall within 90 miles (167 km) south, or 30 miles (56 km) north, or

when a severe tropical storm (50-63 knots) is expected to make landfall within 60 miles (111 km) south, or 20 miles (37 km) north of the St. Marys River entrance. If adequate shelter is not available at Fernandina Beach, it is suggested that shelter be looked for in the reaches of principal rivers that are protected from the south and east by wooded high bluffs. For example, shelter can be found at Mush Bluff on Crooked River and behind the bluffs 4 miles (7 km) above St. Marys River. For more detailed information see the **Hurricane Haven Handbook for the North Atlantic Ocean** as mentioned in chapter 3.

(196) **Northern Right Whales.**–Approaches to the St. Mary's River entrance lie within designated critical habitat for endangered northern right whales (see **50 CFR 226.13(c)**, chapter 2.) The area is a calving grounds from, generally December through March. It is illegal to approach right whales closer than 500 yards. (See **50 CFR 222.32**, chapter 2 for limits, regulations, and exceptions.) Special precautions may be needed to protect and avoid these animals. (See Northern right whales, indexed as such, chapter 3.)

(197) **Pilotage, St. Marys, Fernandina Beach, and Kings Bay.**–Pilotage for St. Marys, Fernandina Beach, and Kings Bay is compulsory for all foreign vessels and U.S. vessels under register in foreign trade and drawing more than 7 feet of water. Pilotage is optional for U.S. vessels in coastwise trade which have on board a pilot licensed by the Federal Government.

(198) The area is served by Cumberland Sound Pilots Association (Fernandina Pilots), on the north end of Amelia Island, at 112 North Sixth Street, Fernandina Beach, FL 32034; telephone 904-261-3158, fax 904-321-1990. The office/station monitors VHF-FM radiotelephone channels 11, 13, and 16, and works channel 11.

(199) The pilot boat PILOT 1 is 29 feet long and has a black hull, white superstructure, and the word PILOT displayed on the side of the pilot house; the standard day and night pilot signals are displayed. The pilot boat monitors VHF-FM channels 11, 13, and 16, and works channel 11. Pilot boarding and cruising area for vessels drawing more than 36 feet is in the vicinity of St. Marys Approach Lighted Buoy STM (30°40.8'N., 81°11.7'W.) Vessels with a draft of 36 feet or less are boarded about 2 miles east of the approach range front light at about 30°43.0'N., 81°18.1'W. Cumberland Sound Pilots Association provides 24-hour service. Vessels should rig their ladder 1 meter above the water, maximum speed 6 knots.

(200) Pilots are normally obtained by telephone, by VHF-FM radiotelephone through Jacksonville Marine Operator, or by previous arrangements through ship's agents. A 24-hour ETA lead time is requested.

(201) The Cumberland Sound Pilots Association participates in the northern right whale Early Warning System. (See Northern right whales, indexed as such, chapter 3.)

(202) The St. Johns Bar Pilots, on request, will relay messages by telephone to the pilot at Fernandina Beach. (See Pilotage, Jacksonville, indexed as such, chapter 9, for radiotelephone frequencies used by the St. Johns Bar Pilots.)

(203) **Towage.**–Tugs are required for docking and undocking. Tugs up to 2200 hp are available on 4 hours' notice from a towing company at Brunswick, Ga. Arrangements for tugs are made through ships' agents or through the local pilot.

(204) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(205) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) A county hospital is at Fernandina Beach.

(206) Fernandina Beach is a **customs port of entry.**

(207) **Harbor regulations.**–All vessels are docked and undocked under the direction of the harbormaster, who is also the chief pilot. All vessels should proceed through the harbor at slow speed, and not over 5 knots, as there are many craft moored along the waterfront.

(208) **Wharves.**–The Ocean Highway and Port Authority of Nassau County owns one major commercial pier on Amelia River, the Forest Products Terminal. There are two privately owned facilities for deep-draft vessels at Fernandina Beach. Both have highway and rail connections. Depths alongside are reported depths. (For latest information on depths contact the operator or the pilot or harbormaster.) There are numerous smaller facilities along the waterfront which are used for the receipt of seafood and servicing of commercial fishing vessels and small craft; these facilities are not described. (For a complete description of the wharves and piers at Fernandina Beach, refer to the Port Series, a Corps of Engineers publication.) A deep-draft wharf at Kings Bay is described later in this chapter.

(209) **Container Corporation of America Wharf** (30°40'58"N., 81°27'37"W.): east side of Amelia River about 1.5 miles above the channel entrance; offshore wharf with 365 feet of berthing space with dolphins; 29 feet alongside; deck height, 14 feet; hose-handling equipment; untreated water available; handles fuel oil for plant consumption.

(210) **Forest Products Terminal**: east side of Amelia River about 1.75 miles above the channel entrance; marginal wharf with 1000- foot face; 36 feet reported alongside; deck height, 12 feet; transit sheds with 100,000 square feet of storage; 18 acres of open storage. Two container cranes, two whirleys cranes, forklifts, potable water; operated by Nassau Terminals.

(211) **Rayonier Wharf**: east side of Amelia River, about 1.3 miles southward of the Container Corporation of America Wharf; marginal wharf with 400-foot face, 500 feet with dolphins; 27 to 30 feet alongside; deck height, 14 feet; electrical shore power connections; untreated water available; handles caustic soda, and fuel oil for plant consumption.

(212) **Supplies.**–Provisions and some marine supplies are available at Fernandina Beach. The fresh water piped to the wharves is from artesian wells and, having some mineral content, should be treated for use in boilers. Bunker C oil and diesel oil for oceangoing vessels can be obtained by barge or truck from Jacksonville.

(213) **Repairs.**–There are no drydocking or major repair facilities for oceangoing vessels at Fernandina Beach; the nearest such facilities are at Jacksonville, Fla. Machine, welding, and electrical shops off the waterfront can make limited above the waterline repairs. The larger of two marine railways is on the east side of Amelia River, about 0.6 mile northward of Rayonier Wharf; vessels up to 130 feet in length and 12-foot draft can be handled for hull, engine, and electrical repairs.

(214) No special facilities are available for wrecking or salvage operations. Such equipment can be obtained from Jacksonville.

(215) **Communications.**–Fernandina Beach is served by State Route A1A, CSX Railroad (freight service only), and an airport. There are bus connections to Jacksonville where there are passenger rail connections. Ferryboat service is available to Cumberland Island.

(216) **Small-craft facilities.**–The municipal marina is on the east side of Amelia River, about 2.3 miles southward of the channel entrance and 0.5 mile northward of Rayonier Wharf. In May 1983, depths of 4 feet were reported in the slips, with depths of 8 feet reported alongside the pier facing the river. Berthage with electricity, gasoline, diesel fuel, water, ice, marine supplies, and a launching ramp are available. A 4-ton fixed lift and a marine railway that can handle craft to 75 feet are available; hull, engine, and electrical repairs can be made. Gasoline, diesel fuel, and water can also be obtained at the two fuel piers, northward and southward of the marina.

(217) The Intracoastal Waterway enters Cumberland Sound from the Cumberland River and continues through the Amelia River on the south.

(218) **Beach Creek** extends northward into Cumberland Island from a point just inside the entrance to Cumberland Sound. In February 1978, 2 feet was reported at the entrance, and the creek dried about 0.2 mile below Dungeness.

(219) **Kings Bay** is in the northwesterly part of Cumberland Sound, about 5 miles above its southerly entrance. A Naval submarine support base here has a floating drydock and a 2,000-foot concrete pile wharf with depths of 40 feet reported alongside in May 1983; deck height is about 14 feet. A rail spur line connects the terminal with the Seaboard System Railroad; two transit sheds and two 10-ton mobile hoists are available. The facility is owned by the U.S. Government.

(220) A **safety/security zone** has been established in Kings Bay. (See **165.1 through 165.13 and 165.731**, chapter 2, for limits and regulations.)

(221) A **regulated navigation area** has been established in Cumberland Sound in the vicinity of Kings Bay. (See **165.1 through 165.13 and 165.730**, chapter 2, for limits and regulations.)

(222) **St. Marys River,** the principal tributary of Cumberland Sound, enters from westward, and is a portion of the boundary between Georgia and Florida. It is used primarily by shrimp fishermen and tugs towing fuel oil as far as St. Marys. The controlling depth in the channel to St. Marys is about 14 feet. Above St. Marys a vessel with a draft of 10 feet or less should have little difficulty going as far as Kings Ferry, 32 miles above the mouth, on a rising tide. The river is very crooked, and some of the turns are sharp. **Caution** is advised when entering the river, especially in late afternoon, as the indefinite shoreline of the surrounding marshlands make the unmarked channel in the first reach difficult to negotiate. The tank at St. Marys charted in 30°43.5'N., 81°32.8'W. is a useful landmark for navigating this stretch. Unpredictable currents have been reported in the entrance to the river, at the junctions with Jolly and North Rivers, and along the piers at St. Marys. The mean range of tide is 5.8 feet at the entrance, 6 feet at St. Marys, and 4.8 feet at Crandall, 5 miles above the mouth. The water is fresh above the Seaboard System Railroad bridge, 20 miles above the mouth. A pilot for the river is available at Fernandina Beach.

(223) The twin fixed spans of U.S. Route I-95 highway bridge with a clearance of 35 feet crosses St. Marys River about 15.2 miles above the mouth. U.S. Route 17 highway bridge at Wilds Landing, 20 miles above the mouth of the river, has a swing span with a clearance of 5 feet. The Seaboard System Railroad bridge just upstream has a swing span with a clearance of 5 feet. (See **117.1 through 117.59, 117.329, and 117.373**, chapter 2, for drawbridge regulations.) Overhead power cables close upstream of the bridge have a least clearance of 55 feet.

(224) The town of **St. Marys** is on the north bank of St. Marys River, 4 miles above the mouth. The larger wharves here are used by fishing boats and have depths of about 13 feet alongside. Diesel fuel and water are available. However, it is reported that strong currents, the large tidal range, and the exposure to winds from all but north make mooring at these wharves hazardous for strangers.

(225) A good haven for small vessels, particularly in northeasterly weather, can be found at St. Marys. Small craft also can obtain refuge in bad weather by anchoring near the pulp mill 1 mile up North River or near the bridges 16 miles above St. Marys on the St. Marys River.

(226) **North River** branches from St. Marys River about 2 miles above its mouth. In May 1983, it was reported that a draft of 7 feet could be carried to the pulpmill dock up the river.

(227) **Bells River** branches from St. Marys River about 1.5 miles above the town of St. Marys. It flows in an easterly direction to its junction with the Amelia River at Fernandina Beach. In May 1983, the reported controlling depth was about 4 feet. **Chester,** a town on the river, has a number of small docks which were reported in ruins in May 1983.

(228) **Jolly River** branches eastward from Bells River about 6 miles above its mouth, and empties into Cumberland Sound at the mouth of St. Marys River. In May 1983, the reported controlling depth was about 7 feet.

(229) **Lanceford Creek** branches from Amelia River west of Fernandina Beach. The southern entrance where it joins Amelia River dries clear across. In May 1983, it was reported that with local knowledge a depth of about 7 feet could be carried from the creek's eastern entrance, junction with Bells River, to the docks at **Black Rock.** The creek widens off the docks into tidal flats which bare at low water. Small boats cross from the creek to Amelia River at high tide through **Soap Creek,** which passes through numerous mud flats and oyster beds that bare at low tide.

(230) **Chart 11488.**–From St. Marys Entrance to St. Johns River the coast is formed by the shores of Amelia, Talbot, Little Talbot, and Fort George Islands. **Amelia Island** is nearly north and south, with a length of about 12 miles and a width varying from 1 to 2.5 miles. The island is low and gently undulating with heavy woods along the shore.

(231) From seaward no prominent natural features distinguish Amelia Island from other land in the vicinity. It shows a long line of dark woods, irregular in outline, with numerous tall trees rising conspicuously above the general level. In front of these woods a range of sand dunes, partly covered with coarse grass and scrub, backs the broad stretch of white sand beach. Several landmarks are prominent along this stretch of the coast; these were mentioned with the discussion of Fernandina Beach earlier in this chapter. About 3 miles south-southeast of Amelia Island Light is a pier extending 800 feet into the ocean.

(232) The western portion of Amelia Island is marshy. Separating the island from the mainland is a broad stretch of marsh through which flow the Amelia and South Amelia Rivers connecting Cumberland Sound and Nassau Sound.

(233) **Charts 11488.–Nassau Sound** is 10 miles southward of Amelia Island Light and 6 miles northward of St. Johns River. The entrance is obstructed by shifting shoals which extend about

1.5 miles seaward and form a shallow bar. Breakers form across the entire entrance. Small craft are advised not to attempt passage through the shoals without local information. The mean range of tide in Nassau Sound is 5.4 feet. Route A1A highway toll bridge, 1 mile above the entrance, has a swing span with a clearance of 15 feet. (See **117.1 through 117.59 and 117.309**, chapter 2, for drawbridge regulations.) In 1972, local boaters reported shoaling to depths of about 2 feet in the northeasterly opening of the swing bridge creating hazardous conditions for small craft. It was further reported that small craft can make passage in deeper water through the bridge bents northeastward of the northeasterly opening. Vertical clearance of the bridge through the bents is about 9 feet. A small-craft launching ramp is on the south side of the bridge.

(234) South Amelia River and Nassau River are the principal tributaries of Nassau Sound. **South Amelia River** enters from the northward and is a portion of the Intracoastal Waterway.

(235) **Nassau River** enters Nassau Sound from the northwestward. Occasional sunken logs and numerous shoals are a menace to navigation. In January 1993, a partially submerged wreck was reported in the middle of the river, about 0.7 mile from the confluence with South Amelia River in about 30°31'48"N., 81°28'18"W. **Nassauville** is a small settlement on the north bank of the river, 7 miles above the entrance to the sound, with private piers adjoining private homes and a fishing camp. Local knowledge is necessary to carry the best water to Nassauville and **Christopher Creek,** where there is a private marine railway which can haul out craft up to 50 feet in an emergency.

(236) **Alligator Creek** connects South Amelia River and Nassau River. Its twisting channel leads through tidal flats and between oyster bars.

(237) **Sawpit Creek** enters the sound from the westward. Route A1A highway bridge, crossing the creek about 0.3 mile above the mouth, has a 38-foot fixed span with a clearance of 15 feet. A portion of this creek forms a part of the Intracoastal Waterway.

(238) **Talbot Island,** about 5 miles in length and 1.5 miles in width, is partly wooded and partly marshy. Along the marshy eastern shore flow several creeks which separate Talbot and Little Talbot Islands. Talbot Island, Little Talbot Island, and Fort George Island form a State park and recreation area and are connected to Amelia Island and the mainland by a paved highway and bridges. The road also leads to Jacksonville along the north bank of the St. Johns River with a ferry connection at Fort George Island to the south bank of Mayport.

(239) **Little Talbot Island,** a strip of low flat land about 4 miles long and averaging about 0.8 mile wide, lies in a north-south direction. The island is wooded along its outer coast. From seaward it shows a strip of dark woods with many conspicuous sand dunes near the beach. Its south end runs off in a low point of bare sand bordering on Fort George Inlet.

(240) **Fort George Inlet** is a narrow body of water separating Little Talbot and Fort George Islands. The inlet changes rapidly due to shifting sands at its entrance, and should never be used without local knowledge. The Heckscher Drive (State Routes 105-A1A) highway toll bridge near the entrance to the inlet has a 38-foot fixed span with a clearance of 15 feet at the center. An overhead power cable at the bridge has a clearance of 40 feet. A fish camp is on the west bank immediately above the bridge. Limited supplies, water, ice, and a launching ramp are available.

(241) **Fort George Island** is westward and southward of Fort George Inlet. Its eastern shore, forming the coastline, shows a broad strip of white sand beach backed by a range of high hills. The island is separated from the mainland by Sisters Creek. Fort George Island, formerly called Pilot Town, is a town on the St. Johns River near the south end of the island opposite Mayport.

9. ST. JOHNS RIVER

(1) **Charts 11490, 11491, 11492, 11495.–St. Johns River,** the largest in eastern Florida, is about 248 miles long and is an unusual major river in that it flows from south to north over most of its length. It rises in the St. Johns Marshes near the Atlantic coast below latitude 28°00'N., flows in a northerly direction, and empties into the sea north of St. Johns River Light in latitude 30°24'N. The river is the approach to the city of Jacksonville and a number of towns near its shores. Some of these places are winter resorts while others are centers of farming districts and citrus groves. Deep-draft vessels go as far as just below the Main Street Bridge. Southward of the Jacksonville bridges, commercial traffic is light and consists almost entirely of oil barges. Many pleasure craft navigate this part of the river, usually going only as far as Sanford, though small boats have navigated the river as far as Lake Washington, 188 miles south of Jacksonville.

(2) **Intracoastal Waterway.**–The Intracoastal Waterway crosses the St. Johns River at nearly right angles about 5 miles above the mouth, at about 30°23.1'N., 81°27.8'W.

(3) **Jacksonville** has expanded by consolidation to include most of Duval County and is now the largest city in the United States in terms of area; its extent along the St. Johns River is from the ocean to the town of Orange Park on the west side of the river and to Julington Creek on the east side. Most of the marine terminals are on the west side of the river about 21 miles above the entrance, just above the point where the river first turns southward. The deepwater port is the largest on the east coast of Florida. It is a major southeastern bulk-handling, distribution, and railroad center. Both general and bulk cargoes are handled, and Jacksonville is a leading southeastern container port. The principal exports are paper products, phosphate rock, fertilizers, chemicals, citrus products, naval stores, tallow, clay, scrap metal, feed, and general cargo. The principal imports are petroleum products, coffee, iron and steel products, limestone, pulpwood, cement, automobiles, lumber, chemicals, alcoholic beverages, and general cargo.

(4) **Caution.**–Broken ground with least depths of 4 to 5 fathoms lies from 4 to 6 miles from the coast for a considerable distance northward and southward of the St. Johns River entrance. Navigators should also bear in mind the prevailing northerly current in this area, which is felt until well inside the 10–fathom curve, except with northeasterly or northerly winds.

(5) **Northern Right Whales.**–Approaches to the St. Johns River entrance lie within designated critical habitat for endangered northern right whales (see 50 CFR 226.13(c), chapter 2.) The area is a calving grounds from, generally, December through March. It is illegal to approach right whales closer than 500 yards. (See 50 CFR 222.32, chapter 2 for limits, regulations, and exceptions.) Special precautions may be needed to protect and avoid these animals. (See Northern right whales, indexed as such, chapter 3.)

(6) **Fish Havens.**–Numerous fish havens are eastward of the entrance to St. Johns River; the outermost, marked by a private unlighted buoy, is about 27 miles eastward of St. Johns Light.

(7) **Prominent features.–St. Johns Light** (30°23.1'N., 81°23.9'W.), 83 feet above the water, is shown from a white square tower on the beach about 1 mile south of St. Johns River north jetty; the radiobeacon antenna is 60 yards east of the light tower. A tower at Jacksonville Beach and a red and white checkered water tank at Mayport Naval Station are prominent off the entrance, and water tanks are prominent along the beaches to the southward.

(8) **COLREGS Demarcation Lines.**–The lines established for St. Johns River are described in **80.723**, chapter 2.

(9) **St. Johns River Navigational Guidelines.**–Completion of channel deepening projects in 1978 in the St. Johns River has resulted in a deeper steep-sided channel cut through rock in some areas. There has been no appreciable increase in channel width. This channel configuration combined with the increased size and draft of vessels entering the port has resulted in increased navigational problems. After consultation with the Jacksonville Waterways Management Council, the Coast Guard Captain of the Port has developed certain guidelines to enhance safe navigation.

(10) It is recommended that all vessels, particularly those which must navigate in the channel because of draft restraints, strictly adhere to them. Nothing in these guidelines shall supersede or alter any applicable laws or regulations. In construing and complying with these guidelines, regard shall be had to all dangers to navigation and collision and to any special circumstances, including the limitations of the vessels involved, which may make a departure from the guidelines necessary to avoid immediate danger.

(11) Local knowledge of the river and of local practices is deemed essential for the safe movement of vessels. Experience and knowledge at least comparable to that required for a Federal Pilot's License is recommended for the person in charge of the movement of vessels which do not take pilots.

Vessels Movements.

(12) **General Provisions.**–All time limits are subject to change due to weather conditions, low-powered vessels, emergencies or ship handling characteristics. All times refer to the flood/ebb currents as published for St. Johns River Entrance, FL.

(13) For purposes of these guidelines, **low-powered vessels** are those which are unable to maintain a speed of at least 8 knots through the water. **Poor handling vessels** are those which because of their configuration or steering characteristics, are unable to consistently navigate within the channel half-width.

Inbound vessels

(14) **(Sea Buoy to Main Street Bridge):**

(15) Vessels which are over 32 feet of draft (salt water) shall start in no sooner than one half (½) hour before flood current. Stop taking in vessels over 32 feet one (1) hour before ebb current.

Outbound vessels

(16) **(Main Street Bridge to N.B. Broward Bridge):**

(17) Vessels which are over 32 feet of draft (at their berth) sailing between Main Street Bridge and the N.B. Broward Bridge shall sail no sooner than 1½ (one and one half) hours after flood current. Cut off time is the beginning of ebb current. Vessels leaving Blount Island with a draft of over 36 feet (at their berth), sailing time shall be no sooner than the start of flood current. Cut off time is the beginning of ebb current.

(18) **Docking and Undocking.**–Due to the unique characteristics at the following facilities, it is necessary to establish specific times for docking and undocking of vessels as follows:

Inbound vessels sailing to:

(19) All shipyard berths
(20) Gate Maritime Terminal
(21) Celotex Corporation Berth
(22) Jacksonville Electric Authority, Northside Berth
(23) U.S. Gypsum Company Berth

Outbound vessels sailing from:

(24) PCS Phosphates, Inc. Berth with drafts over 32 feet.
(25) Celotex Corporation, Inc.
(26) U.S. Gypsum Company Berth

(27) These times are generally set by the docking masters. Other berths may require specific times for docking or undocking and will be considered on a case by case basis.

(28) **Tows.**– All low-powered tows or vessels (speed less than 8 knots through water) will start no sooner than 1 (one) hour before flood current, and stop 2 (two) hours before ebb current. Vessels towed on a hawser have been found to demonstrate poor handling characteristics. When due to draft side they are required to navigate in the main channel, particular care should be exercised to ensure that they can, when necessary, navigate in their channel half-width and stop if required. It is recommended that they proceed at a moderate speed and avoid making a passage of the river with a strong fair tide. Under normal weather conditions, vessels up to 400 feet in length can generally be towed satisfactorily with these tide and speed conditions. It is required that barges in excess of 400 feet in length towed on a hawser take assist tug(s). It is recommended that towed vessels operating under adverse conditions, including strong fair tides, employ sufficient assist tugs or other equivalent measure to ensure the required degree of control. Deep-draft inbound tows are considered by knowledgeable local mariners to handle best when brought in at the beginning of the flood current. All tows should operate with tow lines shortened up as close as possible. Tandem tows, except for small scows and nondescript vessels which can operate outside the main channel, are considered unmanageable and should not be attempted.

(29) **Inbound Tows, in the notch or on the Hawser:**

(30) Tug 8,000 hp or greater - Barge 32' or less draft = anytime.

(31) Tug 5,000 hp or greater - Barge under 29' draft = anytime.

(32) Tug 5,000 hp or greater - Barge 29' or greater draft = flood current.

(33) Tug 4,000 hp or greater - Barge under 25' draft = current

(34) Additional assist tug/tugs may be required due to local conditions.

(35) **Tows Transiting Downtown Bridges.**

(36) Barges over 250' on a hawser should have at least one assist boat of sufficient horsepower to safely pass through the bridge draws.

(37) Barges over 300 feet towed on a hawser must confer with the Captain of The Port office prior to transiting the downtown bridges.

(38) Dredge pipe tows over 600 feet must advise Captain of The Port prior to transiting the downtown bridges.

(39) Slack water or a slightly opposing current has been found to be beneficial for safe handling of hawser tows while transiting the downtown bridges.

(40) **Vessels proceeding into and out of Pablo Creek.** Passage through the entrance to Pablo Creek is difficult at some stages of the current cycle. Unless it is certain that the vessel in question can be safely operated through the entrance without regard to the state of the current then the vessel's passage through this area should be made at slack water. Deeper draft vessels should transit this area at high water slack.

(41) **Dead Ship Movements.**–Dead ship condition is the condition in which the main propulsion plant, boilers and auxiliaries are not in operation due to the absence of power.

(42) Owners, agents, or other parties responsible for vessels requesting to enter, depart, or transit dead ship within the Jacksonville, FL Marine Safety Zone, as described in 33 CFR 3.35-20 (not carried in the Coast Pilot) must comply with the following requirements.

(43) a. The request must be in writing and be received a minimum of twenty four hours in advance of the expected movement. This request should include the towing arrangement and horsepower of the tug. Dead ship tows of vessels less than 250 feet in length will not be required to notify the U.S. Coast Guard unless there is some exceptional circumstance which would make notification necessary. Vessels 250 feet in length or greater will typically be issued a Captain of the Port Order to address the dead ship movement.

(44) b. The wind speed at the bar should be less than 15 knots.,

(45) c. Transits should be during daylight hours only with a minimum of three (3) miles visibility.

(46) d. Six linehandlers must be provided for movements.

(47) e. A pilot shall be on the lead tug and on the dead-ship for all vessel over 300 feet in length.

(48) f. The number of tugs required in addition to the lead tug is as follows:

(49) 1. Less than 150 feet in length - One assist tug.

(50) 2. 150 feet up to 350 feet - Two assist tugs.

(51) 3. 351 feet up to 550 feet - Three assist tugs.

(52) 4. Greater than 550 feet - Four assist tugs.

(53) 5. Special conditions or handling characteristics may require more or less tugs.

(54) g. The St. Johns River Bar Pilots Association must be consulted regarding any additional requirements the pilots may have.

(55) **Communications and areas of concern.**–The entrance channel between the jetties is marked by St. Johns Bar Cut Range. Currents which often set across the ends of the jetties are discussed under Tides and Currents in this chapter. Vessels arriving at the bar should give a Security call on VHF-FM channel 13, 30 minutes before entering the jetties. So as not to delay river traffic, low-powered or poor handling vessels intending to enter the river should be prepared to delay up to 45 minutes, if necessary, to allow other vessels to clear outbound or to allow full-powered and more maneuverable vessels to precede them through the jetties. Entry into the St. Johns River through the jetties must be with careful regard to wake and speed in consideration of persons fishing off the jetties and adjacent shoreline.

(56) **Seagoing tows** sometimes makeup inside the jetties. Tows intending to makeup in this area should give a Security call on VHF-FM channel 13 at least 45 minutes prior to commencing operations and give consideration to the vessels which must transit the area.

(57) **Vessels intending to get underway from a berth** should give a Security call on VHF-FM channel 13 advising of their intentions at least 30 minutes prior to letting go. Low-powered and/or poor handling vessels should be prepared to delay up to 30 minutes to allow full-powered and more maneuverable vessels to precede them as this will avoid undue delay for overall river traffic.

(58) **Areas of particular concern.**–Four areas in the St. Johns River are considered to be particularly troublesome. These areas are listed in order of ascension when proceeding from sea. Vessels should make every effort to avoid meeting at these areas, and should give Security calls on VHF-FM channel 13 (165.65 MHZ) 15 minutes prior to arriving at any one of these areas. The vessel with the fair current should initiate a proposal for meeting or passing and the vessel stemming the current should hold as necessary. Any departure from this procedure should be agreed to by both vessels in a timely manner.

(59) (1) **Intracoastal Waterway** (30°23.1'N., 81°27.8'W.). This waterway is used extensively by tows, and its junction with the St. Johns River is subject to strong and unpredictable crosscurrents at various stages of the tide. The situation is further complicated by repair docks on the north side which may require speed reductions to reduce wake. Tows intending to enter the main river channel from the Intracoastal Waterway should give a Security call on VHF-FM channel 13, 30 minutes prior to entry and adjust speed so as to enter the river when the channel is clear. Every effort, including holding, should be made to avoid unduly restricting full-powered vessels, and allow them to clear this area when either inbound or outbound.

(60) (2) **Dames Point Turn** (30°23.1'N., 81°33.6'W.). Navigation of this sharp turn is complicated by crosscurrents coming from the old channel behind Blount Island which tend to set a vessel deep into the bend on both the flood and ebb. In addition, the channel in this area is used as a turning basin for vessels using Blount Island terminal and the waterfront facilities in the old channel to the west of Blount Island.

(61) (3) **Trout River Cut** (30°23.3'N., 81°37.6'W.). This dredged channel extends through rock formations, and deep loaded vessels must exercise great care not to leave the channel in this area. Local knowledge is necessary to predict current effects as they tend to set across the channel on both the flood and ebb. Poor handling vessels should use an assist tug when transiting the area of Trout River Cut and Chaseville Turn to avoid being set on vessels transferring at the many oil terminals on the west bank of the river.

(62) (4) **Commodore Point** (30°19.1'N., 81°37.7'W.). The nearly 90-degree turn at Commodore Point is complicated by the Hart Bridge, with its piers located in the turn, as well as the Matthews Bridge just to the north. Poor handling vessels, or those whose engines are questionable for any reason, should use assist tugs to avoid being set on the support piers of either bridge.

(63) Smaller vessels continuing up the river are advised that about 2 miles above Commodore Point, at a bend in the river at **Hendricks Point** (30°19.1'N., 81°39.8'W.), a series of four bridges is within a 0.7 mile reach. Mariners should ensure that they can clear the closed bridges or that they can navigate safely between the bridges when opening. There is limited stopping and turning room once committed to the transit of the area which is subject to strong currents in the constricted bend.

(64) **Channels.**–A Federal project provides for a channel 42 feet deep from the ocean to St. Johns Point, thence 38 feet deep to a point 2.1 miles north of Mathews highway bridge, thence 34 to 38 feet deep to Commodore Point via Terminal Channel. The main channel is maintained at or near project depths. (See Notice to Mariners and latest edition of chart for controlling depths.)

(65) A lighted buoy with a racon is about 3 miles off the entrance to the river. The entrance channel, between two converging rubblestone jetties, and the channel in the river are marked by lighted and unlighted buoys, lights, and lighted ranges.

(66) **Anchorages.**–Vessels waiting outside the entrance to St. Johns River can anchor in depths of 36 to 50 feet north-northeastward of the jetties if wind and sea permit. (See **110.182**, chapter 2, for limits and regulations of the anchorage areas.) Anchorage south of the south jetty is not recommended because of the heavy shrimpboat activity in that area.

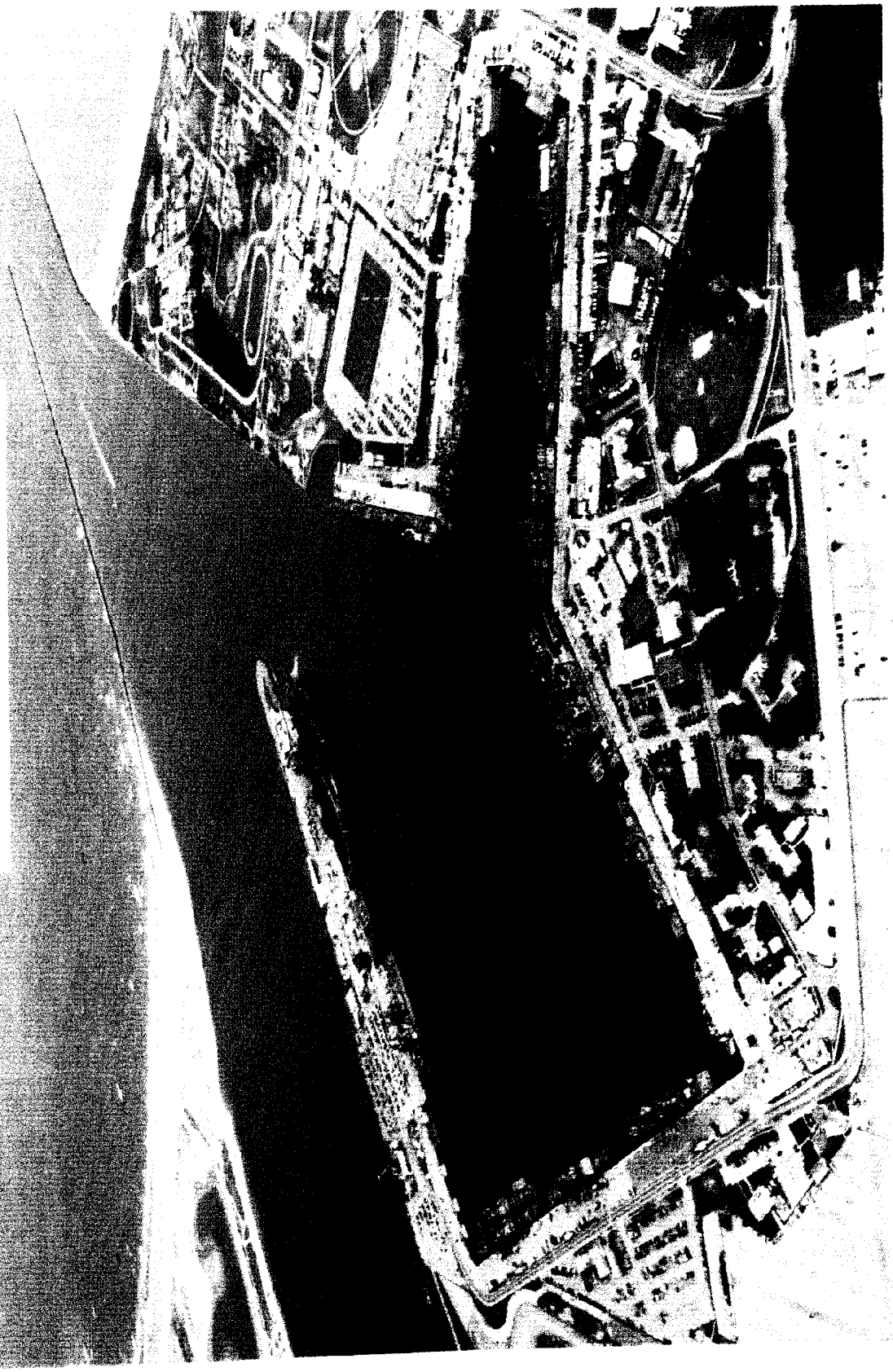
(67) **General and quarantine anchorages** are in the St. Johns River in the vicinity of Jacksonville. (See **110.183**, chapter 2, for limits and regulations.) Special small-craft anchorages are 4.5 miles south of Jacksonville. (See **110.1 and 110.73**, chapter 2, for limits and regulations.)

(68) Merchant ships are normally anchored either in the area off Talleyrand Docks and Terminals, locally termed the lower anchorage, or in the area off Commodore Point, known as the upper anchorage. Though these are the only practical anchorages available, the holding ground is only fair and both anchorages are somewhat constricted. In April 1981, a concrete dolphin was reported northeast of Commodore Point, in about 30°19'49"N., 81°37'11"W. A **security zone** has been established along a portion of the north bank of the St. Johns River at the junction of Brills Cut Range and Broward Point Turn. (See **165.1 through 165.7, 165.30, 165.33, and 165.710**, chapter 2, for limits and regulations.)

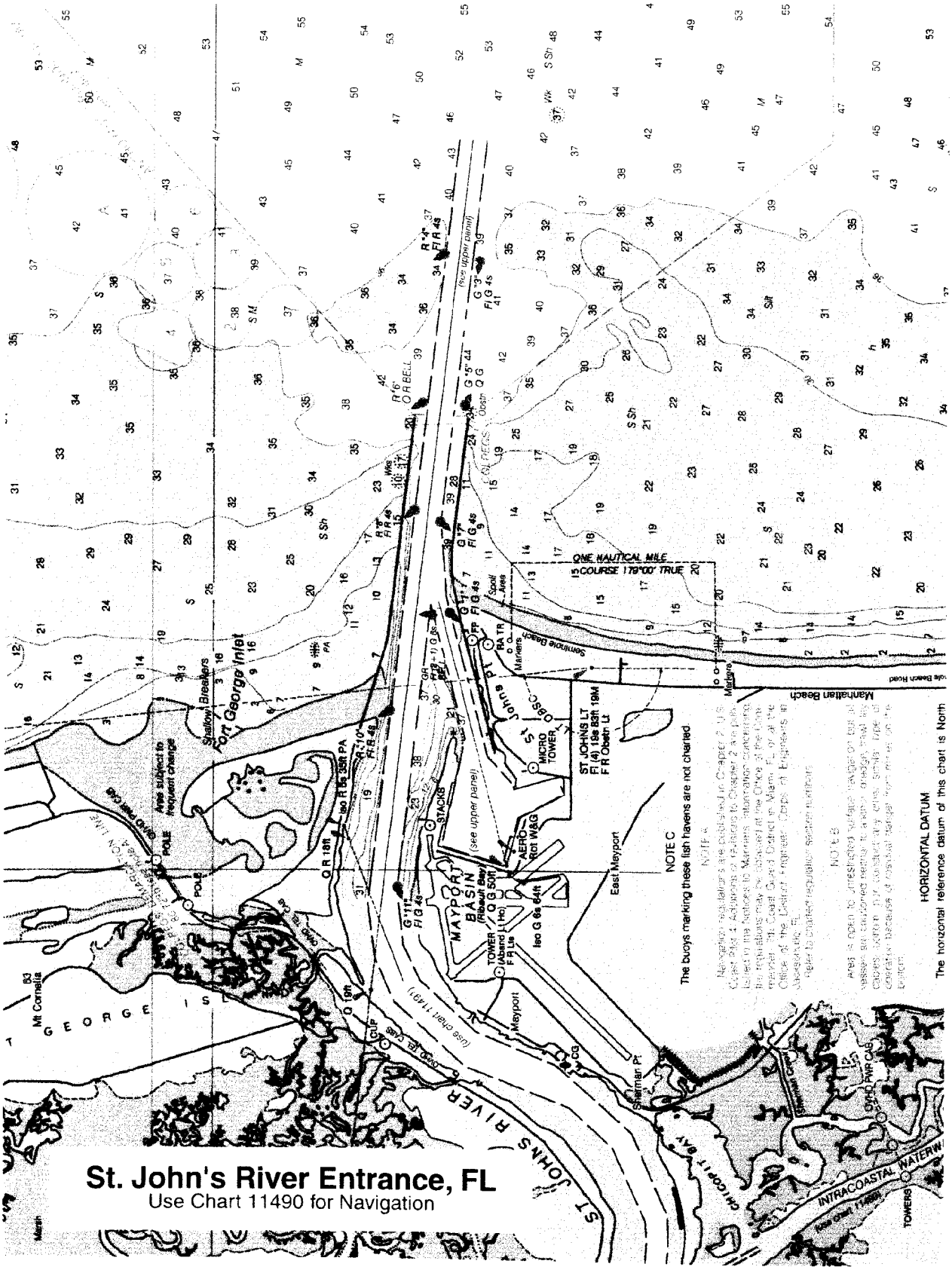
(69) **Bridges.**–Seven bridges cross the St. Johns River at downtown Jacksonville. A fixed highway bridge with a clearance of 169 feet crosses the river just above Blount Island at Dames Point. The fixed Matthews highway bridge, 0.5 mile north of Commodore Point, has a clearance of 152 feet across the main (Terminal) channel and 86 feet at the center of the span across Arlington Channel. At Commodore Point, the Hart suspension bridge has a clearance of 135 feet, with 141 feet at the center. Main Street (Alsop) highway bridge, the first of four bridges at Hendricks Point, has a vertical-lift span with clearances of 40 feet down and 135 feet up; the second, Acosta highway bridge, 0.3 mile upstream from the Main Street bridge, has a fixed span with a clearance of 75 feet; the third, the Florida East Coast Railway Co. bridge adjacent to the Acosta bridge, has a bascule span with a clearance of 5 feet; the fourth, the Fuller Warren highway bridge, has a bascule span with a clearance of 44 feet at the center. (See **117.1 through 117.59 and 117.325,** chapter 2, for drawbridge regulations.) The bridgetenders of the bridges at Hendricks Point monitor VHF-FM channel 16 and work on channel 17; call signs as follows: Main Street (Alsop) WHV-528 and Fuller Warren WHV-927. The bridgetender of the FEC bridge monitors VHF-FM channel 16 and works on channel 13; call sign, KXR-936.

(70) Overhead power cables with a clearance of 175 feet cross the river about 9 miles above the entrance at Blount Island.

(71) **Routes.**–Along the coast from Charleston to Jacksonville, the course between the outer lighted whistle buoys is from 10 to 15 miles offshore. Vessels making for St. Johns River entrance should guard against an inshore set which may amount to a knot or more due to the currents into the inlets. In thick weather, ves-



St. John's River Entrance, FL


St. John's River Entrance, FL
Use Chart 11490 for Navigation
ONE NAUTICAL MILE
COURSE 179°00' TRUE
Fort George Inlet
Shallow Breakers
Area subject to frequent change
MAYPORT BASIN
(Ribault Bay)
(see upper panel)
(use chart 11491)
ST JOHNS RIVER
CHICOPIT BAY
INTRACOASTAL WATERW
Mt Cornelia
Mayport
East Mayport
Sherman Pt
Manhattan Beach
Seminole Beach
Markers
Spoil Area
ST JOHNS LT
Fl (4) 19s 83ft 19M
F R Obstn Lt
MICRO TOWER
STACKS
AERO Rot W&G
TOWER (Aband Lt Ho)
POLE
NOTE C
The buoys marking these fish havens are not charted.
HORIZONTAL DATUM
The horizontal reference datum of this chart is North

sels approaching from the northeastward should be mindful of the fact that deep holes may be encountered which may lead them to believe that they are farther offshore than they actually are. Approaching from the southward, vessels clear Hetzel Shoal before shaping a course for St. Johns River entrance. A set of 0.5 to 0.8 knot in a northerly direction parallel with the coast may be expected in this area due to the prevailing current, except with northerly or northeasterly winds. Southbound light-draft vessels can avoid the northerly set due to the prevailing current by following the coast at a distance of from 3 to 5 miles to abeam Ponce de Leon Inlet Light, and then shaping the course to pass outside of Hetzel Shoal Lighted Whistle Buoy 8.

(72) **Tides and currents.**–The mean range of tide is 4.9 feet at St. Johns River entrance and about 1.2 feet at the railroad bridge at Jacksonville. From Jacksonville to Palatka the mean range of tide is about 1 foot. At low-water stages, tidal action is felt to Lake George. (See the Tide Tables for daily predictions at Mayport and several places on St. Johns River.)

(73) The tidal currents are strong in St. Johns River as far as Jacksonville. The currents at the entrance between the jetties require special attention. The Bar Pilots report that 1 hour after the beginning of a blow from any direction from north through east to south, a very strong current sets with the wind across the end of the jetties, and the condition is usually dangerous; when such winds reach gale force, the positions of the buoys should not be relied upon as they may drag from station.

(74) The velocity of the current between the jetties is 1.9 knots on the flood and 2.3 knots on the ebb; at Mayport, 2.2 knots on the flood and 3.1 knots on the ebb; at Mile Point, 2.7 miles above the mouth, about 2.8 knots. At downtown Jacksonville (Commodore Point), the velocity of current is about 1.0 knot; however, in 1967 a naval vessel reported being forced against the Acosta highway bridge by flood currents estimated to exceed 5 knots. Caution should be exercised in this area. The flood is increased by northeasterly and easterly winds and the ebb by southwesterly and westerly winds. (See the Tidal Current Tables for daily predictions of the tidal current in St. Johns River entrance and for a number of places on St. Johns River.)

(75) The tidal currents above Jacksonville average less than a knot. The winds have considerable effect on the water level and velocity of the currents. Strong northerly and northeasterly winds raise the water level about 2 feet at Jacksonville, about 1 foot at Palatka, and about 1.5 feet at the mouth of Dunns Creek. Strong southerly and southwesterly winds lower the water level about 1 to 1.5 feet, increase the ebb, and decrease or may interrupt the flood. The currents in Deep Creek are weak, being due primarily to the winds and tide. There is a moderate drainage current in the Oklawaha River. The wind has no appreciable effect on the water level at the head of Dunns Creek and in Lake Crescent.

(76) The river water may be fresh at Jacksonville at low water with westerly winds, while with northeasterly winds the water may be brackish to Palatka.

(77) **Freshets.**–The flood stages in the river usually occur during the fall and are about 1 foot above ordinary low-water level at Jacksonville, 2 feet at Palatka, 3 feet at Lake George, 5 feet at Sanford, and 6.5 feet at Lake Harney.

(78) **Weather, Jacksonville and vicinity.**–Jacksonville is near the northern boundary of the trade winds in summer. Winds off the water produce a maritime influence that tempers the heat of summer and cold of winter. Winter storms and severe cold waves often remain north of the area. Occasionally a "nor-easter" will skirt the Florida coast bringing 15- to 30-knots winds, low stratus clouds and drizzle. These are most likely in late summer and fall. This area lies within the hurricane belt although hurricane force winds are rare, since most storms either remain offshore or have tracked inland and weakened.

(79) The average high temperature in Jacksonville is 79°F (26.1°C) and the average low is 59°F (15°C). By a fraction of a degree, July is the warmest month with an average high of 92°F (33.3°C) and an average low of 73°F (22.8°C). January is the coolest month with an average high of 65°F (18.3°C) and an average low of 43°F (6.1°C). Each month, May through August has recorded temperatures in excess of 100°F (37.8°C) and the all-time maximum temperature is 103°F (39.4°C) recorded in June 1950, June 1954, and again in July 1981. Below freezing temperatures have been recorded from November through March and the record minimum is 7°F (-13.9°C) recorded in January 1985. On average, 83 days each year has a maximum temperature of 90°F (32.2°C) or greater while only 15 days can be expected to have minimums of 32°F (0°C) or below.

(80) Over one-third of the annual average rainfall of 53 inches (1346.2 mm) falls during the summer months of June, July, and August. September is the wettest month averaging 7.67 inches (194.8 mm) and November is the driest month averaging about 2 inches (50.8 mm). Most of the summer rainfall is compliments of convective activity or precipitation of a tropical origin. Snowfall is almost unheard of however small amounts have fallen in each month, December through March. The greatest 24-hour snowfall was 1.5 inches (38.1 mm) falling in February 1958.

(81) On the average the Jacksonville area is threatened (tropical cyclone) within 50 nm (93 km) once or twice each year. While this may occur in any month it is most likely from June through October, with a peak in September and October. Most storms have crossed over some portion of the Florida peninsula and weakened. The Port of Jacksonville and Mayport Basin are not considered hurricane havens since surrounding low topography does not provide an adequate windbreak. The Port of Jacksonville, which is less susceptible to storm surges than Mayport, can be used as a haven from tropical storms if there is certainty that winds will not intensify to above 60 knots. While the entrance to the St. Johns River is exposed, farther upstream, between Blount Island and downtown Jacksonville, some sheltering from south and southeast winds is provided by higher elevations, including some river bluffs. Special care should be taken with storms approaching from the the southeast. Since 1842, 69 tropical cyclones have come within 50 miles (93 km) of Jacksonville, 21 of those storms have done so since 1950. Hurricane Dora, for example, was one of the worst storms to affect this area. In the early morning hours of September 10, 1964, Hurricane Dora made landfall north of St. Augustine. At Mayport, winds reached 65 knots with gusts to 80 knots while the airport recorded 71-knot sustained winds. Dora provided the first sustained hurricane wind speeds in the 80-year period of record for the Weather Bureau Air Station at Jacksonville. Unusually high tides were produced by onshore winds that exceeded 50 knots for some 12 hours. Water levels reached 5 to 7 feet (1.5 to 2.1 m) above mean sea level on the coast and along the St. Johns River.

(82) Storm tides are more frequent than destructive winds and, along the coast, are the major threat to shipping and residents. Storm surges vary significantly over short distances. Maximum heights occur along the beaches and the entrance jetties at Mayport, then decrease rapidly up the St. Johns River. In October

1944, an overland hurricane combined with an offshore nor'easter to generate tides that reached 12.3 feet (3.75 m) above mean sea level at Jacksonville Beach and 7.3 feet (2.2 m) above mean sea level on **McCoy Creek** (30°19'23"N., 81°40'03"W.) at Stockton Street in Jacksonville. For more details see the **Hurricane Havens Handbook for the North Atlantic Ocean** as discussed in chapter 3.

(83) In general, prevailing winds are northeasterly in fall and winter and southwesterly in spring and summer, although afternoon sea breezes often bring winds off the water in these latter seasons. Windspeeds are often highest from September through April when they exceed 17 knots about 3 to 8 percent of the time. Local climatic variations are most noticeable in the heat of summer. Along the beach, on 20 to 30 days annually, temperatures reach the 90's (°F) compared to 70 to 80 days near the city. Fog is mainly a wintertime phenomena, rolling in with any easterly wind but often remaining across the entrance when it has cleared elsewhere. In calm weather, smog from fertilizer and paper plants often obscures the channel above Dame Point. Radiation type fog, which may occur near the city, usually burns off by noon. On the average, there are 25 to 35 days annually, when visibilities drop below 0.5 mile; November through February are the most likely months. Summertime showers and thunderstorms are responsible for much of the precipitation in the area. Thunderstorms are most likely during June, July, and August, when they occur on about 10 to 16 days per month.

(84) The National Weather Service station is at Jacksonville International Airport, about 6.5 miles north-northwestward of the entrance to Trout River, and **barometers** can be compared there or checked by telephone. (See Page T-6 for **Jacksonville climatological table.)**

(85) **Pilotage, Jacksonville.**–Pilotage is compulsory for all foreign vessels and for U.S. vessels under register. Pilotage is optional for U.S. coastwise vessels which have on board a pilot licensed by the Federal Government. Pilotage is available from St. Johns Bar Pilot Association, 4910 Ocean Street, Mayport, FL; telephone 904-246-6716, FAX 904-249-7523.

(86) The pilot station (above address) is just below the ferry terminal (30°23.7'N., 81°25.8'W.), on the port hand entering from sea, about 3 miles above St. Johns River entrance. The pilot station monitors VHF-FM channels 16, 13, and 14; works on 14. The pilot boats are 50-foot, with black hull, white superstructure, and the word PILOT on the sides. The boats monitor channel 14, work on 14.

(87) Vessels are requested to report their estimated time of arrival (ETA) at St. Johns Lighted Whistle Buoy STJ (the sea buoy), and their draft, by radio to the pilot station at least 2 hours and again 1 hour prior their ETA at the sea buoy. Pilots report that many times they can hear radio calls but vessels are unable to pick up the pilots return transmissions. The pilot boarding area is between the sea buoy and the outermost entrance-channel buoys; a boarding ladder should be rigged 10 feet above the water. Arrangements for pilots are generally arranged in advance through ship's agents or directly by shipping companies.

(88) The St. Johns Bar Pilots Association participates in the northern right whale Early Warning System. (See Northern right whales, indexed as such, chapter 3).

(89) **Towage.**–Tugs up to 3,500 hp, and docking pilots are available 24 hours a day at Jacksonville. Tugs use VHF-FM channels 7A, 10, 13, 16, 18A, and 19. Docking pilots use VHF-FM channels 7A, 13, 16, and 19.

(90) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(91) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) Vessels are usually boarded at their berths. There are public and private hospitals in and about Jacksonville. Deratization and fumigation services are available.

(92) Jacksonville is a **customs port of entry.**

(93) **Coast Guard.**–A **marine safety office** is in Jacksonville. (See appendix for address.) Mayport Coast Guard Base is on the east side of the river about 2.7 miles above the mouth at the southerly end of the waterfront at Mayport.

(94) **Harbor regulations.**–There is no harbormaster for the city of Jacksonville. The Jacksonville Port Authority, a State agency and corporation, operates the Talleyrand Docks and Terminals and the Blount Island Terminal; the berthing of vessels and other aspects of the direct operation of these terminals is controlled by the Director of Marine Division. The operating staff of the port authority is directed by a managing director; the offices are at the Port Central Office Building, 2701 Talleyrand Avenue, near Talleyrand Docks and Terminals.

(95) Portions of Blount Island Terminal are within a **safety zone** and a **security zone**. (See **165.1 through 165.33, 165.720, 165.728, and 165.729**, chapter 2, for limits and regulations.)

(96) **Wharves.**–Of the 27 principal piers and wharves described for the port, 6 are operated by the Jacksonville Port Authority and the others are privately owned and operated. Most of the terminals have excellent highway connections. Three switching railroads connect the terminals and the three major railroads serving Jacksonville. General cargo at the port is usually handled by port cranes, and equipment is available for all lifts. Crawler and truck cranes with lifting capacities to 100 tons are available.

(97) With one exception, only the deep-draft piers and wharves are described. For a complete description of the port facilities, refer to Port Series No. 15, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths given for each facility are reported depths. (For the latest such depth information, contact the Jacksonville Port Authority or the private operator.)

(98) **Gate Maritime Terminal**: five berths, capable of berthing vessels in excess of 1,000 feet along both sides of Back River (Gate Maritime Slipway), at the southeast end of Blount Island; maximum draft permitted alongside is 40 feet; deck height, 10 feet; one 40-ton crane; water and electrical connections; receipt and shipment of miscellaneous bulk materials, notably gypsum and lime rock, mooring vessels and harbor tugs, and handling heavy-lift items and military cargo; used by commercial and government vessels; owned and operated by Gate Maritime Properties, Inc.

(99) **Blount Island Terminal**: seven berths on the main St. Johns River channel on the west part of Blount Island, 10 miles above St. Johns River entrance; 5,250-foot bulkhead wharf; 38 feet alongside; deck height, 9 feet; cranes to 45 tons; handles containerized, conventional, and roll-on roll-off general cargo, automobiles, steel products, kraft paper, and lineboard rolls; operated by Jacksonville Port Authority. A 600-foot dock on the west side of Blount Island is operated by the port and used for the loading and unloading of automobiles.

(100) **St. Johns River Coal Terminal**: on main St. John River channel east of Jacksonville Port Authority berths, 10 miles

above St. Johns River entrance; 808-foot bulkhead wharf; 38 feet alongside; deck height 9 feet 45-ton clamshell bucket unloader, unloads coal on to a conveyor system which transports coals to a coal-fired generation station 3.5 miles inland, unloading rate 750-1500 tons per hour; operated by St. Johns River Power Park.

(101) **Celotex Corp. Dock**: west side of Blount Island Channel (old river channel), 0.35 mile northward of the southwest tip of Blount Island; offshore wharf with 20-foot face, 536-foot berth with dolphins; 32 feet alongside; deck height, 10 feet; adjustable receiving hopper on wharf connected by conveyor to open storage area, delivery rate about 1,100 tons per hour; handles gypsum rock.

(102) **North Side Generating Station Wharf**: northwestern side of Blount Island Channel, 1.15 miles northeastward of Kaiser Gypsum Co. Wharf and 0.2 mile southwestward of the Blount Island highway bridge; offshore wharf with 60-foot face, 700 feet with mooring dolphins; 20 feet alongside; deck height, 13½ feet; fuel oil for plant consumption; operated by Jacksonville Electric Authority.

(103) **Amerada Hess Corp., Jacksonville Terminal Wharf**: north side of St. Johns River at mouth of Broward River, 0.3 mile east-northeastward of Drummond Point; offshore wharf with 300-foot face, 800 feet with mooring dolphins; 38 feet alongside; deck height, 12 feet; handles petroleum products, Bunker C, and occasional loading of harbor bunkering barges.

(104) **Drummond Point Terminal**: extending from Drummon Point; offshore wharf with 143-foot face, 1,000-foot berth with dolphins; 38 feet alongside; deck height, 12 feet; hose-handling derrick; handles petroleum products and loading harbor bunkering-barges; operated by Gulf Oil Refining and Marketing Co. and American Oil Co.

(105) **U.S. Gypsum Co. Pier**: just south of Trout River entrance on west side of St. Johns River at 30°23'01.5"N., 81°37'55.0"W.; pier 616 feet long and 42 feet wide, berthing only along south side, usable space 455 feet with dolphins; 28 feet alongside; deck height, 6 feet; self-unloading vessels discharge into a hopper served by a conveyor system, which extends full length of pier to an open storage area ashore, delivery rate 1,000 tons per hour; handles gypsum rock.

(106) **ST Services Wharf**: 0.34 mile southward of U.S. Gypsum Co. Pier, west side of river; offshore wharf with 80-foot face, 1,000 feet with mooring dolphins; 38 feet alongside; deck height, 12 feet; handles petroleum products; operated by Philips Petroleum Co. and ST Services.

(107) **PCS Phosphate**: on south side of entrance to Long Branch Creek, offshore wharf consisting of a line of dolphins connected by catwalks, 800-foot berth; 38 to 40 feet alongside; deck height, 10 feet; 2 loading towers, each with a loading rate of 3,000 long tons per hour; towers are served by conveyor from phosphate storage silos, total capacity 30,000 tons; handles phosphate rock, phosphoric acid, and phosphatic products.

(108) **Alton Box Board Co. Fuel Dock**: 30°22'03"N., 81°37'31"W.; offshore wharf with mooring dolphins in line with face, 51-foot face, 250-foot berth with dolphins; 24 feet alongside; deck height, 10 feet; hose-handling derrick; pipeline connects wharf and storage tanks; handles fuel oil for plant consumption.

(109) **J. Dillon Kennedy Generating Station Wharf**: 30°21'53"N., 81°37'22"W.; offshore wharf with 101-foot face 220-foot berth with two dolphins; 36 feet alongside; deck height, 10 feet; handles fuel oil for plant consumption; operated by Jacksonville Electric Authority.

(110) **Coastal Fuels Marketing, Inc. Terminal wharf**: west side of river, 0.29 mile southeastward of J. Dillon Kennedy Generating Station Wharf; offshore wharf with 140-foot face, 750-foot berth with dolphins; 34 feet alongside; deck height, 13 feet; hose-handling derrick; handles asphalt products.

(111) **Chevron Tanker Dock**: west side of river, 0.16 mile south of Belcher Oil Co. Terminal Wharf; 50-foot face, 280-foot berth with dolphins; 31 feet alongside; deck height, 12 feet; hose-handling derricks; handles petroleum products; operated by Chevron USA, Inc.

(112) **Jacksonville Port Authority, 8th Street Terminal**: west side of river at 30°20'42"N., 81°37'20"W.; 700-foot bulkhead wharf; 36 feet alongside; deck height, 9 feet; handles automobiles; operated by Joyserv Co. Ltd.

(113) **Jacksonville Port Authority, Talleyrand Docks and Terminals, Berths 1, 2, 3, 4, and 5** (Berth 1 being the most northerly of the five): bulkhead wharf providing 4,100 feet of continuous berthing space immediately northward of the JPA 8th Street Terminal; deck heights, 9 feet; 36 feet alongside; handles containerized cargo, conventional general cargo, refrigerated cargo, automobiles, molasses, bagged coffee beans, caustic soda, lumber, steel products, chemicals, and lignin sulfonate; berth 1 also handles petroleum products; Municipal Docks Railway connects the terminal with all trunkline carriers serving the port.

(114) **Crowley American Transport Trumbull Asphalt Dock**: west side of river 0.7 mile north of the Matthews Highway Bridge; 425-foot face; 17 feet alongside; deck height 9 feet; receipt of asphalt.

(115) **Crowley American Transport Barge Dock**: west side of river immediately south of the CAT Trumbull Asphalt Dock and 0.5 mile north of the Matthews Highway Bridge; 3 mooring dolphins extend out in a line from the West bank 430 feet; 260-foot face; 20 feet alongside; deck height, 9 feet; 3 deck roll-on/roll-off ramp; handles containerized ro-ro general cargo, automobiles, and heavy-lift items.

(116) **Commodore's Point Terminal Wharf**: west side of the river at Commodore Point; 700-foot face; 28 feet alongside; deck height, 5 ½ feet; handles conventional general cargo, petroleum products, chemicals bulk cement, bananas, and fertilizer; various operators.

(117) **Jacksonville International Terminals Co.**: north side of the river at 30°19'19"N., 81°38'56"W., at the sight of the old Jacksonville Shipyards; 5 berths available ranging from 300 feet to 900 feet; alongside water depth to 42 feet; deck height, 8 feet; 250-ton crane; container and break bulk handling equipment; stevedoring and terminal services for both ro/ro and lo/lo operations.

(118) **South Side Generating Station Wharf**: south side of river at 30°19'01"N., 81°38'50"W.; offshore wharf with 100-foot face, 428-foot berth with dolphins; 30 feet alongside; deck height, 12 feet; two hose-handling derricks; handles fuel oil for plant consumption; operated by Jacksonville Electric Authority.

(119) **Supplies** of all kinds in any quantity can be obtained, and all types of marine services are available in Jacksonville. Freshwater is piped to the terminals. Fuel oil and diesel oil are available at the oil terminal wharves and by tank barge; most vessels bunker by barge while alongside.

(120) **Repairs.**–A small shipyard is on the river at the junction with Sisters Creek (Intracoastal Waterway) and has a 4,000-ton

marine railway. A yard about 3 miles above the mouth of the St. Johns River has a 200-ton and a 500-ton marine railway that can handle vessels up to 100 feet in length with complete shipyard facilities available. A shipyard on the west bank of the river at Commodore Point has a floating drydock with a 2,800-ton lift capacity for vessels up to 389 feet in length and 3 wet berths for vessels up to 700 feet in length and 25-foot draft with complete shipyard facilities available.

(121) In addition to the shipyards, Jacksonville has all types of specialized marine manufacturing, sales, and repair firms which handle such items as electronic equipment, electric motors and other components, ventilation and air conditioning systems, shafts and propellers, etc.

(122) **Small-craft facilities.**–Excellent facilities are available in Jacksonville. The municipal marina is on the south side of the river between the Main Street and Acosta bridges. A dockmaster assigns slips and enforces regulations for the marina; copies of the regulations may be obtained from his office. Public toilets are in the dockmaster's house. Adequate mooring lines and fenders should be used, as currents become quite strong in the slips. A large illuminated fountain is in the city park back of the marina. There are a number of other modern well-equipped marinas and boatyards in Jacksonville; the major facilities are on the Ortega and Trout Rivers. Supplies, services, and repairs are available for all types of yachts. (See the small-craft facilities tabulation on chart 11491 for services and supplies available.) Other small-craft facilities on St. Johns River above Jacksonville are in Goodbys Creek, Doctors Inlet, and Julington Creek.

(123) **Communications.**–The port is served by three railroads, Seaboard System Railroad, Florida East Coast Railway Co., and Southern Railway Co. The Jacksonville Port Authority operates its own switching railroad, which serves the Talleyrand Docks and Terminals. Excellent highways reach the city, and there is a toll expressway system providing rapid transportation within the city; the primary highways leading from Jacksonville are Interstate Highways 10 and 95, and U.S. Routes 1, 17, and 90. Jacksonville International Airport, operated by the Jacksonville Port Authority about 10 miles northward of the heart of the city, is served by six airlines. Both passenger and air freight service is available. There are also three general-aviation airports in the city. Numerous steamship lines connect with most of the principal foreign and domestic ports. Barge service is available for the Intracoastal Waterway, coastwise, and up the St. Johns River as far as Sanford.

(124) **Chart 11490.–Mayport Basin** is on the south side of the St. Johns River just inside the entrance jetties and westward of **St. Johns Point.** A deep channel leads along the inshore end of the south jetty to the basin. It is marked by a **255° lighted range,** lights, and lighted and unlighted buoys. Due to the relatively short distance between the lights of the range, sensitivity is poor. Mariners are advised to use the range with caution. Dangerous cross currents are reported to exist in the entrance to Mayport Basin; mariners are advised to enter at slack water or at a recommended speed of 13 knots. The waters of the turning basin are within a **prohibited area** of the U.S. Naval Station Reservation; commercial and pleasure vessels are prohibited from entering except in cases of extreme emergency. (See **334.500**, chapter 2, for limits and regulations.)

(125) **Mayport** is a town on the south bank of St. Johns River, 3 miles inside the entrance jetties. It has a ferry connection with the town of **Fort George Island** across the river. The wharves at Mayport are private and are used by fishing vessels. A Coast Guard base is at the southerly end of the waterfront. There is a marina and a yacht basin with reported depths of about 10 feet. Gasoline, diesel fuel, water, ice, restrooms, charter boat hire, showers, electricity, and bottled gas are available. Restaurants are nearby.

(126) **Chart 11491.**–The Intracoastal Waterway crosses the St. Johns River 5.3 miles from the entrance through Sisters Creek on the north and Pablo Creek on the south.

(127) A shipbuilding and drydock company is on the north side of the river and on the east side of Sisters Creek. The firm builds steel-hulled tugs and fishing vessels and does all kinds of repair work on commercial and Government vessels; work on pleasure craft, except very large yachts, is not done here. There is a 4,000-ton marine railway, several mobile cranes, complete shop facilities, and berths for vessels of up to 585 feet. The marine railway is on the St. Johns side of the yard, while the construction work is done on the Sisters Creek side. This firm has built a vessel 220 feet long.

(128) **Blount Island,** low and sandy with fringing marshes, is on the north side of the St. Johns River about 9 miles above the entrance. The Jacksonville Port Authority terminal near the southwestern tip of the island, and Gate Maritime Terminal in Back River (Gate Maritime Slipway) at the southeastern tip of the island have been described under "Wharves" for the Port of Jacksonville.

(129) **Blount Island Channel,** a cutoff bend of the St. Johns River, extends from the main river channel around the northern side of Blount Island and rejoins the main channel at the southwestern tip of the island. The channel is practically divided near its midpoint by four low fixed bridges with least clearances of 18 feet horizontally and 5 feet vertically. Overhead power cables, with clearances of 175 feet, are on both sides of the southwesternmost highway bridge. The Federal project depth for the channel is 30 feet, but the controlling depth is usually considerably less than project depth. (See Notice to Mariners and chart tabulation for the latest controlling depths.) Two deep-draft private wharves on the marked western leg of Blount Island Channel are described under Jacksonville "Wharves".

(130) A fixed highway bridge with a clearance of 169 feet crosses St. Johns River just above Blount Island at Dames Point.

(131) **Broward River,** on the north side and 13 miles from the entrance to St. Johns River, has depths of 1 to 3 feet to Cedar Heights. The Heckscher Drive (State Route 105) highway bridge at the mouth has a 40-foot bascule span with a clearance of 13 feet. Overhead power cables at the bridge have a least clearance of 34 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.)

(132) The offshore wharf and shore facilities of a U.S. Navy Fuel Depot are 1.2 miles southwestward of **Drummond Point** on the northwest side of the St. Johns River, just below the mouth of the Trout River. The wharf has a 351-foot face, 660 feet of berthing space with dolphins, 38 feet alongside, and a deck height of 11 feet. Pipelines extend from the wharf to storage tanks onshore. The fuel depot is in a **restricted area.** (See **334.510**, chapter 2, for limits and regulations.)

(133) **Trout River,** north of downtown Jacksonville, has depths of 7 feet to the mouth of Ribault River and 3 feet to the highway bridge 4.5 miles above the mouth. The entrance is marked by

daybeacons. A small repair yard is on the east side of a small cove on the south side of the river about 0.4 mile above the entrance. The yard has berths, electricity, water, two 6-ton lifts, and a marine railway that can handle craft up to 85 feet long or 200 tons; hull and engine repairs can be made. Depths of 8 feet are reported in the approach and alongside. The Main Street (U.S. Route 17) highway bridge 0.9 mile above the entrance has a fixed span with a clearance of 29 feet. The highway bridge, adjacent to the westward, except for the channel span, remains as a fishing pier. The overhead power cable at the bridge has a clearance of 38 feet. The Seaboard System Railroad (SCL) bridge just upstream has a swing span with a channel width of 46 feet and a clearance of 2 feet. (See **117.1 through 117.59 and 117.337**, chapter 2, for drawbridge regulations.) The overhead power cable, 0.5 mile above the bridge, has a clearance of 45 feet. A marina on the south side, just east of the Main Street bridge, has berths, electricity, gasoline, diesel fuel, water, a launching ramp, and storage; outboard engines can be repaired. The Interstate 95 highway bridge, 2 miles above the mouth, has a fixed span with a clearance of 29 feet at the center.

(134) State Route 115 highway bridge, 4.5 miles above the mouth, has a 40-foot fixed span with a clearance of 18 feet. The overhead power cable just westward of the bridge has a clearance of 45 feet.

(135) Groups of piles, sunken wrecks, and barges are near the shores of Trout River. There are numerous private piers and landings on the river. The Jacksonville City Zoo is on the north side of the river downstream of the first bridge.

(136) **Charts 11492, 11495.–St. Johns River south of Jacksonville bridges.** Many pleasure craft ply the river south of Jacksonville, going as far as Sanford. Commercial traffic is light and consists of barges hauling petroleum products for oil company distributors and fuel oil for power plants; the oil barges are loaded at Jacksonville and towed to Palatka and Sanford.

(137) The route from Jacksonville to Sanford, a distance of 123 miles, is well marked by lights and daybeacons, and is comparatively easy to navigate with the aid of the charts. However, if a local pilot is desired, fishermen from Jacksonville, Palatka, Welaka, or Sanford will serve. The upper reaches of the river are partly obstructed by hyacinths at certain times of the year, and floating obstructions are a continual menace to navigation. A program for eradication of obnoxious aquatic plant growth, consisting mostly of spraying, is carried on jointly by the Corps of Engineers and the Florida Game and Fresh Water Fish Commission. The unimproved creeks tributary to the St. Johns River may be obstructed by logs and hyacinths.

(138) Fish traps, pilings, and remains of old wharves are generally found close inshore or on the bars in midstream. Fish traps are usually constructed of small poles and are frequently destroyed and rebuilt. In some cases, they extend several feet above high water and can be avoided in daylight hours. In some places they have been broken off below the water and are a serious menace to small craft.

(139) **Channels.**–A Federal project provides for a channel 13 feet deep from Jacksonville for 48 miles to Palatka, thence 12 feet deep for 75 miles to Sanford, and thence 5 feet deep for about 18 miles to Lake Harney. This project, however, has not been maintained in recent years because of the light commercial traffic. (See the charts for controlling depths.)

(140) **Bridges.**–General drawbridge regulations and opening signals for bridges over the St. Johns River and tributaries are given in **117.1 through 117.49**, chapter 2. Special drawbridge regulations for certain bridges that supplement the general regulations are referenced with the area description of the waterway.

(141) **Chart 11492.**–A **038°56'-218°56'** measured nautical mile is near the northwest shore of the St. Johns River between **Winter Point** and the Ortega River. The target at each end of the course has two pile structures 8 feet apart and perpendicular to the course with a steel rod at the top of each pile. The piles are connected by an observer's platform.

(142) **Ortega River** is about 2 miles south of Fuller Warren Bridge (30°18.9'N., 81°40.3'W.) on the west side of the St. Johns River. It is the major yachting center in the Jacksonville area. The mouth of the river is marked by a light. In May 1983, the reported controlling depth was 6 across the bar at the entrance, thence 7 feet to the railroad bridge, thence 5 ½ feet for a distance of 1.4 miles above the second highway bridge.

(143) In August 1985, shoaling to 2 feet was reported in the vicinity of Ortega River Light 3.

(144) The Grand Avenue (State Route 211) highway bridge, at the entrance to Ortega River connecting **Ortega** and **St. Johns Park** has a bascule span with a clearance of 9 feet. The Roosevelt Boulevard (U.S. Route 17) highway bridge, 0.7 mile upstream, has dual fixed spans each with a clearance of 45 feet. The northern 180-foot section of the former highway bascule bridge immediately westward remains as a fishing pier. An overhead power cable with a clearance of 65 feet is at the fishing pier. The Seaboard System Railroad (SCL) bridge immediately westward of the fishing pier has a 40-foot bascule span with a clearance of 2 feet. The Timquana Road highway bridge crossing the river 1.9 miles above the railroad bridge has a fixed span with a clearance of 20 feet.

(145) A modern well-equipped marina and boatyard are on the northwest side of the Ortega River about 0.4 mile above the first bridge. The marina has about 235 slips and 20 berths and can accommodate boats up to 60 feet in length with a reported approach depth of 8 feet and alongside depth of 5 feet in January 2001. Gasoline, ice, water, electricity, and showers are available with a shopping center and restaurants nearby. The boatyard, closed Sundays, makes complete hull and engine repairs; a 50-ton travel lift is available.

(146) Another marina on the northwest bank of the Ortega River just northeastward of the twin highway bridges has berths for 75 boats to 52 feet in length, with reported depths of 10 feet in May 1983. A 25-ton mobile lift and a 3½-ton forklift are available for complete repairs. Gasoline and oil, diesel fuel, water, ice, electricity, and other supplies and services are available. On the southwest side of this bridge is the yard of a yacht-building corporation. About 0.2 mile above the twin bridges, on the northwest side, there is another excellent marina for yachts. There are 50 transient berths with reported depths of 7 feet. Gasoline and oil, diesel fuel, water, ice, electricity, and marine supplies are available. Complete repairs can be made; there are two 30-ton hoists. A shopping center and a cafeteria are within three blocks of the marina.

(147) **Cedar River,** a tributary of the Ortega, enters from the northward about 1.5 miles above the mouth. In May 1983, the reported controlling depth was 6 feet from the entrance to the highway bridge 1.4 miles above the entrance. The Blanding Boule-

vard highway bridge, 0.6 mile above the mouth, has twin fixed spans with a horizontal clearance of 30 feet and a vertical clearance of 16 feet. An overhead power cable 100 yards above the bridge has a clearance of 43 feet. The San Juan Avenue highway bridge, 1.4 miles above the mouth, has a 39-foot fixed span with a clearance of 11 feet at the center.

(148) On the west side of St. Johns River, 4 miles southward of Fuller Warren Bridge at the entrance to **Pirates Cove,** is the private Florida Yacht Club. **Special anchorages** are off the entrance to Pirates Cove. (See **110.1 and 110.73**, chapter 2, for limits and regulations.)

(149) **Goodbys Creek,** on the east side of the St. Johns River about 7 miles southward of Fuller Warren Bridge, has reported depths of about 2 feet to just above the twin bridges of State Route 13, about 0.3 mile above the entrance; the twin 32-foot spans have a clearance of 11 feet. The entrance is marked by a light, and pilings border the channel. Local knowledge is advised. Two small marinas are on the north side of the creek, on either side of the bridges; gasoline and oil, berths, water, ice, and some marine supplies are available. The lower marina has a 15-ton hoist; hull, engine, and electronic repairs can be made. In May 1983, with local knowledge, 6 feet was available to the lower marina.

(150) Jacksonville Naval Air Station extends along the west side of the St. Johns River about 0.7 mile northwestward of and 2.5 miles south-southwestward of **Piney Point.** A large pier is close south of Piney Point. In April 1982, the dredged channel leading to the pier had a controlling depth of 14 feet to the outer end of the pier except for shoaling to 13 feet along the northeast edge of the basin, thence 16 feet north and 11 feet south of the pier. Another dredged channel leads to a small basin at the station about 2.4 miles southward of Piney Point. In 1978, the controlling depth was 9 feet in the channel and 6 feet in the basin except for shoaling to 3 feet at the west end.

(151) The twin fixed spans of Highway 295 bridge, with clearances of 65 feet cross the St. Johns River just below the Naval Air Station, 2.5 miles southward of Piney Point.

(152) In August 1985, a sunken wreck was reported near the Highway 295 bridge in about 30°11'21"N., 81°39'33"W. In 1996, a submerged wreck was about 1,000 yards southward of the bridge, in about 30°11.0'N., 81°41.0'W.

(153) **Orange Park,** 10 miles south of Fuller Warren Bridge on the west bank of the St. Johns River, is a winter resort.

(154) In September 1986, a 10-foot shoal spot was reported about 1.1 miles southeast of Orange Park in about 30°09'14"N., 81°41'11"W.

(155) **Doctors Inlet,** 10.5 miles southward of Fuller Warren Bridge, is the entrance to **Doctors Lake** from the St. Johns River. In May 1983, the inlet had a reported controlling depth of 12 feet, thence general depths of 7 to 12 feet to the head of the lake. Because of extensive shoals on both sides of the inlet, midchannel courses must be steered from abeam of Light 10 until through the inlet. The lake is an excellent fishing ground for sportsmen and a haven for small boats in stormy weather. U.S. Route 17 fixed highway bridge with a clearance of 37 feet crosses the mouth of Doctors Inlet.

(156) There is a well-equipped marina on the south side of Doctors Inlet immediately west of the highway bridge. There are 35 covered slips for boats of up to about 40 feet and 7 open 24-foot slips; depths to the berths are reported to be about 5 feet. Gasoline pumps are on a bulkhead about 300 feet long; sailboats too large for the open slips may moor here. Ice, water, electricity, and some marine supplies are available. Also, on the south side of the inlet just eastward of the bridge is another marina. The entrance channel is marked by private daybeacons. In April 1990, the reported alongside depth was 6 feet. Ice, water, electricity, and some marine supplies are available. A 20-ton mobile lift is available, and hull repair can be made.

(157) In May 1983, many pilings, visible at low tide, but submerged at high tide, were reported in Doctors Lake: several along the northern lakeshore between Orange Point and Macks Point, others off Cane Point, Dixton Siding, and Catfish Point. An old target area and submerged pilings are reported in Mill Cove.

(158) **Swimming Pen Creek,** with two small arms at its head, is entered through an unmarked channel at the south end of Doctors Lake. A 23-foot fixed span highway bridge with a clearance of 6 feet crosses the creek about 0.4 mile above the entrance. In January 1996, a replacement fixed highway bridge with a clearance of 10 feet was under construction at the same location as the existing bridge; upon completion, it will replace the existing bridge. With local knowledge depths of about 4 feet can be carried to the bridge, thence about 1 to 2 feet to the head of east and west arms. An overhead power cable with a clearance of 31 feet crosses the creek just above the bridge. Piles, some submerged, are in the creek; exercise extreme caution. A small fish camp is on the east side of the bridge; gasoline, water, and ice are available.

(159) **Julington Creek,** 13 miles south of Fuller Warren Bridge on the east bank, had a reported controlling depth of 5 feet in May 1983, to State Route 13 highway bridge about a mile inside the entrance, thence 4½ feet for another 1.3 miles. The highway bridge has a 44-foot fixed span with a clearance of 15 feet. An overhead power cable with a clearance of 40 feet crosses the creek at the bridge on the east side.

(160) A fish camp, on the north bank of the creek just westward of the bridge, has berths, electricity, gasoline, water, ice, launching ramp, and limited marine supplies. A marina is on the north side of the creek just eastward of the bridge. There are 50 covered and open berths with fresh water and electricity. Gasoline and oil, ice, showers, and a restaurant are available. A 12-ton mobile lift is available, and all types of repairs can be made. The southern city limit of Jacksonville follows the north side of Julington Creek.

(161) **Black Creek,** 18 miles southward of Fuller Warren Bridge at Jacksonville, is navigable for vessels of about 8-foot draft for about 15 miles to the town of **Middleburg.** In May 1983, the reported controlling depth was 7 feet to the Seaboard System Railroad bridge. The creek is used by small craft as a refuge during hurricanes. The trees along the bank form an excellent windbreak. Just inside the entrance are U.S. Route 17 twin fixed highway bridges with clearances of 30 feet. About 2.2 miles above the highway bridge an overhead power cable has a clearance of 47 feet. The Seaboard System Railroad (SCL) bridge, 5 miles above the mouth, has a 44-foot fixed span with a clearance of 20 feet. Above the Seaboard System Railroad bridge up Black Creek to Middleburg are numerous bridge and cable crossings. The minimum vertical clearances are: 20 feet in Black Creek to the junction with North Fork and South Fork; 16 feet in North Fork; and 13 feet in South Fork. The bridges minimum horizontal clearances are: 40 feet in Black Creek to North Fork and South Fork; 30 feet in North Fork; and 40 feet in South Fork.

(162) **Green Cove Springs,** a town on the west bank of the St. Johns River about 20 miles south of Jacksonville's Fuller Warren Bridge, has a number of private piers and a public concrete T-pier owned by the city. A hotel and restaurant are three blocks up the street leading from the foot of the municipal pier. A **customs station** is at Green Cove Springs.

(163) The many long piers and the extensive group of buildings and other facilities just southeastward of Green Cove Springs were formerly part of a U.S. Naval Station, but are now included in a privately owned industrial park; the northwesternmost pier is used by a small shipyard which builds steel barges, and the other piers are used for the dismantling of vessels by a scrap-metal company. A large orange and white checkered tank in the industrial park is prominent from the river. A boatyard that repairs company-owned tugs and barges is southwest of the long piers on the west side of the entrance to **Red Bay Creek**. The yard has a 1,000-ton synchrolift drydock and transfer system. Emergency hull, engine, and electronic repairs can be made.

(164) A section of a former bridge 2 miles southeastward of Green Cove Springs extend out into the river 500 yards from the south shore and 500 yards from the north shore; the rest of the bridge was removed. State Route 16 highway bridge, 0.5 mile upstream, crosses the river from **Red Bay Point** to **Smith Point;** it has a fixed span with a clearance of 45 feet. There are submerged obstructions in the river from **Magnolia Point,** 4 miles below the bridge, to Smith Point. The areas are outlined on the chart and should be avoided.

(165) **Trout Creek** and **Sixmile Creek** have a common entrance 24 miles south of Fuller Warren Bridge. These creeks are navigable for about 3 or 4 miles upstream. In May 1983, the reported controlling depth was 4½ feet to Hardwood on Trout Creek, and a depth of 4 feet could be carried with local knowledge for about 2.2 miles on Sixmile Creek. State Route 13 highway bridge, 0.5 mile above the entrance of Trout Creek, has a 38-foot fixed span with a clearance of 14 feet. Gasoline, water, ice, minor repairs, limited marine supplies, and launching ramps are available at small fish camps in **Palmo Cove,** at the head of the common entrance, in Trout Creek, just above the bridge, and in **Florence Creek,** about 1 mile northwestward of Palmo Cove. State Route 13 highway bridge, 1 mile above the entrance to Sixmile Creek, has a 40-foot fixed span with a clearance of 12 feet. An overhead power cable with a clearance of 40 feet crosses the creek just below the bridge.

(166) **East Tocoi,** 32 miles south of Fuller Warren Bridge, is a small fish camp on the east side of the river. Gasoline, ice, and water are available.

(167) **Chart 11492.–Ninemile Point,** south of Jacksonville, is a sharp point at a wide bend of the river. An overhead power cable across the outside bend about 1.5 miles east of the point has a clearance of 38 feet.

(168) **Rice Creek,** 44 miles south of Jacksonville, is used occasionally by fuel barges going to the paper plant, about 2.3 miles above the mouth, near the head of its southerly branch. Paper from the plant is shipped by rail and barge. The creek is entered through a dredged channel which leads westward from St. Johns River to near the head of the southerly branch. In May 1985, the midchannel controlling depth was 10 feet from St. Johns River to near the head of the southerly branch. The channel is marked by a **273.3°** lighted approach range, lights, and daybeacons. The Seaboard System Railroad (SCL) bridge, 0.6 mile above the mouth, has a swing span with a channel width of 40 feet and a clearance of 2 feet. U.S. Route 17 highway bridge, 0.8 mile above the mouth, has twin fixed spans with a clearance of 45 feet. The overhead power cables at the bridge and 1.1 miles westward have clearances of 60 feet and 59 feet, respectively.

(169) Putnam County Barge Port, about 0.6 mile southward of the entrance to Rice Creek, has a 410-foot marginal wharf with 8 feet reported alongside. Water, electricity, railroad connections, and warehouse space are available. Traffic is mostly in paper products. Transient pleasure craft may moor alongside the wharf at their own risk.

(170) An overhead power cable, with a clearance of 91 feet over the main channel and 60 feet elsewhere, crosses St. Johns River about 1.6 miles southward of the channel into Rice Creek.

(171) **Palatka** is an important upriver town on the St. Johns River 48 miles south of Jacksonville. There are several sawmills; wood chips are shipped from them by rail to the papermill on Rice Creek. The marina here has good facilities for yachts. There are over 30 berths with water and electricity at finger piers in front of a large building about 0.3 mile southwestward of U.S. Route 17 highway bridge. Gasoline and diesel fuel are pumped; ice, marine hardware, accessories, and other supplies are available at the marina; and groceries, laundry facilities, and overnight accommodations are available nearby. A 40-ton marine railway is available for hull, engine, and propeller repairs. The city pier, just northeastward of the marina, has berths, electricity, and water. Only overnight berthing is permitted. U.S. Route 17 fixed highway bridge across St. Johns River at Palatka has a clearance of 65 feet.

(172) **Wilson Cove,** 0.7 mile south of Palatka, is very shallow and fouled by hulks, piling, and concrete-ballast blocks.

(173) Overhead power cables with a least clearance of 90 feet cross the St. Johns River about 2.5 miles above the highway bridge.

(174) In January 1984, an overhead power cable with a design clearance of 100 feet was under construction about 3.5 miles above the highway bridge at Palatka.

(175) Along the southern shore of the St. Johns River, about 4.5 miles above Palatka between **San Mateo** and **Edgewater,** submerged piling of old piers are a menace to inshore navigation. Keep at least 150 yards off this shore. A submerged pile is on the northwest side of the river opposite Edgewater, in about 29°36'00"N., 81°36'30"W.

(176) A 25-ton mobile lift is available at San Mateo for do-it-yourself repairs.

(177) In April 1991, shoaling to an unknown extent was reported in St. John River between Murphy Island Daybeacon 18 and Light 20.

(178) **Dunns Creek,** 6.5 miles above Palatka, is the approach to Crescent Lake, and is used by pleasure and fishing boats. In May 1983, the reported controlling depth for 7.5 miles to the lake was 3 feet. Northeast storms raise the height of water in the creek. Some of the bends in the creek are sharp.

(179) From St. Johns River the creek should be entered from a point northeast of its mouth, passing about 50 yards off the fish traps on the east side of the entrance. The eastern entrance of **Polly Creek** is just to the west of the mouth of Dunns Creek, and care should be taken not to confuse the two.

(180) **Murphy Creek** crosses Dunns Creek 0.5 mile inside the entrance. The easterly section of the creek is obstructed by a row of piling in Dunns Creek.

(181) U.S. Route 17 fixed highway bridge crosses Dunns Creek 0.9 mile above the mouth and has a clearance of 45 feet. Overhead power and television cables are N of the bridge with a clearance of 55 feet.

(182) **Crescent Lake** is about 11 miles long and has a maximum width of about 2 miles. The general depths in June 1975 were between 8 and 13 feet, gradually shoaling toward shore. There are no periodic tides in the lake; the range of tide in Dunns Creek becomes zero near its end. Sudden squalls in the lake cause a chop dangerous to small boats. In the center of the lake, the bottom is soft mud. Near the shore, the bottom changes to hard sand. Large patches of hyacinth drift about the lake with the changing wind. The lake appears to be free of sunken logs, but when navigating near the shore a close watch should be maintained for broken-off piling and sunken logs. On the west side of the lake, about 1 mile above Crescent City, is a motel and fishing resort where berths with electricity, water, ice, gasoline, and limited marine supplies are available.

(183) **Crescent City** is on the west side of the lake about 6.5 miles from the north end. There are a municipal pier and a number of private piers, some of which are in ruins. The municipal pier had 10 feet reported alongside in May 1983.

(184) In May 1983, it was reported that a draft of 2 feet could be taken into and for a distance of 5 miles up **Haw Creek** at the head of Crescent Lake. Above this point navigation is obstructed by trees and logs. About 3 miles above the mouth is the hulk of a gunboat sunk during the Civil War.

(185) **Dead Lake** is about one mile long and 0.5 mile wide at the head of Crescent Lake and, in 1963, had a general depth of 8 feet in the center. St. Johns Park and the ruins of a dock are on the northeast shore. Considerable hyacinths are found at times in the lake.

(186) **Chart 11495.**–There are many fishing camps, resorts, and small marinas along the St. Johns River as far as Lake George; most have gasoline pumps, and some have moorage and other facilities. A recreation map showing the various facilities may be obtained from the Putnam County Chamber of Commerce, Box 550, Palatka, Fla. 32077.

(187) At **Buffalo Bluff,** 9.8 miles above Palatka, the St. Johns River is crossed by the Seaboard System Railroad (SCL) bridge which has a bascule span with a clearance of 7 feet. There are three boatyards at **Stokes Landing,** 1.6 miles southward of the railroad bridge at Buffalo Bluff. The southernmost has a 40-ton marine railway and complete yard facilities for hull, engine and electrical repairs. The other two boatyards are used for shipbuilding and maintenance of company-owned tugs and barges.

(188) The entrance to the **Cross Florida Greenway** is on the west side of the St. Johns River 2.4 miles southward of the railroad bridge at Buffalo Bluff. The canal is primarily open to barge traffic, but also pleasure and fishing boats. It extends from St. Johns River for 93 miles to the Gulf of Mexico at a point about 3.0 miles N of the Crystal River power plant.

(189) In December 1968, the **Henry Holland Buckman Lock** and **Rodman Dam** were completed, and the lock was open for use; it is the easternmost lock and is about 1.5 miles westward of the canal entrance from the St. Johns River. The lock is 84 feet wide and 600 feet long, has a depth of 14 feet over the gate sills, and a lockage time of 15 to 20 minutes; it is operated from 0800 to 1130 and 1200 to 1600 daily until the entire barge canal is completed. Traffic lights are in operation at both ends of the lock. (See **207.160**, chapter 2, for regulations.) Rodman Dam, across the Oklawaha River about 8 miles above its junction with the St. Johns River, blocks navigation of the Oklawaha River above the dam, as there is no lock; the upper Oklawaha River is reached through the eastern entrance of the barge canal from the St. Johns River, through Henry Holland Buckman Lock, thence through Lake Ocklawaha, the pool formed by Rodman Dam.

(190) In May 1983, the canal had been completed from the St. Johns River to the lock and for about 4.7 miles westward of the lock, where it enters Lake Ocklawaha. This completed section of the canal is unmarked; it is crossed about 1.6 miles westward of Henry Holland Buckman Lock by State Route 19 fixed highway bridge with a clearance of 68 feet; an overhead cable east of the bridge has a clearance of 85 feet. In traversing Lake Ocklawaha to the upper Oklawaha River, prior to completion of the dredged barge canal, it is advisable to follow the course of the Oklawaha River bed through the lake, which is marked by aids to navigation installed by the Corps of Engineers; the markers, on iron pipes, are red on the right side of the river and green on the left side when going down the lake (away from Henry Holland Buckman Lock). Caution should be exercised since numerous floating obstructions may be encountered in the lake. The lake extends about 13 miles to the site of the **Eureka Lock and Dam,** construction of which has been suspended, but which has a navigation bypass; boats of less than 3-foot draft can continue up the Oklawaha River from Eureka Lock and Dam to the junction with **Silver Springs Run,** a distance of about 17 miles; navigation of the river from Silver Springs Run to **Moss Bluff Lock and Dam,** about 12 miles, and from Moss Bluff Lock to **Lake Griffin,** about 8 miles, may not be feasible at times due to low water. Vessel operators should verify water levels with the Moss Bluff lockmaster (telephone 288-4171). Navigation regulations for the Moss Bluff Lock and Dam are given in **207.169**, chapter 2.

(191) Information on the pool level above Moss Bluff Dam is given in **207.170**, chapter 2. State Route 316 fixed highway bridge across the barge canal and Oklawaha River about 1 mile above the Eureka Dam has a clearance of 65 feet at the canal. The minimum clearances of the several highway swing bridges across the Oklawaha River above Eureka Dam are 8 feet vertical and 34 feet horizontal. (See **117.1 through 117.59 and 117.319**, chapter 2, for drawbridge regulations.)

(192) In 1986, the Federal government de-authorized the Cross Florida Barge Canal project and in 1990, turned the right of way over to the State of Florida. It is operated by the Office of Greenways and Trails under the State of Florida Department of Environmental Protection. For current information on the Cross Florida Greenway, contact the Office of Greenways and Trails at (850) 488-3701 in Tallahassee, FL.

(193) At the settlement of **Saratoga,** on the east side of the St. Johns River 2.3 miles southward of the Cross Florida Barge Canal entrance, there is a small private wharf with clock faces on the cupola of the shelter roof.

(194) A marine resort is on the east side of the river 0.9 mile southeastward of the charted cupola at Saratoga. There is a long landing and float here for moorage of about 100 boats, with reported depths of 8 feet. Gasoline and oil, diesel fuel, water, electricity, ice, and limited marine supplies are available.

(195) **Welaka** is a town on the east side of the St. Johns River, 18 miles above Palatka and 66 miles south of Jacksonville. There are several fishing camp landings, with depths of 5 to 7 feet alongside, where gasoline, water, ice, and some marine supplies

can be obtained. A marine railway can haul out boats up to 35 feet for general repairs. Provisions are available.

(196) **Oklawaha River** has its source in the system of large lakes in the central part of the peninsula of Florida and flows in a general northerly direction, then eastward, emptying into the St. Johns River 19 miles south of Palatka. Do not confuse the entrance of **Bear Creek** to the southward with the mouth of the river. The river is navigable for about 8 miles above the mouth to Rodman Dam; this is the head of navigation, as the dam has no lock. The upper Oklawaha River and Rodman pool are reached from the St. Johns River through the Cross Florida Barge Canal. (See the preceding description of that waterway.)

(197) The depths and the speed of the downstream current in Oklawaha River below Rodman Dam are uncertain and will vary with the amount of water discharged from the dam's spillway. In May 1983, it was reported that a depth of 4 feet could be taken to the dam. The river is extremely winding and is obstructed by shoals; snags and hyacinths may be encountered. State Route 19 fixed bridge crosses the river about 2.5 miles above the mouth with a clearance of 34 feet at low water stage.

(198) A ferry consisting of a tug and barge crosses St. Johns River 4.2 miles south of Welaka just below Mt. Royal. An overhead power cable with a clearance of 65 feet crosses the river at this point. Gasoline can be obtained at several fishing camps along the river between **Fort Gates,** about 5.3 miles south of Welaka, and Georgetown.

(199) **Georgetown** is a small town on the east bank of St. Johns River at the north end of Lake George, 8 miles south of Welaka. A ferry consisting of a tug and barge crosses the river between the town and **Drayton Island.** A marine railway that can handle craft up to 35 feet for hull and engine repairs is about 0.1 mile southeastward of the ferry landing. Fish camps at Georgetown have gasoline, water, ice, and limited marine supplies.

(200) **Lake George,** the first of the larger lakes on St. Johns River 75 miles south of Jacksonville, is about 10 miles long and 5.5 miles wide. The bottom is fairly uniform with depths of 8 to 12 feet in the center, shoaling rather abruptly near the shores. The improved channel, marked by a **347°** lighted range at the north end and a **166.8°** lighted range at the south end, lights, and daybeacons, cuts through the middle of the lake. In strong northerly and southerly winds the water becomes very rough. Small patches of hyacinth drift about the lake with the changing winds. Numerous old piling are found near the lake shore in 2 to 8 feet of water. The creeks emptying into the lake are shoal. A **naval bombing area** is in the eastern part of the lake. (See **334.520,** chapter 2, for limits and regulations.)

(201) In May 1982, guide piles at the south end of Lake George between Lights 15 and 17 were reported in disrepair and extending into the channel.

(202) **Astor** is a small village 4.5 miles south of Zinder Point at the south end of Lake George. State Route 40 highway bridge, across the St. Johns River has a bascule span with a clearance of 20 feet; in the open position the draw overhangs the west side of the channel above a height of 72 feet. The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign, WXY 904. The nearby overhead power cable has a clearance of 50 feet. In November 1984, the cable was reported to have sagged below its authorized clearance.

(203) There are good overnight accommodations here, on both sides of the river just south of the bridge. There are restaurants and motels with landings, and gasoline is pumped from several fuel piers. There are reported depths of 7 to 13 feet at the piers.

(204) **Chart 11495.**–The main channel of St. Johns River flows through the northwest portion of **Lake Dexter,** 92 miles south of Jacksonville. This very shallow lake is 3.7 miles long and about 0.9 mile in its widest part. In May 1983, it was reported that a draft of 3 feet could be carried eastward through Lake Dexter, **Tick Island Creek, Lake Woodruff, Spring Garden Creek,** and the northern portion of **Spring Garden Lake** to **De Leon Springs.** The channel and aids to navigation are privately maintained. De Leon Springs is a privately owned tourist attraction and is one of the larger freshwater springs in Florida.

(205) On the St. Johns River 14.6 miles south of **Dexter Point,** at **Crows Bluff,** the river is crossed by State Route 44 highway bridge which has a bascule span with a clearance of 15 feet at the center. An overhead power cable with a clearance of 83 feet crosses the river 0.3 mile north of the bridge. A marina is on the east side of the river 0.2 mile north of the bridge; berths with electricity, water, ice, gasoline, launching ramp, hull and engine repairs, and a 20-ton mobile lift are available. On the east side of the river just north of the bridge, is a small park with boat basin, small piers, and launching ramp. In June 1975, general depths of about 7 feet were reported in the basin. Water can be obtained at the park. Just south of the bridge, gasoline is available at a landing which had a reported depth of 4½ feet alongside in May 1983.

(206) Several fishing resorts are between the bridge at Crows Bluff and Lake Beresford; berths, electricity, gasoline, diesel fuel, water, ice, some marine supplies, and launching ramps are available, and hull and engine repairs can be made.

(207) **Lake Beresford** is a small lake, 2.2 miles long north and south and 0.5 mile wide, on the east side of the St. Johns River, 107 miles south of Jacksonville. A yacht club, fish camp, and boatyard are on the west side of the lake, and two fish camps are on the east side. Gasoline, water, and ice are available at the fish camps. The boatyard has a 32-foot marine railway, 4-ton marine lift, 32 berths with reported depths of 5 to 7 feet alongside, wet and covered storage, marine supplies, water, and electricity; hull and engine repairs can be made. **Beresford** is a small town and landing near the north end of the lake. In May 1983, the reported controlling depth was 3 feet to and alongside the dock of a fish camp at the town.

(208) **Manatees.**–A motorboat prohibited zone for the protection of manatees is in **Blue Springs Run,** and regulated speed zones are at its junction with St. Johns River, about 2 miles above Lake Beresford. (See Manatees, chapter 3.)

(209) **Wekiva River,** 115 miles south of Jacksonville, had a reported controlling depth of 3 feet in May 1983 for a distance of about 3 miles above the mouth; above this point the river is little used and is obstructed by trees, logs, and hyacinth. The entrance is difficult to distinguish.

(210) The improved channel of St. Johns River enters **Lake Monroe** 120 miles south of Jacksonville. Near the west end of the lake the river is crossed by three bridges. The Seaboard System Railroad (SCL) bascule span and the U.S. Route 17 highway swing span have a minimum clearance of 7 feet. In March 1993, a replacement fixed highway bridge was under construction for the Route 17 swing span. The overhead power cables below and above these bridges have a minimum clearance of 49 feet. On the north side of the river just east of the highway bridge is the small dredged basin of a State Park with reported depths of about 5 feet

in March 1980. Berths and launching ramps are available. The Interstate Route 4 fixed bridge, nearest the lake, has a clearance of 45 feet.

(211) **Enterprise** is a town on the north shore of Lake Monroe. A channel, marked by daybeacons, leads to the wharf of a powerplant west of the town. In 1984, the centerline controlling depth was 7½ feet.

(212) **Sanford,** 123 miles south of Jacksonville, is an important city and railroad center on the south side of Lake Monroe in the heart of the celery district. Commercial barge traffic consists of petroleum products from Jacksonville; there are three oil company receiving piers westward of the yacht harbor. The modern well-equipped yacht harbor has two fueling stations which pump gasoline and diesel fuel, and ice, water, electricity, and other supplies and services are available. A large motel is adjacent to the harbor. A mobile hoist can haul out boats up to 50 feet or 20 tons for complete repairs. Depths are reported to be 6 feet. Another small-craft facility available in the Sanford area is at a boatworks just off the St. Johns River about 3 miles eastward of the city; the facility is on the south bank of **Indian Mound Slough,** just northwestward of the highway bridge at 28°48'06"N., 81°12'49"W. Freshwater, gasoline, diesel fuel, ice, and electricity are available here. Boats 75 feet long can use the docks and moorings. The marine railway is capable of hauling out boats 55 feet long. Hull and engine repairs can be made. A wharf 200 feet long provides covered storage for over 50 boats up to 60 feet in length. A depth of about 8 feet can be taken to the railway.

(213) **St. Johns River above Sanford.**–The route from Lake Monroe to Lake Harney, a distance of 15 miles, is marked by numerous markers which have not been maintained since 1940. Navigation is not difficult except during periods of high water when the banks are flooded, at which time a local pilot should be taken.

(214) State Route 415 highway bridge crossing the St. Johns River, 3 miles east of Sanford, has a fixed span with a clearance of 25 feet. An overhead power cable at the bridge has a clearance of 69 feet.

(215) At the entrance to **Lake Jesup,** 6 miles east of Sanford, State Route 46 highway bridge crosses the channel entering the lake. It has a 47-foot fixed span with a clearance of 14 feet. A section of the old bridge just downstream extends 45 feet from the west shore and is used as a fishing pier. Lake Jesup is about 8.5 miles long with a greatest width of 2.2 miles. It is very shallow at the entrance and little used. General depths in the lake are 6 to 8 feet. An overhead power cable, about 6.1 miles upriver from Lake Jessup to Lake Harney, crosses the river with a clearance of 65 feet.

(216) St. Johns River flows from **Lake Harney,** 140 miles south of Jacksonville. The lake is about 3.6 miles long with a greatest width of 2.2 miles. It is uniformly 6 to 7 feet deep except along the shores where it shoals. Boats do not generally go above the lake.

(217) Above Lake Harney the St. Johns River continues generally southward through Lake Poinsett, Winder, Washington, Sawgrass, and Hellen Blazes, then into St. Johns Marshes.

10. ST. JOHNS RIVER TO MIAMI

(1) This chapter describes the Florida coast southward from the St. Johns River (30°24'N., 81°24'W.) to Miami (25°46'N., 80°08'W.), and includes the deepwater ports at Port Canaveral, Fort Pierce, Port of Palm Beach, Port Everglades, and Miami. Information for offshore navigation is given first, followed by a detailed description of the coast, inlets, and seaports. The Intracoastal Waterway for this section of the coast is described in chapter 12.

(2) **COLREGS Demarcation Lines.**–The lines established for this part of the coast are described in **80.723 through 80.730**, chapter 2.

(3) **Weather.**–The most dangerous navigational weather hazards along this coast are tropical cyclones. While they can develop in any month, they are most likely from June through October. Mid-August through October is the peak season. There is about a 75 percent chance that at least one tropical cyclone will affect these waters each year; a 65 percent chance exists that it will be a hurricane. The frequency of landfalling tropical cyclones increases dramatically, south of Daytona Beach. On the average, Miami will experience hurricane force winds once in seven years, compared to once in 30 years at Daytona Beach and once in 50 years at Jacksonville. During the Fort Lauderdale hurricane of 1947, sustained winds reached 105 knots and gusted to 135 knots at Hillsboro Lighthouse, while Miami recorded 106-knot winds with 130-knot gusts in the October hurricane of 1950. Storm surges in severe hurricanes can reach 15 feet (4.6 m) or more above mean sea level. In deep water, waves of 30 to 40 feet (9 to 12 m) are possible. Early and late in the hurricane season, storms are often likely to approach the area from the western Caribbean either on a northerly or northeasterly heading. Midseason storms may either be recurving toward the north through northeast or moving west-northwestward.

(4) In general weather along this coast poses few problems for mariners. Gales are usually encountered less than 1 percent of the time with maximum winds reaching 35 to 50 knots from September through March. The easterly trade winds are common throughout much of the year with average speeds of 10 to 15 knots. Only infrequently will a severe cold front or winter storm affect these waters. These cold fronts bring large temperature drops and strong, gusty winds. Northwesterly and northerly winds are usually the strongest. Maximum waves of 18 to 25 feet (5.5 to 7.6 m) can be expected in deep waters from September through February while waves of more than 6 feet (1.8 m) occur 8 to 15 percent of the time from about October through March. Thunderstorms are most likely from May through October and may be associated with easterly waves or tropical cyclones. Tornadoes and waterspouts have been reported in all months; they are not usually as violent as the tornadoes of the mid-West.

(5) **Chart 11480.**–The coast from St. Johns River to Cape Canaveral trends south-southeastward for 125 miles. Three inlets, St. Augustine, Matanzas, and Ponce de Leon indent the coast. From St. Johns River to Ponce de Leon Inlet the coast is bold in appearance, with an almost continuous range of sand dunes backed by woods. The section southward of Ponce de Leon Inlet for 25 miles is formed by a very narrow strip of lowland lying between the sea, and Indian River North, and Mosquito Lagoon. From seaward this coast shows a lowline of sand dunes partially covered by grass and scrub trees with distant woods showing over them. The only natural object distinctive in appearance is Turtle Mound, a green hillock about 10 miles south of Ponce de Leon Inlet. When seen from northward and eastward, it is quite conspicuous but is less marked when viewed from other directions. The woods in the vicinity of Cape Canaveral are farther back from the beach and are less distinct when seen from seaward. Many landmarks are available along this stretch of the coast that may be used by southbound vessels proceeding close inshore to avoid the Gulf Stream.

(6) The depths from St. Johns River to Cape Canaveral are irregular. Depths of 5 to 7 fathoms are 1 mile offshore, while a depth of 3 fathoms is within 0.4 mile of the shore except off the entrances to St. Johns River, St. Augustine Inlet, Ponce de Leon Inlet, and from about 7 miles north of False Cape to Cape Canaveral.

(7) A **179°-359° measured nautical mile** is just southward of the entrance to St. Johns River; the markers are located northward and southward of St. Johns Light. A submerged instrument platform that extends about 6 feet off the bottom is 5.8 miles south of St. Johns river in about 30°18.1'N., 81°23.0'W. Shoal spots with depths of 33 to 38 feet over them are from 4 to 6 miles offshore and from 12 to 16 miles north-northeastward of St. Augustine Light. These shoals are about 8 miles long in a southeasterly direction and about 2.5 miles wide. A swash channel with depths of 40 to 50 feet is inside these shoals and about 2 miles from the beach.

(8) Off Ponce de Leon Inlet 10 fathoms will be found within 2 miles of the beach. A wreck with 35 feet over it and shoals with a least depth of 35 feet are 5 to 7 miles north-northeastward of Ponce de Leon Inlet, and privately marked and unmarked fish havens extend 11 miles offshore northeastward and 13 miles offshore southeastward of the inlet. A dangerous sunken wreck is about 1.7 miles east-southeast of the inlet. Going southward the 10-fathom curve gradually works offshore to a distance of 10 miles off False Cape. From about 7 miles north of False Cape to Cape Canaveral there are dangerous shoals.

(9) **Mandatory Ship Reporting Systems (WHALESNORTH and WHALESSOUTH),** have been established within the area of this Coast Pilot. These MSR systems require all vessels, 300 gross tons or greater, to report to the U.S. Coast Guard prior to entering two designated reporting areas off the east coast of the United States. (See **33 CFR 169**, chapter 2, for limits and regulations.) Sovereign immune vessels are exempt from the requirement to report, but are encouraged to participate.

(10) The two reporting systems will operate independently of each other. The system in the northeastern United States will operate year round and the system in the southeastern United States will operate each year from November 15 through April 15. Reporting ships are only required to make reports when entering a reporting area during a single voyage (that is, a voyage in which a ship is in the area). Ships are not required to report when leaving a port in the reporting area nor when exiting the system.

(11) Vessels shall make reports in accordance with the format in IMO Resolution A.648 (16) General Principles for Ship Reporting Systems and Ship Reporting Requirements. (See **33 CFR 169.135 and 169.140**, chapter 2, for additional information.) Vessels should report via INMARSAT C or via alternate satellite communications to one of the following addresses:

(12) Email: RightWhale.MSR@noaa.gov or Telex: 236737831

(13) Example Reports:
(14) **WHALESNORTH** – To: RightWhale.MSR@noaa.gov
(15) WHALESNORTH//
(16) A/CALYPSO/NRUS//
(17) B/031401Z APR//
(18) E/345//
(19) F/15.5//
(20) H/031410Z APR/4104N/06918W//
(21) I/BOSTON/032345Z APR//
(22) L/WP/4104N/06918W/15.5.//
(23) L/WP/4210N/06952W/15.5//
(24) L/WP/4230N/07006W/15.5//
(25) **WHALESSOUTH** – To: RightWhaleMSR@noaa.gov
(26) WHALESSOUTH//
(27) A/BEAGLE/NVES//
(28) B/270810Z MAR//
(29) E/250//
(30) F/17.0//
(31) H/270810Z MAR/3030N/08052W//
(32) I/MAYPORT/271215Z MAR//
(33) L/RL/17.0//

(34) **Chart 11460.**–From Cape Canaveral to Fort Pierce Inlet, the coast trends generally south-southeastward for 62 miles and is broken only by Sebastian Inlet. The inlet is a narrow dredged channel, not distinguishable from any distance offshore except by the highway bridge across the inlet and by the sand spoil bank on the north side which is bare and a little higher than other sand dunes in the vicinity. This section of the coast is formed almost entirely by a low, narrow strip of sand, covered with vegetation, which lies at a distance of 1 to 2 miles from the mainland, from which it is separated by the shallow waters of Banana and Indian Rivers, a part of the Intracoastal Waterway. From seaward the coast shows a line of sand dunes partly covered with grass and scrub palmetto. At several places buildings show prominently from seaward. In the background the heavy woods on the mainland may be seen. Shoals extend 10 miles offshore with a least depth of 23 feet about 2.5 miles north-northwestward of Bethel Shoal Lighted Whistle Buoy 10, which is about 47 miles south-southeastward of Cape Canaveral Light.

(35) A **coral habitat area of particular concern (HAPC)** is centered about 22 miles, 055° from the entrance to Fort Pierce Inlet. (See **50 CFR 622**, chapter 2, for limits and regulations.)

(36) From Fort Pierce Inlet to Lake Worth Inlet, the coast trends generally south-southeastward for 43 miles and is broken by St. Lucie and Jupiter Inlets. This section of the coast is formed by a low, narrow strip of sand, covered with vegetation, and separated from the mainland by the shallow waters of Indian River and by the Intracoastal Waterway connection between the Indian River and Lake Worth. From seaward the coast shows a line of sand dunes partly covered with grass and scrub palmetto. In the background the heavy woods on the mainland may be seen. Buildings show prominently from seaward.

(37) From Lake Worth Inlet the general trend of the coast is south for 60 miles to the Miami Harbor entrance. The coastline is broken by Port Everglades, several unimportant inlets, Bakers Haulover Inlet, and the entrance to Miami Harbor. It is formed almost entirely by a low sand beach covered with grass and scrub palmetto, back of which it is wooded. Conspicuous from seaward are the buildings and piers at Palm Beach, Hillsboro Inlet Light, and the large buildings and tanks along the beach from Palm Beach southward, especially at Fort Lauderdale, Hollywood, Miami Beach, and Miami.

(38) This section of the coast is also fairly bold, and the 20-fathom curve runs parallel to the beach at a distance of about 2 miles until in the vicinity of the Miami Harbor entrance where the curve of the shore becomes south-southwestward and the 20-fathom curve is about 4 miles offshore. Between Port Everglades and the Miami Harbor entrance shoaling is rapid, depths of 6 to 8 fathoms being found in places 1.5 miles from the beach.

(39) **Chart 11488.**–The coast between St. Johns River and St. Augustine Inlet is straight with the 5-fathom curve about 0.5 mile offshore except at the entrances. Offshore shoals along this route have been described previously.

(40) The first 10 miles south of St. Johns River are marked by the water tanks and multistoried buildings at most of the beach resorts. The buildings, amusement park, and pier at **Jacksonville Beach,** and the spherical elevated water tank at **Ponte Verda Beach,** about 6.5 miles and 9 miles southward of the river entrance, respectively, are very prominent. Otherwise the coast is unmarked except for St. Johns Light and St. Augustine Light.

(41) **Charts 11488, 11485.–St. Augustine Inlet** is 30 miles south of the St. Johns River entrance. **St. Augustine,** the oldest city in the United States and a popular winter resort with several fine hotels, is 2 miles inside the entrance.

(42) **Prominent features.–St. Augustine Light** (29°53.1'N., 81°17.3'W.), 161 feet above the water, is shown from a conical tower with a black and white spirally banded shaft on the north end of **Anastasia Island,** 1.5 miles south of the entrance to St. Augustine Inlet.

(43) Other prominent features are an elevated water tank about 200 yards southeast of the light, the towers of the Vilano Beach (State Route A1A) lift bridge on the Tolomato River, a radio tower 1.3 miles southward of the light, the lighted cross and the radio tower in the northern part of the city, and a cupola on the south end of a large building in the city. **Castillo de San Marcos** may be seen after entering the inlet.

(44) **Channels.**–The entrance channel to St. Augustine Inlet is subject to frequent change in depth and direction due to current and storm action; it is protected by a partial groin on the north side and by a jetty on the south side. Dangerous and shifting shoals extend 1 mile seaward. A lighted whistle buoy marks the approach, and buoys mark the channel. These aids are not charted since they are moved frequently with changing conditions to mark the best water. Mariners are advised to seek local knowledge prior to entering.

(45) **Anchorages.**–There is good anchorage in the Matanzas River at St. Augustine both below and above the bridge. This anchorage, however, is not used as a harbor refuge because during strong northeasterly and northwesterly winds the sea makes the bar impassable even for small vessels. A more protected anchorage in depths of 20 feet, hard sand bottom, is reported in **Salt Run,** close south-southeastward of St. Augustine Inlet. About 8 feet can be taken to this anchorage. The mariner should favor the eastern shore for the best water and lee. Private buoys mark the channel into Salt Run.

(46) **Routes.**–The shore should be given a berth of at least 2 miles when approaching St. Augustine Inlet in order to stay

outside of the outer sea buoy. No strangers should attempt to enter without a pilot as the channel shifts frequently.

(47) **Tides.**–The mean range of tide is 4.5 feet, and high water occurs about 20 minutes later than at Mayport.

(48) **Weather, St. Augustine and vicinity.**–While this area lies within the northern portion of the trades, local effects often determine the winds. In general there is a northerly component in winter and a southerly one in summer. The onshore trades are often reinforced by the local sea breeze, which results in strongest winds blowing during the afternoon. From May through September, winds of 17 knots or more occur about 1 to 5 percent of the time compared to 5 to 10 percent for the remainder of the year. These winter winds are also more variable due to occasional frontal passages and low pressure systems. Nighttime winds are usually the lightest. While damaging tropical cyclones are infrequent, less severe storms can still dump 8 to 10 inches (203 to 254 mm) of rain in this area. One of the worst storms to hit this area was hurricane Dora in 1964. Winds at St. Augustine were estimated at about 110 knots while a 12-foot (4 m) tide swept over Anastasia Island.

(49) The moderating influence of the ocean on maximum summer temperatures and minimum winter temperatures is pronounced along the coast but diminishes a few miles inland. Temperatures reach 90° (32.2°C) or higher at the beach on only a little more than one-half as many days as in the city. The rainy season runs from mid-June through mid-October when about one-half of the 52-inch (1,320 mm) annual average is recorded. During the summer, rain usually falls as afternoon and early evening thundershowers, which also help cool things off.

(50) **Pilots.**–All vessels including yachts not having local knowledge of the channel are advised to take a local pilot both entering and leaving the inlet. Pilots are available by prior arrangement with the dockmaster at the city yacht pier. At least 24 hours advance notice of time of arrival is requested.

(51) **Harbor regulations.**–A dockmaster controls moorage at the city yacht pier. The city has a **harbormaster,** who can be contacted through the dockmaster or by telephone (904-829-3966).

(52) **Small-craft facilities.**–A number of small private landings are on the east side of the city, north and south of the bridge. The city yacht pier is about 100 yards south of Route A1A highway bascule bridge which crosses the Matanzas River opposite the center of the city. The facilities are excellent, though the space is limited. There are four berths for transient boats to 60 feet. In May 1983, the dockmaster reported depths in these slips to be 7 to 14 feet. Gasoline, diesel fuel, water, and electricity are available. The dockmaster's office is at the head of the pier.

(53) A privately marked channel with a reported controlling depth of 7 feet leads to a marina on the west side of Salt Run. Berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available.

(54) Marine railways to 90 feet and complete repair facilities are available at several boatyards and marinas in San Sebastian River.

(55) The Intracoastal Waterway enters the St. Augustine Inlet from the north through Tolomato River and continues southward through Matanzas River. Clearance of the Bridge of Lions (Route A1A) crossing the Matanzas River at St. Augustine is given in chapter 12.

(56) **San Sebastian River** flows past the west side of the city of St. Augustine and empties into the Matanzas River 1.4 miles south of the Route A1A highway bridge. In 1996, the controlling depth in the channel, marked by daybeacons, was 6 feet (8 feet at midchannel) to Kings Street Bridge. In stormy southeasterly weather small boats may find a good haven in the river. The overhead power cable crossing the river about 300 yards south of the Kings Street Bridge has a clearance of 66 feet.

(57) An extensive shrimp industry is conducted along the wharves in the upper part of the river, being supplied by seagoing shrimp boats during the shrimp season. Several small shipyards and shrimp boatbuilding yards are along the river. Shrimp boats up to 150 feet long can be handled for general repairs. Supplies and fuel may be obtained at the wharves.

(58) **Chart 11486.**–From St. Augustine Inlet to Ponce de Leon Inlet the coast continues straight, broken only by Matanzas Inlet. The 5-fathom curve is within 0.5 mile of the shore except off St. Augustine Inlet and Matanzas Inlet. Numerous marked and unmarked fish havens are as much as 18 miles offshore.

(59) An **oceanic spring** is 8.2 miles southeastward of St. Augustine Light and 2.4 miles east of **Crescent Beach**. The location of the spring can be easily detected by the appearance of the water; noticeable swirls, similar to those in a swiftly running stream, can be seen at a distance of about a mile. At times, especially in rough weather, there is a marked disturbance of the water and yellowish color trails off to the northeastward. In choppy weather, a slick is the most noticeable feature. In fact, it has all the appearances of a shoal or reef.

(60) A closer view shows a slick swirl with a slight overfall, the center of the swirl moving about 100 feet, first to the eastward and then to the westward, and a noticeable streak of current to the northeastward. The swirls and overfalls vary rapidly in intensity, as though large bubbles or intermittent volumes of water were being emitted. A boat will be thrown out of the swirl so that it is difficult to hold it in position.

(61) A strong odor, quite similar to the smell of water from the various sulfur springs of Florida, is noticeable, and under favorable circumstances can easily be detected 2 miles away.

(62) **Matanzas Inlet** (see chart 11485) is 11 miles southward of St. Augustine Light. It affords an outlet for Matanzas River, which extends northward to St. Augustine and southward, following the coast for a distance of 8 or 10 miles to **Graham Swamp.** The inlet is obstructed by a shifting bar, and breakers extend across the entire entrance in normal weather. However, in May 1983, it was reported that with local knowledge about 3 feet could be carried through the entrance. The Intracoastal Waterway passes through a land cut of the Matanzas River just inside the entrance.

(63) State Route A1A highway bridge across the inlet has a 41-foot fixed span with a clearance of 10 feet. An overhead power cable crossing on the west side of the bridge has a clearance of 32 feet. **Fort Matanzas National Monument** is about 1 mile northwestward of the inlet.

(64) At **Marineland,** 13.6 miles southward of St. Augustine Light, is a conspicuous building housing an oceanarium.

(65) **Flagler Beach** is 26.5 miles southward of St. Augustine Light. The microwave tower and ocean pier are good landmarks. The T-shaped pier extending offshore is 650 feet long and 20 feet wide.

(66) **Daytona Beach** is a popular winter resort about 42 miles southward of St. Augustine Light. The buildings, water tanks, and radio towers are visible from seaward. The large recreation

pier on the oceanfront is a prominent landmark for passing vessels.

(67) See Daytona Beach, chapter 12.

(68) **Chart 11484.**–From Ponce de Leon Inlet to False Cape the coast is straight. The 5-fathom curve is about 0.5 mile offshore for a distance of 24 miles. Beyond this distance dangerous shoals, wrecks, and numerous fish havens will be found up to 15 miles offshore.

(69) **Ponce de Leon Inlet** (see chart 11485) is 53 miles southward of St. Augustine Light and 41 miles northwestward of Cape Canaveral Light. It is used by both recreational and small commercial vessels bound for New Smyrna Beach or Daytona Beach, as well as others entering for an anchorage.

(70) **Ponce de Leon Inlet Light** (29°04.8'N., 80°55.7'W.), 159 feet above the water, is shown from a red brick conical tower on the north side of the inlet.

(71) The inlet, protected at the entrance by jetties, is entered through a channel that leads over a bar and through the jetties. The outer end of the north jetty is marked by a light, and the inner end of the jetty is awash. In March-April 1990, severe shoaling across the entire channel was reported to exist. Mariners are advised that due to constant shifting of the channel, passage through the inlet is not recommended; buoys marking the channel may not be marking the best water. Safe navigation is also hampered by numerous recreational fishing vessels that anchor inside the north jetty. Local knowledge and extreme caution is advised. To prevent silting, a weir is at the inshore end of the north jetty and an impoundment basin is close southward. The current through the inlet is strong. It is reported that the average ebb is 3 knots, however, this can increase to 5 or 6 knots with southeasterly winds. The mean range of tide is 2.3 feet, and high water occurs about the same time as at Mayport.

(72) Inside the inlet, three channels lead to the Intracoastal Waterway; northward through Halifax River, westward through **Rockhouse Creek,** and southeastward through Indian River North. The channels through Halifax River and Indian River North are marked by buoys. In June-July 1986, the controlling depth was 1 ½ feet in Halifax River; the mid-channel controlling depth in Rockhouse Creek was 7 feet. In April-May 1997, using local knowledge, 12 feet could be carried to the Intracoastal Waterway by way of Indian River North.

(73) **Ponce de Leon Inlet Coast Guard Station** is on the south side of the entrance to Ponce de Leon Inlet. Supply and repair facilities inside the inlet are described in chapter 12.

(74) The Intracoastal Waterway is just inside the entrance to Ponce de Leon Inlet, passing through Halifax River from the north and Indian River North from the south.

(75) **Chart 11484.**–About 10 miles southward of Ponce de Leon Inlet is **Turtle Mound,** a prominent hill 50 feet high. It is under the protection of the Florida State Historical Society. The original Indian name was **Mount of Surruque.** It was charted on Florida maps in 1564. Spanish galleons stopped here for repairs, wood, and water.

(76) **Eldora** is a fishing camp 11.5 miles southward of Ponce de Leon Inlet.

(77) **False Cape,** about 7.5 miles northward of Cape Canaveral Light, is the name given to a small part of the coast which it resembles when seen from seaward.

(78) The **John F. Kennedy Space Center** and the **Cape Canaveral Air Force Station** occupy most of **Canaveral Peninsula** and **Merritt Island,** the large land areas between the ocean and the Banana and Indian Rivers, from Mosquito Lagoon on the north to Port Canaveral on the south. The huge Vehicle Assembly Building at the center, said to be one of the world's largest buildings, is visible far from shore. When closer in, other buildings and the mobile service towers at the cape are also conspicuous from all directions.

(79) Trawlers or other vessels should exercise caution while dragging the ocean floor within a 25-mile radius of Cape Canaveral because missile debris containing unexploded ordnance exists in the area.

(80) Ordnance disposal personnel occasionally detonate explosives on the beaches in the vicinity of the cape.

(81) **Cape Canaveral,** where the coast makes a sharp bend westward, is low and sandy. The shore in the vicinity of the cape is constantly moving eastward. **Cape Canaveral Light** (28°27.6'N., 80°32.6'W.), 137 feet above the water, is shown from a white and black horizontally banded conical tower 1 mile inshore from the cape.

(82) A **Security Zone** has been established to include certain land and water areas at Port Canaveral and adjacent areas at Kennedy Space Center and Cape Canaveral Air Force Station. (See **165.1 through 165.7, 165.30, 165.33, 165.701, and 165.705**, chapter 2, for limits and regulations.) During certain operations the Security Zone may be temporarily expanded. (See Local Notice to Mariners.)

(83) Shoals extend 13 miles north and northeast from Cape Canaveral; mariners should use care when in the vicinity of the shoals. The outer shoals consisting of **Hetzel Shoal, Ohio Shoal,** and **The Bull** have a least depth of 11 feet. The inner shoals consisting of **Chester Shoal** and **Southeast Shoal** have depths of 2 to 18 feet. A lighted whistle buoy is 2.5 miles northeast of Hetzel Shoal. A lighted buoy is off the southeast end and along the south side of Southeast Shoal. In a heavy sea the shoals are marked by breakers, but with a smooth sea there is nothing to indicate them except their relative positions to Cape Canaveral Light and the lighted buoys. Only small light-draft vessels in calm seas should pass inside the outer shoals.

(84) Several wrecks are east of Cape Canaveral within 13 miles of the shore. They have been cleared by a wire drag to a least depth of 43 feet. An unmarked sunken wreck is north of Ohio Shoal in about 28°39.7'N., 80°23.3'W.

(85) The effect of the Gulf Stream may be expected well in on the shoals, and this should be kept in mind in approaching the cape from the south. In approaching the cape, stay in at least 15 fathoms from the south and at least 13 fathoms from the north to avoid the shoals.

(86) A **danger zone** for missile testing extends 3 miles offshore from False Cape to the entrance to Port Canaveral. (See **334.590**, chapter 2, for limits and regulations.) **Canaveral Bight,** on the south side of the cape, is in the danger zone.

(87) **Charts 11478, 11481.–Port Canaveral (Canaveral Harbor)** is 4 miles southwest of Cape Canaveral Light and 150 miles south of the entrance to the St. Johns River. The city of **Cape Canaveral** is just southward of the port. The principal commodities handled in the harbor are petroleum products, cement, asphalt, salt, general cargo, citrus products, and newsprint.

Commercial party fishing vessels, cruise ships, and many pleasure crafts operate from the port.

(88) **COLREGS Demarcation Lines.**–The lines established for Port Canaveral are described in **80.727**, chapter 2.

(89) **Channels.**–A U.S. Navy project for Port Canaveral provides for an entrance channel 44 feet deep to East Basin, thence 41 feet in East Basin. A Federal project provides for a channel 36 feet deep from East Basin to Middle Basin, thence 35 feet deep in Middle Basin, thence 31 feet deep from Middle Basin to West Basin, and thence 31 feet in West Basin. The harbor is maintained at or near project depths. (See Notice to Mariners and latest edition of chart for controlling depths.) The entrance to the harbor is protected by jetties. The approach channel is marked by white **310°** lighted range and lighted buoys; the entrance channel between the jetties is marked by a green **270°** lighted range, a light, and lighted and unlighted buoys. The entrance to East Basin is marked by a red **325°30'** lighted range. Canaveral Barge Canal leads westward to Banana River and the Intracoastal Waterway from the western end of the harbor just west of West Basin entrance. (See also chart 11484 and chapter 12.)

(90) **Caution.**–The National Marine Fisheries Service has advised that the sea turtles and manatees which inhabit the Port Canaveral area are considered to be threatened and endangered species. In order to protect these turtles and manatees, its is requested that excursions from the centerline of the approach and entrance channels be held to a minimum.

(91) **Northern Right Whales.**–Approaches to Port Canaveral lie within designated critical habitat for endangered northern right whales (see **50 CFR 226.13(c)**, chapter 2.) The area is a calving grounds from, generally, December through March. It is illegal to approach right whales closer than 500 yards. (See **50 CFR 222.32**, chapter 2 for limits, regulations, and exceptions.) Special precautions may be needed to protect and avoid these animals. (See Northern right whales, indexed as such, chapter 3.)

(92) Small craft should stay clear of large vessels entering, leaving, or maneuvering in the harbor.

(93) **Dangers.**–The Navy pier on the east side of Middle Basin is within a **restricted area**, and East Basin is within a **danger zone**. (See **334.530 and 334.600**, chapter 2, respectively, for limits and regulations.)

(94) **Weather, Port Canaveral and vicinity.**–Tropical cyclones are a threat from about June through October. There are roughly four peak periods within this season. A slight maximum occurs in early June while more defined peaks occur in early August, early September and mid-October. The probability of at least one occurrence of gales from a tropical cyclone in 1 year is about 36 percent while the chance of two occurrences drops to 6 percent.

(95) Windspeeds of 17 knots or more are most likely from October through April when they occur 3 to 7 percent of the time at the Cape and 10 to 17 percent of the time at Patrick Air Force Base, about 13 miles south of the port. Thunderstorms are observed on about 70 days annually with a peak of 10 to 15 days per month from June through September. These are most likely during the late afternoon or early evening. Visibilities are generally good, outside of showers. However in December, January and February, they do drop below 0.5 mile (0.9 km) on about 2 to 4 days per month; they usually improve by midmorning. Temperatures only reach 90°F (32.2°C) or more on about 16 to 18 days annually but climb into the 80's (27.2° to 32.2°C) range on a little less than 200 days each year. Freezing temperatures are recorded just once or twice per year, on the average.

(96) **Pilotage, Port Canaveral.**–A State pilot is compulsory for all foreign flag vessels and all U.S. flag vessels under registry drawing more than 7 feet of water. Certain U.S. vessels under enrollment are required to carry a federal pilot. A state pilot is required for all vessels over 500 gross tons docking or undocking at Canaveral Port Authority docks, unless specifically exempted by the Port Director. Pilotage for U.S. and foreign naval vessels is provided in accordance with an agreement between the U.S. Navy and the Canaveral Pilots Association. All Canaveral Pilots Association pilots are fully licensed by the state and federal governments.

(97) Canaveral Pilots Association office is in a blue mobile home at 105 Glen Cheek Boulevard, Port Canaveral, Florida. The mailing address is: P.O. Box 0816, Cape Canaveral, Florida 32920-0816; telephone 321-783-4645 (office and residences), FAX 321-783-6268 (office only). The office monitors VHF-FM radiotelephone channel 12. Pilot service is available to all vessels. Canaveral Pilots Association serves the channels and basins of Port Canaveral; the pilots also dock and undock vessels.

(98) The Canaveral Pilots Association has two pilot boats, PILOT 1 and PILOT 2, both 40 feet long with a black hull and white superstructure and the word PILOT on the side. The pilot boats display a white light over a red light at night and the International HOTEL flag by day. Pilots board about 1 mile southeast of Canaveral Harbor Approach Channel Lighted Whistle Buoy 3 (28°22.5'N., 80°31.8'W.) unless special arrangement for boarding elsewhere has been made. Vessels should maintain a speed of about 6 to 8 knots and provide a pilot ladder about 1 meter above the water.

(99) Arriving vessels should advise the Port Authority, telephone 321-783-7831, and the pilots if they are close to or at the maximum allowable draft and/or if they have any defects or special needs. Pilots arrange for linehandling and tug service for arriving commercial vessels.

(100) Arrangement for pilot service by FAX is discourage because the pilot station is not manned 24 hours daily. Arrangements can be made by telephone directly or through the Canaveral Port Authority. A 24 hours ETA notice is requested. When working, pilots use VHF-FM channel 12, and the boats monitor channels 12 and 16.

(101) Reduced visibility affects pilot service. Operational guidelines (not in this text) established pursuant to Florida law and in conjunction with marine interests in the port state that vessels are not to maneuver on the channels and basins of the port if visibility is less than 0.5 nautical mile.

(102) The Canaveral Pilots Association participates in the northern right whale Early Warning System (see Northern right whales, indexed as such, chapter 3.)

(103) **Towage.**–Three conventional tugs, two 2,150 hp and one 3,600 hp, are available at the port; all are equipped with VHF-FM channels 12, 15, and 16.

(104) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(105) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(106) Port Canaveral is a **customs port of entry.**

(107) **Port Canaveral Coast Guard Station** is at the northeast corner of West Basin.

(108) **Harbor regulations.**–The Canaveral Port Authority has jurisdiction and control over port areas and facilities not under the control of the federal government. Vessels are ranked for movement priority. Emergency movements are first priority. Naval vessels engaged in demonstration and shakedown operations and regularly calling cruise ships have second priority. Generally all other vessels move on a first come, first served basis. Port regulations are contained in the Port Authority tariff. In addition, Operational Guidelines for the port have been promulgated by the Port Authority in consultation with the U.S. Coast Guard, U.S. Navy, U.S. Army Corps of Engineers, other interested parties and the pilots. Copies of both publications are available from the Port Authority, P.O. Box 267, Cape Canaveral, Florida 32920-0267; see pilotage (previously mentioned) for telephone number. The Port Authority enforces regulations and assigns berths.

(109) **Radio transmissions are not allowed during missile launchings.**

(110) **Wharves.**–Port Canaveral has commercial berths owned by the Port Authority. Middle and West Basins are used by commercial vessels; cruise ships usually berth in West Basin. The port has a modest container and roll-on/roll-off capability. The Canaveral Port Authority maintains an internet site at **www.portcanaveral.org/about.htm**. The internet site provides descriptions of port facilities and maximum allowable drafts. Pilots also provide information on allowable drafts. Information about facilities is also published in the U.S. Army Corps of Engineers Port Series No. 16 (See appendix for address.)

(111) **Facilities on the south side of Inner Reach:**

(112) Cruise Terminal Berths 2, 3, and 4 (28°24'30"N., 80°36'00"W.): form one continuous berth 2,153 feet long; deck height, 11 feet; 24 to 37 feet alongside; roll-on/roll-off ramp at the west end of Berth 2; operated by Canaveral Port Authority.

(113) Marginal Wharf: 0.3 mile west of Tanker Berth No. 3; 1,060-foot face; 35 feet alongside; deck height, 10 feet; 108,000 square feet covered storage; 26 acres open storage; 2½ million cubic feet cold storage; receipt and shipment of general cargo; bunkering vessels; operated by Canaveral Port Authority.

(114) Tanker Berth No. 1: about 0.4 mile west of the Cruise Terminal; 45-foot offshore wharf, 700 feet of berthing space with dolphins; 35 feet alongside; deck height, 10 feet; storage silos for 32,000 tons of cement; storage tanks with 945,000-barrel capacity; receipt of petroleum products, asphalt, and cement; bunkering vessels; operated by Belcher Oil Co. and Continental Cement Co., Inc.

(115) Tanker Berth No. 2: about 0.5 mile west of the Cruise Terminal; 43-foot offshore wharf, 600 feet of berthing space with dolphins; 35 feet alongside; deck height, 10 feet; pipelines extend to storage tanks with 250,000-barrel capacity; receipt and shipment of petroleum products; operated by Belcher Oil Co.

(116) **Facilities on the north side of Inner Reach:**

(117) North Wharf No. 2 (28°24'39"N., 80°36'57"W.): 400-foot face; 35 feet alongside; deck height, 10 feet; one traveling gantry ship unloader with unloading rate of 400 tons per hour; silos with 42,000-ton capacity; receipt of cement; operated by Rinker Materials Corp.

(118) North Wharf No. 1: 300 yards east of North Wharf No. 2; 400-foot face; 35 feet alongside; deck height, 10 feet; 20,000 square feet covered storage; receipt and shipment of general cargo; mooring cruise vessels; operated by Canaveral Port Authority and Scandinavian World Cruises.

(119) North Wharf No. 3: west side of Middle Basin; 400-foot face; 35 feet alongside; deck height, 10 feet; crawler cranes to 165 tons; open storage for 500,000 tons of scrap metal; shipment of scrap metal and general cargo; mooring cruise vessels; operated by Canaveral Port Authority.

(120) **Communications.**–Good State highways connect to U.S. Route 1 and Interstate 95. The Florida East Coast Railway cargo facility, on the mainland, is 10 miles from the port.

(121) **Chart 11476.**–From southward of the shoals at Cape Canaveral to Bethel Shoal, a distance of about 43 miles, the shore is straight. The 5-fathom curve is from 0.3 to 1 mile offshore along this section of the coast.

(122) A large water tank is prominent about 4.5 miles southward of **Cocoa Beach**, and 13 miles southward of Cape Canaveral Light. **Indian Harbor Beach** is marked by a water tank. **Indialantic** is marked by prominent water tanks.

(123) **Sebastian Inlet** (see chart 11472) is 36.5 miles southward of Cape Canaveral Light. In May 1983, there was a reported controlling depth of 5 feet from the Intracoastal Waterway through the dredged channel of the inside bar, thence 8 feet to the eastern entrance. In May 1983, it was reported that 12 feet can be taken across the bar in smooth seas. The western entrance is marked by private daybeacons and a light. The entrance is protected by a north jetty, marked by a private light, extending 600 feet from shore and a south jetty extending 500 feet from shore. A steel bulkhead leads in a west-northwest direction for about 1,500 yards from the south side of the inlet into Indian River. The inlet is used by local fishermen and party boats.

(124) Sebastian Inlet is dangerous and particularly hazardous to small boats not designed for the open seas. Persons using this inlet should be experienced boatmen and have local knowledge. It is reported that shoaling exists just north of the south jetty and for about 200 yards to the east of the south jetty. Shoaling also exists in the general area south of the small spoil island between the bridge and the Intracoastal Waterway. Shoals are gradually building up and shifting. Minimum depth in the inlet varies; the bottom is rocky in spots.

(125) It is further reported that the velocity of the tidal currents reaches 10 knots, and turbulence exists between the bridge and the end of the jetties. Anchoring east of the bridge is extremely hazardous, particularly by the stern. Except during flat calms, breaking and confused seas exist off the mouth of the inlet and inside the inlet as far as the bridge. Conditions worsen with increasing seas or winds and on an ebb tide. Small boats departing the inlet on a flood or slack tide can find it impossible to return on an ebb tide. While the inlet conditions are generally worse during the winter months, hazardous conditions develop rapidly in the summer in squalls and on ebb tides.

(126) Additional information on local existing conditions can be obtained by contacting the Fort Pierce Coast Guard Station (telephone: 561-464-6100) and asking for the Coast Guard Auxiliary telephone number. A fixed highway bridge, State Route A1A, crossing the inlet has a clearance of 37 feet.

(127) **Thomas Shoal**, with a least depth of 26 feet over it, is 7 miles eastward of Sebastian Inlet. **Bethel Shoal**, with depths of 29 to 30 feet over it, is 17 miles southeastward of the inlet and 11 miles offshore. A lighted whistle buoy is northeast of the shoal

area. A 23-foot shoal spot is about 2.5 miles north-northwestward of the buoy.

(128) **Chart 11474.**–From Bethel Shoal to Jupiter Inlet, a distance of about 50 miles, shoal areas and wrecks are over 10 miles offshore.

(129) The twin towers at **Riomar,** 12 miles northward of Fort Pierce Inlet, and the water tanks south of Riomar, are prominent.

(130) **Indian River Shoal,** with depths of 10 to 30 feet over it, is about 8 miles northward of Fort Pierce Inlet and extends for about 3 miles offshore.

(131) **Chart 11475.–Fort Pierce Inlet** is 62 miles southward of Cape Canaveral Light and 33 miles northward of Jupiter Inlet Light. Care must be exercised in entering due to the strong currents. In southeasterly weather with an ebb tidal current the entrance is rough.

(132) **Fort Pierce,** on the west shore of the Indian River inside Fort Pierce Inlet, is the St. Lucie County Seat. The receipts into the harbor are aragonite (limestone), cement, and produce from the Bahama Islands. Citrus is shipped from the harbor.

(133) Several fishing vessels operate in and out of the harbor. It is the distributing point for supplies to the surrounding country. The Intracoastal Waterway passes through the Indian River east of the city. (See chapter 12.)

(134) **Fort Pierce Coast Guard Station** is on the south side of Fort Pierce entrance channel, on the west side of the cove immediately westward of **Faber Point.**

(135) **Prominent features.**–A 12-story condominium, 1 mile northward of the entrance is prominent. This feature is shown on chart 11474.

(136) Also prominent are several high-rise condominiums immediately south of the entrance, a 210-foot meteorological tower 7.2 miles south of the entrance, a 200-foot cement silo within the harbor, and the buildings of two nuclear powerplants about 7.6 and 9 miles southward of the entrance. The meteorological tower is marked by a fixed red light about halfway up and a flashing red light on top.

(137) **COLREGS Demarcation Lines.**–The lines established for Fort Pierce Inlet are described in **80.727**, chapter 2.

(138) **Channels.**–A Federal project provides for an entrance channel 30 feet deep, and an inner channel and turning basin 28 feet deep. Depths in the channel may vary considerably between dredging operations. (See Notice to Mariners and latest edition of chart for controlling depths.) Two rubblestone jetties with revetment extensions protect the entrance. The channel is marked with lighted ranges, and lighted and unlighted buoys.

(139) **Dangers.**–There are a number of shoals and wrecks in the approaches to the harbor; some of them are marked. A fish haven, about 1.7 miles long, from 0.8 mile to 1.2 miles offshore, and marked at the north and south ends by private buoys, is about 2 miles northward of the entrance. In the entrance channel, shoaling tends to build southward from the north side of the channel just inside the jetties, abeam Coon Island, and in the turning basin. Local knowledge is advised to determine the extent of shoaling in these areas.

(140) **Tides.**–The mean range of tide is 2.6 feet at the jetties and 1.2 feet in Indian River off the Municipal yacht basin.

(141) **Currents.**–The tidal currents in the inlet have a velocity of about 3 knots. (For predictions see the Tidal Current Tables.) The currents run through the cut parallel to the channel and are reported to reach velocities of 4 to 6 knots and at the turn in the channel, the current sets across the channel, flood to the north and ebb to the south. At the western end of the Causeway Island, where the channel crosses the Intracoastal Waterway, cross currents are encountered with the set to the south on the flood and to the north on the ebb. These currents are influenced by the wind. Vessels are advised to use caution when shaping their approach to the bridge that crosses the Intracoastal Waterway between Causeway Island and Fort Pierce and when mooring at the facilities just northward of the bridge.

(142) **Pilotage, Fort Pierce.**–Pilotage is compulsory for all foreign vessels and for U.S. vessels under register in foreign trade if drawing 7 feet or more of water. Pilotage is optional for U.S. coastwise vessels that have on board a pilot licensed by the Federal Government. The pilot will board at the sea buoy. The 40-foot pilot boat has a black hull, white superstructure, red deck, and the word PILOT painted on the sides; it is equipped with VHF-FM channels 6, 12, 16, and 22A. Advance notice of at least 24 hours should be given for all arrivals. A 2 hour notice is required for all departures and inner port movements. The pilots home telephone is 561-464-1564 or 561-464-5502. Pilots advise vessels drawing less than 23 feet and not more than 500 feet in length can be handled at any stage of the tide. Vessels drawing more than 23 feet or more than 550 feet in length will be handled on high water slack only during daylight. Vessels drawing more than 27 feet or more than 820 feet in length are considered unsafe to handle at any time. One way traffic is recommended for vessels when transiting the dredged channel.

(143) **Towage.**–One 1,200 hp is available 24 hours a day and is equipped with VHF-FM channels 6, 12, 16, and 22A. Additional tugs are available from the Port of Palm Beach.

(144) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(145) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(146) Fort Pierce is a **customs station.**

(147) **Harbor regulations.**–The port director is the harbormaster at Fort Pierce. The pilot is the deputy harbormaster. All vessels moving from one wharf to another shall have a pilot on board. The pilot boat will assist in movement.

(148) **Manatees.**–A regulated speed zone for the protection of manatees is at Fort Pierce in the vicinity of the municipal yacht basin. (See Manatees, chapter 3.)

(149) **Wharves.**–The active facilities at Fort Pierce are privately owned. Old City Pier (27°27'26"N., 80°19'23"W.) is 330 feet long on its north side with reported depths of 14 to 25 feet from west to east. On the east side of the pier is 200 feet of wharf with a roll on-roll off ramp and reported depths of 10 feet. The Indian River Refrigeration Terminal Co. pier is immediately northward on the west side of the turning basin. The pier is 455 feet long on the north side, 330 feet on the south side, and 178 feet wide; vessels moor on both sides of the pier and at the east face if their length is less than the pier's width. Depths are reported to be 26 to 28 feet on the north side and 15 to 25 feet, from west to east, on the south side. The bulkhead immediately north of the pier is 125 feet long with reported depths of 20 feet. Immediately northward is the Port Petroleum Fuel Dock with 200 feet of wharf and reported depths of 16 feet alongside. The berth is also used for the discharge of cement by mooring the vessel "mediterranean

style." This type mooring, 70 feet from the bulkhead, provides reported depths in 1998, of 26 to 28 feet. The bulk aragonite-receiving berth of the Marcona Ocean Industries Co. is at three breasting dolphins in the dredged area north of the basin (27°27.8'N., 80°19.3'W.); depths of 26 to 28 feet were reported in 1998.

(150) **Supplies.**–Gasoline, diesel fuel, bunker C, water, and some marine supplies are available.

(151) **Repairs.**–There is a 1,000-ton lift at the railway drydock located 6 miles north on the Intracoastal Waterway. On the north side of Taylor Creek there is a marina and boat repair facility with a 150-ton travel lift. Sea going ships may be drydocked at Port Everglades and Jacksonville.

(152) **Communications.**–Fort Pierce is served by the Florida East Coast Railway, by U.S. Route 1, and by several State highways. The airport is 3 miles northwest of the town.

(153) **Small-craft facilities.**–The municipal yacht basin, just south of **Moore Creek,** has an approach channel from the Intracoastal Waterway which is immediately south of the bridge and parallel to it, thence southward along the waterfront to the basin; the channel is marked by privately maintained daybeacons. Extreme caution should be exercised as strong crosscurrents exist. The overhead power cable crossing this channel has a clearance of 85 feet. In 1988, the reported controlling depth was 8 feet in the channel and the basin. Berths, gasoline, diesel fuel, ice, water and electricity are available. The yacht basin is controlled by a **dockmaster.** A marina on the west side of the Indian River just north of the Causeway Island bridge has open berths for about 20 boats with reported depths of 5 feet. Electricity, water, ice, and most yacht services are available. A 30-ton mobile lift here can haul out boats up to 60 feet for all types of repairs. The facilities of a yacht club are on the south side of the Fort Pierce entrance channel, immediately westward of Faber Point. There are about 80 open berths with reported depths of 6 feet. Gasoline, diesel fuel, fresh water, ice, and electricity are available. A dredged channel marked by daybeacons leads from the Intracoastal Waterway to **Taylor Creek.** In April 1999, the controlling depth was reported to be 6 feet almost to the railroad bridge. Marinas in Taylor Creek have berthing, gasoline and diesel fuel. A 150-ton lift is available for hull, engine, and electronic repairs.

(154) **Chart 11474.**–For a distance of 13 miles southward of Fort Pierce Inlet, broken ground with 18 to 28 feet over it extends from 2.5 to 6 miles offshore.

(155) **Capron Shoal** has a least depth of 18 feet over it about 3.6 miles southeastward of Fort Pierce Inlet. A buoy is 300 yards northeastward of the 18-foot spot.

(156) **Pierce Shoal,** with 21 to 30 feet over it, lies about 2 miles offshore, and 6 to 8.5 miles southeastward of Fort Pierce Inlet.

(157) **St. Lucie Shoal,** with 15 to 30 feet over it, lies from 3 to 6 miles offshore, and 22 to 26 miles northward of Jupiter Inlet Light. It is the principal danger in this area. The northern end of the shoal is marked by a lighted whistle buoy and an unlighted buoy is southeast of a 15-foot spot at the southern end.

(158) Several wrecks are eastward of the broken ground within 10 miles of the shore. The chart should be used as the principal guide.

(159) **Gilbert Shoal,** with 17 to 30 feet over it, is 1 to 1.5 miles offshore about 3 miles north of St. Lucie Inlet.

(160) **Charts 11474, 11472, 11428.–St. Lucie Inlet,** forming the mouth of the St. Lucie River and the south end of the Indian River, lies 20 miles south of Fort Pierce Inlet and 13.5 miles north of Jupiter Inlet Light. The entrance to the inlet is protected by jetties and a detached breakwater. The inner part of the north jetty is in ruins. A rock ledge across the inlet extends south for over 1 mile from the east end of the north jetty ruins. Extensive sandbars are on the north side of the inlet channel from the north jetty to the Intracoastal Waterway. It is reported that shoaling builds up across the channel from both the north and south sides. Depths in the channel vary.

(161) St. Lucie Inlet is dangerous and particularly hazardous to small boats not designed to the open seas. Persons using the inlet should be experienced boatmen and have local knowledge.

(162) It is reported that tidal currents reach a velocity of 7 knots. Currents continue to flow 2 hours after high and low tides. Entrance is easiest just on the flood side of slack water.

(163) The approach is marked by a lighted whistle buoy. The entrance buoys are not charted, as they are frequently moved to mark the best water. It is reported that after heavy storms, buoys may be off station due to dragging or to shifting channels.

(164) It is further reported that ground swells can make inlet passage impossible for all craft. Breakers occur throughout the entire channel as seas, ground swells, and winds increase, particularly on an ebb tide.

(165) While the inlet conditions are generally reported to be worse during winter, hazardous conditions develop rapidly during summer squalls.

(166) Additional information on local existing conditions can be obtained by calling the Fort Pierce Coast Guard Station (telephone: 561-464-6100) and asking for the Coast Guard Auxiliary telephone number.

(167) **St. Lucie River** enters the sea through St. Lucie Inlet and connects with the Gulf coast via the Okeechobee Waterway. State Route A1A highway bridge crossing the river 3 miles above the junction with the Intracoastal Waterway has a bascule span with a clearance of 21 feet at the center. (See **117.1 through 117.59 and 117.317**,chapter 2, for drawbridge regulations.) In July 1999, construction began on a replacement fixed bridge immediately S of the bascule bridge with a design clearance of 65 feet. The Florida East Coast Railway bridge at Stuart has a bascule span with a clearance of 7 feet at center. The bridge is on automatic operation, normally left in an open position and closed upon the approach of trains. (See **117.317**, chapter 2, for details of operation.) The Roosevelt (U.S.1) highway bridge, adjacent to the west, has a fixed span with a clearance of 65 feet. The Roosevelt bascule bridge has a clearance of 14 feet at the center. The overhead power cable at the bridge has a clearance of 75 feet over the main channel. (See **117.1 through 117.59 and 117.317**, chapter 2, for drawbridge regulations.)

(168) Cross currents at the entrance to St. Lucie River create a hazardous condition for vessels and barges making the short turn from the Intracoastal Waterway. Vessels should stay 100 yards southward of a line between Light 4 and Daybeacon 6 to avoid hitting the hard ledge on the north side of the channel.

(169) St. Lucie River has several branches of some commercial importance. These, with the main river, form an important center for yachting and fishing in the winter. Traffic on the river is mostly in fish and timber.

(170) **Manatee Pocket** is a protected body of water about 1 mile long and 0.2 mile wide. It had a reported controlling depth of 4½

feet in May 1983. The entrance is 0.6 mile west of the intersection of the St. Lucie River and the Intracoastal Waterway. The channel at the entrance is marked by daybeacons. Berthage, electricity, freshwater, ice, gasoline, diesel fuel, and limited supplies are available at any of several marinas. A 100-ton mobile lift is available for hull, engine, and electronic repairs at a repair yard at the southeast end of Manatee Pocket. Small boats can obtain protection from tropical storms in Manatee Pocket. The holding bottom is good. Yachts can anchor anywhere for overnight stops.

(171) **Port Salerno,** a small town at head of Manatee Pocket, has a marl plant and is headquarters for a fishing fleet. Several boatyards with machine shops and several resorts with good facilities for yachts are available. (See the small-craft facilities tabulation on chart 11472 for services and supplies available.)

(172) **Pilots** for St. Lucie Inlet can be obtained at Manatee Pocket.

(173) At **Port Sewall,** 1.2 miles above the junction of St. Lucie River and the Intracoastal Waterway, there is a boatyard which has two marine railways; the largest can handle craft to 60 feet long. Hull and engine repairs can be made; a machine shop is on the premises.

(174) **Rio** is a small real estate development on the north bank of St. Lucie River, 3.5 miles above **Sewall Point.** A privately dredged channel 1 mile west of Light 21 leads to a marina; the reported controlling depth in the channel was 7 feet in May 1983. There are about 58 berths; water, electricity, gasoline, diesel fuel, ice, and a launching ramp are available. Another marina in the slip 0.2 mile westward has gasoline, diesel fuel, water, and a 30-ton lift; hull and gasoline-engine repairs can be obtained.

(175) **Stuart** is a progressive city on the St. Lucie River, 5 miles above Sewall Point. It is the county seat of Martin County and is on the Florida East Coast Railway, U.S. Highway No.1, and the Okeechobee Waterway. The city has a hospital and is the distributing center to the surrounding area, which is noted for its winter vegetables, citrus and tropical fruits, poultry raising, ranching, and commercial fishing.

(176) The municipal pier, on the east side of the river 200 yards south of the Roosevelt bascule bridge, has berthage for two or three boats; in May 1983, there were reported depths of 9 feet at the end and 6 to 9 feet on the sides of the pier. An oil pier on the west side of the river 500 yards north of the Roosevelt bascule bridge pumps gasoline and diesel fuel, and water and limited moorage are available.

(177) There is a small protected basin in **Frazier Creek,** 0.3 mile south of the Roosevelt bascule bridge. Gasoline, water, some marine supplies, and dockage for 18 boats to 30 feet are available at the marina. A 3-ton mobile lift is available for hull, engine, and electronic repairs. In May 1983, the reported controlling depth was 5 feet from the waterway to the highway bridge about 0.1 mile above the mouth. The bridge has a 33-foot fixed span with a clearance of 6 feet.

(178) **Pilots** for St. Lucie Inlet and connecting waterways can be obtained through the Stuart Chamber of Commerce.

(179) St. Lucie River divides into two forks west of Stuart. The **North Fork** extends several miles in a north-northwest direction. It is about 0.75 mile wide with an even bottom of 10 to 12 feet in depth. The South Fork is described as part of the Okeechobee Waterway, chapter 12.

(180) **Chart 11474.**–From St. Lucie Inlet to Jupiter Inlet, a distance of 14 miles, several shoals and wrecks are within about 3 miles of the shore. The shoals and wrecks should be avoided by deep-draft vessels. The 20-fathom curve is a safe guide.

(181) **Jupiter Inlet Light** (26°56.9'N., 80°04.9'W.), 146 feet above the water, is shown from a red brick tower on the north side of the inlet, 94 miles south of Cape Canaveral Light. The light is reported to be obscured by high-rise construction from 231° to 234° when within a range of 5.5 miles.

(182) Jupiter Inlet radiobeacon (27°04.5'N. 80°07.1'W.) is located on Jupiter Island about midway between St. Lucie Inlet and Jupiter Inlet.

(183) **Charts 11474, 11472.–Jupiter Inlet,** an opening in the beach just south of Jupiter Inlet Light, is 14 miles south of St. Lucie Inlet. It leads to Jupiter Sound on the north, Loxahatchee River on the west, and Lake Worth Creek on the south. A short stone jetty is on the north side of the entrance to the inlet, and a concrete and steel barricade is halfway across the entrance from the south side. Private daybeacons mark the entrance. In 1983-February 2000, the reported controlling depth was 4 feet over the bar to the Intracoastal Waterway. Small boats of the fishing fleet use the inlet. The Intracoastal Waterway is 0.5 mile inside the entrance to the inlet. (See chapter 12.)

(184) Jupiter Inlet is dangerous and particularly hazardous to small boats not designed for the open seas. Persons using this inlet should be experienced boatmen and have local knowledge. It is reported that shallow sandbars exist from the lighthouse through the mouth of the inlet and that the sandbar at the junction of the Intracoastal Waterway and the entrance builds up continuously. A very shallow sandbar extends south and east from the north jetty across the entire inlet. The bar is very deceptive and usually lies 1 or 2 feet below the surface. The openings through the sandbar shift with rapidly changing weather conditions and can be very shallow.

(185) It is further reported that tidal currents reach a velocity of 6 knots. Eddies and extreme turbulence accompany flood and ebb tides, particularly near the south jetty. Breaking and confused seas frequently exist over the sandbars off the mouth of the jetty. Conditions are worst with ebb tide and easterly winds. Near low water, long ground swells and wake from passing vessels can create dangerous waves in seemingly calm seas. Conditions are most hazardous during the winter months.

(186) The mean range of tide at Jupiter Inlet is 2.5 feet.

(187) Additional information on local existing conditions can be obtained by contacting the Lake Worth Inlet Coast Guard Station (telephone: 305-844-4470) and asking for the Coast Guard Auxiliary telephone number.

(188) **Chart 11466.**–Between Jupiter Inlet and Lake Worth Inlet, a distance of about 10.5 miles, the coast is clear of shoals with the 10-fathom curve about 1 mile offshore. A fishing pier, marked by lights, extends about 340 yards seaward from about 26°53'37"N., 80°03'24"W.

(189) **Lake Worth Inlet** is a dredged cut through the barrier beach 11 miles south of Jupiter Inlet Light and 31 miles north of Hillsboro Inlet Light. The entrance is protected by two jetties and the cut by revetments.

(190) In February 2000, shoaling was reported to an unknown extent through the entrance channel, especially in the N side of the channel. Mariners are advised to transit through the extreme S side of the channel for best water. Local knowledge and extreme caution are advised.

(191) **COLREGS Demarcation Lines.**–The lines established for Lake Worth Inlet are described in **80.727**, chapter 2.

(192) **Port of Palm Beach** is a deepwater port development 1.1 miles west of the entrance to Lake Worth Inlet. The port borders the communities of **Riviera Beach** on the north and **West Palm Beach** on the south. It is 259 miles south of Jacksonville and 68 miles north of Miami. The principal cargoes are bulk petroleum products, cement, and general cargo. There is extensive barge traffic. An extensive roll-on/roll-off operation is conducted in the Bahama Island trade. All of the wharves and warehouses are owned by the Port of Palm Beach District. **Lake Worth Inlet Coast Guard Station** is inside the entrance about 0.7 mile north of Peanut Island on the west side of the Intracoastal Waterway.

(193) **Prominent features.**–The dominant landmarks in the area are the charted twin 300-foot stacks at the powerplant adjacent to the port terminal; they are marked with horizontal bands of white and orange and by flashing red lights near their tops. Also prominent from offshore are the many multistoried buildings along the beaches north and south of the inlet. Of these, the 42-story condominium and the Breakers Hotel, 1 mile north and 3.5 miles south of the inlet, respectively, are the most prominent.

(194) **Channels.**–A Federal project provides for a 35-foot entrance channel, thence a 33-foot inner channel to two turning basins with depths of 33 and 24 feet, respectively, at the Port of Palm Beach. (See Notice to Mariners and latest edition of chart for controlling depths.) Markers include a **271°30'** lighted entrance range, lights, and lighted and unlighted buoys. The north (right outside) quarter of the entrance channel tends to shoal along the north jetty.

(195) **Anchorages.**–Two offshore anchorage grounds are close north and south of the channel entrance. (See **110.1 and 110.185**, chapter 2, for limits and regulations.) There is no deepwater anchorage in the harbor. Anchorage for craft drawing up to 8 feet is available in the vicinity of **Palm Beach.**

(196) **Dangers.**–A reef in the form of a ridge with scattered boulders extends for about 300 yards eastward of Peanut Island about 25 feet north of the improved channel. The reef, with a least depth of about 4 feet over it, is extremely dangerous. On the ebb, the current sets across the reef in a northeasterly direction. Two fish havens are 0.7 and 1.5 miles off the north side of the entrance and another is 1.5 miles off the south entrance.

(197) **Manatees.**–A regulated speed zone for the protection of manatees is in the vicinity of the powerplant on the west side of the turning basin. (See Manatees, chapter 3.)

(198) **Tides and currents.**–The mean range of tide is 2.8 feet at the inlet and 2.6 feet at the Port of Palm Beach. The currents in the inlet are strong and must be carefully guarded against. The current velocity is 2.4 knots on the flood and 3.6 knots on the ebb. Current predictions may be obtained from the Tidal Current Tables.

(199) **Weather, West Palm Beach and vicinity.**–With the Gulf Stream only about 2 miles (4 km) offshore and prevailing winds off the Atlantic most of the year, the climate of this area is pleasant. The average high temperature for West Palm Beach is 83°F (28.3°C) while the average low temperature is 67°F (19.4°C). July is the warmest month by a fraction of a degree with an average high temperature of 90°F (32.2°C) and an average low temperature of 75°F (23.9°C). January is the coolest month of the year with an average high temperature of 75°F (23.9°C) and an average low of 57°F (13.9°C). An official reading of 100°F (37.8°C) has never been recorded at West Palm Beach but the all-time high temperature is 99°F (37.2°C) recorded in July 1981. The extreme minimum temperature for West Palm Beach is 27°F (-2.8°C) recorded in January 1977. Every month except December and January has recorded maximum temperatures in excess of 90°F (32.2°C) and an average of 75 days each year has a maximum extreme in excess of 90°F (32.2°C). An average of only one day each year has an extreme minimum at or below freezing.

(200) The average annual precipitation for West Palm Beach is 61 inches (1,549 mm). September is the wettest month averaging 8.8 inches (223.5 mm) and February is the driest month averaging only 2.6 inches (66 mm). Snowfall is nearly nonexistent at West Palm Beach and the greatest 24-hour snowfall was trace. This has occurred only once for the 50-year period of record, January 19, 1997.

(201) Winds speeds of 17 knots or more can be expected about 7 to 10 percent of the time from October through April as a result of lows, cold fronts or intensification of the trade winds. While gales are rare, they are most likely during the tropical cyclone season, whichruns from June through October on the average.

(202) Since 1842, 60 tropical storms have come within 50 miles (93 km) of West Palm Beach, Florida, 22 of these storms since 1950. The most noteworthy in recent time was Hurricane David in September 1979. Around noon on September 3rd, David raked the West Palm Beach area with 85-knot winds while the center of the storm remained off shore and on August 27, 1964, Hurricane Cleo passed near West Palm Beach with 75-knot sustained winds and guests to 90 knots.

(203) Thunderstorms can generate strong, gusty winds along with heavy rain. They are most likely from June through September on about 10 to 16 days per month. Visibilities drop below 0.5 mile (0.9 km) on 1 to 2 days per month, on the average, from November through April.

(204) See page T-8 for **West Palm Beach** climatological table.

(205) **Pilotage, Port of Palm Beach.**–Pilotage is compulsory for foreign vessels and for U.S. vessels under register in the foreign trade and drawing more than 7 feet of water. Pilotage is optional for U.S. coastwise vessels which have a pilot aboard licensed by the Federal Government.

(206) The Port of Palm Beach is served by Palm Beach Pilots Association, at Riviera Beach Marina, 200 E. 13th Street, Suite B, Riviera Beach, FL 33404; telephone 561-845-2628, fax 561-845-2644. The office/station monitors VHF-FM radiotelephone channel 16 and works on channel 14.

(207) The pilot boats are PILOT#1 and PILOT#2; both have gray hulls, white superstructures, and the word PILOT on the sides. PILOT#1 is 31 feet long; PILOT#2 is 35 feet long. Both boats display a white over red light at night. The pilot boats monitor VHF-FM channel 16 and 14, and work on channel 14. The pilot boarding and cruising area, depending on wind and gulf stream current conditions, is near Lake Worth Lighted Whistle Buoy LW (26°46.3'N., 80°00.6'W.), or as instructed by the pilots. Vessels are requested to rig the pilot ladder on the leeward side about 1 meter above the water and maintain a speed of 6 knots or less. A northern gulf stream current almost all year makes an approach to the inlet from the southeast the safest, however, at times large swells do occur and alternate approaches may be instructed by the pilots for safety reasons. Large vessels are taken in only at slack water and may be restricted to daylight hours under certain conditions. Pilots do not maintain a 24-hour watch at the pilot office/station, but can be contacted by telephone or through the

Palm Beach Marine Operator on VHF-FM channel 28. At least 24 hours advance notice of arrival is requested.

(208) **Towage.**–Two tugs to 1,000 hp are available and can be obtained through ships' agents or the pilots.

(209) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(210) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(211) Palm Beach is a **customs port of entry.**

(212) **Coast Guard.**–A **vessel documentation office** is in West Palm Beach. (See appendix for address.)

(213) **Harbor regulations.**–Copies of the Port Tariff may be obtained at the offices of the Port of Palm Beach District at the Maritime Office Building in Riviera Beach. The Port Operations **Manager** assigns berths and enforces the harbor regulations. The Port of Palm Beach is a public corporation created by the State Legislature. Port regulations state it shall be unlawful for any vessel, boat, barge, or other watercraft of any kind to anchor in the channel or turning basin, except in cases of actual emergency.

(214) **Wharves.**–The Port of Palm Beach has two slips and four marginal wharves, two north and one south of the slips, and one between the slips. A marginal container wharf is 0.2 mile north of the north slip. The port district owns most of the facilities and the port tenants operate most of them. There are about 50 acres of open storage and 150,000 square feet of warehouse space. The port operates its own belt line railroad which connects with the Florida East Coast Railway. Mobile cranes to 230 tons are available, with other equipment available as required. All berths have fresh water available. All berths have a deck height of 8½ feet except Berths 13 and 14, 8 feet, and Berths 20, 21, and 22, 5 feet. Slip 1 is the north slip, Slip 2 is the south slip.

(215) **Berth 1:** marginal wharf immediately southward of Slip 2; 210 feet long; 25 feet alongside; pipelines extend to storage tanks with 40,000-ton capacity; receipt and shipment of general and refrigerated cargo; shipment of molasses; operated by Florida Molasses Exchange, Inc.

(216) **Berths 2, 3:** south side Slip 2; 620 feet long; 35 feet alongside; traveling shiploader with loading rate of 600 tons of sugar per hour; pipelines extend to storage tanks with 2-million-barrel capacity; receipt and shipment of general cargo; receipt of fuel oil and shipment of sugar and molasses; various operators.

(217) **Berth 4:** head of Slip 2; 220 feet long; 25 feet alongside; receipt and shipment of general cargo by small vessel and barge.

(218) **Berths 5, 6:** north side Slip 2; 640 feet long; 35 feet alongside; primary location for receipt of fuel oil, pipelines extend to oil storage tanks with 2 million barrel capacity; receipt of bulk cement; receipt and shipment of general cargo.

(219) **Berth 7:** marginal wharf between Slips 1 and 2; 215 feet long; 25 feet alongside; receipt and shipment of general cargo.

(220) **Berths 8, 9:** south side Slip 1; 700 feet long; 35 feet alongside; receipt and shipment of general cargo; various operators.

(221) **Berths 10, 11, 12:** three roll-on/roll-off ramps at the head of Slip 1; 210-foot face; 35 feet alongside; 2 ½ acres open storage, receipt and shipment of general, containerized, and roll-on/roll-off cargo; operated by Heavy Lift Service Inc.

(222) **Berths 13, 14:** north side Slip 1; 700 feet long; 35 feet alongside; receipt and shipment of general and containerized cargo; operated by Heavy Lift Service, Inc.

(223) **Berths 15, 16, 17:** marginal wharf immediately northward of Slip 1; 610 feet long; 25 feet alongside; receipt and shipment of general and containerized cargo; mooring cruise vessels; operated by the Crown Cruise Line.

(224) **Berths 18, 19:** S side of slip immediately north of Berth 17; 300 feet long; 25 feet alongside; receipt and shipment of general and containerized cargo and vehicles; operated by Tropical Shipping Co., Ltd.

(225) **Berths 20, 21, 22:** west of Berth 19; three roll-on/roll-off ramps; each 67 feet long; 25 feet alongside; receipt and shipment of roll-on/roll-off cargo; operated by Tropical Shipping Co., Ltd.

(226) **Berth 23:** across slip north of Berth 19; 80 feet long; 25 feet alongside; receipt and shipment of containerized cargo and vehicles; operated by Tropical Shipping Co., Ltd.

(227) **Berths 24, 25:** 0.2 mile north of Slip 1; 450 feet long; 25 feet alongside; receipt and shipment of containerized cargo and vehicles; operated by Tropical Shipping Co., Ltd.

(228) **Supplies.**–Freshwater is piped to the berths. Diesel fuel and gasoline can be delivered by tank truck. Provisions and some marine supplies are available.

(229) **Repairs.**–Only minor repair work can be obtained for large ships. The nearest drydocks are at Jacksonville and Port Everglades.

(230) **Communications.**–The Port of Palm Beach Railroad connects with Florida East Coast Railway. There are highway connections to U.S. Route 1, Interstate Route 95, and Florida's Turnpike. The **Palm Beach International Airport** is 5.5 miles southwestward of the port area.

(231) The Intracoastal Waterway passes through Lake Worth just eastward of Port of Palm Beach. Facilities in the area for yachts and small craft are given in chapter 12.

(232) **Chart 11466.**–From Lake Worth Inlet the general trend of the coastline is south for 41 miles to Port Everglades. It is broken by several inlets of little importance. The coast is formed almost entirely by a low sand beach, with more or less conspicuous dunes partly covered by grass and scrub palmetto, and woods in the background. Numerous towns, tanks, radio towers, and scattered buildings are visible from seaward. Conspicuous from offshore are the buildings and pier at Palm Beach, Hillsboro Inlet Light, and the large buildings and tanks at Fort Lauderdale.

(233) The coast between Lake Worth Inlet and Port Everglades is fairly bold. The 20-fathom curve runs parallel to the beach and for a greater part of the distance is less than 2 miles from it. Several wrecks and obstructions are within 0.5 mile of the shore.

(234) **Palm Beach,** a resort on the narrow island between Lake Worth and the sea, is connected to West Palm Beach by highway bridges. The ocean pier here is used only for amusement purposes. Several other towns and cities are along the shores of Lake Worth.

(235) **Boynton Inlet** (see chart 11467), at the south end of Lake Worth, is a small dredged cut through the outside beach, about 100 feet wide. The entrance to the inlet is protected by jetties. In May 1983, the reported controlling depth over the bar and to the Intracoastal Waterway was 5 feet. The inlet is crossed by Route A1A highway bridge which has a fixed span with a clearance of 18 feet. Boynton Inlet is dangerous and particularly hazardous to small boats not designed for open seas. Persons using this inlet

should be experienced boatmen and have local knowledge. The channel is unmarked.

(236) It is reported that shoaling exists, commencing about 100 yards south of the end of the north jetty and extending to the south. Submerged rocks extend 15 feet east of the end of the south jetty. Within the inlet, along the north and south jetties, east of the Route A1A highway bridge, is a concrete ledge which is just below the surface at high tide.

(237) Tidal currents through the inlet reach a reported velocity of 8 knots, and with an easterly wind it is impassible because of breakers at the entrance. There is a strong undertow when the tide is ebbing. Eddies and extreme turbulence accompany flood and ebb tides.

(238) It is further reported that except during a flat calm, breaking and confused seas exist in the channel from the bridge to the mouth of the inlet. Conditions worsen as seas and winds increase, particularly when the current is running. Conditions are more hazardous during winter.

(239) A dangerous wreck is about 1.8 miles south-southeast of the inlet.

(240) Additional information on local existing conditions can be obtained by contacting the Lake Worth Inlet Coast Guard Station (telephone: 561-840-8503), and asking for the telephone number of the Coast Guard Auxiliary.

(241) **Boca Raton Inlet** (see chart 11467) is a narrow dredged cut through the beach 5 miles northward of Hillsboro Inlet Light. It is used mostly by party fishermen. The hotel at **Boca Raton** is a prominent landmark. The mouth of the inlet is protected by short jetties marked by private lights. In December 1999, the inlet had a reported depth of about 5 feet in the lower south part of the entrance; shoaling to much lesser depths was reported across the rest of the entrance. The bar channel shifts with the winds.

(242) Boca Raton Inlet is dangerous and particularly hazardous to all boats not designed for open seas. Persons using this inlet should be experienced boatmen and should be extremely knowledgeable of the area. The channel is unmarked.

(243) It is reported that shoaling exists 30 yards outside of the inlet and also inside the inlet. Depth at low tide varies from 1 to 3 feet. A sandbar protrudes out of water inside the inlet on the north side. A sandbar extends underwater to within 30 feet of the south jetty. Shoaling and sandbars are continually shifting.

(244) In February 1980, it was reported that the outer 80 feet of the north jetty was being removed. It was further reported that increased shoaling may be expected and that the inlet may occasionally be closed by severe weather.

(245) Tidal currents through the narrow channel reach a reported velocity of 7 knots.

(246) It is further reported that except during a flat calm, breaking and confused seas exist at the mouth of the inlet. Conditions worsen as seas and winds increase, particularly during ebb tide. Breaking seas at the mouth of the inlet will extend 200 feet inside inlet mouth. Conditions are more hazardous during winter. Strong easterly winds are often encountered when attempting to navigate the inlet. These are particularly strong in November through May. In May through September heavy thunder storms often occur during early morning and afternoon.

(247) Additional information on local existing conditions can be obtained by calling **Fort Lauderdale Coast Guard Station** (telephone: 305-927-1611) and asking for the telephone number of the Coast Guard Auxiliary.

(248) Highway A1A bridge crossing the inlet has a 45-foot bascule span with a clearance of 23 feet at the center. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.)

(249) **Hillsboro Inlet Light** (26°15.6'N., 80°04.9'W.), 136 feet above the water, is shown from an octagonal pyramidal skeleton tower with central stair cylinder, lower third of structure white, upper two-thirds black, on the beach on the north side of the inlet.

(250) **Hillsboro Inlet** (see chart 11467), 31 miles southward of Lake Worth Inlet, connects with Hillsboro River and the Intracoastal Waterway. It has considerable importance as a base for party fishermen who run out into the Gulf Stream. In March 1985, the reported controlling depth was 7 feet in the privately maintained channel. The entrance channel is marked by private lights, a daybeacon, and a lighted entrance buoy, and protected by jetties that are partially awash at low tide. Rocky reefs are reported to extend northward and southward of the respective entrance lights; the southern reef is reported to dry at its southern end at low tide. The current in the entrance is reported to set northward across the channel on the flood, and southward on the ebb. In January 1990, shoaling to a depth of about 1 foot was reported at the entrance channel between Lights 1 and 2.

(251) Route A1A highway bridge crossing the inlet has a bascule span with a clearance of 13 feet. The bridgetender monitors VHF-FM channel 16 and works on channel 13. (See **117.1 through 117.59 and 117.289**, chapter 2, for drawbridge regulations.) On the flood tide the current past the bridge is reported to be as much as 5 to 6 knots. An overhead power cable at the bridge has a clearance of 64 feet. Yacht landings are on the south shore on either side of the bridge. A depth of 5 feet is at the landings. Berthage, electricity, gasoline, diesel fuel, water, ice, some marine supplies, a mobile 10-ton lift, and hull, engine, and electronic repairs are available.

(252) Southward of Hillsboro Inlet shoaling is rapid; depths of 6 to 8 fathoms have been found 1.5 miles offshore. A wreck 3.2 miles south of Hillsboro Inlet Light and 0.4 mile offshore has a depth of about 10 feet over it. Two small rock islets on each side of a stranded vessel were formed by the jettisoning of a cargo of cement about 5 miles south of Hillsboro Inlet Light and 0.4 mile offshore. They were blasted away during World War II, but until the depth over them has been determined, the area should be avoided by light-draft vessels.

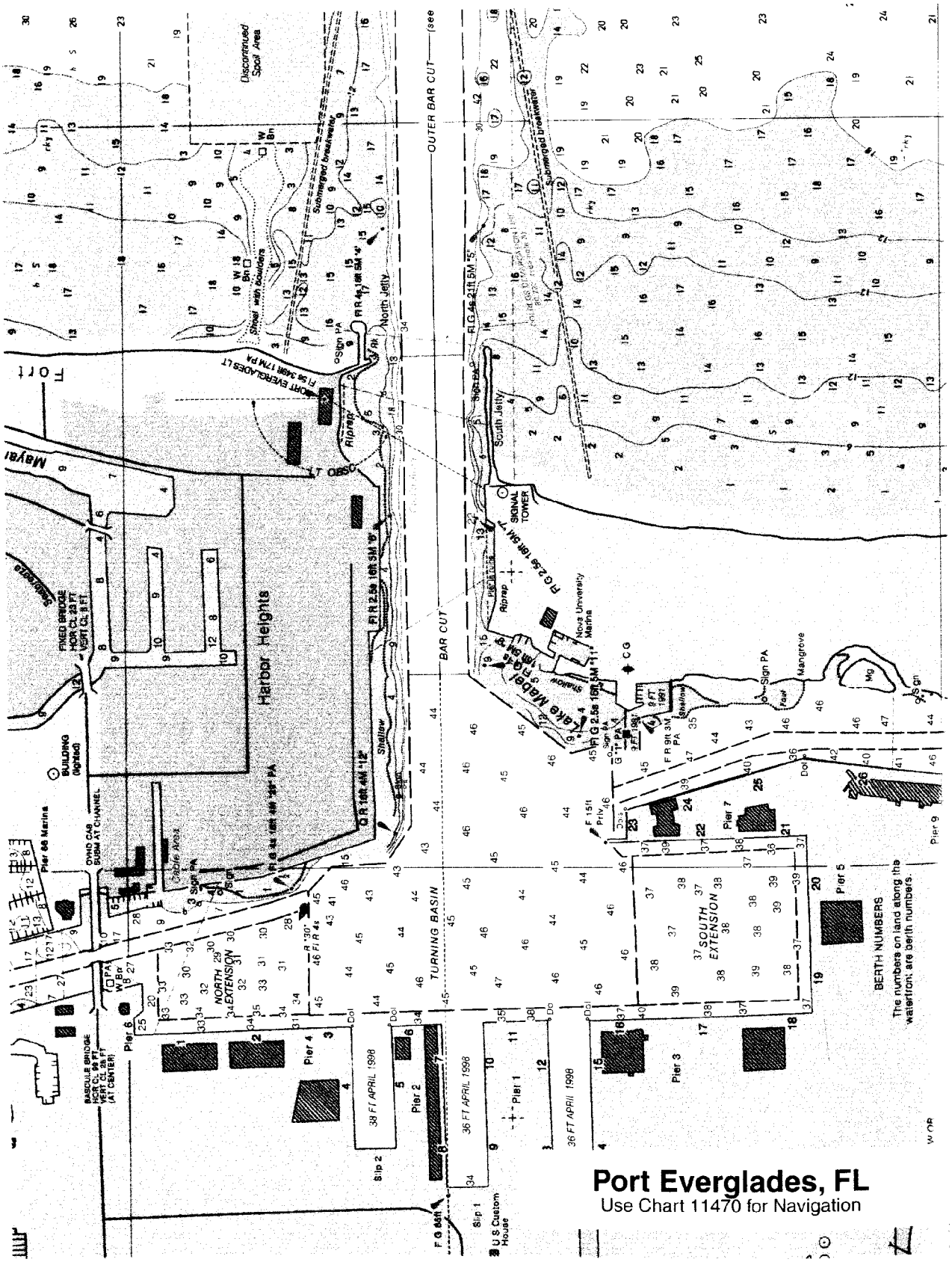
(253) Fish havens extend 1 to 2.4 miles offshore between Hillsboro Inlet and Port Everglades.

(254) A submerged groin is 1 mile north of the entrance of Port Everglades and 0.4 mile offshore.

(255) **Chart 11470.–Port Everglades** is a deepwater port on the east coast of Florida, 301 miles south of Jacksonville and 948 miles from New York. Many of the world's large passenger vessels call at this major cruise port. Although principally a consumer port, considerable foreign commerce passes through. The principal commodities handled include petroleum products, automobiles, bulk cement, steel products, scrap iron, lumber, newsprint, glass, and a variety of general cargo. Two unmarked jetties protect the harbor entrance which is virtually landlocked.

(256) **Prominent features.**–The most prominent objects seen when approaching the port are four stacks painted with red and white bands about 1.2 miles southwest of the harbor entrance. These stacks are marked by red aircraft lights at night. There are numerous tall hotel buildings on the north side of the entrance close westward of the north jetties. The numerous hotels and

Port Everglades, FL


Port Everglades, FL
Use Chart 11470 for Navigation
Harbor Heights
OUTER BAR CUT
BAR CUT
TURNING BASIN
NORTH EXTENSION
SOUTH EXTENSION
Lake Mabel
North Jetty
South Jetty
Discontinued Spoil Area
Submerged breakwater
SIGNAL TOWER
Nova University Marina
Mangrove
Shallow
Riprap
Pier 1
Pier 2
Pier 3
Pier 4
Pier 5
Pier 6
Pier 7
Pier 9
Slip 1
Slip 2
38 FT APRIL 1998
36 FT APRIL 1998
BERTH NUMBERS
The numbers on land along the waterfront are berth numbers.
U S Custom House
BUILDING (lighted)
FIXED BRIDGE
BASCULE BRIDGE
OVHD CAB SUBM AT CHANNEL
Pier 66 Marina
Cable Area
Shoal with boulders
PORT EVERGLADES LT

several tanks along the beach, and tanks, and radio and television towers in Fort Lauderdale are other conspicuous objects.

(257) Because of the low shoreline good radar targets are limited in the approach to Port Everglades. It is reported, however, that the north and south jetties present good targets. Additionally, the entrance buoys are difficult to identify by radar because of the heavy small-craft traffic in the entrance.

(258) **COLREGS Demarcation Lines.**–The lines established for Port Everglades are described in 80.727, chapter 2.

(259) **Channels.**–A Federal project provides for a 500-foot-wide entrance channel 45 feet deep converging at the jetties to a 450-foot-wide channel 42 feet deep leading to a turning basin 42 feet deep at the main port facilities with north and south extensions 31 feet deep. From the turning basin southward, the Intracoastal Waterway leading to the Southport terminal has been dredged for a Port Everglades sponsored project width of 500 feet and project depth of 42 feet. Immediately north of the Southport terminal lies a turning notch on the west side of Intracoastal Waterway 850 feet by 750 feet, 42 feet project depth and marked by 7 fingered dolphins to the north and three articulated yellow buoys to the west. The federal maintenance plan includes the Intracoastal Waterway to Southport and the turning notch. Although not a part of the Federal project, the Port Everglades Department of Froward County has dredged the south extension of the turning basin to a depth of 38 feet and will maintain it at that depth. (See Notice to Mariners and latest edition of chart for controlling depths.)

(260) A lighted buoy marks the entrance, and channel markers include lighted buoys, lights, and a **269°30'** lighted entrance range.

(261) **Dangers.**–Two submerged breakwaters, extending almost 0.7 mile offshore on either side of the entrance, are unmarked. A large abandoned spoil area north of the entrance channel has very little water on it and at times appears above the water as an island; it was reported to be building up to the northwestward in April 1983. The shoal area westward of the spoil area is marked by daybeacons. A **Naval restricted area** extends about 2.5 miles offshore and about 4 miles southward of the south edge of the entrance channel. (See **334.580**, chapter 2, for limits and regulations.) Large vessels entering the port on weekends and holidays are advised to exercise extreme caution because of very heavy small-craft traffic. The ruins of a former jetty, covered 3 feet, extend south from the inner end of the north jetty.

(262) A large fish haven extends from 1.5 to 5.7 miles north of the entrance channel and from 1 to 2.2 miles offshore. A smaller fish haven is about 1 mile north of the entrance channel and about 1.5 miles offshore.

(263) Large commercial vessels approach, enter and depart the entrance channel within both quadrants east of Buoys 2 and 3. Small craft in the vicinity of the approach areas of the entrance channel are advised to be underway and prepared to get out of the way of any large commercial traffic at all times. They are advised never to anchor within 0.6 mile of Buoy "PE" or anywhere in the entrance channel itself, in order not to impede the passage of large commercial traffic.

(264) **Anchorage.**–Commercial anchorage areas A and B are NNE of Port Everglades Lighted Buoy 2 (See §**110.186**, chapter 2, for limits and regulations.) **All non-U.S. flag vessels planning to use the Port Everglades anchorages, whether bound for Port Everglades or not, are required to provide the US Coast Guard with a 24-hour advance notice of arrival.** (See **160.207**, chapter 2, for regulations.) Vessels using these anchorages must report their positions and time of anchoring to the Port Everglades Harbormaster on VHF-FM channel 14. Any vessel casualties such as engine malfunction and plans to perform engine repairs or maintenance while in the anchorage must be reported at the same time. Both anchorages are in close proximity to the three-reef system that runs along the entire coast of south Florida. Anchorage area A has charted soundings of 61 to 74 feet. Recent soundings of Anchorage area B indicate depths of 100 feet along the western edge sloping evenly down to 200 feet in an easterly direction for approximately 0.4 mile. The holding ground in both anchorages consists of a sand, mud, and coral rubble mixture that is not adequate during adverse weather. Several recent groundings have shown that there is very little time to respond to a dragging anchor before coming in contact with the inshore reefs. Violent, unpredictable winds in excess of 50 knots can be associated with local thunderstorm activity. Upon the approach of thunderstorms from any direction or in sustained winds of 25 to 30 knots from NNE through SSE all vessels are strongly advised to have engines on standby and be prepared to vacate the anchorage. It is highly recommended that vessels leave the anchorage and head to sea when sustained winds in excess of 30 knots are blowing from NNE through SSE. A proper anchor watch is vitally important with the vessel's position being checked frequently and VHF-FM channels 14 and 16 continuously monitored. Although not required, pilotage to the anchorages is available upon request and is strongly recommended for vessels not having the anchorages on a chart and for masters who are unfamiliar with the anchorages. Anchoring S of the entrance channel by vessels with a draft in excess of 12 feet is prohibited. (See **334.580**, chapter 2, for regulations.)

(265) **Tides and currents.**–The mean range of tide is 2.6 feet in the turning basin. The tidal currents in the entrance average about 0.7 knot. In April 1983, it was reported that the flood currents attain a velocity of 3 knots and the ebb currents 4 knots. Current swirls of varying characteristics are often encountered in the turning basin and make handling of ships difficult. Prevailing winds from the southeast and east coupled with a rising tide are the most hazardous. Caution should be exercised to avoid striking the piers or the rocky sides of the turning basin.

(266) The entrance channel has dangerously strong cross currents which vary in strength and are unpredictable in direction. These currents generally run at right angles to the direction of the narrow entrance channel making transit hazardous, without local knowledge, for deep draft vessels. These currents have been reported to be as much as 5 knots.

(267) Several locations in the port are also reported to be affected by man-made currents. The outflow from the Florida Power and Light cooling water discharge canal, just south of Berth 29, will effect passing ships in varying ways depending upon the output of the plant and the size and draft of the ship. After periods of heavy rainfall, the flood control gates in the Everglades of South Florida are opened causing very strong ebb currents which might dominate the flood currents in areas such as the Dania Cut-off Canal.

(268) **Weather, Port Everglades and vicinity.**–Tropical cyclones threaten (move within 180 miles of) Port Everglades once or twice each year on the average. About 50 percent of these are hurricanes. While the season runs from June through November, about 83 percent of all threats have occurred in August, Septem-

ber, and October. However the port has also been affected, outside of the normal season, in December, February and May. Tropical cyclones have approached the port from all octants although they are rare from the northwest through northeast. While the port is most vulnerable to winds off the open ocean, the relatively flat terrain provides little resistence to strong land winds; however, nearby manmade structures afford some protection. The Australian pines and other tall trees on the east side of the Intracoastal Waterway provide some lee effect from the prevailing easterly winds. Due to the narrow channel opening and two jetty systems the port is well protected from ocean waves except for those approaching from the east. However, energy from even these waves is lost by shoaling and diffraction inside the harbor. Wind waves inside are limited by lack of fetch. Storm tides have exceeded 12 feet (3.6 m) at Fort Lauderdale in the past. The lack of significant elevations on barrier land strips, subjects the entire Intracoastal Waterway in this area, including Port Everglades, to severe flooding from hurricanes. These factors plus the absence of sheltered berths or anchorages makes evasion at sea the best course of action for all seaworthy, deep-draft vessels when a hurricane threatens the port. Thousands of shallow draft boats are moored in the extensive canal system just north of Port Everglades. If feasible, they should be removed and transported inland to higher elevations. Because of the many boats, it might not be possible to move along the Intracoastal Waterway, to seek protection up a canal or river, unless departure is quite early. If a boat must be moored, it should be ballasted to be low in the water, to escape wind effects, and be well secured with allowance for increased water heights. More detailed information may be found in the **Hurricane Havens Handbook for the North Atlantic Ocean** as mentioned in chapter 3.

(269) Aside from the tropical cyclone threat the climate is conducive to marine activities. Gales are rare. They may occur with strong cold fronts or in severe thunderstorms. Winds of 17 knots or more are most likely from September through April when they blow about 2 to 5 percent of the time. Precipitation occurs on about 94 days annually and is most likely in summer. Thunderstorms occur on 10 to 15 days per month from June through October, a period which records more than 60 percent of the annual rainfall total. These brief, heavy showers usually help cool things off in the late afternoon or early evening. Temperatures climb to 90°F (32.2°C) or more on an average of 56 days each year and extreme of 100°F (37.8°C) has been recorded. The extreme minimum in winter is 28°F (-2.2°C). Visibilities are generally good and drop below 0.5 mile (0.9 km) on an average of just 8 days each year; November through March is the most likely period.

(270) **Pilotage, Port Everglades.**–Pilotage is compulsory for all foreign vessels and for U.S. vessels under register in the foreign trade with a draft of 7 feet or more. Pilotage is optional for U.S. coastwise vessels that have on board a pilot licensed by the Federal Government.

(271) The Port Everglades area is served by Port Everglades Pilots Association, P.O. Box 13017, Port Everglades, FL 33316; telephone 954-522-4491, fax 954-522-4498, radiotelephone VHF-FM channels 14, 16, 18A, 19, and 77.

(272) Port Everglades pilot boat has a gray hull, white superstructure with the word PILOT displayed on the sides. The pilot boat displays the hotel flag by day, and a white light over a red light at night. The pilot boat monitors and works VHF-FM channels 14 and 16. The pilots board in the vicinity of Port Everglades Lighted Buoy PE (26°05.5'N., 80°04.8'W.), day or night. The buoy is equipped with a racon. Vessels should maintain a speed of 7 knots and provide a pilot ladder 3 feet (1 meter) above the water on the lee side. Swift variable currents, usually east of the buoy, can affect boarding procedures.

(273) Arrangements for pilots can be made through ships' agents or the Port Everglades Harbormaster (telephone: 954-468-3531). At least 24 hours advance notice of arrival is requested, with confirmation given 1 hour in advance of arrival by radiotelephone.

(274) **Towage.**–Three conventional tugs to 4,200 hp, two tractor tugs to 5,200, and one Ship Docking Module of 4,000 hp are available for docking and undocking. Arrangements for tugs should be made through the harbormaster's office.

(275) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(276) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) There are five general hospitals and several smaller private hospitals in the area.

(277) Port Everglades is a **customs port of entry.**

(278) **Coast Guard.**–Fort Lauderdale Coast Guard Station is on the east side of the Intracoastal Waterway southeast of the turning basin.

(279) **Harbor regulations** are established by the Port Everglades Department of Froward County. The administration, operation and maintenance of the port are under the direction and supervision of the port director. The **harbormaster** clears all traffic passing through the port, assigns berths and enforces the regulations ashore. The harbormaster should be contacted concerning all ship movements and any requirements that ships may have for their safe passage through the port, such as tug boat assistance or the removal of temporary obstructions. The Marine Division of local, county and state police departments enforce the regulations afloat. A copy of the port tariff is available at the port office which is in the Port Administration Building close westward of Pier 5. The harbormaster's office in the Port Administration Building can be contacted 24 hours a day by telephone (954-468-3531) or on VHF-FM channel 14.

(280) **Manatees.**–Regulated speed zones for the protection of manatees are in Port Everglades. (See Manatees, chapter 3.)

(281) **Wharves.**–Port Everglades has numerous deepwater berths adjacent to the main entrance channel and southern branch of the Intracoastal Waterway. All the berths are owned and operated by the Port Everglades Department of Froward County. The port has 380 acres of open storage, over 440,000 square feet of covered storage, over 2 million cubic feet of cold storage space, 380 electrical reefer outlets and 8 roll-on/roll-off ramps. Foreign Trade Zone No. 25 with 388,600 square feet of warehousing is also located in the port. Privately owned facilities provide over 9 ½ million barrels of storage space for petroleum products as well as 34 cement silos totaling 112,000 ton capacity. Berths 4 through 15 have pipeline connections available for handling petroleum products, asphalt, and other bulk liquids. Heavy lift cranes up to 300 tons, six container gantry cranes of 30 to 50 tons, and modern cargo handling equipment are available at the port. Containers can be worked at all berths listing general cargo by means of ship's gear or mobile container handling equipment available in the port. All berths have access to the highways and some have rail connections. The alongside depths given for each facility described are project depths. Actual depths alongside, in

almost all locations, exceed project depth. For information on the latest depths, contact the Port Everglades Department of Froward County or the Port Everglades Harbormaster. Only the major facilities are described. For a complete description of the port facilities, refer to Port Series No. 16, published and sold by the U.S. Army Corps of Engineers (see appendix for address).

(282) **Berth 1A:** east side of Pier 6; 180 feet long; 12 feet (reported) alongside; deck height, 9 feet; used as a lay-over berth.

(283) **Berth 1B:**south side of Pier 6; 220 feet long with an adjacent 70-foot wide ro/ro ramp; 23 feet (reported) alongside; deck height, 9 feet; 6 feet at ramp; used as a lay-over berth.

(284) **Berths 1, 2, and 3:** east side of Pier 4; 1,600 feet long; 31 feet alongside; deck height, 9 feet; ro/ro cargo at berth 1, secondary fiber, break bulk and general cargo, Naval ships, cruise ships.

(285) **Berth 4:** south side of Pier 4; 900 feet long; 38 feet alongside; deck height, 7.5 feet; ro/ro cargo at head of slip, general cargo, cruise ships.

(286) **Berth 4A:** head of slip 2; 290 feet along; 42 feet alongside; deck height, 4 feet; fingered ro/ro ramp for ships at berths 4 and 5. products.

(287) **Berth 5:** north side of Pier 2; 900 feet long; 38 feet alongside; deck height, 7.5 feet; ro/ro cargo at head of slip, break bulk and general cargo, petroleum products, asphalt.

(288) **Berth 6:** east face of Pier 2; 380 feet long; 38 feet alongside; deck height, 7.5 feet; break bulk and general cargo.

(289) **Berths 7 and 8:** south side of Pier 2; 1,200 feet long; 38 feet alongside; deck height, 7.5 feet; primarily petroleum products, asphalt, occasional general cargo at berth 7.

(290) **Berths 8A:** head of slip 1; 300 feet long; 38 feet alongside; deck height, 7.5 feet; miscellaneous and tug lay-overs while barges being worked.

(291) **Berths 9 and 10:** north side of Pier 1; 1,200 feet long; 38 feet alongside; deck height, 7.5 feet; petroleum products.

(292) **Berth 11:** east face of Pier 1; 500 feet long; 38 feet alongside; deck height, 7.5 feet; liquefied petroleum gas with pipelines to storage tanks.

(293) **Berths 12 and 13:** south side of Pier 1; 1,226 feet long; 38 feet alongside; deck height, 7.5 feet; petroleum products.

(294) **Berths 14 and 15:** north side of Pier 3; 1,226 feet long: 33 feet alongside; deck height, 9 feet; rail mounted bulk cement self unloaders and pipelines leading to 34 cement silos adjacent to dockside; primarily bulk cement, petroleum products, occasional break bulk and general cargo.

(295) **Berths 16, 17 and 18:** east side of Pier 3; 1,648 feet long with 43-foot wide Ro/Ro ramp at south end of Berth 18; 38 feet alongside; deck height, 9 feet at ramp; one 30 ton container gantry crane having an outreach of 108 feet at 90 feet above MHW and one 50 ton container gantry crane having an outreach of 113 feet at 109 feet above MHW, pipelines extending to cement silos; containers, break bulk and general cargo, ro/ro cargo using ramp at west end of Berth 19.

(296) **Berths 19 and 20:** Pier 5; 1,300 feet long with 84 foot wide Ro/Ro ramp at west end of Berth 19; 38 feet alongside; deck height, 9 feet, 6 feet at ramp; break bulk and general cargo, Ro/Ro cargo using ramp at south end of Berth 18, Naval ships, cruise ships.

(297) **Berths 21 and 22:** west side of Pier 7; 1,475 feet long; 38 feet alongside; deck height, 8 feet; primarily cruise ships, Naval ships, occasional general cargo.

(298) **Berth 23:** north side of Pier 7; 200 feet long; 38 feet alongside; deck height, 9 feet; berth no longer used–pier head is occupied by a restaurant.

(299) **Berths 24 and 25:** east side of Pier 7; 1,369 feet long; 42 feet alongside; deck height, 9 feet; cruise ships, Naval ships, lay-overs.

(300) **Berths 26 and 27:** east side of Pier 9; 1,337 feet long; 42 feet alongside; deck height, 9 feet; break bulk and general cargo, cruise ships, Naval ships.

(301) **Berths 28A - 28F:** surrounding the small basin in the southern half of Pier 9; 28A (north wall), 480 feet; 28B and 28E (on finger pier), 350 feet each; 28F (south wall), 400 feet; 28A to 28E have 27 feet alongside, 28F has 21 feet alongside; deck height, 9 feet; 28A - harbor tug dockage; 28B to 28D - lay-over berths; 28F - general cargo.

(302) **Berth 29:** east side of Pier 9; 800 feet; deck height, 9 feet: 42 feet alongside; break bulk and general cargo, primary deep draft lumber dock.

(303) **Berth 30:** north side of Southport terminal; 900 feet; deck height, 11 feet; 42 feet alongside; general cargo, scrap metal, bulk products.

(304) **Berths 31 and 32:** east side of Southport terminal; 2,000 feet; deck height, 11 feet; 42 feet alongside; three 40 ton container gantry cranes having an outreach of 145 '-06" at 130 feet above MHW with setbacks of 5 feet from the bulkhead and 9 feet from the fenders; containers.

(305) **Berth 33A:** southeast corner of Southport terminal; 800 feet, 140 feet at ramp; deck height, 11 feet, 9 feet at ramp; 42 feet alongside; container cranes from berths 31 and 32 can be used; containers and ro-ro cargo.

(306) **Berths 33B and 33C:** southeast corner of Southport terminal, adjacent to 33A; finger pier 500 feet long by 20 feet wide between the two berths; 120 feet ramp at each berth; deck height, 11 feet, 7 feet at ramp; 42 feet alongside; ro-ro cargo.

(307) **Supplies** of all kinds in any quantity can be obtained and all types of marine supplies are available in Port Everglades. All berths have fresh water pipelines and some have electrical shore power connections. Berths 1 through 27 have pipeline connections for bunkering vessels while alongside. Berths 28 through 33 are accessible by tank truck and barge. Arrangements can be made for special blended fuels.

(308) **Repairs.**–There are no major repair facilities for large vessels in Port Everglades. The nearest major repair facility is in Jacksonville.

(309) Several machine, electrical, electronic, and marine engine repair firms located off the waterfront can make above-waterline repairs to small craft.

(310) **Communications.**–The Florida East Coast Railway and the Seaboard System Railroad serve the port through a beltline owned by the port but leased and operated by Seaboard System Railroad. Truck and barge lines serve the port and local and interstate bus service is available. Many domestic and overseas airlines serve the port through the **Fort Lauderdale-Hollywood International Airport,** 1 mile southwest of the port.

(311) **Small-craft facilities.**–Yachting and small-craft facilities are centered at Fort Lauderdale close northward of the port and are described with the Intracoastal Waterway in chapter 12.

(312) **Port Laudania,** just south of Port Everglades, is used by small ships handling general cargo and heavy equipment. The 3.1-mile route from Port Everglades entrance to the port is through the main channel, thence southward for 1.8 miles in the

Intracoastal Waterway and westward for 0.9 mile in the Dania Cut-Off Canal to a 540 by 310-foot turning basin on the north side. Due to the size and draft of the commercial vessels calling at Port Laudania, the center of the channel in the Dania Cut-off Canal is generally required for safe navigation. To prevent dangerous meeting situations, Security calls should be given by vessels over 50 feet in length or over 7 feet in draft on VHF-FM channels 13 and 16 prior to transiting the Dania Cut-off Canal. In April 1983, the reported controlling depth from the Intracoastal Waterway to the turning basin was 5 feet. An overhead power cable across the Dania Cut-Off Canal has a clearance of 130 feet. Facilities include 1,440 feet of wharfage with 14 feet reported alongside, five ramps for roll-on/roll-off loading, 9 acres of open storage, over 15,000 square feet of enclosed warehouse storage, water, fuel and lubricants by truck. Truck service is available, and railroad sidings are nearby. Small-craft facilities in the area are described in chapter 12.

(313) **Chart 11466.**–Between Port Everglades and the Miami Harbor entrance, 20 miles to the southward, the general trend of the coastline is south, and it is formed almost entirely by a low sand beach. The large buildings and tanks in Hollywood, Miami Beach, and Miami are particularly conspicuous from seaward.

(314) This section of the coast is also fairly bold, and the 20-fathom curve runs parallel to the beach at a distance of about 2 miles until in the Miami Harbor entrance where the curve of the shore becomes south-southwestward and the 20-fathom curve lies about 4 miles offshore. Inside this curve shoaling is rapid, and northward of the Miami Harbor entrance 6 to 8 fathoms are found in places 1.5 miles from the beach.

(315) **Hollywood** is a popular resort 5 miles south of Port Everglades and about 1 mile west of the Intracoastal Waterway. The Florida Bible College, a very prominent structure, is on the ocean beach east of the city.

(316) **Charts 11466, 11467.–Bakers Haulover Inlet** has been dredged through the barrier beach at the north end of Biscayne Bay, 11.6 miles south of Port Everglades, to provide circulation of water in the bay. The channel leads westward through the inlet, thence northward to a boat basin on the east side of the channel and connects with the Intracoastal Waterway north of the basin and through a cut opposite the basin. In May 1999, the controlling depth was 11 feet through the inlet to the highway bridge, thence 10 feet in the basin and 8 feet in the channels leading to the Intracoastal Waterway. Route A1A highway bridge over the inlet has a fixed span with a clearance of 32 feet; an overhead power cable just east of the bridge has a clearance of 53 feet. Current velocities of about 2.9 knots on the flood and 2.5 knots on the ebb have been recorded in the inlet. (For predictions see the Tidal Current Tables.)

(317) Many charter-boat fishermen use the inlet in good weather. A 700-foot fishing pier about 0.2 mile north of the inlet is reported to be illuminated by floodlights. The outer end of the pier is in ruins. Several prominent hotels are south of the inlet. The Intracoastal Waterway is 0.4 mile inside the entrance.

(318) The Florida Department of Natural Resources has established a **slow-no wake speed zone** in the Intracoastal Waterway where the channels converge in the vicinity of Bakers Haulover Inlet.

(319) An unmarked fish haven is about 5.5 miles northeast of the entrance channel and about 2.1 miles offshore.

(320) **Chart 11468.–Miami Harbor** is a deepwater port on the east coast of Florida under the jurisdiction of the Metropolitan Dade County Seaport Department. It is 324 miles south of Jacksonville, 971 miles from New York, and 151 miles from Key West. It is principally a consumer port, but considerable foreign commerce passes through, and it is of great importance as a cruise port. The principal commodities handled are petroleum products, bananas, steel products, meat, newsprint, foreign cars and other vehicles, alcoholic beverages, and general cargo. Two unmarked jetties protect the harbor entrance, known as **Government Cut,** which was dredged to form a deepwater entry to the port.

(321) **Miami,** the State's most populated city, covers most of the west shore of Biscayne Bay north of Key Biscayne and is 5 miles from the Gulf Stream, a fact which accounts for its year-round healthful climate. It is an internationally famous winter resort and a popular yachting center, particularly in winter. A large number of small boats that fish and cruise along the Florida Keys operate out of the port.

(322) **Miami Beach** occupies the barrier beach that separates the ocean from the upper part of Biscayne Bay and is also an important yachting center. A number of causeways, with bridges over the channels, form good highway connections with Miami and the mainland communities. The city is principally residential, except for some shops and amusement places. The numerous large hotels take up most of the beach and along Biscayne Bay. Marinas, yacht basins, and numerous small private landings are on the west side of the city along the canals and other waterways off Biscayne Bay. A fishing pier extends out into the sea about 0.3 mile north of the jetties. **Miami Beach Coast Guard Base** and a commercial terminal are northward of the main ship channel near the east end of the MacArthur Causeway. Miami Beach City Yacht Harbor is on Meloy Channel at the southwestern end of Miami Beach.

(323) **Prominent features** (see also chart 11466).–**Miami Approach Light** (25°46.0'N., 80°08.0'W.), 240 feet above the water, is shown from a light on a building and obscured from **065°** to **195°.** The numerous tall buildings and hotels in Miami and along the oceanfront at Miami Beach are visible for miles in all directions. A very prominent landmark in Miami Beach is the tall green and black building of a saving and loan company at about 25°47'26"N., 80°07'56"W., on which the red obstruction lights and an illuminated time and temperature sign, flashing from 7 a.m. to midnight, can be seen over 16 miles offshore. A tall stack and water tank on Virginia Key, Cape Florida Light, the aviation light at **Miami International Airport,** a number of radio and television towers, and numerous other tanks and towers are also prominent.

(324) Radar targets in the approaches to Miami Harbor are poor, except for the land and jetty configurations. Heavy small-craft traffic in the vicinity of the sea and entrance buoys may make visual or radar identification of these buoys difficult. In making a night approach, the many lights on Miami Beach may make identification of navigational aids difficult.

(325) **COLREGS Demarcation Lines.**–The lines established for Miami are described in **80.730,** chapter 2.

(326) **Channels.**—A Federal project provides for a 44-foot channel from the sea buoy to inside Government Cut, then 42 feet to the Fisher Island Turning Basin and to the end of container berth in Fishermans Channel. Miami Main Channel on the north side of the Port of Miami has a project depth of 36 feet to Main

Turning basin with the same depth which is off the northwest corner of Dodge Island. The Lummus Island Turning Basin off the southwest corner of Lummus Island is under construction and has a proposed project depth of 42 feet and as of 1997 had a depth of about 25 feet. The Federal project extends 1,200 feet to the west of the Lummus Island Basin and is also under construction and as of 1997 had a depth of about 25 feet. The channels and turning basins are maintained at or near project depths (See Notice to Mariners and latest edition of chart for controlling depths). In 1998, the area between Miami Main Channel and the Port of Miami off the north side of Dodge Island had depths of 31 to 36 feet. Mariners are advised that abrupt shoaling may be encountered along the northerly and southerly edges of the dredged channel.

(327) A fishing pier, marked by a light at each end, is on the south side of the inshore end of the north jetty. The lights are reported to be difficult to distinguish.

(328) The area in Miami Harbor from the northwest corner of Lummus Island to the turning basin north of the northwest corner of Dodge Island is used intermittently as a seaplane operating area.

(329) A shoal marginal area about 100 feet wide extends between the northern edge of the channel and the MacArthur Causeway along almost its entire length.

(330) A lighted buoy marks the entrance; the buoy is equipped with a RACON. Channel markers include lighted buoys, lights and lighted ranges. A Precautionary Area has been established with a radius of one nautical mile around the sea buoy. This is necessary because large ships inbound and outbound of the port will board and disembark pilots within this area and will be severely limited in their ability to maneuver. All vessels are to exercise extreme caution within this area. Vessels may not anchor within those portions of the Precautionary Area that lie outside the designated anchorage.

(331) **Meloy Channel** branches from the main channel at the inner end of the land cut and extends northwestward along the southwest shore of Miami Beach to MacArthur Causeway. In December 1998, the reported controlling depth was 9 feet. A marina, protected by a breakwater marked by lights, is on the northeast side of the channel.

(332) **Fishermans Channel** is a private channel maintained by the City of Miami. The channel leads westward from the turning basin at Fisher Island for about 2.0 miles to a turning basin off the southwestern corner of Dodge Island; then southwestward to the junction with the Intracoastal Waterway. The channel west of the 1,200 foot extension from the Lummus Island Turning Basin is maintained by Miami-Dade County, and in 1995 had a depth of about 23 feet with lesser depths along the southern edges of the channel. (See Notice to Mariners and latest edition chart for controlling depths.) Natural depths to 10 feet lead from the turning basin off Dodge Island to the Intracoastal Waterway. The channel is well marked.

(333) Other channels in Biscayne Bay are discussed with the Intracoastal Waterway in chapter 12.

(334) **Anchorages.**–A Federal anchorage is located north of the sea buoy (See **11.188**, Chapter 2, for limits and regulations.) Non-U.S. Flag vessels destined for the anchorage must provide a 24-hour advance notice of arrival per Title 33 Code of Federal Regulations Part 160.207 before entering the anchorage area to anchor. Any vessel desiring to use the anchorage must notify the Coast Guard Captain of the Port, via the Biscayne Bay Pilots, on VHF-FM channel 12 or 16. Vessels granted permission to anchor must maintain a 24-hour bridge watch by an English speaking deck officer monitoring VHF-FM Channel 16. This individual must perform frequent checks of the vessel's position to ensure the vessel does not drag anchor. Vessels which are experiencing serious operating casualties such as malfunction of main propulsion, main steering, or anchoring equipment, or which are planning to perform main propulsion engine repairs or maintenance, must immediately notify the Coast Guard Captain of the Port, via Coast Guard Group Miami, on VHF-FMChannel 16. The Coast Guard Captain of the Port may close the anchorage area and direct vessels to depart the anchorage during periods of adverse weather or at other times as deemed necessary in the interest of port safety. The anchorage is in close proximity to the three-reef system that runs along the Atlantic Ocean coast of south Florida. Recent vessel groundings have shown there is very little time to respond to a dragging anchor before coming into contact with the inshore reefs. The holding ground in the anchorage consists of shallow sand, mud and coral rubble covering of the limestone substrate. During periods of high winds and seas, vessels anchors may not hold firmly in this ground. Violent, unpredictable winds in excess of 50 knots can be associated with local heavy thunderstorm activity. The area is also susceptible to large waterspouts. Upon the approach of thunderstorms from any direction or in sustained winds of 25 to 30 knots from NNE through SSE, all vessels are warned to have main propulsion engines on standby and be prepared to vacate the anchorage. When sustained winds in excess of 30 knots from NNE through SSE are to be expected, vessels may be ordered from the anchorage and advised to head directly to sea. Although not required, pilotage to the anchorage is available upon request and is strongly recommended for vessel masters who are unfamiliar with the anchorage.

(335) **Dangers.**–Shoals extend about a mile offshore northward of the entrance, and vessels approaching from the northward should keep at least 1.5 miles offshore until within 4 miles of the entrance and then haul out for the sea buoy. A fish haven with 17 feet over it is about 3.5 miles NE of Miami Harbor entrance in about 25°48'34"N., 80°05'26"W. The outer reefs, for about 10 miles south of the entrance, are unmarked except for the northerly red sector in Fowey Rocks Light, and vessels approaching from that direction should stay outside this sector until well up before closing the sea buoy.

(336) **Tides.**–The mean range of tide is 2.5 feet at the harbor entrance and 2 feet in the bay. Daily predictions for Miami Harbor are given in the Tide Tables.

(337) **Currents.**–Strong tidal currents run in the entrance between the jetties; the current velocity being about 2 to 4 knots. A northerly wind causes a considerable southerly set across the ends of the jetties. Vessels are advised to favor the southerly side of the entrance channel during southerly winds, as a pronounced northerly set may be experienced.

(338) The Biscayne Bay Pilots report variances between predicted and actual currents. Cross-channel current variations in Government Cut are particularly difficult to negotiate. Caution should be exercised when entering Government Cut from the sea during flood tide with northeasterly winds; a strong turning torque occurs when the bow is just inside the north jetty. A similar but less serious situation occurs when leaving the port during ebb tide. Horizontal current gradients which may make maneuvering difficult occur in the turning basin north of Fisher Island.

(339) Daily predictions for Miami Harbor entrance are given in the Tidal Current Tables.

(340) **Weather, Miami and vicinity.**–A subtropical marine climate features a long, warm summer with abundant rainfall followed by a mild, dry winter. Winds blow mainly from the east through southeast. This is often a combination of trades reinforced by an afternoon sea breeze. At night, winds may be more variable, lighter and sometimes blow off the land. From fall through spring, fronts, and sometimes lows, add to the variability but also cause a strengthening of winds. Winds speeds during these seasons climb to 17 knots or more, 2 to 5 percent of the time. Along the coast, winds are often stronger than inland.

(341) The marine influence is also reflected in the precipitation and temperatures. Miami Beach records about 48 inches (1,219 mm) annually compared to nearly 59 inches (1,499 mm) at airport. At the airport, June is the wettest month averaging 9 inches (228.6 mm) of rainfall while December is the driest month averaging 1.9 inches (48.3 mm). Snowfall is almost unheard of in Miami but on January 19, 1977 snow did fall. A dusting accumulated as far south as Ft. Lauderdale and flakes fell and melted on impact at Miami and as far south as Homestead, 20 miles south of Miami.

(342) The average high temperature at Miami is 83°F (28.3°C) and the average low is 69°F (20.6°C). August is the warmest month with an average high of 90°F (32.2°C) and an average low of 77°F (25°C). January is the coolest month with an average high of 76°F (24.4°C) and an average low of 60°F (15.6°C). The maximum temperature at Miami has never reached 100°F (37.8°C) and the extreme maximum of 98°F (36.7°C) has been recorded on five separate occasions, the last being on August 1, 1990. The coldest temperature on record is 30°F (-1.1°C) recorded on January 22, 1985. Miami has an average of 58 days each year when the temperature climbs above 90°F (32.2°C) and only six days each year when the temperature falls below 45°F (7.2°C).

(343) Visibilities drop to ¼ mile or less (<0.5 km) on about 7 days each year.

(344) Tropical cyclones are most likely to affect this area during August, September, and October although they can occur in any month. One or two tropical cyclones will threaten Miami in an average year but hurricane force winds are expected about once every 7 years. Miami lies in the heart of the U.S. hurricane belt, in an area where tropical cyclones are often recurving, slowing and intensifying. Of the 58 tropical cyclones that threatened Miami during the period 1842-1995, 52 occurred during the months August, September, and October and 24 have occurred since 1950. At this latitude, along with the proximity of the Caribbean Sea and much warmer water, October is the most likely month of occurrence. The predominate direction from which the storm arrives is from the south or southeast. Hurricane Cleo in 1964 and Hurricane Andrew in 1992 are likely the most noteworthy storms to affect Miami in recent memory. Hurricane Cleo was a very small storm and did little damage. It passed near Miami on August 27, 1964. It is perhaps most noteworthy due to it's punch. Maximum winds were 95 knots with gusts to 120 knots. Hurricane Andrew passed just south of Miami on August 24, 1992. Andrew goes on record as being the storm having the third lowest air pressure at landfall of any storm in U.S. history. Andrew ravaged Homestead Florida in the early morning hours of August 24 with winds in excess of 150 knots on a path that took it across southern, Florida, in four hours. Andrew ranks as the most costly natural disaster to date for the United States.

(345) See page T-9 for **Miami** climatological table.

(346) **Pilotage, Miami.**–Pilotage is compulsory for all foreign vessels and U.S. vessels under register in the foreign trade with a draft of 7 feet or more. Pilotage is optional for coastwise vessels which have on board a pilot licensed by the Federal Government.

(347) The Miami area is served by Biscayne Bay Pilots Association, at the far east end of the Port of Miami on Lummus Island, 2911 Port Blvd., Miami, FL 33132; telephone 305-374-2791 (office), 305-375-9453 (dispatch); fax 305-374-2896; VHF-FM radiotelephone channel 16. All types of vessels are served.

(348) Biscayne Bay Pilots have four boats: MIAMI, 42 feet long; BISCAYNE, 42 feet long; NO. 2, 36 feet long; VIZCAYA, 52 feet long; all boats have black hulls with buff superstructures, and the word PILOT in black letters on the sides. International Code Flag H is flown by day, and the standard pilot lights are displayed at night. The pilot boats monitor VHF-FM channel 16 and work on channel 12. The pilot boarding and cruising area is close seaward of Miami Lighted Buoy M (25°46.1'N., 80°05.0'W.). The buoy is equipped with a racon. Pilots will board vessels day or night. Vessels are requested to rig the pilot ladder on the leeward side about 1 meter above the water, and maintain a speed of about 5 knots. Large deep-draft vessels are requested to stay at least 1 mile eastward of the sea buoy for pilot boarding because of the strength and proximity of the Gulf stream current.

(349) Pilotage is usually arranged by telephone or fax through ship's agents. Vessels are requested to give a 24-hour advance notice of arrival with confirmation 1 hour before ETA by radiotelephone.

(350) **Towage.**–There are large tugs of up to 3,000 hp available in the port. **Salvage,** wrecking, and diving equipment is available.

(351) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(352) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) There are more than 10 public and private hospitals in Miami and 3 at Miami Beach. Many others are in the surrounding area.

(353) A U.S. Quarantine station is at Miami. (See appendix for address.)

(354) Miami is a **customs port of entry.**

(355) **Coast Guard.**–The **district office** and a **Marine Safety Office** are in downtown Miami. (See appendix for addresses.) Miami Beach Coast Guard Base is on Causeway Island, 1.2 miles inside the outer end of the entrance north jetty.

(356) **Harbor regulations** are established by the Metropolitan Dade County Seaport Department. The Seaport Director assigns berths and enforces the regulations. It is unlawful for any vessel or other craft to proceed at a speed which will endanger other vessels or structures. Official signs are posted indicating limiting speeds through critical portions of the harbor or waterways.

(357) **Wharves.**–The Port of Miami has over 30 deepwater berths adjacent to the Miami Harbor Channel; these include the berths at the Port of Miami on Dodge Island and Lummus Island, and the privately owned facilities on the north side of Fisher Island and just west of Causeway Island.

(358) The facilities at the Port of Miami are owned by the Miami-Dade County Seaport Department. All berths have fresh

water available, but electric power and telephone hookups are not provided. Dodge and Lummus Islands are fully merged, and should be considered a single facility. Vehicular traffic is served by a six-lane elevated highway bridge over the Intracostal Waterway. A single track bascule bridge allows Florida East Cost Railway to access warehouses A, B, C & G in the cargo area of the Port. A four-track railway marshaling yard is provided in the cargo area. Fisher Island can only be reached by water transportation (shuttle barges). A total area of approximately 609,000 square feet of covered storage is available in transit sheds A, B, C, D. E and G. Fifty thousand square feet of refrigerated space is available in Shed G ; operated by a private company.

(359) The port has ten gantry cranes at the southeastern end of the facility. Three cranes have a 40-ton lift capacity, while the remaining seven gantry cranes can lift 50 tons. Mobile cranes are available through a private operator on the port, and from various contractors in the Miami area.

(360) The depths alongside each facility are reported depths. (Contact the Miami-Dade Seaport Department, Biscayne Bay Pilots Association or private operator for the latest depths). Only the major facilities of the port are described. For a complete description of the port facilities, refer to Port Series No. 16, published and sold by the US Army Corps of Engineers. (See appendix for address).

(361) **Port of Miami** (25°46.5'N., 80°10.2'W.) northwest corner berths 6 and 7, 700 feet long; 108-foot ro/ro platform; 30 feet alongside deck height, 7½ feet; used for passenger and ro/ro cargo traffic.

(362) Northern Bulkhead, Bays 00–55; 6,900 feet long; 31 to 36 feet alongside; deck height, 7½ feet; used for passenger and cargo traffic.

(363) Northern Ro/Ro Ramps, Bays 55–59 and 59–65, 535 and 700 feet long respectively; 35 feet alongside; deck height, 7½ feet; used exclusively for cargo traffic.

(364) Gantry Crane Area, Bays 99–130½, 3,850 feet long; 42 feet alongside; deck height, 12 feet; 1,200 feet of additional gantry dock berths under construction at the west end, available February 1999.

(365) South Side ro/ro Ramps, Bays 144–148, 600 feet long; Bays 149–154, 680 feet long; Bays 155–161, 500 feet long; Bays 162–164, 350 feet long, under construction, available January 1999; Bays 165–171, 750 feet long; Bays 172–177, 600 feet long; average 25 feet alongside; deck height, 7½ feet.

(366) South Side Passenger Terminal Area (Terminal 12), Bays 183–195, 1,500 feet long; average 23 feet alongside; deck height, 10 feet; used for small passenger vessels and cargo ships.

(367) South side of Dodge Island, about 500 yards westward of southeast corner of the island: Ship basin and complex of National Ocean Service Southeast Support Facility; 25 feet alongside; berthing of research vessels.

(368) South side of Dodge Island immediately northwest of ship basin, Bays 85 through 97; 1,371 feet of berthing space; 25 feet alongside; deck height, 7 feet; 122-foot by 78-foot roll-on/roll-off platform; 23 acres open storage; general, containerized, and roll-on/roll-off cargo.

(369) Container Wharf: southeast side of Lummus Island; 3,400 feet of berthing space; 25-36 feet alongside; deck height, 12 feet; six diesel-electric, traveling, container-handling cranes; 100 acres open storage; containerized cargo.

(370) **Fisher Island** (25°45.8'N., 80°08.5'W.)

(371) Coastal Fuels Marketing, Inc. Wharf: north side of Fisher Island; face 800 feet long west of slip; 36 feet alongside; east and west sides of slip 490 feet; 15 to 20 feet alongside; deck height, 6 feet; storage tanks for 667,190 barrels; receipt and shipment of petroleum products, bunkering vessels; owned and operated by Coastal Fuels Marketing, Inc.

(372) **Terminal west of Causeway Island** (25°46.2'N., 80°08.8'W.)

(373) Island Terminal Co.: West of Causeway Island; south side facing main channel 757 feet of berthing space; 31 to 32 feet alongside; slip side 700 feet of berthing space; 22 to 35 feet alongside; berthing at this wharf is only on an ebb tide; deck height, 7 to 9 feet; containerized cargo; 5½ acres of open storage; owned by Causeway Terminal and operated by Island Terminal Co.

(374) **Supplies** of all kinds in any quantity can be obtained, and all types of marine services are available in Miami. Freshwater is piped to most berths. Fuel oil and diesel oil are available at the oil terminals and by tank barge or truck; most vessels bunker by barge while alongside.

(375) **Repairs.**–There are no major repair facilities for large vessels in Miami. The nearest major repair facilities are at Jacksonville and Tampa. A shipyard in Port Everglades has a syncrolift capable of lifting out vessels of 4,200 tons, 370 feet long, and 82 feet wide. The largest drydock at the yard is 250 feet long, 86 feet wide, and has a capacity of 3,200 tons.

(376) Marine repair firms along the Miami River offer a wide range of services, including construction, repair, and conversions to small coastal and inter-island vessels. The largest marine railway is capable of hauling out vessels up to 1,000 tons; the largest vertical boat lift is capable of hauling out vessels up to 500 tons and 130 feet. The largest shaft machined in the port is 36 feet by 90 inches. Cranes up to 200 tons are available.

(377) Several machine, electrical, electronic, and marine engine firms located off the waterfront can make above-the-waterline repairs to vessels berthed at the port.

(378) **Communications.**–Miami is the main line terminus for the Florida East Coast Railway and the Seaboard System Railroad. Both lines have freight service farther south to Homestead and Florida City. The city beltline railroad connects them with the port. Considerable ocean shipping calls at the port, and a large number of cruise ships operate from the port the year round.

(379) Local and interstate bus and truck lines operate over the excellent highways and freeways to and in the city and numerous domestic and overseas airlines serve the port through the Miami International Airport west of Miami.

(380) **Chart 11467.–Miami River** trends westward then northwestward through the heart of the city of Miami for about 2.8 miles to the confluence of **South Fork Miami River**and **North Fork Miami River.** North Fork leads northwest for another 0.6 mile to the junction with **Miami Canal** and then continues west as a narrow stream to its source just west of the NW. 27th Avenue bridge. Miami Canal leads northwest for 0.5 mile to its junction with **Tamiami Canal** and then continues northwestward to Lake Okeechobee. Miami River and Miami Canal are navigable for about 5 miles to a dam below the NW. 36th Street highway bridge. Miami Canal is reported to be navigable for small boats for about 10 miles above the dam. However, the head of navigation from seaward is at the dam. Tamiami Canal leads westward from Miami Canal to **Sweetwater** in the

Everglades. A dam is about 1.2 miles above its junction with Miami Canal.

(381) In March-May 1991, the centerline controlling depths were 13 feet from the Intracoastal Waterway to the NW 27th Avenue bridge, thence 10 feet in Miami Canal to about 100 yards below the head of navigation at the dam. In 1984, the South Fork had depths of 10 feet at the entrance to 4 feet at a fixed bridge about 0.3 mile above the mouth. In February 1982, shoaling to an unknown extent was reported on the north side of Miami River about 0.3 mile above the mouth. In September 1992, shoaling with numerous groundings was reported under the NW 27th Avenue bridge.

(382) Miami River and Tamiami Canal are **Regulated Navigation Areas.** (See **165.1 through 165.13, and 165.726**, chapter 2, for limits and regulations.)

(383) The Coast Guard reports that ships may encounter current anomalies at the mouth of Miami River which have caused occasional groundings. Currents in the river are strong on the ebb and cause swirls at the bends.

(384) The minimum clearance of the 10 drawbridges crossing Miami River and Miami Canal from the mouth to the head of navigation at the dam about 5 miles above the mouth is 6 feet. (See **117.1 through 117.59, 117.305, and 117.307**, chapter 2, for drawbridge regulations.) The drawbridges over Miami River from NW. 5th Street through NW. 22nd Avenue may at times be closed to marine traffic because of special events being held at the Orange Bowl. Advance notice of such closures will be published in the Local Notice to Mariners. The bridgetender monitors VHF-FM channels 13 and 16.

(385) A fixed people-mover bridge with a clearance of 75 feet crosses the river 0.25 mile above the mouth. The Miami Avenue bascule bridge with a clearance of 21 feet crosses the river about 0.3 mile above the mouth. A fixed railroad bridge with a clearance of 75 feet crosses the river 0.4 mile above the mouth. The triple fixed spans of Interstate Route 95 bridge cross the river 0.7 mile above the mouth; the vertical clearance is 75 feet. Another fixed highway bridge, 2.1 miles above the mouth, has a clearance of 75 feet.

(386) A highway bascule bridge with a reported 35-foot span and a clearance of 6 feet crosses the Tamiami Canal just above its junction with Miami River. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.)

(387) The river and canals are important parts of the Miami waterfront, for both commercial and pleasure craft. There are commercial wharves, yacht basins, marine repair plants, and oil-terminal wharves on the banks of Miami River and Miami Canal to just above the Seaboard System Railroad bridge about 0.2 mile below the dam. The principal wharves can accommodate any vessel able to enter the river.

(388) **Charts 11468, 11467.**–Small-craft facilities are distributed along the east and west shores of Biscayne Bay from above Baker Haulover Inlet to Dinner Key, on Miami River, and on Tamiami and Miami Canals. Marine railways, lifts, and launching ramps are available. Gasoline, diesel fuel, freshwater, ice, berthing with electricity, marine hardware, provisions, and telephone services are available about the harbor. Hull, engine, and electronic repairs can be made. There are many large hotels, motels, tourist homes, and restaurants. (For details on facilities, channel depths, bridges, etc., between Bakers Haulover Inlet and Miami Harbor Channel, see chapter 12.)

(389) During the winter tourist season, when berthing space is at a premium, many craft have to anchor in the bay off the facilities. There are dockmasters at most of them to advise and assist in finding a secure berth. Many of the large hotels at Miami Beach have their own docks.

(390) The **City of Miami Miamarina**is at the northeast corner of **Bay Front Park,** which extends from the Dodge Island Causeway southward to Miami River and fronts on Biscayne Boulevard. The marina caters to private, commercial and sightseeing vessels. The facility has over 200 slips accommodating craft to 150 feet. Water, electricity, laundromat, and telephones are available. U.S. Customs and U.S. Department of Agriculture officials are on call at the dockmaster's office; they also handle immigration and U.S. Public Health Service matters. In April 1983, depths of 10 feet were reported in the approach with 9 feet in the basin. The **dockmaster's** office, at the marina, is manned 24 hours a day.

11. MIAMI TO KEY WEST

(1) This chapter describes the Florida Keys and the various passages that lead through it from the Straits of Florida and Hawk Channel to Florida Bay and the Gulf of Mexico. Also discussed are Key West Harbor and the small-craft basins at Key West, Boot Key Harbor, Safe Harbor, and several other small-craft harbors along the Florida Keys.

(2) Strangers using Hawk Channel and the various passages through the Florida Keys can obtain the services of fishing boat captains and other qualified charter-boat captains at Miami or Key West who will act as **pilots** or **guides.**

(3) **COLREGS Demarcation Lines.**–The lines established for this part of the coast are described in **80.735 and 80.740**, chapter 2.

(4) **Weather.**–Tropical cyclones are the greatest weather hazard to navigation in this area. While they can form in any month they are most likely during August, September and October. Some of the greatest hurricanes on record have moved through this area. Often considered the most devastating, was the Labor Day Hurricane that struck the Florida Keys in 1935. Winds were calculated to be 175 to 215 knots. Near Lower Matecumbe Key (Craig) a pressure of 892.3mb was measured; the lowest ever in a North Atlantic hurricane. Storm tides were estimated to have exceeded 18 feet (5.5 m) above mean sea level. Donna (1960) and Betsy (1965) were other severe hurricanes that wreaked havoc in the Keys. For more detail see Key West.

(5) This area lies close to the northern boundary of the trade winds in winter but in the heart of this system in summer. Therefore easterlies and northeasterlies are persistent throughout the year. They are occasionally interrupted by winter cold fronts, easterly waves and tropical cyclones. Local effects also come into play near the Keys. The trades usually blow at 10 to 20 knots but can strengthen at times. While gales are infrequent, winds of 22 knots or more blow about 7 to 12 percent of the time from October through March. In the Straits of Florida, October and November trade winds are persistent and intense, averaging around 15 knots. From fall through spring, waves of 10 feet (3 m) or more are reported 1 to 3 percent of the time.

(6) The nearness of the Gulf Stream and the tempering effects of the Gulf of Mexico produce a tropical maritime climate in which average winter temperatures are only 12° to 15°F (6.7° to 8.4°C) cooler than summer averages. Cold fronts are usually modified even if they reach the Keys. Just south of Miami there are about 10 to 12 days on the average when minimums drop below 40°F (4.4°C). June through October is generally considered the rainy season and most of this falls as showers and thunderstorms. Particularly heavy amounts fall in conjunction with easterly waves or more organized tropical cyclones. In winter, cold fronts may bring rain. Visibilities are usually good but may be reduced briefly in showers.

(7) **Chart 11460.**–The **Florida Keys** consist of a remarkable chain of low islands, beginning with Virginia Key and extending in a circular sweep to Loggerhead Key, a distance of about 192 miles. For some 100 miles of that distance they skirt the southeast coast of the Florida Peninsula, from which they are separated by shallow bodies of water known as Biscayne Bay, Card Sound, Barnes Sound, Blackwater Sound, and Florida Bay. Biscayne Bay has depths of 9 to 10 feet for most of its length, and the other bodies of water are shallow, containing small keys and shoals, and of no commercial importance except as a cruising ground for small boats. Westward of Florida Bay the Florida Keys separate the **Straits of Florida** from the Gulf of Mexico.

(8) The keys are mostly of coral formation, low, and generally covered with dense mangrove growth, though some are wooded with pine, and on a few are groves of coconut trees. Most of the keys that are connected by U.S. Highway 1 to Key West are inhabited. Key West is the most important of the keys.

(9) The openings under the viaduct and bridges are indicated on the charts. Drawbridges are over Channel Five, Jewfish Creek, and Moser Channel. Overhead power cables run parallel to U.S. Highway 1 from Tavernier to Big Coppitt Key. All clearances are greater than those of the adjacent fixed bridges. Cables are submerged at the movable spans of drawbridges. Small craft with local knowledge use these channels to go from the Straits of Florida to Florida Bay and the Gulf of Mexico. Strangers should not attempt passage without a pilot or guide.

(10) The tidal currents are strong through the openings between the keys. Wind effects may at times be expected to modify the velocities shown in the tidal current tables.

(11) The Florida Keys are skirted on the side next to the straits throughout their extent by the **Florida Reefs,** a chain of dangerous reefs and shoals lying at an average distance of about 5 miles from the line of keys. The reefs are hazardous because they are not marked by breakers in smooth weather and only a few show above the water. On the outer edge of and between the reefs the water shoals abruptly.

(12) In the seaward approach to the reefs, warning of their proximity usually will be given by the difference in color of the water, from deep blue to light green, or by the **Bank Blink,** described in chapter 3. Too much reliance in these warnings, however, may lead to trouble. In clear weather the lights and daybeacons make navigation along the reefs easy, but in thick weather soundings should be relied upon for safety. Fifty-fathom soundings indicate a distance of 2 to 3 miles from the reefs, and great caution should be used in approaching them closer. Fog is not frequent in this locality.

(13) The water always becomes milky following windy weather. The usual color of the water on the reefs is bluish green, and the shoal patches show dark, shading through brown to yellow as they approach the surface. The shoal sand patches show as a bright green. At depths of 10 to 15 feet grass patches on the bottom look quite similar to rocks. When piloting in this area choose a time so that the Sun will be astern, conning the vessel from aloft or from an elevated position forward, for then the line of demarcation between deep water and edges of the shoal will be indicated with surprising clarity.

(14) **Prominent features.**–The outer part of the Florida Reefs is marked by lights from Miami to Key West. Several lights marking the Hawk Channel are also visible from seaward. In addition, several lighted radio towers and microwave towers along the keys and the aerolights at Marathon Airstrip, on Boca Chica Key and at the Key West International Airport are prominent.

(15) **Dangers.**–Vessels proceeding through the channels inside the Florida Reefs should exercise extreme caution because of the numerous rocks, shoals, wrecks, and pile structures which exist. The chart should be examined carefully to determine the position of these dangerous obstructions so they may be avoided.

(16) **Hawk Channel** is the navigable passage inside Florida Reefs and outside the keys from Cape Florida to Key West, a distance of about 127 miles. It varies in depth from 9 to 34 feet, and is 0.25 mile wide at its narrowest part. Light-draft vessels, bound southward and westward, may use this channel with great advantage, avoiding entirely the adverse current of the Gulf Stream and finding comparatively smooth water in all winds, except when passing the large openings between the reefs in southerly winds. These openings are principally between Alligator Reef Light and American Shoal Light. Power-driven vessels or sailing vessels with a following wind may run the courses through this channel without difficulty. Sailing vessels drawing more than 7 feet are advised not to try to beat through without a pilot or guide.

(17) Reports indicate that the current in Hawk Channel usually sets fair with the channel, except alongside the open area between Hawk Channel and Biscayne Bay where a fairly strong cross current exists, particularly on an ebb tide. Possible cross currents should be guarded against, especially in the vicinity of the openings between the keys.

(18) Local fishing-boat and charter-boat captains who will act as pilots or guides are generally available at Miami or Key West. The channel is marked with lights, lighted buoys, daybeacons, and buoys. However, strangers should not attempt passage at night without local knowledge. Vessels may anchor at night where the bottom is soft. Known anchorages are discussed in a later section. The holding ground is poor where the bottom is hard. Tows and other small vessels use the channel.

(19) The **Intracoastal Waterway** between Miami and Key West is described in chapter 12. This waterway on the western and northern side of the keys passes southward through Biscayne Bay, Card, Barnes, and Blackwater Sounds and connecting waterways in Florida Bay to Moser Channel. From there it is necessary to pass either through Moser Channel and proceed to Key West via Hawk Channel, a distance of 40 miles, or to remain on the northern side of the keys and proceed to Key West via Big Spanish Channel and the Gulf of Mexico, a distance of 54 miles. The waterway route is through smooth waters, except in Hawk Channel and the Gulf of Mexico.

(20) **Florida Bay,** northward of the Florida Keys and southward of the mainland of Florida, is a triangular body of water extending in a general east-and-west direction from Barnes Sound to Cape Sable. The depths are shallow and irregular, and the bottom is mostly coral with a thin covering of silt in the eastern part. From April to October the waters of the bay are clear and the shoals plainly discernible, but during the winter the water is frequently milky and the shoals indistinguishable.

(21) In the eastern part of the bay are numerous ridges and reefs which show bare or nearly bare. Numerous small wooded keys dot the area. Only small craft can navigate this part of the bay which is frequented by small motor yachts, crab and lobster fishermen, and other fishing craft. The western part of the bay is comparatively clear, with depths ranging from 7 to 13 feet. Many charted shoal areas with lesser depths are scattered throughout this part of the bay; the chart is the best guide. The bottom is covered with basket sponges and small coral heads.

(22) A protected area of the **Everglades National Park** is in the northern part of Florida Bay. Landing on the beaches or keys of this area without the authorization of the Superintendent of the Everglades National Park is **prohibited,** except on those beaches or keys marked by a sign denoting the area as being open.

(23) **Great White Heron National Wildlife Refuge** and **National Key Deer Refuge** extend through the northern part of the keys from near Vaca Key to Key West.

(24) **Charts 11466, 11465, 11451.–Norris Cut** is a shallow inlet just south of the Main Channel to Miami Harbor between Fisher Island and **Virginia Key.** A prominent stack and tanks are near the center of Virginia Key.

(25) **Key Biscayne** is connected to the mainland by a bridge-causeway which crosses Bear Cut, Virginia Key, and Biscayne Bay. The highway bridge over Bear Cut has a 48-foot fixed span with a clearance of 16 feet. A shoal, reported bare at mean high water, extends about 0.6 mile in a north-south direction about 0.2 mile off the eastern shore of Key Biscayne.

(26) An abandoned lighthouse is on **Cape Florida,** the southern point of Key Biscayne. Many tall apartment hotels on the easterly side of Key Biscayne are also prominent.

(27) **Biscayne Channel** leads through the shoals south of Cape Florida into Biscayne Bay. It is partially dredged, but the channel has shoaled. In April 1983, the reported controlling depth was 5 feet. The channel is marked by lights and daybeacons. Craft whose draft is close to the limiting depth of the channel should exercise extreme caution in navigating it. Several channels leading through the shoals between Biscayne Channel and Key Biscayne are used by local boats.

(28) **Cape Florida Anchorage,** with depths of 12 to 20 feet, is about 300 yards westward of the south end of Cape Florida with the lighthouse tower bearing northward of 069°. This is a poor anchorage with southerly winds.

(29) **Miami South Channel** is a dredged cut leading from Biscayne Bay, westward of Virginia Key, to the Miami waterfront. One branch of it leads into the Miami River, and the other leads directly to the basin off **Bay Front Park.** The Intracoastal Waterway southward to Key West passes through Miami South Channel. Clearance of the Rickenbacker Causeway bridge is given in chapter 12.

(30) **Fowey Rocks Light** (25°35.4'N., 80°05.8'W.), 110 feet above the water, is shown from a brown, octagonal, pyramidal skeleton tower on pile foundation enclosing a white dwelling and stair cylinder. A radiobeacon is at the light. A fish heaven, covered 65 feet, is about 2.1 miles north-northeastward of the light in about 25°37'24"N., 80°04'54"W.

(31) **Fowey Rocks Anchorage,** 1.3 miles westward of Fowey Rocks Light and unprotected from southerly winds, can be used by vessels drawing 14 feet or less.

(32) **Charts 11462, 11465, 11463, 11451.–Bowles Bank Anchorage,** 6.5 miles south-southwestward of Fowey Rocks Light (25°35.4'N., 80°05.8'W.), is fair in all but southerly winds. It has depths of 14 to 16 feet and soft bottom in places, and lies about 0.5 mile north of the light of Bache Shoal and eastward of the north end of **Elliott Key.**

(33) **Legare Anchorage,** 7 miles southward of Fowey Rocks Light, lies between the reefs westward of **Triumph Reef.** The bottom is mostly hard, but there are some soft spots on which vessels may anchor. The entrances are not marked, and the anchorage is not generally used.

(34) **Caesar Creek Bank Anchorage,** 12 miles south-southwestward of Fowey Rocks Light, is fair in all but southerly winds. It lies on the west side of Hawk Channel between **Margot**

Fish Shoal and **Caesar Creek Bank**, with depths of 10 to 12 feet, soft bottom.

(35) Excellent anchorage for small craft will be found in **Caesar Creek,** just north of Caesar Creek Bank. The entrance is marked by a light, and private daybeacons mark the channel. There was a reported depth of 6 feet through the entrance channel in April 1983.

(36) There is also a secure anchorage between **Adams Key, Meigs Key,** and **Elliott Key.** In April 1983, it was reported that with local knowledge a draft of 4 feet could be carried into Biscayne Bay through a privately marked channel which leads north along the west side of Adams Key.

(37) **Pacific Reef,** 13.4 miles southward of Fowey Rocks Light, is marked by **Pacific Reef Light** (25°22.2'N., 80°08.5'W.), 44 feet above the water and shown from a black skeleton tower on piles. A channel, marked by daybeacons, leads from the ocean 0.6 mile southward of Pacific Reef Light to Caesar Creek; the reported controlling depth was 8 feet in April 1983.

(38) In July 1984, a sunken wreck was reported in Hawk Channel about 0.3 mile northwest of Turtle Harbor West Shoal Daybeacon 2 in about 25°19.5'N., 80°13.0'W.

(39) **Angelfish Creek,** 17.5 miles southwestward of Fowey Rocks Light, is used by vessels proceeding to Card Sound and the Intracoastal Waterway. The reported controlling depth through the creek was 5 feet in April 1983. The channel is marked by lights and daybeacons. The outer end of the creek offers good protection, but the bottom is rock ledge and the anchor should be buoyed.

(40) **Ocean Reef Harbor** is on the east side of **Key Largo,** 19.5 miles southwestward of Fowey Rocks Light. A privately dredged channel leads to the harbor. In 1979, the centerline controlling depth in the channel was 7 feet. The entrance channel is marked by a light and private daybeacons. The harbor has good anchorage. A private yacht club is on the north side of the harbor.

(41) In February 1992, an obstruction was reported 0.6 mile east-southeastward of the entrance channel in about 25°18'19.4"N., 80°15'35.2"W.

(42) A privately dredged channel, about 0.4 mile northward of the entrance to Ocean Reef Harbor, leads to a residential area. The channel, marked by private daybeacons, had a centerline controlling depth of 7 feet in 1979.

(43) **Key Largo Anchorage,** 20 miles southwestward of Fowey Rocks Light, is fair in all but southerly winds. It has a depth of 14 feet, soft bottom, 4.5 miles northwestward of Carysfort Reef Light.

(44) **Turtle Harbor,** a well-sheltered anchorage between the reefs lying northwestward of Carysfort Reef Light, is one of the better offshore anchorages between Key West and Miami, and is protected from all but northeast winds. It is entered from the Straits of Florida by a marked passage 5 miles northeastward of the light. Vessels of 15-foot draft can use this passage in smooth water. Depths in the approach range from 27 to 38 feet, and at the anchorage from 25 to 28 feet. In 1980, a submerged pile was reported in the north end of the anchorage about 0.2 mile southwest of Turtle Harbor Daybeacon 6. Vessels can enter Hawk Channel from this harbor by proceeding about 1.3 miles south-southwestward of Daybeacon 6 and then taking a westerly course.

(45) **Carysfort Reef Light** (25°13.3'N., 80°12.7'W.), 100 feet above the water, is shown from a brown, octagonal, pyramidal skeleton tower on pile foundation, enclosing a conical dwelling and stair cylinder. A radiobeacon is at the light.

(46) **The Elbow** is a reef, 5.3 miles southwestward of Carysfort Reef Light, on which several wrecks have occurred. It is marked on its seaward edge by a light.

(47) **Molasses Reef,** 15.5 miles southwestward of Carysfort Reef Light, is marked by a light. The entrance to **Molasses Reef Channel,** which has a controlling depth of about 8 feet, is just south of the light. The shoalest part of the channel is marked by daybeacons. A **no anchorage area**, marked by private buoys, has been established on Molasses Reef.

(48) **Biscayne National Park** extends south from Cape Florida for about 19.5 miles to Angelfish Creek and comprises Biscayne Bay and the offshore reef areas northeast and east of Elliott Key. Regulations are available from the park ranger station at Elliott Key Harbor or from the park headquarters on the west side of Biscayne Bay at Homestead. Gasoline and a launching ramp are available at the headquarters. The mailing address is Biscayne National Park, Post Office Box 1369, Homestead, Fla. 33030.

(49) The **John Pennekamp Coral Reef State Park** comprises the offshore reef area from the vicinity of Angelfish Creek to near Molasses Reef. The area has been established for the protection of the coral reef formation and its associated marine life. Regulations for the preserve are available at the park headquarters on the southwest side of Largo Sound.

(50) **Key Largo National Marine Sanctuary,** 20 miles long, extends to seaward about 8 miles from the John Pennekamp Coral Reef State Park. The area has been established for the protection of the coral reef formation and its associated marine life. Sanctuary regulations include prohibitions against spearfishing, anchoring in the coral, breaking or removing coral, or otherwise damaging the fragile habitats found within the Sanctuary. The Sanctuary seeks to minimize reef damage by educating the public and providing alternatives to anchoring. The mooring buoy system now established in the Sanctuary is intended to alleviate the problem of anchor damage to coral reefs. (See **15 CFR 929,** chapter 2, for limits and regulations.)

(51) **El Radabob Key,** locally known as **Julia Island,** is an island westward of The Elbow, about 10 miles southwestward of Carysfort Reef Light. It is about 5 miles long and 0.5 miles wide, and in general is covered with dense mangrove growth. The island is separated from Key Largo on the west by Largo Sound, South Sound Creek and North Sound Creek.

(52) **Largo Sound,** between El Radabob Key and Key Largo, is about 1.8 miles long and 0.8 mile wide, and is entered southward of El Radabob Key. General depths in the sound are from 1 to 6 feet. A dredged channel leads from Hawk Channel through **South Sound Creek** thence 0.3 mile into the sound. The channel is well marked by lights and daybeacons. In 1986, the centerline controlling depth was 5½ feet, and in 1983, a reported depth of 4 feet could be carried to the headquarters of the Florida Board of Parks on the south side of the sound. Mariners are advised to stay well to the center of the channel as the sides are composed of coral rock, and the bends are sharp. The entrance is difficult and narrow, and fills with southerly winds.

(53) **Marvin D. Adams (Key Largo) Waterway**, another dredged channel, enters the west side of Largo Sound from Blackwater Sound. The waterway is marked at each end by a light. In August 1986, the centerline controlling depth was 3½ feet. The waterway is crossed by 32-foot twin fixed highway

spans of U.S. Route 1 and an overhead pipeline. The spans each have a clearance of 14 feet. A public marina is at the southwest corner of Largo Sound and a State park marina is on the west side. Berths, electricity, gasoline, diesel fuel, water, and ice are available.

(54) A narrow unmarked channel leads northwestward from about 1 mile above the mouth of South Sound Creek to an unnamed bay. An island in the middle of the bay is connected to the mainland by a causeway bridge; bridge clearance is not known. Gasoline is available at a camper resort on the west side of the bay about 0.2 mile southwestward of the bridge.

(55) Several small-craft facilities are at the town of **Key Largo,** about 1 mile southwestward of the south end of El Radabob Key. Berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, and a mobile lift are available; hull, engine and electrical repairs can be made.

(56) **Rock Harbor,** about 3 miles southwestward of El Radabob Key and 5.7 miles northwestward of the light on Molasses Reef, has small-craft facilities where gasoline, water, and ice can be obtained. Also available are berths with electricity, launching ramps, repairs, and a 5-ton fixed lift.

(57) **Tavernier,** about 5 miles southwestward of Rock Harbor and 20 miles southwestward of Carysfort Reef Light, is one of the larger settlements on the Florida Keys. A channel, marked by a light and daybeacons, leads to Tavernier Harbor from Hawk Channel. A fixed highway bridge with a clearance of 15 feet crosses Tavernier Creek. In February 1991, a fixed highway bridge with a design clearance of 15 feet was under construction immediately north of the existing bridge. Gasoline, supplies, motels, and charter party fishing boats are available. The small-craft facilities on the bay side at Tavernier and in Tavernier Creek are described with the Intracoastal Waterway, chapter 12.

(58) **Tavernier Key Anchorage** is 2 miles eastward of Tavernier. Anchor according to draft from northward to eastward of Tavernier Key, hard bottom.

(59) **Charts 11452, 11449, 11451.–Alligator Reef Light** (24°51.1'N., 80°37.1'W.), 136 feet above the water, is shown from a white, octagonal pyramidal skeleton tower with black top, on pile foundation, enclosing a square dwelling and stair cylinder. A radiobeacon is at the light.

(60) **Indian Key Channel,** northwestward of Alligator Reef Light, is about 200 yards wide and leads from the Straits of Florida east of **Lignumvitae Key** to Florida Bay. It is marked by daybeacons. In April 1983, the reported controlling depth in this narrow channel was 6 feet. It was also reported that the channel has a tendency to deepen with westerly winds and fill in with southeasterly winds. Local knowledge is advised. The highway bridge across the channel has a fixed span with a clearance of 27 feet.

(61) **Channel Five,** 8.4 miles westward of Alligator Reef Light, is a natural channel that had a reported controlling depth of 7 feet in March 1978. At times a strong current sets through thechannel. The fixed highway bridge across the channel has a clearance of 65 feet. Vessels drawing up to three feet can follow the marked route leading westward and northwestward in Florida Bay to Cape Sable and Flamingo.

(62) **Flamingo,** on the north side of Florida Bay about 9 miles east of East Cape (25°07'N., 81°05'W.), is a visitors center in **Everglades National Park.** (See chart 11433 for Everglades National Park.) A 300-foot tower and an 86-foot standpipe about 0.3 mile northeast of the visitors center are prominent.

(63) A dredged channel leads from the bay to the entrance to **Buttonwood (Flamingo) Canal.** The reported controlling depth was 4½ feet in April 1982. A dam blocks the canal about 200 yards above the entrance. Passage around the dam to allow vessels to proceed to Whitewater Bay is provided by boat ramps and by an 8-ton sling hoist that can handle craft to 26 feet with 10-foot beam. A highway bridge about 0.5 mile above the entrance to the canal has a 45-foot fixed span with a clearance of 10 feet. A marina on the west side of the canal just below the dam at Flamingo has berths with electricity, water, ice, and limited marine supplies. Gasoline, diesel fuel, and launching ramps are available on either side of the dam. A 5 mph-no wake **speed limit** is enforced in the canal.

(64) **Tennessee Reef Light** (24°44.8'N., 80°46.9'W.), 49 feet above the water, is shown from a small black house on a hexagonal, pyramidal skeleton tower on piles, about 0.7 mile off the southwestern end of **Tennessee Reef.** A lighted buoy is about 5.6 miles northeast of the light.

(65) **Long Key Anchorage,** 3 miles north-northwestward of Tennessee Reef Light, has soft bottom in depths of 15 to 18 feet, but it is exposed to southerly winds.

(66) In June 1982, a partially submerged steel beam was reported 2.8 miles northwest of Tennessee Reef Light in about 24°46.5'N., 80°49.3'W.

(67) **Turtle Shoal Anchorage,** 20 miles southwestward of Alligator Reef Light and 1 mile westward of **East Turtle Shoal Light 45** (24°43.5'N., 80°56.0'W.), 27 feet above the water, has a soft bottom in a depth of 27 feet. It is a fair anchorage in fine weather. **West Turtle Shoal** to the southwestward affords another anchorage area in depths of 24 to 36 feet about 1 mile to its westward. A 1-mile-square fish haven is immediately southward of West Turtle Shoal.

(68) A well-protected yacht basin and a marina are at **Duck Key,** about 3 miles north-northeastward of East Turtle Shoal Light 45. A private light and private daybeacons mark the channel entrance to Duck Key. In April 1983, a reported depth of 10 feet could be carried to the yacht basin, thence 5 feet to the marina beyond. Berths, electricity, gasoline, diesel fuel, and water are available at the yacht basin and marina. A launching ramp, ice, and marine supplies are also available at the marina. Hotels and restaurants are nearby.

(69) **Valhalla** on **Crawl Key,** about 3 miles northwestward of East Turtle Shoal Light 45, has a private yacht club.

(70) **Key Colony Beach,** about 3 miles southwestward of Valhalla, is a protected harbor westward of **Fat Deer Key.** In 1975, the reported controlling depth was 8 feet in the entrance channel. The channel is marked by private daybeacons. Gasoline, diesel fuel, water, berthing with electricity, and a launching ramp are available.

(71) **Sister Creek,** about 3.8 miles southwestward of Key Colony Beach and 4 miles northeastward of Sombrero Key Light, is a narrow passage between **Boot Key** and **Vaca Key.** It connects Hawk Channel to the southward with Boot Key Harbor to the northward, and has several arms which provide secure refuge during heavy weather. Vessels tie to the mangroves. The entrance to the creek between **West Sister Rock** and **East Sister Rock** is marked by a light and daybeacons. Rocks awash extend well into the channel from the east side. In April 1983, the reported con-

trolling depth was 5 feet to Boot Key Harbor. A sunken wreck is about 300 yards southeastward of West Sister Rock.

(72) **Knight Key Anchorage,** northward of Sombrero Key Light, is good but exposed to southwesterly winds. To make this anchorage, bring Sombrero Key Light astern on a **352°** course and anchor in 6 to 12 feet, sticky bottom, about 0.6 mile southward of Knight Key.

(73) **Boot Key Harbor,** on the south side of the town of **Marathon,** is entered southward of **Knight Key** about 4.5 miles northward of Sombrero Key Light. The entrance channel is marked by a light and daybeacons; the color of the banks is also a good guide for the narrow entrance channel. Daybeacons also mark the channel through the harbor for a distance of about 1.5 miles. In April 1983, the reported controlling depth was 7 feet, but shoaling was reported along the southerly side of the entrance channel; caution is advised. A highway bridge, over the channel at mile 0.13, has a bascule span with a clearance of 24 feet at the center. (See **117.1 through 117.59 and 117.272,** chapter 2, for drawbridge regulations.) An overhead power cable on the west side of the bridge has a clearance of 65 feet.

(74) A group of four radio towers on the southwestern end of Boot Key and four radio towers about 1.1 miles east-northeastward of the first group are prominent. Also prominent is a tower with a blue strobe light at a marina 1.2 miles northward of the southeasterly radio towers.

(75) An aerolight is at Marathon Airstrip at the east end of Vaca Key.

(76) Boot Key Harbor is a secure refuge and has excellent small-craft facilities. Several marinas and a boatyard in the western part of the harbor can provide berthage with electricity, gasoline, diesel fuel, water, ice, launching ramps, marine supplies, and hull, engine, and electronic repairs. A boatyard on the north side of the harbor, immediately eastward of the highway bridge, has a 50-ton mobile lift. There are several fish wharves in the harbor where fuel and some services can be obtained. The small-craft facilities on the bay side at Marathon are described in chapter 12.

(77) In April 1983, a privately dredged channel through the shallow eastern part of Boot Key Harbor had a reported controlling depth of 8 feet. The channel leads eastward from near the vicinity of Daybeacon 20 to a marina where berthage with electricity, gasoline, diesel fuel, water, and ice, can be obtained. This marina and Boot Key Harbor proper can also be reached from the southward via Sister Creek as previously described.

(78) **Marathon Coast Guard Station** is on the bay side at Marathon.

(79) **Charts 11442, 11449, 11445.–Sombrero Key Light** (24°37.6'N., 81°06.6'W.), 142 feet above the water, is shown from a brown, octagonal, pyramidal skeleton tower on pile foundation, enclosing a square dwelling and stair cylinder. A radiobeacon is at the light.

(80) **Moser Channel** is northwestward of Sombrero Key Light and 95 miles southwestward of Miami. It affords a passage for vessels of 7 to 8 feet in draft between the Florida Keys from the Straits of Florida to Florida Bay. The swing span of Seven Mile Bridge across Moser Channel has been removed; however, the bridge piers remain. The fixed highway bridge close south of the former swing span has a clearance of 65 feet.

(81) The tidal current at the bridge has a velocity of about 1.4 to 1.8 knots. Wind effects modify the current velocity considerably at times; easterly winds tend to increase the northward flow and westerly winds the southward flow. Overfalls that may swamp a small boat are said to occur near the bridge at times of large tides. (For predictions, see the Tidal Current Tables.)

(82) **Route.**–A route with a reported controlling depth of 8 feet, in July 1975, from the Straits of Florida via the Moser Channel to the Gulf of Mexico is as follows: From a point 0.5 mile 336° from the center of the bridge, pass 200 yards west of the light on Red Bay Bank, thence 0.4 mile east of the light on Bullard Bank, thence to a position 3 miles west of Northwest Cape of Cape Sable (chart 11431), thence to destination.

(83) **Bahia Honda Channel (Bahia Honda),** 10 miles northwestward of Sombrero Key and between Bahia Honda Key on the east and **Spanish Harbor Keys** on the west, is the deepest channel between the Straits of Florida and Florida Bay. In April 1983, the reported controlling depth was 8 feet from Hawk Channel to Little Pine Key. The passage is crossed by three fixed highway bridges. The southernmost has a clearance of 20 feet over the channel and unlimited vertical clearances at an opening at each end; the twin bridges to northward have a clearance of 23 feet over the channel. The direction of the current should be carefully watched when turning northwestward after passing under the bridges in order to avoid being grounded on the banks on either side of the channel. These banks are usually visible. Currents through the passage average 2 knots or more at strength. (For predictions at the southernmost bridge, see the Tidal Current Tables.) From Bahia Honda Channel, vessels may proceed via Big Spanish Channel to the Gulf of Mexico as described in chapter 12.

(84) A marina with two boat basins is at the Bahia Honda State Park, on the bayside and near the western end of **Bahia Honda Key.** In August 1981, depths of 4 feet were reported in the unmarked entrance channel, with 7 to 15 feet in the basins. Berths with electricity, water, ice, and a launching ramp are available.

(85) A marina on the northwest side of **Ohio Key,** northeast of Bahia Honda Key, provides berths, gasoline, diesel fuel, water, electricity, ice, limited marine supplies, and a launching ramp; a forklift can handle craft to 23 feet. In August 1981, the reported controlling depth was 6 feet in the privately marked entrance channel with 5 to 6 feet reported alongside the berths.

(86) **Newfound Harbor Keys Anchorage,** 16 miles westward of Sombrero Key Light, is in depths of 19 to 22 feet in the channel northeastward of the light at the west end of the keys. **Newfound Harbor Channel** to the northward is clearly defined by the appearance of the water, and is marked by a light and daybeacons. A strong current sets fair with the channel. In April 1983, the reported controlling depth was 4 feet to the western of two bridges at the head, 3.4 miles above the entrance. Clearances at the bridges are 15 feet under the westerly span and 9 feet under the easterly span.

(87) A marina is on the west side of **Big Pine Key** about 0.25 mile south of the easterly span. Gasoline, diesel fuel, water, ice, marine supplies, a 2½-ton forklift, and minor hull and engine repairs are available. In August 1981, a depth of 3 feet was reported available to the marina.

(88) A marina on the east side of **Little Torch Key,** just south of the westerly span, provides berths with electricity, gasoline, diesel fuel, water, ice, and a launching ramp are available. In June 1991, depths of 4 feet were reported in the approach with 10 feet alongside the berths.

(89) In April 1983, a 3-foot spot was reported between the entrances to Newfound Harbor and Niles Channels, about 0.45 mile west of Newfound Harbor Channel Entrance Light 2 in about 24°37'09"N., 81°24'55"W.

(90) **Niles Channel,** 18 miles westward of Sombrero Key Light, is the best channel from the Straits of Florida to the Gulf of Mexico between Bahia Honda Channel and Key West. The reported controlling depth, in April 1983, was 4 feet from Hawk Channel through Niles Channel and **Cudjoe Channel** to the Gulf. The south entrance to Niles Channel is marked by daybeacons, and the narrowest parts of the two channels are marked by private stakes. The fixed highway bridge crossing Niles Channel has a clearance of 40 feet. The approach spans of the former highway bridge immediately southward are used as fishing piers; the piers extend 10 feet into either side of the navigation channel and are marked on the channelward ends by lights. Caution should be exercised to avoid pilings on the north side of the bridge. A rocky shoal extends northward from about 350 yards from the bridge. A daybeacon marks the shoal at the north and south ends.

(91) **Looe Key National Marine Sanctuary** has been established to protect and preserve the coral reef ecosystem and other natural resources of the waters surrounding **Looe Key,** about 6 miles south-southeast of Summerland Key. (See **15 CFR 937,** chapter 2, for limits and regulations.)

(92) **Kemp Channel,** about 2 miles westward of Niles Channel, is between Summerland Key to the east and Cudjoe Key to the west. This channel is highly used by local boaters. In May 1986, a reported controlling depth of 3 feet was in the entrance, and 5 feet was in the channel. The channel is marked by daybeacons to the highway bridge. Strangers should seek local knowledge before transiting this area.

(93) U.S. Route 1 highway bridge crossing Kemp Channel, about 2.7 miles above the entrance, has a fixed span with a clearance of 8 feet.

(94) A small marina is near a conspicuous 100-foot flagpole at the south end of Cudjoe Key. Gasoline, limited marine supplies and provisions are available; the marina is limited to shallow draft boats.

(95) **Bow Channel,** about 4 miles westward of Niles Channel and northward of American Shoal Light, leads northward between **Sugarloaf Key** and **Cudjoe Key.** The channel is marked by daybeacons from Hawk Channel for about 1.6 miles and private daybeacons for another 1.4 miles. Two fixed bridges across the channel, one highway and one pedestrian, have least clearances of 8 feet vertical and 24 feet horizontal. Currents are strong and set fair with the channel, north with the flood and south with the ebb. The channel is not recommended for a draft of over 2 feet without a pilot. The reported controlling depths, in April 1983, were 4 feet from Hawk Channel to the highway bridge, thence 3 feet to the Gulf of Mexico via Johnston Key Channel. Cudjoe Bay, eastward of the channel, offers fair holding ground for fishing boats.

(96) A small marina at the southwest end of the bridge has berths, gasoline, water, ice, marine supplies, and a launching ramp. A marina on the southwestern side of Cudjoe Key about 0.5 mile south of the eastern end of the bridge is reached through a canal reportedly marked by private daybeacons. Berths, electricity, gasoline, diesel fuel, water, ice, limited marine supplies, engine repairs, and a launching ramp are available.

(97) **American Shoal Light** (24°31.5'N., 81°31.2'W.), 109 feet above the water, is shown from a brown, octagonal skeleton tower on pile foundation, enclosing a brown dwelling and white stair cylinder. A radiobeacon is at the light.

(98) **West Washerwoman Anchorage,** 4.3 miles northwestward of American Shoal Light, has depths of 23 feet, soft bottom. Another anchorage in a depth of 24 feet, soft bottom, is 5 miles westward of **Ninefoot Shoal Light** (24°34.1'N., 81°33.1'W.).

(99) **Saddlebunch Harbor,** 10.5 miles eastward of Key West, is a good hurricane anchorage for small craft. The northwest end of the harbor is obstructed by a line of submerged pilings. The harbor is marked by private daybeacons.

(100) **Geiger Key,** about 1 mile west of Saddlebunch Harbor, has a marina on the east side about 1 mile south of U.S. Route 1 highway bridge. Berths, gasoline, water, ice, limited marine supplies, and a launching ramp are available.

(101) **Stock Island Channel,** entered about 12.4 miles west-southwestward of American Shoal Light, leads from the Straits of Florida to a point in Hawk Channel just southward of Boca Chica Channel and the entrance to Safe Harbor. The entrance is marked by a light and the channel by a daybeacon.

(102) **Boca Chica Key,** 5 miles eastward of Key West, is the site of the Key West U.S. Naval Air Station. A **naval restricted area** extends about 150 yards from the shoreline along a portion of the northeast side of the Naval Air Station. (See **334.610**, chapter 2, for limits and regulations.) **Boca Chica Channel,** with a reported controlling depth of 8 feet in April 1983, from Hawk Channel to the naval air station basin on the west side of the key, is marked by a light at the entrance, thence by lights and daybeacons. An overhead power cable has a clearance of 60 feet across the channel. The basin provides a good hurricane anchorage for small vessels in emergencies only.

(103) A **restricted area** is off the southwest end of Boca Chica Key. (See **334.610**, chapter 2, for limits and regulations.)

(104) Two auxiliary channels marked by private daybeacons lead off Boca Chica Channel. Channel A leads northwest just north of Boca Chica Channel Daybeacon 5. A large boatyard has an entrance on the west side of the channel between Daybeacon 5A and an overhead cable. Transient berths, hull and engine repairs, water, ice diesel fuel, and an open end travel lift which can haul sail and motor vessels to 75 feet and 60 tons are available.

(105) A marina is north of the overhead cable which has an authorized clearance of 25 feet at this point. Water, ice, gasoline, and hull and engine repairs are available.

(106) In June 1986, the reported controlling depth was 6 feet to Daybeacon 5A and then 5 feet to the marina.

(107) Channel B leads northwest from opposite Boca Chica Channel Light 8 toward the Route U.S. 1 bridge. In June 1986, the reported controlling depth was 4 feet.

(108) A marina in the northwest corner by highway U.S. 1 has transient berths, hull and engine repairs, and gasoline. The following conditions were reported in June 1986. Boats proceeding to the marina will find deeper water and avoid obstructions, after passing Daybeacons 6B and 7B, nearer the highway to a point near a boat ramp at the highway, then angling southwest to a spit and following the spit to the marina entrance. Small boats heading north of the highway via the Boca Chica Channel usually pass through at the western end of the bridge where the clearance is less and the water is deeper. Boats passing under the high rise center of the bridge will find shallower water immediately north of the bridge.

(109) **Safe Harbor,** 4 miles eastward of Key West, is a medium-draft harbor on the south side of Stock Island, under the jurisdiction of the Monroe County Port Authority. Conspicuous objects include the stack and tanks at a powerplant and desalination plant on the east side, and a large red dry-storage building at a marina on the southeast end of Stock Island.

(110) The harbor is entered from Hawk Channel through a privately dredged channel. A light marks the approach, and lights and a daybeacon mark the channel. In April 1983, the reported controlling depth was 13 feet in the entrance channel with greater depths inside the harbor.

(111) The piers, with dolphins, on the east side of the harbor near the entrance, are used by barges to unload petroleum products for the power and desalination plants. Depths of 18 feet are reported alongside the piers.

(112) The piers on the east and west sides of the harbor are used by cold storage and seafood packing plants; numerous shrimp boats tie up alongside the finger piers.

(113) A boatyard on the west side at the head of the harbor has a mobile hoist that can handle craft to 60 tons. Diesel fuel, water, and ice are available. In April 1982, a depth of 30 feet was reported alongside the piers at the yard; 300 feet of berthing space was available. A marina on the east side at the head of the harbor has transient berths, electricity, water, ice and marine supplies; hull, engine, and radio repairs are available. In June 1991, the depth alongside the facility was reported to be 18 feet. A facility serving shrimpers and other commercial vessels on the E side of the harbor, just N of the electric plant, has water, ice, diesel fuel and electricity available.

(114) A privately dredged spur channel east of Safe Harbor leads to a large marina on the southeast end of Stock Island. In April 1982, a reported controlling depth of 18 feet was available to the facility. The channel is marked by private daybeacons. Berths, gasoline, diesel fuel, water, ice, electricity, a launching ramp, and storage are available. A forklift can haul out craft to 25 feet for hull and engine repairs. The dockmaster can be contacted on VHF-FM channel 16.

(115) **Cow Key Channel,** between Stock Island and Key West, is narrow and marked by private daybeacons. A shoal that bares is about 0.2 mile south-southwest of the southwest point of Cow Key. In November 1999, the reported controlling depth was 3½ feet to the highway bridges about 0.9 mile above the entrance. In 1983, it was reported that the channel was subject to frequent change. Mariners are advised to seek local knowledge before entering the channel. Two fixed bridges with a least clearance of 36 feet horizontal and 9 feet vertical cross the channel between the keys. The channel north of the bridges is unmarked and difficult to follow. Prominent on Stock Island are three radio antennas and a deteriorating drive-in movie screen. Scuba tanks can be filled at a diving facility on the east side of the channel at the bridges. An adjacent marina has berths, water, ice, limited supplies, and a launching ramp. Another marina is on Stock Island about 0.5 mile north of the bridges; berths, gasoline, storage, and marine supplies are available. A forklift can haul out boats to 25 feet for engine repairs. In April 1982, a reported controlling depth of 4 feet was available to the facility. Boats can avoid the restricted passage of Cow Key Channel by using Garrison Bight Channel to the north end of Fleming Key, thence sailing easterly north of Sigsbee Park to a dredged channel east of Sigsbee Park, and then following the dredged channel to the marina. In June 1986, the reported controlling depth was 4 feet for approximately 150 yards just east of Sigsbee Park and west of the beginning of the dredged channel. Elsewhere, the controlling depth was 8 feet or greater.

(116) **Charts 11441, 11447.–Key West Harbor** is 134 miles and 151 miles southwestward of Miami Harbor via the inside and coastwise routes, respectively. The harbor proper lies in front of the city of Key West, protected on the eastern side by the island and on the other sides by reefs, sand flats, and by **Wisteria Island** and **Tank Island.** The harbor is entered through breaks in the reef by several principal channels with depths of 13 to 34 feet, and by several minor channels.

(117) **Key West,** on the island of the same name near the western end of the Florida Keys, is a winter resort. Commercial fishing is one of the leading industries, but commerce is mostly in crude and refined oils. Cruise ships frequently call here, and the harbor is a safe haven for any vessel.

(118) **Prominent features.**–Easy to identify when standing along the keys are 300-foot-high radio towers about 0.3 mile eastward of Fort Taylor, the hotel 0.3 mile south of Key West Bight, the cupola close south of the hotel, and a 110-foot-high abandoned lighthouse, 0.5 mile east-northeastward of Fort Taylor. Numerous tanks, lookout towers, and masts are prominent, but difficult to identify. Also conspicuous is a white radar dome and an aerobeacon on Boca Chica Key, and the white dome of the National Weather Service station and the aerobeacon at Key West International Airport. From southward, several apartment complexes, condominiums, and hotels on the south shore extending from just west of Key West International Airport to the abandoned lighthouse are prominent.

(119) **Sand Key Light** (24°27.2'N., 81°52.5'W.), 109 feet above the water, is shown from a white, square, pyramidal, skeleton tower enclosing a stair cylinder and square dwelling. A radiobeacon is at the light.

(120) Sand Key is surrounded by a section of the **Area To Be Avoided Off the Coast of Florida**. See Area To Be Avoided Off the Coast of Florida, indexed as such, chapter 3.

(121) **Channels.–Main Ship Channel** is the only deep-draft approach to Key West. Federal project depth is 34 feet from the Straits of Florida to a turning basin off the Naval Air Station Truman Annex Mole and inside the annex basin, thence 30 feet to an upper turning basin off Key West Bight, and thence 12 feet to and including a turning basin in the bight. (See Notice to Mariners and latest editions of the charts for controlling depths.) The channel from the entrance to the upper turning basin is marked by lighted ranges and other aids to navigation. Spoil areas are W of the channel.

(122) **Northwest Channel** is a medium-draft passage between Key West Harbor and the Gulf of Mexico. In October 1994, the midchannel controlling depth was 12 feet. Vessels can pass directly across the reefs from the Gulf to the Straits of Florida by way of Northwest Channel and Main Ship Channel. The Gulf end of the channel is shifting westward.

(123) The jetties on either side of the Gulf entrance to Northwest Channel are 0.3 to 0.5 mile from the centerline of the channel, and only the outer part of the east jetty shows above low water. The northwest end of the jetty is marked by a light. The channel is marked by a **166°** lighted range, daybeacons, and lighted and unlighted buoys. The pilings and skeletal structure of a former lighthouse are about 0.3 mile southwestward of the south end of the west jetty.

(124) **Smith Shoal** (see chart 11439), about 4.5 miles northward of the northern entrance to Northwest Channel, is covered 11 feet and marked on its northeast end by **Smith Shoal Light** (24°43.1'N., 81°55.3'W.). The light also marks the northern approach to the channel and is shown 54 feet above the water from a small black house on a white, hexagonal, pyramidal skeleton tower on piles. A relatively flat-topped coral head, covered by a least depth of 11 feet, is about 3.3 miles west-southwestward of the light.

(125) **Southwest Channel,** a convenient approach to Key West from southwestward, has been swept to a depth of 23 feet and is marked by buoys. In 1961, this depth was confirmed for midchannel. A general course following the aids leads to the outer anchorage and Main Ship Channel. Strangers should not attempt passage at night.

(126) **West Channel,** a passage leading westward from Key West between the keys and outer reefs, is deep but unmarked. It is used by shrimp boats and small craft bound toward the Dry Tortugas. Local knowledge is advised.

(127) **Calda Channel** leads northward from Man of War Harbor to the open waters of the Gulf. The channel is narrow and crooked, but is well marked by daybeacons and a light at the northerly end. In April 1983, the controlling depth was reported to be 3 feet, except for shoaling close to the aids marking the channel. In February 1992, severe shoaling was reported to extend into the channel between Daybeacon 6 and Daybeacon 8. The channel should be used only with local knowledge and during good visibility.

(128) **Garrison Bight Channel,** a well marked dredged channel, leads from Man of War Harbor around the north end of Fleming Key, thence south for about 1.8 miles, thence east to Trumbo Point, thence into a turning basin just inside the entrance of Garrison Bight. In August 1985, the centerline controlling depth was 7 feet in the channel and 4 to 8 feet in the turning basin. An overhead power cable crosses the entrance and the northerly part of the bight; clearances are 50 feet at the entrance and 34 feet elsewhere. Mariners are advised to use caution when approaching the overhead power cable because high voltage arcing is reported to occur between the powerline and sailboat masts. A privately dredged channel leads from the turning basin to a basin in the southwesterly part of the bight. In April 1983, the privately dredged channel had a reported controlling depth of 5 feet. In April 1983, the channel was reported to be shifting; local knowledge is advised. A causeway bridge, with a 44-foot span and a clearance of 19 feet, crosses the southwesterly part of the bight.

(129) In May 1984, an obstruction covered 4 feet was reported close south of Garrison Bight Channel Light 3 in about 24°35'19.7"N., 81°48'17.2"W.

(130) Garrison Bight can also be reached via an unmarked channel, locally known as Fleming Key Cut, which leads from Man of War Harbor eastward between Fleming Key and the north shore of Key West to the junction with Garrison Bight Channel at Trumbo Point. A depth of about 6 feet can be carried to the junction. Fleming Key Cut is reported to have very strong tidal currents and is not recommended for low-powered vessels. The channel is crossed by a 42-foot fixed span highway bridge with a clearance of 18 feet which connects Fleming Key with Key West. Garrison Bight has excellent small-craft facilities; these are described later in the chapter.

(131) **Anchorages.**–The best anchorage for medium draft vessels less than 200 feet long is north of the city in **Man of War Harbor** where depths are 14 to 26 feet. Mariners should exercise caution to avoid the visible and submerged wrecks in the harbor. The anchorage is protected against heavy seas by **Frankfort Bank** and **Pearl Bank** on the west and **Fleming Key** on the east. Small craft usually anchor east of **Wisteria Island,** to the west of the main ship channel. Anchoring in the vicinity of Key West Bight Channel Light 2, between Key West Bight Channel and the shoreline, is not recommended because of poor holding ground, strong currents, and obstruction of the dock approaches.

(132) Vessels can anchor west of the city in depths of 20 to 26 feet, taking care, however, to avoid the reefs which rise abruptly in some places along the edges of the channels. The outer anchorages, southwest of **Fort Taylor** and 1 mile south-southeast of Eastern Triangle Light, are somewhat exposed, but have depths of 22 to 36 feet and are safe for vessels with good ground tackle. The anchorage area at Key West is one of the best for large vessels south of Chesapeake Bay.

(133) **Dangers.**–**Naval restricted areas** are off the south, west, and north sides of Key West. Another **restricted area** extends about 150 yards from the shoreline around Fleming Key. (See **334.610**, chapter 2, for limits and regulations.)

(134) A **naval explosives anchorage** is about 2.5 miles southwestward of Key West. (See **110.189a**, chapter 2, for limits and regulations.)

(135) Sand Key is surrounded by a section of the **Area To Be Avoided Off the Coast of Florida**. See Area To Be Avoided Off the Coast of Florida, indexed as such, chapter 3.

(136) A **naval operating danger area** is in the Straits of Florida and Gulf of Mexico westward of Key West; see **334.620**, chapter 2, for limits and regulations.

(137) **Caution.**–Craft approaching Key West, Boca Chica, and Safe Harbor from the eastward through Hawk Channel should be mindful that submerged rocks and reefs extend up to 0.6 mile off the keys and give little or no indication of their presence under certain conditions.

(138) Fishermen operating from the Florida Keys, particularly Key West, routinely use stakes to mark otherwise unmarked channels that they use as short cuts or for safe passage in rough weather. These stakes are not removed when the channels change or fall into disuse. Visitors to the keys should use these channel markers with caution.

(139) The area west of the Main Ship Channel is part of the **Key West National Wildlife Refuge.**

(140) **Tides.**–The mean range of tide is 1.3 feet at Key West. Daily predictions for Key West are given in the Tide Tables.

(141) **Currents.**–A westerly current, counter to the prevailing easterly set of the Gulf Stream, at times exceeding 1 knot, has been reported in the vicinity of Key West Entrance Lighted Whistle Buoy. In the southerly approaches to Key West within the 10-fathom curve just inside the entrance to the main channel, the tidal currents are weak and set northward on the flood and southward on the ebb at 0.4 knot. In the main channels west of Fort Taylor, the flood (northerly) and ebb (southerly) currents are 1.0 knot and 1.7 knots, respectively. North of Key West, in the upper turning basin, the tidal currents set northeastward on the flood at 0.8 knot and southwestward on the ebb at 1.1 knots. In Northwest Channel about 2.5 and 5.5 miles, respectively, from Key West, the currents are about 1.2 knots and 0.6 knot. Daily predictions for Key West are given in the Tidal Current Tables, however, both the time and velocity of the tidal current are influenced by the winds. In April 1982, it was reported that the current in the chan-

nel between Fleming Key and Key West reaches 6 knots during both flood and ebb, with currents of up to 9 knots having been observed north of Pier D-3 at the west end of the channel.

(142) **Weather, Key West and vicinity.**–Key West has a notably mild, tropical maritime climate where winters are mild and summers pleasant thanks to the Gulf Stream and the prevailing easterly trade winds. The differences in maximum and minimum temperatures are about 10°F (5.6°C) on the average. There is no record of frost, ice, sleet, or snow at Key West and on 49 days annually, on the average, the temperature reaches 90°F (32.2°C) or more. It has never reached 100°F (37.8°C). The extreme maximum temperature for Key West is 95°F (35°C) recorded most recently on August 31, 1957. The average high temperature for Key West is 83°F (28.3°C) while the average low is 73°F (22.8°C). The extreme minimum temperature for Key West is 41°F (5°C) recorded on January 13, 1981.

(143) From December through April, sunshine is abundant and less than 25 percent of the average annual rainfall is recorded, usually as brief showers, in advance of cold fronts. From June through October numerous showers and thunderstorms provide more than 50 percent of the precipitation recorded each year. Heaviest amounts are often associated with easterly waves or the more organized tropical cyclones. The average annual precipitation for Key West is 40 inches (1,016 mm). September is the wettest month averaging nearly 6.5 inches (165.1 mm) and February is the driest averaging just 1.5 inches (38.1 mm).

(144) If a tropical cyclone is considered a threat when it moves within 50 miles (93 km) of Key West, then an average of 1 tropical cyclone threat every three years is the normal. Since 1842, 52 tropical cyclones have come within 50 miles (93 km) of Key West, 19 of these since 1950. Perhaps the most noteworthy was Hurricane Alma in 1966 which passed north of Key West on June 8th. Highest winds were noted at 109 knots at the Dry Tortugas, a short distance to the west of Key West. Hurricane Inez provided maximum winds of 80 knots just four months later on August 4, 1966, a rare approach from the northeast. While tropical cyclones can develop in any month they are most likely in this region from June through November. Even within that period there are fluctuations. Since 1886 only one tropical cyclone has produced significant effects during July. The threat resumes in August, as storms originating east of the Antilles tend to enter the Gulf of Mexico via Cuba or the Florida Straits, instead of recurving northward near the Bahamas. This threat continues into the peak of the season; by October the principal threat is as it was in June, from storms originating in the western Caribbean that move northward across Cuba. Statistically, hurricane force winds can be expected at Key West about once every 15 years and a frequency of 50-knot winds once every 5 years on the average.

(145) Tropical cyclone waves affecting these waters are produced by swell, which advances ahead of the storm, and sea, which is determined by wind direction, which in turn is dependent upon the path of the storm. The deep-water berths outside of North Mole, piers A and B, and Municipal Wharf (Mallory Wharf) are all badly exposed to swells from the southwest. The berths at Naval Air Station Truman Annex are well protected from wave action. The piers off the turning basin north of Key West Bight are affected by waves generated in Man of War Harbor by northerly winds. These conditions can occur in cold winter outbreaks as well as hurricanes. The anchorages in this harbor are protected from sea and swell by the shallow reef north of the turning basin. Key West Bight is sheltered by Stone Mole, and Garrison Bight is also protected from wave action from all quarters. At Safe Harbor, Stock Island, sea and swell from the southern quadrant will cause heavy surf at the harbor entrance; during southerly winds a seiche of 2 to 3 feet (1 m) inside the harbor is possible.

(146) Storm tides are worst, usually, when an intense hurricane approaches Key West from the Caribbean, passing close to the west. On three occasions since 1900 the streets of the Old Town (greater than 3 m MSL) have been flooded by such storms. The height of the expected surge will appear in the hurricane warnings. However, there is a large variability in surge heights along the Florida Keys due to their physical characteristics. Tidal currents are considerably magnified by the wind and surge generated by a tropical cyclone. This is particularly evident along the deep western shores where effective storm surge drainage has the advantage of reducing tide heights at main berthing facilities.

(147) For masters of deep-draft vessels, shortages of tug power and lack of protected anchorages and piers at Key West, makes an early assessment of a tropical cyclone threat essential. This is best accomplished by using the forecasts in conjunction with climatology. This detailed climatology, as well as the foregoing text and a study of evasion tactics, can be found in the **Hurricane Havens Handbook for the North Atlantic Ocean** (further details in chapter 3.) Under the present port circumstances, evasion at sea is the recommended course of action for all seaworthy, deep-draft vessels capable of making 15 knots or more when the port is under threat from a hurricane or an intense tropical storm (50-63 knots).

(148) The National Weather Service maintains an office at the Key West International Airport. **Barometers** can be compared and weather information obtained by telephone. (See appendix for address, and page T-10 for **Key West climatological table.**)

(149) **Pilotage, Key West.**–Pilotage is compulsory for all foreign and U.S. vessels under register in the foreign trade drawing more than 7 feet (including tugs, barges, and tows) bound for or from Key West Harbor, Key West anchorages, and Key West channels. Pilotage is optional for U.S. mechanically-propelled vessels in the coastwise trade that have on board a pilot properly licensed by the Federal Government.

(150) Pilotage is available from Key West Bar Pilots Association, P.O. Box 848, Key West, FL 33041, telephone (305) 296-5512, FAX (305) 296-1388.

(151) The Pilot Station is at the NE end of Front Street, Key West. Pilot Station monitors VHF-FM channels 16 and 14 (when expecting traffic); works channel 14. The 42-foot pilot boat has a white hull with black trim and white superstructure with the word PILOT on the side. The 40-foot pilot boat has a blue hull and white superstructure with the word PILOT on the side. Occasionally other boats may be used. The pilot boat works on channel 14 when underway. Pilots board day or night 1 mile SW of Key West Harbor Main Channel Entrance Lighted Whistle Buoy KW (24°27.7'N., 81°48.1'W.) or 1 mile N of Key West Northwest Channel Entrance Lighted Bell Buoy 1 (24°38.8'N., 81°54.0'W.).

(152) Vessels being boarded should maintain 5 to 6 knots and provide a good lee with the ladder 1 foot (not dragging) above the water. Seas should be slightly aft of the weather beam. The pilot ladder should be lighted as not to blind the pilot boat operator, and cruise ship passengers should not flash camera bulbs toward the pilot boat operator at night during transfers. Arrangements for pilots are made through the above telephone or FAX number, or through ships' agents. A minimum 24-hour notice of time of

arrival is requested; however, pilots will still attempt to service vessels with less time of notice.

(153) The operational guidelines in the Port of Key West are flexible due to changing conditions, different stages of current, tide, bottom shoaling, weather and the change in acceptable risk in emergency situations, Key West being a port of emergency entry as well as a cruise ship port of call and a naval station. The main guideline is a knowledge of seamanship and the port on the part of the pilot and communication of this to the vessel's master for guidance.

(154) Certain rules of thumb are sometimes used. These are:

(155) 1. Not over 12-foot draft of 250-foot length for transiting Northwest channel, daylight only.

(156) 2. Not over 12-foot draft or 250-foot length for entering safe Harbor, Stock Island, under normal conditions.

(157) 3. Tankers docking at Pier D-2 North should do so on or near at slack water, daytime only, with at least two tugs, one for port bow, one for aft, docking starboard side to. Deep draft limited to 25 feet. Sailing should be daytime only, on or near slack water, with two tugs.

(158) 4. Naval men of war with their sonar dome **in the bow** may dock at Pier D-2 North, starboard side to, with deep draft limited to 26 feet. If possible, the same current restrictions as for tankers should be used.

(159) 5. All vessels should be limited to not over 28½ foot-deep draft, dependant on tide. Some piers require shallower drafts and length limitations. Poorly handling ships may be restricted even further in draft, and very large poorly handling ships may be restricted to daylight only and in not over 25 knots wind.

(160) 6. Tug assistance may be needed at berths in Key West, even with twin screw bow thrustered ships, due to wind and current.

(161) 7. Key West Harbor is under the International Rules of the Road.

(162) **Security Calls.**–All vessels 65 feet or greater and all tugs with tows on entering or leaving Key West Harbor or the Key West Main Ship Channel shall give Security Calls on VHF-FM channels 16 and 13.

(163) **Towage.**–Two tugs are available in Key West. One is a twin screw tug of 1,000 hp. The other is a single screw tug of 1,600 hp. Larger Tugs are available from other parts with advance notice.

(164) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(165) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) The quarantine anchorage is in Man of War Harbor if size and draft of vessel permit; larger vessels anchor in the outer harbor.

(166) Public and private hospitals are at Key West.

(167) Key West is a **customs port of entry.**

(168) **Coast Guard.**–Key West Coast Guard Station is at Pier D-2 on the northwest side of Key West.

(169) **Harbor regulations.**–The Key West Department of Transportation has direct supervision of city docks, properties, moorings, and anchorages. The Key West Department of Transportation also collects city property port dues. The office telephone numbers are: 305-292-8160, 305-292-8161, and 305-294-7566 (after hours). A 5-mph **speed limit** is enforced in Garrison Bight and in all constricted channel areas.

(170) In the Main Ship Channel, not more than one vessel shall be in the reach of the channel between Lighted Buoys 23 and 25. Vessels in this reach shall have the right-of-way over vessels departing the Truman Annex Basin.

(171) The reach of the channel from Lighted Buoys 14 and 15 to the north end of the Truman Annex Mole shall be kept clear except for vessels able to proceed to their berths without delay. Vessels shall not lie to in this reach of the channel. If a vessel is unable to proceed because of harbor congestion, she shall pull aside to the westward and lie to in safe water. No passing is permitted in this reach of the channel.

(172) Vessels shall not overtake or pass in the following areas: between Buoys 2 and 3; in the passage from Western Triangle and Eastern Triangle to Buoys 7 and 8; and in the passage from Buoy 9 to Buoys 14 and 15.

(173) It is permissible to pass in Cut A Range reach between Buoys 7 and 12 after making proper signals, but extreme caution is mandatory when passing in the narrow reaches of the channel.

(174) Vessels which will be delayed in berthing shall notify vessels astern of that fact in order that they may proceed.

(175) Nothing in the above shall relieve masters or commanding officers of their responsibilities for observing the Navigation Rules and the practice of good seamanship.

(176) **Wharves.–Municipal Wharf,** also known as **Mallory Wharf** (24°33'35"N., 81°48'28"W.), is 870 feet long and has a deck height of about 7 feet. The northerly half is privately owned by a condominium development. The southerly half is operated by the Key West Department of Transportation as a cruise ship terminal. Two mooring dolphins off the wharf face provide a total of 464 feet of berthing space with reported depths of 26 feet alongside. Smaller vessels can berth along the wharf face in the 200 feet between the dolphins. Depths of 18 to 23 feet are reported alongside. Potable water is available with advance arrangements. Large vessels must depart the berth 45 minutes before sunset except is emergency, or by special arrangement with the Key West Department of Transportation.

(177) Pier B (24°33'22"N., 81°48'33"W.) is another deepwater berthing facility operated by the Truman Annex Company. It has a face of 306 feet with a mooring dolphin to the N of the dock. Maneuverable ships up to 800 feet have docked at this berth. The pier has a deck height of about 9 feet.

(178) The Outer Navy Mole (24°33'17"N., 81°48'39"W.), another deepwater berth, has a face of 580 feet and a deck height of 7 feet. Sometimes the mole is used to dock vessels up to 855 feet in length, by directions of the Key West Department of Transportation.

(179) Municipal Wharf, Pier B, and the Outer Navy Mole are available for emergency dockage. Contact the Key West Pilots Association, ship's agent, or Key West Department of Transportation for further information

(180) Commercial fish wharves are in Key West Bight and Safe Harbor. Charter boats and yachts use Key West Bight, Garrison Bight and Stock Island.

(181) **Supplies.**–Gasoline, diesel fuel, water, ice, provisions, and marine supplies can be obtained in Key West.

(182) **Repairs.**–There is a small repair yard at Key West on the west side of Garrison Bight. Lifts to 30 tons, and hull, engine, electrical, and electronic repair facilities are available. Above-the-waterline repairs can also be made to larger vessels. In July 1991, shoaling to 3½ feet was reported at the entrance to the yard, with 5 feet available inside.

(183) **Small-craft facilities.**–Berths, electricity, water, ice, and some marine supplies are available at Key West. Gasoline and diesel fuel are available in Garrison Bight and Key West Bight. A pumpout facility is at a marina in the southwestern part of Key West Bight. Hull, engine, electrical, and electronic repairs can be made. Small craft berths are available at several marinas in Key West Bight, in Garrison Bight at the Municipal Marina or at Key West Yacht Club, which are at the southwest and eastern ends of the bight, respectively. A causeway across the southwestern part of Garrison Bight has a small-craft opening. The highway bridge over the opening has a 44-foot fixed span with a clearance of 19 feet at the center. An overhead power cable crossing the northern part of Garrison Bight and the entrance has a clearance of 50 feet over the entrance and 34 feet elsewhere. Anchoring or mooring in Garrison Bight, except in an emergency or as a shelter during bad weather, is not permitted. Public small-boat ramps are in Garrison Bight, at the foot of Simonton Street, and at the south end of Bertha Street.

(184) **Communications.**–There are no rail connections at Key West. Movement of freight in and out of the port is by vessel or truck. The Overseas Highway (U.S. Route 1) connects the city with Miami and points north, and there is air service to Miami. Bus service is available to mainland points.

(185) **Information about the Florida Reefs west of Key West and the Gulf of Mexico is contained in United States Coast Pilot 5, Atlantic Coast–Gulf of Mexico, Puerto Rico, and Virgin Islands.**

12. INTRACOASTAL WATERWAY

(1) The part of the **Intracoastal Waterway** described here is the toll-free **"canal"** which affords continuous protected passage behind the Atlantic Coast and the Florida Keys for more than 1,243 statute miles between Norfolk, Va., and Key West, Fla. **Route 1,** the basic route, follows Albemarle and Chesapeake Canal to Albemarle Sound; **Route 2,** the alternate route, is through Great Dismal Swamp Canal to the sound.

(2) Also described in this chapter is the Okeechobee Waterway, which junctions with the Intracoastal Waterway in St. Lucie Inlet.

(3) The Intracoastal Waterway is used by commercial light-draft vessels and tows unable to navigate long stretches in the open ocean, and by pleasure craft. Small-boat and recreation facilities are found along the waterway. Supervision of the waterway's construction, maintenance, and operation is divided among five U.S. Army Engineer Districts (Norfolk, Wilmington, Charleston, Savannah, and Jacksonville) whose district-office addresses are listed in the appendix.

(4) **Mileage.**–The Intracoastal Waterway (I.W.) mileage is zeroed in 36°50.9'N., 76°17.9'W., off the foot of West Main Street, Norfolk, Va., and progresses southward to I.W. Mile 1243.8 at Key West, Fla., in 24°33.7'N., 81°48.5'W.

(5) **Distances along the Intracoastal Waterway are in statute miles to facilitate reference to the small-craft charts; all other distances are nautical miles. Mileage conversion tables are on page T–23.**

(6) **Channels.**–The Federal project for the Intracoastal Waterway via Albemarle and Chesapeake Canal provides for a least depth of 12 feet from Norfolk, Va., (I.W. Mile 0.0) to Fort Pierce, Fla., (I.W. Mile 965.6), thence 10 feet to Miami, Fla., (I.W. Mile 1089.0), and thence 7 feet to Key West, Fla., (I.W. Mile 1243.8). The Miami to Key West section of the waterway has been completed only as far as Cross Bank (I.W. Mile 1152.5); the remainder has been deferred for restudy. Although no work has been performed on this section of the waterway, a channel, marked in accordance with I.W. markings, leads from Cross Bank to Big Pine Key along the northwesterly side of the Florida Keys. At Big Pine Key, the waterway bifurcates going north through Florida Bay or south through Hawk Channel to Key West. The channel has a controlling depth of about 5 feet and is exposed to winds from the northwest. (See Local Notice to Mariners and latest editions of charts for controlling depths of the Intracoastal Waterway.)

(7) The alternate route of the Intracoastal Waterway through the Great Dismal Swamp Canal and the Okeechobee Waterway is described later in this chapter.

(8) **Bridges.**–The minimum overhead clearance of fixed bridges over the Intracoastal Waterway is 56 feet at the Julia Tuttle Causeway at Miami, **Mile 1087.1.**

(9) General drawbridge regulations and opening signals for bridges over the Intracoastal Waterway are given in **117.1 through 117.49**, chapter 2. Special drawbridge regulations for certain bridges that supplement the general regulations are referenced with the area description of the waterway.

(10) As a public service and to assist in the management and safety of the Intracoastal Waterway, VHF-FM channels 13 and 16 are monitored at some of the bridges.

(11) **Overhead cables.**–The minimum clearance of overhead cables crossing the Intracoastal Waterway is 68 feet in Snows Cut, **Mile 295.8.** An overhead cable car at **Mile 356.4** has a least clearance of 67 feet under the low point of travel of the cabin.

(12) **Caution.**–When running with a fair tide or in windy weather, exercise caution when approaching and passing bridges and sharp turns. Many of the overhead cables over the waterway carry high voltage, and a margin of safety should be allowed when weather is unfavorable.

(13) **Locks.**–Great Bridge Lock (mile 11.5) is the only lock on the Intracoastal Waterway between Norfolk and Key West via Albemarle and Chesapeake Canal. It is 600 feet long (530 usable), 75 feet wide (72 feet usable), 16 feet over the sills, and has a lift of 2.7 feet. (See **207.160**, chapter 2, for regulations governing use, administration, and navigation of locks and floodgates.)

(14) Locks on the Great Dismal Swamp Canal and the Okeechobee Waterway are described later in this chapter.

(15) **Cable ferries.**–Cable ferries are guided by cables fastened to shore and sometimes propelled by a cable rig attached to the shore. Generally, the cables are suspended during crossings and dropped to the bottom when the ferries dock. Where specific operating procedures are known they are mentioned in the text. Since operating procedures vary, mariners are advised to exercise extreme caution and seek local knowledge. **DO NOT ATTEMPT TO PASS A MOVING CABLE FERRY.**

(16) **Aids to navigation.**–Intracoastal Waterway aids have characteristic yellow markings which distinguish them from aids to navigation marking other waters. (See U.S. Coast Guard Light Lists or Chart 1 (Nautical Chart Symbols and Abbreviations) for illustrations of special markings.)

(17) Lights and daybeacons should not be passed close aboard because those marking dredged channels are usually placed back from the bottom edge of the channel and others may have rip-rap mounds around them to protect the structures.

(18) **Charts.**–Navigation of the Intracoastal Waterway can be made easier by use of the special small-craft series which the National Ocean Service publishes.

(19) **Tides.**–Under ordinary conditions the mean range of tide in the waterway is from nontidal to about 7 feet. In many sections, the tide depends on the force and direction of the wind. Severe hurricanes have raised the water surface 10 feet or more above low water, in some localities.

(20) **Cross currents.**–Where two streams cross, the current will have a greater velocity in the deeper channel. This is noticeable along the Intracoastal Waterway where it follows a dredged canal cutting across a winding stream. Cross currents will also be noticed where either an inlet from the ocean or a drainage canal enters the waterway.

(21) **Weather.**–The Intracoastal Waterway affords protection from the winds and waves of the offshore Atlantic. Land creates friction that reduces windspeeds by as much as 30 percent of those over the open sea. Wave heights are reduced by shallow depths and limited fetch. When severe weather does strike, shelter is usually close by, either up a protected river or at a nearby port. However, navigation becomes more critical in many restricted reaches along this route, so that weather, as well as tides and currents, is important. The waterway is covered by a network of National Weather Service VHF-FM radio stations that provide continuously updated forecasts and warnings. Also Coastal Warning Display signals are located at various places along the Intracoastal Waterway and connecting channels. The Marine

Weather Services Charts published by the National Weather Service show the locations of both the radio stations and warning displays, while display locations are also listed on the NOS charts.

(22) **Small-craft facilities.**–There are many small-craft facilities along the Intracoastal Waterway. For isolated places and small cities, this chapter describes the more important of these facilities; for large recreational areas, where individual facilities are too numerous to mention, the information given is more general. Additional information may be obtained from the series of small-craft charts published for the many places, and from various local small-craft guides.

(23) **COLREGS Demarcation Lines.**–The lines established for Chesapeake Bay and the rivers, sounds, and inlets of the coasts of Virginia, North and South Carolina, Georgia and Florida are described in **80.510 through 80.735 and 80.740**, chapter 2.

(24) **Chart 12206.–Norfolk,** on the east bank of the Elizabeth River in Norfolk Harbor 26 miles inside the entrance to Chesapeake Bay, is one of the major ports of the United States. Supply and repair facilities are available at the marinas and yacht basins in Norfolk Harbor. A detailed description of the port is contained in **United States Coast Pilot 3, Atlantic Coast, Sandy Hook to Cape Henry.**

(25) From the City Wharf at the foot of West Main Street in Norfolk, **Mile 0.0,** the Intracoastal Waterway follows the Southern Branch of Elizabeth River to its junction with Deep Creek where the waterway divides into two routes. The mean range of tide in Southern Branch and Deep Creek is about 2.5 to 3 feet. **Naval restricted areas** are on both sides of the river. (See 334.290, chapter 2, for limits and regulations.)

(26) The **speed limit** is 6 knots from Eastern Branch to the Norfolk and Portsmouth Belt Line Railroad bridge, **Mile 2.6.** (See **162.55**, chapter 2.) This bridge has a lift span with a clearance of 6 feet down and 142 feet up. VHF-FM channels 16 and 13 are monitored at the bridge. At **Mile 2.8,** Jordan (State Route 337) highway bridge has a lift span with a clearance of 15 feet down and 145 feet up. VHF-FM channels 16 and 13 are monitored at the bridge. The Norfolk Southern Railway bridge at **Mile 3.6** has a lift span with a clearance of 10 feet down and 135 feet up. U.S. Routes 460 and 13 highway bridge and the Norfolk Southern Railway bridge at **Mile 5.8** have bascule spans with clearances of 11 feet and 7 feet, respectively; large vessels must exercise caution when making the turns to these bridges because of the current. VHF-FM channels 16 and 13 are monitored at these bridges. An overhead power cable at **Mile 6.5** has a clearance of 152 feet, and two overhead cables at **Mile 6.9** have clearances of 161 feet. Interstate Highway Route 64 bascule bridge at **Mile 7.1** has a clearance of 65 feet. (See **117.1 through 117.59 and 117.997 (a) through (c)**, chapter 2, for drawbridge regulations.) The bridgetender may be contacted at (804)545-4685.

(27) The **Albemarle and Chesapeake Canal**, about 10 miles long, connects Southern Branch of Elizabeth River with North Landing River.

(28) **Route 1.–Via the Albemarle and Chesapeake Canal to North River.**–From **Mile 7.2** at the entrance to Deep Creek, the basic route continues through Southern Branch, the Albemarle and Chesapeake Canal, North Landing River, Currituck Sound, Coinjock Bay, and North Carolina Cut to North River. The route is well marked and easily followed in daylight; strangers are advised against running at night.

(29) At **Mile 8.1,** the remains of a railroad swing bridge cross the waterway with a horizontal clearance of 80 feet. Dominion Boulevard Bridge (locally known as Steel Bridge) at **Mile 8.8** has a bascule span with a clearance of 12 feet. (See **117.1 through 117.59 and 117.997(d),** chapter 2, for drawbridge regulations.) At the open position. Virginia Highway 104 bridge at **Mile 8.8** has a bascule span with a clearance of 12 feet. At entrance of **Sykes Creek, Mile 9.3,** there is a small-craft basin which had reported depths of 5 feet in the approach and alongside the berths in July 1983. Berths with electricity, water, gasoline, diesel fuel, ice, and some marine supplies are available. A marine railway in the basin can handle craft up to 35 feet for hull and engine repairs. In December 1978, submerged piles were reported in the entrance to Sykes Creek, in about 36°44'02"N., 76°17'08"W.

(30) **Great Bridge Lock, Mile 11.5,** at the Southern Branch end of the Albemarle and Chesapeake Canal, is a tidal guard-lock 600 feet long, 72 feet wide, 16 feet over the sills, and a lift of 2.7 feet. Maximum length of tow allowed in the lock is 530 feet. Vessels and tows wider than 45 feet will not be permitted to pass through the lock without prior permission of the lockmaster. Tie-up dolphins are available at Great Bridge for temporary mooring when passage through the lock is delayed. There is no periodic tide southward of the lock; the water level depends on the force and direction of the winds. All vessels passing through the lock are required to list their registry, tonnage, and passengers.

(31) The lockmaster can be contacted 24 hours per day, 7 days per week on VHF-FM channel 16 or by telephone (804-547-3311) for lock information.

(32) **Great Bridge,** a town on the Albemarle and Chesapeake Canal at **Mile 12.0,** has bus connections with Norfolk. State Route 168 highway bridge across the canal at the town has a swing span with a clearance of 6 feet. VHF-FM channels 16 and 13 are monitored at the bridge. (See **117.1 through 117.59 and 117.997 (e)**, chapter 2, for drawbridge regulations.) Tie-up dolphins are available on both sides of the bridge for temporary mooring when bridge openings are delayed.

(33) A privately owned marina basin is on the south side of the canal a short distance eastward of Great Bridge. In 1993, depths of 12 feet were reported in the approach and alongside the piers in the basin. Berthage with electricity, water, ice, gasoline, diesel fuel, sewage pump-out, and some marine supplies are available. A marine railway that can handle craft up to 100 feet and a 30-ton lift are in the basin; hull, engine, and electronic repairs can be made.

(34) From Great Bridge, the Albemarle and Chesapeake Canal continues eastward almost in a straight line for a distance of about 7 miles. The State Route 168 Bypass fixed highway bridge with a clearance of 65 feet crosses the canal at **Mile 13.0.** The Norfolk Southern Railway bridge at **Mile 13.9** has a bascule span with a clearance of 7 feet. The Centerville Turnpike Bridge at **Mile 15.2** has a swing span with a clearance of 4 feet. (See **117.1 through 117.59 and 117.997(f),** chapter 2, for drawbridge regulations.) A marina with a reported alongside depth of 8 feet in 1993 is immediately above the bridge on the north side. Transient berths, electricity, gasoline, diesel fuel, water, ice, pump-out station, hull and engine repairs, launching ramp, towing and a 4-ton lift truck are available. An overhead power cable with a clearance of 91 feet is at **Mile 16.4.**

(35) **North Landing, Mile 20.2,** is a small town at the junction of Albemarle and Chesapeake Canal and North Landing River. State Route 165 highway bridge over North Landing River at North Landing has a swing span with a clearance of 6 feet. (See **117.1 through 117.59,** chapter 2, for regulations.) VHF-FM channels 16 and 13 are monitored at the bridge.

(36) A small-craft facility at North Landing had a reported approach depth of 6 feet with 4 feet alongside the piers in 1993. Berthage, water, ice, and a launching ramp are available.

(37) **North Landing River** is narrow and crooked for a distance of about 9 miles below the Albemarle and Chesapeake Canal. The worst bends have been bypassed by dredging through the marshy points; the remaining bends are usually easy. The old channels through the cut-off bends have numerous wrecks, partially visible at mean low water, and some submerged wrecks which are dangerous to navigation. At **West Landing, Mile 22.8,** there is a gasoline dock, open only in summer. At **Pungo Ferry, Mile 28.3,** State Route 726 fixed highway bridge across the river has a clearance of 65 feet. A marina just below the bridge on the east side of the waterway had a reported alongside depth of 5 feet in 1993. Transient berths, electricity, water, ice, pump-out station, hull and engine repairs, and a launching ramp are available.

(38) From **Mile 30.2,** the route is through a dredged cut in the open waters of North Landing River and **Currituck Sound,** thence into **Coinjock Bay** and through North Carolina Cut to the head of North River. **Munden** is a town on the east side of North Landing River at **Mile 32.0;** the wharf is in ruins. **Currituck** is a town on the west side of the mouth of North Landing River opposite **Mile 41.5.** A toll-free passenger-auto ferry, operated by the State Highway Commission, runs from Currituck to Knotts Island, N.C.

(39) **Coinjock, Mile 49.9,** is a town on the Norfolk-Hatteras Highway, midway along the **North Carolina Cut** U.S. Route 158 fixed highway bridge across the cut has a clearance of 65 feet. An overhead power cable on the north side of the bridge has a clearance of 85 feet. Berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies can be obtained at the small-craft facilities northward of the bridge. A 70-ton marine railway which can handle craft to 60 feet, and a 10-ton mobile lift are available at the facilities on the west bank of the cut northward of the bridge; hull, engine, and electronic repairs can be made. A launching ramp is at the facility on the east side of the cut northward of the bridge.

(40) **Coinjock Coast Guard Station** is on the east side of the waterway at **Mile 49.6,** about 0.4 mile northeast of the bridge.

(41) A canal 22 feet wide branches northeastward from North Carolina Cut about 1.1 miles northward of the Coinjock Bridge, and connects with Currituck Sound through **Parker Creek.** In July 1983, depths of about 2 feet were reported in the canal. Tree stumps in the canal limit its use to outboards only; caution is advised. The fixed bridge 0.1 mile above the canal has a reported clearance of 6 feet.

(42) **North River** is about 14 miles long from North Carolina Cut to the entrance from Albemarle Sound and has a general depth of about 9 feet outside the dredged cut of the Intracoastal Waterway. The channel is marked by lights and daybeacons.

(43) **Route 2.–Via Great Dismal Swamp Canal to Albemarle Sound.**–This alternate route from the entrance to **Deep Creek, Mile 7.6,** leads westward from the Southern Branch to Great Dismal Swamp Canal, thence through Pasquotank River to Albemarle Sound.

(44) Vessels that proceed with care and follow the chart can navigate this route without difficulty. Mariners may call (804) 487-0831 for canal conditions. Extra caution is required in Deep Creek, Turners Cut, and the numerous sharp bends in the upper reaches of the Pasquotank River. Winds sometimes cause a variation of 1 to 2 feet in water level. Overhead power cables with a least clearance of 91 feet cross Deep Creek at **Mile 8.0.**

(45) **Great Dismal Swamp Canal,** a 19-mile-long nontidal summit-level section, is controlled by a lock at each end. "NO WAKE" signs have been posted in the canal. Vessels shall proceed at a speed to cause minimum wake.

(46) **Channels.**–Federal project depths are 10 feet in Deep Creek, 9 feet in Great Dismal Swamp Canal, and 10 feet in Pasquotank River. Great Dismal Swamp Canal is being maintained to a depth of only 6 feet because of reduced usage by vessels requiring a 9-foot channel. (See Local Notices to Mariners and latest editions of charts for controlling depths.)

(47) **Locks.**–There are two locks on the alternate route, one at the upper end and the other at the lower end of the Great Dismal Swamp Canal. **Deep Creek Lock** (Mile 10.6) and **South Mills Lock** (Mile 33.2) have the same dimensions; 300 feet long, 52 feet wide, 12 feet over sills, and lift of 12 feet. Vessels and tows wider than 35 feet will not be permitted to pass through the locks without prior permission of the lockmaster. Regulations governing use, administration, and navigation of locks and floodgates are given in **207.160,** chapter 2.

(48) At times, due to low water, navigation may be restricted or the canal closed. During restricted operations at Deep Creek Lock, boats up to 20 feet can be moved from one level to the other by a marine railway. Deep Creek Lock and South Mills Lock are operated at 0830, 1100, 1330, and 1530 daily. The bridges adjacent to the locks will be opened as necessary in coordination with the locks. The lock operators can be contacted on VHF-FM channel 13 or (804) 487-0831. Vessels may tie up in the canal overnight, at the Government facilities at Deep Creek, South Mills, and the Feeder Ditch to Lake Drummond.

(49) At Deep Creek Lock, **Mile 10.6,** vessels are required to list their registry, tonnage, and passengers. A dock about 100 feet long is at the lock. The town of **Deep Creek** is at **Mile 11.1,** and U.S. Route 17 highway bridge across the canal here has a bascule span with a clearance of 4 feet. Just south of the bridge is a bulkhead with 4 to 8 feet alongside where gasoline and some supplies may be obtained; there is a small-boat launching ramp.

(50) An overhead power cable with a clearance of 111 feet is at **Mile 12.1.**

(51) At **Mile 21.5,** a 30-foot-wide feeder ditch runs in a straight line westward from the Great Dismal Swamp Canal for about 3 miles to **Lake Drummond;** the ditch has a controlling depth of 4 to 5 feet, and the lake has depths of 3 to 5 feet. Lake Drummond is about 2.2 miles in diameter and the water level is about 6 feet higher than the canal. Flow of water from the lake is regulated by a series of gates or wickets in the feeder ditch at the Corps of Engineers reservation 0.5 mile from the lake. Boats up to 18 feet are moved overland past the gates by a small railway. All persons entering or leaving Lake Drummond through the feeder ditch are required at the gates to register their name, address, and purpose of visit. Visitors are warned of the dangers of being lost in the swamps and the menace of poisonous snakes, and are cautioned to take precautions to prevent forest fires. After winter and spring runoffs of water from Lake Drummond, there

is a tendency for shoals to build up at the intersection of the Great Dismal Swamp Canal and the feeder ditch.

(52) A fixed highway bridge with a clearance of 65 feet is at **Mile 31.5.**

(53) Diesel fuel by tank truck and gasoline are available on the east side of the canal at **Mile 31.5.** Supplies are available at South Mills, **Mile 32.4.**

(54) U.S. Highway 17 bridge across the canal at **Mile 32.6** has a bascule span with a clearance of 4 feet. The **South Mills Lock** of the Great Dismal Swamp Canal is at **Mile 33.2.** Tieup dolphins are available for temporary mooring when passage through the lock is delayed.

(55) **Turners Cut** is a canal which extends in nearly a straight line from the south end of Great Dismal Swamp Canal to the Pasquotank River **Mile 37.0.**

(56) **Pasquotank River** has a length of 12 miles from the south end of Turners Cut to Elizabeth City, and thence 15 miles to Wade Point Light at the entrance from Albemarle Sound. The narrow upper part of the river has been improved by dredging, where necessary, to attain the project depth of the waterway. From Elizabeth City to the mouth, the river varies in width from 0.5 to 3 miles, has general depths of 8 to 12 feet, and is well marked by lights.

(57) The Norfolk Southern Railway bridge across Pasquotank River at **Mile 47.7** has a hand-operated swing span with a channel width of 42 feet and a clearance of 3 feet. (See **117.1 through 117.59 and 117.833 (a)**, chapter 2, for drawbridge regulations.) The overhead power cables along the south side of the bridge have a least clearance of 85 feet.

(58) **Knobbs Creek** is a nontidal freshwater stream on the north side of Elizabeth City and enters Pasquotank River at **Mile 50.2.**

(59) A dredged channel leads from Pasquotank River to a turning basin about 0.9 mile above the entrance, thence to the Norfolk Southern Railway bridge at the head of navigation about 1 mile above the entrance. In 1959-June 1974, the controlling depths were 9 feet on the centerline to the basin, thence 5½ feet in the basin, thence 2½ feet on the centerline to the head of navigation. An overhead power cable with a clearance of 75 feet crosses the creek just above the mouth.

(60) **Elizabeth City, Mile 50.7,** on the west bank of Pasquotank River, is one of the most important towns on the inland waters of North Carolina, and has rail, airline, and highway connections with Norfolk. Waterfront bulkheads have 20 to 27 feet alongside, and a vessel can usually find a berth. Anchorage can be had in depths of 7 to 12 feet on the north side of the channel just below the city. U.S. Route 158 highway bridges across the river at **Mile 50.7** have bascule spans with least clearances of 2 feet. (See **117.1 through 117.59 and 117.833 (b)**, chapter 2, for drawbridge regulations.) The river water is practically fresh.

(61) **Weather, Elizabeth City and vicinity.**–Elizabeth City enjoys mild winters and warm summers. Weather is tempered somewhat by the Albemarle Sound. Maximum temperatures reach 90°F (32.2°C) or more on about 33 days annually although 100°F (37.8°C) or more is usually reached on only 1 day each year. Minimum temperatures drop below freezing on an average of 55 days annually. The average high temperature at Elizabeth City is 69°F (20.6°C) while the average low is 50°F (10°C). July is the warmest month with an average high of 87°F (30.6°C) and an average low of 70°F (21.1°C). December is the coolest with an average high of 53°F (11.7°C) and an average low of 34°F (1.1°C). The warmest temperature on record is 104°F (40°C) recorded on July 22 and 23, 1952. The coolest temperature on record is 10°F (-12.2°C) recorded in February 1951. Only June and July have recorded temperatures in excess 100°F (37.8°C) and each month, October through April, has reported temperatures below freezing.

(62) Winds blow most frequently from the southwest, except in the fall when northeasterlies prevail. Gales are rare and winds of 17 knots or more occur only 2 to 3 percent of the time from October through April. Visibilities are worst from September through January, when they drop below 0.5 mile (0.9 km) on an average of 3 to 5 mornings per month; by noon this type of fog has generally lifted.

(63) Precipitation averages nearly 47 inches (1,193.8 mm) each year and is most frequent during the summer, particularly as brief heavy showers or thunderstorms. July is the wettest month averaging about 6.5 inches (165.1 mm) of rainfall while October is the driest month averaging about 2.5 inches (63.5 mm). About 3 to 4 inches (76.2 to 101.6 mm) of snow falls each winter. Snow has fallen in each month, November through April. The greatest 24-hour snowfall occurred on February 26, 1963 when 6.2 inches (157.5 mm) accumulated.

(64) Complete supply and repair facilities, restaurants, and hotel and motel accommodations are available at Elizabeth City. Small-craft facilities on both sides of the river southward of the bridge have about 3,600 feet of berthing space available. Gasoline, diesel fuel, water, ice, and marine supplies can be obtained.

(65) A boatyard on the south side of the river about 0.4 mile south of the bridge has a 60-ton fixed lift, and a marine railway that can handle craft up to 130 feet. Another boatyard just to the northward has a marine railway that can handle craft to 65 feet. Both facilities provide berths, gasoline diesel fuel, water, ice, marine supplies, and can make hull, engine, and electronic repairs.

(66) Elizabeth City has railroad freight connections with the Norfolk Southern railway and highway connections with U.S. Routes 17 and 158 and State Route 168.

(67) **Elizabeth City Coast Guard Air Station** is on the southwest side of the river about 3 miles southeastward of U.S. Route 158 highway bridge at Elizabeth City.

(68) **Newbegun Creek** enters Pasquotank River about 8.5 miles below Elizabeth City. **Weeksville,** the principal town on the creek, is 3 miles from the mouth. The controlling depth in 1963 was about 4 feet over the bar and in the main part of the creek. The creek is unmarked.

(69) Route 2 continues down the Pasquotank River, passing northward of Pasquotank River Entrance Light, and then turns southward across Albemarle Sound to join with Route 1 at the light at the entrance to Alligator River.

(70) **Chart 11553.**–From the vicinity of the light at the entrance to North River, Route 1 continues across Albemarle Sound for 12.7 miles to the light at the entrance to Alligator River, where alternate Route 2, via the Great Dismal Swamp Canal rejoins the basic route. The passage across the sound to Alligator River is marked by lights. In heavy weather the passage is uncomfortable and even dangerous for open boats. The rise and fall of the water level in Albemarle Sound depends on the wind.

(71) **Alligator River** extends in a southerly direction for about 20 miles, then turns west and narrows. The channel of the Intracoastal Waterway has been dredged the entire length of the wider part of the river and for about 4 miles through its western

reach to the land cut connecting with Pungo River. The channel is well marked by lights and daybeacons. U.S. Route 64 highway swing bridge with a clearance of 14 feet crosses the waterway at **Mile 84.2** opposite **East Lake** on the eastern shore. It is reported that this bridge will not open if the wind speed is over 34 knots. The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign, KU-9448. A small-craft facility at **Mile 84.1**, just north of the bridge on the west bank, has berths, gasoline, diesel fuel, and some marine supplies. In July 1976, shoaling to bare was reported in the approach.

(72) Alligator River and Little Alligator River are discussed in more detail in chapter 4.

(73) The route of the waterway passes from Alligator River to the **Alligator River-Pungo River Canal** at **Mile 105.0**, a land cut extending about 21 miles in a southwesterly direction. At **Mile 113.7**, State Route 94 highway bridge over the canal has a swing span with a clearance of 7 feet. The channel is through the south draw. (See **117.1 through 117.59 and 117.821**, chapter 2, for drawbridge regulations.) VHF-FM channels 16 and 13 are monitored at the bridge. **Fairfield Canal,** just east of the bridge, is a privately owned land drainage canal which makes off in a southerly direction from the main channel; it is not navigable.

(74) **Caution.**–Mariners are advised to exercise extreme caution when navigating the Alligator River-Pungo River Canal. Controlling depths, published in the Local Notice to Mariners, are generally for less than the 90-foot project width. Continuous bank erosion is caused by passing boats and tows. Both sides of the canal are foul with debris, snags, and submerged stumps. Navigation near midchannel is recommended unless otherwise specified in Local Notice to Mariners.

(75) Mariners are cautioned that the color of the aids to navigation change after departing the canal and green markers are on the right when proceeding southerly while following the ICW until entering Goose Creek at **Mile 150.0**.

(76) The Alligator River-Pungo River Canal enters **Wilkerson Creek** at about **Mile 126.0**. Gasoline is available on the north side of the canal entrance. The route is then through the dredged cut in the creek to **Pungo River,** southwestward and westward to abeam of Belhaven, then southward in Pungo River to Pamlico River.

(77) **Belhaven,** 1.5 miles westward of **Mile 135.8,** is on the northeastern side of the entrance to **Pantego Creek**. The harbor is protected by breakwaters at the creek entrance and is an excellent shelter for small craft. There are marinas and repair facilities in the harbor. (See the small-craft facilities tabulation on chart 11553 for services and supplies available.) The town and the channel into the harbor from Pamlico River are discussed in chapter 4.

(78) From abeam of the light off **Grassy Point** at **Mile 142.3** in the lower part of Pungo River, the route leads for 4.4 miles until 0.7 mile past the light off **Wades Point** on the west side at the mouth of Pungo River; thence across Pamlico River for 3.2 miles to the light at the entrance to Goose Creek.

(79) **Wright Creek,** on the west side of Pungo River at Mile 143.0, and Pamlico River, the approach to the important town of Washington are discussed in chapter 4.

(80) The route of the Intracoastal Waterway follows the dredged channel through **Goose Creek** and its tributary, **Upper Spring Creek,** to the land cut which connects with **Gale Creek** and Bay River.

(81) Mariners are cautioned that the color of aids to navigation change again to red on the right when proceeding southerly while following the ICW starting with the aids marking Goose Creek at about **Mile 149.7.**

(82) The Hobucken (State Routes 33 and 304) fixed highway bridge, crossing the land cut at **Mile 157.2,** has a clearance of 65 feet. There are several small-craft facilities on both sides of the land cut in the vicinity of the bridge; gasoline, diesel fuel, water, ice, and berthage with electricity are available. Engine repairs can be made at one of the facilities. Depths of 5 to 10 feet are reported alongside the berths in July 1983. **Hobucken Coast Guard Station** is on the west side of the land cut just north of the bridge.

(83) The town of **Hobucken,** about 1 mile east of the bridge, has a landing on **Jones Bay,** which is discussed in chapter 4.

(84) From Gale Creek, the route of the Intracoastal Waterway is down **Bay River** to Neuse River Junction Light (35°08.7'N., 76°30.1'W.) off **Maw Point Shoal** at **Mile 167.1,** then up the Neuse River. Bay River is the approach to Bayboro and other small towns; Neuse River is the approach to the important city of New Bern. Both rivers are discussed in chapter 4.

(85) Westward of Mile **171.5** is the entrance to **Broad Creek.** The channel is marked by a light and daybeacons. On the north bank, 2.4 miles above the mouth, is a small-craft facility at **Whortonsville.** Berths, gasoline, diesel fuel, and water are available.

(86) **Chart 11541.–Whittaker Creek,** northwestward of the waterway at **Mile 180.8,** is marked by lights and daybeacons. In June 1999, the privately dredged entrance channel had a reported controlling depth of 7 feet. Several small-craft facilities are in the creek. (See the small-craft facilities tabulation on chart 11541 for services and supplies available.)

(87) The town of **Oriental** is west of **Mile 181.3** on the north side of Neuse River opposite **Garbacon Shoal**. Fuel, supplies, and repair facilities are available here. The town and its waterfront are discussed in chapter 4.

(88) The Intracoastal Waterway leaves Neuse River about 15 miles above the mouth and follows a dredged channel through Adams Creek to **Adams Creek Canal,** a land cut about 5 miles long which connects with the head of **Core Creek**. State Route 101 highway bridge over Adams Creek Canal at **Mile 195.8** has a fixed span with a clearance of 65 feet. Overhead power cables just below the bridge have a least clearance of 85 feet. Small-craft facilities are on either side of the waterway close northward of the bridge. A boatyard on the east side specializes in new construction and repair of steel boats, but will handle any craft in an emergency. A 200-ton mobile lift is available.

(89) From Core Creek, the route of the Intracoastal Waterway is through **Newport River** to Morehead City. At **Mile 202.2, Gallants Channel** branches off from the through route of the waterway and leads to Beaufort, which is described in chapter 5.

(90) **Calico Creek** extends westward from **Mile 203.6** through a dredged channel which leads to a basin and marina about 0.6 mile from the waterway. In 1995, the controlling depth was 9½ feet in the channel, thence 5 feet reported in the basin. The channel is marked by a buoy and daybeacons. Berthage with electricity, gasoline, diesel fuel, and water can be obtained, and hull, engine, and electronic repairs can be made. A barge repair facility is on the northwest side of the basin; this facility is described in chapter 5.

(91) At **Mile 203.8,** the adjacent Beaufort and Morehead railroad bridge and U.S. Route 70 highway bridge cross the channel. The highway bridge has a fixed span with a clearance of 65 feet, and the railroad bascule span has a clearance of 4 feet. (See **117.1 through 117.59 and 117.822,** chapter 2, for drawbridge regulations.) An overhead power cable between the two bridges has a clearance of 88 feet, and an overhead power cable southward of the highway bridge has a clearance of 25 feet except at the channel where it is submerged. Caution is advised when running with a fair current or approaching the bridges in windy weather. (See the Tidal Current Tables for predictions.)

(92) **Caution.**–Just southward of these bridges the route of the waterway passes through the deepwater turning basin at Morehead City. Small-craft operators are cautioned that large oceangoing vessels may be engaged in docking or undocking maneuvers in the basin. The turns off the North Carolina State Ports Authority are blind for craft traveling in either direction on the waterway.

(93) **Morehead City, Mile 204.3,** and its deepwater port are discussed in length in chapter 5. At **Mile 204.7,** a dredged channel leads northward from the waterway thence westward along the south side of the city and rejoins the waterway at **Mile 206.0.** A turning basin is about midlength of the channel. In March 1999, the midchannel controlling depths were 6 feet from the east entrance to the turning basin, thence 7 feet in the basin, thence 4 feet to the west entrance. The channel is marked by daybeacons. There are several small-craft facilities in Moorehead City and vicinity. (See the small-craft facilities tabulation on chart 11541 for services and supplies available.) Hotel and motel accommodations are available in the city.

(94) From Morehead City the waterway follows a dredged channel through **Bogue Sound.** The Atlantic Beach-Morehead City (State Route 1182) fixed highway bridge over Bogue Sound at **Mile 206.7** has a clearance of 65 feet. Caution is advised when running with a fair tide or approaching the bridge in windy weather. (See the Tidal Current Tables for predictions.) A power cable about 100 yards west of the bridge has a clearance of 49 feet (91 feet at main channel).

(95) The summer resorts, **Money Island Beach, Mile 205.7,** and **Atlantic Beach, Mile 207.0,** are at the south end of the bridge, 2 and 3 miles, respectively, west of Fort Macon. The buildings at the beaches are conspicuous. Boats reach the beaches through two dredged channels that branch off from the Intracoastal Waterway at **Mile 205.5. Money Island Channel** leads southwest to the beach, and **Causeway Channel** leads west to the causeway, thence south along the east side of the causeway to the beach. The channels are marked by lights and daybeacons. In February 1998, the controlling depths were 4 feet in Causeway Channel thence in 1981, 3½ feet (4½ feet at midchannel) in Money Island Channel. In May 1987, shoaling to 3 feet was reported to exist between Money Island Channel Junction Light and Daybeacon 1A. In March 1990, shoaling to 2 feet was reported between Buoy 1 and Light 5. There are several piers at the beaches where berthage with electricity, gasoline, diesel fuel, and water may be obtained and small-boat launching ramps are available. Caution should be exercised in approaching these channels from the Intracoastal Waterway because of the shoal area off the entrance.

(96) At **Mile 209.2,** in October 1998, a dredged channel with a midchannel controlling depth of 3 feet (except for a 2-foot depth on the west side at the mouth of the creek) extended northward from the waterway into **Peletier Creek.** The channel is marked by daybeacons. Several small-craft facilities in the creek can provide berthage with electricity, gasoline, diesel fuel, water, ice, and marine supplies. Three marine railways can handle craft to 125 tons or 70 feet for hull, engine, and electronic repairs.

(97) In **Spooner Creek, Mile 210.5,** on the north side of Bogue Sound 3.8 miles west of Atlantic Beach highway bridge, there is a marina with 6½ feet of water reported alongside the piers. Berthage with electricity, gasoline, diesel fuel, water, and ice are available. In February 2000, 6½ feet was reported in the marked entrance channel. A 60-ton mobile lift is available for hull, engine, electronic, and electrical repairs.

(98) A fixed highway bridge with a clearance of 65 feet crosses the waterway at **Mile 226.0.**

(99) At **Bogue Inlet,** the waterway passes around the head of the marshes to **Swansboro, Mile 228.9.** A water tank in town is prominent. A side channel with a controlling depth of about 12 feet branches off from the Intracoastal Waterway at **Mile 228.9** near Light "46C" and extends along the waterfront of Swansboro and to a turning basin near the highway bridge. There are small-craft facilities along the waterfront and close to Swansboro. (See the small-craft facilities tabulation on chart 11541 for services and supplies available.)

(100) From Swansboro, the route of the waterway follows cuts through the marshes to New River. At **Mile 231.4, Cow Channel,** marked by daybeacons, leads southeastward from the waterway to Hammocks Beach State Park on Bear Island where picnicking and primitive camping are permitted. Small craft may dock at the two ferry slips located at the park. **Prohibited and danger areas** are along the waterway from **Mile 235.1 to mile 240.7.** (See **334.440 (e) and (f),** chapter 2, for limits and regulations.) A **safety zone** is along the waterway from **Miles 235.2 to Mile 245.2.** (See **165.514,** chapter 2, for limits and regulations.) A highway bridge at **Mile 240.7,** (locally known as Onslow Beach bridge), has a swing span with a clearance of 12 feet; the northwest draw only is used. An overhead power cable on the north side of the bridge has a clearance of 74 feet.

(101) At **Mile 244.5,** a channel marked by daybeacons leads to a turning basin at the Marine Corps facility at the head of **Mile Hammock Bay.** In May 1999, the reported controlling depths were 6½ feet in the entrance channel and 9 feet in the turning basin. At **New River Inlet** the waterway passes around the head of the marshes in New River to the land cuts southward. **New River** is the approach to the town of Jacksonville, described in chapter 5. Except at slack water, dangerous cross currents will be encountered in crossing the inlet.

(102) At **Swan Point, Mile 247.0,** just south of New River Inlet, are two marinas with berthage, electricity, gasoline, diesel fuel, water, ice, launching ramp, and some marine supplies. An 8-ton lift that can handle boats to 27 feet is available for hull and engine repairs.

(103) The route continues through **Alligator Bay and Stump Sound.** At **Mile 252.3,** a fixed highway bridge with a clearance of 65 feet crosses the waterway. An overhead power cable with a clearance of 85 feet is close southwestward of the bridge. State Routes 50-210 highway bridge at **Mile 260.7** has a swing span with a clearance of 12 feet. (See **117.1 through 117.59 and 117.821,** chapter 2, for regulations.) The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign KU-6044. The overhead power cable at the bridge has a clearance of 81 feet.

(104) A bulkhead, used for berthing and with reported depths of 5 feet alongside in July 1983, extends from just north of to just south of the highway bridge at **Mile 260.7**. Gasoline, diesel fuel, water, electricity, and some marine supplies may be obtained; a small-boat launching ramp is available.

(105) From Stump Sound the Intracoastal Waterway leads through **Topsail Sound** and **Middle Sound.** At **Mile 263.7,** a channel leads southeastward from the waterway thence southwestward along the barrier beach in Topsail Sound. The channel and the facilities along the barrier beach are described in chapter 5.

(106) At **Mile 270.0,** a marked channel leading eastward connects the waterway with **New Topsail Inlet.**

(107) The Figure Eight Island highway swing bridge (locally known as Surf City bridge) with a clearance of 20 feet crosses the waterway at **Mile 278.1.** The bridgetender can be contacted on VHF-FM channels 13 and 16.

(108) **Pages Creek,** on the north side of the waterway at **Mile 279.0,** has a yacht basin with an L-shaped pier about 250 feet long. Berthage with electricity, gasoline, water, ice, a launching ramp, and some marine supplies are available. A 2-ton lift here can handle craft to 25 feet for hull and engine repairs. At **Mile 279.8,** on the north side of the waterway, there is a yacht basin where berthage, gasoline, diesel fuel, ice, and marine supplies are available. A 50-ton marine railway here can handle craft up to 65 feet for hull, engine, and electrical repairs.

(109) U.S. Route 74-76 highway bridge over the waterway at **Wrightsville, Mile 283.1,** has a bascule span with a clearance of 20 feet at the center. (See **117.1 through 117.59 and 117.821,** chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign, KU-6043. Overhead power and TV cables at the bridge have a least clearance of 78 feet.

(110) There are several small-craft facilities southward of the bridge at Wrightsville. These facilities have berthage with electricity, gasoline, diesel fuel, water, ice, launching ramps, and marine supplies, and can make hull, engine, and electronic repairs. Two marine railways, the larger of which can handle craft up to 60 feet and 50 tons, and fixed and portable lifts are also available.

(111) At **Mile 284.0,** a privately dredged channel leads westward from the waterway to a basin in **Bradley Creek.** In July 1999, the reported centerline controlling depth was 6½ feet in the channel and in the basin. A small-craft facility with piers is on the south side of the basin. Berthage with electricity, gasoline, diesel fuel, water, ice, some marine supplies, and a 40-ton mobile hoist are available. Hull, engine, and electronic repairs can be made. **Wrightsville Beach** on the outer coast, and **Masonboro Inlet** are discussed in chapter 5.

(112) From Wrightsville the waterway continues south through **Masonboro Sound** and **Myrtle Grove Sound.**

(113) **Chart 11534.**–The Intracoastal Waterway continues down Myrtle Grove Sound to Snows Cut. The shallow channel from the waterway to Carolina Beach at the south end of Myrtle Grove Sound is discussed in chapter 5.

(114) At **Mile 293.8,** a marina on the west side of Myrtle Grove Sound opposite Carolina Beach Inlet has berths, gasoline, diesel fuel, ice, water, and marine supplies. A 25-ton mobile lift that can handle boats to 50 feet is available for hull, engine, and electronic repairs. In July, 1983, depths of 5 feet were reported alongside the berths.

(115) **Snows Cut** connects Myrtle Grove Sound with Cape Fear River. U.S. Route 421 highway bridge over Snows Cut at Mile **295.7** has a fixed span with a clearance of 65 feet. Overhead power cables 0.1 mile west of the bridge have a clearance of 68 feet. The ebb current is 1.0 knots, and the flood current is 1.2 knots. (For predictions, see the Tidal Current Tables.)

(116) From the western end of Snows Cut, the Intracoastal Waterway leads south-southwestward through a dredged channel to a junction with the main channel of Cape Fear River and thence southward to **Southport** where fuel, supplies, and repair facilities are available. In March 1999, the controlling depth in the dredged Intracoastal Waterway channel to the Cape Fear River junction was 8½ feet. Mariners are cautioned that the color of the aids to navigation change and green markers are on the right while following the ICW until entering the channel south of Southport at **Mile 308.9.** It has been reported that at night some mariners have missed the turn at the junction in Cape Fear River due to the bright lights on the piers at the Sunny Point Army Terminal and the lighted aids marking the channel leading alongside the terminal; caution is advised.

(117) Another dredged channel, known as **Wilmington Short Cut** and marked by lights and daybeacons, leads northward from the western end of Snows Cut for about 1.7 miles where it connects with the main channel in Cape Fear River to the city of Wilmington, about 11.5 miles above Snows Cut. In March-July 1999, the controlling depth was 3 feet in Wilmington Short Cut. Wilmington and Southport are discussed in chapter 5.

(118) At Southport, **Mile 308.9,** the route of the Intracoastal Waterway leaves Cape Fear River and proceeds westward through land cuts to Lockwoods Folly River. Mariners are cautioned that the color of aids to navigation change to red marker on the right while following the ICW at the entrance to the land cuts. It has been reported that some mariners have attempted to enter the land cut by passing southward of the light at the entrance thereby going aground.

(119) At **Mile 309.3,** a marina in a basin on the north side of the waterway provides berths with electricity, gasoline, diesel fuel, water, ice, marine supplies, a launching ramp, and a 30-ton lift. Hull, engine, and electronic repairs are available. In July 1983, depths of 5 feet were reported alongside the berths.

(120) At **Mile 311.8,** a fixed highway bridge with a clearance of 65 feet crosses the waterway. An overhead power cable on the east side of the bridge has a clearance of 90 feet.

(121) At **Mile 313.8,** on the south side of the waterway opposite Beaverdam Creek, there is a yacht basin with a 200-foot pier with reported depths of 6 feet alongside. Berthage with electricity, gasoline, diesel fuel, water, ice, a launching ramp, and some marine supplies are available, and hull and engine repairs can be made.

(122) At **Mile 316.6,** an overhead power cable with a clearance of 100 feet crosses the waterway.

(123) In **Lockwoods Folly River,** the waterway passes around the head of marshes just inside Lockwoods Folly Inlet. A small-craft facility off the waterway and about 0.4 mile southward of **Mile 320.0** has a launching ramp, berths with electricity, gasoline, diesel fuel, water, ice, and some marine supplies. A 3-ton fixed lift is also available, and hull and engine repairs can be made. In 1983, depths of 5 feet were reported alongside the berths.

(124) Both sides of the waterway from **Mile 322.7** to **Mile 323.2** are lined with fishhouses and charter boat docks.

(125) State Route 130 highway bridge over the waterway at **Holden Beach, Mile 323.6,** has a fixed span with a clearance of 65 feet. An overhead power cable on the west side of the bridge has a clearance of 90 feet.

(126) An overhead power cable with a clearance of 85 feet crosses the waterway at **Mile 327.3.**

(127) The waterway passes around the head of the marshes inside **Shallotte Inlet** and proceeds westward by way of cuts through the marshes and sloughs. **Shallotte River, Mile 329.5,** causes strong currents and severe shoaling in the waterway.

(128) A boatyard at **Bowen Point,** locally known as **Shallotte Point, Mile 329.6,** has a marine railway that can handle craft up to 85 feet; hull, engine, and electronic repairs can be made. Berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available at the boatyard and at other small-craft facilities nearby and in Shallotte River. The facilities in Shallotte River are discussed in chapter 6.

(129) At **Mile 333.7,** State Route 904 highway bridge crosses the waterway. It has a fixed span with a clearance of 65 feet. An overhead power cable close eastward of the the bridge has a clearance of 85 feet. At **Mile 337.9,** a pontoon bridge (locally known as Sunset Beach bridge) crosses the waterway. The bridge is operated by cables that are suspended above or just below the water when the bridge is being opened or closed. The cables are dropped to the bottom when the bridge is in a fully opened or fully closed position. Warning signs with red letters on a white background are on the ends of the fenders on each side of the bridge. Extreme caution should be exercised in the area of the bridge. The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign, KU-6040. (See **117.1 through 117.59 and 117.821 (b)(6),** chapter 2, for regulations.) An overhead power cable just east of the bridge has a clearance of 85 feet. A small-craft facility with gasoline and a launching ramp is on the north side of the waterway at **Mile 339.6.**

(130) The **North Carolina-South Carolina State Line** crosses at **Mile 340.8** just before the waterway enters Little River.

(131) The waterway joins **Little River** at **Mile 341.8. Calabash River** extends northeastward from Little River just north of the waterway cutoff and southward to connect the waterway with Little River Inlet. In October 1998, a depth of 7 feet was reported and could be carried with local knowledge to the town of **Calabash,** N.C., 0.6 mile above the entrance. The channel is marked by lights and daybeacons. A small-craft facility at the town has berthage with electricity, water, ice, and a launching ramp.

(132) The town of **Little River,** S.C., at **Mile 344.3,** has considerable pier space along its waterfront. Berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available; engine repairs can be made. The mean range of tide at Little River is about 5 feet.

(133) A yacht basin is off the south side of the waterway at **Mile 347.0;** depths of 6 feet and 10 feet were reported in the approach and alongside the berths, respectively, in June 1983. Berths with electricity, gasoline, diesel fuel, water, ice, a launching ramp, and marine supplies are available. A 40-ton mobile hoist and a marine railway that can handle craft up to 65 feet are also available; hull, engine, and electronic repairs can be made.

(134) In June 1983, numerous rock ledges were reported abutting the deep portion of the waterway from **Mile 347.0** to **Mile 365.5.** Extreme caution is advised when transiting the area.

(135) A fixed highway bridge, with a clearance of 65 feet at the center, crosses the waterway at **Mile 347.2.** U.S. Route 17 highway bridge (locally known as Little River bridge) over the waterway at **Mile 347.3** has a swing span with a clearance of 7 feet. The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign, KT-5433. Overhead power and telephone cables, crossing the waterway from immediately westward to 1 mile westward of the swing bridge, have a least clearance of 69 feet.

(136) From Little River, the waterway follows a long land cut southwestward to Socastee Creek and Waccamaw River.

(137) At **Mile 353.3,** a swing bridge with a clearance of 31 feet crosses the waterway.

(138) An overhead cable car crosses the waterway at **Mile 356.4.** The low point of travel of the cabin is not less than 67 feet. An overhead power cable with a clearance of 85 feet is 0.1 mile northwest of the cable car.

(139) At **Mile 358.3,** a fixed highway bridge with a design clearance of 65 feet was under construction in October 2000.

(140) An overhead power cable with a clearance of 85 feet crosses the waterway at **Mile 358.9.**

(141) In November 1999, a fixed highway bridge with a design clearance of 65 feet was under construction, at **Mile 360.5.**

(142) At **Mile 365.4,** the Seaboard Coast Line Railroad bridge has a bascule span with a clearance of 16 feet. Close westward, U.S. Route 501 highway bridge to Myrtle Beach has a fixed span with a clearance of 65 feet. Overhead cables at the bridges and for about 0.25 mile southwestward have a minimum clearance of 80 feet.

(143) A yacht basin at **Mile 368.1** has berthage with electricity, gasoline, diesel fuel, water, ice, a launching ramp, and some marine supplies. A 35-ton mobile lift is also available; hull and engine repairs can be made. Depths of 9 feet and 10 feet are reported in the approach and alongside the berths, respectively.

(144) An overhead power cable with a clearance of 85 feet crosses the waterway at **Mile 370.5.**

(145) State Route 544 highway bridge over the waterway at **Socastee, Mile 371.0,** has a swing span with a clearance of 11 feet; navigation is through the southeast draw. (See **117.1 through 117.59 and 117.911,** chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign, KT-5438, preceded by bridge name. In March 1992, a replacement fixed highway bridge with a design clearance of 65 feet was under construction. Overhead power cables in the vicinity of the bridge have a minimum clearance of 85 feet.

(146) The route of the waterway enters **Waccamaw River** at **Enterprise Landing, Mile 375.2,** and follows the river to Winyah Bay. The direction of flow of the current in the waterway changes at Enterprise Landing. The mean range of tide at the landing is about 2 feet.

(147) **Bucksport,** on the west side of Waccamaw River at **Mile 377.5,** has a yacht basin where berths with electricity, gasoline, diesel fuel, ice, marine supplies, and a launching ramp are available. Hull and engine repairs can be made. Depths of 9 feet were reported alongside the berths in June 1983.

(148) A yacht basin at **Wachesaw Landing, Mile 383.4,** about 6 miles south of Bucksport, has berthage with electricity, gasoline, diesel fuel, water, and ice. Hull, engine, and electronic repairs can be made. Depths of 10 feet are reported alongside the berths.

(149) U.S. Route 17 highway bridge over the Waccamaw River at **Mile 402.1,** has a fixed span with a clearance of 65 feet for a

width of 90 feet. Mariners are cautioned that the color of aids to navigation change to green on the right while following the ICW at the confluence of the Waccamaw, Great Pee Dee, and Sampit Rivers at **Mile 403.9** until about Mile 406.0 where the waterway splits with Winyah Bay main channel.

(150) **Georgetown Coast Guard Station** is on the west bank of the Great Pee Dee River about 0.25 mile south of U.S. Route 17 highway bridge.

(151) **Georgetown, Mile 403.0,** at the head of Winyah Bay and just inside the mouth of **Sampit River,** is about a mile northwestward of the waterway. Supplies, hotel accommodations, and repair facilities are available at Georgetown. The mean range of tide is 3.3 feet. The town is discussed at greater length in chapter 6.

(152) Mariners are cautioned that the color of aids to navigation change back to red on right where the waterway splits with Winyah Bay main channel at about **Mile 406.0.**

(153) The Intracoastal Waterway leaves Winyah Bay by way of **Western Channel** at **Mile 407.3,** and proceeds southward through the **Estherville-Minim Creek Canal** at **Mile 410.6.** A ferry crosses the canal at **Mile 411.5.** Southwest of the canal, the waterway crosses **North Santee River** and **South Santee River** and proceeds by way of cuts through the marshes to the vicinity of **Casino Creek (Mile 425.5).**

(154) **Chart 11518.–Cape Romain National Wildlife Refuge** comprises the coastal area southeast of the waterway from Casino Creek to **Price Creek (Mile 446.8).**

(155) From the vicinity of Casino Creek the waterway continues through the marshes and a land cut to the mouth of **Jeremy Creek (Mile 430.0). McClellanville** is on the side channel through Jeremy Creek, 0.6 mile northward of the waterway. Boats lie alongside the piers on the east side of the McClellanville channel. In April 1991, the midchannel controlling depth was 4 feet, and in May 1975, there was 8 feet alongside the piers. The mean range of tide at McClellanville is 5.1 feet. Gasoline, diesel fuel, water, and provisions are available.

(156) Mariners may gain access to the Atlantic Ocean via the marked channels in Town Creek, opposite McClellanville, and **Five Fathom Creek.** This route is reportedly used by fishing vessels.

(157) From McClellanville the waterway follows land cuts and sloughs through the marshes back of **Bulls Bay;** thence through shoal **Sewee Bay** and along **Price Creek;** through the marshes and along **Capers Creek;** behind **Dewees Island** and across **Dewees Creek** to the land cuts behind **Isle of Palms** and Sullivans Island. A ferry crosses the waterway at **Moores Landing** at **Mile 445.4.**

(158) A marina is on the south side of the waterway at **Mile 456.8.**

(159) At **Mile 458.9,** the Isle of Palms Connector is a fixed highway bridge with a clearance of 65 feet.

(160) An overhead power cable with a clearance of 86 feet crosses the waterway at **Mile 459.3.**

(161) On **Hamlin Creek** opposite **Mile 460.5,** east of **Breach Inlet,** there is a marina where berthage, electricity, gasoline, and water are available. An overhead power cable with a clearance of 94 feet crosses Hamlin Creek. A fixed highway bridge with a clearance of 28 feet crosses Hamlin Creek near its eastern mouth. The several outlets to the ocean along this stretch are described in chapter 6.

(162) Ben Sawyer Memorial (State Route 703) highway bridge to **Sullivans Island** over the waterway at **Mile 462.2** has a swing span with a clearance of 31 feet. (See **117.1 through 117.59 and 117.911**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign, KT-5438. The overhead power cable at the bridge has a clearance of 89 feet. A marina is in the creek on the west side of the waterway just above the bridge.

(163) The route of the waterway enters the lower east side of **Charleston Harbor** between Sullivans Island and the town of **Mount Pleasant,** which is about 1 mile north of the waterway and is reached through a well-marked channel that branches off from the waterway at **Mile 464.2.**

(164) Complete supply and repair facilities are available at **Charleston, Mile 469.0.** The city is described at length in chapter 6. The mean range of tide at Charleston is 5.2 feet.

(165) The route of the waterway leaves Charleston Harbor at **Mile 469.3** by way of **Wappoo Creek.** The James Island Expressway fixed highway bridge, with a clearance of 67 feet, crosses the waterway at **Mile 469.9.** State Route 171 highway bridge over Wappoo Creek at **Mile 470.8** has a bascule span with a clearance of 33 feet at the center. (See **117.1 through 117.59 and 117.911**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign KT-5438. Extreme caution is advised when running through the bridge with a current. In June 1983, mooring dolphins were reported to be on both sides of the bridge. An overhead power cable with a clearance of 100 feet is close westward of the bridge. Cross currents from the old creek are encountered on the ebb in the west approach, and are noticeable on the flood in the east approach due to the bends in the channel. Vessels should proceed slowly and with caution to avoid washing away of the banks east of the bridge.

(166) From Wappoo Creek, the route of the waterway is through **Elliott Cut** and **Stono River** to Wadmalaw River. Strong currents have been reported on the ebb and flood in Elliott Cut. At **Mile 472.0** is an overhead power cable with a clearance of 100 feet. An overhead power cable at **Mile 475.6** has a clearance of 91 feet over the main channel. A marina is on the south side of the waterway at **Mile 476.4.** The marina has facilities for hull, engine, electronic, and electrical repairs, water and shore power connections, a 30-ton lift, gasoline and diesel fuel, and a marine railway that can handle craft up to 1,000 tons or 200 feet long. The mean range of the tide at the junction of Stono River and Elliott Cut is 5.2 feet.

(167) An overhead power cable at **Mile 479.0** has a clearance of 91 feet.

(168) The John F. Limehouse Highway Bridge over Stono River at **Mile 479.3** has a swing span with a clearance of 12 feet. (See **117.1 through 117.59 and 117.911**, chapter 2, for drawbridge regulations.) The bridgetender can be contacted on VHF-FM channels 13 and 16. The overhead power cable at the bridge has a clearance of 92 feet. Caution is advised when running through the bridge with a current. A slight cross current is noticeable on the flood and ebb at both approaches.

(169) At **Mile 480.1, Rantowles Creek** enters from the north (see chart 11521). The Seaboard System Railroad (SCL) bridge 0.6 mile above the mouth has a 41-foot lift span which is not required to be opened; clearance in the down position is 4 feet. (See **117.1 through 117.59 and 117.935**, chapter 2, for drawbridge regulations.) About 1.3 miles above the mouth U.S. Route 17

highway bridge has twin 37-foot fixed spans with clearances of 9 feet. **Wallace Creek** enters Rantowles Creek from the west 0.1 mile above the railroad bridge. State Route 162 highway bridge, 0.7 mile above the mouth of Wallace Creek, has twin 38-foot fixed spans with clearances of 9 feet. Overhead cables between the mouth and the bridge have a minimum clearance of 8 feet.

(170) The route of the waterway enters **Wadmalaw River** at **Mile 486.7.** The town of **Yonges Island** is at **Mile 490.2**. A boatyard at the town has marine railways that can handle craft up to 150 feet long and 350 tons, and mobile cranes up to 40 tons. The maximum draft at the railways is 12 feet.

(171) From Wadmalaw River, the route of the waterway follows **Dawho River, North Creek,** and **Watts Cut** to South Edisto River. State Route 174 (Dawho bridge-locally known as Whooping Island bridge) highway bridge over Dawho River at **Mile 501.3** has a fixed span with a clearance of 65 feet. An overhead power cable just west of the bridge has an authorized clearance of 98 feet. In July 1999, it was reported that the overhead power cable has sagged to a clearance of 40 feet. Extreme caution is advised when passing under the bridge with a current. Cross currents from Dawho River are encountered on the ebb in the west approach and are noticeable on the flood in the east approach.

(172) Careful steering is required in the Dawho River between **White Point** and the entrance to the cutoff. The channel is well marked, but strong currents are experienced. Strong currents are also found at the crossings of the cutoff with the river. The mean range of tide in Dawho River is 6.3 feet.

(173) The waterway follows **South Edisto River** from Watts Cut to **Fenwick Cut,** thence along the **Ashepoo River** for a short distance to **Ashepoo-Coosaw Cutoff,** thence along the **Coosaw River** to Brickyard Creek.

(174) The entrance to **Brickyard Creek** near Brickyard Point, **Mile 529.1,** is between marshy shores, but the marsh on the south side is narrow and terminates just inside the creek in a red eroded bank leading up to somewhat higher ground; this bank is visible for some distance along the Coosaw River. The mean range of tide at the entrance to Brickyard Creek is 7.3 feet.

(175) On the west side of Brickyard Creek at **Mile 531.8,** and about 4 miles north of the swing bridge at Beaufort, there is a Marine Corps Air Station fuel pier. In February 1981, depths of 16 feet were reported alongside.

(176) **Albergottie Creek, Mile 532.4,** about 3.4 miles north of the swing bridge at Beaufort, runs in a westerly direction from the junction with Beaufort River and Brickyard Creek. In June 1983, the creek had a reported controlling depth of 3½ feet to the Marine Corps Air Station pier on the north side 0.7 mile above the mouth, thence 5 feet to a point 2 miles above the mouth. The Marine Corps pier had depths of 8 to 10 feet reported alongside in June 1983.

(177) The waterway continues along Brickyard Creek and into **Beaufort River.** On the west side of the waterway at **Mile 536.0** is the town of **Beaufort,** where fuel, supplies, and hotel accommodations are available. The town is described at length in chapter 7.

(178) The Ladies Island (U.S. Route 21) highway bridge over Beaufort River at Beaufort has a swing span with a clearance of 30 feet. (See **117.1 through 117.59 and 117.911**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign, KT-5439. Extreme caution is advised when running through the bridge with a current; cross currents are encountered in the approach on flood and ebb.

(179) A fixed highway bridge with a clearance of 65 feet crosses the waterway at **Mile 539.7.**

(180) The waterway follows Beaufort River past **Port Royal, at Mile 541.5,** and into **Port Royal Sound,** which is described at length in chapter 7.

(181) Mariners are cautioned that the color of the aids to navigation change to green on the right while following the ICW at **Mile 541.7** until the waterway enters Port Royal Sound.

(182) **Chart 11507.**–The color of the aids to navigation change to red on the right while following the ICW when entering Port Royal Sound at about **Mile 547.9.** After crossing Port Royal Sound, the route of the waterway enters **Skull Creek** at **Mile 553.3** and follows it to **Calibogue Sound,** thence down the sound to the mouth of Cooper River. **Seabrook Landing,** on the south side of Skull Creek, is at **Mile 553.6.** At **Mile 554.8** on the east side of Skull Creek, there is a small-craft facility where berths with electricity, marine supplies, a lift, and hull and engine repairs are available.

(183) At **Hilton Head Harbor, Mile 557.0,** on the south side of Skull Creek, there is a small-craft facility where berths with electricity, gasoline, diesel fuel, water, and ice are available. A county pier, with reported depths of 8 feet alongside in June 1983, is at Hilton Head Harbor.

(184) At **Mile 557.6,** the twin fixed spans of the U.S. Route 278 highway bridge have a clearance of 65 feet. During the flood tide, vessels will encounter a strong cross current on the north side of the bridge, and should exercise caution when approaching the bridge from the northward. Dense fog is frequently encountered in this vicinity. An overhead power cable near the bridge has a clearance of 91 feet. A small-craft facility is reportedly just above the bridge on the east side of the waterway.

(185) Small-craft facilities on Broad Creek and at Harbour Town on Hilton Head Island, eastward of the waterway at about **Mile 564.3,** are discussed in chapter 7.

(186) The route follows **Cooper River** to Ramshorn Creek at **Mile 568.6.** A small-craft facility is at Mile 568 just south of Daybeacon 36; gasoline and diesel fuel are available. An overhead power cable with a clearance of 55 feet crosses Cooper River 1.8 miles northward of its junction with Ramshorn Creek. At **Mile 569.2** an overhead power cable crossing **Ramshorn Creek** has a clearance of 86 feet. An overhead power cable, about 0.4 mile W of Ramshorn Creek across an unnamed creek between Page Island and Pine Island, has a reported clearance of 20 feet. The tides meet in Ramshorn Creek. Between the creek and Walls Cut the route follows **New River.** Care is required as cross currents may be encountered in New River.

(187) The mean range of tide in **Walls Cut, Mile 572.4,** is 7.1 feet. The route is through the cut and along **Wright River** for a short distance, thence through **Fields Cut** and into Savannah River at **Mile 575.6.** In March 1999, shoaling was reported in the southern portion of Fields Cut at about 32°04'35"N., 80°57'30"W. The Savannah River ebbs through the cut, and strong cross currents may be experienced at the ends of it; these currents cause a shoal to build up and encroach from westward at the east end of the cut. (For predictions, see the Tidal Current Tables.)

(188) **Savannah River** is the approach to the important city of **Savannah,** about 8 miles upstream from the Intracoastal Waterway

crossing. Savannah has complete supply and repair facilities, and is described at length in chapter 7. The only small-craft facilities at Savannah are at the Municipal Dock; water and electricity are available. The nearest facilities where other services may be obtained are at Thunderbolt and Isle of Hope.

(189) Daily predictions for Savannah River are published in the Tidal Current Tables.

(190) The Intracoastal Waterway leaves the Savannah River at **Mile 576.2** and enters **Elba Island Cut,** which leads into **St. Augustine Creek.** In July 1982, rocks awash were reported on the south side of the junction of Elba Cut and Savannah River in about 32°04'16"N., 80°58'15"W. At the junction of St. Augustine Creek and **Wilmington River, Mile 578.3,** a cutoff channel extends northeastward from the waterway to Savannah River South Channel, thence along the southern side of Elba Island to a junction with Savannah River; the cutoff channel is marked by daybeacons and buoys, and in June 1983, the reported controlling depth was 5 feet. A fixed highway bridge with a clearance of 35 feet crosses the cutoff channel from Elba Island. An overhead power cable with a clearance of 60 feet is immediately south of the bridge.

(191) The Sam Varnedoe (Island Expressway) highway bridges (locally known as Causton Bluff bascule bridges) crossing Wilmington River at **Mile 579.9** has a bascule span with a clearance of 21 feet. (See **117.1 through 117.59 and 117.353**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channels 13 and 16. No crosscurrents are experienced during either flood or ebb; the currents follow the direction of the channel. An overhead power cable close southward of the bridge has a clearance of 85 feet.

(192) State of Georgia Memorial Bridge (U.S. Route 80) highway bridge over Wilmington River at **Mile 582.8** has a fixed span with a clearance of 65 feet.

(193) No cross currents are experienced during either flood or ebb; the currents follow the direction of the channel. Ebb currents flow southward and are very strong. Mooring dolphins for tying-up or breaking-up tows are on both sides of the bridge. When proceeding against the current, a tow may be taken through without breaking up. When proceeding with the current, a tow should be secured to the dolphin and await a favorable current or be broken up and taken through singly.

(194) **Thunderbolt, Mile 582.8,** is a small town and pleasure resort on the west bank of Wilmington River. There are several marinas and boatyards on both banks of the river where berthage with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available. Fixed lifts to 75 tons, and several marine railways are also available; the largest railway can handle craft to 75 feet. Hull, engine, and electronic repairs can be made. Bus transportation is available to Savannah.

(195) At **Mile 585.5**, the route leaves the Wilmington River and enters **Skidaway River.**

(196) Turner Creek, about 0.6 mile eastward of the Wilmington River-Skidaway River junction, is described in chapter 8.

(197) **Isle of Hope, Mile 590.0,** is a pleasure resort on the north side of Skidaway River with several small wharves and a boatyard. The boatyard has berthage with electricity, gasoline, diesel fuel, water, ice, marine supplies, and a marine railway that can handle craft up to 50 feet; hull, engine, and electronic repairs can be made.

(198) A **small-craft anchorage** is in Skidaway River off Isle of Hope. (See **110.179**, chapter 2, for limits and regulations.)

(199) **Skidaway Narrows,** between Skidaway River and Burnside River, is easily navigated by small craft, and by larger vessels when speed is reduced sufficiently to accommodate the sharp turns. The velocity of current in the narrows is about 1 knot. Predictions are given in the Tidal Current Tables. A double-bascule highway bridge with a clearance of 22 feet crosses Skidaway Narrows at **Mile 592.8**. The bridgetender monitors VHF-FM channel 16 and works on channel 13; voice call Skidaway Bridge.

(200) No crosscurrents are experienced during either flood or ebb; the currents follow the direction of the channel.

(201) An overhead power cable immediately southwestward of the bridge has a clearance of 85 feet.

(202) **Vernon View, Mile 596.3,** on the north shore of Burnside River, has several small privately owned piers where gasoline may be obtained in an emergency. In June 1983, there were depths of 1 to 7 feet reported at the piers.

(203) At **Mile 596.9,** the Intracoastal Waterway enters **Vernon River.** At **Mile 600.9, Delegal Creek** empties into the east side of Vernon River. The creek is entered via **Steamboat Cut.** A small-craft facility is on the east side of Delegal Creek about 1.4 miles above the mouth. Berthing, gasoline, diesel fuel, water, ice, pump-out station, marine supplies, and hull and engine repairs are available. Depths of 7 feet are reported in the approach to the facility with 9 feet alongside the piers. The waterway enters **Hell Gate** at **Mile 601.4** and continues into **Ogeechee River.** The ebb currents setting out of the Ogeechee River are particularly strong.

(204) The waterway enters **Florida Passage** at **Mile 605.8** and joins **Bear River at Mile 608.5.** The current is swift in the lower part of Bear River.

(205) **St. Catherines Sound, Mile 618.0,** becomes quite rough in moderately bad weather, especially with strong east and northeast winds. Strong cross currents may be encountered during freshets in **Medway River.** The course across St. Catherines Sound is marked by lights and should be followed closely. Failure to do so has resulted in many rescue calls by the Coast Guard.

(206) The waterway leaves St. Catherines Sound through **North Newport River** and at **Mile 623.8** joins **Johnson Creek.** An alternate route leaving the waterway at **Mile 618.0** proceeds through **Walburg Creek** and joins the main route at **Mile 623.1.** This alternate route is not marked and is seldom used. Good anchorage can be found in Walburg Creek.

(207) The Intracoastal Waterway leaves Johnson Creek and enters **South Newport River** at **Mile 629.0,** and follows the river to Sapelo Sound at **Mile 632.0. Sapelo Sound** is somewhat rough when there are strong east or northeast winds. The sound is described in chapter 8.

(208) The route leaves Sapelo Sound through **Sapelo River** and enters **Front River at Mile 639.0.** In June 1983, the reported controlling depth was 8 feet for 5 miles up the Sapelo River to a land cut, thence 2 feet through a land cut to just above the landing at **Pine Harbor** (chart 11510).

(209) Continuing down Front River, the waterway passes through **Creighton Narrows** and joins **Old Teakettle Creek** at **Mile 643.4. Shellbluff Creek** flows into Old Teakettle Creek at **Mile 644.1.** In emergency, gasoline may be obtained at **Valona,** 0.7 mile up **Shellbluff Creek** (chart 11510).

(210) At **Mile 648.3,** the route enters **Doboy Sound,** described in chapter 8. The waterway leaves Doboy Sound via **North River** at **Mile 650.0** and at **Mile 651.8** the route passes **Darien River.**

(211) **Little Mud River** connects the waterway with **Altamaha Sound** at **Mile 655.5.** East of the waterway, **Wolf Island, Egg Island,** and **Little Egg Island** make up **Wolf Island National Wildlife Refuge**. The **Altamaha River** enters Altamaha Sound from westward.

(212) The Intracoastal Waterway enters **Buttermilk Sound** at **Mile 660.0** and continues down **Mackay River.**

(213) Two alternate routes branch off the waterway on the Mackay River. The first, at **Mile 665.8**, proceeds down the **Frederica River** past the ruins of **Fort Frederica (Oglethorpe Barracks),** now a National Monument, and rejoins the waterway at **Mile 674.2**. The reported controlling depth was 7 feet in June 1983. This first alternate route is not marked.

(214) The second alternate route leaves Mackay River at **Mile 670.7** and enters **Back River,** proceeding down through **Plantation Creek** to Brunswick River (see chart 11489). This route bypasses St. Simon Sound and is a more sheltered route in easterly weather. In July 1998, the midchannel controlling depths were 3 feet in Black River and 2½ feet in Plantation Creek. Although the second alternate route is the shorter to Brunswick, mariners are advised to use Plantation Creek only on the higher stages of the tide. The mean range of tide is about 7 feet. The bridges over Back River are described in chapter 8.

(215) At **Mile 670.7, Troup Creek** empties into the west side of Mackay River. A small-craft facility is on the west side of the creek about 1.1 miles above the mouth. Berthage with electricity, gasoline, water, ice, marine supplies, and a 2-ton fixed lift are available; engine and electrical repairs can be made. A Coast Guard vessel is stationed on the west side of the creek, about 1 mile above the mouth.

(216) At **Mile 674.2,** Frederica River alternate route rejoins the main route in Mackay River and the main route proceeds into St. Simons Sound. At **Mile 674.5**, a fixed highway bridge with a clearance of 65 feet crosses Mackay River to Lanier Island.

(217) **Chart 11489.**–From Mackay River, the waterway continues through **St. Simons Sound** and **Brunswick River** to Jekyll Creek. About 3.4 miles up Brunswick River from **Mile 679.4** is the city of **Brunswick,** at which hotel accommodations, fuel, supplies, and repair facilities are available. The city is described at length in chapter 8.

(218) The Intracoastal Waterway follows **Jekyll Creek** southward from Brunswick River to Jekyll Sound. The entrance is marked by a lighted range and protected by a jetty on its west side, the outer end of which is marked by a light. Jekyll Island Range Front Light is about 25 yards to the westward of this light. The jetty covers at high tide, but is marked by daybeacons. To enter, be guided by the range, lights, a buoy, and daybeacons.

(219) A marina at **Mile 683.6** has a pier 300 feet long with reported depths of 5 feet alongside, and a 2-ton small-boat hoist that can launch or pick up boats. Gasoline, diesel fuel, water, ice, and electricity are available.

(220) At **Mile 684.4**, State Route 520 highway fixed bridge crossing the waterway has a clearance of 65 feet. No crosscurrents are experienced during either flood or ebb; the currents flow in the direction of the channel. A marina on the east side of the waterway just above the bridge has reported depths of 12 feet in the approach and 11 feet alongside the piers in 1993. Berthage, electricity, gasoline, diesel fuel, water, ice and sewage pump-out are available. From Jekyll Creek the waterway enters **Jekyll Sound** at **Mile 685.7** and continues across St. Andrew Sound.

(221) **St. Andrew Sound,** which has the most hazardous exposure along the waterway south of Port Royal Sound, is very rough during periods of strong north, northeast, or east winds. A protected route bypassing St. Andrew Sound leaves the waterway at **Mile 686.0.** This alternate route passes through **Little Satilla River, Umbrella Cut, Umbrella Creek, Dover Cut, Dover Creek, Satilla River, Floyd Creek,** and rejoins the waterway in Cumberland River at **Mile 695.8.** In November 1990, the midchannel controlling depths were 7 feet in Umbrella Cut, 5 feet in Umbrella Creek, 6 feet in Dover Creek, and 4 feet in Floyd Creek. In 1981, a wreck was reported at the junction of Dover Creek and Satilla River in about 30°59'00"N., 81°29'24"W. Caution is advised.

(222) **Little Cumberland Island** and **Cumberland Island** extend along the east side of the waterway from **Mile 690.0** to **Mile 714.0.** The islands have been designated a National Seashore Park, although some parts are still privately owned. Persons wishing to visit the islands must make arrangements with the National Park Service at St. Marys.

(223) An anchorage, reportedly used by visitors to the National Seashore Park, in depths of about 25 feet, mud bottom, is off the abandoned settlement of **Dungeness,** on the west side of Cumberland Island about 0.8 mile northeastward of **Mile 710.8.** The anchorage is open to southwesterly winds, and the current is reported to attain a velocity of 2 knots.

(224) From St. Andrew Sound the waterway enters **Cumberland River,** passing by **Cumberland Wharf, Mile 694.6,** and **Cabin Bluff, Mile 700.2.** The Cumberland River becomes **Cumberland Dividings** and joins with **Cumberland Sound** at **Mile 704.0.**

(225) At **Mile 707.8,** the waterway passes east of the Naval submarine support base in Kings Bay.

(226) Mariners are cautioned that the color of aids to navigation change to green on the right while following the ICW until the waterway enters Amelia River at about **Mile 714.3,** thence the color of aids to navigation change to red on the right.

(227) A **regulated navigation area** has been established in Cumberland Sound in the vicinity of Kings Bay. (See **165.1 through 165.13 and 165.730**, chapter 2, for limits and regulations.)

(228) The waterway continues down Cumberland Sound past the St. Marys River and into **Amelia River** to **Fernandina Beach, Mile 717.0,** where hotel accommodations, fuel, supplies, and repair facilities are available. Fernandina Beach is described at length in chapter 8.

(229) At **Mile 719.8,** the waterway enters **Kingsley Creek. At Mile 720.6,** an unmarked private channel leads eastward to a small-craft facility. Berthing, electricity, gasoline, diesel fuel, water, pump-out station, and marine railway to 20 tons is available. Two bridges cross the waterway at **Mile 720.7.** The first, the Seaboard System Railroad (SCL) bridge, has a swing span with a clearance of 5 feet; an island is alined with the center fenders of this bridge. The second, State Route A1A highway bridge, is a twin fixed bridge with a clearance of 65 feet. Overhead power cables on the south side of the bridge have a least clearance of 80 feet. The mean range of tide at the bridge is 6 feet. Flood and ebb currents are normal to the bridge openings and are relatively high; velocities up to 2.5 knots on the flood and 3 knots on the ebb may be expected, especially with favoring winds. Caution is advised. (For predictions, see the Tidal Current Tables.)

(230) At **Mile 722.8,** the waterway enters **South Amelia River** and for a distance of about 4.5 miles the channel is narrow and winds through shoals and marsh islets. Although the channel is well marked by daybeacons and lights, it is the most difficult part of this section of the route. At low water, the extensive mudflats and oyster beds on each side of the channel are well defined. **Amelia City** is at **Mile 724.3.** The piers are privately owned, and there are no facilities except a restaurant. The southernmost pier, owned by the restaurant, is in poor condition, but boats may tie up to it at their own risk. The waterway enters **Nassau Sound** at **Mile 729.0.** The sound is described in chapter 8.

(231) At **Mile 729.5,** the Intracoastal Waterway leaves Nassau Sound through a cut about 0.9 mile long and then enters **Sawpit Creek.** The waterway continues along Sawpit Creek and Gunnison Cut to the junction of Sisters Creek with Fort George River at **Mile 735.0.**

(232) **Fort George River** is marked by daybeacons and trends southward from the waterway to Fort George Inlet, described in chapter 8.

(233) The **Kingsley Plantation,** a prominent historical building and State park, is on the south side of Fort George River about 0.7 mile southeastward of its junction with the Intracoastal Waterway. Good anchorage in 15 feet is reported available just southeastward of Daybeacon 5. The current is reported to be 3 knots.

(234) The waterway continues down **Sisters Creek.** (For current predictions in the creek see the Tidal Current Tables.)

(235) At **Mile 739.0,** a small creek leads west from Sisters Creek. A marina and boatyard on the south side of the creek mouth has berths with gasoline, diesel fuel, water, ice, electricity, and a launching ramp. A 65-foot marine railway and a 40-ton lift are available for hull and engine repairs.

(236) At **Mile 739.2,** near the junction of Sisters Creek and St. Johns River, State Route 105 highway bridge crossing the waterway has a bascule span with a clearance of 24 feet at the center. An overhead power cable about 50 feet west of the bridge has a clearance of 80 feet. Caution is advised at the bridge, because cross currents are encountered during both flood and ebb.

(237) The facilities of a drydock and shipbuilding company are on the east bank of the creek, south of the bridge, and on the St. Johns River just eastward of the creek mouth. The firm builds steel-hulled tugs and fishing vessels and does all types of underwater and topside work on commercial and Government vessels; work on pleasure craft, except for very large yachts, is not done here. There is a 4,000-ton marine railway which handles vessels up to 220 feet, several mobile cranes, complete shop facilities, and berths for vessels of up to about 585 feet. The marine railway is on the St. Johns River side of the yard, while the construction work is done on the Sisters Creek side.

(238) The **St. Johns River,** Mile 739.5, is the approach to the important city of **Jacksonville,** 16 miles west of the junction with the Intracoastal Waterway, where complete supply and repair facilities are available. It is described in chapter 9.

(239) The Intracoastal Waterway continues south across St. Johns River and into **Pablo Creek.** An overhead power cable with a clearance of 89 feet crosses the waterway at Mile **741.8.** At **Mile 744.7** the Atlantic Boulevard (State Route 10) highway bridge has a fixed span with a clearance of 65 feet over the waterway. The mean range of tide at the bridge is 2.9 feet. There are strong tidal currents in the immediate vicinity of the bridge. On the flood the current in the channel flows southward and at right angles to the bridge at a velocity of 3.4 knots at strength. On the ebb the current flows northward and sets about 15° to the right of the axis of the channel at a velocity of 5.2 knots at strength. The currents at a distance of 100 yards either side of the bridge are much weaker with practically no turbulence and give no warning of the strong current at the bridge. Current predictions are given in the Tidal Current Tables. An overhead power cable 25 feet north of the bridge has a clearance of 85 feet.

(240) A marina is in the basin on the west side of the waterway just south of the bridge. Transient berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, launch ramp and hull, engine and electronic repairs are available. Mobile lifts to 150 gross ton capacity are available. In July 1991, the reported controlling depth in the approach was 10 feet, with 12 feet in the basin.

(241) An overhead power cable at Mile 745.8 has a clearance of 90 feet.

(242) McCormick (U.S. Route 90) highway bridge across the waterway at **Mile 747.5** has a bascule span with a clearance of 37 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) An overhead power cable 35 feet north of the bridge has a clearance of 80 feet.

(243) A yacht basin is on the east side of the waterway just north of the bridge. It has open and covered berthing space for 150 boats of up to 125 feet. Water and electricity are available.

(244) At **Mile 749.5,** a fixed highway bridge with a clearance of 65 feet crosses the creek. In 1988, a fixed bridge with a design clearance of 65 feet was under construction immediately northward of the existing bridge.

(245) Numerous snags and old piling, many covered at high water, are on both sides of the waterway for a distance of about 5.7 miles from the vicinity of **Oak Landing, Mile 749.8,** to **Palm Valley Landing, Mile 755.5.** Particular care should be taken in this section to stay in the center of the channel.

(246) At **Mile 750.1**, the waterway leaves Pablo Creek and enters a long cut.

(247) The Palm Valley/State Route 210 highway bridge crossing the waterway at **Mile 758.8** has a bascule span with a clearance of 9 feet at the center. The mean range of tide at the bridge is 2 feet. A landing at a fish camp is on the east side of the waterway just north of the bridge. Limited berths, gasoline, water, ice, and a launching ramp are available.

(248) The route continues through the long cut to **Tolomato River** at **Mile 760.9.**

(249) **Chart 11485.–Guana River** enters Tolomato River on the east side opposite **Mile 770.5.** A privately marked channel in Guana River leads up to a dam at **South Ponte Vedra Beach** (chart 11489). The reported centerline controlling depth was 4 feet in May 1983.

(250) At **Mile 773.5,** a fish camp has a marine railway that can handle craft up to 60 feet for hull repairs. Emergency gasoline engine repairs can be made, and gasoline and water are available.

(251) At **Mile 775.6**, a channel marked by private daybeacons and a **250°** lighted range leads west to a well-protected marina. Berths, gasoline, diesel fuel, water, ice, marine supplies, and electricity are available. A 37-ton lift is available for hull, engine, and electronic repairs; welding and canvas fabrication is also available.

(252) **Note.**–In September 1998, severe shoaling had occurred in the Intracoastal Waterway from **Mile 775** southward to **Mile 780**, including the area crossing St. Augustine Inlet. Mariners are advised to seek local knowledge before transiting this area.

(253) The **Vilano Beach** (State Route A1A) highway bridge crossing the Tolomato River at **Mile 775.8** has a lift span with clearances of 5 feet down and 83 feet up. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) The mean range of tide at the bridge is 4.2 feet. Tidal currents run at angles to the bridge and caution is imperative. Flood currents up to 1 knot and ebb currents up to 1.5 knots may be expected during normal weather. An overhead power cable 70 yards south of the bridge has a clearance of 100 feet.

(254) The waterway continues on beyond St. Augustine Inlet and enters **Matanzas River**; the river separates **Anastasia Island** from the mainland. At **Mile 777.9,** State Route A1A highway bridge, known as the **Bridge of Lions,** and which connects Anastasia Island with St. Augustine, has a bascule span with a clearance of 25 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) The range of tide at the bridge is 4.2 feet. Caution is advised because the tidal currents, particularly ebb, run at right angles to the bridge. It is advisable to drift large tows through this opening at slack water. Normal flood currents of 1 knot and ebb currents of 1.5 knots may be expected.

(255) **Note.**–Tidal predications for the area around the Bridge of Lions are unattainable due to the lack of a local Tidal Current Station. Because of this, NOS cannot make accurate predictions. Several mishaps involving the bridge being hit by vessels which have lost maneuvering control during periods of Ebb currents, have occurred. Caution is advised when transiting the area.

(256) **St. Augustine Inlet** and **St. Augustine** are described in chapter 10.

(257) In the broader sections of the river above St. Augustine, the channel is very narrow and contorted, extending between shoals visible at low water.

(258) **San Sebastian River** flows into Matanzas River at **Mile 780.0** and is described in chapter 10.

(259) A fixed highway bridge at **Mile 780.4** has a clearance of 65 feet.

(260) At **Mile 788.6, Crescent Beach** (State Route 206) highway bridge over Matanzas River has a bascule span with a clearance of 25 feet at the center. Gasoline may be obtained by shallow-draft boats at a fishing camp just south of the bridge on the east side of the waterway. Several fish camps are farther south of the bridge.

(261) About a mile northward of Matanzas Inlet, near **Mile 792.3,** the waterway leaves Matanzas River and enters a land cut.

(262) **Caution.**–It is reported that navigation in the Intracoastal Waterway opposite the breakthrough at Matanzas Inlet at about **Mile 794.0** is hazardous during flood and ebb tides. Signs reading "DANGER TURBULENT WATER" have been placed on the north and south of the inlet to warn mariners of this condition. Also, in February-April 1992, severe shoaling was reported in this area.

(263) Matanzas River continues eastward and southward about 1.2 miles to Matanzas Inlet. Route A1A highway bridge crossing the inlet has a 41-foot fixed span with a clearance of 10 feet. The inlet is described in chapter 10. Route A1A highway bridge crossing Matanzas River about 0.8 mile southward of the inlet has a 31-foot fixed span with a clearance of 12 feet; the one crossing the river 1 mile farther south has a 29-foot fixed span with a clearance of 12 feet. The overhead power cables at these bridges have a minimum clearance of 32 feet.

(264) About 2 miles southward of Matanzas Inlet near **Mile 796.0**, the Intracoastal Waterway re-enters Matanzas River. At **Mile 796.6** is the oceanarium at **Marineland** where many types of marine life are exhibited; an admission fee is charged. On the east side of the waterway a privately marked channel, with a reported controlling depth of 7 feet in in August 1993, leads to the Marineland marina and boat slip. Berths at the marina are just southward of the boat slip. Depths of 6½ feet are reported alongside. Gasoline, diesel fuel, and limited marine supplies are available.

(265) A small-craft facility is on the south side of a private canal that leads westward from the waterway at **Mile 802.8.**

(266) At **Mile 803.0**, a high level fixed highway bridge with a clearance of 65 feet crosses the waterway. An overhead power cable with a clearance of 85 feet crosses the waterway at **Mile 803.6.** State Route 100 highway bridge at **Flagler Beach, Mile 810.6,** is a fixed highway bridge with a clearance of 65 feet. Overhead power and television cables 70 feet north of the bridge have a clearance of 85 feet.

(267) The Highbridge Road bridge at **Mile 816.0** has a bascule span with a clearance of 15 feet at the center. An overhead power cable 25 feet north of the bridge has a clearance of 85 feet.

(268) The waterway enters **Halifax River at Mile 818.4** and continues to **Ormond Beach.** A yacht basin at **Mile 821.8** has a 35-ton mobile hoist that can handle craft up to 55 feet; hull and engine repairs can be made. A machine shop and carpenter shop are on the premises. Berthage with electricity, gasoline, diesel fuel, water, ice, a launching ramp, and marine supplies are available. In May 1983, depths of 5 feet are reported in the approaches and alongside the berths. The Ormond Beach Bridge over the waterway at **Mile 824.9** has a fixed span with a clearance of 65 feet.

(269) **Daytona Beach, Mile 830.0,** is a large resort city with stores, motels, hotels, and restaurants. The city has excellent yacht facilities, and marine supplies can be obtained.

(270) Three bridges with bascule spans cross Halifax River at Daytona Beach. Main Street Bridge at **Mile 829.7** has a clearance of 22 feet at the center. Broadway Bridge at **Mile 830.1** has a clearance of 20 feet at the center. Memorial Bridge at **Mile 830.6** has a clearance of 21 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(271) Just south of the fourth bridge at **Mile 830.7,** a marked channel leads westward from the waterway to the City Dock on the north side of the Municipal Yacht Basin. In August 1986, the channel had a reported controlling depth of 5½ feet on the centerline. There are several berths on the east and south sides of the basin with reported depths of 6½ feet alongside. Water, ice, and electricity are available; meals and lodging are nearby. At the Halifax River Yacht Club, which is on the west side of the basin, reciprocal courtesies are extended to visiting members of other yacht clubs. Berths with electricity, water, and ice are available. Depths of 5 feet are reported alongside.

(272) At **Mile 831.0,** a privately dredged channel marked by private daybeacons leads west to a small-craft harbor. In May 1999, the reported controlling depths were 8 feet in the entrance channel and in the basin.

(273) **Weather, Daytona Beach and vicinity.**–The nearness to the ocean results in a climate tempered by winds off the water. Summer temperatures, which reach 90°F (32.2°C) or more on an average of 55 days each year, are often cooled below 90°F (32.2°C) by an early afternoon sea breeze. The average high temperature for Daytona Beach is 80°F (26.7°C) and the average low

temperature is 61°F (161.1°C). By a fraction of a degree, July is the warmest month with an average high of 90°F (32.2°C) and an average low of 72°F (22.2°C). January is the coolest month with an average high of 69°F (20.6°C) and an average low of 47°F (8.3°C). Temperatures of 100°F (37.8°C) have been recorded in each month, May through August. The extreme maximum temperature for Daytona Beach is 102°F (38.9°C) recorded in July 1981. Freezing temperatures are uncommon with an average of only two days each year recording an extreme minimum below 32°F (0°C) and only 11 days recording an extreme minimum below 45°F (7.2°C). The coolest temperature on record at Daytona Beach is 15°F (-9.4°C) recorded in January 1985.

(274) Frequent afternoon showers and thunderstorms (13-18 days per month) also help cool things off in addition to accounting for about 60 percent of the annual precipitation from June through mid-October. Average annual rainfall at Daytona Beach is 49 inches (1,244.6 mm). August is the wettest month averaging nearly 6.5 inches (165.1 mm) and December is the driest month averaging about 2.5 inches (63.5 mm). Snowfall is rare and an accumulation has never occurred however, trace amounts have been recorded in each month, December through February. Heavy fog is most likely during winter and early spring. These radiation fogs usually form at night and dissipate after sunrise. On rare occasions, a sea fog moves in and persists for 2 or 3 days.

(275) While tropical cyclones are a threat mainly from June through October, hurricane force winds can be expected once in 30 years on the average. At this latitude and location, hurricanes usually either pass well offshore or have weakened from an overland trip from the southwest or west. Of the 59 tropical cyclones that threatened Daytona Beach during the period 1842-1995, 47 occurred during the months August, September, and October. By a narrow margin, the greatest occurrence is in September. The predominate direction from which the storm arrives is from the South or Southwest. Since 1950, 22 storms have come within 50 nm (92.6 km) of Daytona Beach. Hurricane Donna is likely the most memorable storm to effect the Daytona Beach area in recent memory. On September 11, 1969, Donna crossed the central Keys moving to the northwest and abruptly turned northward crossing the southwest Florida coast near Naples. From there, Donna continued north-northeastward, up the spine of the peninsula, moving back out over open water north of Daytona Beach. The maximum wind at landfall was estimated near 135 miles per hour with gusts to 150 miles per hour and winds were still 90 miles per hour by the time the storm reached the Daytona Beach area.

(276) (See page T-7 for **Daytona Beach climatological table.**)

(277) The primary facilities for yachts, other than the Halifax River Yacht Club is at 0.3 mile south of Seabreeze Bridge at **Mile 829.4**, and is used primarily for docking, and fueling.

(278) The entrance channel to the other marina and boat works leaves the Intracoastal Waterway 0.5 mile south of the entrance to Halifax River Yacht Club at **Mile 831.2**, has a marked channel, which had a reported controlling depth of 7 feet in August 1993. There are 350 open and covered berths which can accommodate vessels up to 90 feet in length. Depths of 7 feet are reported alongside, and gasoline, diesel fuel, water, ice, electricity, and marine supplies are available.

(279) State Route A1A bridge across the waterway at **Port Orange Mile 835.5,** is a fixed bridge with a clearance of 65 feet. A boatyard and a marina are on the east side of the waterway, north of the bridge. The boatyard 0.3 mile north of the bridge and the marina adjacent to the bridge have gasoline, diesel fuel, water, ice, electricity, and marine supplies. Mobile hoists to 30 tons that can handle craft to 50 feet are available at the boatyard; hull, engine, and electronic repairs can be made. Machine and carpenter shops are on the premises. Reported depths of 8 feet and 3 feet are alongside the boatyard and marina, respectively.

(280) The waterway continues down the Halifax River to **Mile 840.0** where it enters **Ponce de Leon Cut.** Strong cross currents may be felt at times in this cut, due to the currents from **Spruce Creek** veering from one side to the other.

(281) **Inlet Harbor,** 0.5 mile southeast of the waterway at **Mile 839.6,** is a small fishing port. In May 1983, the reported controlling depth from the waterway to the harbor was 8 feet, thence 5 feet or more to the community of Ponce Inlet. The channel is along the north shore and is not marked. The wharf at Inlet Harbor has depths of about 8 feet alongside. Berthage with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available. A marine railway here can handle craft to 65 feet for hull, engine, and electronic repairs.

(282) At the community of **Ponce Inlet,** about 1 mile below Inlet Harbor inside the north side of Ponce de Leon Inlet, there are several small-craft facilities where berthage with electricity, gasoline, diesel fuel, water, ice, and some marine supplies are available. A boatyard here has a marine railway that can handle craft to 60 feet for hull, engine, and electronic repairs.

(283) Ponce de Leon Inlet is described in chapter 10.

(284) The waterway leaves Ponce de Leon Cut and enters **Indian River North** at **Mile 843.5,** about a mile southward of Ponce de Leon Inlet, and follows the river southward for about 15.5 miles through the marshes to Mosquito Lagoon. In some places the river is narrow and crooked, requiring careful steering and close attention to the channel daybeacons.

(285) At **Mile 845.0**, there is a bascule span (SR44) with a clearance of 24 feet at the center.

(286) At **New Smyrna Beach, Mile 846.1,** are several small-craft facilities and the Municipal Yacht Basin. (See the small-craft facilities tabulation on chart 11485 for services and supplies available.)

(287) The Harris Saxon Bridge at **Mile 846.5** is a fixed bridge with a clearance of 65 feet. During flood (southerly flow) current from Sheephead Cut makes a cross current in a westerly direction north of the bridge. Boats with tows proceeding southward during a flood current are advised to allow for the cross current. An overhead power cable close northward of the bridge has a clearance of 85 feet.

(288) The Intracoastal Waterway through Mosquito Lagoon and Indian River is through open water making the route rough at times, particularly during strong winds.

(289) At **Mile 868.5**, the waterway enters **Haulover Canal,** a cut through the 0.4 mile-wide strip of land separating Mosquito Lagoon from the Indian River. Jetties, which have brush-covered sand deposits piled along their outer sides, extend almost 0.4 mile from shore at each end of the cut, giving the canal a total length of about 1.2 miles.

(290) Wind tides are quite pronounced at times producing strong currents in the canal. Southerly winds will build up the water level on the Indian River side of the canal and at the same time lower the water level on the Mosquito Lagoon side. Northerly winds will cause the reverse effect. At such times the normal water level varies as much as 2 feet, with currents through the channel up to 1.5 knots setting in the direction of the wind.

(291) At **Mile 869.2,** a highway bridge crosses near the center of Haulover Canal; the bridge has a bascule span with a clearance of 27 feet at the center. Overhead power cables northeastward of the bridge have clearances of 85 feet. If a vessel must stop before passing through the bridge and a strong current is running, care should be taken to prevent setting against the rocky sides of the canal.

(292) **Manatees.**–Regulated speed zones for the protection of manatees are in Haulover Canal and in Bairs Cove (28°44.0'N., 80°45.4'W.) on the southeast side of the canal. (See Manatees, chapter 3.)

(293) At **Mile 869.8,** the waterway enters **Indian River,** which extends southward for about 119 miles from Haulover Canal to St. Lucie Inlet. In general, it is a broad lagoon quite shallow in places. The spoil banks alongside the channel have built up in recent years and now appear as small islets on which are mangrove and other trees.

(294) The river is nontidal except in the vicinity of Fort Pierce and for a short distance above the St. Lucie Inlet where the depth may vary as much as 2 feet under the influence of strong northerly and southerly winds.

(295) **Merritt Island National Wildlife Refuge** is on **Merritt Island** on the east side of the northern part of Indian River.

(296) At **Mile 876.6,** a causeway and railroad bridge across the waterway has a bascule span with a clearance of 7 feet. The span is automatically operated; it is normally in the open position, but will close on the approach of trains. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(297) A well-protected yacht basin is at **Titusville, Mile 878.4;** the basin is connected to the waterway by a marked dredged channel which had a reported controlling depth of 9 feet in 1994. Marinas in the basin provide berths with electricity, gasoline, diesel fuel, water, ice, and a launching ramp. Hull, engine and electronic repairs are available; the marina at the south end of the basin has a 30-ton lift.

(298) The principal industries at Titusville are fishing, tourism, and the growing of citrus fruits; the town is on a principal public highway approach to the John F. Kennedy Space Center at Cape Canaveral. State Route 402 highway bridge (locally known as Titusville swing bridge) across the waterway here has a swing span with a clearance of 9 feet. (See **117.1 through 117.59 and 117.261(k)**, chapter 2, for drawbridge regulations.)

(299) **Manatees.**–A regulated speed zone for the protection of manatees is in Banana Creek at the north end of Merritt Island east of **Mile 880.5. (See Manatees, chapter 3.)**

(300) NASA Parkway (State Route 405-locally known as Addison Point bridge) crossing the waterway at **Mile 885.0** has a bascule span with a clearance of 27 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) An overhead power cable at **Mile 888.6** has a clearance of 85 feet over the main channel and 45 feet elsewhere between **Jones Point** and **Pine Island.**

(301) **Manatees.**–Regulated speed zones for the protection of manatees are in the vicinity of powerplants at **Delespine, Mile 887.4,** and **Frontenac, Mile 889.1.** (See Manatees, chapter 3.)

(302) An overhead power cable at **Mile 893.6** has a clearance of 85 feet over the main channel and 45 feet elsewhere, between **City Point** and Merritt Island.

(303) **Charts 11485, 11478, 11484.–Canaveral Barge Canal, Mile 893.8,** connects the Intracoastal Waterway with Port Canaveral described in chapter 10. A Federal project provides for a 12-foot channel from the Intracoastal Waterway through land cuts in Merritt Island, thence across Banana River, thence through a barge lock, and thence to the deepwater turning basin at Port Canaveral. (See Notice to Mariners and latest editions of the charts for controlling depths.) The lock, about 1.5 miles westward of the turning basin, has a width of 90 feet and a length of 600 feet, and is in operation between the hours of 0600 and 2130 daily. (See **207.160**, chapter 2, for canal and lock regulations.) Vessels are required to tie up fore and aft to the south wall inside the lock, allowing sufficient slack in the lines to provide for a rise or fall of water of about 4 feet. Vessels are restricted from using the lock while a petroleum barge is in passage. Smoking is prohibited within the lock. The channel is well marked by aids to navigation. Limiting clearances are 21 feet at the center for the State Route 401 drawbridges and 65 feet for the overhead power cables. (See **117.1 through 117.59 and 117.273**, chapter 2, for drawbridge regulations.)

(304) A fish camp and several marinas are on the south side of Canaveral Barge Canal, both eastward and westward of State Route A1A highway bascule bridge. Berthage with electricity, gasoline, water, ice, and a launching ramp are available.

(305) Two marinas and a boatyard are in the dredged basin on the south side of the barge canal opposite **West Basin**. Berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available. A 40-ton mobile lift can haul out craft for hull, engine, electronic, electrical equipment, and propeller repairs. A 70-ton mobile lift at the boatyard is available for emergency repairs. Another marina on the south side of the barge canal about 0.9 mile eastward has gasoline, diesel fuel, water, ice, electricity, and marine supplies.

(306) State Route 528 causeway and bridges crossing Indian River at **Mile 894.0** have twin fixed spans with clearances of 65 feet over the main channel, and twin 30-foot fixed spans over a relief channel at the west end of the causeway with clearances of 12 feet.

(307) At **Cocoa, Mile 897.4,** a causeway and twin fixed bridges with clearances of 65 feet cross the waterway. An overhead power cable about 0.1 mile southward of the bridges has a clearance of 88 feet over the main channel.

(308) Northward of and parallel with the causeway on the east side of Indian River, a privately marked and dredged channel, which had a reported controlling depth of 7 feet at midchannel in May 1983, leads to a yacht basin. A marina is at the southeast end of the basin, and another small-craft facility is on the north side. In May 1983, depths of 4 to 6 feet were reported alongside the piers at these facilities. A marine railway at the marina can handle craft up to 50 feet for hull, engine, and electronic repairs. Engine repairs can be made at the other facility. Berthage with electricity, gasoline, diesel fuel, water, ice, launching ramps, and marine supplies are available at both facilities.

(309) On the west side of Indian River just north of the causeway, a privately marked channel leads to a marina. In May 1983, the reported controlling depth in the channel was 7 feet at midchannel. Berths with electricity, water, ice, and marine supplies are available. A 37-ton lift is available for hull, engine, and do-it-yourself repairs.

(310) At **Mile 901.5,** a privately maintained channel marked by a private unlighted range, daybeacons, and a buoy, leads to a marina on Merritt Island. In May 1983, the reported controlling depth was 5 feet at midchannel from the waterway to the marina.

A marine railway here can handle craft up to 45 feet for hull, engine, and electronic repairs. Berthage with electricity, gasoline, and water are available.

(311) At **Mile 909.0,** the twin fixed spans of the Pineda Expressway have a clearance of 65 feet over the main channel of Indian River.

(312) **Charts 11485, 11472, 11484, 11476.**–At **Mile 910.7** on the west side of Indian River, a privately marked channel leads to a small yacht basin which has berths for boats up to 50 feet; depths of 6 feet are reported alongside. Berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available. Engine and electronic repairs can be made.

(313) At **Mile 914.1,** State Route 518 causeway fixed highway bridge crosses Indian River and has an authorized clearance of 65 feet.

(314) **Banana River** has its southern entrance at Mile 914.2 opposite Melbourne (formerly Au Gallic). The north side of the river mouth is marked by a large green statue of a dragon on the south tip of Merritt Island. The river is used by small boats as a harbor of refuge during hurricanes and storms. In 1976-1978, the controlling depth was 3 feet from the entrance of the river for about 16 miles to the junction with the Canaveral Barge Canal. Mariners are cautioned to carefully follow the marked channel, because there is severe shoaling along the edges in some places.

(315) A marina on the south side of the entrance to Banana River has gasoline, diesel fuel, ice, water, electricity, marine supplies, and a 20-ton mobile hoist. Hull, engine, and electronic repairs can be made. In May 1983, reported depths of 5½ could be carried in the approach by favoring the north side; local knowledge is advised. The Eau Gallie Yacht Club, which has excellent facilities for yacht club members, is in the basin on the east side of the river just inside the entrance.

(316) A highway bridge across the Banana River about 0.5 mile above the entrance has a swing span with a clearance of 7 feet. (See **117.1 through 117.59 and 117.263**, chapter 2, for drawbridge regulations.) A marina on the east side of the river immediately southward of the bridge has about 60 berths with reported depths of 5 feet alongside. Gasoline, diesel fuel, water, ice, electricity, marine supplies, and a 60-ton mobile hoist are available; hull and engine repairs can be made. A motel is adjacent to the marina.

(317) Twin fixed highway bridges with clearances of 43 feet over the channel cross Banana River about 4.3 miles above the mouth.

(318) An Air Force **prohibited area** is at the base on the east bank of the Banana River about 5.8 miles above the mouth. (See **334.560**, chapter 2, for limits and regulations.)

(319) **Newfound Harbor** is at the southeastern end of Merritt Island, 10 miles above the entrance to Banana River. The harbor is shoal and about 4 miles long in a north-south direction. Several shoals and obstructions have been reported in Newfound Harbor. About 3.7 miles above the entrance, State Route 520 highway bridge has a 35-foot fixed span with a clearance of 7 feet.

(320) Across the entrance to **Sykes Creek** at the north end of Newfound Harbor there is a highway bridge that has a 30-foot fixed span with a clearance of 15 feet. An overhead power cable close northwestward of the bridge has a clearance of 23 feet. About 0.1 mile above the bridge, the center and southern sections of a former bridge have been removed; the northern portion remains as a fishing pier. Twin 30-foot fixed span highway bridges with clearances of 15 feet cross the creek about 2.2 miles above the mouth. A 37-foot fixed span bridge with a clearance of 16 feet crosses the creek about 2.8 miles above the mouth.

(321) A marina is on the west side of Banana River about 12 miles above the southern entrance, and 2.1 miles north of **Buck Point,** the eastern entrance point of Newfound Harbor. Berthage with electricity, water, a 30-ton mobile hoist, and a 50-foot marine railway are available; hull, engine, electronic, and rigging repairs can be made. Depths of 4½ feet are reported in the approach, and 8 feet alongside the berths.

(322) Cocoa Beach causeway (State Route 520), crossing the Banana River, 3.5 miles north of Buck Point, has a fixed span with a clearance of 36 feet.

(323) About 16 miles above the entrance and 6.4 miles north of Buck Point, the Banana River is crossed by U.S. Route A1A causeway and bridges. The twin fixed spans over the main river channel have a clearance of 36 feet; the 30-foot twin spans over the relief channel at the west end of the causeway have clearances of 14 feet.

(324) About 0.2 mile northward of U.S. Route A1A causeway-bridges, the Canaveral Barge Canal crosses the river channel and leads east to Port Canaveral. **Saturn Barge Channel** extends northward from Canaveral Barge Canal to the head of Banana River and to two side channels leading eastward and westward to basins at missile test installations; a side channel, extending eastward from the Saturn Barge Channel, 5 miles northward of the Canaveral Barge Canal, leads to a basin on the cape. The basin is within a **restricted area.** (See **334.550**, chapter 2, for limits and regulations.) The channels are marked by lights, daybeacons, and buoys, and had a controlling depth of 12 feet in 1977-1978. In November 1983, shoaling to an unknown extent was reported on the south side of the west side channel in about 28°35'33"N., 80°36'58"W.; the shoal is marked by a daybeacon. An overhead power cable crosses Saturn Barge Channel about 0.6 mile northward of Canaveral Barge Canal with a clearance of 65 feet.

(325) **Manatees.**–A regulated speed zone for the protection of manatees is in the channel and basin at the small-craft harbor on the west side of Banana River at **Audubon,** 1.5 miles north of Canaveral Barge Canal. The area on the east side of the river immediately south of the NASA Parkway is closed to motorized craft from April 1 through November 14 annually. (See Manatees, chapter 3.)

(326) A **Security Zone** has been established to include certain land and water areas at Port Canaveral-Cape Canaveral and adjacent areas at John F. Kennedy Space Center, including portions of Indian River and Banana River. (See **165.1 through 165.7, 165.30, 165.33, and 165.701**, chapter 2, for limits and regulations.)

(327) Banana River above the Canaveral Barge Canal and the adjacent land areas are within a Security Zone. Limits and regulations are given under the description of Cape Canaveral in chapter 10.

(328) A **prohibited area** in upper Banana River, about 3 miles above the Canaveral Barge Canal, is adjacent to a missile-test annex. (See **334.540**, chapter 2, for limits and regulations.)

(329) The NASA Parkway (State Route 405) causeway and bridge crosses Banana River 6.5 miles above the Canaveral Barge Canal. The bridge has a bascule span over the navigation channel with a clearance of 24 feet at the center. (See **117.1 through 117.59 and 117.263**, chapter 2, for drawbridge regulations.) A

NASA space center **restricted area** is just north of the NASA Parkway causeway. (See **334.570**, chapter 2, for limits and regulations.) An overhead power cable with a clearance of 85 feet crosses the river about 3.0 miles north of the NASA Parkway causeway bridge.

(330) **Chart 11472.**–The Intracoastal Waterway continues through Indian River southward for about 74 miles to St. Lucie Inlet.

(331) The highway causeway (State Route 518) crossing the river at **Melbourne** at **Mile 914.4** has a fixed span across the Intracoastal Waterway with a clearance of 65 feet. About 200 yards south of the bridge, an overhead power cable crosses the waterway with a clearance of 90 feet at the main channel. An overhead cable on the south side of the relief bridge at the east end of the causeway has a clearance of 35 feet.

(332) About 0.5 mile south of the causeway at **Mile 914.9,** a dredged, marked channel leads to a yacht basin inside the mouth of **Eau Gallie River.** In August 1995, the controlling depth at midchannel was 6 feet in the entrance channel with 6 to 8 feet in the basin except for lesser depths to 3½ feet along the edges. General depths in the area where the river widens between the yacht basin and U.S. Highway 1 bridge crossing, are 3 feet. The basin and the area close E afford good shelter from storms. A city ordinance restricts speed to no wake in Eau Gallie River. Several marinas and a boatyard are in the basin. (See the small-craft facilities tabulation on chart 11472 for services and supplies available.)

(333) About 0.5 mile above the mouth of Eau Gallie River, U.S. Route 1 highway bridge has a fixed span with a clearance of 12 feet. About 0.1 mile above the highway bridge, the Florida East Coast railroad bridge has a 44-foot fixed span with a clearance of 12 feet.

(334) At **Mile 916.7,** a privately marked channel leads from the waterway to a marina on the west side of Indian River. Berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available. A 3-ton forklift can haul out craft for hull, engine, and electronic repairs. In May 1999, the channel to the marina had a reported controlling depth of 6 feet.

(335) At **Mile 918.2,** State Route 516 causeway at Melbourne has dual high-level fixed bridges with clearances of 65 feet across the Intracoastal Waterway.

(336) At **Mile 918.7,** about 0.5 mile south of the bridges, a marked channel leads westward from Indian River to a turning basin inside the mouth of **Crane Creek.** In December 1991-January 1992, the controlling depth was 5½ feet in the S half and 6 feet in the N half of the entrance with 8 feet in the turning basin. A marina on the N side of the creek has berths with electricity, gasoline, diesel fuel, water, ice, marine supplies, sewage pump-out, and harbormaster services. The **harbormaster** may be reached by telephone (321) 725-9054.

(337) About 0.2 mile above the mouth of Crane Creek, U.S. Route 1 highway bridge has a 36-foot fixed span and a clearance of 15 feet. About 175 yards westward of the highway bridge, the Florida East Coast railroad bridge has a 40-foot fixed span and a clearance of 14 feet. Overhead power cables close westward and 500 yards westward of the railroad bridge have clearances of 25 and 40 feet, respectively.

(338) At **Mile 921.2,** an overhead power cable with a clearance of 95 feet, crosses the waterway at the main channel.

(339) **Turkey Creek** is on the west side of Indian River at **Mile 921.3.** About 0.5 mile above the entrance, U.S. Route 1 highway bridge has a 34-foot fixed span with a clearance of 15 feet. About 300 yards above the highway bridge, the Florida East Coast railroad bridge has a fixed span with a clearance of 10 feet. Overhead power cables at the railroad bridge have a minimum clearance of 21 feet. A shoal, bare at low water, is in the middle of the entrance to Turkey Creek. In May 1983, a depth of 3 feet was reported in the natural channel to the eastward of the shoal area.

(340) **Manatees.**–A regulated speed zone for the protection of manatees is in Turkey Creek. (See Manatees, chapter 3.)

(341) Three marinas are on the south side of Turkey Creek between the two bridges. Berthage with electricity, gasoline, a launching ramp, water, marine supplies, and a 4-ton mobile lift are available for hull, engine, and electronic repairs. Depths of 3 feet are reported alongside the berths.

(342) A yacht basin is on the west side of the Indian River at **Mile 934.1.** Berths for about 60 boats, gasoline, diesel fuel, ice, water, and electricity are available. The channel to the basin is privately marked and had reported depths of 6 feet in May 1983.

(343) At **Mile 935.0,** a marina on the east side of the river has berthage with electricity, gasoline, water, ice, a launching ramp, and some marine supplies; engine repairs can be made. Depths of 6 feet are reported in the approaches and alongside the berths.

(344) **Saint Sebastian River Mile 935.4,** is used by local fishing boats going to **Roseland,** 1.1 miles above the mouth. U.S. Route 1 highway bridge across the entrance to the creek has a 43-foot fixed span with a clearance of 13 feet; avoid the piles of the old bridge 0.3 mile upstream. About 1 mile above the highway bridge, the Florida East Coast railroad bridge has a 46-foot fixed span with a clearance of 12 feet. Two overhead power cables at the railroad bridge, one on the east side and the other on the west side, have clearances of 17 feet and 60 feet, respectively. About 300 yards above the railroad bridge an overhead power cable has a clearance of 23 feet.

(345) A marina is on the north side of Saint Sebastian River, just westward of U.S. Route 1 highway bridge. Berths with electricity, gasoline, diesel fuel, water, ice, limited marine supplies, and a launching ramp are available.

(346) **Pelican Island National Wildlife Refuge** is on the east side of the waterway between **Mile 936.3** and **Mile 942.8.**

(347) **Sebastian** is a fishing town at **Mile 938.3.** There are two small marinas here which have gasoline, diesel fuel, ice, water, and limited berthing facilities. Reported depths of 5 feet can be taken to the marinas. A 5-ton forklift is available at the southerly marina. A **special anchorage** is off the town of Sebastian. (See **110.1, and 110.73a**, chapter 2, for limits and regulations.)

(348) A fixed highway bridge across the waterway at **Mile 943.3** near **Wabasso** has clearance of 65 feet. The bridge and causeway between the mainland and the island westward of the Intracoastal Waterway has a 46-foot center span with a clearance of 9 feet. A channel, reportedly marked by private aids, leads to a marina on the west side of the waterway just below the highway bridge. An overhead power cable crossing Indian River on the north side of the Wabasso causeway, with a clearance of 40 feet from the mainland to the bridge, is submerged at the Intracoastal Waterway, thence a clearance of 50 feet to the eastern shore of the river.

(349) The waterway is crooked and subject to strong currents in narrow places from about 1 mile north of the Wabasso Bridge to

about 4 miles south of it. Caution must be observed at the bends where vision is limited.

(350) At **Mile 946.3,** a privately marked channel, with a reported controlling depth of 6 feet in May 1983, leads off to the northwestward to a waterfront development at **Hobart Landing,** about a mile south of Wabasso. An overhead power cable with a clearance of 14 feet crosses the channel.

(351) **Vero Beach, Mile 951.9,** is an active ocean resort and yachting center. A high level fixed highway bridge over the waterway here has a reported clearance of 65 feet. A **special anchorage** is about 0.8 mile northeast of Vero Beach just inside a channel leading northeastward then northerly from the waterway to the mouth of **Bethel Creek.** (See **110.1 and 110.73(b),** chapter 2, for limits and regulations.)

(352) About 0.2 mile north of the bridge, a marked channel leads eastward from the waterway for about 0.4 mile to a turning basin off several small-craft facilities. In October 1984, the controlling depths were 7 feet in the channel and 8 feet in the basin. There are small-craft facilities on both sides of the waterway at Vero Beach. (See the small-craft facilities tabulation on chart 11472 for services and supplies available.) About 0.4 mile southward of the bridge, a channel leads east from the waterway to Riomar Bay Yacht Club. There are about 36 berths with reported depths of 8 feet. Gasoline, diesel fuel, ice, water, electricity, and complete clubhouse and recreation facilities are available.

(353) From Vero Beach to the St. Lucie Inlet the Indian River is broad and quite shallow, but the Intracoastal Waterway route is well marked and easy to follow. Spoil banks parallel the channel at a distance of several hundred yards and are mostly covered with mangrove and a few Australian pines.

(354) A fixed highway bridge with a clearance of 65 feet crosses the waterway at **Mile 953.2.**

(355) Overhead power cables at **Mile 953.2** and **Mile 954.9** have clearances of 85 feet.

(356) **Manatees.**–A regulated speed zone for the protection of manatees is in the vicinity of the powerplant at Vero Beach at **Mile 953.2.** (See Manatees, chapter 3.)

(357) State Route A1A highway bridge north of Fort Pierce at **Mile 964.8** has a bascule span with a clearance of 26 feet at the center.

(358) **Fort Pierce, Mile 965.6,** has supply and repair facilities. The town and Fort Pierce Inlet are described in chapter 10.

(359) At **Mile 965.8,** State Route A1A fixed highway bridge crossing the waterway at Fort Pierce has a clearance of 65 feet. There is a strong crosscurrent at this bridge. Vessels proceeding north or south should approach the bridge with caution. At all times maintain sufficient headway to avoid being carried against the fender system. An overhead power cable south of the bridge has a clearance of 85 feet.

(360) **Manatees.**–A regulated speed zone for the protection of manatees is in the vicinity of the power plant at Fort Pierce at **Mile 966.1.** (See Manatees, chapter 3.)

(361) At **Mile 966.5,** a channel marked by private daybeacons leads to the municipal marina. Berthing, electricity, gasoline, diesel fuel, water, ice, pump-out facilities, and nautical supplies are available. Depth of 8 feet were reported in the approach and alongside the piers in 1993. The **harbormaster** may be contacted via VHF-FM channel 16 or by calling (561) 464-1245.

(362) An overhead power cable at **Mile 968.6** has a clearance of 85 feet.

(363) Overhead power cables at **Mile 974.2** have clearances of 90 feet across the channel and 60 feet elsewhere.

(364) **Jensen Beach, Mile 981.4,** is a winter resort on the west bank of the Indian River. State Route 707A highway bridge (locally known as Jensen Road bridge) crossing the waterway here has a bascule span with a clearance of 24 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(365) At **Mile 982.8,** a privately dredged channel marked by private daybeacons leads westward from the waterway to a marina in a protected basin. In February 1985, the reported controlling depth was 4 feet from the waterway to the basin entrance; depths of 3 to 5 feet were reported alongside the piers. Berths with electricity, gasoline, water, and some marine supplies are available. A 4-ton mobile hoist and a marine railway that can handle craft to 50 feet are available; hull and engine repairs can be made.

(366) At **Mile 983.5,** a dredged channel marked by private daybeacons leads from the Intracoastal Waterway to a marina in a small basin. The marina is part of a resort and has excellent facilities. There are about 20 berths for boats to 100 feet. In February 1985, the channel had a reported controlling depth of 8 feet, with 5 to 8 feet available at the berths in the basin. Gasoline, diesel fuel, water, ice, and electricity are available. Restaurants, motel, and complete recreational facilities are also available.

(367) State Route A1A highway bridge (locally known as Indian River bridge) across the waterway at **Mile 984.9** has a bascule span with a clearance of 28 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) At **Mile 985.0**, a channel marked by private daybeacons leads eastward from the waterway to a marina on the east side of Indian River near the foot of the bridge. Berthage with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available.

(368) The junction of the Intracoastal Waterway and Okeechobee Waterway is at **St. Lucie Inlet, Mile 987.8.** St. Lucie Inlet and River, Port Salerno, Port Sewall, and Stuart are described in chapter 10.

(369) Extreme caution is advised when crossing St. Lucie River. Cross currents will give a vessel an east or west set, depending on the direction and velocity of the current in the river. Vessels should be able to stay in the channel by using the ranges on each side of the intersection. To make a turn from the Intracoastal Waterway into St. Lucie River or vice versa, allowance must be made for the cross currents to prevent swinging too wide or too short.

(370) **Chart 11428.–Okeechobee Waterway.**–From its junction with the Intracoastal Waterway in St. Lucie Inlet, Okeechobee Waterway follows St. Lucie River westward to South Fork, through South Fork and St. Lucie Canal, and enters Okeechobee Lake at Port Mayaca. It crosses the southern part of the lake and exits at Moore Haven into Caloosahatchee Canal and thence into Caloosahatchee River, San Carlos Bay, and the Gulf of Mexico. From San Carlos Bay, the Gulf section of the Intracoastal Waterway follows an inside route along the west coast of Florida to Anclote River, thence outside to Carrabelle Ship Channel in St. George Sound, and thence inside again through the remainder of Florida, Alabama, Mississippi, Louisiana, and Texas to Brownsville. The Gulf section is described in **United States Coast Pilot 5, Atlantic Coast–Gulf of Mexico, Puerto Rico, and Virgin Islands.**

(371) **Mileage** in the Okeechobee Waterway is measured westward from Mile 0.0 at the Intracoastal Waterway junction in St. Lucie Inlet. The total length of the Okeechobee Waterway is about 155 miles from the Atlantic Waterway to the Gulf of Mexico. Mileage signs (statute miles) have been erected at the five locks.

(372) **Distances along the Okeechobee Waterway are in statute miles to facilitate reference to the small-craft charts; all other distances are in nautical miles. Mileage conversion tables are on page T-23.**

(373) **Channel.**–The Federal project for the Okeechobee Waterway provides for a channel with a depth of 8 feet from the Intracoastal Waterway near Stuart via Okeechobee Lake Route 1 to Fort Myers; thence 10 feet to Punta Rassa; thence 12 feet to the Gulf of Mexico; a channel 6 feet deep in Taylor Creek from the town of Okeechobee to the lake, and a depth of 6 feet for Route 2 along the south shore of Lake Okeechobee from Port Mayaca westward to Clewiston. Controlling depths are published in local Notice to Mariners.

(374) **Sounding datums.**–Depths charted in St. Lucie River from the Intracoastal Waterway to St. Lucie Lock are referred to mean low water. From St. Lucie Lock through St. Lucie Canal and Lake Okeechobee to Moore Haven Lock, depths are referred to a low water elevation which is 12.56 feet above mean sea level. From Moore Haven Lock through Caloosahatchee Canal to Ortona Lock, depths are referred to a low water elevation which is 10.06 feet above mean sea level. In the Caloosahatchee River, the chart datum is mean lower low water. Actual available depths are shown on gages displayed at each lock.

(375) **Hurricane gates** are in the levee at Clewiston Industrial Canal, Miami Drainage Canal, Hillsboro Canal-North New River Drainage Canal, and West Palm Beach Beach Drainage Canal. The hurricane gate at Clewiston is equipped with a lock that allows passage of small craft into Clewiston Industrial Canal. Pumping stations are at the hurricane gates at Miami Drainage Canal, Hillsboro Canal-North New River Drainage Canal, and West Palm Beach Drainage Canal. The gates are opened or closed only for pumping, and are not opened for boats. Depths of 10 feet may be taken over the sills. All gates have a width of 50 feet. These canals are not navigable and have filled with hyacinths and other obstructions.

(376) **Tides.**–The mean range of tide is 0.9 feet at the mouth of St. Lucie River. The diurnal range of tide is 1.2 feet at Fort Myers and 2.4 feet at Punta Rassa. At the eastern end of the waterway, tidal influence is perceptible to St. Lucie Lock (Mile 15.1) and at the western end, at low-water stage, is perceptible at Ortona Lock (Mile 93.5). Cross **currents** at the junction of St. Lucie River with the Intracoastal Waterway make the short turn at that point hazardous.

(377) **Weather, Okeechobee Waterway and vicinity.**–This route across the peninsula encounters a variety of climatic conditions. In general, temperatures over the inland portions are slightly cooler in winter, particularly the lows, and warmer in summer. The west coast also exhibits some of these continental tendencies, due mainly to the prevalence of easterly winds. For example, temperatures climb to 90°F (32.2°C) or above, on 106 days annually at Fort Myers, compared to 131 days at La Belle and 92 days near Stuart. Freezing temperatures are infrequent on the coast and occur on an average of 1 to 2 days inland. Summertime temperatures are tempered by the sea breeze along the east coast and by frequent afternoon showers and thunderstorms everywhere. Thunderstorms develop on about 80 to 100 days annually, and are most likely from June through September. They are generated by heating, fronts and tropical cyclones. Thunderstorms can bring heavy rain, strong gusty winds and hail. In severe cases tornadoes or waterspouts may develop. While dangerous, these are usually smaller and less damaging than the tornadoes of the mid-West.

(378) **Bridges.**–The minimum clearance under bridges across the Okeechobee Waterway is 49 feet at the lift bridge at **Mile 38.0.**

(379) General drawbridge regulations and opening signals for bridges over the Okeechobee Waterway and Taylor Creek are given in **117.1 through 117.49**, chapter 2. **Special drawbridge regulations** for certain bridges that supplement the general regulations are referenced with the area description of the waterway and the creek.

(380) The minimum clearance under overhead cables across the Okeechobee Waterway is 55 feet.

(381) **Government mooring facilities.**–There is a Government yacht basin with 4 slips available for overnight mooring of medium size boats at the Moore Haven Lock; similar facilities are available in the Government yacht basin below Ortona Lock. Government-owned tieup dolphins are located on the waterway immediately above and below each of the locks and immediately west of the entrance to Clewiston Industrial Canal.

(382) **Locks.**–Three of the five locks in the waterway have a length of 250 feet, width of 50 feet, and depth over the sill of 10 feet. The Port Mayaca Lock, **Mile 40.0,** has a length of 400 feet, width of 56 feet, and a depth of 16 feet. The W. P. Franklin Lock at Olga, **Mile 121.4,** has a length of 400 feet, width of 56 feet, and depth over the sills of 14 feet.

(383) General regulations governing bridges and locks and the handling of tows are given in **207.160,** chapter 2. The five navigation locks on the Okeechobee Waterway are operated from 0600 to 2130 daily; operating personnel are not on duty at other hours.

(384) Maintenance of the Okeechobee Waterway and operation of the locks are in charge of the Corps of Engineers area office at Clewiston. Before any attempt is made to pass through any portion of this route, the latest information regarding available depths, operations of the locks, and other existing conditions should be obtained from the office of the Corps of Engineers at Clewiston or at the Federal Building, 400 West Bay Street, Jacksonville. The telephone number of the Clewiston area office is 813-983-8101.

(385) Public address systems are installed at all the locks as an aid to navigation and a safety feature. Craft approaching any of the locks should approach for passage only upon receiving instructions from the lock tender through the loudspeaker system or by standard light signal. The locks monitor VHF-FM channel 16.

(386) **Caution.**–The St. Lucie, Port Mayaca, Moore Haven, Ortona, and W.P. Franklin Locks are used, when conditions require, for discharging water from Lake Okeechobee. All vessels approaching these locks during periods of discharge should exercise caution. The depth over the upper sill of St. Lucie Lock is reduced from 13.5 feet to 8 feet when water is being discharged from Lake Okeechobee.

(387) **St. Lucie Inlet** and **St. Lucie River** to Stuart, Mile 7.5, are discussed in chapter 10. **South Fork** of St. Lucie River begins at **Mile 7.7** and trends southward into St. Lucie Canal.

(388) **Palm City, Mile 9.5,** is a small town on the west bank of South Fork. A small boatyard for hull, engine, and electronic repairs on the east bank of the river, just south of the Palm City Bridge, has a marine railway that can haul out boats to 50 feet. Gasoline, water, ice, electricity, wet covered storage, and marine supplies are available. In May 1983, a reported controlling depth 5½ feet could be carried from the waterway to the yard and alongside. The fixed highway bridge over the waterway here has a clearance of 54 feet. The overhead power cable just north of the bridge has a clearance of 55 feet. During periods of high water in Lake Okeechobee, shoaling may occur in the vicinity of the bridge.

(389) At **Mile 10.1,** Okeechobee Waterway enters St. Lucie Canal from South Fork, which then continues southeastward. South Fork above the junction is deep and winding, affording good protection for small boats during hurricane weather. About 2 miles up this fork is a fixed highway bridge with a clearance of 4 feet. Current was observed to be flowing up the river at this bridge.

(390) **Heights.**–Overhead clearances on the St. Lucie Canal from St. Lucie Lock to Port Mayaca Lock are referred to a St. Lucie Canal stage of 14.5 feet.

(391) At **Mile 13.6,** a boatyard specializing in new construction and renovations is east of the waterway. A 60-ton mobile lift is available for hull, engine, and electronic repairs. In May 1983, depths of 6½ feet were reported alongside.

(392) St. Lucie Canal is crossed at **Mile 14.0** by the I-95 twin fixed highway bridges with clearances of 56 feet, at **Mile 14.2** by an overhead power cable with an authorized clearance of 95 feet, and at **Mile 14.5** by the Thomas B. Manual (Florida Turnpike) Bridge, which has a fixed span with a clearance of 55 feet.

(393) The **St. Lucie Lock, Mile 15.1,** has a width of 50 feet, length of 250 feet, and a depth of 12 feet over the sill. High water in Lake Okeechobee may cause the lock to be closed to navigation for parts of the day. Caution should be used when approaching the lock when it is being used to discharge water from Lake Okeechobee. Limited tieup facilities are available at the lock.

(394) Overhead power and telephone cables crossing St. Lucie Canal at **Mile 17.1** have clearances of 56 feet. State Route 76A fixed highway bridge crossing the canal at **Mile 17.1** has a clearance of 56 feet.

(395) An overhead power cable at **Mile 20.2** has a clearance of 82 feet.

(396) At **Mile 23.7,** overhead power and telephone cables crossing the waterway have a least clearance of 58 feet.

(397) At **Mile 25.4,** overhead power cables with a least clearance of 63 feet cross the waterway; another overhead power cable with a clearance of 76 feet crosses at **Mile 26.9.**

(398) Near **Indian Town,** State Route 710 highway bridge at **Mile 28.1,** has a fixed span with a clearance of 55 feet. The hand-operated swing span of the Seaboard System Railroad (SCL) bridge at **Mile 28.5** has a channel width of 47 feet and a clearance of 7 feet. (See **117.1 through 117.59 and 117.317,** chapter 2, for drawbridge regulations.) An overhead telephone cable at the bridge has a clearance of 59 feet, and overhead power and telephone cables 0.4 mile west of the bridge have a clearance of 75 feet.

(399) At **Mile 29.5,** there is a marina on the north side of the canal with 33 slips where craft up to 120 feet can be accommodated. Gasoline, diesel fuel, water, ice, electricity, some marine supplies, and a snack bar are available. There is a surfaced launching ramp, a 30-ton marine lift, and a mechanic on call for minor engine repairs. Provisions, supplies, restaurants, and motels are available close by. In May 1983, the reported controlling depth in the entrance and in the basin was 8 feet.

(400) Several overhead power cables between **Mile 33.0** and Port Mayaca Lock have a least clearance of 56 feet.

(401) **Port Mayaca, Mile 38.0,** has no piers, but one wall of the lock is still present and can be used to tie up. Some supplies are available in the community. The South Central Florida Express' Railroad bridge across the waterway here has a lift span with clearances of 7 feet down and 49 feet up. (See **117.1 through 117.59 and 117.317,** chapter 2, for drawbridge regulations.)

(402) U.S. Routes 98–441 highway bridge at **Mile 38.8** has a fixed span with a clearance of 55 feet.

(403) **Port Mayaca Lock,** about 300 yards west-southwest of the U.S. Routes 98-441 highway bridge, has a length of 400 feet, width of 56 feet, and a depth of 16 feet over the sill.

(404) The waterway enters **Lake Okeechobee** at **Mile 38.9.** The lake is an approximately circular fresh-water lake in southern Florida, about 26 miles from the Atlantic coast, 50 miles from the Gulf coast, and 90 miles from the south end of the mainland. It varies in width from 22 to 30 miles and is shoal along its west and southwest sides with depths of 10 to 14 feet in the center. The shoal areas are generally filled with a thick growth of watergrass, which makes it necessary to equip boats with weedless propellers if operating in the lake for any length of time.

(405) **Taylor Creek** empties into Lake Okeechobee at its northernmost extremity. A lock at the mouth of the creek is 60 feet long and 50 feet wide, and has a depth of 5.5 feet over the sill. (See **207.170d,** chapter 2, for regulations.) About 3.5 miles above the mouth of the creek is the town of **Okeechobee,** which has rail and highway connections. A dredged channel leads from the lake to the highway bridge at Okeechobee. In May 1983, the reported controlling depth was 5 feet to the highway bridge. The approach channel from the lake to the mouth of Taylor Creek is marked by a light and daybeacons; the remainder of the channel to Okeechobee is unmarked. There are two fishing camps in the creek just above the mouth where gasoline, water, ice, launching ramps, and some marine supplies are available. A boatyard here has a forklift that can handle craft to 24 feet for hull and engine repairs.

(406) U.S. Route 441 highway bridge about 0.2 mile above the mouth of Taylor Creek has a 40-foot bascule span with a clearance of 9 feet. (See **117.1 through 117.59 and 117.335,** chapter 2, for drawbridge regulations.) Overhead power cables north and south of the bridge have a minimum clearance of 40 feet. State Route 70 highway bridge crossing the creek of Okeechobee has a 40-foot swing span with a clearance of 3 feet.

(407) **Kissimmee River** flows into the north side of Lake Okeechobee about 5.3 miles southwest of Taylor Creek. State Route 78 highway bridge about 0.5 mile above the river entrance has a removable span with a channel width of 36 feet when open and a clearance of 20 feet. (See **117.1 through 117.49,** chapter 2, for drawbridge regulations.) The overhead power cable at the bridge has a clearance of 71 feet. In September 1986, the centerline controlling depth was 4 feet in the entrance channel, then 8 feet for another 5 miles. There are two fish camps and a small marina at a recreation area on the north bank of the river just above the bridge. Berths, gasoline, water, and ice are available.

(408) **North Lake Shoal** extends 4 miles off the northwest shore of the lake. **Observation Shoal** is an extensive sand shoal extending as much as 7 miles off the southwest shore of the lake.

Rocky Reef extends across the south end of the bay between **Observation Island** and **Bacom Point;** depths of 2 to 7 feet are over it in places. The channel of Route 1 through the reef is marked by lights and daybeacons. **Halifax Bank** is a sand shoal toward the south end of **South Bay.**

(409) Shelter may be found in Taylor Creek at the north end of the lake, in **Pelican Bay** at the southeast corner of the lake, and in the canals. Where depths are sufficient in the watergrass off the west and southwest sides of the lake, anchorage in moderate weather can be made, as the holding bottom is good and protection is afforded by the watergrass.

(410) **Route 1** across Lake Okeechobee from Port Mayaca follows a southwesterly course to Rocky Reef, thence a southerly course in the channel through the reef which is marked by lights and daybeacons, and then turns westward and thence southwestward and joins Route 2 at Clewiston.

(411) **Clewiston,** at **Mile 65.0** via Route 1 and **Mile 75.7** via Route 2, is an agricultural community on the southwest side of the lake. It is on a branch of the Seaboard System Railroad. There are several hotels, motels, restaurants, and a shopping district in the city. The area offices and general headquarters of the Corps of Engineers are on the east side of the canal at the east side of town. Gasoline, diesel fuel, some marine supplies, and provisions can be obtained along the west side of the canal; engine repairs can be made. Dock space is available along the bulkhead of the Clewiston Industrial Canal south of the levee. In July 1987, 3 feet was reported alongside. An overhead power cable that has a clearance of 37 feet crosses the canal about 400 yards south of the hurricane gate.

(412) Routes 1 and 2 combine into one route at Clewiston.

(413) **Route 2** leaves St. Lucie Canal at **Mile 38.9** and follows the southern perimeter of the lake. It is marked by daybeacons and is the route most used. It is recommended during periods of rough water and high winds in Lake Okeechobee. Levees are along the southern bank of this route.

(414) **Canal Point** is at **Mile 47.4** on Route 2. **West Palm Beach Drainage Canal** joins the lake here; at the lock in the canal an overhead power cable has a clearance of 80 feet.

(415) **Pahokee, Mile 50.6,** is a town on the southeast side of the lake with a protected boat basin which had a reported depth of 8 feet in May 1983. Gasoline, diesel fuel by truck, and electricity are available at the pier in the basin; a depth of 6 feet was reported alongside the pier. Launching ramps are available.

(416) The only bridge crossing Route 2 is at **Mile 60.7.** State Route 717 highway bridge, connecting the mainland at **Belle Glade** with **Torry Island** and **Kreamer Island,** has a swing span with a clearance of 11 feet. The channel is through the west draw. (See **117.1 through 117.59 and 117.317**, chapter 2, for drawbridge regulations.) An overhead power cable at the bridge has a clearance of 75 feet. Gasoline, water, ice, electricity, diesel fuel by truck, and launching ramps are available at boat landings on both sides of the bridge. South of the bridge, on Torry Island, there is a wharf maintained by the city with depths of 4 feet alongside; there are three surfaced launching ramps and a public picnic area.

(417) About 0.3 mile below the bridge at **Mile 61.0** the **Hillsboro Drainage Canal** and **North New River Drainage Canal** join the lake.

(418) The **Miami Drainage Canal** joins the lake at **Lake Harbor, Mile 67.2.**

(419) Route 2 continues northwestward to Clewiston where it joins Route 1 and combines into one route westward. Mileage westward of Clewiston is based on use of Route 1.

(420) **Moore Haven Lock, Mile 78.0,** has a width of 50 feet, a length of 250 feet, and a least depth of 10 feet over the sills. Two standby areas have been established for vessels waiting to pass through. The first area is about 275 yards northwest of the lock at the junction of the canals, and the second area is 150 yards southwest of it. During periods of discharge through the lock, the currents and turbulence are extremely hazardous to all craft. Under no circumstances shall any craft approach nearer to the lock than the standby areas until discharge has been stopped and the water pool stabilized.

(421) A public address system at the Moore Haven Lock is an aid to navigation and safety feature. Craft coming to the lock should approach the passage only upon receiving instructions from the locktender through the loudspeaker system, and enter the lock chamber only after signal from him.

(422) Freshwater is available at the lock. A Government boat basin with four slips for medium-sized boats is just west of the lock. In May 1983, there were reported depths of 10 to 30 feet in the basin.

(423) The waterway between Moore Haven Lock and Ortona Lock passes through **Caloosahatchee Canal.**

(424) The Seaboard System Railroad (SCL) bridge, at **Mile 78.3,** has a hand-operated swing span with a clearance of 5 feet; the channel is through the east draw. (See **117.1 through 117.59 and 117.317**, chapter 2, for drawbridge regulations.) The span required about 15 minutes for opening and westbound vessels should signal for opening the bridge while still in Moore Haven Lock. An overhead power cable about 150 yards south of the bridge has a clearance of 75 feet. At **Mile 78.4** U.S. Route 27 highway bridge has a bascule span with a clearance of 23 feet at the center. (See **117.1 through 117.59 and 117.317**, chapter 2, for drawbridge regulations.) In June 1999, a replacement bridge was under construction with a design clearance of 55 feet.

(425) There is a small-boat basin on the west side of the canal between the railroad and highway bridges. Gasoline, diesel fuel by truck, water, ice, electricity, launching ramp, wet covered storage for 35 boats 20 feet long and some marine supplies are available. A forklift that can haul out craft to 26 feet is available for hull and engine repairs. A depth of 4 feet can be carried from the waterway to the basin. An overhead cable with a clearance of 18 feet crosses the entrance to the basin. Provisions can be obtained in the town of **Moore Haven** at **Mile 78.5,** on the west bank of Caloosahatchee Canal about 0.5 mile south of the lock. There are hotels, motels, and restaurants; some supplies can be obtained. Bus service is available. The town dock is on the west side of the canal just south of the highway bridge; water and electricity are available on the dock, and a small fee is charged for dockage. There is a depth of 9 feet alongside the dock.

(426) At **Mile 82.1,** the canal passes through shallow, freshwater **Lake Hicpochee,** about 5 miles long and 2.5 miles wide, soft mud bottom. Most of the surface is covered with hyacinth and saw grass. Spoil banks on both sides of the canal are overgrown to a height of about 12 feet and have only a few open spots where the lake can be seen.

(427) At **Citrus Center, Mile 88.8,** a marina on the south side of the waterway has berths with electricity, water, ice, gasoline, and diesel fuel.

(428) At **Mile 90.0,** an overhead power cable with a clearance of 75 feet crosses the canal.

(429) **Ortona Lock, Mile 93.5,** has a width of 50 feet, a length of 250 feet, and a depth of 11 feet over the sills. During periods of heavy discharge through the spillway with the lock gates closed, the currents sweep toward the spillway. Navigators approaching the lock should exercise extreme caution and maintain maximum possible control at all times. A ramp and a 180-foot wharf are about 500 yards west of the lock on the north bank.

(430) The waterway enters **Caloosahatchee River** through a land cut west of Ortona Lock. Normal current in the river and canal is about 1.5 knots; however, velocities are increased considerably during freshets.

(431) A list of hurricane havens, "Safe Harbors in Caloosahatchee River During Hurricanes," is available from Lee County Division of Marine Sciences, 3410 Palm Beach Blvd., Fort Myers, FL 33916; telephone: 813-338-3375.

(432) Overhead power and telephone cables about 0.2 mile westward of Ortona Lock have a clearance of 76 feet.

(433) **LaBelle, Mile 102.9,** has a pier and turning basin. In May 1983, a depth of 4½ feet was reported alongside the pier. State Route 29 highway bridge crossing here, has a bascule span with a clearance of 28 feet at the center. (See **117.1 through 117.59 and 117.317**, chapter 2, for drawbridge regulations.) The overhead power and television cables at the bridge have a least clearance of 60 feet.

(434) At **Denaud, Mile 108.2,** a highway bridge has a swing span with a clearance of 9 feet. An overhead power cable west of the bridge has a clearance of 79 feet. (See **117.1 through 117.59 and 117.317**, chapter 2, for drawbridge regulations.)

(435) **Alva,** on the north bank at **Mile 116.0,** has a small pier where gasoline, water, and some marine supplies can be obtained. State Route 873 highway bridge crossing the waterway here, has a bascule span with a clearance of 23 feet. (See **117.1 through 117.59 and 117.317**, chapter 2, for drawbridge regulations.) The overhead power cable at the bridge has a clearance of 77 feet.

(436) **W. P. Franklin Lock, Mile 121.4,** has a length of 400 feet, width of 56 feet, and a depth of 14 feet over the sill. A government operated recreation area with a launching ramp, water, and picnic tables is on the north side of the waterway adjacent to the lock.

(437) At **Mile 124.0,** just below **Olga,** there is a small marina where gasoline, diesel fuel, water, ice, berths with electricity, some marine supplies, a 10-ton portable lift, and hull and engine repairs are available. A depth of 6 feet was reported alongside the 175-foot wharf on the waterway in May 1983.

(438) At **Mile 125.6, Trout Creek** enters the waterway. **Owl Creek** branches from Trout Creek about 0.7 mile above the entrance. There are two entrances from the waterway into Trout Creek. The controlling depth, in 1963, was 5 feet in the western entrance and 7 feet in the eastern entrance. At Owl Creek there is a small-craft facility where berths, electricity, gasoline, diesel fuel, water, storage, and a 60-ton mobile lift are available; hull and engine repairs can be made. Small craft can be put in freshwater storage behind a dam here.

(439) A highway bridge crossing the river at **Mile 126.2** has a bascule span with a clearance of 27 feet at the center. (See **117.1 through 117.59 and 117.317**, chapter 2, for drawbridge regulations.) A marina close west of the bridge provides gasoline, diesel fuel, water, ice, marine supplies, a 4-ton lift, and hull and engine repairs.

(440) At **Mile 128.0,** four overhead power cables have a minimum clearance of 80 feet. The twin fixed highway bridges at **Mile 128.9** have a least clearance of 55 feet.

(441) **Orange River** enters the waterway at **Mile 128.9.** In May 1985, the reported midchannel controlling depth was 2 feet to a boatyard and a marina about 0.5 mile and 0.6 mile, respectively, above the mouth. The channel is marked by private daybeacons. Reported depths alongside were 10 feet at the boatyard and 8 feet at the marina. Berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, storage, and launching ramps are available; hull and engine repairs can be made. A 60-foot marine railway is at the boatyard, and a 10-ton fixed lift is at the marina.

(442) Orange River is a hurricane refuge for small yachts. The river is crossed by State Route 80 highway bridge 0.8 mile above the mouth. It has a fixed span with a clearance of 13 feet. Adjacent to the bridge are overhead power cables with a minimum clearance of 38 feet. From the bridge to 2 miles above the mouth, other overhead cables have a minimum clearance of 36 feet.

(443) **Manatees.**–Regulated speed zones for the protection of manatees are in the Caloosahatchee River from San Carlos Bay to the Edison Memorial Bridge (U.S. 41) and in Orange River and at its confluence with Caloosahatchee River about 5 miles above Edison Memorial Bridge. (See Manatees, chapter 3.)

(444) The Caloosahatchee River is crossed at **Mile 129.9** by a Seaboard System Railroad (SCL) bridge which has a bascule span with a clearance of 5 feet. In the open position, the draw overhangs the channel above a height of 55 feet.

(445) **Edison Memorial Bridge** (U.S. Business Route 41), has two fixed spans which cross the Caloosahatchee River at **Fort Myers, Mile 134.5**, with a clearance of 56 feet.

(446) **Caloosahatchee Bridge** (U.S. Route 41), which crosses the Caloosahatchee River about 0.5 mile SW of the Edison Memorial Bridge has a fixed span with a clearance of 55 feet at the main channel.

(447) **Chart 11472.**–South of St. Lucie Inlet, the Intracoastal Waterway enters **Great Pocket** at **Mile 988.3,** proceeds to a canal at **Mile 990.1,** and continues through **Peck Lake** and **South Jupiter Narrows** to **Hobe Sound.**

(448) **Manatees.**–A regulated speed zone for the protection of manatees is in those waters of the Indian River other than the Intracoastal Waterway from St. Lucie Inlet to Jupiter Inlet. (See Manatees, chapter 3.)

(449) State Route 708 highway bridge (locally known as Hobe Sound bridge) at **Mile 995.9** has a bascule span with a clearance of 21 feet.

(450) **Hobe Sound National Wildlife Refuge** comprises the shore areas west of the waterway from **Mile 996.8** to **Mile 999.7.**

(451) The waterway continues in Hobe Sound to **Conch Bar, Mile 1001.3,** and thence through **Jupiter Sound** to Jupiter Inlet. At **Mile 1004.1,** near the southern end of Jupiter Sound, State Route 707 highway bridge crossing the waterway has a bascule span with a clearance of 25 feet. There are numerous small-craft facilities on both sides of the waterway in Jupiter Sound. (See the small-craft facilities tabulation on chart 11472 for services and supplies available.)

(452) Jupiter Inlet is discussed in chapter 10.

(453) The waterway continues into **Loxahatchee River at Mile 1004.5.** U.S. Route 1 highway bridge (locally known as Federal

Highway bridge) across the waterway at **Mile 1004.8** has a bascule span with a clearance of 26 feet at the center. The bridgetender monitors VHF-FM channel 16; call sign WHW-793. Piers of a former bridge extend from shore on both sides of the channel just west of the bridge. About 0.3 mile westward of the bridge, the waterway makes a sharp turn just eastward of two other bridges, crosses Loxahatchee River, and enters Lake Worth Creek.

(454) Care must be taken not to confuse the route of the waterway with the passage through the two bridges just westward of the sharp turn across the Loxahatchee River at **Mile 1005.1.** Alternate State Route A1A highway bridge crossing the river has a 47-foot fixed span with a clearance of 25 feet. The Florida East Coast railroad bridge has a 40-foot bascule span with a clearance of 4 feet. (See **117.300**, chapter 2, for drawbridge regulations.) The river shoals beyond these bridges. A fixed highway bridge with a 34-foot removal span and a clearance of 11 feet crosses the north fork of the river about 2 miles above the railroad bridge. An overhead power cable north of the bridge has a clearance of 38 feet.

(455) A marina with excellent facilities is immediately east of the U.S. Route 1 bridge on the south side of the river at **Jupiter.** There are about 20 berths for boats up to 65 feet with reported depths of 5 feet alongside. Gasoline, diesel fuel, water, ice, electricity, and complete marine supplies are available. There is a 35-ton mobile lift, and complete repair work, alterations, and boatbuilding are performed. A smaller marina adjacent to the eastward has berths, gasoline, water, electricity, some marine supplies, and a 6-ton lift; hull and engine repairs can be made.

(456) State Route 706 highway bridge (locally known as Indiantown Road bridge) at **Mile 1006.2** has a bascule span with a clearance of 35 feet at the center. The bridgetender monitors VHF-FM channel 16; call sign WHW-789. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(457) At **Mile 1007.1,** an overhead power cable has a clearance of 83 feet across the waterway. The Donald Ross Road bridge crossing the waterway at **Mile 1009.3** has a bascule span with a clearance of 35 feet. (See **117.1 through 117.59 and 117.261,** chapter 2, for drawbridge regulations.)

(458) A small boatyard on the west bank of the waterway at **Mile 1011.7** has a marine railway that can haul out vessels up to 55 feet for hull and engine repairs. A 3-ton mobile hoist, gasoline in cans, diesel fuel by truck, and water are available.

(459) State Route 74 (PGA Boulevard) highway bridge at **Mile 1012.6** has a bascule span with a clearance of 24 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(460) At **Mile 1013.7,** the waterway is crossed by U.S. Route 1 highway bridge (locally known as Parker Bridge). It has a twin bascule span having a clearance of 25 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) The overhead power cable on the east side of the bridge has a clearance of 85 feet.

(461) Just southeastward of the bridge is a yacht basin with 100 open berths for boats up to 100 feet long; water, electricity, and telephone connections are at each berth. Depths are reported to be 10 feet. Gasoline, diesel fuel, ice, restaurants, a motel, and recreation facilities are available. Engine and electronic repairs can be made.

(462) The Intracoastal Waterway enters **Lake Worth** at **Mile 1014.1** and traverses the lake from one end to the other. The lake is a long, narrow, and shallow body of water separated from the ocean by an island varying in width from 0.1 to 0.5 mile. Considerable dredging has been done in Lake Worth for private channels and for real estate development. Local knowledge is necessary to carry the best water outside the limits of the marked channels.

(463) There are many excellent and complete marinas and repair yards for yachts along the shores of Lake Worth.

(464) **Little Lake Worth,** at the north end of Lake Worth, has a basin which in 1969, has depths of 12 to 14 feet. State Route A1A highway bridge across the entrance has a 27-foot fixed span with a clearance of 8 feet. A privately marked and dredged channel leads northward to Little Lake Worth from the Intracoastal Waterway at **Mile 1014.2.** In 1975-February 2000, the reported controlling depth was 7 feet. In June 1987, shoaling to an unknown depth was reported just north of Light 9 and Light 10.

(465) State Route A1A fixed highway bridge (Jerry Thomas Memorial Bridge), crossing the waterway at **Mile 1017.2** and connecting **Riviera Beach** and **Singer Island,** has a clearance of 65 feet.

(466) There are a number of marinas, fuel piers, and repair facilities on both sides of Lake Worth between the bridge and the Port of Palm Beach. (See the small-craft facilities tabulation on chart 11472 for services and supplies available.)

(467) **Lake Worth Inlet, Mile 1018.4,** and the ship channel leading to the basin at the **Port of Palm Beach,** are described in chapter 10.

(468) Anchorage for yachts drawing up to 14 feet is available in the buoyed channel on the east side of Lake Worth leading southward from Port of Palm Beach main ship channel; the best area is immediately south of the ship channel.

(469) **Manatees.**–A regulated speed zone for the protection of manatees is in the vicinity of the powerplant discharge at Riviera Beach at **Mile 1018.5.** (See Manatees, chapter 3.)

(470) On the west side of the lake at **Mile 1019.8** there are three boat storage and repair yards. The first has a 40-ton mobile lift, a 75-ton marine elevator, and a forklift that can handle boats to 26 feet for hull, engine, and electronic repairs. There is berthage for 50 boats with reported depths of 8½ feet alongside in May 1983. Gasoline, diesel fuel, water, electricity, and marine supplies are available.

(471) The second yard has a 35-ton mobile lift and a marine railway that can haul out boats up to 70 feet. Engine, hull, and electronic repairs can be made, and machine shop work is done. There is berthage for 40 boats with depths of 5 feet reported alongside May 1983. Gasoline, diesel fuel, water, electricity, ice, and marine supplies are available.

(472) The third repair yard has three piers over 300 feet long with 12 feet reported alongside in May 1983. Repair facilities include a 160-ton fixed lift which can handle craft up to 100 feet, a 60-ton mobile lift, and well-equipped machine and carpenter shops. Complete repairs can be made. Gasoline, diesel fuel, water, ice, electricity, and marine supplies are available at the yard, and motels and stores are nearby.

(473) **West Palm Beach, Mile 1021.9,** on the west shore of Lake Worth, is a resort city which is also of considerable commercial importance. The city has complete supplies and services for yachts.

(474) The long pier of a marina is at **Mile 1021.6** in West Palm Beach, about 0.1 mile north of the highway bridge. Palm Beach Yacht Club is at the marina. There are open berths for about 44

boats of up to 120 feet. Gasoline, diesel fuel, water, ice, electricity, and a restaurant are available. In May 1983, the reported controlling depth was 6½ feet from the waterway to the pier.

(475) The yacht club pier is also near the Good Samaritan Hospital; medical aid to boatmen is available at the hospital.

(476) **Flagler Memorial Bridge** (State Route A1A), **Mile 1021.8** has a bascule span with a clearance of 17 feet at the center. The bridgetender monitors VHF-FM channel 16, call sign WHW-785. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(477) About 0.1 mile south of the bridge, a privately maintained and marked channel leads westward to a marina. There is adequate berthing space for 187 boats; gasoline, diesel fuel, water, electricity, and ice are available; restaurants, motels, hotels, provisions, and marine supplies are close by.

(478) **Royal Palm (Royal Park)** bridge (State Route 704), **Mile 1022.6,** has a bascule span with a clearance of 14 feet at the center. The bridgetender monitors VHF-FM channel 16, call sign WHW-681. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) In July 1999, a temporary bridge, with a design clearance of 14 feet in the center of the waterway, was under construction just south of Royal Palm Bridge. Mariners are advised that waterway restrictions, authorized by the Marine Safety Office, Miami, are being enforced during the construction. Announcement of these restrictions are broadcast on VHF-FM channel 9.

(479) **Chart 11467.**–From West Palm Beach, the waterway continues southward to the south end of Lake Worth at **Mile 1034.3,** thence through a cut to Lake Wyman at **Mile 1045.7.**

(480) Southern Boulevard Bridge (State Route 80), **Mile 1024.7,** has a bascule span with clearance of 14 feet at the center. The bridgetender monitors VHF-FM channel 16, call sign WHW-777. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(481) **West Palm Beach Canal**enters the waterway at **Mile 1026.8**. A fixed highway bridge with a clearance of 12 feet is about 0.3 mile above the mouth. In 1983, the reported controlling depth in the canal was 7 feet.

(482) At **Lake Worth, Mile 1028.8,** State Route 802 highway bridge (locally known as Lake Worth Avenue bridge) crossing the waterway has a bascule span with a clearance of 38 feet at the center and 35 feet elsewhere. The bridgetender monitors VHF-FM channel 16 and works channel 13.

(483) Three repair yards are in the yacht basin on the west side of the lake at **Mile 1030.6.** The largest yard has a 150-ton fixed lift, and a marine railway that can handle craft up to 115 feet; hull, engine, and electronic repairs can be made. Berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available. In May 1983, reported depths of 9 feet were available from the waterway to the basin.

(484) At **Lantana, Mile 1031.0,** Lantana Avenue bridge crossing the waterway has a bascule span with a clearance of 13 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM 16 and works channel 13. There are small-craft facilities at **Miles 1032.6** and **1033.1.** Berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available. Mobile lifts to 60 tons are available for hull, engine, and electronic repairs.

(485) At **Boynton Inlet, Mile 1033.7,** easterly winds cause currents that have great velocity and must be reckoned with when navigating the Intracoastal Waterway. The inlet is discussed in chapter 10.

(486) The waterway enters a cut at **Mile 1034.3.** East Ocean Avenue/State Route 804 highway bridge crossing the waterway at **Boynton Beach, Mile 1035.0,** has a bascule span with a clearance of 10 feet at the center. The bridgetender monitors VHF-FM channel 16 and works channel 13; call sign WHW-773. In July 1999, a replacement bascule bridge with a design clearance of 21 feet was under construction in place of the current span.

(487) Just north of the bridge on the western shore of the lake there are three small-craft facilities where berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available. A 20-ton lift that can haul out vessels for hull, engine, and electronic repairs is available.

(488) At **Mile 1035.8,** Woolbright Road highway bridge with a bascule span and clearance of 25 feet crosses the waterway. The bridgetender monitors VHF-FM channel 16 and works channel 13.

(489) The Eighth Street highway bridge over the waterway at **Mile 1038.7** has a bascule span with a clearance of 9 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 16 and works channel 13.

(490) Just south of the bridge on the west side of the waterway there is a boatyard that makes hull, engine, and electronic repairs. The yard has berthage with electricity, gasoline, diesel fuel, and water.

(491) At **Delray Beach, Mile 1039.6,** the Atlantic Avenue (State Route 806) highway bridge has a bascule span with a clearance of 12 feet at the center. The bridgetender monitors VHF-FM channel 16 and works channel 13; call sign WHW-769. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) A marina on the west side of the waterway about 1 mile south of the bridge at **Mile 1040.6** has berthage with electricity, gasoline, diesel fuel, water, ice, and some marine supplies.

(492) Linton Boulevard (12th Street) bascule bridge with a clearance of 30 feet at the center crosses the waterway at **Mile 1041.0.**

(493) Spanish River Road bascule bridge with a clearance of 21 feet (25 feet at the center) crosses the waterway at **Mile 1044.9.** The bridgetender monitors VHF-FM channels 13 and 16.

(494) At **Mile 1045.7,** the waterway enters **Lake Wyman,** crosses the lake through a dredged channel, marked by lights and daybeacons, and then continues southward to Lake Boca Raton and Boca Raton Inlet.

(495) State Route 798 (Palmetto Park Road) highway bridge at **Boca Raton Mile 1047.5,** has a bascule span with a clearance of 19 feet at the center. Just south of the west side, is a surfaced launching ramp. The waterway enters **Lake Boca Raton at Mile 1047.7. Boca Raton Inlet** leads from the lake to the Atlantic Ocean. The inlet is described in chapter 10 (note the dangers).

(496) The waterway leaves Lake Boca Raton at **Mile 1048.1** and enters a long land cut. Crossing the north end of the land cut at **Mile 1048.2,** Camino Real highway bridge has a bascule span with a clearance of 9 feet at the center. (See **117.1 through 117.59 and 117.261 (aa-1),** chapter 2, for drawbridge regulations.) Care should be exercised at this bridge as strong currents may be encountered; the sides of the canal are rocky.

(497) **Hillsboro Drainage Canal** enters the Intracoastal Waterway from the west at **Mile 1049.9** near **Deerfield Beach**. The confluence of the canal and the waterway on the north side of the bridge creates a dangerous condition in the channel. During periods of maximum discharge through the canal, hazardous currents develop in the Intracoastal Waterway channel about 100 yards north of Deerfield Beach Bridge.

(498) Vessels proceeding southward should not approach the bridge until it is fully opened for passage, and should at all times maintain sufficient headway to avoid being carried toward the east fender system by the flow of water from Hillsboro Drainage Canal that generates considerable cross current, especially during periods of flood.

(499) About 0.8 mile up Hillsboro Drainage Canal, U.S. Highway 1 bridge has a 40-foot fixed span with a clearance of 14 feet. Just below the bridge is a marina and repair yard. Half of the finger piers are covered. Berthage with electricity, gasoline, diesel fuel, and water are available. Depths of 2 to 5 feet were reported alongside in April 1983. A 30-ton mobile hoist is available at the yard; hull and engine repairs can be made.

(500) Just below the canal, at **Mile 1050.0,** the Intracoastal Waterway is crossed at Deerfield Beach by State Route 810 highway bridge that has a bascule span with a clearance of 21 feet at the center. The bridgetender monitors VHF-FM channel 16 and works on channel 13. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(501) Just south of the bridge on the west side of the waterway is a marina with berthage for 40 boats with 6 feet reported alongside. In April 1983, the reported controlling depth was 4½ feet from the waterway into the basin. Gasoline, diesel fuel, water, ice, and electricity are available.

(502) **Hillsboro Inlet** at **Mile 1053.9,** is described in chapter 10. Between Hillsboro Inlet and **Pompano Beach,** including **Lake Placid,** there are several marinas and repair facilities. (See the small-craft facilities tabulation on chart 11467 for services and supplies available.)

(503) At **Mile 1055.0,** Northeast 14th Street bridge has a double-leaf bascule span with a clearance of 15 feet. The bridgetender monitors VHF-FM channel 16 and works on channel 13. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(504) Near **Pompano Beach, Mile 1056.0,** there is the Atlantic Boulevard/State Route 814 highway bridge with a bascule span with a clearance of 15 feet at the center. The bridgetender monitors VHF-FM channel 16 and works on channel 13. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(505) Just north of the bridge, on the east side of the waterway, a yacht basin has finger piers with depths that vary from 10 feet near the waterway to 7 feet at the inner end of the basin; the piers have water and electricity. Gasoline, diesel fuel, ice, and some supplies are available, and there is berthage for 83 boats.

(506) **Lake Santa Barbara,** on the west side of the waterway at **Mile 1056.8,** has several marinas and boatyards. Berths with electricity, gasoline, diesel fuel, water, and ice are available. A 20-ton lift is available for hull, engine, and electronic repairs.

(507) At **Mile 1059.0,** Commercial Boulevard bridge over the waterway near **Lauderdale-by-the-Sea** has a bascule span with a clearance of 15 feet. The bridgetender monitors VHF-FM channel 16 and works on channel 13. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(508) At **Mile 1060.5,** the Oakland Park Beach Boulevard highway bridge over the waterway near **Oakland Park** has a bascule span with a clearance of 22 feet at the center. The bridgetender monitors VHF-FM channel 16 and works on channel 13. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(509) At **Mile 1062.6,** the two Sunrise Boulevard (State Route 838) highway bridges, at Fort Lauderdale, have bascule spans with a minimum clearance of 25 feet at the center. The bridgetender monitors VHF-FM channel 16 and works on channel 13. (See **117.1 through 117.59 and 117.261,** chapter 2, for drawbridge regulations.)

(510) **Middle River** enters the waterway from westward about 0.6 mile south of the Sunrise Boulevard bascule bridges; the reported controlling depths, in June 1975, were 6 feet to the Sunrise Boulevard highway bridge 0.9 mile above the mouth, thence 5 feet to the U.S. Route 1 bridge 2.2 miles above the mouth. The Sunrise Boulevard highway bridge about 0.9 mile above the mouth, reportedly has a 29-foot fixed span with a clearance of 5 feet. About 1 mile north of the bridge is an overhead power cable with a clearance of 38 feet. U.S. Route 1 highway bridge has a 29-foot fixed span with a clearance of 8 feet.

(511) An overhead power cable with a clearance of 46 feet crosses the river just eastward of U.S. Route 1 highway bridge.

(512) Middle River divides into North Fork and South Fork just westward of U.S. Route 1 highway bridge. North Fork is crossed by a 27-foot fixed span with a clearance of 4½ feet about 2.2 miles above the mouth of Middle River.

(513) **Speed** in Middle River is limited to no wake from a point 1 mile above the Sunrise Boulevard Highway Bridge.

(514) **Fort Lauderdale, Mile 1065.0,** a large and colorful city known as the "Venice of America," is served by the Florida East Coast Railway and the Seaboard System Railroad. Navigable waters include the myriad of manmade canals in addition to the natural waterways. The canals between the manmade islands are used by the riparian owners and their guests.

(515) All facilities for yachts are available at Fort Lauderdale, and several thousand yachts base here in the winter. (See the small-craft facilities tabulation on chart 11467 for services and supplies available.) There are many bathing and recreation facilities, hotels, restaurants, and shopping centers in the city. A monument marks the original site of Fort Lauderdale, built in 1838 during the Seminole War.

(516) At **Mile 1064.0,** Las Olas Boulevard highway bridge has a bascule span with a clearance of 31 feet at the center. The bridgetender monitors VHF-FM channel 13 (156.65 MHZ).

(517) The large Bahia Mar yacht basin, consisting of two divided basins and an outer wharf, is on the east side of the Intracoastal Waterway about 0.4 mile southward of Las Olas Boulevard Bridge. Depths of 7 to 14 feet are alongside the face of the wharf, and decreasing depths from 11 to 5½ feet at the finger piers in the basins. The office of the yacht basin's dockmaster is in the administration building on the outer wharf. The dockmaster makes all berthing arrangements. Gasoline, diesel fuel, water, electricity, showers, ice, restaurant, motel, shopping center, and marine supplies are available. All kinds of supplies are available in the city.

(518) **New River,** the main navigation channel in this area, is entered through two connecting channels at **Mile 1065.0** and **Mile 1065.3.** In August 1981, the controlling depths were 4½ feet in the north connecting channel and 5 feet in the south con-

necting channel, thence 3 feet (6½ feet at midchannel) for about 0.5 mile above the junction of the connecting channels, thence in 1977, 7 feet to the William H. Marshall Memorial Bridge, about 1.7 miles above the waterway, thence in December 1976, 6 feet to the junction of South Fork, thence 6 feet in South Fork for 1.4 miles, thence 3½ feet in South Fork and South New River Canal to the junction with Dania Cut-Off Canal. At Tarpon Bend, 0.6 mile above the mouth, the channel is narrow and there are strong currents; also, heavy traffic can be expected here. In October 1981, a submerged piling was reported in South Fork in about 26°06'13"N., 80°09'35"W. In 1978, a submerged obstruction marked by a steel pipe was reported in South New River Canal in about 26°05.0'N., 80°11.1'W.

(519) Above the junction of New River with the Intracoastal Waterway, New River and South Fork are crossed by the following bridges with bascule spans and overhead cables: U.S. Route 1 passes through a tunnel under the river at Southeast Sixth Avenue; at 1.1 miles, Southeast Third Avenue highway bridge, clearance 16 feet; at 1.3 miles, South Andrews Avenue Bridge, clearance 21 feet; at 1.4 miles, Florida East Coast Railway bridge, clearance of 4 feet; an overhead power cable just above the railway bridge has a clearance of 80 feet; at 1.7 miles, the William H. Marshall Memorial Bridge with a clearance of 20 feet at the center; the overhead power cable just above this bridge has a clearance of 80 feet; on the South Fork, 0.8 mile above the mouth of the fork, Southwest 12th Street bridge has a clearance of 21 feet; at 2.7 miles, two parallel fixed highway bridges, clearance 55 feet; at 2.8 miles, Seaboard System Railroad (SCL) bridge, clearance 2 feet; the overhead power cable at the bridge has a clearance of 71 feet; at 3.8 miles, State Highway 84 bridge has a 40-foot bascule span with a clearance of 21 feet. The Southeast Third Avenue bridge, South Andrews Avenue bridge, William H. Marshall Memorial Bridge, and Davie Boulevard bridge are equipped with radiotelephones; the bridgetenders monitor VHF-FM channel 13. (See **117.1 through 117.59, 117.313, and 117.315**, chapter 2, for drawbridge regulations.) Overhead power cables close southward and 0.1 mile southward of the State Highway 84 bridge have a least clearance of 50 feet.

(520) In January 1985, twin fixed highway bridges with design clearances of 45 feet vertical and 40 feet horizontal were under construction close S of State Highway 84 bridge.

(521) The mean range of tide at the Andrews Avenue Bridge, New River, is 2.1 feet. The range increases towards the mouth of the river and is 2.4 feet at the Bahia Mar yacht basin, Fort Lauderdale. Strong currents may be encountered above the Southeast Sixth Avenue Tunnel; strangers going upriver are advised to obtain information from the City Dockmaster.

(522) **Speed** in New River is limited to no wake.

(523) Both banks of New River between U.S. Route 1 highway tunnel and Florida East Coast railroad bridge are owned by the city. Along the bulkheads, berths with water and electricity are provided for yachts. Arrangements for space are made with the city **dockmaster,** whose office is at 14 South New River Drive East. He has police powers over all the waterways within the city limits.

(524) **South New River Canal**joins the South Fork of New River with the Dania Cut-Off Canal. Overhead power cables across it have a minimum clearance of 60 feet.

(525) **Manatees.**–A regulated speed zone for the protection of manatees is in the vicinity of the powerplant at Fort Lauderdale near the junction of South New River Canal and Dania Cut-Off Canal. (See Manatees, chapter 3.)

(526) A number of large storage yards are on New River about 2.5 miles above the city-owned berthing area. Several repair yards and storage basins are up the river. The largest shipyard has a marine elevator with a capacity of 300 tons, and a marine railway that can handle vessels up to 120 feet. Any hull or engine repairs can be made, and machine shops are available. Some yards have cranes of up to 50-ton capacity for rail-water or truck-water transfer.

(527) From New River, the Intracoastal Waterway continues southward through the **Stranahan River.** At **Mile 1065.9,** Fort Lauderdale Southeast 17th Street (State Route A1A) highway bridge has a bascule span with a clearance of 25 feet at the center. The bridgetender monitors VHF-FM channel 13. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) In March 1999, a replacement bascule bridge was under construction with a design clearance of 55 feet. **Speed** in Stranahan River is limited to no wake.

(528) The entrance channel to the Lauderdale Yacht Club is on the west side of Stranahan River about 0.4 mile north of the Fort Lauderdale Southeast 17th Street bridge. The channel to the club from the Intracoastal Waterway is reported to be marked by a private lighted range and privately maintained piles. Depths of 7 feet are reported in the channel, and 5 feet alongside the pier and bulkhead. Water, electricity, and dockage are available for members.

(529) There are five marinas on the west side of Stranahan River. Two are close northward of the Southeast 17th Street highway bridge, and the other three are near the head of **Seminole River,** the first canal extending westward just north of the bridge. (See the small-craft facilities tabulation on chart 11467 for services and supplies available.) In April 1983, the reported controlling depth in Seminole River was 12 feet from the Intracoastal Waterway and 4 feet near the head.

(530) The **Mercedes River** extends eastward from the Intracoastal Waterway at **Mile 1065.7** to **Lake Sylvia.** A highway bridge crossing the river has a 26-foot fixed span with a clearance of 7 feet. In April 1983, the reported controlling depth in Mercedes River was 8 feet from the waterway to the bridge. A large marina on the south side of the entrance has gasoline, diesel fuel, water, ice, electricity, restrooms, showers, berthing, marine supplies, motel, restaurant, and provisions available. Depths alongside the piers and bulkheads are 15 to 4½ feet.

(531) A highway bridge over **Marietta River,** which extends southward from Mercedes River, has a 23-foot fixed span with a clearance of 8 feet. From just south of the bridge, **Marion River** extends eastward into **Mayan Lake** from Marietta River.

(532) **Port Everglades, Mile 1066.3,** and **Port Laudania** on Dania Cut-Off Canal are described in chapter 10.

(533) **Fort Lauderdale Coast Guard Station** is on the east side of the waterway at **Mile 1066.8.**

(534) **Whiskey Creek (Dania Sound)** (chart 11470), which is about 1.6 miles long, lies between the Intracoastal Waterway and the ocean. Highway and pedestrian bridges crossing the sound have least clearances of 20 feet horizontal and 10 feet vertical. Overhead power and telephone cables at the bridges at the north and south entrances have a minimum clearance of 30 feet.

(535) At **Mile 1067.5,** the waterway enters a land cut.

(536) **Manatees.**–Regulated speed zones for the protection of manatees are in Port Everglades west of the line between Light

11 and Light 12 and south along the Intracoastal Waterway through and including the discharge canal of the power plant at Port Everglades and the Dania Cut-off Canal.

(537) **Dania Cut-Off Canal** enters the waterway at **Mile 1068.8.** The canal was constructed by the county for drainage purposes, and during floodwater periods it may cut through to the ocean. In May 1983, the canal had a reported controlling depth of 9 feet to the first turn about 0.9 mile above the Intracoastal Waterway, thence 5½ feet to the powerplant at the intersection with South New River Canal, a distance of about 5 miles. An overhead power cable with a clearance of 130 feet crosses the canal about 0.6 mile westward of the intersection with the Intracoastal Waterway. Numerous commercial vessels use the first mile of the canal when calling at Port Laudania. These vessels are generally size and draft restricted to the center of the channel for their safe navigation. To prevent dangerous meeting situations, vessels over 50 feet in length or over 7 feet of draft should give Security calls on VHF-FM channels 13 and 16 prior to transiting the Dania Cut-off Canal. An unmarked rock awash extends about 45 feet into the channel on the south side of the canal about 0.8 mile above the entrance.

(538) Obstructions, marked by buoys, have been reported in the canal about 1 and 1.2 miles above the entrance.

(539) In July 1985, a sunken wreck was reported about 1.5 miles above the entrance in about 26°03'33"N., 80°08'28"W.

(540) A large marina, about 1 mile along the canal from the waterway, has berthage with electricity, gasoline, diesel fuel, ice, water, and marine supplies. A 60-ton mobile lift is available for hull, engine, and electronic repairs.

(541) A yacht repair facility about 1.1 miles above the entrance has a 400-ton synchrolift, mobile lifts to 120 tons, and truck cranes to 20 tons. Machine, electrical, welding, paint, and carpentry shops are available for all types of repairs.

(542) A yacht basin is in the canal at **Dania,** 1.7 miles from the waterway. Berthage with electricity and an 80-ton lift are available. West of the yacht basin, bridges, overhead cables, pipelines, and other obstructions restrict the channel width to 28 feet and overhead clearance to 9½ feet.

(543) **Dania Beach** (State Route A1A) highway bridge, **Mile 1069.4,** has a bascule span with a clearance of 22 feet at the center. The highway bridge across the waterway at **Mile 1070.5** (locally known as Sheridan Street bridge) has a bascule span with a clearance of 22 feet at the center. The bridgetenders monitor VHF-FM channel 13. Just south of the bridge and on the east side of the waterway there are several places where some supplies may be obtained. Depths are 8 to 12 feet alongside the bulkhead.

(544) At the southeast corner of **North Lake, Mile 1072.1,** a yacht basin has berths with electricity, water, ice, and depths of 6 to 8 feet reported alongside in October 1998; there is a paved launching ramp.

(545) **Hollywood, Mile 1072.2,** is about 1 mile west of the waterway. On the ocean side east of the city is the Hollywood Beach Hotel, a very prominent structure. Gasoline can be obtained at a service station on the east side of the waterway. There are no repair facilities.

(546) **Hollywood Boulevard** (State Route 820) bridge, **Mile 1072.2,** has a bascule span with a clearance of 25 feet at the center. The bridgetender monitors VHF-FM channel 13. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(547) At **Hallandale Boulevard, Mile 1074.0,** State Route 824 highway bridge has a bascule span with a clearance of 22 feet. The bridgetender monitors VHF-FM channel 16 and works on channel 13. See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) In March 1999, a replacement bridge was under construction with a design clearance of 24 feet.

(548) At **Mile 1076.3,** the N.E. 192nd Street fixed highway bridge has a clearance of 65 feet.

(549) At **Mile 1076.3,** the waterway enters shallow **Dumfoundling Bay.** A dredged channel, marked by private daybeacons and lights, leads west from the waterway at **Mile 1076.5** to an industrial area. In April 1983, the reported controlling depth was 5 feet Care is required here as spoil banks are close aboard on both sides of the dredged channel through the bay. A sharp turn to the south is necessary to enter **Biscayne Creek** at **Mile 1077.3.**

(550) The Florida Department of Natural Resources has established a **slow-no wake speed zone** in Biscayne Creek from **Mile 1077.3** to **Mile 1078.5.**

(551) **Maule Lake,** on west side of the waterway at **Mile 1077.3,** is entered through a privately marked channel leading from the waterway at the southwest corner of Dumfoundling Bay. In April 1983, the reported controlling depth in the channel was 12 feet, and depths in the lake were 2½ to 17 feet over rocky bottom. At a marina on the west shore of the lake is berthage for 280 boats with depths from 18 to 8 feet alongside; controlling depth is 8 feet to the piers. All facilities are available, and there is a 30-ton mobile lift for complete marine repairs.

(552) In June 1988, a wreck was reported in Maule Lake in about 25°56'07"N., 80°08'45"W. The wreck is marked by a lighted buoy.

(553) At **Mile 1078.0,** State Route 826 highway bridge (locally known as Sunny Isles bridge) crossing the waterway, has a bascule span with a clearance of 30 feet. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) The overhead power cable 55 yards north of the bridge has a clearance of 71 feet.

(554) On the east bank of the waterway, at **Mile 1078.0** and just south of the highway bridge, a marina has berths, gasoline, diesel fuel, water, ice, electricity, and marine supplies. There is a 30-ton marine lift that can handle boats for hull, engine, and electronic repairs. In April 1983, the reported controlling depth was 21 feet from the waterway to the marina, and there were depths of 7 to 8 feet alongside.

(555) **Oleta River** leads westward from Biscayne Creek, at **Mile 1078.0,** and continues on into Maule Lake. The reported controlling depths, in April 1983, were 4 feet from the Intracoastal Waterway to the highway bridge 1.5 miles above the entrance, thence 2½ feet into Maule Lake. Another fixed bridge crosses the river about 0.3 mile above the entrance.

(556) The Intracoastal Waterway enters the northern end of **Biscayne Bay** at **Mile 1078.5.** The bay is a shallow body of water extending about 33 miles southward, and is unexcelled as a yachting and small-boating area. The upper part of the bay is very shallow, about 2 miles wide, and is separated from the Straits of Florida by a narrow peninsula, Virginia Key, and by Key Biscayne. The remainder of the bay south of Miami has an average width of about 7 miles, general depths of 9 to 10 feet with several places having depths of 13 to 15 feet, and is separated from Hawk Channel by a number of keys and coral banks through which there are several narrow and shallow channels. In

the lower part of Biscayne Bay and in the bays and sounds southward, the water is so clear on calm days that the bottom can be seen at considerable depths. On windy days, the water becomes milky and opaque.

(557) At **Mile 1079.5,** an unmarked channel leads southward to Bakers Haulover Inlet. In May-June 1983, the controlling depth in the channel was 6½ feet at midchannel to the highway bridge crossing the inlet. A large municipal marina for the use of yachtsmen and party fishermen is on the east side of the channel just south of the waterway. The marina may also be approached through an unmarked channel that leads east from the waterway at **Mile 1079.8.** In May-June 1983, the controlling depth was 8 feet in the channel and in the basin, and thence in April 1983, 7 feet reported at the finger piers. Gasoline, diesel fuel, water, ice, and electricity are available. There is berthage for 58 boats; a charge is made for docking. A launching ramp is also available.

(558) The Florida Department of Natural Resources has established a **slow-no wake speed zone** where the unmarked channels converge just north of Bakers Haulover Inlet from **Mile 1079.5** to **Mile 1079.8.**

(559) **Bakers Haulover Inlet** is described in chapter 10.

(560) **Bal Harbour,** a private development, is immediately southward of Bakers Haulover Inlet. Several large hotels are conspicuous landmarks.

(561) At **Mile 1080.4,** an unmarked channel leads south-southeasterly to Bal Harbour yacht basin that has a depth of 14 feet. The channel had a reported controlling depth of 7 feet in April 1983. The yacht basin is for members only, but other craft may take refuge here during bad storms.

(562) **Indian Creek** extends southward about 6 miles along the eastern part of Biscayne Bay from Bal Harbour to Collins Canal in Miami Beach. In 1963, the controlling depth was 5 feet in Indian Creek. A highway bridge and a pipeline bridge across the creek from Bal Harbour to **Bay Harbor Islands** each have a 43-foot fixed span with a clearance of 12 feet. An overhead power cable on the north side of the bridge has a clearance of 51 feet. About 0.5 mile southward, the bridge at **Surfside** has a 40-foot fixed span with a clearance of 12 feet. The bridge between **Atlantic Heights** and **Normandy Isle** has a 29-foot fixed span with a clearance of 5 feet.

(563) On the east side of **Allison Island,** Indian Creek is crossed by West 63rd Street bridge with a bascule span having a clearance of 11 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) A highway bridge over the channel west of the island has a 23-foot fixed span with a clearance of 6 feet. Southward of Allison Island, fixed bridges crossing Indian Creek limit the channel to a minimum width of 41 feet and a clearance of 12 feet.

(564) From the southern end of Indian Creek, **Collins Canal** leads southwesterly along the southeast side of the prolongation of **Venetian Causeway.** In April 1983, the reported controlling depth was 3 feet in the canal. Fixed bridges crossing the canal limit the channel width to 23 feet and the clearance to 5 feet.

(565) At **Mile 1080.9,** a channel on the west side of the Intracoastal Waterway leads northwestward to the west shore, follows the shore in a northerly direction to **New Arch Creek,** and follows the creek about 0.8 mile westward to two marinas where berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available. A 30-ton mobile hoist is also available; hull, engine, and electronic repairs can be made. The channel is marked by daybeacons.

(566) At **Mile 1081.4, Broad Causeway** (NE 123rd Street) highway bridge crossing the Intracoastal Waterway has a bascule span with a clearance of 16 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channels 13 and 16. The Florida Department of Natural Resources has established a **slow-no wake speed zone** in the Intracoastal Waterway extending 100 yards on both sides of the Broad Causeway highway bridge. Immediately south of the causeway, a privately marked channel leads to a marina on the west side of the bay.

(567) **Miami Beach Channel,** about 0.5 mile south of Broad Causeway, is a natural channel that leads southeastward to **Biscayne Point,** thence along the west and south sides of **Normandy Isle,** thence along the east shore of the bay southward to Venetian Causeway and Collins Canal in **Miami Beach,** and thence along the west side of Miami Beach southward of MacArthur Causeway and **Meloy Channel.** In April 1983, the reported controlling depths were 7 feet from the waterway southward to the Julia Tuttle Causeway, except for shoaling to 3 feet about 0.4 mile above the causeway at Daybeacon 22, thence 9 feet to Meloy Channel.

(568) Four bridges cross the channel. At Normandy Isle the easterly bascule span of the 79th Street Causeway has a clearance of 25 feet at the center. The large marina on **Treasure Island** at the west end of bridge has berths with electricity, water and ice. In October 1998, depths of 9 feet were reported alongside. The easterly fixed span of the 36th Street Causeway has a clearance of 35 feet; Venetian Causeway bascule span between Rivo Alto Island, the most easterly of the Venetian group, and Belle Isle has a clearance of 9 feet. The fixed bridge near the east end of MacArthur Causeway has a clearance of 35 feet. (See **117.1 through 117.59 and 117.269**, chapter 2, for drawbridge regulations.)

(569) A marina on Miami Beach Channel, just north of the MacArthur Causeway Bridge, has berthage with electricity, gasoline, diesel fuel, water, ice, some marine supplies; hull, engine, and electronic repairs can be made. On the south side of the bridge on Meloy Channel, is a charter-boat facility and a marina with similar services. Meloy Channel is described in chapter 10.

(570) At **Mile 1083.8,** a dredged channel leads southeastward from the Intracoastal Waterway to a private yacht basin in **Harbor Island** just north of the 79th Street Causeway. In April 1983, the reported controlling depth was 5 feet. The channel is marked by private piles.

(571) **Seventy-Ninth Street Causeway, Mile 1084.6,** has a bascule span over the waterway that has a clearance of 25 feet at the center. The Florida Department of Natural Resources has established a **slow-no wake speed zone** in the Intracoastal Waterway extending 100 yards on both sides of the 79th Street Causeway Bridge.

(572) **Little River** flows into the west side of Biscayne Bay at **Mile 1084.9.** Yachts tie up along the banks of the river. In 1975, the controlling depth was 6 feet to the highway bridge about 0.6 mile above the mouth. The bridge (U.S. Route 1) has a 34-foot fixed span with a clearance of 8 feet. Boats that can clear this bridge can continue upstream to the dam at the Florida East Coast Railway bridge, which is the head of navigation. The controlling depth was 3 feet, in 1963, from the highway bridge to the dam.

(573) A boatyard is on the north shore of Little River, about 0.6 mile above the mouth. The yard has a 20-ton marine lift, and a marine railway that can handle craft up to 50 feet. Gasoline, water, ice, electricity, and marine supplies are available. There is

berthage for about 15 boats with 7 to 10 feet reported alongside in April 1983. There is a machine shop on the premises; hull and engine repairs can be made.

(574) **Julia Tuttle (Thirty-Sixth Street) Causeway, Mile 1087.1,** has a fixed span over the waterway with a clearance of 56 feet, which is the least overhead clearance of the fixed bridges over the main route of the Intracoastal Waterway between Norfolk and Miami.

(575) At **Mile 1088.5, Sunset Harbor Channel** leads eastward through Biscayne Bay and connects with Miami Beach Channel on the east side of the bay just northward of Belle Isle. The channel is marked by private lights and daybeacons and in December 1991, the controlling depth was 6 feet except for lesser depths to 3 feet in the vicinity of Miami Beach Channel Daybeacon 30.

(576) **Venetian Causeway, Mile 1088.6,** has a bascule span over the waterway with a clearance of 8 feet at the center. **MacArthur Causeway, (State Route A1A), Mile 1088.8,** has a bascule span over the waterway with a clearance of 35 feet. (See **117.1 through 117.59 and 117.261**, chapter 2, for drawbridge regulations.)

(577) The Florida Department of Natural Resources has established a **slow-no wake speed zone** from 100 yards north of the Venetian Causeway bascule bridge at **Mile 1088.5** to the southern tip of Claughton Island, **Mile 1090.5.**

(578) At **Mile 1089.4,** the waterway is crossed by a fixed highway bridge with a clearance of 65 feet. The bridge connects with **Port of Miami (Dodge Island).** The trestle of the old bascule bridge remains but is reportedly maintained in the open position.

(579) **Miami, Miami Beach,** and **Miami Harbor, Mile 1089.1** are described in chapter 10.

(580) At **Mile 1089.8, Fishermans Channel,** a private channel maintained by the City of Miami, leads northeastward from the waterway to a turning basin off the southwest corner of Dodge Island, thence eastward to the turning basin at Fisher Island. The channel that connects the waterway to the turning basin off Dodge Island has natural depths to 8 feet, thence in 1988-1989, the controlling depth was about 19 feet to the turning basin at Fisher Island, with lesser depths along the shores of Dodge and Lummus Islands. The channel is well marked. About 1.1 miles westward of Fisher Island, a natural channel leads southward from Fishermans Channel to Rickenbacker Causeway. The channel is little used and is unmarked. In April 1983, it was reported to have a depth of 6 feet.

(581) At **Mile 1090.5,** a dredged channel leads north-northwest from the waterway, west of **Claughton Island,** to the mouth of the Miami River. This channel is the approach to Miami River from the south. In 1967, the centerline controlling depth was 8 feet. A highway bridge with a 49-foot fixed span and a clearance of 8 feet crosses the channel from the mainland to Claughton Island.

(582) From Miami the Intracoastal Waterway continues southward along the waterfront, thence through Miami South Channel to **Rickenbacker Causeway** at **Mile 1091.6**. The causeway has a fixed span over the waterway with a clearance of 76 feet. The approach spans of the old bascule bridge have been converted to fishing piers.

(583) The Florida Department of Natural Resources has established a **slow-no wake speed zone** in the Intracoastal Waterway extending 100 yards on both sides of the Rickenbacker Causeway.

(584) The photograph of the causeway shown on the accompanying page is compliments of Dillon-Reynolds Aerial Photography, Inc.

(585) Northeastward of the Bay Bridge of Rickenbacker Causeway on the west side of Virginia Key is the Commodore Ralph Munroe Marine Stadium, a marine race course, which had a reported depth of 6 feet. The grandstand on the south side and the Seaquarium southeastward of it are prominent.

(586) Two marinas and a boatyard are in a cove at the east end of the causeway. Berths with electricity, gasoline, diesel fuel, ice, supplies, a 2½-ton hoist, hull and engine repairs, and sewage pumpout are available.

(587) About 2 miles south of Rickenbacker Causeway, **Crandon Park Marina Channel,** privately marked by lights, buoys, and daybeacons, leads northeasterly in **Bear Cut** to the Dade County Yacht Basin in the bight of Northwest Point, Key Biscayne. The controlling depth from Bear Cut to and including the basin was reported to be 10 feet in 1983. In August 1984, shoaling to 4 feet was reported between Daybeacons 7 and 8. The basin is used by party fishing boats. Gasoline, diesel fuel, water, ice, electricity, restaurant, and limited berthage is available for transients. A 10-ton marine lift and a launching ramp are here. The highway bridge over Bear Cut has a 48-foot fixed span with a vertical clearance of 16 feet. A daybeacon marks the eastern approach to Bear Cut outside the keys.

(588) About 2.3 miles southward of Rickenbacker Causeway are two channels leading westward to the facilities at **Dinner Key** in **Coconut Grove.** Both channels are marked. The northerly channel had a reported controlling depth of 4½ feet in April 1983. In May 1979, a visible wreck was reported about 0.2 mile northwestward of Daybeacon 5, in about 25°43'42"N., 80°13'49"W.

(589) The Coral Reef Yacht Club is reached through the northern channel. Marine supplies are available, and there is a launching ramp.

(590) **Dinner Key Channel,** the southerly channel, leads to the large **Dinner Key Yacht Basin.** The channel is marked by lights and daybeacons. The controlling depth in the channel was 8 feet on the centerline, reported in April 1983, with 5½ to 7 feet in the basin. The yacht basin is maintained by the city of Miami and has five piers with water and electrical connections; a charge is made for berthage assigned by the dockmaster. There is berthage for 370 boats with depths of 5 to 8 feet alongside. A launching ramp is available.

(591) Several privately owned marinas and boatyards are northward and southward of the city yacht basin. Gasoline, diesel fuel, water, ice, and marine supplies can be obtained. Fixed lifts to 30 tons are available at the boatyards; complete engine, hull, and electronic repairs can be made.

(592) **Four-Way Channel** is 3 miles south of Rickenbacker Causeway and leads westward to some private piers and a mooring area; the controlling depth in the channel was reported to be 5 feet on the centerline in April 1983. A privately maintained unlighted **296°** range and daybeacons mark the entrance channel.

(593) **Entrada Channel,** about 0.5 mile southward of Four-Way Channel, is marked by private daybeacons. In April 1983, the reported controlling depth was 3½ feet.

(594) **Coral Gables Waterway** is 4.2 miles south of Rickenbacker Causeway. It is a dredged channel through coral, and extends westward about 2 miles inland to U.S. Route 1 highway bridge. The canal, used for drainage purposes, has no docks

along the banks; craft tie up to the banks. The reported controlling depth was 5 feet in April 1983. The entrance is marked by a light and daybeacons. In November 1979, shoaling to an unknown extent was reported between Daybeacons 5 and 7.

(595) **Coral Gables** is a picturesque resort that joins Miami on the southwest. The tower of a hotel is a conspicuous landmark that shows over the lower part of Biscayne Bay.

(596) At **Matheson Hammock Beach, Mile 1097.5,** on the west side of Biscayne Bay, there is a marina which has berths with depths of 4 to 7 feet alongside the piers. There is a launching ramp, and gasoline, diesel fuel, water, ice, and electricity are available. The two entrance channels are marked by private daybeacons, and the south channel is marked by a **347°** lighted range and a light. In April 1983, the reported controlling depths were 4 feet in the north channel and 6½ feet in the south channel. The remains of a daybeacon structure, at the entrance to the south channel in about 25°40'25"N., 80°15'28"W., are reported to be a hazard to navigation; caution is advised. In March 1993, a submerged wreck was reported 1.1 miles northeast of the north entrance in about 25°41'08.4"N., 80°14'12.6"W.

(597) **Charts 11465, 11451.–Snapper Creek Canal,** about 1.3 miles south of Matheson Hammock, is a drainage canal navigable to a salinity structure about 1.3 miles above the entrance. A yacht basin with services is just upstream of the highway bridge 1 mile above the entrance. The fixed bridge has a 20-foot span with a clearance of 11 feet. The entrance to the canal is marked by private daybeacons and in March 1999, had a reported controlling depth of 5 feet.

(598) At **Kings Bay, Mile 1102.2,** on the west side of Biscayne Bay 9 miles southward of Rickenbacker Causeway, there is a yacht and country club. There is berthage for 150 boats with depths of 7 to 10 feet alongside the piers. Gasoline, diesel fuel, water, ice, electricity, and restaurant are available and there is a launching ramp. A 6-ton hoist can handle craft for engine and electronic repairs. **Cutler Channel,** leading to the yacht basin and a powerplant, is marked by private aids. In March 1999, there was a reported channel depth of 8½ feet.

(599) The Intracoastal Waterway crosses **Featherbed Bank** at **Mile 1107.6** and is marked by daybeacons and lights. Another channel through Featherbed Bank about 2.5 miles eastward of the waterway is marked by a light and daybeacons. In April 1983, the reported controlling depth was 8 feet. Care must be taken to stay in the center of the channel; the appearance of the water is the best guide, as the shoals on each side are usually visible. The daybeacon northeastward of Featherbed Bank is not easily seen at a distance. Good landmarks are the tower resembling a lighthouse on **Boca Chita Key northward of Sands Key** and the 415-foot stacks of the powerplant at Turkey Point (25°26.1'N., 80°19.8'W.).

(600) **Charts 11465, 11463, 11451.–Biscayne National Park,** a protected area, is between **Mile 1097.0** and **Mile 1119.2.** The National Park Service has established an anchorage area off the northern end of **Elliott Key,** opposite **Mile 1110.0.** The anchorage is marked by buoys. A park ranger is stationed at **Elliott Key Harbor** opposite **Mile 1112.4.** Berths and camp sites are available. No services are available.

(601) From **Mile 1109** to **Mile 1113.2** the Intracoastal Waterway passes through an Air Force training area. Mariners are urged to exercise caution because training drills utilizing helicopters, parachutes, small one-man liferafts, and support craft are conducted daily in the area.

(602) **Charts 11463, 11451.–The Homestead Bay Front Park Marina** at the entrance to **North Canal,** 5 miles west of **Mile 1111.5,** is entered just south of **Convoy Point.** The entrance is marked by lights and daybeacons. In July 1985, the entrance channel had a reported controlling depth of 4 feet; in 1983, depths of 4 feet were available alongside the piers. Slips are available for berthing 70 boats up to 40 feet; there is a launching ramp and a 3-ton hoist for craft to 25 feet. Gasoline, water, ice, and electricity are available at the basin.

(603) A barge channel on the west side of Biscayne Bay, with a reported centerline controlling depth of 7½ feet in April 1983, leads from water of the same depth in the bay for a distance of about 3.1 miles to a powerplant on **Turkey Point, Mile 1113.7.** The channel is marked by a light and buoys. Two 415-foot stacks at the powerplant are prominent.

(604) **Caesar Creek,** 1.2 miles southeast of **Mile 1115.0,** between **Elliott Key and Old Rhodes Key,** connects Biscayne Bay with Hawk Channel. The reported controlling depth was 8 feet in April 1983, except for shoaling to 2 feet at the bayside entrance. The entrance from Hawk Channel is marked by a light, and private daybeacons mark the channel through the creek.

(605) The Intracoastal Waterway leaves Biscayne Bay via a straight dredged cut through **Cutter Bank** at **Mile 1117.3** and enters **Card Sound.** The sound is a body of water about 5 miles long and 2.7 miles wide with depths of 7 to 12 feet in the center.

(606) **Angelfish Creek,** 1.5 miles southeast of **Mile 1120.0** between **Palo Alto Key** on the north and **Key Largo** and **Angelfish Key** on the south, connects Card Sound with Hawk Channel. The controlling depth, in April 1983, was reported to be 5 feet. The channel is marked by lights and daybeacons.

(607) Good anchorage in depths of 9 feet is available in Card Sound on the south side of **Pumpkin Key,** 1.5 miles southeast of **Mile 1121.8.**

(608) In September 1977, numerous piles were reported to extend southeast from Pumpkin Key to Snapper Point on the west side of Key Largo. Caution is advised when navigating in this area.

(609) Gasoline, diesel fuel, lubricating oil, water, ice, and electricity are available at the Key Largo Anglers Club, 1.8 miles southeast of **Mile 1122.4.** A lift is available for hauling out boats up to 35 feet. A prominent microwave tower is a good landmark on the westerly side of the Card Sound and Little Card Sound area. Another microwave tower, just west of Ocean Reef Harbor on Key Largo, is also prominent.

(610) From Card Sound the waterway follows **Card Point Cut,** a dredged cut across **Card Bank, Mile 1124.4,** the shoal that separates Card Sound from **Little Card Sound.** Little Card Sound has depths of 6 to 9 feet in the center.

(611) The waterway enters a dredged channel through the shoal that separates Little Card Sound and **Barnes Sound** opposite **Barnes Point, Mile 1126.8.** A fixed highway bridge with design clearance of 65 feet crosses the waterway at Barnes Point. An overhead power cable northward of the bridge has a clearance of 88 feet. Barnes Sound is about 6 miles long and 3 miles wide, with depths of 7 to 10 feet in the center.

(612) Near the south end of Barnes Sound the waterway enters **Jewfish Creek, Mile 1132.8.** The highway bridge crossing the creek at **Cross Key, Mile 1134.1,** has a bascule span with a clear-

ance of 11 feet at the center. (See **117.1 through 117.59 and 117.261**, chapter, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 13 on weekends and holidays. In October 2000, two parallel high-level replacement fixed highway bridges were under construction with a design clearance of 65 feet. Overhead power cables just southwest of the bridge have a minimum clearance of 85 feet. On the southwest side of the bridge are three marinas with more than 70 berths. Electricity, gasoline, diesel fuel, water, ice, launching ramp, and a 1-ton lift is available; hull repairs can be made.

(613) The waterway continues southward into **Blackwater Sound,** a body of water about 3 miles square that has depths of 7 to 8 feet in the center. A cut leads from Blackwater Sound into the southern part of **Lake Surprise** in the northeast end of the sound. In April 1983, the reported controlling depth in the dredged cut was 4 feet. A boatyard is on a canal that extends eastward from the lake 0.4 mile east of the cut. An 11-ton mobile lift is available for hull, engine, and electronic repairs. In April 1983, it was reported that Lake Surprise was an excellent harbor of refuge, used frequently as an overnight anchorage by small craft. A marina at the southeast end of Blackwater Sound has gasoline, diesel fuel, water, ice, marine supplies, and storage facilities. A mobile lift can handle craft to 26 feet for hull, engine, and electronic repairs.

(614) The waterway follows **Dusenbury Creek** from Blackwater Sound to **Tarpon Basin.**

(615) **Charts 11463, 11451.**–The waterway follows an east-to-west course across Tarpon Basin and on the west side exits through **Grouper Creek** into **Buttonwood Sound;** in the eastern end of the creek, the deepest water is close to the south bank. Tarpon Basin is reported to offer good shelter from winds from any direction, but the holding ground is poor with thick grass over the bottom.

(616) From Buttonwood Sound, which has a depth of 5 to 7 feet, the Intracoastal Waterway follows **Baker Cut, Mile 1143.0,** into **Florida Bay.** The route across the bay crosses many bars and is well marked by lights and daybeacons.

(617) A protected area of the **Everglades National Park** is in the northern part of Florida Bay. Landing on the beaches or keys of this area without the authorization of the Superintendent of the Everglades National Park is prohibited, except on those beaches or keys marked by a sign denoting the area as being open.

(618) **Community Harbor,** a bight on the southerly end of Key Largo and 1 mile southwest of **Mile 1150.0,** is the bayside waterfront of **Tavernier.** The entrance is marked by daybeacons and stakes. In April 1983, the controlling depth to the wharf was reported to be 3 feet. A marina at the southern end of the harbor has berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies. A 16-ton mobile hoist is available for hauling out vessels for hull, engine, and electronic repairs.

(619) **Tavernier Creek,** just westward of Tarvernier, in April 1983, had a reported controlling depth of 4 feet to Hawk Channel and is frequently used by local fishing craft. The south entrance to the creek is marked by a light and daybeacons, and the north entrance is marked by daybeacons. In September 1986, a submerged obstruction was reported 0.25 mile northeast of the light in about 24°59'24"N., 80°31'06"W. A fixed highway bridge near the southern end of the creek has a clearance of 15 feet. In January 1982, it was reported that strong currents may be experienced in the vicinity of the bridge, particularly during spring tides. In February 1991, a fixed highway bridge with a design clearance of 15 feet was under construction immediately north of the existing bridge. Gasoline, diesel fuel, water, ice, and some marine supplies are available at the small-craft facilities near the bridge.

(620) **Cross Bank, Mile 1152.5,** is crossed by **Cowpens Cut,** a straight dredged channel marked by lights and daybeacons.

(621) At **Mile 1155.0,** in **Cowpens Anchorage,** there are marinas where berths with electricity, gasoline, diesel fuel, water, ice, and some marine supplies are available. A lift that can handle craft to 25 feet is available for hull, engine, and electronic repairs. The reported controlling depth to the anchorage was 6 feet in April 1983.

(622) **Snake Creek,** 1.3 miles south of **Mile 1156.0** between **Plantation Key** and Windley Key, is used by local fishing boats as a passage between the bay and the ocean. In January 1984, the reported controlling depth through the creek was 4 feet. The entrance to the creek from the ocean side is marked by daybeacons and a light. The highway bridge across the creek has a bascule span with a clearance of 27 feet. On the north side of the bridge there is a small marina and a fishing camp. Gasoline, engine repairs, water, ice, some marine supplies, and a launching ramp are available. Currents are strong through the creek, and especially at the bridge. Gasoline, water, and ice are available at the wharf at the ocean entrance on Windley Key.

(623) **Islamorada Coast Guard Station** is on the east side of Snake Creek at 24°57.2'N., 80°35.2'W.

(624) **Windley Harbor,** 1.7 miles south of **Mile 1157.2,** is a good but seldom used refuge that is well protected from all directions. **Whale Harbor Channel,** west of **Wilson Key,** is marked by a light and daybeacons. In April 1983, the channel had a reported controlling depth of 5 feet. Two fixed bridges over the channel, one highway and one pedestrian, have a least clearance of 33 feet horizontal and 12 feet vertical. Berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available at Windley Harbor.

(625) **Upper Matecumbe Key** is 2 miles southeast of **Mile 1160.0. Islamorada** is on the key. The **Florida Key Memorial** is in about the middle of the key.

(626) Three marinas are about in the center of the key on the northwest side. (See the small-craft facilities tabulation on chart 11451 for services and supplies available.)

(627) At **Mile 1160.7,** the waterway passes through **Steamboat Channel,** a dredged cut through **Shell Key Bank.** The channel in the cut is marked by lights and daybeacons.

(628) **Charts 11449, 11451.–Shell Key Channel** and **Race Channel,** just to the northwestward of Upper Matecumbe Key, are used by small sport-fishing craft. These channels join to form **Teatable Key Channel** connecting the Intracoastal Waterway and Hawk Channel. Teatable Key Channel is crossed by two fixed bridges, one highway and one pedestrian, and an adjacent overhead pipeline with least clearances of 33 feet horizontal and 10 feet vertical. In April 1983, the reported controlling depth was 8 feet from Hawk Channel to Florida Bay through Teatable Key Channel and Race Channel.

(629) There are marinas and repair facilities at the southwest end of Upper Matecumbe Key. (See the small-craft facilities tabulation on chart 11451 for services and supplies available.)

(630) **Indian Key Channel,** 1.7 miles south of **Mile 1162.3,** one of the routes connecting Florida Bay and Hawk Channel, is described in chapter 11.

(631) **Lignumvitae Channel,** 1.6 miles south of **Mile 1163.3** and west of Lignumvitae Key, forms a passage from the Intracoastal Waterway to Hawk Channel. Two fixed bridges that cross the channel, one highway and one pedestrian, have least clearances of 32 feet horizontal and 10 feet vertical. Pilings that support overhead power cables close north of the bridges somewhat restrict the channel; local knowledge is advised. Berths with electricity, gasoline, diesel fuel, water, ice, and a launching ramp are available at a marina at the northeast end of **Lower Matecumbe Key.**

(632) Overhead power cables at the fixed bridges along the highway viaduct between Upper Matecumbe Key and Grassy Key have a minimum clearance of 26 feet, but are submerged at the drawbridges.

(633) **Peterson Key Bank, Mile 1165.0, is crossed by Bowlegs Cut.** After passing through the cut, traffic may continue southwestward through Channel Five to Hawk Channel. In 1975, the controlling depth was reported to be 7 feet.

(634) **Matecumbe Harbor,** is at the southwest end of **Lower Matecumbe Key**, 1 mile southeast of **Mile 1168.8** via Channel Five. The entrance is marked by a light, and the remainder of the channel is privately marked. In April 1983, the controlling depth was reported to be 5 feet in the entrance, with deeper water inside. Gasoline, diesel fuel, water, ice, electricity, and marine supplies are available at a marina in the southern part of the harbor. A mobile lift can handle craft to 24 feet for hull, engine, and electronic repairs.

(635) **Channel Two,** just west of Matecumbe Harbor, connects Florida Bay and Hawk Channel. In 1975, the reported controlling depth in the channel was 8 feet. The channel is crossed by two fixed bridges, one highway and one pedestrian, with a least clearance of 35 feet horizontal and 11 feet vertical. In April 1983, submerged pilings were reported to exist in Channel Two; caution is advised. A daybeacon marks a submerged piling in midchannel south of the bridges.

(636) **Channel Five, Mile 1170.6,** one of the main routes by which boats can reach Hawk Channel, is described in chapter 11.

(637) At **Mile 1170.6,** there is a marina on **Fiesta Key** where gasoline, water, ice, restaurant, motel, electricity, and some marine supplies are available. The reported controlling depth in the channel leading to the marina was 3 feet in April 1983, with 4 to 5 feet alongside the pier.

(638) At **Mile 1171.6,** there is a marina on Long Keywhere gasoline, water, ice, electricity, restaurant, motel, launching ramp, and marine supplies are available. Berthage is limited. The reported controlling depth in the channel leading to the marina and alongside the pier was 3 feet in April 1983.

(639) At the west end of **Long Key,** 2.2 miles south of **Mile 1174.2,** berthage with electricity, gasoline, water, ice, a boat launching ramp, and limited marine supplies are available at a marina. **Conch Keys,** 2.4 miles west of the west end of Long Key, are marked by a water tank. The channel to the wharf on the north side of the east key is privately marked. In April 1983, the channel had a reported controlling depth of 3 feet, with 2 feet alongside the wharf. Gasoline, water, and other services are available.

(640) At **Mile 1178.7,** the waterway goes through **Channel Key Banks** at **Channel Key Pass**, which is marked by a light and daybeacons.

(641) **Grassy Key** is at **Mile 1181.6.**

(642) **Marathon,** on **Vaca Key** 1.5 miles south of **Mile 1192.0,** is the second largest town on the Florida Keys. There are several small-craft facilities on the north side of Vaca Key at Marathon. (See the small-craft facilities tabulation on chart 11451 for services and supplies available.)

(643) Additional facilities on the south side of Vaca Key at Marathon, and in Boot Key Harbor are described in chapter 11.

(644) A group of four radio towers on the southwest end of Boot Key south of Marathon and three radio towers about 1.1 miles to the east-northeastward of the first group are prominent. An aerolight is at Marathon Airstrip at the east end of Vaca Key.

(645) **Marathon Coast Guard Station** is on the bay side at Marathon.

(646) **Knight Key Channel,** just west of Marathon, had a reported controlling depth of 8 feet in 1975. The fixed highway and pedestrian bridges crossing the channel have a least clearance of 19 feet.

(647) **Bethel Bank, Mile 1193.4,** is a junction point in the Intracoastal Waterway. Vessels may follow the southern route via Moser Channel or Bahia Honda Channel and Hawk Channel to Key West, or the northern alternate route via Big Spanish Channel and the Gulf of Mexico. The southern route is about 14 miles shorter to Key West.

(648) **Pigeon Key,** on the east side of Moser Channel, is marked by white buildings. The viaduct passes high overhead at the key.

(649) **Moser Channel, Mile 1196.9,** and **Bahia Honda Channel (Bahia Honda),** 7 miles to the westward, connect Florida Bay and Hawk Channel. These channels are described in chapter 11.

(650) **Chart 11445.**–The Intracoastal Waterway routes through Moser Channel and Bahia Honda Channel rejoin at **Mile 1207.8,** about 2.1 miles south of the bridge over Bahia Honda Channel, and then the route follows the aids in Hawk Channel to Key West. Hawk Channel is described in chapter 11.

(651) **Newfound Harbor Keys Anchorage, Newfound Harbor Channel, Niles Channel, Cudjoe Bay,** and **Bow Channel** are discussed in chapter 11.

(652) **Chart 11445.**–From Hawk Channel, the Intracoastal Waterway joins the Main Ship Channel at **Mile 1241.9** about 0.5 mile southward of Key West, and then follows the main channel to **Key West, Mile 1243.8.** The supply and repair facilities at Key West are described in chapter 11.

(653) **Saddlebunch Harbor, Boca Chica Channel,** and **Safe Harbor Channel** are discussed in chapter 11.

(654) **Charts 11448, 11442.–Big Spanish Channel to Key West, north of Florida Keys.**–The northern alternate route of the Intracoastal Waterway leads northwestward from Bahia Honda through **Big Spanish Channel** to Harbor Key Bank, thence along the north side of the Florida Keys to Northwest Channel, thence to Key West. In April 1983, it was reported that the controlling depth for this route was 2 feet. Numerous submerged pilings are also in this channel. Local knowledge is advised.

(655) At **Mile 1214.2A,** the waterway passes through a crooked channel marked by daybeacons southwest of **Big Spanish Key.** Caution should be exercised in this shoal area. Northward of the key the color of the water is a good indication of the channel location.

(656) At **Harbor Key Bank Light 45, Mile 1218.3A,** the waterway enters the Gulf of Mexico, turns westward and follows a course of **246°** for about 28 miles to the lighted bell buoy at the entrance to **Northwest Channel, Mile 1251.1A.** A course closer to the Florida Keys should not be attempted because the landmarks are difficult to identify and the bottom inside the 18-foot contour rises abruptly.

(657) Use charts **11442** and **11441** westward of Johnston Key to Northwest Channel, thence to **Key West, Mile 1260.3A.** Northwest Channel and Key West are described in chapter 11.

(658) The recommended routes to Key West are via Hawk Channel or through Big Spanish Channel; these routes have been described earlier.

APPENDIX

(1) **Sales Information.**–National Ocean Service (NOS) publications, nautical charts and unclassified National Imagery and Mapping Agency (NIMA) nautical charts are sold by NOS and its authorized sales agents in many U.S. ports and in some foreign ports through the National Aeronautical Charting Office. Mail orders should be addressed to:

(2) National Aeronautical Charting Office, AVN-530

(3) Federal Aviation Administration

(4) 6501 Lafayette Avenue

(5) Riverdale, MD 20737-1199

(6) Mail orders must be accompanied by a check or money order (payable in U.S. funds) payable to FAA. Remittance from outside the United States should be made either by an International Money Order or by a check payable on a U.S. bank. Chart catalogs, which include a listing of authorized sales agents, are free upon request. Telephone orders may be placed by calling 301-436-8301 or toll-free 1-800-638-8972 (Visa or Mastercard accepted); or by FAX, 301-436-6829 or by Email: Distribution@noaa.gov. NOS maintains an over-the-counter sales office at the FAA, Riverdale, MD (see address above). Visa, Mastercard, checks, cash, and money orders are accepted. Sales information is located on the internet website address, http://acc.nos.noaa.gov.

(7) **National Ocean Service Offices**

(8) **Washington, DC** (Headquarters): Assistant Administrator, National Ocean Service, NOAA, Herbert C. Hoover Building, 14th Street and Constitution Avenue, NW, Room 5805, Washington, DC 20230-0001.

(9) **Silver Spring:** Chief, Office of Coast Survey, National Ocean Service, NOAA, 1315 East-West Highway, Silver Spring, MD 20910-3282.

(10) **Norfolk:** Director, Atlantic Marine Center, National Ocean Service, NOAA, 439 West York Street, Norfolk, VA 23510-1114.

(11) **Seattle:** Director, Pacific Marine Center, National Ocean Service, NOAA, 1801 Fairview Avenue East, Seattle, WA 98102-3767.

(12) **Charts and Publications-National Ocean Service**

(13) **Nautical Charts** (See Chart Catalogs)

(14) United States Coastal and Intracoastal waters, and possessions.

(15) Great Lakes, Lake Champlain, New York State Canals, and the St. Lawrence River-St. Regis to Cornwall, Canada.

(16) **Publications** (See the publication **Dates of Latest Editions** for latest editions and prices)

(17) **Coast Pilot**

(18) U.S. Coast Pilot 1, Atlantic Coast, Eastport to Cape Cod.

(19) U.S. Coast Pilot 2, Atlantic Coast, Cape Cod to Sandy Hook.

(20) U.S. Coast Pilot 3, Atlantic Coast, Sandy Hook to Cape Henry.

(21) U.S. Coast Pilot 4, Atlantic Coast, Cape Henry to Key West.

(22) U.S. Coast Pilot 5, Atlantic Coast-Gulf of Mexico, Puerto Rico, and Virgin Islands.

(23) U.S. Coast Pilot 6, Great Lakes, Lakes Ontario, Erie, Huron, Michigan and Superior and St. Lawrence River.

(24) U.S Coast Pilot 7, Pacific Coast, California, Oregon, Washington, and Hawaii.

(25) U.S. Coast Pilot 8, Pacific Coast Alaska, Dixon Entrance to Cape Spencer.

(26) U.S. Coast Pilot 9, Pacific and Arctic Coasts, Alaska-Cape Spencer to Beaufort Sea.

(27) **Distance Tables**

(28) Distances Between United States Ports.

(29) **Tide Tables**

(30) Europe and West Coast of Africa.

(31) East Coast, North and South America.

(32) West Coast, North and South America.

(33) Central and Western Pacific Ocean and Indian Ocean.

(34) Supplemental Tidal Predictions–Anchorage, Nikiski, Seldovia, and Valdez, Alaska.

(35) **Tidal Current Tables**

(36) Boston Harbor.

(37) Atlantic Coast, North America.

(38) Pacific Coast, North America and Asia.

(39) **Tidal Current Charts/Atlas**

(40) Boston Harbor.

(41) Narragansett Bay to Nantucket Sound.

(42) Narragansett Bay

(43) Long Island Sound and Block Island Sound.

(44) Delaware Bay and River Atlas.

(45) Upper Chesapeake Bay.

(46) Charleston Harbor, S.C., including the Wando, Cooper, and Ashley Rivers.

(47) Tampa Bay.

(48) Puget Sound, Northern Part.

(49) Puget Sound, Southern Part.

(50) **Regional Tide and Tidal Current Table**

(51) New York to Chesapeake Bay.

(52) **Dates of Latest Editions** gives the edition and date of the latest edition of charts and publications of the National Ocean Service. Published quarterly and available free from the National Aeronautical Charting Office, AVN-530, Federal Aviation Administration, Riverdale, MD 20737-1199; telephone 1-800-638-8972.

(53) **Charts and Publications—Other U.S. Government Agencies**

(54) **Government Printing Office.**–Publications of the U.S. Government Printing Office may be ordered from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-9325. Orders may be charged to Visa or Mastercard by calling 202-512-1800 during normal business hours. Injuries on availability, cost, etc. of GPO publications may be addressed to a 24-hour FAX number: 202-512-2250.

(55) **National Imagery and Mapping Agency Procurement Information.**–Unclassified publications produced by the National Imagery and Mapping Agency (NIMA) are available from the U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-1954. Orders can be placed on the U.S. Government Online Bookstore (http://bookstore.gpo.gov), by phone (202-512-1800) or by FAX (202-512-2250). Classified NIMA publications and charts are available to authorized users from Defense Supply Center Richmond (Attn: JNAA), 8000 Jefferson Davis Highway, Richmond,

VA 23297-5336. NIMA Customer Assistance Office can be contacted at 1-800-826-0342.

(56) A partial list of publications and charts considered of navigational value is included for the ready reference of the mariner. In addition to the agents located in the principal seaports handling publication sales, certain libraries have been designated by the Congress of the United States to receive the publications as issued for public review.

(57) **Nautical Charts**

(58) U.S. Waters:

(59) Apalachicola, Chattahoochee and Flint Rivers Navigation Charts, Alabama River Charts, and Black Warrior-Tombigbee Rivers River Charts: Published and for sale by U.S. Army Engineer District Mobile, P.O. Box 2288, 109 St. Joseph Street, Mobile, AL 36628-0001.

(60) Flood Control and Navigation Maps of the Mississippi River, Cairo, Ill. to the Gulf of Mexico: Published by Mississippi River Commission and for sale by U.S. Army Engineer District Vicksburg, P.O. Box 60, U.S. Post Office and Courthouse, Vicksburg, MS 39180-0060.

(61) Upper Mississippi River Navigation Charts (Mississippi River, Cairo, Ill. to Minneapolis, Minn.): Published by U.S. Army Engineer North Central Division and for sale by U.S. Army Engineer District St. Louis, 210 N. Tucker Boulevard, St. Louis, MO 63101-1986.

(62) Charts of the Illinois Waterway, from Mississippi River at Grafton, Ill. to Lake Michigan at Chicago and Calumet Harbors: Published and for sale by U.S. Army Engineer District Rock Island, Clock Tower Bldg., Rock Island, IL 61201-2004.

(63) Foreign Waters: Published by National Imagery and Mapping Agency (see National Imagery and Mapping Agency Procurement Information above).

(64) **Marine Weather Services Charts:** Published by the National Weather Service; for sale by NOS Distribution Division (see Sales Information above).

(65) **Publications**

(66) **Notices to Mariners:** The Local Notice to Mariners is available without charge upon application to the appropriate Coast Guard District Commander (see address further on). The National Imagery and Mapping Agency Notice to Mariners is available without charge by operators of ocean-going vessels (see National Imagery and Mapping Agency Procurement Information above).

(67) **Special Notice to Mariners**are published annually in National Imagery and Mapping Agency Notice to Mariners 1. These notices contain important information of considerable interest to all mariners. Interested parties are advised to read these notices.

(68) **Light Lists (United States and Possessions):** Published by U.S. Coast Guard; for sale by the Government Printing Office. (See Government Printing Office, early this appendix.)

(69) **List of Lights (Foreign Countries):** Published by National Imagery and Mapping Agency (see National Imagery and Mapping Agency Procurement Information above).

(70) **Sailing Directions (Foreign Countries):** Published by National Imagery and Mapping Agency (see National Imagery and Mapping Agency Procurement Information above).

(71) **Radio Navigational Aids, Pub. 117:** Published by National Imagery and Mapping Agency (see National Imagery and Mapping Agency Procurement Information above).

(72) The **Nautical Almanac**, the **Air Almanac**, and **Astronomical Almanac**: Published by U.S. Naval Observatory; for sale by Government Printing Office. (see Government Printing Office, early this appendix.)

(73) **American Practical Navigator (Bowditch)** (Pub. 9): Published by National Imagery and Mapping Agency (see National Imagery and Mapping Agency Procurement Information above).

(74) **International Code of Signals**(Pub. 102): Published by National Imagery and Mapping Agency (see National Imagery and Mapping Agency Procurement Information above).

(75) **Marine Product Dissemination Information:** maintained by the National Weather Service on the internet, (http://www.nws.noaa.gov/om/marine/home.htm).

(76) **Navigation Rules:** Navigation Rules, International-Inland (COMDTINST M16672.2 series): Published by the U.S. Coast Guard; for sale by Government Printing Office. (See Government Printing Office, early this appendix.)

(77) **Federal Requirements for Recreational Boats:** Published by U.S. Coast Guard; available without charge by contacting the toll free Boating Safety Hotline (telephone, 800-368-5647).

(78) **Port Series of the United States:** Published and sold by Corps of Engineers, U.S. Army, Water Resources Support Center, Navigation Data Center (703-428-8059), Ports & Waterways Division (CEWRC-NDC-P), 7701 Telegraph Road, Casey Building, Alexandria, VA 22315-3868.

(79) **Maritime Radio Users Handbook:** Published and sold by Radio Technical Commission for Maritime Services, 655 Fifteenth Street, N.W., Suite 300, Washington, DC 20005-5701.

(80) **National Ocean Service Oceanographic Products and Services Division**

(81) **For Tide and Tidal Current Predictions:**

(82) User Services Branch (N/CS44)

(83) Oceanographic Products and Services Division

(84) Room 6540

(85) 1305 East–West Highway

(86) Silver Spring, MD 20910-3281

(87) TEL 301-713-2815 Exts. 171, 196, 174

(88) FAX 301-713-4500 (24 hours)

(89) E-MAIL ipss@ceob–g30.nos.noaa.gov

(90) **For Tide Observations, Datums and Levels, Benchmark Sheets:**

(91) User Services Branch (N/CS44)

(92) Oceanographic Products and Services Division

(93) Room 6543

(94) 1305 East–West Highway

(95) Silver Spring, MD 20910-3281

(96) TEL 301-713-2877 Exts. 170, 175, 176

(97) FAX 301-713-4436 (24 hours)

(98) E-MAIL ipss@ceob–g30.nos.noaa.gov

(99) **PORTS Information and Data:**

(100) User Services Branch (N/CS44)

(101) Oceanographic Products and Services Division

(102) Room 6221

(103) 1305 East–West Highway

(104) Silver Spring, MD 20910-3281

(105) TEL 301-713-2806 Exts. 105, 149, 117

(106) FAX 301-713-1933 (24 hours)

(107) E-MAIL ipss@ceob–g30.nos.noaa.gov

(108) **Publishers of Tide Tables and Tidal Current Tables:**

(109) **ProStar Publications Inc.**

(110) 8643 Hayden Place
(111) Culver City, CA 90232-2901
(112) TEL 1-310-280-1010
(113) FAX 1-310-280-1025 (24 hours)
(114) **Thomas Reed Publications, Inc**
(115) 13A Lewis Street
(116) Boston, MA 02113
(117) TEL 1-800-995-4995
(118) FAX 1-617-248-5855 (24 hours)
(119) **International Marine**
(120) P.O. Box 182607
(121) Columbus, OH 43218-2607
(122) TEL 1-800-822-8158

(123) **U.S. Army Corps of Engineers (USACE) Offices**

(124) **Norfolk District:** 803 Front Street, Norfolk, Va. 23510-1096. Coastal and tributary waters of Virginia, including the Chesapeake Bay and its tributaries south of Pocomoke River on the eastern shore and south of Smith Point, Va., on the western shore except for Little Wicomico River, Va. Chowan River Basin downstream to and including the mouth of Meherrin River. The Albermarle and Chesapeake Canal within the State of Virginia and the Great Dismal Swamp Canal to Albemarle Sound.

(125) **Wilmington District:** 308 Federal Building, Wilmington, NC 28402-1890. Coastal and tributary waters of North Carolina except for Chowan River Basin above the mouth of Meherrin River and the navigation project in Pasquotank River. The Atlantic Intracoastal Waterway within North Carolina to Little River, S.C., except the Great Dismal Swamp Canal north of Albemarle Sound, which is within the Norfolk District.

(126) **Charleston District:** Federal Building, 334 Meeting Street, Charleston, SC 29402-0919. Coastal and tributary waters of South Carolina. The Atlantic Intracoastal Waterway within South Carolina from Little River to, and including, Port Royal Sound.

(127) **Savannah District:** Juliette Gordon Low Building, 100 West Oglethorpe Avenue, Savannah, GA. Coastal and tributary waters of Georgia from Port Royal Sound, S.C. to Cumberland Sound, Fla., and the Atlantic Intracoastal Waterway between the same points.

(128) **Jacksonville District:** Federal Building, 400 West Bay Street, Jacksonville, Fla. 32202. Coastal and tributary waters of Florida from Fernandina to the Aucilla River in Apalachee Bay and the waters of Puerto Rico and the Virgin Islands. The Atlantic Intracoastal Waterway between Fernandina and Key West and the Gulf Intracoastal Waterway between Key West and St. Marks.

(129) **Environmental Protection Agency (EPA).**–Regional offices and States in the EPA coastal regions:

(130) **Region I** (New Hampshire, Vermont, Maine, Massachusetts, Connecticut, Rhode Island): J.F. Kennedy Federal Bldg., Boston, MA 02203.

(131) **Region II** (New Jersey, New York, Puerto Rico, Virgin Islands): 26 Federal Plaza, New York, NY 10278.

(132) **Region III** (Delaware, Maryland, Virginia, District of Columbia, Pennsylvania): 841 Chestnut Street, Philadelphia, PA 19107.

(133) **Region IV** (Alabama, Florida, Georgia, Mississippi, South Carolina, North Carolina): 345 Courtland Street, NE., Atlanta, GA 30365.

(134) **Region V** (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin): 230 South Dearborn Street, Chicago, IL 60604.

(135) **Region VI** (Louisiana, Texas): 1445 Ross Avenue, Dallas, TX 75270.

(136) **Region IX** (California, Hawaii, Guam): 215 Fremont Street, San Francisco, CA 94105.

(137) **Region X** (Alaska, Oregon, Washington): 1200 Sixth Avenue, Seattle, WA 98101.

(138) **Coast Guard District Offices**

(139) Commander, Fifth Coast Guard District, Federal Building, 431 Crawford Street, Portsmouth, VA 23705-5004. Delaware; Maryland; Virginia; District of Columbia; North Carolina: that portion of New Jersey south of latitude 39°57'N., west of longitude 74°27'W., and southwest of a line extending northwesterly from 39°57'N., 74°27'W., to the New York, New Jersey, and Pennsylvania boundaries at Tristate; that portion of Pennsylvania east of a line drawn along 78°55'W., south to 41°00'N., thence west to 70°00'W. and thence south to the Pennsylvania-Maryland boundary; the ocean area encompassed by a line bearing 122°T from the New Jersey shoreline at 39°57' N., (in the vicinity of the mouth of Toms River, New Jersey) to 36°43'N., 67°30'W.; thence along a line bearing 219°T to the point of intersection with a line bearing 122°T from the shoreline at the North Carolina-South Carolina border; thence northwesterly along this line to the coast.

(140) Commander, Seventh Coast Guard District, Brickell Plaza Federal Building, 909 SE First Avenue, Miami, FL 33131-3050. Coastal waters and tributaries of South Carolina, Georgia, Florida eastward of longitude 83°50'W., Puerto Rico, U.S. Virgin Islands, and the adjacent islands of the United States.

(141) **Note.**–A Marine Safety Office combines the functions of the Captain of the Port and Marine Inspection Office.

(142) The symbol (D) preceding an office indicates that a Documentation Office is at the same address.

(143) **Coast Guard Marine Safety Offices**

(144) Charleston, SC: 196 Tradd Street 29401-1817.

(145) (D) Hampton Roads, Norfolk, VA: Norfolk Federal Bldg., 200 Granby Mall 23510-1888.

(146) Jacksonville, FL: 2831 Talleyrand Avenue, 32206-3497.

(147) (D) Miami, FL: Claude Pepper Federal Bldg., 51 SW 1st Avenue 33130-1608.

(148) Savannah, GA: P.O. Box 8191, 31402-8191.

(149) Wilmington, NC: 272 N. Front Street, Suite 500, 28401-3907.

(150) **Coast Guard Stations.**–The stations listed are in the area covered by this Coast Pilot. They have search and rescue capabilities and may provide lookout, communication, and/or patrol functions to assist vessels in distress. The National VHF-FM Distress System provides continuous coastal radio coverage outwards to 20 miles on channel 16. After contact on channel 16, communications with the Coast Guard should be on channel 22A. If channel 22A is not available to the mariner, communications may be made on channel 12. Selected stations guard the International Radiotelephone Distress, Safety and Calling Frequencies.

(151) **Virginia:**

(152) Portsmouth Station (36°53.0'N., 76°21.2'W.). On the west side of the entrance to Craney Island Creek.

(153) **North Carolina:**

(154) Coinjock Station (36°20.8'N., 75°57.0'W.). On the east side of the Intracoastal Waterway at Mile 49.6, near the north end of North Carolina Cut.

(155) Elizabeth City Air Station (36°15.8'N., 76°10.5'W.). About 3.5 miles southeastward of Elizabeth City, N.C., on the south bank of Pasquotank River.

(156) Oregon Inlet Station (35°46.0'N., 75°31.5'W.). Northerly end of Pea Island, at Oregon Inlet Light.

(157) Hatteras Inlet Station (35°12.5'N., 75°42.4'W.). Southern end of Hatteras Island, 1 mile southwestward of town of Hatteras.

(158) Ocracoke Station (35°06.9'N., 75°59.1'W.). At Ocracoke, about 0.4 mile northward of Ocracoke Light.

(159) Hobucken Station (35°14.8'N.,76°35.6'W.). On the Intracoastal Waterway at Mile 157.1 just north of the Hobucken Bridge.

(160) Fort Macon Base (34°41.8'N., 76°40.9'W.). About 0.1 mile westward of Fort Macon.

(161) Swansboro Station (34°38.8'N., 77°05.8'W.). About 1 mile east of Bogue Inlet, on West end of Bogue Banks.

(162) Wrightsville Beach Station (34°11.3'N., 77°48.7' W.). Southwestern end of Wrightsville Beach at Masonboro Inlet.

(163) Oak Island Station (33°53.6'N., 78°02.1'W.). West side of mouth of Cape Fear River on Oak Island.

(164) **South Carolina:**

(165) Georgetown Station (33°20.8'N., 79°16.2'W.). West bank at the Great Pee Dee River about 0.25 mile south of U.S. Route 17 highway bridge.

(166) Charleston Base (32°46.4'N., 79°56.6'W.). East side of Ashley River 0.8 mile above the Battery.

(167) **Georgia:**

(168) Tybee Station (32°02.1'N., 80°54.4'W.). North side of Cockspur Island.

(169) Savannah Air Station (34°01.0'N., 81°09.0'W.). At Hunter Air Force Base.

(170) St. Simons Island Station (31°08.7'N., 81°22.4'W.). Near south end of St. Simons Island.

(171) **Florida:**

(172) Mayport Base (30°23.3'N., 81°26.1'W.). On the east side of St. Johns River at the southerly end of waterfront at Mayport.

(173) Ponce de Leon Inlet Station (29°03.9' N., 80°54.9'W.). At south side of entrance to the inlet.

(174) Port Canaveral Station (28°25.0'N., 80°37.3'W.). North side of Canaveral Barge Canal at the northeast corner of West Basin.

(175) Fort Pierce Station (27°27.8'N., 80°18.4'W.). South side of Fort Pierce Inlet, 1.2 miles west of the outer end of south jetty.

(176) Lake Worth Inlet Station (26°47'19"N., 80°03'04"W.). About one mile north of the entrance channel on the west side of the Intracoastal Waterway.

(177) Fort Lauderdale Station (26°05.3'N., 80°06.8'W.). On the east side of the Intracoastal Waterway at Mile 1066.8.

(178) Miami Air Station (25°52.8'N., 80°15.2'W.). At Opa Locka Airport, northwest part of Miami.

(179) Miami Beach Base (25°46.2'N., 80°08.7'W.). On the north side of Miami Harbor Channel, 1.2 miles northwestward from outer end of north jetty.

(180) Islamorada Station (24°57.2'N., 80°35.2'W.). At the southwestern end of Plantation Key.

(181) Marathon Station (24°42.6'N., 81°06.4'W.). On the north side of Vaca Key, 1.1 miles eastward of Knight Key Channel.

(182) Key West Station (24°33.9'N., 81°48.0'W.). At Pier D2. Trumbo Street.

(183) **Coast Guard Radio Broadcasts.**–Urgent. safety, and scheduled marine information broadcasts are made by Coast Guard radio stations. In general, these broadcasts provide information vital to vessels operating in the approaches and coastal waters of the United States including Puerto Rico and the U.S. Virgin Islands. Transmissions are as follows:

(184) **By radiotelephone:** (a) upon receipt; (b) repeated 15 minutes later, (for urgent messages only); (c) text only on the first scheduled broadcast unless canceled; (d) additional broadcasts at the discretion of the originator.

(185) **Urgent broadcasts** are preceded by the urgent signal PAN PAN. Both the urgent signal and message are transmitted on 2182 kHz, and VHF-FM channel 16.

(186) **Safety broadcasts** are preceded by the safety signal SECURITY. After the preliminary safety signal is broadcast on 2182 kHz and VHF-FM channel 16, broadcast stations will shift to 2670 kHz and VHF-FM channel 22A, respectively.

(187) **Scheduled broadcasts.**–The following Coast Guard radio stations make scheduled broadcasts, preceded by a preliminary call on 2182 kHz and VHF-FM channel 16 at the times and frequencies indicated:

(188) **NMN-37**, Fort Macon, N.C., 2670 kHz, 0733 and 2003 e.s.t.;

(189) channel 22A, 0530 and 2030 e.s.t.

(190) **NMN-13**, Cape Hatteras, N.C., 2670 kHz, 0803 and 2033 e.s.t.;

(191) channel 22A, 0555 and 2000 e.s.t.

(192) **NMB**, Charleston, S.C., 2670 kHz, 1120, and 2320 e.s.t.; and

(193) channel 22A, 0700 and 1700 e.s.t.

(194) **NMA-10**, Mayport, Fla., 2670 kHz, 0120 and 1320 e.s.t.;

(195) channel 22A, 0715 and 1715 e.s.t.

(196) **NCF**, Miami Beach, FL, 2670 kHz (antennas at Miami Beach and Fort Lauderdale), 1050 and 2250 e.s.t.;

(197) channel 22A (antennas at Vero Beach, Jupiter, Delray Beach, Fort Lauderdale, Miami Beach, and Miami), 0730 and 1730 e.s.t.

(198) **NOK**, Key West, Fla.,

(199) channel 22A (antennas at Plantation Key, Vaca Key, and Sugarloaf Key, Fla.), 0700 and 1700 e.s.t.

(200) **U.S. NAVTEX Transmitting Stations.**–NAVTEX coverage is reasonably continuous to 200 NM off the U.S. East, Gulf, and West Coasts; Puerto Rico; Southwest Alaska; Hawaii; and 300-400 NM off Guam. U.S. Coast Guard NAVTEX broadcast stations (Atlantic Ocean) and message content follow:

(201) **Boston (NMF)(Station F)**

(202) First Coast Guard District Broadcast Notices to Mariners.

(203) Distress Urgent, and Safety messages.

(204) International Ice Patrol Reports (in season).

(205) Gale, storm, and hurricane warnings.

(206) Offshore marine weather forecasts for:

(207) New England continental shelf to 1000 fathoms;

(208) Gulf of Maine;

(209) Georges Bank;

(210) South of New England;

(211) South of Nova Scotia.

(212) Broadcast times: 0045, 0445, 0845, 1245, 1645, 2045 GMT.

(213) **Portsmouth (NMN)(Station N)**

(214) Fifth Coast Guard District Broadcast Notices to Mariners.
(215) Distress, Urgent, and Safety messages.
(216) Gale, storm, and hurricane warnings.
(217) Offshore marine weather forecasts for the west central North Atlantic from 32°N to 40°N and west of 65°W including the continental shelf to 1000 fathoms.
(218) Broadcast times: 0130, 0530, 0930, 1330, 1730, 2130 GMT.

(219) **Miami (NMA)(Station A)**
(220) Seventh Coast Guard District Broadcast Notices to Mariners.
(221) Distress, Urgent, and Safety messages.
(222) Gale, storm, and hurricane warnings.
(223) Offshore marine weather forecasts for the southwest North Atlantic south of 32°N and west of 65°W.
(224) Broadcast times: 0000, 0400, 0800, 1200, 1600, 2000 GMT.
(225) **San Juan (NMR)(Station R)**
(226) Greater Antilles Section Broadcast Notices to Mariners.
(227) Distress, Urgent, and Safety messages.
(228) Gale, storm, and hurricane warnings.
(229) Offshore marine weather forecast for:
(230) Puerto Rico and Virgin Islands waters out 20 NM;
(231) Eastern Caribbean Sea east of 75°W.
(232) Broadcast times: 0200, 0600, 1000, 1400, 1800, 2200 GMT.
(233) **New Orleans (NMG)(Station G)**
(234) Eighth Coast Guard District Broadcast Notices to Mariners.
(235) Distress, Urgent, and Safety messages.
(236) Gale, storm, and hurricane warnings.
(237) Offshore marine weather forecast for the Gulf of Mexico
(238) Broadcast times: 0300, 0900, 1500, 2100 GMT.

(239) **Customs Ports of Entry and Stations**
(240) Vessels may be entered and cleared at any port of entry or customs station, but at the latter only with advance authorization from the Customs Service district director.
(241) **Southeast Region**
(242) Norfolk District:
(243) Ports of Entry: Norfolk and Newport News, Va.
(244) Wilmington District:
(245) Ports of Entry: Wilmington and Beaufort-Morehead City, N.C.
(246) Charleston District:
(247) Ports of Entry: Charleston and Georgetown, S.C.
(248) Savannah District:
(249) Ports of Entry: Savannah and Brunswick, Ga.
(250) Tampa District:
(251) Ports of Entry: Fernandina Beach, Jacksonville, and Port Canaveral, Fla.
(252) Customs Station: Green Cove Springs, FL (supervised by Jacksonville port of entry.)
(253) Miami District:
(254) Ports of Entry: Miami, Key West, Port Everglades, and West Palm Beach, Fla.
(255) Customs Station: Fort Pierce, Fla. (supervised by West Palm Beach port of entry).

(256) **Public Health Service Quarantine Stations.**–Stations where quarantine examinations are performed:
(257) Miami: U.S. Quarantine Station, International Airport, Miami, FL 33159-2335.
(258) At other ports, quarantine and/or medical examinations are usually performed by Public Health Service contract personnel or by quarantine inspectors from the nearest quarantine station. Inquiries concerning quarantine matters should be directed to the nearest quarantine station.

(259) **Food and Drug Administration (FDA) Regional Offices**
(260) **Northeast Region** (New York, Maine, Connecticut, New Hampshire, Vermont, Rhode Island): 830 Third Avenue, Brooklyn, NY 11232.
(261) **Mid-Atlantic Region** (Delaware, Pennsylvania, Virginia, Maryland, Ohio, New Jersey): U.S. Customhouse, 2nd and Chestnut Streets, Philadelphia, PA 19106.
(262) **Southeast Region** (South Carolina, North Carolina, Georgia, Alabama, Louisiana, Mississippi, Florida, Puerto Rico): 60 Eighth Street, N.E., Atlanta, GA 30309.
(263) **Midwest Region** (Illinois, Indiana, Michigan, Wisconsin): 20 N. Michigan Avenue, Chicago, IL 60602.
(264) **Southwest Region** (Texas): 3032 Bryan Street, Dallas, TX 75204.
(265) **Pacific Region** (California, Hawaii, Alaska, Washington, Oregon): 50 U.N. Plaza, San Francisco, CA 94102.

(266) **Department of Agriculture, Animal and Plant Health Inspection Service (APHIS) Offices.**–Listed below are ports covered by this volume where APHIS inspectors are available to inspect plants, and plant and animal products, and locations of Animal Import Centers where livestock and birds are inspected.
(267) Information on importation of plants, animals, and plant and animal products is available from APHIS, Department of Agriculture, Federal Building, 6505 Belcrest Road, Hyattsville, Md. 20782. The specific offices to contact are as follows: for plants, including fruits and vegetables, and plant products, Plant Protection and Quarantine, Room 635, telephone 301-436-6799; for animal products, Import-Export Animals and Products Staff, Room 756A, telephone 301-436-7885; and for live ruminants, swine, equines, and poultry and other birds, Veterinary Services, Import-Export Animals and Products Staff, Room 764, telephone 301-436-8590.
(268) **Virginia:**
(269) Norfolk: Federal Bldg., Room 311, 200 Granby Mall 23510.
(270) Newport News: P.O. Box 942, 23607.
(271) **North Carolina:**
(272) Morehead City: North Carolina Maritime Bldg., Room 216, 113 Arendell 28557.
(273) Wilmington: Rural Route 6, Box 53D, 28405.
(274) **South Carolina:**
(275) Charleston: 513 Federal Bldg., P.O. Box 941, 29402.
(276) **Georgia:**
(277) Atlanta: 650 Central Avenue, Hapeville 30354.
(278) Savannah: U.S. Courthouse and Federal Bldg., 125-126 Bull Street 31401.
(279) **Florida:**
(280) Jacksonville: Federal Office Bldg., Room 521, 400 West Bay Street 32202.

(281) Cape Canaveral: 120 George King Boulevard 32920.
(282) West Palm Beach: 158 Port Road, Riviera Beach 33404.
(283) Port Everglades: Amman Bldg., Room 305, 611 Eisenhower Boulevard 33316.
(284) Miami: FAA and NWS Bldg., Box 59-2647 AMF, 33159; Miami Inspection Station, 3500 N.W. 62nd Avenue 33159.
(285) Key West: Federal Bldg., Room 226, 301 Simonton Street 33040.
(286) Pensacola: Federal Building, 100 North Palafax Street 32573.
(287) Tampa: 700 Twiggs Street 33601.
(288) **Animal Import Centers:**
(289) Honolulu, Hawaii: P.O. Box 50001, 96850.
(290) Miami, Fla.: 8120 NW 53rd Street, Suite 102, 33166.
(291) Rock Tavern, N.Y.: New York Animal Import Center, Stewart Airport, Rural Route 1, Box 74, 12575.

(292) **Immigration and Naturalization Service Offices**
(293) **Virginia:**
(294) Norfolk: Norfolk Federal Bldg., Room 439, 200 Granby Mall 23510.
(295) **North Carolina:**
(296) Wilmington: Post Office Bldg., Room 221, P.O. Box 1743, 28402.
(297) **South Carolina:**
(298) Charleston: Federal Bldg., Room 330, 334 Meeting Street 29403.
(299) **Georgia:**
(300) Savannah: Federal Bldg./Courthouse, Room 230, P.O. Box 9269, 31402.
(301) **Florida:**
(302) Jacksonville: Post Office Bldg., Room 227, 311 West Monroe Street, P.O. Box 4608, 32201.
(303) West Palm Beach: Customs Immigration Bldg., 141 East Port Road, Riviera Beach, P.O. Box 9846, 33404.
(304) Port Everglades: Amman Bldg., Room 304, 611 Eisenhower Boulevard, P.O. Box 13054, 33316.
(305) Miami: 7880 Biscayne Boulevard 33138.
(306) Key West: 301 Simonton Street, Room 215, Box 86, 33040.

(307) **Federal Communications Commission Offices**
(308) **District Field Offices:**
(309) Norfolk, Va.: Military Circle, 870 North Military Highway 23502.
(310) Atlanta, Ga.: Massell Bldg., Room 440, 1365 Peachtree Street, N.E. 30309.
(311) Miami, Fla.: Koger Bldg., Room 203, 8675 N.W. 53rd Street 33166.

(312) **National Weather Service Offices.**–The following offices will provide forecasts and climatological data or arrange to obtain these services from other offices. They will also check barometers in their offices or by telephone. (Consult local telephone directory for telephone number.)
(313) Norfolk, VA: International Airport 23518.
(314) Wilmington, NC: New Hanover County Airport, 1739 Hewlett Drive 28405.
(315) Cape Hatteras, NC: Buxton, NC 27920.
(316) Charleston, SC: 2555 Remount Road, N. Charleston, SC 29418.
(317) Daytona Beach, FL: Regional Airport, 1580 Aviation Center Parkway 32114.
(318) West Palm Beach, FL: 4245 Southern Boulevard 33406.
(319) Miami, FL: 1320 South Dixie Highway, Coral Gables, FL 33146.
(320) Melbourne, FL: 421 Croton Road 32935.
(321) Key West, FL: International Airport 33040.
(322) **Radio Weather Broadcasts.**–Taped or direct broadcasts of marine weather forecasts and storm warnings are made by commercial and Coast Guard radio stations in the areas covered by this Coast Pilot. The Coast Guard broadcasts coastal and offshore marine weather forecasts at the times and frequencies indicated:
(323) **NMN,** Portsmouth, Va.
(324) 4426.0 kHz, 0030, 0500, and 2300 e.s.t.
(325) 6501.0 kHz, 0030, 0500, 0630, 1100, 1700, 1830, and 2300 e.s.t.
(326) 8764.0 kHz, 0030, 0500, 0630, 1100, 1230, 1700, 1830, and 2300 e.s.t.
(327) 13089.0 kHz, 0630, 1100, 1230, 1700, and 1830 e.s.t.
(328) 17314.0 kHz, 1230 e.s.t.
(329) Marine Weather Services Charts are available for the following areas covered by this Coast Pilot:
(330) Manasquan, N.J. to Cape Hatteras, N.C.
(331) Cape Hatteras, N.C to Savannah, Ga.
(332) Savannah, Ga. to Apalachicola, Fla.
(333) VHF-FM weather broadcast schedules of Coast Guard radio stations are also listed in the description of Coast Guard Radio Broadcasts found elsewhere in this appendix.
(334) **NOAA Weather Radio.**–National Weather Service VHF-FM radio stations provide mariners with continuous FM broadcasts of weather warnings, forecasts, radar reports, and selected weather observations. These stations transmit on 162.55, 162.475, or 162.40 MHz. Reception range is usually up to 40 miles from the antenna site, depending on terrain, type of receiver, and antenna used. The following VHF-FM radio stations are located in or near the area covered by this Coast Pilot:
(335) KHB-37, Norfolk, Va., 162.55 MHz (36°48'N., 76°28'W.)
(336) KIG-77, Cape Hatteras, N.C., 162.475 MHz (35°16'N., 75°33'W.)
(337) KEC-84, New Bern, N.C., 162.40 MHz (35°08'N., 77°03'W.)
(338) KHB-31, Wilmington, N.C., 162.55 MHz (34°08'N., 78°11'W.)
(339) KEC-95, Myrtle Beach, S.C., 162.40 MHz (33°57'N., 79°06'W.)
(340) KHB-29, Charleston, S.C., 162.55 MHz (32°47'N., 79°50'W.)
(341) WXJ-23, Beaufort, S.C., 162.475 MHz (32°42'N., 80°40'W.)
(342) KEC-85, Savannah, Ga., 162.40 MHz (32°04'N., 81°06'W.)
(343) KHB-39, Jacksonville, Fla., 162.55 MHz (30°19'N., 81°32'W.)
(344) KIH-26, Daytona Beach, Fla., 162.40 MHz (29°12'N., 81°00'W.)
(345) WXJ-70, Melbourne, Fla., 162.55 MHz (28°04'N., 80°36'W.)
(346) KEC-50, West Palm Beach, Fla., 162.475 MHz (26°35'N., 80°12'W.)

(347) WXK-83, Fort Myers, Fla., 162.475 MHz (26°37'N., 81°48'W.)

(348) KHB-34, Miami, Fla., 162.55 MHz (25°32'N., 80°28'W.)

(349) WXJ-95, Key West, Fla., 162.40 MHz (24°39'N., 81°32'W.)

(350) The National Weather Service provides **Radiofacsimile Weather Information** for east coast and Gulf coast waters through the Coast Guard Communications Station Boston at Marshfield, MA (NMF). Broadcasts are continuous on 6340.5 and 12750 kHz. Fax schedules are transmitted at 0305 Zulu time. For further information contact the National Weather Service, National Meteorological Center at (301) 763-8442, or fax (301) 899-8903.

(351) **National Weather Service Forecast Offices (WSFOs).** - Scheduled coastal marine forecasts are issued four times daily by Weather Service Forecast Offices. (See National Weather Service, chapter 1, for further details.) Individual WSFOs and their specific areas of broadcast coverage are as follows:

(352) Raleigh, N.C.: (1) South of Virginia Beach to and including Little River Inlet, out 20 miles; (2) Albemarle and Pamlico Sounds.

(353) Columbia, S.C.: South of Little River Inlet to but not including Savannah, out 20 miles.

(354) Miami, Fla.: (1) Savannah to and including St. Augustine, out 50 miles; (2) From St. Augustine to but not including Jupiter Inlet, out 50 miles; (3) Jupiter Inlet to and including Key Largo, out to Great Bahama Bank; (4) From Key Largo to Dry Tortugas including the Straits of Florida and Florida Bay.

(355) **National Weather Service Port Meteorological Officers (PMOs).**–Port Meteorological Officers provide assistance on matters of weather chart interpretation, instruments, marine weather communications, and requirements affecting ship operations. (See National Weather Service, chapter 1, for further details.) PMO offices in the area covered by this Coast Pilot are as follows:

(356) Norfolk, Va.: Norfolk International Airport 23518.

(357) Jacksonville, Fla.: Box 18367, International Airport 32229.

(358) Miami, Fla.: 1600 Port Boulevard 33132.

(359) **Radio shore stations providing medical advice.**–Messages to shore stations may be transmitted in code groups or plain language; messages should be signed by the master and be prefixed **RADIOMEDICAL.** The following stations will provide radio services for medical advice. (See Medical advice, chapter 1.)

(360) NMN, Portsmouth, VA, U.S. Coast Guard and

(361) NMA, Miami, FL, U.S. Coast Guard on HF single-sideband radiotelephone channels 424(4134 kHz), 601(6200 kHz), 816(8240 kHz), or 1205(12242 kHz).

(362) WOE, Lantana, FL, RCA Global Communications, Inc. maintains continuous guard on 500 kHz.

(363) **Measured Courses.**–The positions of measured courses are shown on the chart and their description is included in the Coast Pilots when information is reported to the National Ocean Service. Courses are located in the following places covered by this Coast Pilot:

(364) St. Johns River above Jacksonville; 11492

(365) Southward of the entrance to St. Johns River; 11490

(366) The pages in the text describing the courses can be obtained by referring to the index for the geographic places; chart numbers follow the names.

CLIMATOLOGICAL TABLES

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

Sea level pressure is station pressure reduced to sea level.

NORFOLK, VIRGINIA (36° 54'N., 76° 12'W.) Elevation 43 ft. (13.1m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1019.6	1018.9	1017.0	1016.1	1016.3	1015.8	1016.7	1017.1	1018.3	1019.2	1019.3	1020.2	1017.9	49
TEMPERATURE (DEGREES F)														
Mean	40.5	42.2	49.1	58.3	66.8	74.9	79.4	77.8	72.4	61.9	52.6	44.0	60.1	50
Mean Daily Maximum	48.4	50.7	58.0	68.0	75.8	83.6	87.5	85.5	80.0	70.1	61.3	52.2	68.5	50
Mean Daily Minimum	32.1	33.2	39.7	48.1	57.3	65.7	70.8	69.6	64.2	53.2	43.4	35.4	51.2	50
Extreme Highest	78	82	88	97	100	101	103	104	99	95	86	80	104	50
Extreme Lowest	-3	8	18	28	36	45	54	49	45	27	20	7	-3	50
RELATIVE HUMIDITY														
Average Percentage	70.6	64.1	45.0	35.8	37.6	33.3	41.6	46.3	58.2	66.8	68.3	76.5	53.7	50
CLOUD COVER														
Percent of time Clear	26.4	27.5	26.6	26.3	20.9	18.2	16.3	16.9	21.9	29.6	29.8	28.7	24.1	48
Percent of time Scattered	13.3	13.0	14.6	17.4	18.0	23.4	24.3	24.2	22.5	18.2	17.3	14.6	18.4	48
Percent of time Broken	12.4	12.8	14.0	17.0	20.5	24.3	26.0	26.3	21.8	16.1	15.7	13.5	18.4	48
Percent of time Overcast	44.6	43.3	42.3	35.4	35.5	28.7	27.1	27.2	28.6	32.1	33.2	39.2	34.7	48
PRECIPITATION														
Mean Amount (inches)	3.65	3.28	3.82	3.09	3.62	3.52	5.26	5.27	3.85	3.34	3.02	3.11	44.83	50
Greatest Amount (inches)	9.93	6.23	10.36	7.25	10.12	9.72	14.37	14.32	13.80	10.12	7.01	6.10	64.96	50
Least Amount (inches)	1.05	0.84	0.75	0.43	0.64	0.37	0.36	0.74	0.26	0.57	0.49	0.67	26.48	50
Maximum in 24 hrs. (inches)	3.74	2.68	3.78	5.86	3.41	5.76	4.72	7.41	6.48	3.71	3.31	2.50	7.41	50
Mean Number of Days with Precipitation	15	14	15	14	14	13	14	14	11	11	12	13	160	50
Mean Snowfall Amount (inches)	2.0	3.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	8.0	48
Greatest Snowfall Amount (inches)	14.2	24.4	13.7	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.6	14.7	41.9	48
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	48
Maximum Snowfall in 24 hrs. (inches)	9.0	13.6	8.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.6	10.4	13.6	48
Mean Number of Days with Snow	4	4	2	Miss	0	0	0	0	0	0	Miss	2	12	50
WIND														
Percent of Observations with Gales (>34kts)	0.01	0.05	0.02	0.02	0.01	0.00	0.00	0.02	0.04	0.07	0.02	0.01	0.02	50
Mean Wind Speed (Knots)	9.9	10.3	10.7	10.2	9.1	8.4	7.8	7.6	8.3	8.9	9.2	9.5	9.1	50
Direction (percentage of Obs.)														
North	11.5	11.2	8.6	6.7	5.1	4.0	3.3	4.1	5.9	8.3	8.0	9.9	7.2	50
North Northeast	9.7	10.5	8.5	6.6	6.9	5.5	4.7	6.0	8.1	10.4	8.0	8.9	7.8	50
Northeast	7.5	8.3	9.1	8.3	10.0	9.2	7.8	10.5	13.9	12.5	8.6	7.3	9.4	50
East Northeast	3.0	3.7	4.9	5.6	6.8	6.6	5.4	7.5	8.7	6.8	3.7	3.6	5.5	50
East	1.8	2.7	3.8	3.5	4.6	4.8	4.2	4.8	5.6	4.1	2.8	2.0	3.7	50
East Southeast	1.5	2.3	3.7	4.0	4.4	4.7	3.9	4.0	4.0	2.6	2.3	1.5	3.2	50
Southeast	2.6	3.2	4.2	5.0	5.8	5.9	5.1	5.2	4.8	3.6	3.1	2.5	4.3	50
South Southeast	2.9	3.6	4.7	5.5	5.9	5.6	5.3	5.4	4.4	3.5	3.7	3.1	4.5	50
South	7.0	6.6	7.4	9.0	9.2	9.2	10.2	9.4	8.0	6.8	8.5	7.4	8.2	50
South Southwest	8.2	7.9	8.2	10.3	9.7	11.3	12.8	10.3	8.4	7.7	9.0	8.8	9.4	50
Southwest	9.6	8.7	8.7	10.6	11.0	12.8	15.6	12.4	9.0	8.8	10.4	10.7	10.7	50
West Southwest	6.2	6.2	5.4	5.8	5.7	6.1	7.3	5.4	3.9	4.5	6.1	6.6	5.8	50
West	6.2	5.2	4.7	4.7	3.8	4.1	3.9	3.2	2.6	3.0	5.1	5.9	4.4	50
West Northwest	5.8	5.4	5.3	4.4	3.1	2.6	2.4	1.9	2.1	3.1	5.0	5.7	3.9	50
Northwest	6.6	6.1	5.8	4.2	2.8	2.4	2.1	2.5	3.0	4.8	6.2	7.2	4.5	50
North Northwest	6.9	6.1	5.2	3.9	2.4	2.0	1.7	2.0	2.4	4.4	5.6	6.1	4.1	50
Calm	2.7	2.4	1.8	1.8	2.8	3.2	4.0	5.2	5.1	5.0	3.9	3.6	3.5	50
Direction (Mean Speed, knots)														
North	11.3	11.9	12.6	12.1	10.6	10.1	8.9	9.5	11.3	11.6	11.2	11.4	11.3	50
North Northeast	10.5	11.2	11.6	11.3	10.7	9.5	8.8	9.8	11.5	12.0	11.0	11.1	10.9	50
Northeast	9.8	10.1	10.5	10.5	10.6	9.9	9.1	9.7	11.1	11.3	10.1	9.4	10.3	50
East Northeast	7.9	9.0	9.8	9.9	9.3	9.5	8.6	8.8	9.7	9.5	8.5	7.9	9.2	50
East	7.0	7.5	8.2	8.2	7.6	7.5	7.0	6.8	7.0	7.6	7.5	7.0	7.4	50
East Southeast	6.5	7.8	8.2	8.2	7.3	7.3	6.6	6.6	6.5	6.9	7.8	7.0	7.2	50
Southeast	7.3	8.0	8.3	8.1	7.8	7.3	6.9	6.5	6.6	6.6	7.3	7.3	7.3	50
South Southeast	7.9	8.2	9.1	8.4	7.9	7.0	6.5	6.6	6.5	6.8	7.9	7.8	7.5	50
South	8.6	8.7	10.3	9.5	9.6	7.8	7.4	7.2	6.9	7.2	8.3	8.4	8.2	50
South Southwest	9.7	10.3	11.0	11.0	9.6	9.1	8.5	7.9	7.9	7.8	8.9	9.4	9.2	50
Southwest	10.8	10.7	11.8	11.2	10.1	9.5	9.0	8.3	8.1	8.3	9.0	9.8	9.6	50
West Southwest	10.9	11.5	11.7	10.9	9.7	9.0	8.4	7.8	8.1	8.3	9.4	10.1	9.7	50
West	10.8	11.2	11.5	10.6	9.0	8.0	7.4	6.9	7.1	7.8	9.5	9.8	9.5	50
West Northwest	10.8	12.0	12.2	11.1	9.1	8.7	7.2	7.2	7.5	8.8	9.9	10.6	10.2	50
Northwest	10.9	11.7	12.3	11.1	9.3	8.1	7.0	6.8	8.1	9.3	10.4	10.7	10.2	50
North Northwest	12.0	11.8	12.3	11.7	10.1	9.0	8.2	8.3	9.9	11.5	11.5	11.6	11.2	50
VISIBILITY														
Mean Number of Days with Fog	13	12	12	11	13	12	13	16	14	14	13	12	155	50
Percent Obs with Visibility <= 1/2 mile	1.37	1.78	1.32	0.70	0.82	0.29	0.17	0.33	0.49	1.23	0.96	1.30	0.90	50

CLIMATOLOGICAL TABLES

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

Sea level pressure is station pressure reduced to sea level.

CAPE HATTERAS, NORTH CAROLINA (35° 16'N., 75° 33'W.) Elevation 23 ft.) (7m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1019.4	1018.1	1017.1	1016.4	1017.1	1016.1	1017.1	1016.9	1018.1	1018.4	1019.3	1020.2	1017.9	39
TEMPERATURE (DEGREES F)														
Mean	45.4	46.2	51.6	59.6	67.4	74.6	79.0	78.0	74.0	65.6	57.3	49.3	62.6	41
Mean Daily Maximum	52.8	53.8	59.3	67.5	74.6	81.1	85.1	84.7	80.8	72.3	64.6	56.7	69.6	41
Mean Daily Minimum	37.5	38.0	43.4	51.2	59.7	67.6	72.3	71.9	67.9	58.5	49.6	41.5	55.1	41
Extreme Highest	75	76	81	89	91	95	96	94	92	89	81	78	96	41
Extreme Lowest	6	14	19	26	39	44	54	56	45	32	22	12	6	41
RELATIVE HUMIDITY														
Average Percentage	68.9	56.0	45.8	39.5	45.6	35.6	46.5	44.4	55.5	59.0	68.2	77.3	53.6	39
CLOUD COVER														
Percent of time Clear	29.4	27.3	29.2	32.4	26.1	21.3	19.2	18.6	26.8	32.6	30.7	30.1	27.0	38
Percent of time Scattered	11.1	11.7	13.3	16.3	18.7	20.7	21.2	22.4	23.0	17.6	15.6	14.1	17.2	38
Percent of time Broken	12.2	11.2	12.2	14.6	18.0	21.0	23.0	21.7	17.6	14.9	15.1	12.8	16.2	38
Percent of time Overcast	43.7	46.9	42.6	33.5	32.6	32.7	31.0	32.2	28.6	31.1	34.8	39.8	35.7	38
PRECIPITATION														
Mean Amount (inches)	5.48	4.06	4.62	3.27	3.76	4.20	5.05	6.24	5.34	5.27	4.90	4.57	56.76	41
Greatest Amount (inches)	12.45	8.45	11.20	9.57	11.44	10.80	9.99	16.10	20.00	15.05	16.20	9.63	90.84	41
Least Amount (inches)	1.75	1.06	0.98	0.36	0.35	0.38	0.45	0.99	0.08	0.53	1.15	0.64	41.52	41
Maximum in 24 hrs. (inches)	5.95	2.87	4.57	5.11	3.28	6.13	5.29	7.51	5.46	8.30	7.69	3.59	8.30	41
Mean Number of Days with Precipitation	14	13	13	11	12	11	14	13	12	11	11	13	148	41
Mean Snowfall Amount (inches)	0.4	0.5	0.4	T	0.0	0.0	0.0	0.0	0.0	0.0	T	0.5	1.9	39
Greatest Snowfall Amount (inches)	3.5	4.4	8.5	T	0.0	0.0	0.0	0.0	0.0	0.0	T	13.5	13.8	39
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39
Maximum Snowfall in 24 hrs. (inches)	3.5	4.4	7.0	T	0.0	0.0	0.0	0.0	0.0	0.0	T	8.2	8.2	39
Mean Number of Days with Snow	2	1	Miss	Miss	0	0	0	0	0	0	Miss	1	4	41
WIND														
Percent of Observations with Gales (>34kts)	0.00	0.07	0.02	0.02	0.00	0.01	0.00	0.07	0.10	0.05	0.03	0.01	0.06	39
Mean Wind Speed (Knots)	10.5	10.6	10.4	10.2	9.5	9.2	8.6	8.3	9.2	9.8	9.7	10.1	9.7	39
Direction (percentage of Obs.)														
North	15.3	12.7	7.8	5.8	4.5	2.8	1.8	3.8	5.7	10.6	12.4	14.1	8.1	39
North Northeast	13.7	16.1	14.2	10.0	10.1	8.6	5.0	8.9	14.8	18.5	13.4	12.7	12.1	39
Northeast	6.8	8.9	11.5	10.5	13.6	11.9	8.2	12.3	19.4	15.9	8.9	7.0	11.3	39
East Northeast	2.3	2.8	5.3	5.5	5.8	6.7	5.3	7.1	8.3	6.1	4.1	2.3	5.1	39
East	1.1	1.2	2.1	2.8	3.4	3.1	3.2	3.4	3.2	2.9	1.9	1.0	2.4	39
East Southeast	1.0	1.2	1.9	2.3	2.5	3.0	2.5	2.7	3.3	2.5	1.8	1.0	2.2	39
Southeast	1.1	1.4	2.1	2.4	2.9	3.6	2.4	2.9	3.2	2.3	2.1	1.1	2.3	39
South Southeast	1.5	1.9	2.6	3.0	3.7	3.5	2.6	3.4	3.2	2.4	2.5	1.9	2.7	39
South	3.1	3.3	4.4	5.8	6.9	6.4	5.6	6.1	4.9	3.2	4.2	3.0	4.8	39
South Southwest	3.0	4.1	6.3	8.8	10.4	11.7	13.8	9.5	5.7	3.6	4.5	3.3	7.1	39
Southwest	6.3	8.8	10.5	15.8	16.4	18.2	23.2	16.2	8.7	5.5	6.5	6.8	11.9	39
West Southwest	9.2	9.4	9.1	9.9	8.9	10.4	14.4	10.9	6.0	5.4	7.4	8.6	9.1	39
West	7.6	6.2	5.5	4.7	3.2	3.3	4.7	3.6	3.4	4.2	6.5	8.3	5.1	39
West Northwest	8.3	5.3	5.2	3.7	2.4	1.8	2.2	2.3	2.6	4.2	7.1	8.5	4.5	39
Northwest	8.5	6.4	4.5	3.7	1.8	1.3	1.4	1.7	2.0	3.8	6.2	9.0	4.2	39
North Northwest	9.3	7.0	5.0	3.6	1.9	1.4	1.0	1.7	2.5	6.1	8.1	9.5	4.7	39
Calm	1.9	2.3	1.9	1.9	1.9	2.1	2.8	3.6	3.1	2.8	2.4	1.8	2.4	39
Direction (Mean Speed, knots)														
North	11.2	11.4	11.9	11.8	11.2	9.2	8.0	8.4	9.7	9.6	10.0	10.3	10.5	39
North Northeast	11.5	11.9	12.0	12.2	11.5	10.7	8.5	9.5	11.1	11.6	11.1	11.3	11.3	39
Northeast	10.2	10.2	10.1	10.5	10.4	9.8	9.0	9.5	10.5	11.1	9.9	10.7	10.2	39
East Northeast	8.3	7.7	8.2	8.5	8.4	8.5	8.1	7.9	9.4	9.3	8.6	9.4	8.6	39
East	8.3	6.8	7.3	7.3	7.4	8.0	7.2	7.1	8.2	9.2	7.7	8.8	7.7	39
East Southeast	10.0	8.3	7.5	7.2	7.4	7.6	7.2	7.1	8.7	9.8	9.3	8.6	8.1	39
Southeast	9.5	10.6	8.8	8.4	8.1	7.9	7.0	7.3	8.5	9.1	9.2	10.5	8.4	39
South Southeast	11.5	10.1	9.8	9.4	8.5	8.5	7.4	7.5	8.9	10.0	10.4	11.3	9.2	39
South	12.4	11.6	10.6	10.1	9.5	8.9	8.4	8.1	8.4	9.5	10.5	11.0	9.6	39
South Southwest	11.8	10.5	11.1	10.6	10.1	10.0	9.5	8.9	9.1	9.6	9.9	10.5	10.0	39
Southwest	12.0	11.5	11.4	11.2	10.2	10.2	10.1	9.8	9.5	10.4	10.8	11.2	10.5	39
West Southwest	11.1	11.0	10.1	10.8	9.3	9.6	9.3	8.9	8.7	9.8	10.5	10.7	10.0	39
West	10.0	10.2	9.9	9.3	7.7	8.1	7.6	7.2	7.3	8.2	9.1	9.2	8.9	39
West Northwest	9.4	10.3	10.7	9.3	7.5	7.9	6.7	6.4	6.7	7.6	8.7	8.9	8.8	39
Northwest	10.1	10.7	10.7	10.5	8.4	8.4	7.2	6.9	7.3	8.4	9.0	10.1	9.6	39
North Northwest	10.3	10.7	11.8	10.6	8.9	8.6	7.4	7.2	8.3	9.5	9.9	10.0	10.0	39
VISIBILITY														
Mean Number of Days with Fog	13	11	12	8	10	9	9	9	8	10	10	11	120	41
Percent Obs with Visibility <= 1/2 mile	1.20	1.78	1.58	0.65	0.54	0.07	0.09	0.05	0.12	0.20	0.36	1.32	0.66	39

CLIMATOLOGICAL TABLES

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

Sea level pressure is station pressure reduced to sea level.

NEW BERN, NORTH CAROLINA (35° 04'N., 77° 03'W.) Elevation 16 ft. (4.9m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1021.6	1019.0	1016.7	1016.1	1014.6	1015.3	1017.1	1016.1	1017.1	1018.3	1018.4	1020.4	1017.6	6
TEMPERATURE (DEGREES F)														
Mean	45.0	46.6	53.6	62.0	69.6	76.5	80.1	79.0	74.0	64.3	54.9	46.9	62.8	38
Mean Daily Maximum	55.0	57.3	64.7	73.6	80.0	86.0	88.8	87.4	83.1	74.8	66.2	57.5	72.9	38
Mean Daily Minimum	34.4	35.5	42.0	49.8	58.7	66.5	70.9	70.0	64.4	53.3	43.2	35.9	52.1	38
Extreme Highest	81	83	90	95	100	105	106	103	101	97	87	83	106	38
Extreme Lowest	1	5	17	29	32	44	55	50	43	26	17	-4	-4	38
RELATIVE HUMIDITY														
Average Percentage	90.6	65.2	42.5	35.7	21.4	28.3	45.9	36.4	46.0	57.6	59.4	79.2	50.7	6
CLOUD COVER														
Percent of time Clear	28.3	32.7	32.4	35.6	30.0	20.5	21.8	21.5	24.3	36.0	43.1	36.7	30.2	6
Percent of time Scattered	15.3	14.4	15.2	18.3	20.1	24.2	23.7	23.7	21.7	16.5	15.4	12.8	18.5	6
Percent of time Broken	16.6	16.1	15.4	17.7	22.0	29.2	29.8	29.0	22.7	16.8	13.6	13.0	20.2	6
Percent of time Overcast	35.5	34.4	34.4	25.4	23.9	21.1	19.2	20.6	25.6	26.3	25.5	34.2	27.1	6
PRECIPITATION														
Mean Amount (inches)	4.29	3.82	3.95	2.97	4.38	4.82	6.77	6.58	5.03	2.87	3.21	3.72	52.39	38
Greatest Amount (inches)	8.08	9.39	9.17	5.58	8.00	8.65	16.04	13.03	13.93	9.81	7.68	9.78	70.89	38
Least Amount (inches)	0.77	0.62	0.60	0.72	0.99	1.28	0.28	1.70	0.98	0.44	0.28	0.30	36.07	38
Maximum in 24 hrs. (inches)	3.84	2.77	3.28	2.23	4.53	3.14	7.33	8.85	7.49	2.93	3.34	4.79	8.85	38
Mean Number of Days with Precipitation	14	12	13	11	13	12	16	15	11	9	10	12	148	36
Mean Snowfall Amount (inches)	0.9	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.4	2.3	38
Greatest Snowfall Amount (inches)	16.5	13.0	11.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	T	8.8	19.1	38
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38
Maximum Snowfall in 24 hrs. (inches)	12.5	11.0	9.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	T	6.2	12.5	38
Mean Number of Days with Snow	2	1	1	Miss	0	0	0	0	0	0	Miss	1	5	36
WIND														
Percent of Observations with Gales (>34kts)	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.07	0.00	0.00	1.39	6
Mean Wind Speed (Knots)	7.8	8.1	8.4	8.5	7.0	6.7	6.5	6.1	6.1	6.2	6.4	6.8	7.0	6
Direction (percentage of Obs.)														
North	4.2	8.4	6.1	4.1	5.4	4.2	2.4	5.9	8.6	9.4	5.1	6.6	5.9	6
North Northeast	6.2	7.0	4.4	2.9	5.7	6.0	5.2	9.4	14.4	15.9	6.5	7.5	7.7	6
Northeast	6.1	6.7	6.6	6.4	5.2	7.7	6.1	8.5	11.7	12.4	6.5	6.0	7.6	6
East Northeast	3.7	3.9	6.1	4.3	4.7	4.3	3.0	3.2	5.1	5.5	5.1	2.8	4.3	6
East	1.9	4.7	3.6	2.0	2.8	3.4	2.7	3.1	2.3	2.6	1.7	1.3	2.7	6
East Southeast	3.0	3.0	3.8	2.9	2.1	4.0	1.7	3.4	3.1	2.2	1.7	1.6	2.7	6
Southeast	2.4	3.6	3.3	2.7	4.6	3.7	3.0	3.2	3.1	3.2	2.6	2.3	3.1	6
South Southeast	3.8	3.3	3.6	3.8	4.7	5.8	5.3	5.5	4.0	2.1	3.5	3.5	4.1	6
South	5.9	4.5	5.0	9.8	8.2	9.4	11.6	11.4	5.9	3.0	5.1	4.1	7.0	6
South Southwest	14.1	9.3	9.7	15.8	10.3	12.6	14.2	10.1	6.4	4.1	7.4	6.5	10.0	6
Southwest	12.0	9.8	8.6	12.4	11.7	12.2	16.0	11.6	8.5	5.9	10.4	9.2	10.7	6
West Southwest	8.5	6.4	6.0	7.5	6.3	6.0	8.9	4.7	3.9	2.8	5.5	6.6	6.1	6
West	6.3	5.0	5.5	5.2	4.5	3.2	3.8	3.3	2.4	2.3	5.0	6.6	4.4	6
West Northwest	5.7	5.5	7.7	6.1	3.8	3.4	2.0	2.9	2.3	2.8	6.5	6.4	4.6	6
Northwest	5.8	7.6	7.3	4.5	4.2	3.2	2.8	2.8	3.6	4.8	7.5	7.3	5.1	6
North Northwest	4.0	5.5	6.3	3.8	4.8	2.7	1.6	2.1	2.8	5.9	4.3	6.3	4.2	6
Calm	6.6	6.0	6.3	5.8	9.0	8.0	9.7	9.0	11.7	15.1	15.8	15.5	9.9	6
Direction (Mean Speed, knots)														
North	8.0	8.6	8.7	9.2	7.3	7.7	6.4	7.3	7.6	9.1	8.7	9.2	8.3	6
North Northeast	9.5	9.0	8.4	8.6	8.0	8.3	8.0	7.6	8.7	8.9	7.7	9.1	8.5	6
Northeast	7.6	7.2	6.7	7.4	6.6	7.0	7.1	5.9	6.9	6.2	6.2	6.2	6.7	6
East Northeast	5.8	6.5	6.6	7.0	5.8	6.5	6.9	6.3	6.1	6.2	5.6	5.3	6.2	6
East	4.8	5.3	5.4	5.6	5.0	5.7	4.9	4.7	4.7	4.8	3.7	3.9	5.0	6
East Southeast	5.9	6.2	5.8	6.1	6.5	6.5	5.6	6.0	5.0	5.9	5.2	5.1	5.9	6
Southeast	4.8	5.0	6.4	6.5	5.7	5.5	6.0	4.9	4.8	5.0	4.8	4.3	5.3	6
South Southeast	6.6	7.3	9.0	7.3	6.4	6.5	6.4	7.0	6.0	5.3	6.8	8.2	6.9	6
South	8.0	9.0	9.4	8.9	7.6	7.5	7.7	6.8	6.5	6.8	7.4	7.0	7.7	6
South Southwest	9.7	10.9	11.7	10.7	9.5	8.2	7.7	7.8	7.6	7.6	9.3	9.1	9.3	6
Southwest	8.5	8.3	9.4	9.1	8.4	7.2	7.6	6.5	6.7	6.2	7.4	7.9	7.8	6
West Southwest	8.7	9.7	9.7	10.2	8.5	8.2	8.0	6.9	6.4	7.1	8.1	8.3	8.5	6
West	8.4	8.8	9.0	9.9	7.8	7.8	6.7	6.2	6.3	6.3	7.6	7.9	8.0	6
West Northwest	9.0	10.8	11.5	10.1	8.6	8.1	6.1	7.3	6.7	7.4	9.7	9.6	9.3	6
Northwest	8.8	9.6	9.5	9.4	7.7	6.8	5.7	6.5	5.6	7.0	7.7	7.9	8.0	6
North Northwest	9.5	10.4	10.2	10.3	8.4	7.2	5.7	8.3	6.5	9.0	9.3	9.0	9.0	6
VISIBILITY														
Mean Number of Days with Fog	15	13	15	13	18	19	21	22	22	20	17	15	210	36
Percent Obs with Visibility <= 1/2 mile	2.09	0.67	1.15	0.49	0.81	0.49	0.27	0.38	1.60	2.56	2.71	2.22	1.33	6

CLIMATOLOGICAL TABLES

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

Sea level pressure is station pressure reduced to sea level.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

WILMINGTON, NORTH CAROLINA (34° 16'N., 77° 54'W.) Elevation 33 ft. (10.1m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1020.2	1019.3	1017.6	1016.6	1016.5	1016.2	1017.2	1017.0	1017.7	1018.6	1019.6	1020.8	1018.1	45
TEMPERATURE (DEGREES F)														
Mean	46.1	48.5	54.7	62.9	70.6	77.1	80.9	79.7	74.9	65.0	56.1	48.6	63.8	50
Mean Daily Maximum	56.2	59.0	65.4	74.0	80.7	86.4	89.5	88.2	83.7	75.4	67.2	59.2	73.8	50
Mean Daily Minimum	35.6	37.5	43.5	51.4	60.0	67.4	71.8	70.7	65.5	54.2	44.5	37.5	53.4	50
Extreme Highest	82	85	89	95	98	104	102	102	98	95	87	81	104	50
Extreme Lowest	5	11	9	30	35	48	55	55	44	27	16	0	0	50
RELATIVE HUMIDITY														
Average Percentage	77.1	68.2	50.6	40.7	40.1	36.7	47.4	45.3	52.0	60.8	70.7	82.6	56.0	50
CLOUD COVER														
Percent of time Clear	29.8	28.4	29.9	32.7	24.1	18.5	15.1	17.5	22.6	34.7	36.0	31.9	26.7	48
Percent of time Scattered	12.6	13.2	14.5	18.1	20.9	23.5	23.5	23.8	21.4	17.5	15.2	14.2	18.2	48
Percent of time Broken	12.2	12.7	14.3	16.4	21.0	25.2	28.7	25.6	20.1	14.9	13.5	13.9	18.3	48
Percent of time Overcast	41.7	42.0	37.3	28.2	28.8	26.9	25.8	27.2	30.5	28.4	31.3	36.3	32.0	48
PRECIPITATION														
Mean Amount (inches)	3.87	3.51	4.27	2.90	4.24	5.48	7.94	6.90	5.85	3.30	3.26	3.55	55.07	50
Greatest Amount (inches)	10.22	8.74	8.27	8.21	9.12	12.87	18.05	14.06	18.94	9.81	7.87	7.06	66.65	50
Least Amount (inches)	0.66	0.60	0.93	0.16	0.95	0.89	1.65	1.86	0.70	0.17	0.49	0.48	36.93	50
Maximum in 24 hrs. (inches)	2.57	2.68	4.38	3.50	4.34	4.76	6.49	4.81	7.49	5.50	4.06	3.85	7.49	50
Mean Number of Days with Precipitation	13	12	13	11	13	13	17	15	13	10	11	12	153	50
Mean Snowfall Amount (inches)	0.4	0.5	0.4	T	0.0	0.0	0.0	0.0	0.0	0.0	T	0.5	1.8	50
Greatest Snowfall Amount (inches)	5.4	12.5	6.6	T	0.0	0.0	0.0	0.0	0.0	0.0	T	15.3	16.1	50
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50
Maximum Snowfall in 24 hrs. (inches)	5.0	6.8	5.2	T	0.0	0.0	0.0	0.0	0.0	0.0	T	9.6	9.6	50
Mean Number of Days with Snow	1	1	1	Miss	0	0	0	0	0	0	Miss	1	4	50
WIND														
Percent of Observations with Gales (>34kts)	0.01	0.04	0.08	0.04	0.00	0.00	0.02	0.07	0.09	0.01	0.00	0.00	0.08	49
Mean Wind Speed (Knots)	7.7	8.2	8.6	8.6	7.7	7.2	6.8	6.2	6.5	6.8	6.9	7.2	7.3	49
Direction (percentage of Obs.)														
North	8.8	8.4	6.6	4.8	5.1	4.7	3.5	6.2	10.0	12.2	10.0	10.2	7.5	49
North Northeast	7.6	7.4	5.1	4.0	4.9	5.4	4.2	7.1	12.0	12.4	8.2	8.1	7.2	49
Northeast	6.5	6.6	5.1	3.9	5.2	5.7	3.9	6.7	11.1	11.1	6.1	6.1	6.5	49
East Northeast	3.9	4.3	4.7	3.8	4.5	4.2	3.4	4.0	5.4	5.0	4.2	3.3	4.2	49
East	2.8	3.4	5.0	4.5	5.2	5.1	3.7	4.6	5.5	3.9	3.1	2.4	4.1	49
East Southeast	2.3	2.9	4.1	4.2	5.1	5.4	3.5	4.4	4.2	3.1	2.7	1.8	3.6	49
Southeast	2.1	3.1	3.8	5.4	5.4	5.6	4.7	5.4	4.2	3.0	3.1	2.2	4.0	49
South Southeast	2.3	2.6	3.7	5.3	5.7	5.6	5.4	5.5	3.4	2.5	2.8	2.1	3.9	49
South	3.3	4.0	5.8	7.6	7.8	8.0	8.3	6.6	4.4	3.1	3.6	3.4	5.5	49
South Southwest	5.6	6.4	8.3	10.4	9.8	9.6	12.2	7.9	4.7	3.6	4.8	5.4	7.4	49
Southwest	8.8	9.4	10.0	12.6	11.3	12.0	17.0	10.5	5.1	4.5	7.1	8.6	9.8	49
West Southwest	8.4	6.9	6.6	7.5	7.0	7.0	9.7	6.7	4.3	3.9	6.3	7.4	6.8	49
West	6.6	5.6	5.8	5.3	4.1	4.2	4.7	4.0	3.0	3.3	5.4	5.8	4.8	49
West Northwest	6.2	5.9	5.6	4.7	3.5	3.0	2.5	2.4	2.1	2.9	4.9	5.8	4.1	49
Northwest	7.6	6.7	6.0	4.6	3.2	2.3	1.8	2.1	2.5	4.5	6.3	7.4	4.6	49
North Northwest	7.2	7.0	5.4	4.2	3.5	2.5	2.0	3.0	4.1	5.9	6.9	7.0	4.9	49
Calm	10.2	9.4	8.4	7.3	8.7	9.7	9.6	12.8	14.0	15.0	14.6	13.2	11.1	49
Direction (Mean Speed, knots)														
North	8.4	8.8	8.7	8.7	8.3	8.0	6.7	7.2	8.2	8.9	8.7	8.1	8.3	49
North Northeast	8.3	8.8	8.9	8.5	8.5	7.6	7.1	7.3	8.0	8.6	8.0	8.4	8.2	49
Northeast	7.7	7.9	8.0	7.7	7.3	7.1	6.4	6.7	7.7	7.9	7.0	7.6	7.5	49
East Northeast	7.1	7.9	8.2	8.1	7.9	7.7	7.2	6.9	7.8	7.7	6.8	6.8	7.5	49
East	6.8	7.8	8.4	8.3	8.6	8.3	7.3	7.4	8.1	7.6	7.0	6.7	7.8	49
East Southeast	6.3	7.3	8.1	8.3	7.8	8.1	7.0	7.0	7.6	7.4	6.6	6.4	7.5	49
Southeast	7.5	8.2	8.5	8.7	8.7	8.2	7.4	7.2	7.7	7.7	7.8	7.5	8.0	49
South Southeast	8.9	9.3	9.3	8.9	8.3	7.8	7.3	7.1	7.3	7.7	8.4	8.0	8.1	49
South	9.1	9.7	9.4	9.9	8.9	8.3	7.8	7.2	7.1	7.5	8.5	8.6	8.5	49
South Southwest	9.3	10.2	11.2	11.2	10.0	9.0	8.8	7.9	7.8	8.0	8.7	9.2	9.4	49
Southwest	9.0	9.4	9.9	9.6	8.8	8.2	8.0	7.4	7.0	7.6	8.1	8.5	8.5	49
West Southwest	8.8	9.0	9.2	8.7	7.8	7.5	7.2	6.8	6.7	7.6	8.2	8.3	8.0	49
West	8.8	9.5	9.6	9.2	7.6	7.4	7.0	6.5	6.8	7.1	8.2	8.3	8.2	49
West Northwest	9.4	10.4	10.4	9.8	7.7	7.2	6.3	6.3	6.5	7.0	8.4	8.6	8.6	49
Northwest	9.4	9.4	9.9	9.7	7.7	7.0	5.7	6.4	6.8	7.9	8.8	9.0	8.7	49
North Northwest	9.1	9.2	9.7	9.2	8.0	7.2	6.1	6.5	7.7	8.5	8.4	8.8	8.5	49
VISIBILITY														
Mean Number of Days with Fog	15	13	14	12	15	16	14	18	17	16	15	14	179	50
Percent Obs with Visibility <= 1/2 mile	1.25	1.05	1.04	0.40	0.61	0.42	0.22	0.38	0.73	0.87	1.16	1.37	0.79	49

CLIMATOLOGICAL TABLE

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

Sea level pressure is station pressure reduced to sea level.

CHARLESTON, SOUTH CAROLINA (32° 54'N., 80° 02'W.) Elevation 46 ft. (14.0m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1020.7	1019.5	1017.7	1017.2	1016.5	1016.2	1017.4	1017.0	1017.5	1018.5	1019.7	1021.0	1018.2	52
TEMPERATURE (DEGREES F)														
Mean	48.7	51.1	57.5	64.8	72.6	78.2	81.4	80.5	76.0	66.6	57.7	50.6	65.6	52
Mean Daily Maximum	59.2	62.0	68.4	76.1	82.9	87.5	90.0	88.9	84.6	76.8	68.9	61.3	75.7	52
Mean Daily Minimum	37.8	39.8	46.2	53.0	61.7	68.6	72.3	71.5	67.0	55.8	46.0	39.4	55.0	52
Extreme Highest	83	87	90	94	98	101	104	102	97	94	88	83	104	52
Extreme Lowest	6	12	15	30	36	50	58	56	42	27	15	8	6	52
RELATIVE HUMIDITY														
Average Percentage	81.5	70.5	51.6	47.0	40.1	37.5	49.4	45.1	49.8	60.4	72.2	85.4	57.5	53
CLOUD COVER														
Percent of time Clear	26.7	27.6	27.4	30.5	21.5	16.0	12.5	14.5	20.8	33.6	34.0	28.8	24.4	50
Percent of time Scattered	13.6	13.5	15.2	18.6	21.4	23.0	22.4	23.2	22.1	18.2	16.5	14.7	18.6	50
Percent of time Broken	13.6	15.0	15.8	17.9	23.3	27.4	30.5	28.9	23.4	16.8	15.0	15.4	20.3	50
Percent of time Overcast	41.9	39.5	39.3	28.2	28.4	27.1	26.7	26.0	27.8	26.9	30.0	36.5	31.3	50
PRECIPITATION														
Mean Amount (inches)	3.45	3.06	4.31	2.83	3.98	6.13	7.25	6.77	5.70	3.17	2.48	3.08	52.21	52
Greatest Amount (inches)	8.92	6.35	11.11	9.50	9.28	27.24	18.46	16.99	17.31	12.11	7.35	7.09	72.99	52
Least Amount (inches)	0.63	0.33	0.70	0.01	0.70	0.96	1.76	0.73	0.18	0.18	0.48	0.66	30.31	52
Maximum in 24 hrs. (inches)	3.90	2.27	4.48	4.10	6.23	9.40	5.39	4.69	6.19	4.48	5.24	3.40	9.40	52
Mean Number of Days with Precipitation	14	12	13	10	13	15	17	17	14	10	11	12	158	52
Mean Snowfall Amount (inches)	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.2	0.6	51
Greatest Snowfall Amount (inches)	1.0	7.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	8.0	8.9	51
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51
Maximum Snowfall in 24 hrs. (inches)	0.8	5.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	6.0	6.0	51
Mean Number of Days with Snow	1	1	Miss	0	0	0	0	0	0	0	Miss	Miss	2	52
WIND														
Percent of Observations with Gales (>34kts)	0.02	0.03	0.04	0.02	0.01	0.01	0.00	0.01	0.02	0.02	0.01	0.01	0.08	53
Mean Wind Speed (Knots)	7.8	8.4	8.6	8.3	7.3	7.1	6.7	6.3	6.6	6.8	7.0	7.3	7.3	53
Direction (percentage of Obs.)														
North	7.8	6.8	5.0	4.4	4.9	4.8	3.6	6.2	9.5	11.8	9.5	9.0	6.9	53
North Northeast	9.2	8.2	5.7	4.5	5.5	6.2	4.6	8.3	15.4	16.4	10.6	10.1	8.7	53
Northeast	7.3	7.5	5.9	4.4	5.6	6.4	4.5	7.8	12.2	12.0	8.2	7.6	7.4	53
East Northeast	3.8	4.7	4.6	4.0	4.3	4.0	3.1	4.2	5.6	5.5	4.6	3.6	4.3	53
East	2.6	3.1	3.9	3.8	3.9	3.7	3.1	4.0	4.8	3.7	3.2	2.2	3.5	53
East Southeast	2.9	2.9	4.4	4.7	4.8	4.6	3.6	3.9	4.3	3.5	3.3	2.4	3.8	53
Southeast	2.3	3.0	4.2	5.7	5.4	5.7	4.5	4.8	4.1	2.7	2.6	2.7	4.0	53
South Southeast	2.7	3.5	5.2	6.7	7.0	7.3	6.4	6.3	4.4	2.6	2.8	2.7	4.8	53
South	4.6	5.6	8.1	9.9	11.4	11.1	12.3	9.7	5.9	3.8	4.8	4.4	7.6	53
South Southwest	7.4	9.1	10.6	11.2	11.1	10.8	14.1	9.0	5.1	3.6	6.0	6.9	8.7	53
Southwest	7.7	7.7	7.4	8.4	8.2	8.9	12.3	8.3	4.2	3.7	6.0	6.9	7.5	53
West Southwest	7.8	6.9	6.9	7.1	6.1	6.6	8.7	6.4	3.7	4.1	6.2	7.6	6.5	53
West	7.9	7.4	7.0	6.0	4.7	4.5	5.1	3.8	2.8	3.8	6.5	7.4	5.6	53
West Northwest	7.8	7.1	6.4	5.6	3.6	3.2	3.0	2.8	2.6	3.7	6.1	6.8	4.9	53
Northwest	5.7	5.0	4.6	3.4	3.3	2.6	2.0	2.5	2.5	3.9	4.9	5.5	3.8	53
North Northwest	6.3	5.6	4.8	4.0	3.6	3.3	2.6	3.6	4.6	6.8	6.6	6.7	4.9	53
Calm	6.2	5.9	5.3	6.2	6.6	6.3	6.5	8.5	8.2	8.4	8.1	7.6	7.0	53
Direction (Mean Speed, knots)														
North	7.7	8.1	8.0	7.9	7.4	6.8	5.8	6.2	6.7	7.4	7.4	7.5	7.3	53
North Northeast	7.6	8.0	8.0	7.7	7.4	7.0	6.1	6.5	7.7	8.0	7.6	7.9	7.6	53
Northeast	7.3	7.8	7.6	7.2	7.3	7.1	6.5	6.7	7.7	7.6	7.0	7.3	7.3	53
East Northeast	7.0	7.7	8.2	8.3	7.4	7.8	6.8	6.9	7.5	7.4	6.6	6.7	7.4	53
East	6.4	7.6	7.9	8.2	8.0	8.2	7.2	7.1	7.7	7.3	6.7	6.4	7.5	53
East Southeast	6.5	7.5	8.0	8.2	8.0	8.2	7.3	7.1	7.7	7.2	6.5	6.6	7.5	53
Southeast	6.9	7.8	8.0	8.4	7.8	7.7	6.8	7.4	7.3	6.9	6.9	6.4	7.5	53
South Southeast	6.7	7.7	8.3	8.3	7.6	7.2	7.1	7.0	6.8	6.9	7.2	6.8	7.4	53
South	7.8	8.8	9.3	8.6	8.1	7.6	7.4	7.1	6.7	6.6	7.6	7.8	7.8	53
South Southwest	9.0	9.9	10.0	9.7	8.2	7.8	7.6	7.0	6.8	7.3	8.5	9.0	8.5	53
Southwest	8.7	9.0	9.3	9.1	8.0	7.8	7.6	7.0	6.8	7.1	7.8	8.5	8.1	53
West Southwest	9.1	9.7	10.0	9.4	8.3	8.1	7.6	7.2	6.9	7.7	8.0	8.5	8.5	53
West	9.9	10.7	10.7	10.1	8.7	7.8	7.3	6.9	6.9	7.6	8.9	9.3	9.1	53
West Northwest	10.1	11.0	10.7	10.3	8.1	7.3	7.1	6.8	6.9	7.5	8.6	9.1	9.1	53
Northwest	8.7	9.3	9.4	8.9	7.3	6.8	6.2	6.1	6.4	7.1	7.3	7.8	7.9	53
North Northwest	7.9	8.3	8.6	8.3	7.2	6.7	5.7	6.2	6.2	7.0	7.1	7.4	7.3	53
VISIBILITY														
Mean Number of Days with Fog	14	11	13	12	14	14	11	14	16	14	14	14	161	52
Percent Obs with Visibility <= 1/2 mile	2.13	1.37	1.06	0.85	0.81	0.37	0.11	0.28	0.76	1.21	1.91	2.01	1.08	53

CLIMATOLOGICAL TABLES

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

Sea level pressure is station pressure reduced to sea level.

BEAUFORT, SOUTH CAROLINA (32° 29'N., 80° 43'W.) Elevation 33 ft. (10.1m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1020.4	1018.8	1017.5	1016.9	1016.5	1015.9	1017.1	1016.7	1017.3	1018.1	1019.5	1020.9	1018.0	37
TEMPERATURE (DEGREES F)														
Mean	48.6	51.4	58.3	66.0	73.4	79.3	82.4	81.4	77.1	67.6	59.0	51.4	66.5	39
Mean Daily Maximum	58.1	61.4	68.4	76.0	82.7	87.7	90.5	89.1	84.9	77.0	69.2	61.2	75.7	39
Mean Daily Minimum	38.5	41.0	47.8	55.5	63.7	70.4	73.9	73.2	68.8	57.7	48.3	41.0	56.8	39
Extreme Highest	83	85	91	94	97	106	106	102	98	94	88	82	106	39
Extreme Lowest	5	16	21	32	41	51	62	57	45	31	19	11	5	39
RELATIVE HUMIDITY														
Average Percentage	79.2	62.9	50.1	44.2	40.5	34.3	46.1	42.0	46.1	55.9	70.1	83.6	55.0	38
CLOUD COVER														
Percent of time Clear	22.6	22.1	21.9	24.0	16.8	11.5	6.4	8.5	14.3	26.2	26.5	25.3	18.9	38
Percent of time Scattered	19.8	19.0	22.2	26.3	25.3	27.1	24.2	25.5	31.8	25.2	24.4	22.0	24.4	38
Percent of time Broken	16.0	14.7	19.3	19.2	25.9	28.5	34.9	32.1	24.3	15.3	18.3	13.9	21.9	38
Percent of time Overcast	37.0	35.5	30.6	22.8	20.7	20.0	18.5	19.0	20.6	23.2	23.2	29.6	25.1	38
PRECIPITATION														
Mean Amount (inches)	3.81	3.25	3.90	2.81	3.61	5.54	6.32	7.28	4.96	3.15	2.40	3.02	50.05	39
Greatest Amount (inches)	8.81	6.69	8.90	7.11	10.52	13.57	19.12	18.02	13.43	20.49	7.76	6.32	67.63	39
Least Amount (inches)	0.74	0.22	0.57	0.10	0.49	0.92	1.44	1.12	0.59	0.08	0.31	0.10	33.38	39
Maximum in 24 hrs. (inches)	3.45	2.45	2.74	4.88	4.43	5.49	4.77	6.16	5.80	7.90	6.86	3.09	7.90	39
Mean Number of Days with Precipitation	14	12	13	9	12	14	17	15	13	9	10	12	150	30
Mean Snowfall Amount (inches)	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	39
Greatest Snowfall Amount (inches)	2.0	6.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	6.5	39
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39
Maximum Snowfall in 24 hrs. (inches)	1.0	6.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	6.4	39
Mean Number of Days with Snow	1	1	Miss	0	0	0	0	0	0	0	0	Miss	2	30
WIND														
Percent of Observations with Gales (>34kts)	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.24	38
Mean Wind Speed (Knots)	5.4	6.0	6.2	6.1	5.4	5.1	4.7	4.2	4.4	4.7	4.8	5.1	5.2	38
Direction (percentage of Obs.)														
North	6.0	5.2	3.4	3.1	3.7	3.6	2.1	4.3	7.0	8.6	7.1	6.9	5.1	38
North Northeast	8.3	6.5	4.5	3.3	4.8	5.4	3.2	6.2	12.6	13.9	9.2	8.9	7.3	38
Northeast	6.2	6.3	4.8	3.3	3.8	5.4	3.2	5.7	9.9	10.6	7.1	6.0	6.0	38
East Northeast	3.1	4.7	4.4	3.2	3.9	4.1	2.7	4.0	6.8	5.8	4.4	3.3	4.2	38
East	2.3	3.0	4.5	4.7	5.0	4.7	3.6	4.6	5.6	4.5	2.9	2.1	4.0	38
East Southeast	2.3	2.6	3.8	4.6	4.9	5.1	3.5	4.1	4.6	3.3	2.5	1.6	3.6	38
Southeast	1.8	2.0	3.9	4.7	5.0	4.6	3.7	3.8	3.5	1.8	2.3	1.8	3.2	38
South Southeast	2.5	4.0	6.0	7.3	7.6	6.4	5.3	5.6	3.6	2.4	2.9	2.5	4.7	38
South	4.5	6.8	9.2	10.8	10.5	9.8	10.9	8.4	4.8	3.4	4.6	4.8	7.4	38
South Southwest	5.0	6.3	7.5	8.5	8.7	8.5	11.2	7.7	3.9	2.9	4.6	5.7	6.7	38
Southwest	5.3	5.5	5.5	6.7	6.5	7.7	11.2	7.8	3.3	2.9	3.7	5.2	5.9	38
West Southwest	7.3	6.5	5.8	7.3	6.5	7.8	10.4	7.2	3.3	3.6	4.4	5.8	6.3	38
West	9.4	8.6	7.6	7.2	5.4	5.6	6.7	4.8	2.8	4.0	6.5	7.8	6.4	38
West Northwest	7.9	8.1	7.0	6.1	4.2	3.3	3.3	2.4	2.3	3.7	6.2	7.4	5.2	38
Northwest	5.3	5.6	5.3	3.3	2.7	2.1	1.6	2.1	2.3	3.4	4.4	6.4	3.7	38
North Northwest	4.8	4.5	3.6	3.0	3.1	2.5	1.6	2.4	3.3	5.0	5.3	4.8	3.7	38
Calm	17.6	14.0	13.2	12.8	13.7	13.3	14.7	18.9	20.3	20.1	21.8	19.0	16.7	38
Direction (Mean Speed, knots)														
North	6.2	6.6	6.5	6.9	6.0	4.9	4.2	4.4	5.3	5.8	5.9	5.9	5.8	38
North Northeast	6.5	7.1	6.8	6.4	6.4	5.4	4.9	5.1	6.2	6.7	6.5	6.5	6.3	38
Northeast	6.6	7.0	6.8	6.1	6.3	6.1	5.1	5.5	6.5	6.7	6.2	6.3	6.3	38
East Northeast	5.9	6.7	6.9	6.5	6.3	6.0	5.6	5.6	5.9	6.2	5.6	6.1	6.1	38
East	5.1	5.8	6.3	6.6	6.7	6.4	5.3	5.6	5.8	5.4	5.3	4.9	5.9	38
East Southeast	4.8	5.3	6.2	7.0	6.7	6.7	6.0	5.6	5.9	5.8	5.2	4.8	6.0	38
Southeast	4.7	5.4	6.5	6.6	6.4	6.1	5.9	5.3	5.5	5.1	5.2	4.5	5.8	38
South Southeast	5.8	6.1	6.9	6.9	6.7	6.6	6.1	5.6	5.4	5.5	5.2	5.2	6.2	38
South	6.1	6.6	7.2	7.2	6.5	6.1	5.9	5.5	4.9	5.4	5.9	6.0	6.2	38
South Southwest	6.3	6.9	7.3	7.3	6.3	5.9	5.7	5.5	4.9	5.3	6.6	6.4	6.3	38
Southwest	6.1	6.2	6.5	6.3	6.0	5.8	5.4	5.0	5.0	5.1	5.8	6.0	5.8	38
West Southwest	6.8	7.2	7.1	7.1	5.9	5.9	5.4	4.8	4.6	5.0	5.8	5.7	6.0	38
West	7.5	8.2	8.2	7.8	6.1	5.6	5.4	4.6	4.4	5.9	7.2	7.1	6.8	38
West Northwest	7.9	8.4	8.5	8.1	6.5	5.3	4.9	4.7	4.6	5.8	7.2	7.4	7.1	38
Northwest	6.8	7.3	7.4	7.0	5.3	4.8	4.6	4.4	4.8	5.2	6.4	6.8	6.3	38
North Northwest	5.8	6.6	6.7	6.3	5.6	4.9	4.1	4.4	4.5	5.3	5.3	5.7	5.6	38
VISIBILITY														
Mean Number of Days with Fog	19	16	20	18	21	21	21	24	24	20	20	18	242	30
Percent Obs with Visibility <= 1/2 mile	2.20	1.43	1.12	0.50	0.37	0.31	0.21	0.20	0.53	0.83	1.93	2.25	1.00	38

CLIMATOLOGICAL TABLES

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

Sea level pressure is station pressure reduced to sea level.

SAVANNAH, GEORGIA (32° 08'N., 81° 12'W.) Elevation 49 ft. (14.9m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1020.7	1019.5	1017.7	1016.9	1016.5	1016.1	1017.3	1016.8	1017.1	1018.2	1019.9	1021.2	1018.2	46
TEMPERATURE (DEGREES F)														
Mean	49.5	52.7	59.2	66.2	73.6	79.3	82.2	81.3	77.0	67.6	58.4	51.6	66.6	47
Mean Daily Maximum	60.1	63.7	70.4	77.7	84.3	89.1	91.6	90.2	85.8	78.0	69.7	62.4	76.9	47
Mean Daily Minimum	38.4	41.2	47.6	54.1	62.4	69.1	72.2	71.8	67.7	56.8	46.7	40.7	55.7	47
Extreme Highest	84	86	91	95	100	104	105	104	98	97	89	83	105	47
Extreme Lowest	3	14	20	32	39	51	61	57	43	28	15	9	3	47
RELATIVE HUMIDITY														
Average Percentage	81.5	69.6	52.4	44.1	40.3	35.7	47.9	42.8	45.6	57.0	74.2	87.1	55.6	47
CLOUD COVER														
Percent of time Clear	29.4	28.6	28.6	32.7	25.0	18.4	14.6	17.6	21.6	36.8	35.3	30.0	26.6	46
Percent of time Scattered	13.1	13.8	15.2	19.0	22.9	23.7	25.0	26.2	21.5	16.5	15.4	14.1	18.8	46
Percent of time Broken	12.5	13.0	14.6	15.9	20.6	25.7	27.9	26.6	21.9	14.9	13.8	14.0	18.4	46
Percent of time Overcast	41.0	39.9	36.8	27.9	26.0	25.8	24.7	23.0	28.7	27.6	30.8	37.7	38.8	46
PRECIPITATION														
Mean Amount (inches)	3.50	3.04	3.82	3.17	4.10	5.57	6.89	7.12	5.00	3.00	2.20	2.74	50.14	47
Greatest Amount (inches)	8.98	7.92	9.57	10.57	10.08	14.39	20.10	17.03	13.47	19.84	5.26	5.80	73.17	47
Least Amount (inches)	0.45	0.26	0.18	0.38	0.51	0.84	1.35	1.02	0.35	0.02	0.15	0.12	32.83	47
Maximum in 24 hrs. (inches)	3.27	3.46	3.57	5.62	4.20	3.82	3.78	7.04	6.79	7.11	3.60	3.31	7.11	47
Mean Number of Days with Precipitation	13	12	12	9	12	14	17	16	14	10	10	12	151	47
Mean Snowfall Amount (inches)	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.1	0.4	45
Greatest Snowfall Amount (inches)	2.0	3.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	3.6	4.6	45
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45
Maximum Snowfall in 24 hrs. (inches)	1.3	3.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	3.2	3.6	45
Mean Number of Days with Snow	1	Miss	Miss	0	0	0	0	0	0	0	Miss	Miss	1	47
WIND														
Percent of Observations with Gales (>34kts)	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.10	47
Mean Wind Speed (Knots)	7.4	7.9	8.0	7.4	6.6	6.4	6.1	5.7	6.2	6.5	6.5	6.9	6.8	47
Direction (percentage of Obs.)														
North	5.1	4.0	2.9	2.6	3.5	3.6	2.5	4.6	6.9	7.9	6.2	5.5	4.6	47
North Northeast	5.4	4.7	3.1	2.5	3.9	4.9	3.1	6.5	11.0	12.4	7.9	6.3	6.0	47
Northeast	7.6	7.4	5.2	3.6	4.6	6.1	4.4	6.8	13.9	14.1	8.6	8.7	7.6	47
East Northeast	5.2	5.7	5.0	4.1	4.8	5.1	3.9	5.1	8.4	7.8	5.8	4.8	5.5	47
East	3.3	3.9	5.0	5.0	5.5	5.1	3.7	4.4	5.8	5.0	4.1	3.3	4.5	47
East Southeast	3.4	3.7	5.0	5.7	5.4	5.3	3.9	4.1	5.1	3.5	3.6	3.1	4.3	47
Southeast	2.5	3.3	4.6	6.3	6.1	6.4	5.1	5.7	4.7	3.1	3.1	2.4	4.4	47
South Southeast	2.8	3.9	6.1	8.2	8.6	7.1	6.9	6.8	4.3	2.6	3.4	3.3	5.3	47
South	4.9	6.3	8.2	8.4	8.1	7.3	9.0	7.2	4.1	2.9	4.5	5.0	6.3	47
South Southwest	4.8	4.9	5.8	6.4	7.0	7.3	10.7	7.3	3.8	2.5	4.0	4.5	5.7	47
Southwest	6.5	7.1	6.8	7.9	8.0	9.3	12.6	9.4	4.0	3.5	5.1	5.7	7.2	47
West Southwest	7.7	7.7	7.9	8.4	6.9	8.1	10.0	6.8	3.8	4.2	5.9	7.6	7.1	47
West	9.2	8.7	8.5	7.0	6.1	6.2	6.7	4.9	3.1	4.3	6.9	8.6	6.7	47
West Northwest	11.0	9.8	9.3	7.4	5.7	4.3	4.4	3.6	3.2	4.9	8.0	9.3	6.7	47
Northwest	8.0	7.7	6.4	4.8	3.8	3.4	2.6	3.0	3.1	5.1	6.6	7.1	5.1	47
North Northwest	5.0	4.4	3.5	3.1	3.1	2.6	2.1	3.3	3.8	5.5	5.4	5.2	3.9	47
Calm	7.7	6.9	6.7	8.6	8.8	8.2	8.5	10.5	11.1	10.8	10.7	9.5	9.0	47
Direction (Mean Speed, knots)														
North	7.0	7.3	7.4	7.2	6.7	6.1	5.7	5.6	5.8	6.8	6.5	6.8	6.5	47
North Northeast	7.3	7.9	7.9	7.2	7.3	6.8	6.1	6.6	7.4	8.1	7.6	7.5	7.4	47
Northeast	8.0	8.6	8.1	7.8	7.8	7.1	6.8	7.3	8.3	8.3	7.8	8.0	7.9	47
East Northeast	7.6	8.5	8.5	7.9	7.8	7.7	7.3	7.0	7.8	7.9	7.6	7.2	7.7	47
East	6.8	7.8	8.1	8.2	8.1	8.1	7.7	7.2	7.6	7.3	6.7	6.6	7.6	47
East Southeast	6.5	7.6	8.1	8.2	8.1	7.8	7.4	7.5	7.6	7.3	6.5	6.3	7.5	47
Southeast	6.4	7.0	7.7	7.9	7.5	7.3	7.1	6.6	6.7	6.5	6.5	6.0	7.1	47
South Southeast	7.0	8.1	8.7	8.4	7.7	7.2	7.2	6.9	6.6	6.5	6.9	7.0	7.5	47
South	7.6	8.3	8.6	8.1	7.2	6.7	6.6	6.1	6.1	6.5	7.2	7.8	7.3	47
South Southwest	7.5	7.4	7.7	7.5	6.6	6.3	6.3	5.7	5.8	6.1	6.9	7.2	6.7	47
Southwest	7.7	7.7	8.0	7.4	6.5	6.4	6.2	5.8	5.8	6.0	6.8	6.9	6.7	47
West Southwest	8.1	8.7	8.6	8.1	7.0	6.9	6.5	6.0	5.8	6.3	7.3	7.5	7.3	47
West	9.0	9.5	9.8	9.0	7.6	7.3	7.0	6.2	6.2	7.0	8.1	8.2	8.2	47
West Northwest	10.3	10.3	10.4	9.5	7.5	7.5	6.8	6.2	6.5	7.4	8.7	9.2	8.9	47
Northwest	8.5	9.1	9.2	8.2	6.8	6.1	6.1	5.8	5.9	6.7	7.6	8.1	7.7	47
North Northwest	7.2	7.6	7.7	7.3	6.4	5.5	5.6	5.3	5.4	6.3	6.2	6.9	6.5	47
VISIBILITY														
Mean Number of Days with Fog	14	12	14	12	15	15	14	18	19	15	14	14	176	47
Percent Obs with Visibility <= 1/2 mile	2.17	1.62	1.16	1.02	0.77	0.80	0.23	0.59	1.52	1.56	2.37	2.55	1.37	47

CLIMATOLOGICAL TABLES

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

Sea level pressure is station pressure reduced to sea level.

JACKSONVILLE, FLORIDA (32° 19'N., 90° 05'W.) Elevation 295 ft. (90m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1021.0	1019.8	1018.1	1017.5	1016.7	1016.4	1017.8	1017.0	1016.5	1017.7	1019.6	1021.1	1018.3	49
TEMPERATURE (DEGREES F)														
Mean	54.1	56.8	62.4	68.4	75.1	80.3	82.7	82.0	78.9	70.6	62.1	55.8	69.2	50
Mean Daily Maximum	64.9	67.9	73.7	79.9	85.9	89.8	92.1	90.9	87.3	80.1	72.8	66.6	79.4	50
Mean Daily Minimum	42.7	45.3	50.6	56.4	63.9	70.2	72.9	72.7	70.1	60.7	50.8	44.5	58.5	50
Extreme Highest	84	88	91	95	100	103	103	102	96	96	88	84	103	50
Extreme Lowest	7	19	23	34	45	47	61	63	48	36	21	11	7	50
RELATIVE HUMIDITY														
Average Percentage	84.9	73.4	55.6	50.0	41.5	39.4	52.9	44.9	40.1	51.6	71.1	85.8	57.6	50
CLOUD COVER														
Percent of time Clear	27.0	28.4	27.1	30.6	23.1	14.0	11.4	12.7	14.8	27.9	30.3	26.7	22.8	48
Percent of time Scattered	15.8	15.3	17.6	20.9	24.7	24.4	26.0	26.1	24.3	20.1	17.3	15.9	20.7	48
Percent of time Broken	16.4	16.3	19.0	20.1	25.3	31.0	33.6	32.1	27.6	20.1	18.3	16.8	23.1	48
Percent of time Overcast	35.6	33.7	31.0	22.7	19.9	22.3	20.7	20.8	25.3	26.4	27.9	35.1	26.8	48
PRECIPITATION														
Mean Amount (inches)	3.22	3.41	3.88	3.04	3.58	5.71	6.48	7.31	7.67	4.27	2.02	2.66	53.26	50
Greatest Amount (inches)	10.20	8.85	10.18	11.61	10.43	13.96	16.21	16.24	19.36	13.44	5.02	9.77	79.63	50
Least Amount (inches)	0.06	0.52	0.71	0.14	0.18	1.59	1.97	2.19	1.02	0.25	T	0.04	31.20	50
Maximum in 24 hrs. (inches)	2.90	4.93	7.12	7.35	5.40	5.92	7.26	7.82	10.13	7.83	2.75	2.86	10.13	50
Mean Number of Days with Precipitation	12	11	12	9	12	16	18	18	16	12	10	12	158	50
Mean Snowfall Amount (inches)	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	50
Greatest Snowfall Amount (inches)	T	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.5	50
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50
Maximum Snowfall in 24 hrs. (inches)	T	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.5	50
Mean Number of Days with Snow	Miss	Miss	Miss	0	0	0	0	0	0	0	0	Miss	1	50
WIND														
Percent of Observations with Gales (>34kts)	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.05	0.02	0.00	0.00	0.10	50
Mean Wind Speed (Knots)	7.0	7.7	7.8	7.4	6.9	6.6	6.0	5.8	6.4	6.9	6.7	6.7	6.8	50
Direction (percentage of Obs.)														
North	7.4	5.3	3.9	3.1	3.1	3.0	2.0	3.7	6.7	10.5	8.7	8.1	5.4	50
North Northeast	6.4	6.0	3.4	2.3	2.7	2.7	1.5	2.9	5.9	9.9	7.7	6.9	4.9	50
Northeast	7.5	7.9	6.5	5.1	5.5	5.3	2.9	5.1	10.8	12.9	8.8	7.7	7.2	50
East Northeast	4.3	4.8	4.9	4.8	5.5	5.9	3.4	6.2	9.3	7.0	4.9	3.9	5.4	50
East	3.0	3.2	4.2	5.0	5.8	6.0	4.0	5.9	7.3	5.0	3.3	2.7	4.6	50
East Southeast	2.6	3.5	4.9	7.3	7.5	6.5	5.2	6.1	6.2	3.8	2.9	2.4	4.9	50
Southeast	3.5	4.2	7.0	8.7	9.6	7.5	8.4	8.0	6.3	3.5	4.0	3.7	6.2	50
South Southeast	3.0	3.3	4.5	5.1	5.8	4.8	5.4	4.5	3.4	1.8	2.4	2.9	3.9	50
South	4.5	5.1	5.8	5.6	5.7	6.4	8.3	6.4	3.8	2.2	3.8	4.5	5.2	50
South Southwest	4.4	4.8	5.2	4.4	4.9	5.9	8.2	5.7	3.0	1.8	3.2	3.9	4.6	50
Southwest	6.2	7.3	7.5	8.4	7.5	10.6	12.7	9.6	4.7	2.9	4.7	5.4	7.3	50
West Southwest	6.0	7.6	8.3	8.1	8.0	8.8	10.3	6.8	3.8	3.2	4.7	5.4	6.7	50
West	7.2	7.0	6.9	6.5	6.1	6.5	7.4	5.4	3.4	4.1	5.9	6.1	6.0	50
West Northwest	8.9	8.0	6.8	6.2	4.7	4.2	4.0	4.2	3.2	4.9	6.6	7.8	5.8	50
Northwest	9.8	8.6	7.5	6.4	4.7	3.9	4.0	4.4	4.8	7.6	9.6	10.2	6.8	50
North Northwest	6.8	5.6	4.4	3.6	3.3	2.5	2.1	3.1	5.2	8.2	7.8	7.9	5.0	50
Calm	8.6	7.7	8.4	9.6	9.8	9.4	10.0	12.0	12.3	10.6	10.9	10.4	10.0	50
Direction (Mean Speed, knots)														
North	6.8	7.1	6.8	6.4	6.1	5.5	5.3	5.3	6.4	7.0	7.0	6.9	6.6	50
North Northeast	8.4	9.2	8.4	7.3	7.2	6.8	5.8	5.9	6.2	8.9	8.6	8.9	8.3	50
Northeast	8.8	9.9	9.6	9.6	9.2	9.1	8.2	8.0	9.3	10.2	9.4	8.8	9.3	50
East Northeast	7.1	8.1	8.4	8.8	9.4	9.4	8.1	8.4	9.2	9.3	8.2	7.2	8.6	50
East	6.7	7.4	8.3	8.6	9.1	9.4	8.4	8.6	8.8	8.8	7.3	6.3	8.4	50
East Southeast	6.3	7.8	8.6	9.5	9.2	9.3	8.8	8.3	8.5	8.6	7.6	6.5	8.6	50
Southeast	6.5	7.8	8.6	8.7	8.5	8.2	7.8	7.5	7.1	7.0	7.0	6.7	7.8	50
South Southeast	6.9	8.0	8.3	7.5	7.2	6.6	6.4	6.2	6.2	6.4	6.8	6.7	7.0	50
South	7.3	8.1	8.3	7.5	6.7	6.3	6.0	5.8	6.1	6.8	7.3	7.7	6.9	50
South Southwest	7.8	8.6	8.5	7.9	6.6	6.3	6.0	5.9	6.0	6.5	7.4	7.9	7.0	50
Southwest	7.5	8.1	8.6	8.0	6.8	6.5	6.3	6.2	5.7	6.2	7.2	7.4	7.0	50
West Southwest	7.7	8.5	8.8	7.9	7.0	6.8	6.4	6.1	5.8	6.2	7.0	7.2	7.2	50
West	7.7	8.4	8.6	7.5	6.8	6.7	6.5	5.6	5.4	6.1	7.2	7.0	7.1	50
West Northwest	8.7	9.2	9.4	8.3	6.7	6.6	6.1	5.4	5.4	6.2	7.4	7.9	7.6	50
Northwest	8.0	8.4	8.5	7.8	6.4	6.2	5.8	5.6	5.4	6.0	6.9	7.4	7.1	50
North Northwest	7.2	7.1	7.3	7.0	6.3	5.5	5.3	5.5	5.7	6.3	6.8	7.0	6.6	50
VISIBILITY														
Mean Number of Days with Fog	17	14	15	13	14	13	11	15	16	17	16	17	178	50
Percent Obs with Visibility <= 1/2 mile	3.19	1.95	1.43	0.98	0.85	0.36	0.25	0.56	0.64	1.46	2.94	3.58	1.52	50

CLIMATOLOGICAL TABLES

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

Sea level pressure is station pressure reduced to sea level.

DAYTONA BEACH, FL (29° 11'N., 81° 04'W) Elevation 62 ft. (19m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1020.7	1019.5	1018.0	1017.3	1016.7	1016.4	1018.1	1016.8	1016.0	1016.8	1018.9	1020.6	1018.0	49
TEMPERATURE (DEGREES F)														
Mean	58.3	60.1	64.5	69.4	75.2	79.6	81.4	81.2	79.6	73.7	65.9	60.2	70.8	50
Mean Daily Maximum	68.7	70.4	74.8	79.6	84.8	88.2	90.0	89.3	87.0	81.5	75.4	70.2	80.0	50
Mean Daily Minimum	47.4	49.3	53.7	58.7	65.0	70.5	72.3	72.7	71.8	65.3	56.0	49.6	61.1	50
Extreme Highest	87	89	92	96	100	101	102	100	96	95	89	88	102	50
Extreme Lowest	15	24	26	35	44	52	60	65	52	41	27	19	15	50
RELATIVE HUMIDITY														
Average Percentage	82.3	70.1	55.3	48.2	42.5	38.8	56.5	42.9	34.9	43.1	64.1	81.4	55.0	50
CLOUD COVER														
Percent of time Clear	29.1	28.5	29.2	32.1	26.1	16.0	16.8	14.7	13.8	22.9	29.4	27.6	23.9	47
Percent of time Scattered	17.6	17.9	19.0	21.0	27.0	25.5	27.4	27.1	27.4	25.1	22.0	18.4	23.0	47
Percent of time Broken	15.9	16.6	17.6	19.4	22.2	25.9	27.7	29.2	24.9	21.2	17.6	18.1	22.4	47
Percent of time Overcast	37.7	37.6	29.0	21.9	18.4	24.2	20.6	20.9	26.3	24.8	25.5	30.0	25.4	47
PRECIPITATION														
Mean Amount (inches)	2.61	2.85	3.48	2.56	3.10	6.03	5.54	6.38	6.62	4.94	2.68	2.47	49.25	50
Greatest Amount (inches)	7.36	9.13	12.15	7.12	12.33	15.19	14.43	19.89	15.20	13.00	12.91	11.98	79.29	50
Least Amount (inches)	0.15	0.46	0.25	T	0.08	1.03	0.16	2.91	0.42	0.19	T	0.06	31.36	50
Maximum in 24 hrs. (inches)	5.67	3.57	4.98	4.00	4.02	6.08	3.32	4.41	6.16	9.15	8.99	3.65	9.15	50
Mean Number of Days with Precipitation	12	11	12	9	12	17	16	18	17	15	11	12	164	50
Mean Snowfall Amount (inches)	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	T	48
Greatest Snowfall Amount (inches)	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	T	48
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48
Maximum Snowfall in 24 hrs. (inches)	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	T	50
Mean Number of Days with Snow	Miss	Miss	0	0	0	0	0	0	0	0	0	Miss	Miss	50
WIND														
Percent of Observations with Gales (>34kts)	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.02	0.03	0.01	0.00	0.02	0.11	50
Mean Wind Speed (Knots)	7.7	8.3	8.5	8.2	7.7	6.9	6.3	6.0	6.9	7.8	7.4	7.3	7.4	50
Direction (percentage of Obs.)														
North	8.7	8.2	5.3	3.2	2.7	1.8	1.1	2.0	3.7	6.9	7.6	7.6	4.9	50
North Northeast	5.2	6.2	5.3	4.7	4.1	3.1	1.4	2.8	5.6	8.6	6.3	5.3	4.9	50
Northeast	3.4	4.0	4.4	4.9	5.7	4.8	2.7	4.9	9.2	11.1	5.5	3.7	5.4	50
East Northeast	3.4	4.2	5.0	6.7	8.7	8.5	5.6	7.9	13.6	12.1	6.7	4.3	7.2	50
East	3.6	4.4	5.9	9.0	11.0	10.7	9.6	9.7	11.5	8.3	5.6	4.4	7.8	50
East Southeast	3.9	4.7	7.1	10.0	11.2	8.2	9.3	8.9	8.0	4.7	4.7	3.7	7.0	50
Southeast	3.9	4.6	6.9	8.0	7.5	6.0	7.7	6.2	4.6	2.9	3.7	3.4	5.4	50
South Southeast	3.3	3.5	4.2	3.9	4.3	4.5	5.3	4.0	3.0	1.9	2.6	2.9	3.6	50
South	4.7	5.2	6.0	5.3	5.7	7.3	9.0	7.1	4.1	2.5	3.9	4.7	5.5	50
South Southwest	4.7	5.5	5.7	5.0	5.4	7.5	9.0	7.2	3.6	1.9	3.4	4.5	5.3	50
Southwest	5.3	5.8	6.6	6.1	6.7	8.8	10.0	7.6	4.1	3.1	4.0	4.7	6.1	50
West Southwest	7.2	7.7	8.4	8.7	6.3	8.4	8.0	5.8	4.0	4.0	4.9	5.6	6.6	50
West	7.2	7.3	6.5	5.3	4.3	4.4	4.3	4.0	3.1	4.0	5.4	6.2	5.2	50
West Northwest	8.5	6.6	5.5	4.3	3.1	3.0	2.7	3.0	3.3	5.5	7.1	9.0	5.1	50
Northwest	10.4	7.8	6.0	4.2	2.6	2.2	1.7	2.7	3.2	7.4	10.5	11.1	5.8	50
North Northwest	8.0	7.0	3.9	2.6	1.7	1.6	1.1	1.6	2.2	5.1	7.2	8.3	4.2	50
Calm	8.7	7.4	7.1	8.1	9.0	9.3	11.3	14.7	13.4	9.9	11.0	10.6	10.0	50
Direction (Mean Speed, knots)														
North	9.8	10.2	10.6	10.6	10.1	8.0	6.9	7.1	9.1	10.5	10.7	9.9	10.0	50
North Northeast	9.4	9.6	10.2	10.8	10.6	9.9	8.6	9.0	9.9	10.8	10.3	9.2	10.0	50
Northeast	8.0	8.5	8.8	9.6	9.9	9.4	8.5	8.9	9.9	10.6	9.2	8.1	9.4	50
East Northeast	8.1	8.7	8.9	9.3	9.8	9.3	8.6	8.8	9.6	10.2	9.3	8.4	9.3	50
East	8.1	9.0	9.3	10.0	10.1	9.4	9.2	8.8	9.0	9.2	8.7	8.2	9.2	50
East Southeast	8.2	8.7	9.6	10.4	9.5	9.2	8.8	8.2	8.4	8.2	8.3	8.0	8.9	50
Southeast	7.6	8.0	8.7	8.5	7.9	7.1	6.9	6.6	6.5	7.2	7.2	7.6	7.5	50
South Southeast	7.6	8.7	8.4	7.2	6.3	5.9	5.8	5.9	6.2	6.7	7.1	7.5	6.8	50
South	7.8	8.4	8.5	7.4	6.4	5.8	5.7	5.5	6.1	6.5	7.0	7.7	6.8	50
South Southwest	8.8	9.1	9.2	8.3	6.9	6.1	6.0	6.1	6.4	6.8	8.1	8.5	7.4	50
Southwest	8.2	8.7	8.9	8.1	6.8	6.4	6.2	6.1	6.1	6.1	7.2	7.8	7.2	50
West Southwest	8.4	9.1	9.6	8.5	7.3	7.0	6.5	6.1	5.9	6.4	7.1	7.6	7.7	50
West	8.6	9.5	9.7	8.7	7.6	7.2	6.9	6.3	6.0	6.9	7.3	7.9	8.0	50
West Northwest	8.3	8.7	8.6	8.0	6.8	6.4	6.7	5.8	5.4	6.4	7.4	7.5	7.4	50
Northwest	7.6	7.7	7.9	7.2	6.2	5.5	5.6	5.1	5.5	6.4	7.2	7.4	7.0	50
North Northwest	8.9	9.4	9.1	8.2	8.2	6.7	5.9	5.4	7.4	8.5	8.9	8.6	8.5	50
VISIBILITY														
Mean Number of Days with Fog	15	12	12	10	11	10	9	10	9	10	12	15	135	50
Percent Obs with Visibility <= 1/2 mile	2.48	1.66	1.00	0.38	0.32	0.20	0.16	0.37	0.14	0.41	1.13	2.21	0.88	50

CLIMATOLOGICAL TABLES

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

Sea level pressure is station pressure reduced to sea level.

WEST PALM BEACH, FLORIDA (26° 41'N., 80° 07'W.) Elevation 23 ft. (7m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1019.9	1019.0	1017.7	1016.8	1016.2	1016.2	1018.0	1016.4	1015.1	1015.3	1017.6	1019.5	1017.3	48
TEMPERATURE (DEGREES F)														
Mean	66.2	67.3	70.6	74.1	78.2	81.1	82.8	82.9	81.9	78.1	72.5	67.9	75.3	50
Mean Daily Maximum	74.9	76.3	79.3	82.4	85.9	88.6	90.3	90.5	88.7	84.9	80.0	76.2	83.2	50
Mean Daily Minimum	56.9	57.9	61.4	65.4	70.0	73.1	74.7	74.9	74.5	70.8	64.5	59.0	67.0	50
Extreme Highest	87	90	94	99	96	98	99	98	96	95	91	88	99	50
Extreme Lowest	27	32	30	43	51	61	68	65	67	46	36	28	27	50
RELATIVE HUMIDITY														
Average Percentage	74.5	64.7	51.9	42.9	37.2	37.4	55.4	39.4	25.9	27.7	51.3	70.2	48.3	49
CLOUD COVER														
Percent of time Clear	22.7	22.3	22.3	20.6	17.4	10.2	10.6	9.5	6.0	12.7	17.5	20.4	16.1	44
Percent of time Scattered	25.4	25.9	25.9	27.9	29.7	24.8	29.9	28.5	28.5	30.2	28.0	25.5	27.5	44
Percent of time Broken	23.3	23.4	24.5	26.3	25.6	30.0	32.7	34.3	33.5	30.3	27.2	24.7	28.0	44
Percent of time Overcast	22.0	21.2	20.7	19.1	20.7	26.1	17.8	19.0	22.7	20.3	26.1	22.6	21.0	44
PRECIPITATION														
Mean Amount (inches)	3.05	2.58	3.42	3.51	5.45	7.77	5.98	6.65	8.83	6.93	4.09	2.71	60.97	50
Greatest Amount (inches)	11.01	8.71	16.78	12.62	15.22	17.91	13.25	20.12	24.86	18.74	14.63	11.69	85.89	50
Least Amount (inches)	0.22	0.29	0.33	0.04	0.39	1.07	1.22	1.73	1.77	0.56	0.23	0.06	37.31	50
Maximum in 24 hrs. (inches)	6.78	2.90	5.58	6.49	7.04	4.88	5.29	8.01	5.70	7.10	7.41	6.45	8.01	50
Mean Number of Days with Precipitation	12	11	12	10	15	18	18	21	21	17	13	12	180	50
Mean Snowfall Amount (inches)	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	49
Greatest Snowfall Amount (inches)	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	49
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49
Maximum Snowfall in 24 hrs. (inches)	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	50
Mean Number of Days with Snow	Miss	0	0	0	0	0	0	0	0	0	0	0	Miss	50
WIND														
Percent of Observations with Gales (>34kts)	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.05	0.04	0.02	0.01	0.00	0.13	49
Mean Wind Speed (Knots)	8.8	9.2	9.6	9.6	8.8	7.3	6.8	6.8	7.4	8.9	9.2	8.8	8.4	49
Direction (percentage of Obs.)														
North	4.6	4.4	3.4	3.0	2.2	2.0	1.6	2.0	3.2	4.5	4.9	4.7	3.4	49
North Northeast	2.0	2.1	2.4	2.8	1.9	1.4	1.2	1.5	2.8	4.8	3.4	2.2	2.4	49
Northeast	2.9	3.3	3.8	4.7	5.0	3.5	1.7	3.1	6.5	11.2	6.6	4.1	4.7	49
East Northeast	5.8	5.9	5.9	8.5	10.4	6.6	4.4	6.4	12.1	16.4	13.0	8.1	8.6	49
East	9.0	7.5	7.9	12.0	12.5	9.3	10.3	11.9	14.3	12.0	12.8	10.4	10.9	49
East Southeast	6.5	6.8	8.9	12.3	15.7	13.3	16.4	15.2	12.6	6.8	6.5	7.1	10.7	49
Southeast	7.8	8.8	12.4	12.5	13.3	12.2	14.7	11.3	7.7	4.8	5.6	6.6	9.8	49
South Southeast	6.5	7.9	9.5	7.3	6.2	7.1	7.1	6.2	3.9	2.8	3.5	5.1	6.1	49
South	5.0	5.7	5.7	4.5	4.4	7.1	6.2	5.2	4.1	3.0	2.9	4.1	4.8	49
South Southwest	3.6	3.8	4.1	3.1	3.8	5.5	4.9	4.3	3.4	2.2	2.5	3.1	3.7	49
Southwest	3.5	4.3	4.2	4.1	4.2	6.4	5.1	4.9	3.4	2.3	2.5	3.0	4.0	49
West Southwest	4.0	4.5	4.5	4.3	4.1	4.8	4.0	3.8	3.0	2.7	2.6	2.9	3.8	49
West	4.6	5.0	4.8	4.0	3.2	3.6	3.6	3.5	3.0	2.8	3.1	3.6	3.7	49
West Northwest	7.1	7.2	5.2	4.2	3.0	3.0	3.1	3.2	3.2	4.0	4.4	6.1	4.5	49
Northwest	11.6	10.1	6.7	4.7	2.8	2.4	2.6	3.0	3.5	6.7	10.3	12.2	6.4	49
North Northwest	9.8	8.0	6.1	3.8	2.4	2.3	1.8	2.6	3.2	6.0	9.7	10.9	5.5	49
Calm	5.7	4.7	4.4	4.5	5.1	9.5	11.4	11.8	10.0	6.9	5.8	5.9	7.2	49
Direction (Mean Speed, knots)														
North	9.0	9.2	9.3	9.0	7.7	5.6	5.1	5.3	6.6	8.4	9.2	8.8	8.2	49
North Northeast	9.8	9.9	10.3	10.8	10.0	7.7	6.6	7.4	8.8	10.6	11.2	9.8	9.8	49
Northeast	10.4	10.6	11.2	11.2	11.0	10.0	8.0	8.7	10.0	11.9	11.7	10.8	10.8	49
East Northeast	11.6	12.0	11.9	12.0	11.3	10.3	9.0	9.8	10.0	12.0	12.4	12.1	11.4	49
East	11.4	11.5	11.9	11.6	10.8	9.8	9.4	9.4	9.6	10.9	11.9	11.6	10.8	49
East Southeast	9.8	10.3	10.5	11.0	10.2	9.3	9.2	8.8	9.0	9.0	10.0	10.1	9.7	49
Southeast	9.9	10.8	10.8	10.6	9.8	8.9	8.7	8.4	8.4	8.7	9.5	9.6	9.6	49
South Southeast	9.8	10.8	11.2	10.7	9.0	8.3	7.7	7.7	7.9	8.6	9.4	9.6	9.4	49
South	8.1	8.4	8.7	7.9	6.7	6.7	5.9	6.2	6.7	6.9	7.5	7.5	7.2	49
South Southwest	8.1	8.6	8.2	7.7	6.4	6.7	5.9	5.8	6.8	7.2	7.2	7.9	7.1	49
Southwest	7.9	8.3	8.6	8.2	6.8	6.7	5.8	5.8	6.4	6.5	7.3	7.4	7.1	49
West Southwest	7.7	8.0	8.6	8.3	7.3	7.1	6.1	6.0	6.3	6.7	6.9	7.0	7.3	49
West	7.8	8.8	8.8	8.0	6.8	6.2	6.0	6.0	5.7	6.2	6.4	7.3	7.2	49
West Northwest	8.9	9.1	9.5	8.2	6.8	5.8	5.8	5.5	5.4	7.0	7.3	8.1	7.7	49
Northwest	9.0	9.0	9.3	8.0	6.6	5.2	5.1	5.3	5.4	7.6	8.6	8.8	8.1	49
North Northwest	8.6	8.6	8.7	8.3	6.6	5.5	5.1	5.1	5.5	7.7	8.4	8.7	7.9	49
VISIBILITY														
Mean Number of Days with Fog	7	6	6	5	3	4	2	3	3	4	5	7	55	50
Percent Obs with Visibility <= 1/2 mile	0.44	0.25	0.31	0.20	0.05	0.03	0.00	0.04	0.05	0.12	0.21	0.36	0.17	49

CLIMATOLOGICAL TABLES

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

Sea level pressure is station pressure reduced to sea level.

MIAMI, FLORIDA (25° 48'N., 80° 18'W.) Elevation 10 ft. (3m)

WEATHER ELEMENTS	JAN	FEB	MAR	APR	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1019.7	1019.0	1017.6	1017.0	1015.9	1016.3	1017.6	1016.5	1014.9	1015.1	1017.4	1019.3	1017.0	49
TEMPERATURE (DEGREES F)														
Mean	67.9	69.2	72.1	75.5	79.0	81.7	81.1	81.9	82.2	78.7	73.7	69.3	76.2	50
Mean Daily Maximum	75.6	76.9	79.6	82.6	85.7	88.1	88.4	89.7	88.0	84.8	80.4	76.8	83.0	50
Mean Daily Minimum	59.5	60.7	64.1	67.8	71.9	74.8	76.3	76.5	75.7	72.0	66.4	61.4	69.0	50
Extreme Highest	89	89	92	96	96	98	98	98	97	95	89	87	98	50
Extreme Lowest	30	30	32	42	55	60	69	68	68	53	35	30	30	50
RELATIVE HUMIDITY														
Average Percentage	72.2	64.5	61.1	44.6	33.6	37.7	53.4	39.8	24.0	25.6	48.7	66.1	46.9	50
CLOUD COVER														
Percent of time Clear	21.2	22.1	19.5	17.9	11.8	6.6	5.3	5.1	4.1	11.2	19.3	19.3	13.4	49
Percent of time Scattered	32.7	31.3	34.0	35.7	34.5	30.2	33.6	33.3	31.9	36.0	34.5	33.0	33.5	49
Percent of time Broken	24.3	24.4	26.5	28.3	35.0	33.8	38.4	38.4	37.1	35.0	27.4	26.0	30.4	49
Percent of time Overcast	19.8	18.1	19.8	18.5	14.6	29.9	22.5	21.8	26.1	14.8	14.8	15.6	14.3	49
PRECIPITATION														
Mean Amount (inches)	2.04	2.03	2.40	3.27	6.01	8.99	6.04	7.58	8.55	8.95	3.03	1.89	59.88	50
Greatest Amount (inches)	6.66	8.07	17.57	11.78	18.54	22.36	11.23	16.61	24.40	21.64	13.84	6.39	89.33	50
Least Amount (inches)	0.04	0.06	0.02	0.05	0.44	2.00	1.77	1.65	2.03	1.25	0.09	0.12	37.00	50
Maximum in 24 hrs. (inches)	2.40	4.54	7.07	9.34	11.51	6.67	4.51	6.57	5.07	9.95	7.56	4.39	12.51	50
Mean Number of Days with Precipitation	12	10	10	10	15	20	21	22	22	18	14	11	185	50
Mean Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50
Greatest Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50
Maximum Snowfall in 24 hrs. (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50
Mean Number of Days with Snow	0	0	0	0	0	0	0	0	0	0	0	0	0	50
WIND														
Percent of Observations with Gales (>34kts)	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.13	0.01	0.00	0.00	0.14	50
Mean Wind Speed (Knots)	8.2	8.7	9.1	9.1	8.2	7.1	6.9	6.6	7.1	8.0	8.4	8.1	8.0	50
Direction (percentage of Obs.)														
North	9.5	7.6	5.7	4.3	3.3	4.1	4.7	5.4	5.9	8.1	11.0	11.2	6.8	50
North Northeast	4.0	3.7	3.0	2.7	2.4	2.8	2.7	3.6	4.9	6.7	6.2	4.8	4.0	50
Northeast	4.2	4.0	3.7	4.5	4.0	3.9	2.9	3.9	6.7	11.5	8.5	5.6	5.4	50
East Northeast	6.1	5.9	6.2	8.5	10.1	6.5	5.9	7.9	11.1	14.1	21.8	8.0	8.5	50
East	8.7	7.7	9.1	12.9	14.3	11.9	13.3	12.6	14.2	10.6	11.0	10.2	11.4	50
East Southeast	11.0	10.9	12.5	15.0	16.9	14.3	18.1	14.4	12.9	7.9	9.3	10.2	12.7	50
Southeast	8.5	10.5	12.7	12.9	12.6	13.2	14.7	12.3	8.9	5.6	5.8	7.4	10.2	50
South Southeast	5.8	7.4	9.8	7.7	7.9	8.4	7.5	6.8	5.5	3.9	3.7	4.7	6.5	50
South	4.0	4.7	5.3	4.1	4.3	6.0	5.4	4.9	4.1	2.7	2.5	3.0	4.3	50
South Southwest	2.6	2.8	3.0	2.7	3.0	4.7	3.6	3.8	3.3	1.8	1.7	2.1	2.9	50
Southwest	2.4	2.8	3.0	2.9	3.7	4.9	3.6	3.8	2.6	1.9	1.9	2.0	3.0	50
West Southwest	2.6	3.1	3.3	3.6	3.5	3.7	2.8	2.8	2.4	2.1	1.8	2.0	2.8	50
West	2.6	3.1	3.3	3.2	2.8	2.8	2.2	2.4	2.1	2.0	1.7	2.0	2.5	50
West Northwest	3.9	5.0	4.0	3.7	2.7	2.2	2.2	2.4	2.2	2.9	2.6	3.5	3.1	50
Northwest	8.3	8.2	5.5	4.6	3.0	2.7	3.0	3.4	3.5	5.1	6.2	7.1	5.0	50
North Northwest	12.5	9.8	7.3	5.1	3.1	3.3	3.2	4.0	4.8	8.6	11.4	13.2	7.2	50
Calm	3.2	2.9	2.4	2.0	3.0	4.5	4.7	5.7	5.2	3.4	2.6	3.3	3.6	50
Direction (Mean Speed, knots)														
North	7.5	7.6	7.8	7.1	5.9	4.5	4.7	4.9	5.1	6.5	7.6	7.7	6.7	50
North Northeast	7.1	7.4	7.8	7.7	7.1	5.3	4.5	5.2	5.9	8.9	7.7	7.2	6.9	50
Northeast	9.2	8.5	10.0	10.6	9.1	7.6	5.7	6.5	7.9	10.5	10.2	9.5	9.1	50
East Northeast	9.8	10.0	10.6	11.0	10.0	8.5	8.0	8.4	8.9	10.2	10.8	9.9	9.8	50
East	9.0	9.4	10.0	10.3	9.7	8.4	8.2	8.3	8.5	9.0	9.6	9.6	9.1	50
East Southeast	9.5	9.9	10.1	10.2	9.4	8.6	8.5	8.4	8.4	8.5	9.2	9.2	9.1	50
Southeast	9.0	9.8	10.0	9.9	9.1	8.5	8.4	8.3	8.1	7.9	8.5	8.2	8.9	50
South Southeast	8.6	9.5	10.2	9.8	8.6	7.8	7.8	8.0	7.9	7.8	8.3	8.1	8.7	50
South	7.9	9.0	9.2	8.6	7.3	7.0	6.6	6.7	7.0	7.2	7.2	7.4	7.6	50
South Southwest	8.5	8.6	8.6	7.8	6.3	6.8	5.8	6.3	6.8	7.1	6.7	7.6	7.2	50
Southwest	7.8	8.5	8.2	7.7	6.6	6.4	5.7	5.8	6.4	6.6	6.9	7.0	6.9	50
West Southwest	8.5	8.7	8.9	8.6	7.2	6.8	5.9	6.2	6.7	7.1	7.2	7.1	7.5	50
West	7.8	8.0	8.6	8.2	6.9	5.7	5.7	5.7	5.7	6.1	6.3	6.5	6.9	50
West Northwest	8.3	8.8	8.7	7.6	6.2	5.5	5.3	5.6	5.5	6.8	7.1	7.5	7.2	50
Northwest	8.4	8.6	8.8	7.5	5.8	5.1	4.7	4.8	5.2	6.6	7.2	7.9	7.2	50
North Northwest	7.9	8.2	8.0	7.4	5.7	4.9	4.8	5.1	5.1	6.7	7.8	7.8	7.2	50
VISIBILITY														
Mean Number of Days with Fog	7	5	4	4	3	2	1	1	2	4	5	6	44	50
Percent Obs with Visibility <= 1/2 mile	0.43	0.31	0.18	0.15	0.08	0.02	0.02	0.03	0.04	0.05	0.24	0.27	0.15	50

CLIMATOLOGICAL TABLES

These tables were prepared by the National Climatic Data Center (NCDC), National Environmental Satellite Data & Information Service (NESDIS), NOAA.

T means trace (not measurable) of precipitation
Miss or <blank> is a missing value.

Sea level pressure is station pressure reduced to sea level.

KEY WEST, FLORIDA (24° 33'N., 88° 39'W.) Elevation 20 ft. (6.1m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1019.5	1018.6	1017.2	1016.3	1015.6	1015.3	1017.5	1016.1	1014.4	1014.7	1016.8	1018.9	1016.8	44
TEMPERATURE (DEGREES F)														
Mean	70.2	71.0	74.1	77.2	80.7	83.4	84.7	84.6	83.5	80.3	75.9	71.6	78.1	46
Mean Daily Maximum	74.9	75.8	78.8	81.8	85.2	87.9	89.4	89.5	88.2	84.6	80.0	76.1	82.7	46
Mean Daily Minimum	64.9	65.7	68.9	72.1	75.7	78.3	79.4	79.2	78.3	75.5	71.3	66.6	73.0	46
Extreme Highest	86	85	88	90	91	94	95	95	94	93	89	88	95	46
Extreme Lowest	41	45	47	48	64	68	69	68	69	60	49	44	41	46
RELATIVE HUMIDITY														
Average Percentage	76.0	60.6	47.5	37.8	31.0	33.3	49.7	35.8	19.5	21.7	43.3	64.0	42.7	46
CLOUD COVER														
Percent of time Clear	22.7	25.0	21.0	19.1	13.3	4.4	2.4	2.0	2.1	11.2	17.6	20.7	13.3	44
Percent of time Scattered	32.2	33.6	36.1	39.0	39.5	32.9	41.2	30.5	28.3	36.9	35.3	31.7	33.9	44
Percent of time Broken	23.2	23.0	23.4	24.5	27.7	33.4	40.4	41.6	40.9	28.5	25.1	24.2	29.7	44
Percent of time Overcast	16.5	13.1	13.6	12.0	12.9	20.1	15.9	15.3	18.6	15.5	14.9	16.1	15.4	44
PRECIPITATION														
Mean Amount (inches)	2.22	1.50	1.70	1.97	3.23	4.80	5.65	5.08	6.43	4.80	2.44	2.08	39.90	46
Greatest Amount (inches)	17.64	4.46	9.69	10.60	12.90	14.43	11.65	10.43	18.45	21.57	27.67	11.18	62.92	46
Least Amount (inches)	T	0.02	T	0.00	0.34	0.33	0.44	2.23	1.70	0.74	T	0.07	19.99	46
Maximum in 24 hrs. (inches)	6.42	2.54	5.26	6.19	7.20	5.14	3.05	3.29	6.06	6.49	22.75	6.65	22.75	46
Mean Number of Days with Precipitation	11	9	9	8	11	16	17	19	21	16	11	12	160	46
Mean Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44
Greatest Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44
Least Snowfall Amount (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44
Maximum Snowfall in 24 hrs. (inches)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44
Mean Number of Days with Snow	0	0	0	0	0	0	0	0	0	0	0	0	0	46
WIND														
Percent of Observations with Gales (>34kts)	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.09	0.03	0.01	0.18	45
Mean Wind Speed (Knots)	10.4	10.5	10.6	10.6	9.3	8.4	8.2	8.0	8.5	9.6	10.5	10.3	9.5	45
Direction (percentage of Obs.)														
North	9.5	10.4	8.0	7.0	4.9	2.6	1.6	2.4	2.8	6.6	8.1	9.2	6.1	45
North Northeast	11.2	9.6	6.5	4.8	3.4	1.9	1.4	2.1	2.7	8.7	11.8	12.9	6.4	45
Northeast	15.7	12.0	7.5	6.0	4.4	3.2	3.0	4.5	6.7	17.3	20.2	18.6	9.9	45
East Northeast	12.0	9.2	7.1	7.8	6.5	5.0	5.6	7.6	10.8	18.7	17.3	14.3	10.2	45
East	9.1	8.6	9.7	12.1	12.5	10.3	11.6	11.8	12.8	11.2	9.5	9.0	10.7	45
East Southeast	10.0	11.1	14.8	18.8	20.5	19.6	23.8	19.8	18.4	10.0	9.2	9.4	15.4	45
Southeast	7.8	10.1	14.7	15.1	17.0	19.8	21.2	18.9	13.9	6.8	6.5	7.4	13.2	45
South Southeast	4.0	5.1	7.2	5.9	7.3	9.4	9.0	8.7	6.6	3.3	2.5	2.9	6.0	45
South	3.6	4.1	5.4	3.8	4.7	7.9	6.3	5.8	5.5	2.7	2.1	2.8	4.6	45
South Southwest	2.3	2.3	2.6	2.1	2.5	4.8	2.9	3.1	3.4	1.8	1.2	1.3	2.5	45
Southwest	2.0	1.9	2.1	2.0	2.1	4.3	2.8	3.0	2.9	1.8	1.5	1.4	2.3	45
West Southwest	1.2	1.5	1.4	1.3	1.5	2.3	1.4	1.6	2.0	1.1	0.8	1.1	1.4	45
West	1.0	1.1	1.2	0.9	1.1	1.5	0.9	1.1	1.4	0.8	0.7	0.8	1.0	45
West Northwest	1.4	1.5	1.6	1.6	1.6	1.4	1.0	1.1	1.3	1.0	0.9	1.1	1.3	45
Northwest	2.4	3.4	3.0	3.3	3.1	2.0	1.4	1.8	2.0	1.9	2.1	2.1	2.4	45
North Northwest	4.9	6.0	5.1	5.5	3.8	2.0	1.2	1.8	1.8	3.1	3.2	3.5	3.5	45
Calm	2.0	2.0	2.1	1.9	3.0	3.9	4.9	4.8	5.1	3.2	2.2	2.2	3.1	45
Direction (Mean Speed, knots)														
North	12.3	12.0	11.5	10.4	7.9	7.2	7.0	7.1	7.3	9.7	11.8	11.9	10.7	45
North Northeast	11.0	10.9	10.5	9.9	8.3	7.2	6.6	7.2	7.7	10.1	11.2	11.1	10.3	45
Northeast	10.2	10.2	10.3	9.7	8.8	7.2	6.4	7.1	8.0	10.5	10.9	10.4	9.9	45
East Northeast	9.8	10.0	10.5	10.8	9.7	8.4	7.3	7.6	8.3	10.5	10.5	10.2	9.7	45
East	10.6	10.5	11.1	12.0	11.2	9.8	9.2	8.9	9.4	10.0	10.6	10.3	10.3	45
East Southeast	10.9	10.8	11.6	12.0	11.0	9.8	9.9	9.6	9.9	9.8	10.3	10.7	10.5	45
Southeast	10.2	10.4	11.2	11.2	10.0	9.2	9.2	9.0	9.5	9.2	10.8	10.7	9.9	45
South Southeast	9.1	9.6	10.2	10.0	8.6	8.2	7.9	7.8	8.6	9.1	9.4	9.1	8.8	45
South	9.5	9.6	9.3	9.1	7.9	8.6	7.5	7.6	9.0	9.9	8.6	8.9	8.6	45
South Southwest	9.1	9.6	9.3	9.2	7.4	8.7	7.4	7.1	9.3	10.1	9.7	8.4	8.7	45
Southwest	8.3	8.9	8.6	8.3	7.3	7.7	7.3	7.2	8.4	9.1	8.7	8.3	8.1	45
West Southwest	7.8	8.5	9.8	8.3	7.7	7.1	6.9	7.7	7.7	8.1	7.6	7.9	7.9	45
West	8.2	8.6	9.2	8.9	7.5	6.5	5.8	6.8	9.3	7.1	7.1	7.9	7.8	45
West Northwest	10.3	11.5	10.3	10.0	7.9	6.2	6.3	6.5	6.8	6.8	8.7	8.7	8.5	45
Northwest	12.3	12.4	12.2	10.1	7.7	5.1	6.7	7.0	7.6	8.1	10.3	11.9	9.7	45
North Northwest	13.4	12.9	12.5	10.8	8.1	6.8	7.6	7.1	7.6	9.7	11.9	12.6	10.9	45
VISIBILITY														
Mean Number of Days with Fog	3	2	1	Miss	Miss	1	Miss	1	1	1	1	2	13	46
Percent Obs with Visibility <= 1/2 mile	0.17	0.16	0.03	0.01	0.01	0.01	0.02	0.02	0.05	0.03	0.02	0.13	0.05	45

METEOROLOGICAL TABLE FOR COASTAL AREA OFF NORFOLK, VA
Boundaries: Between 36°N TO 38°N FROM 73°W TO 77°W

Weather Elements	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
Wind > 33 Knots (1)	4.0	4.3	3.7	1.8	0.5	0.4	0.2	0.4	1.1	2.0	3.1	4.1	2.1
Wave Height > 9 ft (1)	7.7	7.8	6.5	3.5	1.6	1.2	0.8	1.2	2.3	4.8	5.4	8.3	4.1
Visibility < 2 nmi (1)	3.8	5.1	5.3	5.4	5.7	3.6	1.7	1.5	1.7	2.2	2.7	3.3	3.5
Precipitation (1)	8.8	8.2	6.8	5.6	4.8	4.1	4.2	4.3	5.1	5.4	6.1	7.7	5.8
Temperature > 69 F (1)	0.8	0.7	1.1	3.8	15.6	62.3	96.2	96.4	75.2	22.9	5.0	1.1	32.9
Mean Temperature (F)	46.2	46.4	49.7	55.8	63.3	72.2	77.7	77.8	73.8	65.6	57.6	49.9	61.7
Temperature < 33 F (1)	8.1	6.9	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	3.0	1.6
Mean RH (%)	76	75	76	77	80	82	82	81	79	76	74	74	78
Overcast or Obscured (1)	36.3	35.1	32.6	27.3	25.3	21.6	21.1	19.7	20.9	22.3	25.6	32.6	26.5
Mean Cloud Cover (8ths)	5.0	4.8	4.6	4.2	4.3	4.3	4.4	4.3	4.2	4.1	4.4	4.9	4.4
Mean SLP (mbs)	1019	1018	1017	1016	1016	1016	1017	1017	1018	1018	1018	1019	1017
Ext. Max. SLP (mbs)	1047	1047	1044	1040	1038	1036	1038	1041	1036	1044	1047	1045	1047
Ext. Min. SLP (mbs)	968	964	967	975	982	989	991	992	986	977	971	975	964
Prevailing Wind Direction	N	N	N	SW	SW	SW	SW	SW	NE	N	N	N	N
Thunder and Lightning (1)	0.5	0.5	0.7	0.8	1.5	1.5	2.5	2.4	1.2	0.8	0.6	0.4	1.1

METEOROLOGICAL TABLE FOR COASTAL AREA OFF CAPE HATTERAS
Boundaries: Between 34°N TO 36°N FROM 73°W TO 77°W

Weather Elements	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
Wind > 33 Knots (1)	6.3	6.8	5.5	3.5	1.1	0.7	0.4	0.7	1.6	3.5	3.7	5.5	3.2
Wave Height > 9 ft (1)	11.9	13.2	11.4	7.6	4.2	2.4	1.6	1.7	4.4	9.0	8.7	11.3	7.1
Visibility < 2 nmi (1)	2.8	2.8	2.3	1.4	1.5	1.0	0.9	1.0	0.9	0.9	1.2	1.7	1.5
Precipitation (1)	8.6	8.3	6.7	5.1	5.5	5.3	5.9	5.8	5.4	6.0	6.3	7.7	6.4
Temperature > 69 F (1)	5.6	5.0	9.1	23.9	58.6	91.1	99.4	99.4	93.7	58.6	26.2	10.4	49.3
Mean Temperature (F)	55.4	55.6	58.6	64.3	70.9	76.5	80.3	80.4	77.5	71.0	64.5	58.6	68.0
Temperature < 33 F (1)	1.5	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2
Mean RH (%)	75	74	74	74	77	80	81	80	77	74	73	74	76
Overcast or Obscured (1)	36.0	35.7	32.1	23.8	22.6	21.4	19.7	19.6	20.5	23.4	24.5	31.8	25.8
Mean Cloud Cover (8ths)	5.4	5.2	5.0	4.3	4.5	4.6	4.7	4.6	4.6	4.7	4.7	5.2	4.8
Mean SLP (mbs)	1018	1018	1016	1017	1016	1016	1017	1017	1018	1017	1018	1019	1017
Ext. Max. SLP (mbs)	1047	1047	1046	1039	1038	1036	1036	1040	1036	1043	1045	1044	1047
Ext. Min. SLP (mbs)	974	977	973	981	990	988	997	992	990	985	984	987	973
Prevailing Wind Direction	N	N	N	SW	SW	SW	SW	SW	NE	N	N	N	N
Thunder and Lightning (1)	0.8	1.0	1.5	1.8	2.8	3.0	4.2	3.7	2.1	1.5	1.3	0.9	2.1

METEOROLOGICAL TABLE FOR COASTAL AREA OFF CHARLESTON SC
Boundaries: Between 32°N TO 34°N FROM 75°W TO 81°W

Weather Elements	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
Wind > 33 Knots (1)	4.3	4.8	4.1	2.0	0.9	0.5	0.3	0.6	1.3	3.1	3.1	4.0	2.4
Wave Height > 9 ft (1)	8.9	9.6	8.7	4.7	3.0	2.3	1.1	1.7	4.3	7.6	7.3	7.9	5.5
Visibility < 2 nmi (1)	1.4	1.5	1.1	0.6	0.8	0.6	0.8	0.9	0.8	0.8	0.8	1.0	0.9
Precipitation (1)	7.0	6.5	6.1	3.6	4.7	5.0	5.1	6.0	5.5	5.8	5.1	6.1	5.5
Temperature > 69 F (1)	11.5	11.7	18.4	40.9	79.9	98.0	99.8	99.7	98.5	77.1	42.5	18.7	59.1
Mean Temperature (F)	59.9	60.5	63.4	68.4	73.8	78.4	81.5	81.5	79.3	73.8	67.8	62.4	71.1
Temperature < 33 F (1)	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Mean RH (%)	74	74	73	73	76	80	80	80	77	74	72	72	76
Overcast or Obscured (1)	32.1	31.8	28.0	18.9	19.4	19.5	17.3	18.5	20.2	21.5	21.6	28.2	23.0
Mean Cloud Cover (8ths)	5.2	5.1	4.8	4.0	4.3	4.5	4.6	4.7	4.7	4.6	4.6	5.0	4.7
Mean SLP (mbs)	1019	1018	1017	1017	1017	1016	1018	1017	1017	1017	1018	1019	1018
Ext. Max. SLP (mbs)	1045	1045	1044	1040	1039	1036	1037	1038	1036	1042	1044	1044	1045
Ext. Min. SLP (mbs)	980	977	980	985	991	995	998	996	995	988	987	983	977
Prevailing Wind Direction	N	N	N	SW	SW	SW	SW	SW	NE	NE	N	N	SW
Thunder and Lightning (1)	1.0	1.3	1.7	1.6	2.9	3.1	3.9	4.3	2.7	1.9	1.3	0.9	2.2

(1) Percentage Frequency

These data are based upon observations made by ships in passage.
Such ships tend to avoid bad weather when possible, thus biasing the data toward good weather samples.

METEOROLOGICAL TABLE FOR COASTAL AREA OFF JACKSONVILLE
Boundaries: Between 29°N TO 32°N FROM 78°W TO 82°W

Weather Elements	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
Wind > 33 Knots (1)	2.4	3.4	2.1	1.0	0.5	0.5	0.1	0.5	1.4	2.2	1.8	2.1	1.5
Wave Height > 9 ft (1)	5.9	7.1	4.6	2.6	2.1	1.4	0.6	1.2	3.8	6.1	4.5	4.5	3.7
Visibility < 2 nmi (1)	1.1	0.9	0.8	0.4	0.4	0.6	0.3	0.5	0.5	0.6	0.6	0.8	0.6
Precipitation (1)	5.2	5.4	4.1	3.1	3.3	3.9	3.3	4.3	5.5	4.8	4.0	4.6	4.3
Temperature > 69 F (1)	23.9	24.7	36.6	64.3	93.0	99.6	99.9	99.9	99.5	89.4	62.0	34.8	69.3
Mean Temperature (F)	63.7	64.6	67.5	71.7	76.2	80.1	82.5	82.4	80.9	76.3	71.0	66.4	73.6
Temperature < 33 F (1)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mean RH (%)	73	73	73	73	75	79	79	79	78	73	71	72	75
Overcast or Obscured (1)	26.3	24.9	20.6	15.4	12.9	15.5	11.2	13.0	17.2	17.8	16.9	22.6	17.9
Mean Cloud Cover (8ths)	4.9	4.7	4.4	3.9	3.9	4.4	4.1	4.3	4.6	4.5	4.4	4.7	4.4
Mean SLP (mbs)	1020	1019	1018	1018	1017	1016	1018	1017	1016	1016	1018	1020	1018
Ext. Max. SLP (mbs)	1040	1045	1040	1036	1037	1031	1035	1034	1033	1040	1046	1045	1046
Ext. Min. SLP (mbs)	985	990	983	992	996	995	998	997	995	978	994	995	978
Prevailing Wind Direction	NW	NW	S	S	S	SW	SW	E	NE	NE	N	N	NE
Thunder and Lightning (1)	0.9	1.1	1.5	1.2	2.7	3.2	4.4	4.5	3.5	2.1	1.1	0.8	2.3

METEOROLOGICAL TABLE FOR COASTAL AREA OFF MIAMI, FL
Boundaries: Between 25°N TO 29°N FROM 78°W TO 82°W

Weather Elements	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
Wind > 33 Knots (1)	1.1	1.5	1.0	0.4	0.1	0.2	0.1	0.2	0.7	1.3	0.8	1.1	0.7
Wave Height > 9 ft (1)	3.5	4.4	3.2	1.8	1.2	0.9	0.5	0.7	1.8	4.3	3.6	3.7	2.4
Visibility < 2 nmi (1)	0.4	0.4	0.3	0.5	0.4	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.4
Precipitation (1)	3.3	3.2	2.5	2.1	3.1	4.2	3.0	3.8	4.9	4.7	3.2	3.2	3.5
Temperature > 69 F (1)	54.1	54.1	67.5	86.6	98.6	99.8	99.9	100.0	99.9	97.9	86.4	64.6	84.6
Mean Temperature (F)	69.7	70.0	72.0	74.8	78.1	81.2	83.1	83.4	82.3	79.2	75.1	71.5	76.8
Temperature < 33 F (1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mean RH (%)	75	75	75	74	77	79	78	78	79	76	74	74	76
Overcast or Obscured (1)	15.4	14.7	14.2	10.5	11.3	13.8	9.0	9.3	13.1	14.1	11.6	13.7	12.5
Mean Cloud Cover (8ths)	4.3	4.2	4.1	3.8	3.9	4.3	4.1	4.2	4.5	4.4	4.2	4.2	4.2
Mean SLP (mbs)	1020	1019	1018	1017	1016	1017	1018	1017	1015	1015	1018	1019	1017
Ext. Max. SLP (mbs)	1040	1040	1042	1040	1038	1033	1033	1034	1030	1037	1032	1044	1044
Ext. Min. SLP (mbs)	994	989	994	998	999	999	1003	1000	987	996	993	996	987
Prevailing Wind Direction	E	E	E	E	E	E	E	E	E	NE	E	E	E
Thunder and Lightning (1)	0.5	0.9	1.0	1.4	2.2	3.5	4.4	4.7	4.5	2.6	1.0	0.7	2.4

METEOROLOGICAL TABLE FOR COASTAL AREA OFF KEY WEST, FL
Boundaries: Between 23N TO 25N FROM 079W TO 083W

Weather Elements	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
Wind > 33 Knots (1)	0.5	0.5	0.3	0.2	0.1	0.3	0.1	0.2	0.5	0.6	0.6	0.5	0.4
Wave Height > 9 ft (1)	2.0	2.0	1.9	1.7	1.1	0.8	0.4	0.7	0.7	2.4	2.5	1.9	1.5
Visibility < 2 nmi (1)	0.4	0.4	0.3	0.2	0.3	0.5	0.2	0.4	0.4	0.7	0.3	0.4	0.4
Precipitation (1)	2.8	2.6	1.8	1.4	2.5	3.7	2.3	2.9	3.9	4.6	2.9	2.6	2.8
Temperature > 69 F (1)	70.1	69.7	81.9	95.2	99.7	99.9	99.9	100.0	99.9	99.3	93.3	77.1	90.9
Mean Temperature (F)	72.2	72.4	74.3	76.8	79.7	82.2	83.7	84.0	83.2	80.5	76.9	73.5	78.5
Temperature < 33 F (1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mean RH (%)	78	78	78	77	78	79	77	77	79	78	77	77	78
Overcast or Obscured (1)	12.8	11.7	9.8	7.2	9.4	12.9	6.8	7.1	10.1	12.4	10.4	12.3	10.2
Mean Cloud Cover (8ths)	3.9	3.7	3.5	3.4	3.7	4.2	4.0	4.0	4.3	4.3	4.0	4.0	3.9
Mean SLP (mbs)	1019	1018	1017	1017	1015	1016	1017	1016	1014	1014	1017	1019	1017
Ext. Max. SLP (mbs)	1038	1036	1035	1035	1031	1032	1030	1029	1030	1031	1034	1037	1038
Ext. Min. SLP (mbs)	997	1000	997	998	1000	997	1004	1002	996	991	1000	1000	991
Prevailing Wind Direction	E	E	E	E	E	E	E	E	E	E	E	E	E
Thunder and Lightning (1)	0.5	0.7	0.5	0.6	2.0	3.0	4.8	5.0	5.8	3.2	1.2	0.6	2.4

(1) Percentage Frequency

These data are based upon observations made by ships in passage. Such ships tend to avoid bad weather when possible, thus biasing the data toward good weather samples.

MEAN SURFACE WATER TEMPERATURES (T) AND DENSITIES (D)

Stations	Years	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec		Mean	
		(T) °C	(D)	(T) °C	(D)	(T) °C	(D)	(T) °C	(D)	(T) °C	(D)	(T) °C	(D)	(T) °C	(D)	(T) °C	(D)	(T) °C	(D)	(T) °C	(D)	(T) °C	(D)	(T) °C	(D)	(T) °C	(D)
Virginia Beach, VA 36°50'N., 75°58'W.	8	5.5	[illegible]	4.5	[illegible]	6.4	[illegible]	10.7	[illegible]	15.8	18.5	20.4	18.4	22.8	19.6	23.8	20.0	22.4	20.0	18.6	20.2	13.8	20.8	8.4	20.5	14.4	19.1
Diamond Shoal Light, NC 35°09'N., 75°18'W.	5	16.6	[illegible]	15.6	[illegible]	14.8	[illegible]	16.7	[illegible]	21.1	[illegible]	24.4	[illegible]	26.2	[illegible]	26.9	[illegible]	25.7	[illegible]	23.2	[illegible]	19.3	[illegible]	18.0	[illegible]	20.7	[illegible]
Beaufort, NC 34°43'N., 76°40'W.	4	9.1	[illegible]	8.8	[illegible]	11.3	[illegible]	17.2	[illegible]	21.4	[illegible]	25.2	[illegible]	27.4	[illegible]	27.7	[illegible]	24.8	[illegible]	20.2	[illegible]	15.4	[illegible]	11.4	[illegible]	18.3	[illegible]
Southport, NC 33°55'N., 78°01'W.	9	10.9	[illegible]	10.9	[illegible]	13.1	[illegible]	17.8	[illegible]	22.7	[illegible]	26.3	[illegible]	27.9	[illegible]	27.9	[illegible]	25.6	[illegible]	21.2	[illegible]	16.3	[illegible]	11.7	[illegible]	19.4	[illegible]
Myrtle Beach, SC 33°41'N., 78°53'W.	17	9.1	[illegible]	9.6	[illegible]	12.6	[illegible]	17.3	[illegible]	22.1	[illegible]	26.0	[illegible]	27.9	[illegible]	27.7	[illegible]	25.8	[illegible]	21.3	[illegible]	15.7	[illegible]	10.7	[illegible]	18.8	[illegible]
Charleston, SC 32°47'N., 79°55'W.	27	10.6	[illegible]	11.0	[illegible]	13.9	[illegible]	18.6	[illegible]	23.2	[illegible]	26.9	[illegible]	28.6	[illegible]	28.6	[illegible]	26.6	[illegible]	22.0	[illegible]	16.8	[illegible]	11.9	[illegible]	19.9	[illegible]
Ft. Pulaski, GA 32°02'N., 80°54'W.	29	10.8	[illegible]	11.7	[illegible]	14.7	[illegible]	19.2	[illegible]	23.7	[illegible]	27.2	[illegible]	28.8	[illegible]	28.9	[illegible]	26.7	[illegible]	22.4	[illegible]	17.3	[illegible]	12.3	[illegible]	20.3	[illegible]
Brunswick, GA 31°08'N., 81°29'W.	8	12.7	[illegible]	13.0	[illegible]	16.1	[illegible]	20.9	[illegible]	24.6	[illegible]	27.5	[illegible]	28.8	[illegible]	29.2	[illegible]	26.9	[illegible]	23.0	[illegible]	18.2	[illegible]	14.2	[illegible]	21.3	[illegible]
Fernandina Beach, FL 30°40'N., 81°28'W.	25	13.5	[illegible]	14.1	[illegible]	16.7	[illegible]	20.7	[illegible]	24.6	[illegible]	27.4	[illegible]	28.4	[illegible]	28.4	[illegible]	27.4	[illegible]	23.5	[illegible]	18.9	[illegible]	14.5	[illegible]	21.5	[illegible]
Mayport, FL 30°24'N., 81°26'W.	25	14.0	[illegible]	14.5	[illegible]	16.8	[illegible]	20.4	[illegible]	24.1	[illegible]	26.9	[illegible]	28.0	[illegible]	27.8	[illegible]	27.4	[illegible]	23.8	[illegible]	19.4	[illegible]	15.3	[illegible]	21.5	[illegible]
Jacksonville, FL 30°21'N., 81°37'W.	13	14.3	[illegible]	15.7	[illegible]	19.1	[illegible]	23.1	[illegible]	26.8	[illegible]	29.1	[illegible]	30.6	[illegible]	30.4	[illegible]	28.5	[illegible]	24.6	[illegible]	20.2	[illegible]	15.8	[illegible]	23.2	[illegible]
Daytona Beach, FL (ocean) 29°14'N., 81°00'W.	20	16.4	[illegible]	16.3	[illegible]	17.8	[illegible]	21.2	[illegible]	24.2	[illegible]	25.9	[illegible]	25.7	[illegible]	25.3	[illegible]	27.3	[illegible]	24.7	[illegible]	21.5	[illegible]	18.1	[illegible]	22.0	[illegible]
Daytona Bch, FL (Halifax Riv.) 29°13'N., 81°01'W.	2	18.1	[illegible]	14.8	[illegible]	20.1	[illegible]	25.4	[illegible]	27.6	[illegible]	29.2	[illegible]	30.1	[illegible]	30.8	[illegible]	29.1	[illegible]	25.7	[illegible]	23.0	[illegible]	19.1	[illegible]	24.4	[illegible]
Cape Canaveral, FL 28°15'N., 80°36'W.	2	17.3	[illegible]	17.8	[illegible]	18.9	[illegible]	21.7	[illegible]	25.0	[illegible]	25.2	[illegible]	16.1	[illegible]	26.8	[illegible]	28.0	[illegible]	25.6	[illegible]	23.1	[illegible]	19.2	[illegible]	22.9	[illegible]
Eau Gallie Beach, FL 28°08'N., 80°35'W.	16	18.4	[illegible]	18.7	[illegible]	20.1	[illegible]	22.3	[illegible]	24.7	[illegible]	26.2	[illegible]	26.0	[illegible]	26.7	[illegible]	27.9	[illegible]	25.7	[illegible]	22.9	[illegible]	19.9	[illegible]	23.3	[illegible]
Miami Beach, FL 25°46'N., 80°08'W.	26	21.7	[illegible]	22.1	[illegible]	23.3	[illegible]	25.1	[illegible]	27.1	[illegible]	28.8	[illegible]	30.1	[illegible]	30.3	[illegible]	29.3	[illegible]	26.9	[illegible]	24.4	[illegible]	22.6	[illegible]	26.0	[illegible]
Marathon Shores, FL 24°43'N., 81°02'W.	3	22.1	[illegible]	21.7	[illegible]	22.8	[illegible]	25.4	[illegible]	27.8	[illegible]	28.9	[illegible]	30.4	[illegible]	30.4	[illegible]	30.3	[illegible]	27.7	[illegible]	23.7	[illegible]	21.8	[illegible]	26.1	[illegible]
Key West, FL 24°33'N., 81°48'W.	38	21.8	[illegible]	22.3	[illegible]	23.8	[illegible]	25.8	[illegible]	27.9	[illegible]	29.6	[illegible]	30.4	[illegible]	30.6	[illegible]	29.7	[illegible]	27.5	[illegible]	24.4	[illegible]	22.3	[illegible]	26.3	[illegible]

F (Farenheit) = 1.8C (Celsius) + 32

Density as used in this table is the specific gravity of the sea water or the ratio between the weight of a sea-water sample and the weight of an equal volume of distilled water at 15°C (59°F)

DETERMINATION OF WIND SPEED BY SEA CONDITION

Miles Per Hour	Knots	Descriptive	Sea Conditions	Wind Force (Beaufort)	Probable Wave Height (ft.)
0-1	0-1	Calm	Sea smooth and mirror-like.	0	-
1-3	1-3	Light air	Scale-like ripples without foam crests	1	¼
4-7	4-6	Light breeze	Small, short wavelets; crests have a glassy appearance and do not break.	2	½
8-12	7-10	Gentle breeze	Large wavelets; some crests begin to break; foam has glassy appearance. Occasional white foam crests.	3	2
13-18	11-16	Moderate breeze	Small waves, become longer; fairly frequent white foam crests.	4	4
19-24	17-21	Fresh breeze	Moderate waves, taking a more pronounced long form; many white foam crests; there may be some spray.	5	6
25-31	22-27	Strong breeze	Large waves begin to form; white foam crests are more extensive everywhere; there may be some spray.	6	10
32-38	28-33	Near gale	Sea heaps up and white foam from breaking waves begin to be blown in streaks along the direction of the wind; spindrift begins.	7	14
39-46	34-40	Gale	Moderately high waves of greater length; edges of crests break into spindrift; foam is blown in well-marked streaks along the direction of the wind.	8	18
47-54	41-47	Strong gale	High waves; dense streaks of foam along the direction of the wind; crests of waves begin to topple, tumble and roll over; spray may reduce visibility.	9	23
55-63	48-55	Storm	Very high waves with long overhanging crests. The resulting foam in great patches is blown in dense white streaks along the direction of the wind. On the whole, the surface of the sea is white in appearance. The tumbling of the sea becomes heavy and shock-like. Visibility is reduced.	10	29
64-72	56-63	Violent storm	Exceptionally high waves that may obscure small and medium-sized ships. The sea is completely covered with long white patches of foam lying along the direction of the wind. Everywhere the edges of the wave crests are blown into froth. Visibility is reduced.	11	37
73+	64+	Hurricane	The air is filled with foam and spray. Sea completely white with driving spray; visibility is very much reduced.	12	45

ATMOSPHERIC PRESSURE CONVERSION TABLE

Inches	Millibars	Inches	Millibars	Inches	Millibars
28.44	963	29.32	993	30.21	1023
28.53	966	29.41	996	30.30	1026
28.62	969	29.50	999	30.39	1029
28.70	972	29.59	1002	30.48	1032
28.79	975	29.68	1005	30.56	1035
28.88	978	29.77	1008	30.65	1038
28.97	981	29.86	1011	30.74	1041
29.06	984	29.94	1014	30.83	1044
29.15	987	30.03	1017	30.92	1047
29.24	990	30.12	1020	31.01	1050

ATLANTIC OCEAN DISTANCES

MONTREAL, CANADA to the PANAMA CANAL

(Nautical Miles)

	PANAMA CANAL (Pacific)	Panama Canal (Atlantic)	YUCATAN CHANNEL	San Juan, PR	Corpus Christi, TX	Galveston, TX	Port Arthur, TX	New Orleans (via SW Pass)	Mobile, AL	Pensacola, FL	Tampa, FL	STRAITS OF FLORIDA	Key West, FL	Jacksonville, FL	Savannah, GA	Charleston, SC	Wilmington, NC	Diamond Shoals	Norfolk, VA	Chesapeake Bay Entrance	Baltimore, MD	Philadelphia, PA	New York, NY	Nantucket Shoals	Boston, MA	Portland, ME	Gut of Canso (Lock)	Cabot Strait
MONTREAL, QUEBEC*	3249	3203	2730	2445	3347	3242	3240	3080	3011	2977	2772	2540	2479	2372	2088	2014	1948	1739	1716	1689	1838	1682	1534	1311	1338	1276	717	681
Cabot Strait	2568	2522	2049	1764	2666	2561	2559	2399	2330	2296	2091	1859	1798	1491	1407	1333	1267	1048	1035	1008	1157	1001	853	630	637	595	120	-
Gut of Canso (Lock)	2465	2419	1937	1669	2558	2453	2451	2291	2222	2188	1983	1751	1690	1379	1295	1221	1155	936	923	896	1046	890	742	519	526	484		
Portland, ME	2235	2189	1629	1531	2255	2150	2148	1988	1919	1885	1680	1448	1387	1071	987	913	847	628	611	584	734	575	426	203	100	-		
Boston, MA	2195	2149	1589	1486	2215	2110	2108	1948	1879	1845	1640	1408	1347	1031	947	873	807	588	571	544	694	535	386	163	-			
Nantucket Shoals	2032	1986	1426	1334	2052	1947	1945	1785	1716	1682	1477	1245	1184	868	784	710	644	425	408	381	531	372	223					
New York, NY	2018	1972	1346	1399	1977	1872	1870	1710	1641	1607	1402	1170	1109	788	703	630	564	345	294	267	417	240	-					
Philadelphia, PA	2001	1955	1323	1395	1951	1849	1847	1687	1618	1584	1379	1147	1086	765	681	607	541	322	269	242	392	-						
Baltimore, MD	1950	1904	1268	1375	1899	1794	1792	1632	1563	1529	1324	1092	1031	710	626	552	486	267	173	150	-							
Chesapeake Bay Entrance	1800	1754	1118	1225	1749	1644	1642	1482	1413	1379	1174	942	881	560	476	402	336	117	27	-								
Norfolk, VA	1827	1781	1145	1252	1776	1671	1669	1509	1440	1406	1201	969	908	587	503	429	353	144	-									
Diamond Shoals	1683	1637	1001	1114	1632	1527	1525	1365	1296	1262	1057	825	764	443	359	285	219	-										
Wilmington, NC	1655	1609	901	1153	1535	1430	1428	1268	1199	1165	960	728	667	315	227	151												
Charleston, SC	1609	1563	809	1138	1440	1335	1333	1173	1104	1070	865	633	572	177	102													
Savannah, GA	1610	1564	780	1156	1411	1306	1304	1144	1075	1041	836	604	543	115	-													
Jacksonville, FL	1559	1513	699	1121	1330	1225	1223	1063	994	960	755	523	462															
Key West, FL	1106	1060	251	966	880	775	773	613	544	510	305	73	-															
STRAITS OF FLORIDA	1047	1001	192	1017	807	702	700	540	471	437	232																	
Tampa, FL	1259	1213	304	1219	810	703	697	502	389	347	-																	
Pensacola, FL	1388	1342	533	1448	618	509	503	288	89																			
Mobile, AL	1417	1371	562	1448	605	496	491	269	-																			
New Orleans (via SW Pass)	1442	1396	587	1557	555	446	441	-																				
Port Arthur, TX	1533	1487	691	1717	249	89																						
Galveston, TX	1539	1493	696	1719	207	-																						
Corpus Christi, TX	1595	1549	769	1824																								
San Juan, PR	1036	990	111																									
YUCATAN CHANNEL	855	809																										
Panama Canal (Atlantic)	46	-																										
PANAMA CANAL (Pacific)	-																											

* Quebec City, Canada - subtract 139 miles

All tabular distances are by outside routes which can be used by the deepest-draft vessel that the listed ports can accommodate. Lighter-draft vessels can save considerable mileage by transiting Canso Lock (Canada), the Cape Cod Canal (Massachusetts), and the Chesapeake and Deleware Canal (Deleware-Maryland); see the detailed tables. Gulf of Mexico distances are through the Shipping Safety Fairways.

COASTWISE DISTANCES
NORFOLK, VA, to KEY WEST, FL

(Nautical Miles)

	Straits of Florida	Key West, FL	Miami, FL	Port Everglades, FL	Port of Palm Beach, FL	Stuart, FL	Fort Pierce, FL	Cape Canaveral, FL	St. Augustine, FL	Jacksonville, FL	Fernandina Beach, FL	Brunswick, GA	Savannah, GA	Port Royal, SC	Charleston, SC	Georgetown, SC	Wilmington, NC	Southport, NC	Morehead City, NC	Diamond Shoals, NC	Norfolk, VA	Chesapeake Bay Entrance
Chesapeake Bay Entrance 36°56.3'N., 75°58.6'W.	942	881	743	720	678	666	647	612	557	560	533	527	476	465	402	365	336	315	222	117	27	-
Norfolk, VA 46°50.9N., 76°17.9'W.	969	908	770	747	705	693	674	639	584	587	560	554	503	492	429	392	363	342	249	144	-	
Diamond Shoals, NC 35°08.0'N., 75°15.0W.	825	764	626	603	561	549	530	495	440	443	416	410	359	348	285	248	219	198	105	-		
Morehead City, NC 34°42.8'N., 76°41.8'W.	772	711	573	550	509	497	476	438	377	379	352	346	295	284	220	184	154	133	-			
Southport, NC 33°54.8'N., 78°01.0'W.	707	646	508	485	443	423	407	367	296	294	265	260	206	191	130	87	21	-				
Wilmington, NC 34°14.0'N., 77°57.0'W.	728	667	529	506	464	444	428	388	317	315	286	281	227	212	151	108	-					
Georgetown, SC 33°21.4'N., 79°16.9'W.	671	610	472	449	407	391	368	324	246	247	216	210	154	141	79	-						
Charleston, SC 32°47.2'N., 79°55.2'W.	633	572	434	411	369	353	329	283	199	197	166	156	102	90	-							
Port Royal, SC 32°22.3'N., 80°41.6'W.	605	544	406	383	341	324	298	251	157	152	120	110	51	-								
Savannah, GA 32°05.0'N., 81°05.7'W.	604	543	405	382	340	324	298	251	152	145	115	104	-									
Brunswick, GA 31°08.0'N., 81°29.7'W.	549	488	350	327	285	268	242	195	90	82	50	-										
Fernandina Beach, FL 30°40.3'N., 81°28.0'W.	526	465	327	304	262	242	216	169	61	53	-											
Jacksonville, FL 30°19.2'N., 81°39.0'W.	523	462	324	301	259	240	214	167	56	-												
St. Augustine, FL 29°53.6'N., 81°18.5'W.	475	414	276	253	211	192	167	120	-													
Cape Canaveral, FL 28°24.6'N., 80°36.5'W.	374	313	175	152	110	91	69	-														
Fort Pierce, FL 27°27.5'N., 80°19.3'W.	316	255	117	94	52	32	-															
Stuart, FL 27°12.2'N., 80°15.6'W.	300	239	101	78	36	-																
Port of Palm Beach, FL 26°46.1'N., 80°03.0'W.	267	207	68	46	-																	
Port Everglades, FL 26°05.6'N., 80°07.0'W.	226	165	27	-																		
Miami, FL 25°47.0'N., 80°11.0'W.	211	151	-																			
Key West, FL 24°33.7'N., 81°48.5'W.	73	-																				
Straits of Florida 24°25.0'N., 83°00.0'W.	-																					

INSIDE-ROUTE DISTANCES
NORFOLK, VA, TO FERNANDINA BEACH, FL
(Nautical and Statute Miles)

	Fernandina Beach, FL	Brunswick, GA	Thunderbolt, GA	Savannah, GA	Beaufort, SC	Charleston, SC	McClellanville, SC	Georgetown, SC	Bucksport, SC	Little River, SC	Southport, NC	Wilmington, NC	Wrightsville, NC	Jacksonville, NC	Swansboro, NC	Morehead City, NC	Beaufort, NC	New Bern, NC	Oriental, NC	Ocracoke, NC	Washington, NC	Belhaven, NC	Manteo, NC	Plymouth, NC	Edenton, NC	Columbia, NC	Hertford, NC	Elizabeth City, NC	Norfolk, VA
Norfolk, VA 36°50.9'N., 76°17.8'W.	717	685	583	585	536	467	430	405	377	344	308	314	283	266	230	205	204	207	184	151	180	138	92	121	113	102	102	89*	-
Elizabeth City, NC 36°18.1'N., 76°13.0'W.	669	636	535	536	488	419	382	358	329	296	260	266	235	217	182	157	154	160	136	105	131	91	45	64	55	45	45	-	77*
Hertford, NC 36°11.8'N., 76°28.0'W.	670	638	535	537	489	421	383	358	330	298	261	267	236	219	184	158	158	160	137	112	132	91	53	48	40	30	-	39	89
Columbia, NC 35°55.0'N., 76°15.4'	669	636	535	536	488	419	382	357	329	296	260	266	235	217	182	157	157	159	136	110	131	90	52	38	29	-	26	39	89
Edenton, NC 36°03.3'N., 76°38.6'W.	678	647	545	547	497	429	391	366	338	306	270	276	245	227	191	167	166	168	145	120	142	100	62	18	-	26	35	48	98
Plymouth, NC 35°51.8'N., 76°45.6'W.	688	656	555	556	508	438	402	376	349	315	280	285	254	237	201	175	175	178	154	130	150	109	70	-	14	33	42	56	105
Manteo, NC 35°54.5'N., 75°40.2'	639	606	505	506	457	388	352	326	299	267	231	236	205	186	152	127	127	127	105	70	121	81	-	61	54	45	46	39	80
Belhaven, NC 35°32.1'N., 76°37.4'W.	582	551	450	451	402	334	296	270	243	211	175	181	150	131	96	70	70	72	49	49	45	-	70	95	87	78	79	79	120
Washington, NC 35°32.5'N., 77°03.7'W.	597	565	464	465	417	348	311	285	258	224	189	194	163	146	110	85	85	87	64	69	-	39	105	130	123	114	115	114	156
Ocracoke, NC 35°08.5'N., 75°59.1'W.	580	549	448	449	399	331	293	268	241	208	173	178	147	129	93	68	68	71	47	-	60	43	61	113	104	96	97	91	131
Oriental, NC 35°01.5'N., 76°41.6'W.	537	506	405	406	357	289	251	226	198	166	130	136	105	86	51	25	25	26		41	56	43	91	134	126	118	119	118	160
New Bern, NC 35°06.1'N., 77°02.1'W.	557	525	423	425	376	307	270	245	216	184	148	154	123	105	69	44	44	-	23	62	76	63	110	155	146	138	139	139	180
Beaufort, NC 34°43.1'N., 76°40.2'W.	514	483	382	383	334	266	229	203	175	143	107	112	81	63	28	3	-	38	22	59	74	61	110	152	144	136	137	134	177
Morehead City, NC 34°42.8'N., 76°40.2'W.	512	481	380	381	331	264	226	200	173	140	105	110	79	61	25	-	3	38	22	59	74	61	110	152	145	136	137	136	176
Swansboro, NC 34°41.0'N., 77°07.3'W.	487	456	353	356	306	238	200	175	147	115	79	84	53	36	-	22	24	60	44	81	96	83	132	175	166	158	160	158	200
Jacksonville, NC 34°44.7'N., 77°26.3'W.	489	457	356	357	308	239	203	177	148	116	81	86	55	-	31	53	55	91	75	112	127	114	162	206	197	189	190	189	231
Wrightsville, NC 34°13.1'N., 77°48.8'W.	434	402	300	302	253	184	147	122	94	61	25	31	-	48	46	69	70	107	91	128	142	130	178	221	213	204	205	204	246
Wilmington, NC 34°14.0'N., 77°57.0'W.	433	402	299	300	252	183	146	121	93	60	24	-	27	75	73	96	97	134	118	155	169	157	205	248	240	231	232	231	273
Southport, NC 33°54.8'N., 78°01.0'W.	409	376	275	276	228	159	122	97	69	36	-	21	22	70	89	91	93	129	113	150	164	152	201	243	236	226	227	226	268
Little River, SC 33°52.2'N., 78°36.6'W.	373	341	239	241	192	123	86	61	32	-	31	52	53	101	100	122	124	160	144	181	195	183	232	274	266	257	259	257	299
Bucksport, SC 33°39.0'N., 79°05.6'W.	339	308	206	208	159	91	53	28	-	28	60	81	82	129	128	150	152	186	172	209	224	211	260	303	294	286	287	286	328
Georgetown, SC 33°21.4'N., 79°16.9'W.	314	283	181	183	133	64	28	-	24	53	84	105	106	154	152	174	177	213	196	233	248	235	283	327	316	310	311	311	352
McClellanville, SC 33°04.7'N., 79°27.6'W.	287	255	153	155	106	37	-	24	46	75	106	127	128	176	174	196	199	235	218	255	270	257	306	349	340	332	333	332	374
Charleston, SC 32°47.2'N., 79°55.2'W.	251	220	119	120	69	-	32	56	79	107	138	159	160	208	207	229	231	267	251	288	302	290	337	361	373	364	366	364	406
Beaufort, SC 32°25.8'N., 80°40.2'W.	181	150	47	49	-	60	92	116	138	167	198	219	220	268	266	288	290	327	310	347	362	349	397	441	432	424	425	424	466
Savannah, GA 32°05.0'N., 81°05.7'W.	150	117	16	-	43	104	135	159	181	209	240	261	262	310	309	331	333	369	353	390	404	392	440	483	475	466	467	466	508
Thunderbolt, GA 32°01.5'N., 81°02.8'W.	133	101	-	14	41	103	133	157	179	208	239	260	261	309	307	330	332	368	352	389	403	391	439	482	474	465	466	465	507
Brunswick, GA 31°08.0'N., 81°29.7'W.	40	-	88	102	130	191	222	246	268	296	327	349	349	397	396	418	420	456	440	477	491	479	527	570	562	553	554	553	595
Fernandina Beach, FL 30°40.3'N., 81°28.0'W.		35	116	130	157	218	249	273	295	324	355	376	377	425	423	445	447	484	467	504	519	506	555	598	589	581	582	581	623

* 51 statute miles/44 nautical miles via the Dismal Swamp Canal

Nautical miles on top (upright text)
Statute miles on the bottom (shaded, slant text)

INSIDE-ROUTE DISTANCES
FERNANDINA BEACH, FL, TO KEY WEST, FL
(Nautical and Statute Miles)

	Key West, FL	Flamingo, FL	Marathon, FL	Matecumbe Harbor, FL	Tavernier, FL	Miami, FL	Port Everglades, FL	Fort Lauderdale, FL	Port, Palm Beach, FL	Jupiter, FL	Fort Myers, FL	Moore Haven, FL	Clewiston, FL	Port Mayaca, FL	Stuart, FL	Salerno, FL	Fort Pierce, FL	Vero Beach, FL	Melbourne, FL	Eau Gallie, FL	Cocoa, FL	Titusville, FL	New Smyrna Beach, FL	Daytona Beach, FL	Marineland, FL	St. Augustine, FL	Jacksonville, FL	Fernandina Beach, FL	Norfolk, VA
Norfolk, VA 36°50.9'N., 76°17.9'W.	1244	1208	1203	1170	1150	1090	1067	1064	1018	1005	1122	1066	1053	1026	995	990	966	952	918	915	898	879	846	831	796	778	758	717	-
Fernandina Beach, FL 30°40.3'N., 8128.0'W.	527	491	486	453	435	373	350	348	302	289	406	349	336	310	278	273	249	235	201	198	181	162	130	114	79	60	41	-	623
Jacksonville, FL 30°19.2'N., 81°39.0'W.	522	486	481	449	430	368	345	344	297	284	402	344	331	305	274	268	244	230	197	193	176	158	124	109	75	56	-	36	659
St. Augustine, FL 29°53.6'N., 81°18.5'W.	468	430	425	392	373	312	289	287	241	227	344	288	275	248	217	212	188	174	140	137	120	101	68	53	18		49	53	676
Marineland, FL 29°40.1'N., 81°13.0'W.	448	412	407	374	356	293	270	269	222	209	327	270	257	230	199	194	170	157	122	119	102	83	51	35	-	16	65	69	692
Daytona Beach, FL 29°12.6'N., 81°00.7'W.	413	377	372	339	321	259	236	235	188	175	292	235	222	196	165	159	135	121	87	84	67	48	16	-	30	46	96	99	722
New Smyrna Beach, FL 29°01.7'N., 80°55.1'W.	397	362	356	323	305	243	220	219	173	159	276	220	207	181	150	144	120	106	72	68	52	32	-	14	44	59	108	113	735
Titusville, FL 28°37.3'N., 80°47.9'W.	365	329	323	291	273	211	188	186	139	127	244	188	174	147	116	112	87	74	39	36	20	-	28	42	72	88	137	141	764
Cocoa, FL 28°21.3'N., 80°43.1'W.	346	311	304	273	253	191	168	167	121	107	224	168	155	129	98	92	68	54	21	16	-	17	45	58	89	104	153	157	780
Eau Gallie, FL 28°07.9'N., 80°37.1	329	293	288	257	237	175	152	151	104	91	208	152	138	112	81	76	52	38	3	-	14	31	59	73	103	119	168	172	795
Melbourne, FL 28°05.0'N., 80°35.5'W.	326	290	284	252	234	171	148	147	100	87	205	148	135	108	77	71	47	34	-	3	18	34	63	78	106	122	171	175	798
Vero Beach, FL 27°38.0'N., 80°22.4'W.	292	257	250	219	199	137	114	113	67	53	170	114	101	75	44	38	14	-	29	33	47	64	92	106	136	151	200	204	827
Fort Pierce, FL 27°27.5'N., 80°19.3'W.	278	243	236	205	185	123	100	99	53	39	157	100	87	61	30	24	-	12	41	45	69	76	104	117	148	163	212	216	839
Salerno, FL 27°08.6'N., 80°11.6'W.	258	222	216	185	166	104	80	79	32	20	137	81	67	40	9		21	33	62	66	80	97	125	138	169	184	233	237	860
Stuart, FL 27°12.2'N., 80°15.8'W.	264	228	222	190	171	109	86	85	38	25	128	70	58	31	-	8	26	38	67	70	85	101	130	143	173	189	238	242	865
Port Mayaca, FL 26°58.1'N., 80°36.8'W.	295	259	253	221	203	141	117	116	69	56	96	40	28	-	27	35	53	65	94	97	112	128	157	170	200	216	265	269	892
Clewiston, FL 26°45.6'N., 80°55.2'W.	321	285	280	247	229	167	144	143	96	83	70	13	-	23	50	58	76	88	117	120	135	151	180	193	223	239	288	292	915
Moore Haven, FL 26°50.0'N., 81°05.3'W.	334	298	292	261	242	180	156	155	108	96	56	-	11	34	61	70	87	99	128	132	146	163	191	204	235	250	299	303	926
Fort Myers, FL 26°38.9'N., 6152.3'W.	390	356	349	318	298	236	213	212	166	152	-	49	61	83	111	119	136	148	178	181	195	212	240	254	284	299	349	353	975
Jupiter, FL 26°56.6'N., 80°05.4'W.	239	204	197	166	146	84	61	60	14	-	132	83	72	49	22	17	34	46	75	79	93	110	138	152	182	197	247	251	873
Port of Palm Beach, FL 26°46.1'N., 80°03.0'W.	226	190	184	152	133	71	48	47	-	12	144	94	83	60	33	28	46	58	87	90	105	121	150	163	193	209	258	262	885
Fort Lauderdale, FL 26°06.8'N., 80°07.2'W.	178	144	137	106	86	24	1	-	41	52	184	135	124	101	74	69	86	98	128	131	145	162	190	204	234	249	299	303	925
Port Everglades, FL 26°05.6'N., 80°07.0'W.	177	142	136	105	85	23	-	1	42	53	185	136	125	102	75	70	87	99	129	132	146	163	191	205	235	251	300	304	927
Miami, FL 25°47.0'N., 80°11.0'W.	154	120	113	82	62	-	20	21	62	73	205	156	145	122	95	90	107	119	149	152	166	183	211	225	255	271	320	324	947
Tavernier, FL 25°00.7'N., 80°31.3'W.	96	60	54	22	-	54	74	75	116	127	259	210	199	176	149	144	161	173	203	206	220	237	265	279	309	324	374	378	999
Matecumbe Harbor, FL 24°51.1'N., 80°44.5'W.	75	40	33	-	19	71	91	92	132	144	276	227	215	192	165	161	178	190	219	223	237	253	282	295	325	341	390	394	1017
Marathon, FL 24°42.2'N., 81°06.7'W.	48	39	-	29	47	98	118	119	160	171	303	254	243	220	193	188	205	217	247	250	264	281	309	323	353	369	418	422	1045
Flamingo, FL 25°08.5'N., 80°55.4'W.	84	-	34	35	52	104	123	125	168	177	309	259	248	225	198	193	211	223	252	255	270	286	315	328	358	374	423	427	1050
Key West, FL 24°33.7'N., 81°48.5'W.	-	73	42	65	83	134	154	155	196	207	339	290	279	256	229	224	242	254	283	286	301	317	345	359	389	405	454	458	1081

Nautical miles on top (upright text)
Statute miles on the bottom (shaded, slant text)

DISTANCES ON ST. JOHNS RIVER, FL

(Nautical and Statute Miles)

	Lake Harney	Sanford	Astor-Volusia	Georgetown	Leesburg,	Moss Bluff Lock,	Silver Springs,	Welaka	Crescent City	Palatka	Doctors Lake, inlet	Jacksonville	Broward River - mouth	Intracoastal Waterway	Mayport	St. Johns River - mouth
St. Johns River - mouth 30°24.0'N., 81°23.8'W.	161	143	109	95	162	145	136	86	89	68	32	20	12	4	2	-
Mayport 30°23.7'N., 81°25.9'W.	159	141	107	93	160	143	134	84	87	66	30	18	10	2	-	*2*
Intracoastal Waterway 30°23.1'N., 81°27.7'W.	157	139	105	91	158	141	132	82	85	64	28	16	8	-	*2*	*5*
Broward River - mouth 30°24.6'N., 81°35.7'W.	149	131	97	83	150	133	124	74	77	56	20	8	-	*9*	*12*	*14*
Jacksonville 30°19.2'N., 81°39.0'W.	141	123	89	75	142	125	116	66	69	48	12	-	*9*	*18*	*21*	*23*
Doctors Lake, inlet 30°08.9'N., 81°41.2'	129	111	77	62	129	112	104	54	56	36	-	*14*	*23*	*32*	*35*	*37*
Palatka 29°38.6'N., 81°37.6'W.	93	75	41	26	94	76	68	18	20	-	*41*	*55*	*64*	*74*	*76*	*78*
Crescent City 29°25.8'N., 81°30.3'W.	101	83	49	35	102	85	76	26	-	*23*	*64*	*79*	*89*	*98*	*100*	*102*
Welaka 29°28.8'N., 81°40.5'W.	75	57	23	8	75	58	50	-	*30*	*21*	*62*	*76*	*85*	*94*	*97*	*99*
Silver Springs, Oklawaha River	123	105	71	56	31	14	-	*58*	*87*	*78*	*120*	*134*	*143*	*152*	*154*	*157*
Moss Bluff Lock, Oklawaha River	131	113	79	65	17	-	*16*	*67*	*98*	*87*	*129*	*144*	*153*	*162*	*165*	*167*
Leesburg, Oklawaha River	148	131	96	82	-	*20*	*36*	*86*	*117*	*108*	*148*	*163*	*173*	*182*	*184*	*186*
Georgetown 29°23.1'N., 81°38.3'W.	66	49	14	-	*94*	*75*	*64*	*9*	*40*	*30*	*71*	*86*	*96*	*105*	*107*	*109*
Astor-Volusia 29°10.0'N., 81°31.4'W.	52	34	-	*16*	*110*	*91*	*82*	*26*	*56*	*47*	*89*	*102*	*112*	*121*	*123*	*125*
Sanford 28°49.1'N., 81°16.2'W.	18	-	*39*	*56*	*151*	*130*	*121*	*66*	*96*	*86*	*128*	*142*	*151*	*160*	*162*	*165*
Lake Harney 28°48.6'N., 81°03.2'W.	-	*21*	*60*	*76*	*170*	*151*	*142*	*86*	*116*	*107*	*148*	*162*	*171*	*181*	*183*	*185*

Nautical miles on top (upright text)
Statute miles on the bottom (shaded, slant text)

RADIO BEARING CONVERSION TABLE

Table of corrections in minutes

[DIFFERENCE OF LONGITUDE IN DEGREES]

Mid-Latitude	½°	1°	1½°	2°	2½°	3°	3½°	4°	4½°	5°	5½°	6°	6½°	7°	7½°	8°	8½°	9°	9½°	10°
15°	4	8	12	16	19	23	27	31	35	40	43	47	50	54	58	62	66	70	74	78
16°	4	8	12	17	21	25	29	33	37	41	45	50	54	58	62	66	70	74	79	83
17°	4	9	13	18	22	26	31	35	39	44	48	53	57	61	66	70	75	79	83	88
18°	5	9	13	19	23	28	32	37	42	46	51	56	60	65	70	74	79	83	88	93
19°	5	10	15	20	24	29	34	39	44	49	54	59	63	68	73	78	83	88	93	98
20°	5	10	15	21	26	31	36	41	46	51	56	62	67	72	77	82	87	92	98	103
21°	5	11	16	21	27	32	38	43	48	54	59	64	70	75	81	86	91	97	102	108
22°	6	11	17	22	28	34	39	45	51	56	62	67	73	79	84	90	96	101	107	112
23°	6	12	18	23	29	35	41	47	53	59	64	70	76	82	88	94	100	105	111	117
24°	6	12	18	24	31	37	43	49	55	61	67	73	79	85	92	98	104	110	116	122
25°	6	13	19	25	32	38	44	51	57	63	70	76	82	89	95	101	108	114	120	127
26°	7	13	20	26	33	39	46	53	59	66	72	79	85	92	99	105	112	118	125	131
27°	7	14	20	27	34	41	48	54	61	68	75	82	89	95	102	109	116	123	129	136
28°	7	14	21	28	35	42	49	56	63	70	77	84	92	99	106	113	120	127	134	141
29°	7	15	21	29	36	44	51	58	65	73	80	87	95	102	109	116	124	131	138	145
30°	7	15	22	30	38	45	53	60	68	75	83	90	98	105	113	120	127	135	143	150
31°	8	15	23	31	39	46	54	62	70	77	85	93	100	108	116	124	131	139	146	155
32°	8	16	24	32	40	48	56	64	72	79	87	95	103	111	119	127	135	143	151	159
33°	8	16	25	33	41	49	57	65	74	82	90	98	106	114	123	131	139	147	155	163
34°	8	17	25	34	42	50	59	67	75	84	92	101	109	117	126	134	143	151	159	168
35°	9	17	26	34	43	52	60	69	77	86	95	103	112	120	129	138	146	155	163	172
36°	9	18	26	35	44	53	62	71	79	88	97	106	115	123	132	141	150	159	168	176
37°	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153	163	172	181
38°	9	18	28	37	46	55	65	74	83	92	102	111	120	129	139	148	157	166	175	185
39°	9	19	28	38	47	57	66	75	85	94	104	113	123	132	142	151	160	170	179	189
40°	10	19	29	39	48	58	68	77	87	96	106	116	125	135	145	154	164	174	183	193
41°	10	20	30	39	49	59	69	79	89	98	108	118	128	138	148	157	167	177	187	197
42°	10	20	30	40	50	60	70	80	90	100	110	120	130	140	151	161	171	181	191	201
43°	10	20	31	41	51	61	72	82	92	102	113	123	133	143	153	164	174	184	194	205
44°	10	21	31	42	52	63	73	83	94	104	115	125	135	146	156	167	177	188	198	208
45°	11	21	32	42	53	64	74	85	95	106	117	127	138	149	159	170	180	191	201	212
46°	11	22	32	43	54	65	76	86	97	108	119	129	140	151	162	173	183	194	205	216
47°	11	22	33	44	55	66	77	88	99	110	121	132	143	154	165	176	186	197	208	219
48°	11	22	33	45	56	67	78	89	100	111	123	134	145	156	167	178	190	201	212	223
49°	11	23	34	45	57	68	79	91	102	113	125	136	147	158	170	181	192	204	215	226
50°	11	23	34	46	57	69	80	92	103	115	126	138	149	161	172	184	195	207	218	230
51°	12	23	35	47	58	70	82	93	105	117	128	140	152	163	175	186	196	210	221	233
52°	12	24	35	47	59	71	83	95	106	118	130	142	154	165	177	189	201	213	225	236
53°	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240
54°	12	24	36	49	61	73	85	97	109	121	133	146	158	170	182	194	206	218	231	243
55°	12	25	37	49	61	74	86	98	111	123	135	147	160	172	184	197	209	221	233	246
56°	12	25	37	50	62	75	87	100	112	124	137	149	162	174	187	199	211	224	236	249
57°	13	25	38	50	63	75	88	101	113	126	138	151	164	176	189	201	214	226	239	252
58°	13	25	38	51	64	76	89	102	115	127	140	153	165	178	191	204	216	229	242	254
59°	13	26	39	51	64	77	90	103	116	129	141	154	167	180	193	206	219	231	244	257
60°	13	26	39	52	65	78	91	104	117	130	143	156	169	182	195	208	221	234	247	260

Example: A ship in latitude 39°51' N., longitude 67°35' W., (by dead reckoning), obtains a radio bearing of 299° true on the radiobeacon, in which the radio station is at latitude 40°37'N., longitude 69°37' W.

Radiobeacon station	latitude	40°37' N
Dead-reckoning position of ship	latitude	39°51' N
Middle latitude		40°14'
Radiobeacon station	longitude	69°37' W
Dead-reckoning position of ship	longitude	67°35' W
Longitude difference		2°02'

Entering the table with difference of longitude equal 2° (rounded), and opposite 40° (rounded), the correction value is 39'.

As the ship is east of the radiobeacon, a minus correction is applied. The Mercator bearing will then be 299° minus 000°39' which equals 298°21'. To facilitate plotting, subtract 180° and plot from the position of the radiobeacon a bearing of 118°21' (298°21' - 180°).

Mercator bearing is reckoned clockwise from true north.

Distance of Visibility of Objects of Various Elevations at Sea

This table gives the approximate geographic range of visibility for an object which may be seen by an observer. It is necessary to add to the distance for the height of any object the distance corresponding to the height of the observer's eye above sea level.

Height (feet)	Distance - Naut. miles	Distance - Statute miles	Height (meters)	Height (feet)	Distance - Naut. miles	Distance - Statute miles	Height (meter)
1	1.2	1.3	0.3	120	12.8	14.7	36.6
2	1.7	1.9	0.6	125	13.1	15.1	38.1
3	2.0	2.3	0.9	130	13.3	15.4	39.6
4	2.3	2.7	1.2	135	13.6	15.6	41.2
5	2.6	3.0	1.5	140	13.8	15.9	42.7
6	2.9	3.3	1.8	145	14.1	16.2	44.2
7	3.1	3.6	2.1	150	14.3	16.5	45.7
8	3.3	3.8	2.4	160	14.8	17.0	48.8
9	3.5	4.0	2.7	170	15.3	17.6	51.8
10	3.7	4.3	3.1	180	15.7	18.1	54.9
11	3.9	4.5	3.4	190	16.1	18.6	57.9
12	4.1	4.7	3.7	200	16.5	19.0	61.0
13	4.2	4.9	4.0	210	17.0	19.5	64.0
14	4.4	5.0	4.3	220	17.4	20.0	67.1
15	4.5	5.2	4.6	230	17.7	20.4	70.1
16	4.7	5.4	4.9	240	18.1	20.9	73.2
17	4.8	5.6	5.2	250	18.5	21.3	76.2
18	5.0	5.7	5.5	260	18.9	21.7	79.3
19	5.1	5.9	5.8	270	19.2	22.1	82.3
20	5.2	6.0	6.1	280	19.6	22.5	85.3
21	5.4	6.2	6.4	290	19.9	22.9	88.4
22	5.5	6.3	6.7	300	20.3	23.3	91.4
23	5.6	6.5	7.0	310	20.6	23.7	94.5
24	5.7	6.6	7.3	320	20.9	24.1	97.5
25	5.9	6.7	7.6	330	21.3	24.5	100.6
26	6.0	6.9	7.9	340	21.6	24.8	103.6
27	6.1	7.0	8.2	350	21.9	25.2	106.7
28	6.2	7.1	8.5	360	22.2	25.5	109.7
29	6.3	7.3	8.8	370	22.5	25.9	112.8
30	6.4	7.4	9.1	380	22.8	26.2	115.8
31	6.5	7.5	9.5	390	23.1	26.6	118.9
32	6.6	7.6	9.8	400	23.4	26.9	121.9
33	6.7	7.7	10.1	410	23.7	27.3	125.0
34	6.8	7.9	10.4	420	24.0	27.6	128.0
35	6.9	8.0	10.7	430	24.3	27.9	131.1
36	7.0	8.1	11.0	440	24.5	28.2	134.1
37	7.1	8.2	11.3	450	24.8	28.6	137.2
38	7.2	8.3	11.6	460	25.1	28.9	140.2
39	7.3	8.4	11.9	470	25.4	29.2	143.3
40	7.4	8.5	12.2	480	25.6	29.5	146.3
41	7.5	8.6	12.5	490	25.9	29.8	149.4
42	7.6	8.7	12.8	500	26.2	30.1	152.4
43	7.7	8.8	13.1	510	26.4	30.4	155.5
44	7.8	8.9	13.4	520	26.7	30.7	158.5
45	7.8	9.0	13.7	530	26.9	31.0	161.5
46	7.9	9.1	14.0	540	27.2	31.3	164.6
47	8.0	9.2	14.3	550	27.4	31.6	167.6
48	8.1	9.3	14.6	560	27.7	31.9	170.7
49	8.2	9.4	14.9	570	27.9	32.1	173.7
50	8.3	9.5	15.2	580	28.2	32.4	176.8
55	8.7	10.0	16.8	590	28.4	32.7	179.8
60	9.1	10.4	18.3	600	28.7	33.0	182.9
65	9.4	10.9	19.8	620	29.1	33.5	189.0
70	9.8	11.3	21.3	640	29.5	34.1	195.1
75	10.1	11.7	22.9	660	30.1	34.6	201.2
80	10.5	12.0	24.4	680	30.5	35.1	207.3
85	10.8	12.4	25.9	700	31.0	35.6	213.4
90	11.1	12.8	27.4	720	31.4	36.1	219.5
95	11.4	13.1	29.0	740	31.8	36.6	225.6
100	11.7	13.5	30.5	760	32.3	37.1	231.7
105	12.0	13.8	32.0	780	32.7	37.6	237.7
110	12.3	14.1	33.5	800	33.1	38.1	243.8
115	12.5	14.4	33.1	820	33.5	38.6	249.9

Example: Determine the geographic visibility of an object 65 feet above the water, for an observer whose eye is 35 above the water:

Height of object	65 feet	9.4 nautical miles
Height of observer	35 feet	6.9 nautical miles
Computed geographic visibility		16.3 nautical miles

Conversion of Degrees to Points and Points to Degrees

°	′	Points	°	′	Points
000	00	N	180	00	S
002	49		182	49	
005	38	N ½ E	185	38	S ½ W
008	26		188	26	
011	15	N x E	191	15	S x W
014	04		194	04	
016	53	N x E ½ E	196	53	S x W ½ W
019	41		199	41	
022	30	NNE	202	30	SSW
025	19		205	19	
028	08	NNE ½ E	208	08	SSW ½ W
030	56		210	56	
033	45	NE x N	213	45	SW x W
036	34		216	34	
039	23	NE ½ N	219	23	SW ½ S
042	11		222	11	
045	00	NE	225	00	SW
047	49		227	49	
050	38	NE ½ E	230	38	SW ½ W
053	26		233	26	
056	15	NE x E	236	15	SW x W
059	04		239	04	
061	53	NE x E ½ E	241	53	SW x W ½ W
064	41		244	41	
067	30	ENE	247	30	WSW
070	19		250	19	
073	08	ENE ½ E	253	08	WSW ½ W
075	56		255	56	
078	45	E x N	258	45	W x S
081	34		261	34	
084	23	E ½ N	264	23	W ½ S
087	11		267	11	
090	00	E	270	00	W
092	49		272	49	
095	38	E ½ S	275	38	W ½ S
098	26		278	26	
101	15	E x S	281	15	W x N
104	04		284	04	
106	53	ESE ½ E	286	53	WNW ½ W
109	41		289	41	
112	30	ESE	292	30	WNW
115	19		295	19	
118	08	SE x E ½ E	298	08	NW x W ½ W
120	56		300	56	
123	45	SE x E	303	45	NW x W
126	34		306	34	
129	23	SE ½ E	309	23	NW ½ W
132	11		312	11	
135	00	SE	315	00	NW
137	49		317	49	
140	38	SE ½ S	320	38	NW ½ N
143	26		323	26	
146	15	SE x S	326	15	NW x N
149	04		329	04	
151	53	SSE ½ E	331	53	NNW ½ W
154	41		334	41	
157	30	SSE	337	30	NNW
160	19		340	19	
163	08	S x E ½ E	343	08	N x W ½ W
165	56		345	56	
168	45	S x E	348	45	N x W
171	34		351	34	
174	23	S ½ E	354	23	N ½ W
177	11		357	11	

Table For Estimating Time of Transit

	Speed in knots																		
Distance	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	30
Nautical Miles	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours	Days-hours
10	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	.....	.....	.....	.....	.....	.....
20	0-3	0-2	0-2	0-2	0-2	0-2	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1
30	0-4	0-3	0-3	0-3	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-1	0-1	0-1	0-1	0-1	0-1
40	0-5	0-4	0-4	0-4	0-3	0-3	0-3	0-3	0-3	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-1
50	0-6	0-6	0-5	0-5	0-4	0-4	0-4	0-3	0-3	0-3	0-3	0-3	0-3	0-2	0-2	0-2	0-2	0-2	0-2
60	0-8	0-7	0-6	0-5	0-5	0-5	0-4	0-4	0-4	0-4	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-2	0-2
70	0-9	0-8	0-7	0-6	0-6	0-5	0-5	0-5	0-4	0-4	0-4	0-4	0-4	0-3	0-3	0-3	0-3	0-3	0-2
80	0-10	0-9	0-8	0-7	0-7	0-6	0-6	0-5	0-5	0-5	0-4	0-4	0-4	0-4	0-4	0-3	0-3	0-3	0-3
90	0-11	0-10	0-9	0-8	0-8	0-7	0-6	0-6	0-6	0-5	0-5	0-5	0-5	0-4	0-4	0-4	0-4	0-4	0-3
100	0-13	0-11	0-10	0-9	0-8	0-8	0-7	0-7	0-6	0-6	0-6	0-5	0-5	0-5	0-5	0-4	0-4	0-4	0-3
200	1-1	0-22	0-20	0-18	0-17	0-15	0-14	0-13	0-13	0-12	0-11	0-11	0-10	0-10	0-9	0-9	0-8	0-8	0-7
300	1-14	1-9	1-6	1-3	1-1	0-23	0-21	0-20	0-19	0-18	0-17	0-16	0-15	0-14	0-14	0-13	0-13	0-12	0-10
400	2-2	1-20	1-16	1-12	1-9	1-7	1-5	1-3	1-1	1-0	0-22	0-21	0-20	0-19	0-18	0-17	0-17	0-16	0-13
500	2-15	2-8	2-2	1-21	1-18	1-14	1-12	1-9	1-7	1-5	1-4	1-2	1-1	1-0	0-23	0-22	0-21	0-20	0-17
600	3-3	2-19	2-12	2-7	2-2	1-22	1-19	1-16	1-14	1-11	1-9	1-8	1-6	1-5	1-3	1-2	1-1	1-0	0-20
700	3-16	3-6	2-22	2-16	2-10	2-6	2-2	1-23	1-20	1-17	1-15	1-13	1-11	1-9	1-8	1-6	1-5	1-4	0-23
800	4-4	3-17	3-8	3-1	2-19	2-14	2-9	2-5	2-2	1-23	1-20	1-18	1-16	1-14	1-12	1-11	1-9	1-8	1-3
900	4-17	4-4	3-18	3-10	3-3	2-21	2-16	2-12	2-8	2-5	2-2	1-23	1-21	1-19	1-17	1-15	1-14	1-12	1-6
1,000	5-5	4-15	4-4	3-19	3-11	3-5	2-23	2-19	2-15	2-11	2-8	2-5	2-2	2-0	1-21	1-19	1-18	1-16	1-9
2,000	10-10	9-6	8-8	7-14	6-23	6-10	5-23	5-13	5-5	4-22	4-15	4-9	4-4	3-23	3-19	3-15	3-11	3-8	2-19
3,000	15-15	13-21	12-12	11-9	10-10	9-15	8-22	8-8	7-20	7-8	6-23	6-14	6-6	5-23	5-16	5-10	5-5	5-0	4-4
4,000	20-20	18-21	16-16	15-4	13-21	12-20	11-22	11-8	10-10	9-19	9-6	8-19	8-8	7-22	7-14	7-6	6-23	6-16	5-13
5,000	26-1	23-4	20-20	18-23	17-9	16-1	14-21	13-21	13-1	12-6	11-14	10-23	10-10	9-22	9-11	9-1	8-16	8-8	6-23
6,000	31-6	27-19	25-0	22-17	20-20	19-6	17-21	16-16	15-15	14-17	13-21	13-4	12-12	11-22	11-9	10-21	10-10	10-0	8-8

Standard Abbreviations for Broadcasts

Characteristics	
Fixed	F
Occulting	OC
Group-Occulting	OC(2)
Composite Group-Occulting	OC(2+1)
Isophase	ISO
Single-Flashing	FL
Group-Flashing	FL(3)
Composite Group Flashing	FL(2+1)
Continuous Quick-Flashing	Q
Interrupted Quick-Flashing	IQ
Morse Code	MO(A)
Fixed and Flashing	FFL
Alternating	AL
Characteristics	CHAR

Color[1]	
Black	B
Blue	BU
Green	G
Orange	OR
Red	R
White	W
Yellow	Y

Aids to Navigation	
Aeronautical Radiobeacon	AERO RBN
Articulated Daybeacon	ART DBN
Articulated Light	ART LT
Destroyed	DESTR
Discontinued	DISCONTD
Established	ESTAB
Exposed Location Buoy	ELB
Fog Signal Station	FOG SIG
Large Navigation Buoy	LNB
Light	LT
Light List Number	LLNR
Lighted Bell Buoy	LBB
Lighted Buoy	LB
Lighted Gong Buoy	LGB
Lighted Horn Buoy	LHB
Lighted Whistle Buoy	LWB
Ocean Data Acquisition System	ODAS
Privately Maintained	PRIV MAINTD
Radar Responder Buoy	RACON
Radar Reflector	RA REF
Radiobeacon	RBN
Temporarily Replaced by Unlighted Buoy	TRUB
Temporarily Replaced by Lighted Buoy	TRLB
Whistle	WHIS

Organizations	
Coast Guard	CG
Commander, Coast Guard District (#)	CCCD(#)
Corp of Engineers	COE
National Imagery and Mapping Agency	NIMA
National Ocean Service	NOS
National Weather Service	NWS

Vessels	
Aircraft	A/C
Fishing Vessel	F/V
Liquified Natural Gas Carrier	LNG
Motor Vessel	M/V[2]
Pleasure Craft	P/C
Research Vessel	R/V
Sailing Vessel	S/V

Compass Directions	
East	E
North	N
Northeast	NE
Northwest	NW
South	S
Southeast	SE
Southwest	SW
West	W

Months	
January	JAN
February	FEB
March	MAR
April	APR
May	MAY
June	JUN
July	JUL
August	AUG
September	SEP
October	OCT
November	NOV
December	DEC

[1] Color refers to light characteristics of Aids to Navigation only.
[2] M/V includes: Steam Ship, Container Vessel, Cargo Vessel, etc.

Standard Abbreiations for Broadcasts (Cont'd)

Days of the Week

Monday	MON
Tuesday	TUE
Wednesday	WED
Thursday	THU
Friday	FRI
Saturday	SAT
Sunday	SUN

Various

Anchorage	ANCH
Anchorage Prohibited	ANCH PROHIB
Approximate	APPROX
Atlantic	ATLC
Authorized	AUTH
Average	AVG
Bearing	BRG
Breakwater	BKW
Broadcast Notice to Mariners	BNM
Channel	CHAN
Code of Federal Regulations	CFR
Continue	CONT
Degrees (temperature; geographic position)	DEG
Diameter	DIA
Edition	ED
Effect/Effective	EFF
Entrance	ENTR
Explosive Anchorage	EXPLOS ANCH
Fathom(s)	FM(S)
Foot/Feet	FT
Harbor	HBR
Height	HT
Hertz	HZ
Horizontal Clearance	HOR CL
Hour	HR
International Regulations For Preventing Collisions at Sea	COLREGS
Kilohertz	KHZ
Kilometer	KM
Knot(s)	KT(S)
Latitude	LAT
Local Notice to Mariners	LNM
Longitude	LONG
Maintained	MAINTD
Maximum	MAX
Megahertz	MHZ
Millibar	MB
Millimeter	MM
Minute (time; geographic position)	MIN
Moderate	MOD
Mountain, Mount	MT
Nautical Mile(s)	NM
Notice to Mariners	NM
Obstruction	OBSTR
Occasion/Occasionally	OCCASION
Operating Area	OPAREA
Pacific	PAC
Point(s)	PT(S)
Position	PSN
Position Approximate	PA
Pressure	PRES
Private, Privately	PRIV
Prohibited	PROHIB
Publication	PUB
Range	RGE
Reported	REP
Restricted	RESTR
Rock	RK
Saint	ST
Second (time; geographic position)	SEC
Signal Station	SIG STA
Station	STA
Statute Mile(s)	SM
Storm Signal Station	S SIG STA
Temporary	TEMP
Through	THRU
Thunderstorm	TSTM
True	T
Uncovers, Dries	UNCOV
Universal Coordinate Time	UTC
Urgent Marine Information Broadcast	UMIB
Velocity	VEL
Vertical Clearance	VERT CL
Visibility	VSBY
Warning	WARN
Weather	WX
Wreck	WK
Yard(s)	YD

Countries and States

Alabama	AL
Alaska	AK
American Samoa	AS
Arizona	AZ
Arkansas	AR
California	CA
Canada	CN
Colorado	CO
Connecticut	CT
Delaware	DE
District of Columbia	DC
Federated States of Micronesia	FSM
Florida	FL
Georgia	GA
Guam	GU

Standard Abbreviations for Broadcasts (Cont'd)

Hawaii	HI	New York	NY
Idaho	ID	North Carolina	NC
Illinois	IL	North Dakota	ND
Indiana	IN	Ohio	OH
Iowa	IA	Oklahoma	OK
Kansas	KS	Oregon	OR
Kentucky	KY	Pennsylvania	PA
Louisiana	LA	Puerto Rico	PR
Maine	ME	Rhode Island	RI
Maryland	MD	South Carolina	SC
Massachusetts	MA	South Dakota	SD
Mexico	MX	Tennessee	TN
Michigan	MI	Texas	TX
Minnesota	MN	United States	US
Mississippi	MS	Utah	UT
Missouri	MO	Vermont	VT
Montana	MT	Virgin Islands	VI
Nebraska	NE	Virginia	VA
New Hampshire	NH	Washington	WA
Nevada	NV	West Virginia	WV
New Jersey	NJ	Wisconsin	WI
New Mexico	NM	Wyoming	WY

Measurement and Conversion Factors

	Equivalencies
nautical mile	1,852.0 meters 6,076.12 feet
statute mile	5,280 feet 1,609.3 meters 1.6 093 kilometers
cable	0.1 nautical mile (Canada); 720 feet (U.S.)
fathom	6 feet; 1.8 288 meters
foot	0.3 048 meter
inch	2.54 centimeters
meter	39.37 inches; 3.281 feet; 1.0 936 yards
kilometer	1,000 meters
knot	1.6 877 feet per second 0.5 144 meters per second
miles (statute) per hour	1.466 feet per second 0.44 704 meters per second
acre	43,560 square feet 4,046.82 square meters
pound (avoirdupois)	453.59 gram
gram	0.0 022 046 pound (avoirdupois)
short ton	2,000 pounds
long ton	2,240 pounds
metric ton	2,204.6 pounds
gram	0.035 274 ounce
kilogram	2.2 pounds
liter	1.0 567 quarts
barrel (petroleum) 4	42 gallons (U.S.)

Conversion Factors

Symbol	When you know	Multiply by	To find	Symbol
Linear				
in	inches	25.40	millimeters	mm
in	inches	2.540	centimeters	cm
cm	centimeters	0.032 808	feet	ft
ft	feet	30.48	centimeters	cm
ft	feet	0.3 048	meters	m
ft	feet	0.00 016 458	nautical miles	nm
yd	yards	0.9 144	meters	m
m	meters	3.2 808	feet	ft
m	meters	1.094	yards	yd
m	meters	0.0 005 399	nautical miles	nm
sm	statute miles	0.86 897	nautical miles	nm
sm	statute miles	1.6093	kilometers	km
sm	statute miles	1,609.3	meters	m
nm	nautical miles	1.151	statute miles	sm
Area				
ft^2	square feet	0.0 929	square meters	m^2
m^2	square meters	10.764	square feet	ft^2
	acres	4,046.9	square meters	m^2
	acres	43,560	square feet	ft^2
m^2	square meters	0.0 002 471	acres	
ft^2	square feet	0.00 002 296	acres	
ha	hectare	2.471 054	acre	
ha	hectare	10,000	square meters	m^2
ha	hectare	$1.07\ 639 \times 10^5$	square feet	ft^2
	acre	0.404 685	hectare	ha
Depths				
	fathoms	1.8 288	meters	m
m	meters	0.54 681	fathoms	
m	meters	3.2 808	feet	ft
ft	feet	0.3 048	meters	m
Rates				
ft/sec	feet per second	0.5 925	knots	kt
ft/sec	feet per second	0.6 818	miles per hour	mph
ft/sec	feet per second	30.48	centimeters per second	cm/s
mph	statute miles per hour	0.8 689	knots	kt
mph	statute miles per hour	1.467	feet per second	fps
mph	statute miles per hour	0.447	meters per second	m/s
kt	knots	1.151	miles per hour	mph
kt	knots	0.5 144	meters per second	m/s
kt	knots	1.6 878	feet per second	ps
cm/sec	centimeter per second	0.01 944	knots	kt
cm/sec	centimeter per second	0.02 237	miles per hour	mph
cm/sec	centimeter per second	0.032 808	feet per second	fps

Conversion Factors (continued)

Symbol	When you know	Multiply by	To find	Symbol
Mass				
g	grams	0.035 275	ounces (avoirdupois)	oz
g	grams	0.002 205	pounds (avoirdupois)	lb
oz	ounces (avoirdupois)	28.349	grams	g
lb	pounds	0.45 359	kilograms	kg
	short tons	2,000	pounds	Lb
	shorttons	0.89 286	long tons	
	short tons	0.9 072	metric tons	t
	long tons	2,240	pounds	Lb
	long tons	1.12	short tons	
	long tons	1.016	metric tons	t
t	metric tons	1,000	kilograms	kg
t	metrict ons	0.9 842	long tons	
t	metric tons	1.1 023	short tons	
t	metric tons	2,204.6	pounds	Lb
Volume				
	barrels (petroleum)	42	gallons (U.S.)	gal
	barrels (petroleum)	158.99	liters	L
	barrels (liquid, U.S.)	31.5	gallons (U.S.)	gal
	barrels (liquid, U.S.)	26.229	gallons (British)	gal
	barrels (liquid, U.S.)	119.24	liters	L
gal	gallons (U.S.)	0.02 381	barrels (petroleum)	
L	liters	0.26 417	gallons (U.S.)	gal
gal	gallons (U.S.)	3.7 854	liters	L
Temperature				
	Degrees Fahrenheit	5/9 (after subtracting 32)	Degrees Celsius	
	Degrees Celsius	9/5 (then add 32)	Degrees Fahrenheit	

METRIC STYLE GUIDE

Prefixes: Some of the metric units listed include prefixes such as kilo, centi, and milli. Prefixes, added to a unit name, create larger or smaller units by factors that are powers of 10. For example, add the prefix kilo, which means a thousand, to the unit gram to indicate 1000 grams; thus 1000 grams become 1 kilogram. The more common prefixes follow.

Factor		Prefix	Symbol
1 000 000	10^6	mega	M
1 000	10^3	kilo	k
1/100	10^{-2}	centi	c
1/1000	10^{-3}	milli	m
1/1 000 000	10^{-6}	micro	μ

Spelling: All units and prefixes should be spelled as shown in this guide.

Conversions: Conversions should follow a rule of reason; do not include figures that imply more accuracy than justified by the original data. For example, 36 inches should be converted to 91 centimeters, not 91.44 centimeters (36 inches x 2.54 centimeters per inch = 91.44 centimeters), and 40.1 inches converts to 101.9 centimeters, not 101.854.

Capitalization of Units: The names of all units start with a lower case letter except, of course, at the beginning of the sentence. There is one exception: in "degree Celsius" (symbol °C) the unit "degree" is lower case but the modifier "Celsius" is capitalized. Thus body temperature is written as 37 degrees Celsius.

Capitalization of Symbols: Unit symbols are written in lower case letters except for liter and those units derived from the name of a person (m for meter, but W for Watt, Pa for pascal, etc.).

Capitalization of Prefixes: Symbols of prefixes that mean a million or more are capitalized and those less than a million are lower case (M for mega (millions), m for milli (thousandths)).

Pluralizations of Units: Names of units are made plural only when the numerical value that precedes them is more than 1. For example, 0.25 liter or 1/4 liter, but 250 milliliters. Zero degrees Celsius is an exception to this rule.

Pluralization of Symbols: Symbols for units are never pluralized (250 mm=250 millimeters).

Incorrect Terms: The prefix "kilo" stands for one thousand of the named unit. It is not a stand-alone term in the metric system. The most common misuse of this is the use of "kilo" for a "kilogram" of something. The word "micron" is an obsolete term for the quantity "micrometer." Also "degree centigrade" is no longer the correct unit term for temperature in the metric system; it has been replaced by degree Celsius.

Spacing: A space is used between the number and the symbol to which it refers. For example: 7 m, 31.4 kg, 37° C.

When a metric value is used as a one-thought modifier before a noun, hyphenating the quantity is not necessary. However, if a hyphen is used, write out the name of the metric quantity with the hyphen between the numeral and the quantity. For example:

a 2-liter bottle, not a 2-L bottle;
a 100-meter relay, not a 100-m relay;
35-millimeter film, not 35-mm film.

In names or symbols for units having prefixes, there is no space between letters making up the symbol or name. Examples: milligram, mg; kilometer, km.

Spaces (not commas) are used in writing metric values containing five or more digits. Examples 1 234 567 km, 0.123 456 mm. For values with four digits, either a space or no space is acceptable.

Period: Do not use a period with metric unit names and symbols except at the end of a sentence.

Decimal Point: The dot or period is used as the decimal point within numbers. In numbers less than one, zero should be written before the decimal point. Examples: 7.038 g; 0.038 g.

INDEX

The numbers of the largest scale charts on which the names appear follow the indexed items. Some geographic names are indexed more than once when more than one place has the same geographic name. Charts published by the National Imagery and Mapping Agency are indicated by an asterisk.

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OMF Approval number 0648-0007 Expires 5/31/01

NOAA Form 77-6
(Rev. 06/98)

U.S DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

COAST PILOT REPORT

SUBMIT TO:

NATIONAL OCEAN SERVICE, NOAA (N/CS261)
1315 EAST-WEST HIGHWAY, STATION 7317
SILVER SPRING, MD 20910-3282
FAX:301-713-4516
INTERNET: Lynn.Preston@noaa.gov

This record of your experience and observations when traversing the coast, entering port, and/or navigating inside waters wil be used to update the Coast Pilot.

OBSERVER: NAME AND ADDRESS

_____
_____
_____
_____

TEL. (Daytime) _____

FAX _____

DATE OF OBSERVATION _____

DATE OF SUBMISSION _____

VESSEL NAME AND ADDRESS _____
_____
_____
_____
_____

GEOGRAPHIC LOCATION

(Refer to charted objects by distance and bearing and/or include latitude/longitude, as applicable)

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CHART NUMBER	COAST PILOT NUMBER and EDITION NUMBER

CHANGES TO EXISTING COAST PILOT TEXT

Give recommended revised language for the book. Identify affected text by page, paragraph(s), and line number(s). State the source of the information if other than personal observation.

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(Continue on plain paper)

REQUEST FOR SURVEYS OR CHART CHANGE

List area for which surveys and/or changes in chart format, scale, or layout are needed. Include the name and geographic position of the area, the chart number of the largest scale chart that covers the area, and the reason for the request.

(Continue on plain paper)

ADDITIONAL INFORMATION FOR THE COAST PILOT

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This information is required as part of NOAA's function to maintain marine nautical charts. The information obtained will be used to update the Coast Pilot. Your response is voluntary and will be a matter of public record. Public reporting burden for this collection is estimated to average thirty minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the National Ocean Service (N/CS261), 1315 East-West Highway, Silver Spring, MD 20910-3282; and to the Office of Management and Budget, Paperwork Reduction Project (0648-0007) Washington, DC 20503.

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TEL. (Daytime) _____

FAX _____

DATE OF OBSERVATION _____

DATE OF SUBMISSION _____

VESSEL NAME AND ADDRESS _____

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GEOGRAPHIC LOCATION

(Refer to charted objects by distance and bearing and/or include latitude/longitude, as applicable)

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ADDITIONAL INFORMATION FOR THE COAST PILOT

We are particularly interested in information about unusually strong current; prominent landmarks; objects which provide particularly good radar return; sheltered anchorages (be explicit on direction of weather and type of bottom observed); drawbridge operation changes (e.g, drawbridge remains permanently in open position); changes in pilot pick-up points; changes in radio frequencies monitored by pilots, marine exchanges, harbor masters, or drawbridges.

This information is required as part of NOAA's function to maintain marine nautical charts. The information obtained will be used to update the Coast Pilot. Your response is voluntary and will be a matter of public record. Public reporting burden for this collection is estimated to average thirty minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the National Ocean Service (N/CS261), 1315 East-West Highway, Silver Spring, MD 20910-3282; and to the Office of Management and Budget, Paperwork Reduction Project (0648-0007) Washington, DC 20503.