United States Coast Pilot 2

Atlantic Coast: Cape Cod to Sandy Hook

30th Edition

The last published Change to the previous edition (29th/1996) was Change 14. Change 14 was published in National Imagery and Mapping Agency Notice to Mariners 18 dated 5/02/98. Change 14 was published in Commander First Coast Guard District Local Notice to Mariners 14 dated 04/07/98. Changes 1 through 14 to the previous edition have been entered into this 30th Edition.

VK
981
.N32
30th ed
(1998)

LIBRARY

U.S. DEPARTMENT OF COMMERCE
William M. Daley, Secretary

National Oceanic and Atmospheric Administration (NOAA)
D. James Baker, Under Secretary of Commerce for Oceans and Atmosphere, and Administrator, NOAA

National Ocean Service
Nancy Foster, Assistant Administrator for Ocean Services and Coastal Zone Management

Washington, DC 1998
For sale by the National Ocean Service and its sales agents.

National Oceanic and Atmospheric Administration

Climate Database Modernization Program

ERRATA NOTICE

One or more conditions of the original document may affect the quality of the image, such as:

Discolored pages
Faded or light ink
Binding intrudes into the text

This document has been imaged through the NOAA Climate Database Modernization Program. To view the original document, please contact the NOAA Central Library in Silver Spring, MD at (301) 713-2607 x124 or www.reference@nodc.noaa.gov.

LASON
Imaging Subcontractor
12200 Kiln Court
Beltsville, MD 20704-1387
March 28, 2002

LIMITS OF UNITED STATES COAST PILOT

Atlantic Coast

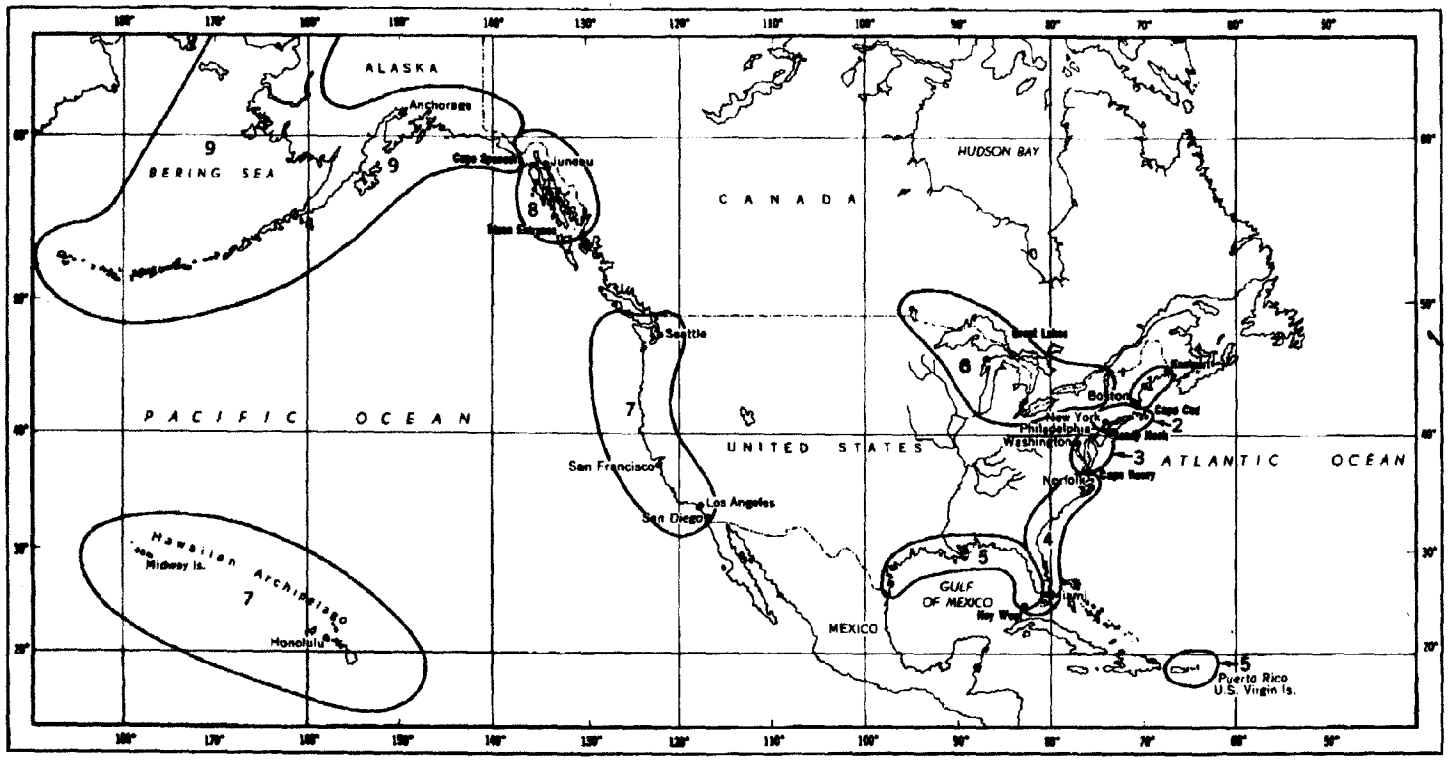
1 Eastport to Cape Cod
2 Cape Cod to Sandy Hook
3 Sandy Hook to Cape Henry
4 Cape Henry to Key West
5 Gulf of Mexico, Puerto Rico, and Virgin Islands

Pacific Coast

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

Great Lakes

6 The Lakes and their Connecting Waterways



Preface

The United States Coast Pilot is published by the National Ocean Service (NOS), Charting and Geodetic Services (C&GS), 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).

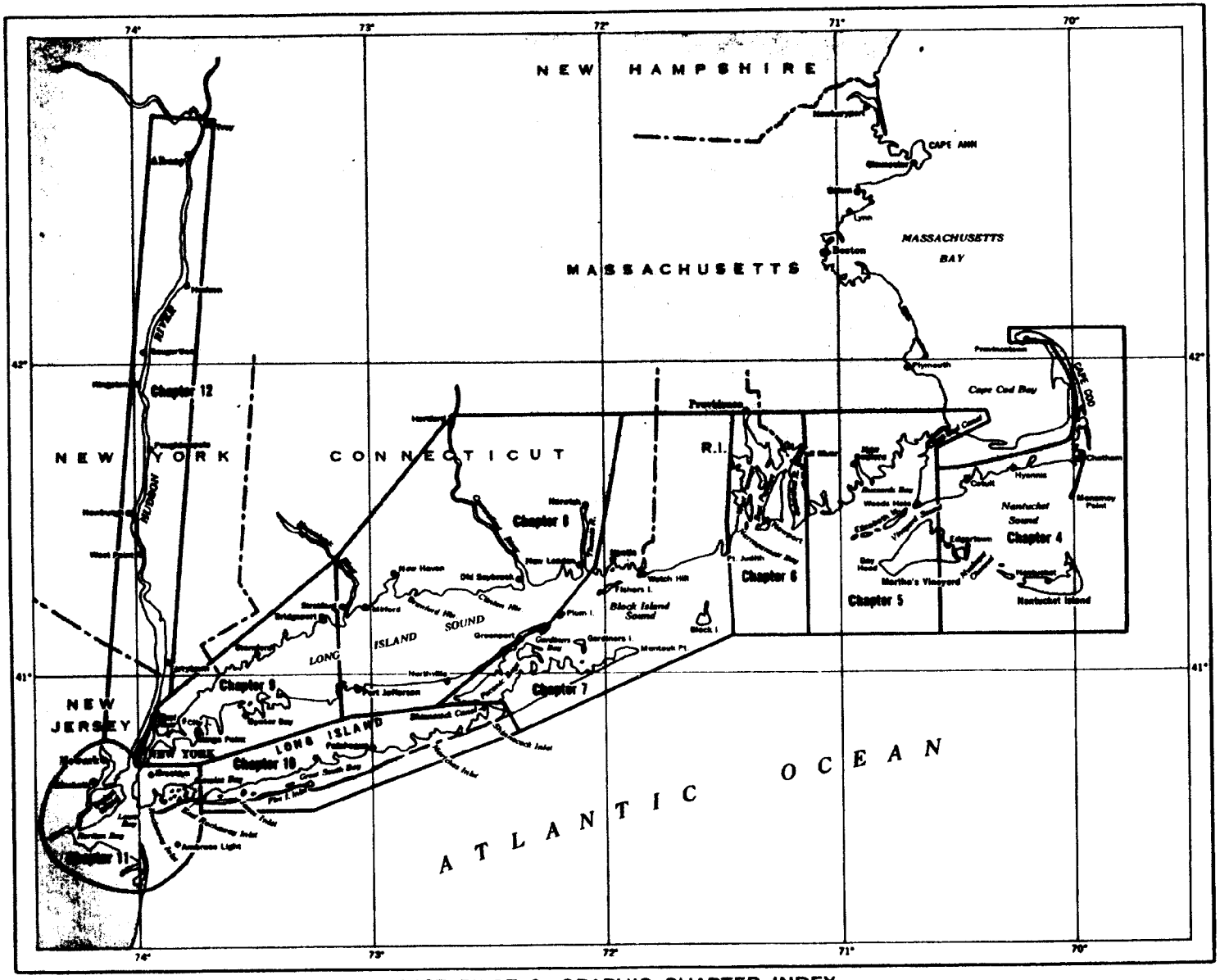
The Coast Pilot supplements the navigational information shown on the nautical charts. The sources for updating the Coast Pilot include, but are not limited to, field inspections conducted by NOAA, information published in Notices to Mariners, reports from NOAA Hydrographic vessels and field parties,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

This volume of Coast Pilot 2, Atlantic Coast, Cape Cod to Sandy Hook, cancels the 29th 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 appendix for address. All amendments are also issued in National Imagery and Mapping Agency Notices to Mariners.

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,
Office of Coast Survey (N/CS261),
National Ocean Service, NOAA,
1315 East-West Highway, Station 7317
Silver Spring, Md 20910-3282.



COAST PILOT 2 - GRAPHIC CHAPTER INDEX

Record of Changes

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

BLANK PAGE

Contents

		Page
Chapter 1.	GENERAL INFORMATION	1
Chapter 2.	NAVIGATION REGULATIONS	33
Chapter 3.	CAPE COD TO SANDY HOOK	106
Chapter 4.	OUTER CAPE COD AND NANTUCKET SOUND	121
Chapter 5.	VINEYARD SOUND AND BUZZARDS BAY	135
Chapter 6.	NARRAGANSETT BAY	151
Chapter 7.	BLOCK ISLAND SOUND	165
Chapter 8.	EASTERN LONG ISLAND SOUND	180
Chapter 9.	WESTERN LONG ISLAND SOUND	203
Chapter 10.	SOUTH COAST OF LONG ISLAND	237
Chapter 11.	NEW YORK HARBOR AND APPROACHES	246
Chapter 12.	HUDSON RIVER	272
Appendix		283
T-Tables		(Follows Appendix)
Climatological		T-1
Meteorological		T-13
Mean Surface Water Temperatures and Densities		T-15
Determination of Wind Speed by Sea Condition		T-16
Coastal Warning Displays		T-17
Distances		T-18
Radio Bearing Conversion Table		T-22
Distance of Visibility of Objects at Sea		T-23
Conversion, Degrees to Points and Vice Versa		T-24
Estimating Time of Transit		T-25
Standard Abbreviations for Broadcasts		T-26
Measurement and Conversion Factors		T-29
Metric Style Guide		T-32
Index		I-1
Coast Pilot Report form		(Follows Index)

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. 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 Corps of Engineers, U.S. Army; 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 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 corection, 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 Defense 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.

(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 Corps of Engineers, U.S. Army (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.

(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. A list of authorized sales agents and chart catalogs may be had free upon request from National Ocean Service, Distribution Division (N/ACC3). (See appendix for address.)

(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 the 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 206-253-2256
(110) FAX 206-553-2246
(111) **ANCHORAGE**
(112) Voice response 907-227-1903
(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 1000 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 be 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, Portsmouth, 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) **Corps of Engineers,** Department of the Army.–The 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) 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.)

(136) **Fishtraps.**–The 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 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.

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

(138) **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.).

(139) 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 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 Corps of Engineers. Permits for the dumping of other material in the territorial sea and ocean waters are issued by the Environmental Protection Agency.

(140) 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.)

(141) 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.)

(142) 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.

(143) 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.

(144) **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.

(145) **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.

(146) 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.

(147) **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. (National Imagery and Mapping Agency Procurement Information in appendix.)

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

(149) 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.

(150) 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.

(151) "Ill person" means person who:

(152) 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

(153) 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.

(154) 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.

(155) 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.)

(156) **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.

(157) **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.)

(158) **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.)

(159) 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.

(160) 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.)

(161) 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.

(162) 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 in the joint NWS/Navy publication **Selected Worldwide Marine Weather Broadcasts**. 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.

(163) 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.

(164) 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.)

(165) **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 nonrealtime 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

(166) **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.

(167) **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).

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

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

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

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

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

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

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

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

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

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

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

(179) (12) The radiotelegraph alarm signal.

(180) (13) The radiotelephone alarm signal.

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

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

(183) (16) A dye marker.

(184) **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.

(185) 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 acknowledgement of receipt shall not be given before the distress message which follows it is sent.

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

(187) (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.

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

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

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

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

(192) the distress signal MAYDAY;

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

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

(195) the nature of the distress;

(196) the kind of assistance desired;

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

(198) present seaworthiness of vessel;

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

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

(201) your listening frequency and schedule;

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

(203) (4) **Acknowledgement 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 acknowledgement for a short interval so that a shore station may acknowledge receipt first. The acknowledgement of receipt of a distress is given as follows:

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

(205) the words THIS IS;

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

(207) The words RECEIVED MAYDAY.

(208) After the above acknowledgement, 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:

(209) the word MAYDAY;

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

(211) the words THIS IS;

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

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

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

(215) (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.

(216) (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:

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

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

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

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

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

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

(223) the words THIS IS;

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

(225) 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.

(226) (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:

(227) the distress signal MAYDAY;

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

(229) the words THIS IS;

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

(231) the time;

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

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

DISTRESS ASSISTANCE AND COORDINATION PROCEDURES

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

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

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

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

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

(239) (i) identity;

(240) (ii) position;

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

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

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

(244) (i) 2182 kHz (radiotelephony).

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

(246) (f) Operate radar continuously;

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

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

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

(250) (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.

(251) (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.

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

(253) (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;

(254) (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;

(255) (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;

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

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

(258) (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;

(259) (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.

(260) **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,

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

(262) (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.

(263) (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.

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

(265) (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.

(266) 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.

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

(268) 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.

(269) 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:

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

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

(272) 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.

(273) 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.

(274) 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.

(275) 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 aircrft 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.

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

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

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

(279) (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.

(280) 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:

(281) (a) Wind direction and force.

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

(283) (c) Other pertinent weather information.

(284) 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.

(285) 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.

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

(287) 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.

(288) 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.

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

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

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

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

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

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

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

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

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

(298) (j) What caused the emergency?

(299) **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.

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

(301) (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.

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

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

(304) (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.

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

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

(307) (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.

(308) (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.

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

(310) (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.

(311) (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.

(312) **Hoist operations:**

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

(314) (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).

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

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

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

(318) (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.

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

(320) (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.

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

(322) (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.

(323) (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.

(324) (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.**

(325) (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.

(326) (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.

(327) **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:

(328) Vessel's name and call sign.

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

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

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

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

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

(334) Any known history of similar illness.

(335) Location and type of pain.

(336) Medical supplies carried on board vessel.

(337) Medication given to patient.

(338) Weather.

(339) Communication schedule and frequency.

(340) **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.

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

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

(343) (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.

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

(345) **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.

(346) **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 of a boat is overdue and will assist materially in locating a missing craft in the event search and rescue operations become necessary.

(347) **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

(348) 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 broadcasts 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**.)

(349) **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.

(350) **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.

(351) **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** broacasts 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.**

(352) 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.)

(353) 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.

(354) 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.

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

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

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

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

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

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

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

(362) **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.

(363) 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.

(364) **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.

(365) 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.

(366) 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.

(367) 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.

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

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

(370) **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.

(371) **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.

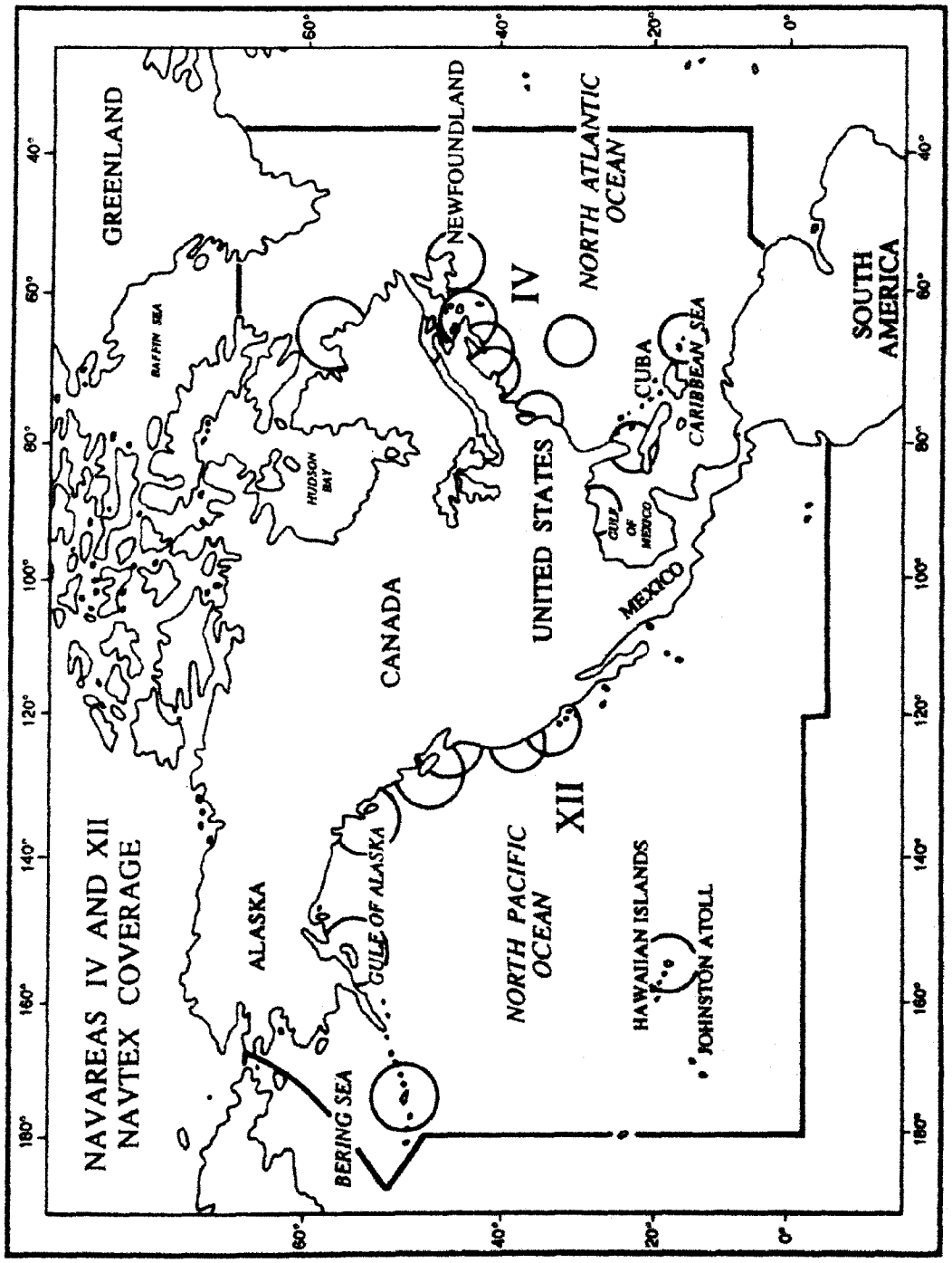
(372) **Reports from ships.**–The master of every U.S. ship equipped with radio transmitting apparatus, on meeting with a tropical cyclone, dangerous ice, subfreezing air temperatures with gale force winds causing severe ice accretion on superstructures, derelict, or any other direct danger to navigation,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

(373) 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.

(374) **Time Signals, NIST.**–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.

(375) 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.

(376) **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).


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

NAUTICAL CHARTS

(377) **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

(378) Chief,

(379) Marine Chart Division (N/CS2)

(380) National Ocean Service, NOAA,

(381) 1315 East-West Highway, Station 7317

(382) Silver Spring, MD 20910-3282.

(383) **Chart symbols and abbreviations.**–The standard symbols and abbreviations approved for use on all regular nautical charts published by the National Imagery and Mapping Agency and NOS are contained in **Chart No. 1,** United States of America **Nautical Chart Symbols and Abbreviations.** This publication is available from NOS Distribution Division (see Sales Information, appendix.)

(384) 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.

(385) 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.

(386) **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.

(387) 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.

(388) **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.

(389) 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.

(390) **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.

(391) 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.

(392) 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.

(393) 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.

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

(395) **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.

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

(397) **"HORIZONTAL DATUM**

(398) 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."

(399) 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.

(400) **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:

(401) **"HORIZONTAL DATUM**

(402) 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."

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

(404) **"HORIZONTAL DATUM**

(405) 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."

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

(407) 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)".

(408) **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.

(409) 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.

(410) 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.

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

(412) 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.)

(413) **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:

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

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

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

(417) 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.

(418) 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 1980's, has made leadline and conventional echo sounder technologies obsolete in areas of complex bathymetry.

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

(420) 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.

(421) 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.

(422) 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.

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

(424) 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.

(425) 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

ERA	SOUNDING TECHNOLOGY	MAXIMUM LINE SPACING	AREAS OR DEPTHS
PRE-1940	Leadline	50 Meters	Anchorages, Channel Lines
			Open Coast
			Even Botton
		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

through fourth editions of the Hydrographic Manual and Hydrographic Survey Guideline No. 69.

(426) 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.

(427) •Point X lies in an area surveyed by NOS in 1926-27 at a scale of 1:100,000. 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.

(428) •The transit continues to cross areas surveyed by NOS in the 1920's using leadline survey technology. As depths decrease, the line spacing decreases, but depths still can only be inferred between sounding points. Shoals and undetected features might exist between the sounding points in areas of irregular relief. Caution must still be exercised.

(429) •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.

(430) 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**.

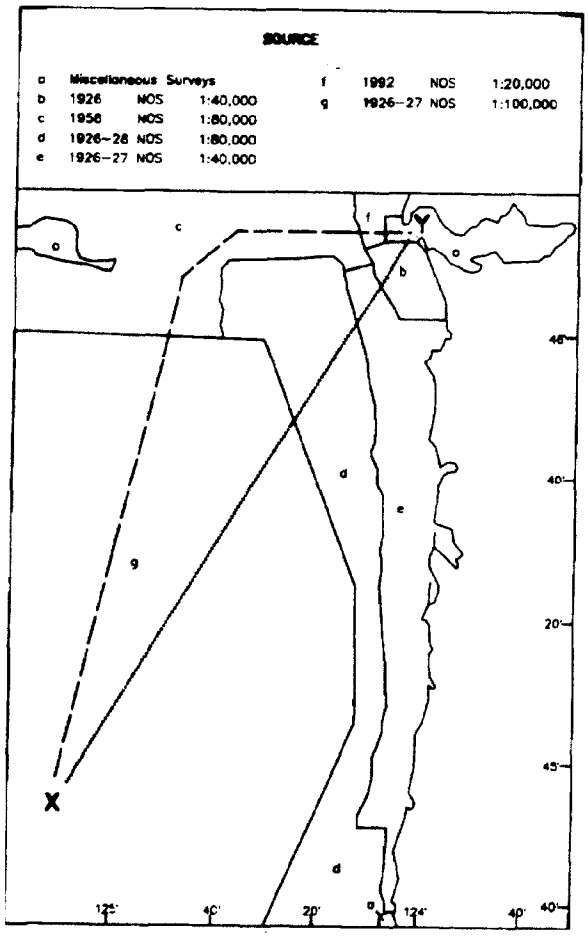
(431) •The transit again starts in an area surveyed by NOS in 1926-27 at a scale of 1:100,000. The sounding data would have been collected by leadline. Depths between sounding points can only be inferred, and undetected features might exist between sounding points in areas of irregular relief. Caution should be exercised.

(432) •The transit then crosses an area surveyed by NOS in 1958 at a scale of 1:80,000. The charted hydrography in this area would have been acquired 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.

(433) •The transit then crosses an area surveyed by NOS in 1992 at a scale of 1:20,000. The data is collected in metric units acquired 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.

(434) •The transit ends in an area where the charted hydrography is derived 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.

SOURCE DIAGRAM



(435) 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.

(436) **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.

(437) **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.

(438) **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.

(439) **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:

(440) **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.

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

(442) **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.

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

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

(445) **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.

(446) **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.

(447) 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.**

(448) **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.

(449) 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.

(450) 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.

(451) 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.

(452) 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.

(453) **Artificial obstructions to navigation.–Disposal areas** are designated by the 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.

(454) **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 Corps of Engineers and Environmental Protection Agency, this chapter, and appendix for office addresses.)

(455) **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.

(456) 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.**

(457) **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 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.

(458) **Fish havens** are established by private interests, usually sport fishermen, to simulate natural reefs and wrecks that attract fish. The reefs are constructed by dumping assorted junk 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; oil 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.

(459) **Fishtrap areas** are areas established by the 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.

(460) **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.

(461) **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.

(462) 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.

(463) **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.

(464) 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

(465) **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.

(466) 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.

(467) **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;

(468) 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.

(469) 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.

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

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

(472) 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.

(473) 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.

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

(475) 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.

(476) 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.

(477) 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.

(478) 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.

(479) 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.

(480) 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.

(481) **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.

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

(483) **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.

(484) 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.

(485) 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.

(486) 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.

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

(488) 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.

(489) 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.

(490) **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, needlessly jeopardizing the safety of these facilities and their crews, and of all navigation dependent on these important aids to navigation.

(491) 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 collision will be avoided by ensuring that radio bearing does not remain constant.

(492) 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.

(493) **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.

(494) 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.

(495) 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.

(496) 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.

(497) **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.

(498) 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.

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

(500) **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.

(501) 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.

(502) **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.

(503) 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.

(504) **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.

(505) 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.

(506) 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.

(507) 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.

(508) 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.

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

(510) 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.

(511) **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.

(512) **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.

EPIRB Types

Type	Frequency	Description
Class A	121.5/243 MHz	Float-free, automatically-activating, 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.

(513) **121.5/243 MHz EPIRBs.** 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:

(514) (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).

(515) (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.

(516) (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.

(517) **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.

(518) New class C EPIRB stations are not 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.

(519) **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.

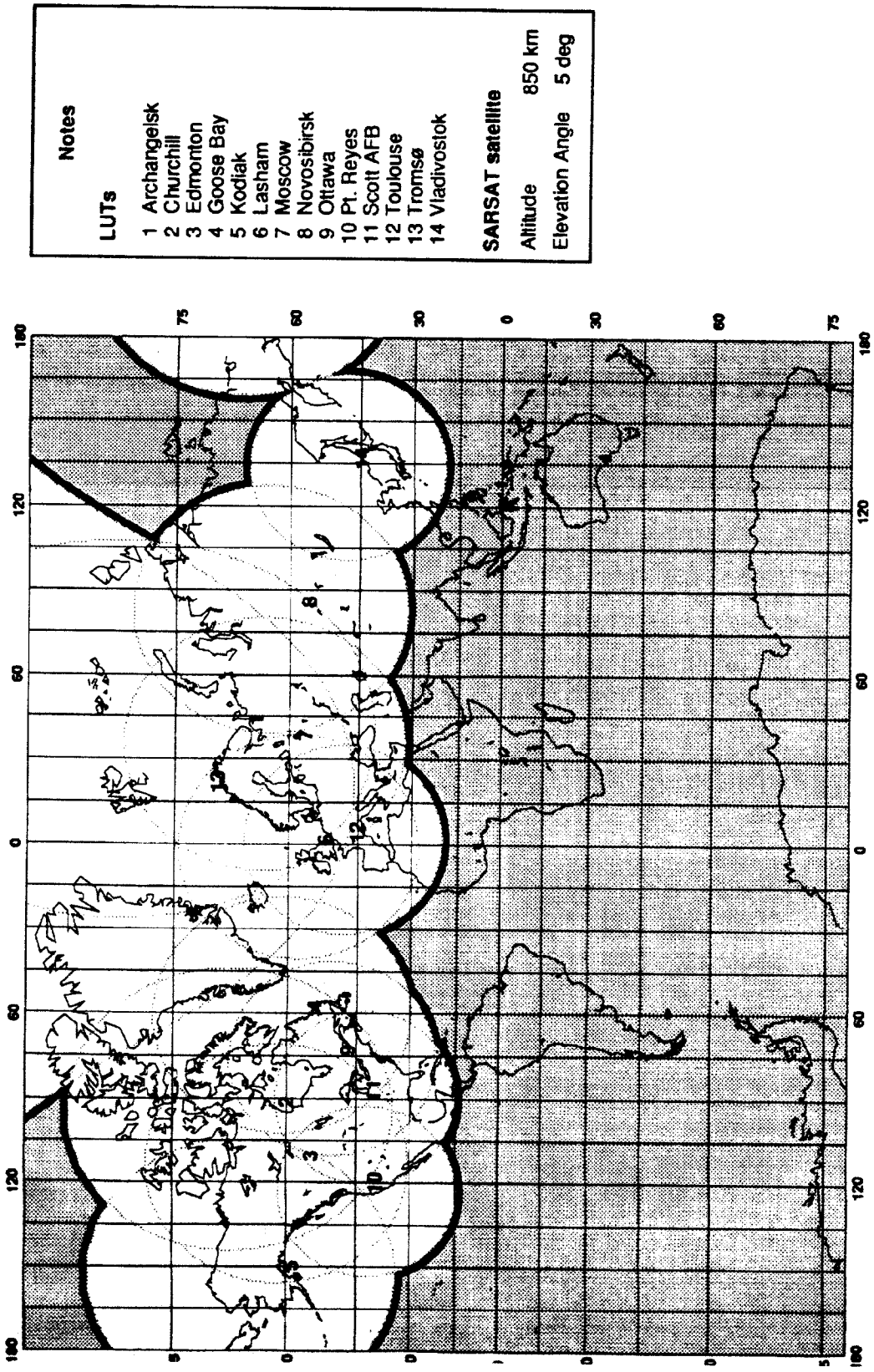
(520) All 406 MHz EPIRBs must be registered with NOAA. If you change your boat, your address or your phone number, you must re-register your EPIRB with NOAA. Request 406 MHz EPIRB registration forms from; and mail or fax completed forms to:

(521) NOAA/NESDIS
(522) SARSAT Operations Division, E/SP3
(523) Federal Office Building
(524) Washington, DC 20233

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

(526) By 1 August 1993, an automatically activated, float-free version of this EPIRB was 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.

(527) 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-



1988 Satellite Visibility Area of SARSAT LUTs
(represents approximate System coverage at 121.5 MHz; at 406 MHz, the System covers the entire globe)

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.

(528) **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.

(529) **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.)

(530) **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.

(531) 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.

(532) 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).

(533) 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.

(534) 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.

(535) 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.

(536) **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.**

(537) 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.

(538) 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.

(539) 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.

(540) 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.

(541) **LORAN-C Interference**

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

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

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

(545) A general source of LORAN-C information is the LORAN-C User Handbook written by the U.S. Coast Guard. This publication can be purchased from the Government Printing Office, Washington, DC (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. Anavigation data message is superimposed on the codes. The same navigation data message is carried on

both frequencies. This message contains satellite ephemeris data, atmospheric propogation 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) **LORAN-C, GPS, DGPS, MARINE RADIOBEACON, 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:

(559) Commanding Officer

(560) USCG Navigation Center

(561) 7323 Telegraph Road

(562) Alexandria, VA 22310-3998.

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

(564) NAVCEN provides the following services:

(565) **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.

(566) **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.

(567) **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:

(568) 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.

(569) 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.

(570) 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.

(571) 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.

(572) European Loran-C information:

(573) 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).

(574) 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.

(575) 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).

(576) 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.

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

(578) **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.

(579) **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:

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

(581) U.S. Department of Commerce

(582) Space Weather Operations, R/E/SE2

(583) 325 Broadway

(584) Boulder, CO 80303

(585) Telephone (303) 497-3171. For access via the world wide web, use **http://www.sec.noaa.gov**.

(586) **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.

(587) 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, restricted areas, 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.

(588) **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.

(589) **Tsunamis (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.

(590) 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.

(591) 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.

(592) 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.

(593) 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.

(594) **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.

(595) **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.**

(596) 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

(597) **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:

(598) (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;

(599) (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;

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

(601) (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.

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

(603) 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.

(604) **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.

(605) (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).

(606) (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 clearing together.

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

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

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

(610) (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 mineclearance vessels.

(611) (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.

(612) (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.

(613) (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.

(614) (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.

(615) (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.

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

(617) (1) Mechanical clearing 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.

(618) (2) Acoustical clearing 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.

(619) (3) A hydrofoil platform containing equipment used for magnetic influence clearing. 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 clearing 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.

(620) (k) Helicopters employed in mineclearing 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.

(621) **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:

(622) (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.

(623) (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.

(624) (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.

(625) (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.

(626) 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.

(627) 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:

(628) Release of dye marker.

(629) Release of air bubble.

(630) Ejection of oil.

(631) Pounding on the hull.

(632) 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.

(633) **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

(634) **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.

(635) 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).

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

(637) 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.

(638) 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.

(639) 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.

(640) 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.

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

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

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

(644) 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.

(645) **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.

(646) 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.

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

(648) **TRAFFIC SEPARATION SCHEMES**

(649) In the Approaches to Portland, Maine

(650) In the Approaches to Boston, Massachusetts

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

(652) Off New York

(653) Off Delaware Bay

(654) In the Approaches to Chesapeake Bay

(655) In the Approaches to Galveston Bay

(656) Off San Francisco

(657) In the Santa Barbara Channel

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

(659) In the Strait of Juan de Fuca

(660) In Puget Sound and its Approaches

(661) In Prince William Sound, Alaska

(662) 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

(663) **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).

(664) **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.

(665) 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.

(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) 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.

(669) 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).

(670) 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.

(671) 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.

(672) **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.

(673) 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.

(674) 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).

(675) **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.

(676) **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.

(677) **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.

(678) **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.

(679) **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.

(680) 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.

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

(682) **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.

(683) **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.

(684) **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 diversion 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.)

(685) **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 pos-

sessions. 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.

(686) 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.

(687) 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.

(688) 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.

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

(690) 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.

(691) **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.

(692) 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**.)

(693) 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.

(694) **Designated critical habitats.–Northern right whale critical habitats** are designated by the National Marine Fisheries Service because of their importance as seasonal feeding and nursing areas for highly endangered northern right whales. Critical habitats have been designated in Cape Cod Bay and east of Cape Cod in the Great South Channel. Right whales are most likely to be encountered in these areas and vessel operators should be particularly alert to avoid hitting or disturbing any right whales. (See **50 CFR 226.13 (a) and (b); 50 CFR 222.32**, chapter 2, for limits and regulations.)

(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.

Channel	Ship Frequency (MHz) Transmit	Receive	Channel Usage
1	156.050	156.050	Port operations and commercial (see footnote 5)
5	156.250	156.250	Port operations (see footnote 3)
6	156.300	156.300	Intership safety
7	156.350	156.350	Commercial
8	156.400	156.400	Commercial (ship-to-ship only)
9	156.450	156.450	Commercial/Non-commercial (see footnote 6)
10	156.500	156.500	Commercial
11	156.550	156.550	Commercial and port operations (traffic advisories, including VTS in some ports)
12	156.600	156.600	Port operations (traffic advisories, including VTS in some ports)
13	156.650	156.650	Navigational (ship-to-ship), also used at locks and bridges
14	156.700	156.700	Port operations (traffic advisories, including VTS in some ports)
16	156.800	156.800	Distress, safety and calling
17	156.850	156.850	Maritime control
18	156.900	156.900	Commercial
19	156.950	156.950	Commercial
20	157.000	161.600	Port operations (traffic advisories)
22	157.100	157.100	Coast Guard Liaison (make contact on channel 16)
24	157.200	161.800	Public correspondence (ship-to-coast)
25	157.250	161.850	Public correspondence (ship-to-coast)
26	157.300	161.900	Public correspondence (ship-to-coast)
27	157.350	161.950	Public correspondence (ship-to-coast)
28	157.400	162.000	Public correspondence (ship-to-coast)
63	156.175	156.175	Commercial and Port operations (see footnote 5)
65	156.275	156.275	Port operations (traffic advisories)
66	156.325	156.325	Port operations (traffic advisories)
67	156.375	156.375	Commercial and Navigational (ship-to-ship only)
68	156.425	156.425	Non-commercial
69	156.475	156.475	Non-commercial
70	156.525	156.525	Digital Selective Calling
71	156.575	156.575	Non-commercial
72	156.625	156.625	Non-commercial (ship-to-ship only)
73	156.675	156.675	Port operations (traffic advisories)
74	156.725	156.725	Port operations (traffic advisories)
77	156.875	156.875	Port operations (ship-to-ship, to and from pilots docking ships)
78	156.925	156.925	Non-commercial
79	156.975	156.975	Commercial/Non-commercial (see footnote 4 for non-commercial use)
80	157.025	157.025	Commercial/Non-commercial (see footnote 4 for non-commercial use)
84	157.225	161.825	Public correspondence (ship-to-coast)
85	157.275	161.875	Public correspondence (ship-to-coast)
86	157.325	161.925	Public correspondence (ship-to-coast)
87	157.375	161.975	Public correspondence (ship-to-coast)
88	157.425	162.025	Commercial (see footnote 1) and Public correspondence (marine operator) (see footnote 2)

Footnotes to table:

1. Not available in the Great Lakes, St. Lawrence Seaway, or the Puget Sound and the Strait of Juan de Fuca and its approaches.
2. Only for use in the Great Lakes, St. Lawrence Seaway, and Puget Sound and the Strait of Juan de Fuca and its approaches.
3. Available only in the Houston and New Orleans areas.
4. Available only in the Great Lakes.
5. Available only in the New Orleans area.
6. Available for Intership, ship and coast general purpose calling by noncommercial ships.
7. Available only in the Puget Sound and the Strait of Juan de Fuca.

2. NAVIGATION REGULATIONS

(1) This chapter contains the sections of **Code of Federal Regulations, Title 33, Navigation and Navigable Waters (33 CFR)**, that are of most importance in the areas covered by Coast Pilot 2. The sections are from:

(2) Part 26, Vessel Bridge-to-Bridge Radiotelephone Regulations,

(3) Part 80, COLREGS Demarcation Lines;

(4) Part 110, Anchorage Regulations;

(5) Part 117, Drawbridge Operation Regulations;

(6) Part 160, Ports and Waterways Safety-General;

(7) Part 162, Inland Waterways Navigation Regulations;

(8) Part 164, Navigation Safety Regulations (in part);

(9) Part 165, Regulated Navigation Areas and Limited Access Areas;

(10) Part 166, Shipping Safety Fairways;

(11) Part 167, Offshore Traffic Separation Schemes;

(12) Part 207, Navigation Regulations; and

(13) Part 334, Danger Zones and Restricted Area Regulations.

(14) Included from **Title 46, Shipping (46 CFR)**, is:

(15) Part 15, Manning Regulations.

(16) Included from **Title 50, Wildlife and Fisheries (50 CFR)** are:

(17) Part 222, Endangered Fish or Wildlife, and

(18) Part 226, Designated Critical Habitat.

(19) **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: U.S. Coast Guard (33 CFR 26, 80, 110, 117, 160, 164, and 165; 46 CFR 15); U.S. Army Corps of Engineers (33 CFR 207 and 334); National Marine Fisheries Service, National Oceanic and Atmospheric Administration (50 CFR 222 and 226).

Part 26–Vessel Bridge-to-Bridge Radiotelephone Regulations

(20) **§26.01 Purpose.**

(21) (a) The purpose of this part is to implement the provisions of the Vessel Bridge-to-Bridge Radiotelephone Act. This part–

(22) (1) Requires the use of the vessel bridge-to-bridge radiotelephone;

(23) (2) Provides the Coast Guard's interpretation of the meaning of important terms in the Act;

(24) (3) Prescribes the procedures for applying for an exemption from the Act and the regulations issued under the Act and a listing of exemptions.

(25) (b) Nothing in this part relieves any person from the obligation of complying with the rules of the road and the applicable pilot rules.

(26) **§26.02 Definitions.**

(27) For the purpose of this part and interpreting the Act–

(28) "Secretary" means the Secretary of the Department in which the Coast Guard is operating;

(29) "Act" means the "Vessel Bridge-to-Bridge Radiotelephone Act", 33 U.S.C. sections 1201–1208;

(30) "Length" is measured from end to end over the deck excluding sheer;

(31) "Power-driven vessel" means any vessel propelled by machinery; and

(32) "Towing vessel" means any commercial vessel engaged in towing another vessel astern, alongside, or by pushing ahead.

(33) "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.

(34) "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.

(35) **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.

(36) **§26.03 Radiotelephone required.**

(37) (a) Unless an exemption is granted under §26.09 and except as provided in paragraph (a)(4) of this section, this part applies to:

(38) (1) Every power-driven vessel of 20 meters or over in length while navigating;

(39) (2) Every vessel of 100 gross tons and upward carrying one or more passengers for hire while navigating;

(40) (3) Every towing vessel of 26 feet or over in length while navigating; and

(41) (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.

(42) (b) very 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.

(43) (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.

(44) (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).

(45) (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):

(46) (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;

(47) (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 channels junction with the Inner Harbor Navigation Canal; and

(48) (3) The full length of the Inner Harbor Navigation Canal from its junction with the Mississippi River to that canal's entry to Lake Pontchartrain at the New Seabrook vehicular bridge.

(49) (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).

(50) **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.

(51) **§26.04 Use of the designated frequency.**

(52) (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.

(53) (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.

(54) (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.

(55) (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.

(56) (e) On those navigable waters of the United States within a VTS area, the designated VTS frequency is an additional designated frequency required to be monitored in accordance with §26.05.

(57) **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.

(58) **§26.05 Use of radiotelephone.**

(59) 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.

(60) **§26.06 Maintenance of radiotelephone; failure of radiotelephone.**

(61) Section 6 of the Act states–

(62) (a) Wherever 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.

(63) **§26.07 Communications.**

(64) No person may use the services 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.

(65) **§26.08 Exemption procedures.**

(66) (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.

(67) (b) Any person may petition for an exemption from any provision of the Act or this part;

(68) (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:

(69) (1) The provisions of the Act or this part from which an exemption is requested; and

(70) (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.

(71) **§26.09 List of exemptions.**

(72) (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.

(73) (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."

(74) **§26.10 Penalties**

(75) Section 9 of the Act states–

(76) (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 or 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.

(77) (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

Table 2603(f)—VESSEL TRAFFIC SERVICES (VTS) CALL SIGNS, DESIGNATED FREQUENCIES, AND MONITORING AREAS

Vessel traffic services[1] (call sign)	Designated frequency[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 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 east 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]
Houston Traffic		The navigable waters north of 29°N., west of 94°20′W., south of 29°49′N., and east of 95°20′W.:
	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 Offshore 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.

Vessel traffic services[1] (call sign)	Designated frequency[2] (channel designation)	Monitoring area
	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 Marrowstone Point and Lagoon Point in Admiralty Inlet and south of a line drawn due east from the southernmost tip of Possession Point 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; 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 Marrowstone Point and Lagoon Point and all waters east of Whidbey Island north of a line drawn due east from the southernmost tip of Possession Point 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 of 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[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 enforce 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 designated 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.

proceeded against in any District Court of the United States having jurisdiction.

(78) (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

(79) **§80.01 General basis and purpose of demarcation lines.**

(80) (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.

(81) (b) The waters inside of the lines are Inland Rules waters. The waters outside the lines are COLREGS waters.

(82) (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.

(83) **§80.135 Hull, Mass. to Race Point, Mass.** (a) Except inside lines described in this section, the 72 COLREGS apply on the harbors, bays, and inlets on the east coast of Massachusetts from the easternmost radio tower at Hull, charted in approximate position latitude 42°16.7′N., longitude 70°52.6′W., to Race Point on Cape Cod.

(84) (b) A line drawn from Canal Breakwater Light 4 south to the shoreline.

(85) **§80.145 Race Point, Mass., to Watch Hill, R.I.** (a) Except inside lines specifically described in this section, the 72 COLREGS shall apply on the sounds, bays, harbors, and inlets along the coast of Cape Cod and the southern coasts of Massachusetts and Rhode Island from Race Point to Watch Hill.

(86) (b) A line drawn from Nobska Point Light to Tarpaulin Cove Light on the southeastern side of Naushon Island; thence from the southernmost tangent of Naushon Island to the easternmost extremity of Nashawena Island; thence from the southwesternmost extremity of Nashawena Island to the easternmost extremity of Cuttyhunk Island; thence from the southwestern tangent of Cuttyhunk Island to the tower on Gooseberry Neck charted in approximate position latitude 41°29.1′N., longitude 71°02.3′W.

(87) (c) A line drawn from Sakonnet Breakwater Light 2 tangent to the southernmost part of Sachuest Point charted in approximate position latitude 41°28.5′N., longitude 71° 14.8′W.

(88) (d) An east-west line drawn through Beavertail Light between Brenton Point and the Boston Neck shoreline.

(89) **§80.150 Block Island, R.I.**

(90) The 72 COLREGS shall apply on the harbors of Block Island.

(91) **§80.155 Watch Hill, R.I. to Montauk Point, N.Y.** (a) A line drawn from Watch Hill Light to East Point on Fishers Island.

(92) (b) A line drawn from Race Point to Race Rock Light; thence to Little Gull Island Light thence to East Point on Plum Island.

(93) (c) A line drawn from Plum Island Harbor East Dolphin Light to Plum Island Harbor West Dolphin Light.

(94) (d) A line drawn from Plum Island Light to Orient Point Light; thence to Orient Point.

(95) (e) A line drawn from the lighthouse ruins at the southwestern end of Long Beach Point to Cornelius Point.

(96) (f) A line drawn from Coecles Harbor Entrance Light to Sungic Point.

(97) (g) A line drawn from Nichols Point to Cedar Island Light.

(98) (h) A line drawn from Threemile Harbor West Breakwater Light to Threemile Harbor East Breakwater Light.

(99) (i) A line drawn from Montauk West Jetty Light 1 to Montauk East Jetty Light 2.

(100) **§80.160 Montauk Point, N.Y. to Atlantic Beach, N.Y.** (a) A line drawn from Shinnecock Inlet East Breakwater Light to Shinnecock Inlet West Breakwater Light 1.

(101) (b) A line drawn from Moriches Inlet East Breakwater Light to Moriches Inlet West Breakwater Light.

(102) (c) A line drawn from Fire Island Inlet Breakwater Light 348° true to the southernmost extremity of the spit of land at the western end of Oak Beach.

(103) (d) A line drawn from Jones Inlet Light 322° true across the southwest tangent of the island on the north side of Jones Inlet to the shoreline.

(104) **§80.165 New York Harbor.**

(105) A line drawn from East Rockaway Inlet Breakwater Light to Sandy Hook Light.

Part 110–Anchorage Regulations

(106) **§110.1 General.** (a) The areas described in Subpart A of this part are designated as special anchorage areas pursuant to the authority contained in an act amending laws for preventing collisions of vessels approved April 22, 1940 (54 Stat. 150); Article 11 of section 1 of the Act of June7, 1897, as amended (30 Stat. 98; 33 U.S.C. 180), Rule 9 of section 1 of the act of February 8, 1895, as amended (28 Stat. 647; 33 U.S.C. 258), and Rule Numbered 13 of section 4233 of the Revised Statutes as amended (33 U.S.C. 322). Vessels not more than 65 feet in length, when at anchor in any special anchorage area shall not be required to carry or exhibit the white anchor lights required by the Navigation Rules.

(107) (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).

(108) (c) All bearings in the part are referred to true meridian.

(109) (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.

(110) **§110.1a Anchorages under Ports and Waterways Safety Act.** (a) The anchorages listed in this section are regulated under the Ports and Waterways Safety Act (33 U.S.C. 1221 et seq.):

(111) (1) Section 110.155 Port of New York.

(112) (b) Any person who violates any regulation issued under the Ports and Waterways Safety Act–

(113) (1) Is liable to a civil penalty, not to exceed $25,000 for each violation;

(114) (2) If the violation is willful, is fined not more than $50,000 for each violation or imprisoned for not more than five years, or both.

Subpart A–Special Anchorage Areas

(115) **§110.38 Edgartown Harbor, Mass.** An area in the inner harbor easterly of the project channel and south of Chappaquiddick Point bounded as follows: Beginning at

(116) 41°23′19″N., 70°30′32″W.; thence along the shore to

(117) 41°22′52″N., 70°30′12″W.; thence

(118) 287°30′, 1,600 feet; thence

(119) 327°30′, 700 feet; thence

(120) 359°, 800 feet; thence

(121) 024°15′, approximately 900 feet to the point of beginning.

(122) NOTE: The area is reserved for yachts and other small recreational craft. Fore and aft moorings and temporary floats or buoys for marking anchors in place will be allowed. All moorings shall be so placed that no vessel when anchored shall extend into waters beyond the limits of the area. Fixed mooring piles or stakes are prohibited.

(123) **§110.40 Silver Beach Harbor, North Falmouth, Mass.** All the waters of the harbor northward of the inner end of the entrance channel.

(124) **§110.45 Onset Bay, Mass.** Northerly of a line extending from the northernmost point of Onset Island to the easternmost point of Wickets Island; easterly of a line extending from the easternmost point of Wickets Island to the southwest extremity of Point Independence; southerly of the shore line; and westerly of the shore line and of a line bearing due north from the northernmost point of Onset Island.

(125) **§110.45a Mattapoisett Harbor, Mattapoisett, Mass.**

(126) (a) Area No. 1 beginning at a point on the shore at

(127) 41°39′23″N., 70°48′50″W.; thence 138.5°T. to

(128) 41°38′45″N., 70°48′02″W.; thence 031°T. to

(129) 41°39′02″N., 70°47′48″W.; thence along the shore to the point of beginning.

(130) (b) Area No. 2 beginning at a point on the shore at

(131) 41°39′24″N., 70°49′02″W.; thence 142.5°T to

(132) 41°38′10″N., 70°47′45″W.; thence 219°T. to

(133) 41°37′54″N., 70°48′02″W.; thence along the shore to the point of beginning.

(134) **Note.**–Administration of the Special Anchorage Area is exercised by the Harbormaster, Town of Mattapoisett pursuant to a local ordinance. The town of Mattapoisett will install and maintain suitable navigational aids to mark the perimeter of the anchorage area.

(135) **§110.46 Newport Harbor, Newport, R.I.** (a) Area No. 1. The waters of Brenton Cove south of a line extending from

(136) 41°28′50″N., 71°18′58″W.; to

(137) 41°28′45″N., longitude 71°20′08″W.; thence along the shoreline to the point of beginning.

(138) (b) Area No. 2. The waters east of Goat Island beginning at a point bearing 090°, 245 yards from Goat Island Shoal Light; thence

(139) 007°, 505 yards; thence

(140) 054°, 90 yards; thence

(141) 086°, 330 yards; thence

(142) 122°, 90 yards; thence

(143) 179°, 290 yards; thence

(144) 228°, 380 yards; thence

(145) 270°, 250 yards to the point of beginning.

(146) (c) Area No. 3. The waters north of Goat Island Causeway Bridge beginning at Newport Harbor Light; thence 023° to the southwest corner of Anchorage E; thence 081° following the southerly boundary of Anchorage E to the shoreline; thence south along the shoreline to the east foot of the Goat Island Causeway Bridge; thence west following Goat Island Causeway Bridge to the shoreline of Goat Island; thence north following the east shore of Goat Island to the point of beginning.

(147) **§110.47 Little Narragansett Bay, Watch Hill, R.I.** All of the navigable waters of Watch Hill Cove southeasterly of a line beginning at the shore end of the United States project groin on the southerly shore of the cove and running 41°30′ true, to the northerly shore of the cove at a point about 200 feet west of the west side of the shore end of Meadow Lane, with the exception of a 100-foot wide channel running from the westerly end of the cove in a southeasterly direction to the Watch Hill Yacht Club pier, thence along in front of the piers on the easterly side of the cove northerly to the shore at the north end of the cove.

(148) **§110.48 Thompson Cove on east side of Pawcatuck River below Westerly, R.I.** Eastward of a line extending from the channelward end of Thompson Dock at the northern end of Thompson Cove 184° to the shore at the southern end of Thompson Cove.

(149) **§110.50 Stonington Harbor, Conn.** (a) Area No. 1. Beginning at the southeastern tip of Wamphassuc Point; thence to the northwesterly end of Stonington Inner Breakwater; thence along the breakwater to

(150) longitude 71°54′50.5″; thence to

(151) 41°20″25.3″, 71°54′50.5″; thence to a point on the shoreline at

(152) 41°20′32″, 71°54′54.8″; thence along the shoreline to the point of beginning.

(153) (b) Area No. 2. Beginning at a point on the shoreline at

(154) 41°19′55.8″N., 71°54′28.9″W.; thence to

(155) 41°19′55.8″N., 71°54′37.1″W.; thence to

(156) 41°20′01.6″N., 71°54′38.8″W.; thence to

(157) 41°20′02.0″N., 71°54′34.3″W.; thence along the shoreline to the point of beginning.

(158) (c) Area No. 3. Beginning at a point on the shoreline at

(159) 41°20′29.5″N., 71°54′43.0″W.; thence to

(160) 41°20′25.6″N., 71°54′48.5″W.; thence to

(161) 41°20′10.7″N., 71°54′48.5″W.; thence to the shoreline at

(162) 41°20′10.7″N.; thence along the shoreline to the point of beginning.

(163) NOTE: A fixed mooring stake or pile is prohibited. The General Statutes of the State of Connecticut authorizes the Harbor Master of Stonington to station and control a vessel in the harbor.

(164) **§110.50a Fishers Island Sound, Stonington, Conn.** An area on the east side of Mason Island bounded as follows:

(165) Beginning at the shore line on the easterly side of Mason Island at latitude 41°20′06″; thence due east about 600 feet to latitude 41°20′06″, longitude 71°57′37″; thence due south about 2,400 feet to latitude 41°19′42″, longitude 71°57′37″; thence due west about 1,000 feet to the shore line on the easterly side of Mason Island at latitude 41°19′42″; thence along the shore line to the point of beginning.

(166) NOTE: The area will be principally for use by yachts and other recreational craft. Temporary floats or buoys for marking anchors will be allowed. Fixed mooring piles or stakes will be prohibited. The anchoring of vessels and the placing of temporary moorings will be under the jurisdiction and the discretion of the local Harbor Master.

(167) **§110.50b Mystic Harbor, Groton and Stonington, Conn.** (a) Area No. 1. Beginning at Ram Point on the westerly side of Mason Island at

(168) 41°19′44″N., 71°58′42″W.; thence to
(169) 41°19′30″N., 71°58′43″W.; thence to
(170) 41°19′36″N., 71°58′58″W.; thence to
(171) 41°19′45″N., 71°58′56″W.; thence to the point of beginning.
(172) (b) Area No. 2. Beginning at a point about 250 feet southerly of Area 1 and on line with the easterly limit of Area 1 at
(173) 41°19′27″N., 71°58′44″W.; thence to
(174) 41°19′19″N., 71°58′45″W.; thence to
(175) 41°19′25″N., 71°58′59″W.; thence to
(176) 41°19′33″N., 71°58′48″W.; thence to the point of beginning.
(177) NOTE: The areas will be principally for use by yachts and other recreational craft. Temporary floats or buoys for marking anchors will be allowed. Fixed mooring piles or stakes are prohibited. All moorings shall be so placed that no vessel, when anchored, shall at any time extend beyond the limits of the areas. The anchoring of vessels and the placing of temporary moorings will be under the jurisdiction and at the discretion of the local Harbor Master.
(178) **§110.50c Mumford Cove, Groton, Conn.** (a) Area No. 1. Beginning at a point on the easterly shore of Mumford Cove at
(179) 41°19′36″N., 72°01′06″W.; to
(180) 41°19′30″N., 72°01′04″W.; thence to the shore at
(181) 41°19′31″N., 72°01′00″W.; and thence along the shoreline to the point of beginning.
(182) (b) Area No. 2. Beginning at a point on the easterly shore of Mumford Cove at
(183) 41°19′15.0″N., 72°00′54.0″W.; thence to
(184) 41°19′14.5″N., 72°00′59.0″W.; thence to
(185) 41°19′11.0″N., 72°00′58.0″W.; thence to
(186) 41°19′10.0″N., 72°00′54.0″W.; thence to
(187) 41°19′12.5″N., 72°00′52.0″W.; thence to
(188) 41°19′14.0″N., 72°00′55.0″W.; and thence to the point of beginning.
(189) NOTE: The areas are principally for use by yachts and other recreational craft. Temporary floats or buoys for marking anchors will be allowed. Fixed mooring piles or stakes will be prohibited. The anchoring of vessels and placing of temporary moorings will be under the jurisdiction, and at the discretion, of the local Harbor Master.
(190) **§110.50d Mystic Harbor, Noank, Conn.** (a) The area comprises that portion of the harbor off the easterly side of Morgan Point beginning at a point at
(191) 41°19′15.0″N., 71°59′13.5″W.; thence to
(192) 41°19′15.0″N., 71°59′00.0″W.; thence to
(193) 41°19′02.5″N., 71°59′00.0″W.; thence to
(194) 41°19′06.0″N., 71°59′13.5″W.; and thence to the point of beginning.
(195) (b) The following requirements shall govern this special anchorage area:
(196) (1) The area will be principally for use by yachts and other recreational craft.
(197) (2) Temporary floats or buoys for marking anchors will be allowed but fixed piles or stakes are prohibited. All moorings shall be so placed that no vessel, when anchored, shall extend beyond the limits of the area.
(198) (3) The anchoring of vessels and the placing of temporary moorings shall be under the jurisdiction and at the discretion of the local harbor master, Noank, Conn.
(199) **§110.51 Groton, Conn.** The waters between an unnamed cove and Pine Island. (a) Beginning at a point on the shoreline of Avery Point at
(200) 41°19′01.0″N., 72°03′45.0″W.; thence to
(201) 41°19′02.0″N., 72°03′38.0″W.; thence to
(202) 41°18′56.6″N., 72°03′36.0″W.; thence to
(203) 41°19′03.0″N., 72°03′21.4″W.; and thence to Jupiter Point at
(204) 41°19′04.0″N., 72°03′21.5″W.
(205) (b) Beginning at a point on the shoreline of Pine Island at
(206) 41°18′47.0″N., 72°03′37.0″W.; to
(207) 41°18′54.5″N., 72°03′35.5″W.; to
(208) 41°19′00.1″N., 72°03′21.0″W.; to
(209) 41°18′53.8″N., 72°03′19.0″W.
(210) NOTE: The areas designated by (a) and (b) of this section are principally for vessels used for recreational purposes. Vessels shall be anchored so that no part of the vessel obstructs the 75 yard wide channel. Temporary floats or buoys for marking the location of the anchor of a vessel at anchor may be used. Fixed mooring piles or stakes are prohibited.
(211) **§110.52 Thames River, New London, Conn.** (a) Area No. 1. An area in the westerly part of Greens Harbor bounded as follows: Beginning at a point on the shore 100 yards southeasterly of the southerly side of Thames Street extended; thence 84°, 420 yards; thence 156°, 425 yards; thence 240°, 210 yards to the shore; and thence northwesterly along the shore to the point of beginning.
(212) (b) Area No. 2. An area in the westerly part of Greens Harbor bounded as follows: Beginning at a point on the shore 15 yards southeasterly of the southerly side of Converse Place extended; thence 54°, 170 yards; thence 114°30′, 550 yards; thence 266°30′, 250 yards; thence 234°, 230 yards, to the shore; and thence northwesterly along the shore to the point of beginning.
(213) (c) Area No. 3. An area on the westerly side of the Thames River in the vicinity of Jacobs Rock, the location of the U.S. Coast Guard Academy Sailing Center, bounded as follows: Beginning at the point on the shore where the north side of the Jacobs Rock causeway meets the western shoreline; thence northerly along the western shore of the Thames River a distance of 200 yards; thence 090°, 240 yards; thence 180°, 200 yards to the Jacobs Rock causeway; thence westerly along the causeway to the point of beginning.
(214) **Note.**–The area designated by paragraph (c) of this section is principally for the use of U.S. Coast Guard Academy and Academy-related boats. Temporary floats or buoys for marking anchors may be used. The anchoring of vessels and the placing of moorings will be under the jurisdiction and at the discretion of the Chief, Waterfront Branch, U.S. Coast Guard Academy, New London, Connecticut.
(215) (d) Area No. 4. An area in the western part of the Thames River, north of the highway bridge, bounded as follows: Beginning at a point 125 yards north of the highway bridge at latitude 41°21′56″N., longitude 72°05′32″W.;
(216) thence easterly to 41°21′56″N., 72°05′27″W.;
(217) thence northerly to 41°22′12″N., 72°05′27″W.;
(218) thence westerly to 41°22′12″N., 72°05′47″W.;
(219) thence southeasterly to 41°22′02″N., 72°05′40″W.;
(220) thence downriver along the charted foul grounds to the point of beginning.
(221) **§110.53 Niantic, Conn.** Beginning on the shoreline at
(222) 41°18′25.3″N., 72°12′16.3″W.; thence to
(223) 41°18′23.3″N., 72°12′11.6″W.; thence to
(224) 41°18′50.7″N., 72°11′51.5″W.; thence to the shore at
(225) 41°18′56.5″N., 72°12′05.6″W.; thence along the shoreline to the point of beginning.

(226) NOTE: This area is for public use, principally for vessels used for a recreational purpose. A temporary float or buoy for marking the location of the anchor of a vessel at anchor may be used. Fixed mooring piles or stakes are prohibited.

(227) **§110.54 Long Island Sound, on west side of entrance to Pataguanset River, Conn.** An area east of Giants Neck (formerly known as Grant Neck) described as follows: Beginning at a point bearing 114°, 75 feet, from the outer end of the breakwater at the south end of Giants Neck; thence 90°, 1,050 feet; thence 22°17′30″, 2,140 feet; thence 283°27′15.5″, 240 feet; thence 220°36′39″, 1,252.6 feet; thence 295°23′16.5″, 326.5 feet; thence 269°02′42.6″, 240 feet; thence 261°46′50.9″, 181.9 feet; thence 226°28′07.7″, 275.9 feet; thence 147°43′27.7″, 449.4 feet; thence 238°01′35.8″, 379.6 feet; and thence approximately 156°31′05.8″, 462.11 feet, to the point of beginning.

(228) **§110.55 Connecticut River, Conn.** (a) West of Calves Island at Old Saybrook. Beginning at a point bearing 254°09′16″, 153 yards, from Calves Island 20 Light; thence 157°, 1,037 yards; thence 175°, 150 yards; thence 265°, 250 yards; thence 350°, 660 yards; thence 337°, 460 yards; and thence approximately 67°, 135 yards, to the point of beginning.

(229) (a–1) Area No. 1, at Essex. Beginning at a point on the shore on the west side of Haydens Point bearing approximately 211°, 270 yards, from Haydens Point Light; thence

(230) 270°, 160 yards; thence

(231) 000°, 140 yards; thence

(232) 300°, 190 yards; thence

(233) 330°, 400 yards; thence

(234) 090°, 60 yards; thence

(235) 150°, 350 yards; thence

(236) 120°, about 434 yards to a point on the shore; thence along the shore to the point of beginning.

(237) (b) Area No. 2, at Essex. Beginning at

(238) 41°21′22″N., 72°22′53″W.; thence

(239) 205°30′, 375 yards; thence

(240) 194°31′, 100 yards; thence

(241) 185°00′, 440 yards; thence

(242) 153°30′, 80 yards; thence

(243) 121°00′, 220 yards; thence

(244) 000°00′, approximately 1060 yards to the point of beginning.

(245) NOTE: The area will be principally for use by yachts and other recreational craft. Temporary floats or buoys for marking anchors will be allowed. Fixed mooring piles or stakes are prohibited. The anchoring of vessels and the placing of temporary moorings will be under the jurisdiction and at the discretion of the local Harbor Master.

(246) (c) West of Brockway Island at Essex. That portion of the waters northwest of a line ranging 238° from latitude 41°22′20.7″, longitude 72°22′49.8″ to the shoreline; southwest of a line connecting a point at latitude 41°22′20.7″, longitude 72°22′49.8″ and a point at latitude 41°22′28.2″, longitude 72°22′56″; and southeast of a line ranging 238° from latitude 41°22′28.2″, longitude 72°22′56″ to the shoreline.

(247) NOTE: This area is principally for vessels used for a recreational purpose. A mooring buoy is permitted. Fixed mooring piles or stakes are prohibited.

(248) (d) Area No. 1, at Eddy Rock Light. Beginning at

(249) 41°26′38″N., 72°27′37″W.; to

(250) 41°26′12″N., 72°27′18″W.; to

(251) 41°26′11″N., 72°27′22″W.; to

(252) 41°26′23″N., 72°27′42″W.; to

(253) 41°26′36″N., 72°27′43″W.: thence extending to the point of beginning.

(254) (e) Area No. 2, at Lord Island. Beginning at

(255) 41°26′11″N., 72°27′16″W.; thence to

(256) 41°26′03″N., 72°27′02″W.; thence to

(257) 41°25′59″N., 72°26′51″W.; thence to

(258) 41°25′58″N., 72°26′52″W.; thence to

(259) 41°26′05″N., 72°27′11″W.; thence to

(260) 41°26′10″N., 72°27′20″W.; thence extending to the point of beginning.

(261) NOTE: The areas designated by paragraphs (d) and (e) of this section are principally for use by yachts and other recreational craft. Fore and aft moorings will be allowed. Temporary floats or buoys for marking anchors in place will be allowed. Fixed mooring piles or stakes are prohibited. All moorings shall be so placed that no vessel, when anchored, shall at any time extend beyond the limits of the areas. The anchoring of vessels and placing of mooring floats or buoys will be under the jurisdiction, and at the discretion of the local Harbor Master. Area 2 will not be used during the shad fishing season.

(262) (e–1) Area No. 1 at Chester. Beginning at a point about 600 feet southeasterly of the entrance of Chester Creek, at

(263) 41°24′23″N., 72°25′41″W.; to

(264) 41°24′05″N., 72°25′41″W.; to

(265) 41°24′05″N., 72°25′32″W.; to

(266) 41°24′23″N., 72°25′32″W.; thence due west about 600 feet to the point of beginning.

(267) NOTE: The area is principally for use by yachts and other recreational craft. A mooring buoy is allowed. Fixed mooring piles or stakes are prohibited.

(268) (e–2) Area No. 2 at Chester. That area south of latitude 41°24′43.9″, west of longitude 72°25′35″, north of latitude 41°24′33.4″, and east of longitude 72°25′40.8″.

(269) NOTE: Area No. 2 may not be used during the shad fishing season, April 1 to June 15, inclusive. A mooring buoy is permitted at other times. Fixed mooring piles or stakes are prohibited.

(270) (f) Vicinity of Mouse Island Bar below Portland. On the north side of the river shoreward of lines described as follows: (1) Beginning at a point bearing 02°, 175 yards, from Mouse Island 73 Light; thence 270°, 480 yards; and thence due north, approximately 230 yards, to the shore. (2) Beginning at the said point bearing 02°, 175 yards, from Mouse Island 73 Light; thence 70°, 400 yards; and thence 350°, approximately 250 yards, to the shore.

(271) (g) Area at Portland. Beginning at a point on the shore, about 700 feet southeasterly from the easterly end of the New York, New Haven and Hartford Railroad Company bridge at

(272) 41°33′55″, 72°38′43″; thence 250° to

(273) 41°33′54″, 72°38′46″; thence 160° to

(274) 41°33′48″, 72°38′43″; thence 145° to

(275) 41°33′44″, 72°38′39″; thence 055° to a point on the shore at

(276) 41°33′47″, 72°38′32″; thence along the shore to the point of beginning.

(277) NOTE: The area will be principally for use by yachts and other recreational craft. Temporary floats or buoys for marking anchors will be allowed. Fixed mooring piles or stakes are prohibited. All moorings shall be so placed that no vessel, when anchored shall at any time extend beyond the limit of the area or closer than 50 feet to the Federal channel limit. The anchoring of vessels and the placing of temporary moorings will be under the jurisdiction, and at the discretion of the local Harbor Master.

(278) **§110.55a Five Mile River, Norwalk and Darien, Conn.** The water area of the Five Mile River beginning at a point on the

southeast shore of Butler Island at latitude 41°03′27.5″N., longitude 73°26′52″W.; thence following the shoreline northerly along the westerly side of Five Mile River to the highway bridge at Route 136 (White Bridge); thence easterly along the southerly side of the highway bridge to the easterly side of Five Mile River; thence following the shoreline southerly along the easterly side of Five Mile River; thence following the shoreline southerly along the easterly side of Five Mile River to a point on the southwest shore at Rowayton at latitude 41°03′30″N., longitude 73°26′47″W., thence 242° to the point of beginning, except those areas within the designated project channel as shown by dotted lines on the Five Mile River on Chart No. 12368 (formerly C and GS Chart No. 221) issued by National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

(279) Note: Under an Act of the Connecticut State Legislature the harbor superintendent, appointed by the Five Mile River Commission, may control moorings and navigation including preventing vessels from anchoring in the Federal project channel.

(280) **§110.56 Noroton Harbor, Darien, Conn.** (a) Beginning at a point on the southwesterly side of Long Neck Point at latitude 41°02′10″, longitude 73°28′44″; thence northwesterly to latitude 41°02′17″, longitude 73°29′11″; thence in a north-northwesterly direction to the southeast side of Pratt Island at latitude 41°02′28″, longitude 73°29′17″; thence following the shoreline around the easterly and northerly sides of Pratt Island, the westerly and northerly sides of Pratt Cove, and the westerly side of the Darien River to the causeway and dam at Gorham Pond on the north; thence along the downstream side of the causeway and dam to the easterly side of the Darien River, thence along the easterly shoreline to the point of beginning.

(281) NOTE: An ordinance of the town of Darien, Conn. requires the Darien Harbor Master's approval of the location and type of any mooring placed in this special anchorage area.

(282) **§110.58 Cos Cob Harbor, Greenwich, Conn.** (a) Area A. Beginning at the mean low water line about 2,800 feet downstream from the easterly end of the New York, New Haven and Hartford Railroad Bridge at

(283) 41°01′23″N., 73°35′40″W.; thence to

(284) 41°01′23″N., 73°35′42″W.; thence to

(285) 41°01′02″N., 73°35′50″W.; thence to

(286) 41°01′02″N., 73°35′48″W.; thence extending along the mean low water line to the point of beginning.

(287) (b) Area B. Beginning at the mean low water line about 700 feet downstream from the westerly end of the New York, New Haven and Hartford Railroad Bridge at

(288) 41°01′42″N., 73°35′47″W.; thence to

(289) 41°01′42″N., 73°35′45″W.; thence to

(290) 41°01′23″N., 73°35′44″W.; thence to

(291) 41°01′04″N., 73°35′52″W.; thence to

(292) 41°01′02″N., 73°35′55″W.; thence to

(293) 41°01′02″N., 73°36′00″W.; thence to

(294) 41°01′05″N., 73°36′00″W.; thence along the mean low water line to the point of beginning.

(295) NOTE: The areas are principally for use by yachts and other recreational craft. Temporary floats or buoys for marking anchors will be allowed. Fixed mooring piles or stakes are prohibited. The anchoring of vessels and placing of temporary moorings will be under the jurisdiction, and at the discretion of the local Harbor Master. All moorings shall be so placed that no moored vessels will extend into the waters beyond the limits of the areas or closer than 50 feet to the Federal channel limits.

(296) **§110.60 Port of New York and vicinity. (a) Huntington Harbor.** Beginning on the shoreline at latitude 40°54′19.5″, longitude 73°26′07.9″; thence to latitude 40°54′19.5″, longitude 73°26′02.4″; thence along the eastern shoreline to the Mill Dam Road Bridge; thence along the downstream side of the bridge to the westerly side of Huntington Harbor; thence along the western shoreline to the point of beginning.

(297) **(a–1) Centerport Harbor.** Beginning at the shoreline at latitude 40°54′00″, longitude 73°22′55.3″; thence to latitude 40°54′03.8″, longitude 73°22′52.1″; thence along the eastern shoreline to the Mill Dam Bridge; thence along the downstream side of the bridge to the westerly side of Centerport Harbor; thence along the western shoreline to the point of beginning.

(298) **(a–2) Northport Harbor.** Beginning on the shoreline at

(299) 40°54′25.0″N., 73°22′05.0″W.; thence to

(300) 40°54′37.5″N., 73°21′32.9″W.; thence to

(301) 40°53′33.1″N., 72°21′28.2″W.; thence to

(302) 40°53′25.8″N., 73°21′37.7″W.; thence along the shoreline to the point of beginning.

(303) NOTE: The areas designated by paragraphs (a), (a–1), and (a–2) of this section are principally for vessels used for a recreational purpose. A vessel shall be anchored so that no part of the vessel comes within 50 feet of the marked channel. A temporary float or buoy for marking the location of the anchor of a vessel at anchor may be used. Fixed mooring piles or stakes are prohibited.

(304) (aa) South of Perth Amboy, New Jersey. The waters bounded by a line connecting the following points:

(305) 40°30′19.0″N., 74°15′46.0″W.

(306) 40°30′17.0″N., 74°15′39.0″W.

(307) 40°30′02.8″N., 74°15′45.0″W.

(308) 40°29′36.0″N., 74°18′09.2″W.

(309) 40°29′30.8″N., 74°16′22.0″W.

(310) 40°29′47.2″N., 74°16′52.0″W.

(311) 40°30′02.0″N., 74°16′43.0″W. and thence along the shoreline to the point of beginning.

(312) **(b) New Rochelle Harbor, west and south of Glen Island.** That portion of Long Island Sound Anchorage No. 1 (described in §110.155) between Hog Island, Travers Island, Neptune Island and Glen Island and the mainland, to the westward of a line extending from the cupola at the southeast extremity of Glen Island to the easternmost extremity of Hog Island, and to the northeastward of a line extending from the southwest extremity of Hog Island to the southeast corner of Travers Island; excluding therefrom all waters within 25 feet of the 50-foot channel west and south of Glen Island.

(313) **(b–1) New Rochelle, Echo Bay.** That portion of Long Island Sound Anchorage Grounds No. 1–A and No. 1–B (described in §110.155(a) (2) and (3)) northwest of a line ranging 030°30′ from the northeastern tip of Davenport Neck to the southeastern tip of Premium Point.

(314) NOTE: An ordinance of the Town of New Rochelle N.Y., requires a permit from the New Rochelle Harbor Master or the New Rochelle Superintendent of Bureau of Marinas, Docks and Harbors before any mooring is placed in this special anchorage area.

(315) **(c) New Rochelle Harbor, east of Glen Island.** That portion of Long Island Sound Anchorage No. 1 (as described in §110.155(a)) between Glen Island and Goose Islands breakwater, northward of a line extending from the northwest end of Goose Islands breakwater to the cupola at the north end of the bathing beach on Glen Island.

(316) **(c–1) City Island Harbor, east of City Island.** That portion of Long Island Sound Anchorage No. 1 (described in §110.155) between City Island and Hart Island eastward of a line ranging 339° between the steeple on City Island and the western-

most corner of the Administration Building at Orchard Beach; southward of a line ranging 50° between the northerly abutment on the westerly end of the City Island drawbridge and tangent to Chimney Sweeps; westward of a line tangent to Chimney Sweeps and ranging 163° toward the west gable on Rat Island and westward of a line tangent to the easterly side of High Island and ranging 152°30′ from the west gable on Rat Island; and northward of a line ranging 56° between the Buryea Pier at Belden Point, City Island to Hart Island Light, except for the cable and pipe line area extending between City Island and Hart Island.

(317) **(d) Eastchester Bay, west of City Island.** That portion of Long Island Sound Anchorage No. 1 (as described in §110.155(a)) west of City Island and within the following limits: Northward of a line ranging 244° from the Duryea Pier at the foot of City Island Avenue to Big Tom Nun Buoy No. 2 (latitude 40°50′01″, longitude 73°47′25″); thence northeastward of a line ranging 329° from Big Tom Nun Buoy No. 2 through the Nun Buoy (latitude 40°50′46″, longitude 73°48′01″) off the southern end of Rodman Neck; southeastward of a line ranging 205° from the east abutment of the City Island Bridge through the south tower of the Bronx-Whitestone Bridge; and southward of a line ranging 90° from the Pelham War Memorial in Pelham Bay Park and the steeple of the church at the southeast corner of Elizabeth Street and City Island Avenue.

(318) **(e) Eastchester Bay, along west shore.** That portion of Long Island Sound Anchorage No. 1 (as described in §110.155 (a) along the west shore of Eastchester Bay north of and including Weir Creek, shoreward of a line ranging 349° from the end of the timber pier at the foot of Pope Place, Edgewater, and through the transmission tower at the northeast side of the draw of the New York, New Haven and Hartford Railroad Bridge over Eastchester Creek, and having as its northerly limit the line ranging 79° through the row of telephone poles along the north side of Watt Avenue.

(319) **(f) Eastchester Bay, Locust Point Harbor.** That portion of Long Island Sound Anchorage No. 2 (as described in§110.155(a)) included within the limits of Locust Point Harbor between Wright Island and Throgs Neck and to the westward of a north and south line (longitude 73°47′58″) through the southerly corner of the concrete culvert at the southerly end of the stone wall at Locust Point on Wright Island.

(320) **(g) Manhasset Bay, west area at Manorhaven.** That portion of Long Island Sound Anchorage No. 4 (described in §110.155) westward of a line (longitude 73°42′53″) ranging 180° from the end of the Town of North Hempstead pier at Manorhaven; northwestward of a line ranging 233° from the intersection of the shore and the northerly line of Corchang Avenue (extended) on Tom Point toward Plum Point Shoal Buoy 3 (latitude 40°49′48.5″, longitude 73°43′25″); and northeastward of a line ranging 119° from the cupola on Plum Point toward the inshore end of the northerly side of the Purdy Boat Company pier at Port Washington; excluding therefrom the seaplane restricted area described in §207.35.

(321) **(h) Manhasset Bay, east area at Manorhaven.** That portion of Long Island Sound Anchorage No. 4 (described in §110.155) bounded as follows: Beginning at the shoreline at

(322) 40°50′18.0″N., 73°42′51.0″W.; thence 180° to

(323) 40°50′05.0″N., 73°42′51.0″W.; thence 132° to

(324) 40°49′58.0″N., 73°42′41.0″W.; thence 234° to

(325) 40°49′48.5″N., 73°42′58.0″W.; thence 090° to

(326) 40°49′48.5″N., 73°42′22.5″W.; thence 020° to

(327) 40°50′01.5″N., 73°42′16.0″W.; thence due north to the point of land at Manorhaven northeasterly of Tom Point; thence southwesterly along the shore to and around Tom Point and north-northwesterly along the shore to the point of beginning.

(328) **(i) Manhasset Bay, at Port Washington.** That portion of Long Island Sound Anchorage No. 4 (described in §110.155) southward of latitude 40°49′44″; eastward of a line ranging 161° from the offshore end of the Yacht Service, Inc., pier on the Copp Estate at Manorhaven toward the flagpole on the end of the Whitney Dock at Plandome; and northward of latitude 40°49′06″.

(329) **(i–1) Manhasset Bay, at Kings Point.** That portion of Long Island Sound Anchorage No. 4 (described in §110.155 (a) (6)) bounded as follows: Beginning at a point on the shoreline at

(330) 40°49′24.4″N., 73°43′41.5″W.; thence to

(331) 40°49′32.5″N., 73°43′30.1″W.; thence to

(332) 40°49′42.9″N., 73°43′55.2″W.; thence to

(333) 40°49′39.0″N., 73°43′59.0″W.; thence along the shoreline to the point of beginning.

(334) **(j) Manhasset Bay, at Plandome.** That portion of Long Island Sound Anchorage No. 4 (described in §110.155) southward of the line of the Whitney Dock at Plandome extended; eastward of a line ranging 186° from the Manhasset-Lakeville Water District tank at Thomaston toward the tank at Tom Point; and northward of Thompson's pier at Plandome extended.

(335) **(j–1) Kings Point.** That portion of Long Island Sound Anchorage No. 4 (described in §110.155) beginning on the shoreline at

(336) 40°49′00.3″N., 73°45′43.5″W.; thence to

(337) 40°49′03.9″N., 73°45′47.1″W.; thence to

(338) 40°49′12.9″N., 73°45′41.2″W.; thence to

(339) 40°49′18.7″N., 73°45′30.3″W.; thence to

(340) 40°49′08.2″N., 73°45′19.0″W.; thence along the shoreline to the point of beginning.

(341) NOTE: Temporary floats or buoys for marking anchors in place are allowed. Fixed mooring piles or stakes are prohibited. An ordinance of the village of Kings Point regulates mooring and anchoring in the area which includes this special anchorage area.

(342) This special anchorage area is within the limits of Long Island Sound Anchorage No. 4 as described in §110.155(a) (6).

(343) **(k) Little Neck Bay.** That portion of Long Island Sound Anchorage No. 5 (as described in §110.155(a) (7)), southeastward of a line ranging approximately 20°30′ from the flagpole at Fort Totten, Willets Point to the outermost dolphin of the U.S. Merchant Marine Academy's pier at Kings Point, Long Island.

(344) **(l) Flushing Bay, north area.** That portion of East River Anchorage No. 10 (described in §110.155), in the vicinity of College Point, southeastward of a line tangent to the west side of College Point ranging from College Point Reef Light to the offshore end of the most northerly rack of the former College Point Ferry slip.

(345) **(l–1) Flushing Bay, north central area.** That portion of East River Anchorage No. 10 (described in §110.155) on the east side of Flushing Bay, southward of a line projecting due west from the tank located on the north side of the foot of 15th Avenue, College Point, eastward of a line parallel to, and 50 feet east of the east channel line in Flushing Bay, and northward of a line ranging 42° from Flushing Bay Light 8 on the north end of the dike.

(346) **(l–2) Flushing Bay, south central area.** That portion of East River Anchorage No. 10 (described in §110.155) on the east side of Flushing Bay, southward of a line ranging 52° from a point at latitude 40°46′29″, longitude 73°51′16″; eastward of a line parallel to, and 50 feet east of the east channel line in Flushing Bay, and northward of a line ranging 67° from a point at latitude 40°46′12″, longitude 73°51′06″ to the shore.

(347) **(m) Flushing Bay, southeast area.** That portion of East River Anchorage No. 10 (described in §110.155) south of a line ranging 60° from the northeasterly corner of the municipal pier at the Flushing Bay Boat Basin toward the stack (latitude 40°45′54″, longitude 73°50′29″) of the New York City Asphalt Plant.

(348) **(m–1) Flushing Bay, southwest area.** That portion of East River Anchorage No. 10 (described in §110.155) southwest of the breakwater, projecting offshore and southeast of La Guardia Airport; southerly of a line extending from the offshore end of the breakwater at latitude 40°45′53″, longitude 73°51′06″ to Flushing Bay Light 12 on the southerly end of the dike; westerly of a line extending from Flushing Bay Light 12 to a point at latitude 40°45′48″, longitude 73°51′00″; northwesterly of a line ranging 229° from the point at latitude 40°45′48″, longitude 73°51′00″ to the shore.

(349) **(m–2) Flushing Bay, west area.** That portion of East River Anchorage No. 10 (described in §110.155) adjacent to the northeasterly side of La Guardia Airport, easterly of a line ranging 39° from the control tower at La Guardia Airport to College Point Reef Light, southward of a line extending due west from the tank on the north side of the foot of 15th Avenue, College Point, westward of a line parallel to, and 100 feet west of the west channel line in Flushing Bay and northerly of a line extending due west from Flushing Bay Light 8 on the north end of the dike.

(350) NOTE: The anchoring of vessels and placing of temporary moorings in anchorage areas described in paragraphs (m) and (m–1) of this section will be under the jurisdiction, and at the discretion of the local Harbor Master appointed by the City of New York.

(351) **(n) Bowery Bay.** All of that portion of East River Anchorage No. 10 (described in §110.155) on the west side of Bowery Bay.

(352) **(o) Hudson River, at Yonkers.** Northward of a line on range with the footbridge across the New York Central Railroad Company tracks at the southerly end of Greystone Station; eastward of a line on range with the square, red brick chimney west of the New York Central Railroad Company tracks at Hastings-on-Hudson and the easterly yellow brick chimney of the Glenwood powerhouse of the Yonkers Electric Light and Power Company; and southward of a line on range with the first New York Central Railroad Company signal bridge north of the Yonkers Yacht Club.

(353) **(o–1) Hudson River, at Glenwood, Yonkers, New York.** That portion of the waters of the easterly side of Hudson River and adjacent to the northerly limits of the City of Yonkers, New York, northward of the northerly face of an outfall sewer pipe which is 2,200 feet north of the Glenwood powerhouse; east of a line on range with the northwest corner of the powerhouse bulkhead and the westerly end of the outfall sewer pipe; and southward of a line ranging 110° true to the first New York Central Railroad Company's signal bridge, north of the Yonkers Corinthian Yacht Club house.

(354) **(o–2) Hudson River, at Nyack.** That portion of the waters north of a line ranging 270° from latitude 41°05′35.1″, longitude 73°54′27″, to the shoreline; west of a line connecting latitude 41°05′35.1″, longitude 73°54′27″, and latitude 41°06′06.3″, longitude 73°54′27″; and south of a line ranging 270° from latitude 41°06′06.3″, longitude 73°54′27″ to the shoreline.

(355) NOTE: The area is principally for use by yachts and other recreational craft. A mooring buoy is permitted.

(356) **(o–3) Hudson River, North Manhattan.** That area enclosed by coordinates starting at

(357) 40°51′08.0″N., 073°56′36.1″W., to

(358) 40°51′09.5″N., 073°56′40.9″W., to

(359) 40°52′08.1″N., 073°55′57.0″W., thence along the shoreline to the point of the beginning.

(360) **(p) Hudson River, at Hastings-on-Hudson.** That portion of the waters northerly of a line extending from a point at latitude 40°59′56.0″, longitude 73°53′11.3″ to the shore at latitude 40°59′55.7″; easterly of lines extending from the aforementioned point at latitude 40°59′56.0″, longitude 73°53′11.3″ through a point at latitude 41°00′04.6″, longitude 73°53′10.9″ to a point at latitude 41°00′14.6″, longitude 73°53′08.2″; and southerly of a line extending from the last mentioned point to the shore at latitude 41°00′14.2″.

(361) **(p-1) Hudson River, at Tarrytown, NY.** Beginning at a point on the shoreline at

(362) 41°04′20″N., 73°52′04″W.; thence to

(363) 41°04′20″N., 73°52′12″W.; thence to

(364) 41°04′13″N., 73°52′12″W.; thence to

(365) 41°04′13″N., 73°52′00″W.;

(366) thence along the shoreline to the point of beginning.

(367) **(p-2) Hudson River, at West Point.** That portion of the waters of the westerly side of the Hudson River, adjacent to the United States Military Academy, shoreward of a line connecting the extreme northwest corner of the south dock with a projection of land located approximately 1,575 feet north thereof.

(368) **(p-3) Hudson River, at Hyde Park, N.Y.** Beginning at a point on the shoreline at

(369) 41°49′06.5″N., 73°56′35.3″W.; thence to

(370) 41°49′06.5″N., 73°56′42.5″W.; thence to

(371) 41°49′12.5″N., 73°56′40.7″W.; thence to

(372) 41°49′12.5″N., 73°56′37.7″W.; thence along the shoreline to the point of beginning.

(373) **(q) Newark Bay, southeast area.** That portion of the waters on the southeasterly side of Newark Bay, north of a line ranging from the offshore end of the breakwater north of the former Elco Boat Works through Newark Bay Channel Buoy 6; east of a line ranging from a point 200 yards east of the east pier of the lift span of the Central Railroad Company of New Jersey bridge to a point 200 yards east of the east end of the lift span of the Pennsylvania-Lehigh Valley Railroad bridge; and south of a line ranging from the southwest corner of the bulkhead at Bayonne City Park through Newark Bay Channel Buoy 11.

(374) NOTE: This special anchorage is within the limits of General Anchorage No. 37, described in §110.155(h) (4).

(375) **(r) Newark Bay, southwest area.** That portion of waters on the southwesterly side of Newark Bay, north of a line ranging from Kill Van Kull Light 16 through Kill Van Kull Light 18 and Kill Van Kull Channel Buoy 20, northeast of a line through Kill Van Kull Channel Buoy 20 perpendicular to the Singer Manufacturing Company's bulkhead, and southeast of a line 150 feet east of and parallel to the Singer Manufacturing Company's bulkhead, and south of a line 250 feet south of and parallel to the Central Railroad Company of New Jersey bridge and west of a line perpendicular to the dike at Kill Van Kull Light 16, excluding therefrom the "Pipe Line Area."

(376) NOTE: The greater portion of this special anchorage is within the limits of general anchorage No. 34, described in §110.155(h) (1).

(377) **(r–1) Great Kills Harbor.** Beginning at a point on the shoreline at

(378) 40°32′05.6″N., 74°08′24.2″W.; thence to

(379) 40°32′06.7″N., 74°08′27.6″W.; thence to

(380) 40°32′19.0″N., 74°08′23.1″W.; thence to

(381) 40°32′27.8″N., 74°08′25.9″W.; thence to

(382) 40°32′40.2″N., 74°08′10.5″W.; thence to

(383) 40°32′44.2″N., 74°08′12.9″W.; thence along the northern and eastern shoreline to the point of beginning.

(384) NOTE: The special anchorage area is principally for use by yachts and other recreational craft. A temporary float or buoy for marking the location of the anchor of a vessel at anchor may be used. Fixed mooring piles or stakes are prohibited. Vessels shall be anchored so that no part of the vessel comes within 50 feet of the marked channel.

(385) This special anchorage area is within the limits of General Anchorage No. 28 described in §110.155(f)(3).

(386) **(s) Jamaica Bay.** That portion of the waters on the westerly side of Jamaica Bay, westerly of a line ranging from Island Channel Buoy 21 through Island Channel Buoy 23, northward of a line ranging from Island Channel Buoy 21 to the north abutment of the Shore Parkway Bridge across Paerdegat Basin, and southward of a line ranging 310° from Island Channel Buoy 23.

(387) **(s–1) Jamaica Bay, south area.** That portion of Broad Channel westerly of a line bearing 190°30′ from the northerly terminus of the New York City Transit Authority trestle across Broad Channel to latitude 40°35′50″, longitude 73°49′06″, and thence northerly of a line bearing 254° to the shore.

(388) NOTE: The area will be principally for use by yachts and other recreational craft. Temporary floats or buoys for marking anchors will be allowed. The Captain of the Port of New York is authorized to issue permits for maintaining mooring buoys within the anchorage. The method of anchoring these buoys shall be as prescribed by the Captain of the Port. No vessel shall anchor in the anchorage in such a manner as to interfere with the use of a duly authorized mooring buoy. The Captain of the Port, New York regulations in §110.155(1)(7) apply.

(389) **(t) Cold Spring Harbor.** That portion of the waters of Cold Spring Harbor easterly of a line ranging from the Cupola in the extreme inner harbor through Cold Spring Harbor Light; southerly of a line ranging from the southernmost point of an L-shaped pier off Wawepex Grove through the Clock Tower at Laurelton and northerly of a line ranging from the outer end of the Socony Mobil Oil Company's pier at Cold Spring Harbor through the Clock Tower at Laurelton, with the exception of an area within a 300-foot radius of the outer end of the Socony Mobil Oil Company's pier.

(390) **(u) Oyster Bay Harbor, New York.** That portion of Oyster Bay Harbor adjacent to the easterly side of Centre Island, westerly of a line on range with Cold Spring Harbor Light and the Stone House on the end of Plum Point, Centre Island.

(391) **(u–1) Hempstead Harbor, New York.** That portion of the waters of Hempstead Harbor southerly of the Glen Cove Breakwater, northerly of a line ranging from "Dome" at Sea Cliff through Hempstead Harbor Buoy 9, and easterly of a line ranging from Glen Cove Breakwater Light through Hempstead Harbor Anchorage Buoys "A" and "B" and Hempstead Harbor Buoy 9, except for the entrance to Glen Cove Creek as defined by Hempstead Harbor Anchorage Buoy "A" and Glen Cove Entrance Buoy 1 on the north side of the entrance, and Hempstead Harbor Anchorage Buoy "B" the Glen Cove Entrance Buoy 2 on the south side of the entrance.

(392) **(u–2) Harbor of Oyster Bay, Oyster Bay, New York.** The water area north of the town of Oyster Bay enclosed by a line beginning on the shoreline at

(393) 40°52′35.5″N., 73°32′17.0″W.; thence to

(394) 40°52′59.5″N., 73°32′18.0″W.; thence to

(395) 40°53′00.0″N., 73°30′53.0″W.; thence to

(396) 40°52′39.0″N., 73°30′54.0″W.; thence to

(397) 40°52′25.0″N., 73°31′18.0″W.; thence following the shoreline to the point of beginning.

(398) **(u–3) Harbor of Oyster Bay, New York, Moses Point to Brickyard Point.** That portion of the waters of the Harbor of Oyster Bay enclosed by a line beginning at Moses Point on Centre Island at

(399) 40°53′11″N., 73°31′14″W.; thence to

(400) 40°53′02″N., 73°31′22″W.; thence to

(401) 40°53′02″N., 73°32′00″W.; thence to

(402) 40°53′06″N., 73°32′00″W.; thence following the shoreline to the point of beginning.

(403) **Note.**–The anchoring of vessels and placement of temporary moorings in anchorage areas described in paragraphs (u), (u–2), and (u–3) of this section will be under the jurisdiction of the local Harbormaster appointed in accordance with Article 12 of the Village Ordinance of the Village of Centre Island, New York.

(404) **(v) Hudson River, at Coeymans, New York.** That portion of the waters of the westerly side of Hudson River, west of Coeymans Middle Dike, north of a line bearing due west from a point 700 feet south of Upper Hudson River Light No. 43, and south of a line bearing due west from Upper Hudson River Light No. 45, except for an area 125 feet wide, adjacent to and east of the bulkhead fronting the Village of Coeymans and Barren Island Dike.

(405) **(w) Hudson River, at Cedar Hill, New York.** That portion of the westerly side of the Hudson River, adjacent to Cedar Hill Dike, 250 feet in width, bounded on the south by the northerly side of the cut in the dike at the junction of the Vloman Kill and the Hudson River, and extending northerly therefrom 1,600 feet.

(406) **(x) Sheepshead Bay–(1) Western Area.** South of a line 25 feet south of and parallel to the bulkhead wall along the south side of Emmons Avenue; east of a line 200 feet east of and parallel to the prolonged west line of East 15th Street; north of a line 75 feet north of and parallel to the bulkhead wall along the north side of Shore Boulevard between Amherst Street and Dover Street and as prolonged to a point 315 feet south of the bulkhead wall along the south side of Emmons Avenue and 25 feet west of the prolonged west side of Ocean Avenue; and west of a line parallel to and 25 feet west of the prolonged west line of Ocean Avenue.

(407) **(2) Northern Area.** South of the established U.S. pierhead line on the north side of the bay; west of the prolonged west line of Coyle Street; north of a line ranging from a point 90 feet south of said pierhead line in said prolonged west side of Coyle Street to the intersection of the south line of Shore Boulevard and the west line of Kensington Street; north of a line parallel to and 325 feet north of the bulkhead wall along the north side of Shore Boulevard; northeast of a line ranging from the point of intersection of the last-mentioned line with the prolonged east line of East 28th Street, toward a point on the prolonged east line of East 27th Street and 245 feet south of the established U.S. pierhead line on the north side of the bay; and east of the prolonged east side of East 27th Street.

(408) **(3) Southern Area.** South of a line extending from a point 175 feet northerly of the bulkhead wall along the north side of Shore Boulevard (perpendicular distance) and in the prolonged west side of Hastings Street to a point on the prolonged east side of Mackenzie Street 125 feet north of the bulkhead wall on the north side of Shore Boulevard; thence south of a line parallel to and 125 feet northerly of the bulkhead wall along the north side of Shore Boulevard from the last-mentioned point to the prolonged west line of Coyle Street; north of a line parallel to and 25 feet north of the bulkhead wall along the north side of Shore Boulevard; and east of the prolonged west side of Hastings Street.

(409) **(4) Captain of the Port Regulations.** In Sheepshead Bay, New York, Western, Northern, and Southern Special Anchorage Areas, the following applies:

(410) (i) Two anchors shall be used. The anchor minimum weight and minimum chain size shall be as shown in table 110.60(x)(4).

(411) (ii) (ii) The area is principally for vessels used for a recreational purpose.

(412) (iii) The area is principally for vessels used for a recreational purpose.

Table 110.60(x)(4)

Vessel length, in feet	Anchor weight, in pounds per anchor	Chain size, in inches
15 or less	100	5/16
Greater than 15 but not greater than 21.	150	3/8
Greater than 21 but not greater than 26.	200	3/8
Greater than 26	10 per foot of vessel length.	1/2 for each anchor whose weight is not greater than 400 lbs., 5/8 for each anchor whose weight is greater than 400 lbs.

(413) (y) **Coecles Harbor at Shelter Island, New York.** That portion of Coecles Harbor bounded on the North by a line drawn between the northernmost point of land at Sungic Point and latitude 41°04′09″N., longitude 72°17′54″W., thence eastward along the shoreline to the point of origin.

(414) (y-1) **West Neck Harbor at Shelter Island, New York.** That portion of West Neck Harbor bounded on the North by a line drawn between 41°02′48″N., 72°20′27″W. and a point on Shell Beach located at 41°02′29″N., 72°20′59″W.; thence eastward along the shoreline to the point of origin.

(415) (z) **Point Comfort at Keansburg, New Jersey.** This special anchorage is adjacent to the amusement pier at Point Comfort on Raritan Bay and is bounded as follows: Beginning on the Keansburg shore at

(416) 40°27′19″N., 74°08′25″W.; to

(417) 40°27′38″N., 74°08′52″W.; to

(418) 40°27′52″N., 74°08′32″W.; to

(419) 40°27′50″N., 74°07′45″W.; to

(420) 40°27′14″N., 74°07′46″W; and thence returning westward along the shoreline to point of origin.

Subpart B–Anchorage Grounds

(421) **§110.140 Buzzards Bay, Nantucket Sound, and adjacent waters, Mass. (a) New Bedford Outer Harbor–(1) Anchorage A.** West of Sconticut Neck, and shoreward of a line described as follows: Beginning at a point 100 yards southwest of Fort Phoenix Point; thence 154° along a line which passes 100 yards east of New Bedford Channel Buoys 8, 6, and 4, to a point bearing approximately 130°, 225 yards, from New Bedford Channel Buoy 4; thence 87°, 340 yards; thence 156° along a line approximately one mile to its intersection with a line ranging 87° from the cupola on Clarks Point; thence 87° to Sconticut Neck.

(422) **(2) Anchorage B.** Southeast of a line ranging 222° from the southwest corner of Fort Phoenix to the New Bedford shore; west of a line ranging 154° from Palmer Island Light to Butler Flats Light; and north of a line bearing 267° from Butler Flats Light to the shore.

(423) **(b) Buzzards Bay near entrance to approach channel to Cape Cod Canal–(1) Anchorage C.** West of a line parallel to and 850 feet westward from the centerline of Cleveland Ledge Channel; north of a line bearing 129° from the tower on Bird Island; east of a line bearing 25°30′ and passing through Bird Island Reef Bell Buoy 13; and south of a line bearing 270° from Wings Neck Light.

(424) Each vessel must obtain permission to proceed to Anchorage C from the U.S. Army Corps of Engineers Cape Cod Canal Control traffic controller.

(425) **(2) Anchorage D.** Beginning at a point bearing 185°, 1,200 yards, from Hog Island Channel 4 Light; thence 129° to a point bearing 209°, approximately 733 yards, from Wings Neck Light; thence 209° to Southwest Ledge Buoy 10; thence 199° along a line to its intersection with a line bearing 129° from the tower on Bird Island; thence 309° to a point 850 feet easterly, right angle distance, from the centerline of Cleveland Ledge Channel; thence northeasterly along a line parallel to and 850 feet eastward from the centerline of Cleveland Ledge Channel to its intersection with a line bearing 218°30′ from the point of beginning; thence 38°30′ to the point of beginning.

(426) Each vessel must obtain permission to proceed to Anchorage D from the U.S. Army Corps of Engineers Cape Cod Canal Control traffic controller.

(427) (3) **Anchorage L**-(east side is preferred). The waters bounded by a line connecting the following points:

(428) 41°34′44″N., 70°42′42″W.; to

(429) 41°35′16″N., 70°43′23″W.; to

(430) 41°33′22″N., 70°46′02″W.; to

(431) 41°32′50″N., 70°45′22″W. and thence to the beginning.

(432) (4) **Anchorage M**-(west side). The waters bounded by a line connecting the following points:

(433) 41°35′35″N., 70°44′47″W.; to

(434) 41°36′24″N., 70°45′53″W.; to

(435) 41°35′00″N., 70°47′53″W.; to

(436) 41°34′12″N., 70°46′47″W. and thence to the beginning.

(437) (5) Each vessel that anchors in these anchorages must notify the U.S. Army Corps of Engineers Cape Cod Canal Control traffic controller when it anchors, and provide the vessel's name, length, draft, cargo, and its position.

(438) (6) Each vessel anchored in these anchorages must notify U.S. Army Corps of Engineers Cape Cod Canal Control traffic controller when it weighs anchor.

(439) (7) No vessel may anchor unless it maintains a bridge watch, guards and answers Channel 16 FM, and maintains an accurate position plot.

(440) (8) No vessel may anchor unless it maintains the capability to get underway within 30 minutes; except with prior approval of the Coast Guard Captain of the Port Providence.

(441) (9) No vessel may anchor in a "dead ship" status (propulsion or control unavailable for normal operations) without the prior approval of the Coast Guard Captain of the Port Providence.

(442) (10) No vessel may conduct lightering operations within these anchorages.

(443) **(c) Vineyard and Nantucket Sounds–(1) Anchorage E.** South of a line beginning at a point bearing 180° about 3.25 miles from Cuttyhunk Light; thence 65° to a point bearing 180°, 0.625 mile from Nashawena Lighted Whistle Buoy; thence 57°30′ passing 600 yards northerly of Middle Ground Lighted Bell Buoy 25A, to a point bearing 145°, 1.25 miles from Nobska Point Light; southwest of a line ranging 113° through West Chop Buoy 25 to East Chop Flats Bell Buoy 23; and west of a line bearing 163° between East Chop Flats Bell Buoy 23 and Lone Rock Buoy 1; and northerly of a line bearing 269° between Lone Rock Buoy 1 and a point on the mainland at Oak Bluffs about 0.30 mile southerly of Oak Bluffs Wharf.

(444) **(2) Anchorage F.** Southeast of the Elizabeth Islands, north of a line ranging 97°30′ from Cuttyhunk Light toward Nashawena Lighted Whistle Buoy to a point 0.375 mile from that buoy; northwest of a line bearing 57°30′ from the last-named point to a point opposite the entrance to Woods Hole; and southwest of a line from the shore of Nonamesset Island bearing 114° and ranging through West Chop Light and East Chop Light.

(445) **(3) Anchorage G.** South of a line beginning at a point on the mainland at Oak Bluffs about 0.30 mile southerly of Oak Bluffs Wharf bearing 89° to Lone Rock Buoy 1; thence 113° from Lone Rock Buoy 1 to Outer Flats Bell Buoy 17; thence 86° to Cross Rip Lightship; thence 118°30′ to Tuckernuck Shoal Bell Buoy 7; thence ranging 149° toward Brant Point Light to the breakwater at Brant Point.

(446) **(4) Anchorage H.** In the vicinity of Squash Meadow shoal, east of a line ranging 163° through Squash Meadow West End Buoy 21; north of lines parallel to and 0.5 mile northerly from lines joining Lone Rock Buoy 1, Outer Flats Bell Buoy 17, and Cross Rip Lightship; and south of a line ranging 97° from East Chop Light toward Cross Rip Lightship.

(447) **(5) Anchorage I.** Northerly of a line ranging 109° from Nobska Point Light toward Hedge Fence Lighted Horn and Gong Buoy 16, and of a line ranging 97°30′ through Hedge Fence East End Buoy to Halfmoon Shoal Lighted Bell Buoy 12, thence 73° to Handkerchief Shoal Buoy 16, and thence to the westernmost point of Monomoy Island.

(448) **(6) Anchorage J.** East of a line bearing 329°, parallel to and 0.875 mile northeasterly of a line running from Brant Point Light through Tuckernuck Shoal Bell Buoy 7, from Coatue Beach to a point 1.25 miles southeasterly from a line between Halfmoon Shoal Lighted Bell Buoy 12 and Handkerchief Shoal Buoy 16; thence 73°, parallel to and 1.25 miles southeasterly from a line running from Halfmoon Shoal Lighted Bell Buoy 12 through Handkerchief Shoal Buoy 16, to a point bearing 215° from Stone Horse North End Lighted Bell Buoy 9; thence 35° to Stone Horse North End Lighted Bell Buoy 9; thence 70° to a point bearing 207° from Pollock Rip Lightship; and thence 27° through, and to a point 5.0 miles northeasterly from, Pollock Rip Lightship.

(449) **(7) Anchorage K.** North of a line tangent to the southeasterly edge of Monomoy Point and extending to Bearse Shoal North End Buoy 2A and west of a line bearing 7° from Bearse Shoal North End Buoy 2A to Chatham Bar Buoy 2.

(450) **(d) The regulations.** (1) Floats or buoys for marking anchors or moorings in place will be allowed in all area. Fixed mooring piles or stakes are prohibited.

(451) (2) Except in cases of great emergency, no vessels shall be anchored in New Bedford Outer Harbor, Buzzards Bay near the entrance to the approach channel to Cape Cod Canal, or Vineyard and Nantucket Sounds, outside of the anchorage areas defined in paragraphs (a) to (c) of this section.

(452) (3) Anchors must not be placed outside the anchorage areas, nor shall any vessel be so anchored that any portion of the hull or rigging will at any time extend outside the boundaries of the anchorage area.

(453) (4) Any vessel anchoring under the circumstances of great emergency outside any anchorage area must be placed near the edge of the channel and in such position as not to interfere with the free navigation of the channel, nor obstruct the approach to any pier nor impede the movement of any boat, and shall move away immediately after the emergency ceases or upon notification by an officer of the Coast Guard.

(454) (5) A vessel upon being notified to move into the anchorage limits or to shift its position in anchorage grounds must get under way at once or signal for a tug, and must change position as directed with reasonable promptness.

(455) (6) Whenever the maritime or commercial interests of the United States so require, any officer of the Coast Guard is hereby empowered to shift the position of any vessel anchored within the anchorage areas, of any vessel anchored outside the anchorage areas, and of any vessel which is so moored or anchored as to impede or obstruct vessel movements in any channel.

(456) (7) Nothing in this section 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 for otherwise violating the law.

(457) **§110.142 Nantucket Harbor, Mass. (a) The anchorage grounds.** In the Nantucket Harbor, beginning at a point 210 yards, 090° from Brant Point Light; thence easterly to

(458) 41°17′23.0″N., 70°05′14.5″W.; thence southerly to

(459) 41°17′03.0″N., 70°05′14.5″W.; thence southwesterly to

(460) 41°16′54.0″N., 70°05′23.0″W.; thence northwesterly to

(461) 41°16′55.0″N., 70°05′31.0″W.; thence northeasterly to

(462) 41°17′07.5″N., 70°05′27.0″W.; thence to the point of beginning.

(463) **(b) The regulations.** The anchorage is for the use of commercial and pleasure craft. Temporary floats or buoys for marking anchors or moorings in place will be allowed. Fixed mooring piles or stakes are prohibited. The anchoring of vessels including the placing of anchors and moorings is subject to the supervision and approval of the local harbor master.

(464) **§110.145 Narragansett Bay, R.I. (a) East Passage–(1) Anchorage A.** East of Conanicut Island, beginning at the easterly extremity of the Dumplings; extending 009° to a point at

(465) 41°29′28.0″N., 71°21′05.5″W.; thence

(466) 356°, 5,350 feet; thence

(467) 024°, 5,700 feet; thence

(468) 012°, 1,100 feet; thence

(469) 311.5°, 2,300 feet; thence

(470) 351°, 5,350 feet; thence

(471) 270°, 3,200 feet to the easterly side of Conanicut Island; thence generally along the easterly side of the island to a point on the easterly side of the island due west of the Dumplings; and thence due east to the point of beginning; excluding the approach to the Jamestown Ferry, a zone 900 feet wide to the southward of a line ranging 103° from a point, 300 feet north of the existing ferry landing toward the spire of Trinity Church, Newport.

(472) (i) That portion of the area to the northward of the approach of the Jamestown Ferry shall be restricted for the anchorage of vessels of the U.S. Navy. In that portion of the area

to the southward of the approach of the Jamestown Ferry, the requirements of the Navy shall predominate.

(473) (ii) Temporary floats or buoys for marking anchors or moorings in place shall be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(474) **(2) Anchorage B.** Off the west shore of Aquidneck Island to north of Coggeshall Point, northerly of a line ranging 075° from a point on the easterly end of Gould Island, latitude 41°32′13″, longitude 71°20′40.5″, toward the shore of Aquidneck Island; east of a line ranging 019° from the easternmost of the Dumplings to latitude 41°36′16″, longitude 71°17′48″; thence northeast to latitude 41°36′53″, longitude 71°17′07.5″; thence east to latitude 41°36′53″, longitude 71°16′40″, thence southwesterly to latitude 41°35′54″, longitude 71°17′17.5″; thence southeasterly to the shore at the easterly end of the north boundary of the cable area in the vicinity of Coggeshall Point; excluding the cable area in the vicinity of Coggeshall Point.

(475) **(i) Anchorage B–1.** Off the southerly end of Prudence Island beginning at

(476) 41°34′08.9″N., 71°12′25.8″W.; thence

(477) 019°, 1,900 feet; thence

(478) 289°, 1,900 feet; thence

(479) 199°, 1,900 feet; thence

(480) 109°, 1,900 feet to the point of beginning.

(481) (a) In this area the requirements of the Navy shall predominate.

(482) (b) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(483) **(ii) Anchorage X–1,** Naval explosives and ammunition handling anchorage. The waters of Narragansett Bay northeasterly of Gould Island within a circle having a radius of 500 yards with its center at latitude 41°33′18″, longitude 71°20′03″.

(484) (a) This area will be used for anchoring naval vessels carrying or transferring ammunition or explosives under standard military restrictions as established by the Safety Manual, Armed Services Explosive Board. Explosives or dangerous materials include inflammable liquid or inflammable solids, oxidizing materials, corrosive liquids, compressed gases and poisonous substances.

(485) (b) No vessel shall anchor within 500 yards of the explosive anchorage area when occupied by vessels carrying explosives.

(486) (c) Not more than 2,000 tons Net High Explosives limit will be handled in the anchorage area.

(487) (d) No vessel shall be so anchored in the anchorage that it will at any time extend beyond the limits of the area.

(488) (e) Naval vessels anchoring in the area will display the proper signals, and will be under the supervision of the Commander, U.S. Naval Base, Newport, Rhode Island.

(489) **(3) Anchorage C.**

(490) (i) (Reserved)

(491) (ii) West of Coasters Harbor Island, west of a line bearing 351° from Tracey Ledge Buoy 5 through Seventeen-foot Spot Buoy northeast of Gull Rocks; south of a line bearing 292° from the cupola at the Naval War College; east of a line ranging 19° from the easternmost of the Dumplings toward Dyer Island North Point Shoal Lighted Bell Buoy 12A; and north of latitude 41°30′22″ which parallel passes through a point 230 yards north of Rose Island Shoal Northeast End Buoy 8.

(492) (iii) In this area the requirements of the Navy shall predominate.

(493) (iv) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(494) **(4) Anchorage D.** West of Goat Island, south of a line bearing 247° from Newport Harbor Light; east of a line bearing 176°30′ from the northwesterly end of Rose Island; north of a line bearing 117° from the northerly end of the ferry slip at Jamestown to longitude 71°20′ and west of a line running north and south along longitude 71°20′.

(495) (i) In this area the requirements of the Navy shall predominate from May 1 to October 1, subject at all times to such adjustments as may be necessary to accommodate all classes of vessels which may require anchorage room.

(496) (ii) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(497) **(5) Anchorage E.** South of Coasters Harbor Island, east of a line bearing 341° from the outer end of Briggs Wharf to the southwestern shore of Coasters Harbor Island near the War College Building; and north of a line ranging 265° from the flagstaff at Fort Greene toward Rose Island Light.

(498) (i) In this area the requirements of the naval service will predominate from May 1 to October 1, but will at all times be subject to such adjustment as may be necessary to accommodate all classes of vessels that may require anchorage room.

(499) (ii) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(500) **(b) West Passage (1) Anchorage H.** North of a line 1,000 yards long bearing 88° from Bonnet Point; west of a line bearing 3° from the eastern end of the last-described line; and south of a line ranging 302° through a point 200 yards south of the Kearny wharf toward the church spire at South Ferry, Boston Neck.

(501) (i) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(502) **(2) Anchorage I.** North of a line 1,000 yards long bearing 88° from Bonnet Point to the shore at Austin Hollow; east of a line bearing 183° from Dutch Island Light; and south of a line ranging 302° through a point 200 yards south of the Kearny wharf toward the church spire at South Ferry, Boston Neck.

(503) (i) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(504) **(3) Anchorage J.** At Saunderstown, south of a line ranging 110° from the south side of the ferry wharf toward the cable crossing sign on Dutch Island; west of a line ranging 192° from Plum Beach Shoal Buoy 1 PB toward the east shore of The Bonnet; and north of a line from the shore ranging 108° toward Dutch Island Light and the north end of the wharf at Beaver Head.

(505) (i) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(506) **(4) Anchorage K.** In the central and southern portion of Dutch Island Harbor, north of a line ranging 106° from Beaver Head Point Shoal Buoy 2 toward the Jamestown standpipe; east of a line ranging 14° from Beaver Head Point Shoal Buoy 2 toward the inshore end of the engineer wharf, Dutch Island; southeast of a line ranging 50° from Dutch Island Light toward the windmill north of Jamestown; and south of a line parallel to and 100 yards southwesterly from a line ranging 132° from the engineer wharf, Dutch Island, and the west ferry wharf, Jamestown.

(507) (i) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(508) **(5) Anchorage L.** North of a line ranging 101° from a point on shore 300 yards northerly of the Saunderstown ferry wharf toward the entrance to Round Swamp, Conanicut Island; west of a line bearing 15° parallel to and 1,000 feet westerly from a line joining the western point of Dutch Island and Twenty-three Foot Rock Buoy 4, and a line ranging 6° from Dutch Island Light toward Warwick Light; and south of a line ranging 290° from Sand Point, Conanicut Island, to Wickford Harbor Light, and a line bearing 226° from Wickford Harbor Light to Poplar Point tower.

(509) (i) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(510) **(6) Anchorage M.** East and north of Dutch Island, northeast of a line ranging 316° from the inshore end of the west ferry wharf, Jamestown, toward the north end of Dutch Island to a point bearing 88°, 200 yards, from the engineer wharf, Dutch Island, thence ranging 3° toward the shore of Conanicut Island at Slocum Ledge; north of a line 200 yards off the Dutch Island shore ranging 281° from the entrance to Round Swamp toward a point on shore 300 yards northerly from the Saunderstown ferry wharf; east of a line ranging 15° from the western point of Dutch Island to Twenty-three Foot Rock Buoy 4; and south of a line bearing 77° from Twenty-three Foot Rock Buoy 4 to the shore.

(511) (i) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(512) **(7) Anchorage N.** West of the north end of Conanicut Island, south of a line bearing 262° from Conanicut Island Light; east of a line bearing 8° from Twenty-three Foot Rock Buoy 4; and north of a line ranging 290° from Sand Point toward Wickford Harbor Light.

(513) (i) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(514) **(c) Bristol Harbor–(1) Anchorage O.** South of the south line of Franklin Street extended westerly; west of a line bearing 164°30′ parallel to and 400 feet westerly from the State harbor line between Franklin and Constitution Streets, and of a line ranging 244° from a point on the north line of Constitution Street extended 400 feet beyond the State harbor line toward Usher Rock Buoy 3; and north of the north line of Union Street extended to the Popasquash Neck Shore.

(515) (i) Temporary floats or buoys for marking anchors or moorings in place will be allowed in this area. Fixed mooring piles or stakes will not be allowed.

(516) **(d) The regulations.** (1) Except in cases of great emergency, no vessels shall be anchored in the entrances to Narragansett Bay, in Newport Harbor, or in Bristol Harbor, outside of the anchorage areas defined in paragraphs (a), (b) and (c) of this section.

(517) (2) Anchors must not be placed outside the anchorage areas, nor shall any vessel be so anchored that any portion of the hull or rigging shall at any time extend outside the boundaries of the anchorage area.

(518) (3) Any vessel anchoring under the circumstances of great emergency outside the anchorage areas must be placed near the edge of the channel and in such position as not to interfere with the free navigation of the channel, nor obstruct the approach to any pier, nor impede the movement of any boat, and shall move away immediately after the emergency ceases, or upon notification by an officer of the Coast Guard.

(519) (4) A vessel upon being notified to move into the anchorage limits or to shift its position on anchorage grounds must get under way at once or signal for a tug, and must change position as directed with reasonable promptness.

(520) (5) Whenever the maritime or commercial interests of the United States so require, any officer of the Coast Guard is hereby empowered to shift the position of any vessel anchored within the anchorage areas, of any vessel anchored outside the anchorage areas, and of any vessel which is so moored or anchored as to impede or obstruct vessel movements in any channel.

(521) (6) Nothing in this section 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 for otherwise violating the law.

(522) **§110.147 New London Harbor, Conn. (a) The anchorage grounds–(1) Anchorage A.** In the Thames River east of Shaw Cove, bounded by lines connecting points which are the following bearings and distances from Monument, Groton (latitude 41°21′18″N., longitude 72°04′48″W.): 243°, 1,400 yards; 246°, 925 yards; 217°, 1,380 yards; and 235°, 1,450 yards.

(523) **(2) Anchorage B.** In the Thames River southward of New London, bounded by lines connecting points which are the following bearings and distances from New London Harbor Light (latitude 41°18′59″N., longitude 72°05′25″W.): 002°, 2,460 yards; 009°, 2,480 yards; 026°, 1,175 yards; and 008°, 1,075 yards.

(524) **(3) Anchorage C.** In the Thames River southward of New London Harbor, bounded by lines connecting a point bearing 100°, 450 yards from New London Harbor Light, a point bearing 270°, 575 yards from New London Ledge Light (latitude 41°18′21″N., longitude 72°04′41″W.), and a point bearing 270°, 1,450 yards from New London Ledge Light.

(525) **(4) Anchorage D.** In Long Island Sound approximately two miles west-southwest of New London Ledge Light, bounded by lines connecting points which are the following bearings and distances from New London Ledge Light; 246°, 2.6 miles; 247°, 2.1 miles; 233°, 2.1 miles; and 235°, 2.6 miles.

(526) (5) Anchorage E. The waters at the mouth of New London Harbor one mile southeast of New London Ledge Light beginning at latitude 41°17′26″N., longitude 72°04′21″W.;

(527) thence northeasterly to 41°17′38″N., 72°03′54″W.;

(528) thence southeasterly to 41°16′50″N., 72°03′16″W.;

(529) and thence southwesterly to 41°16′38″N., 72°03′43″W.;

(530) and thence northwesterly to the point of beginning.

(531) (6) Anchorage F. The waters off the mouth of New London Harbor two miles southeast of New London Ledge Light beginning at latitude 41°16′00″N., longitude 72°03′13″W.;

(532) thence westerly to 41°16′00″N., 72°03′38″W.;

(533) thence northerly to 41°16′35″N., 72°03′38″W.;

(534) thence easterly to 41°16′35″N., 72°03′13″W.;

(535) and thence southerly to the point of beginning.

(536) (b) The regulations–(1) Anchorage A is for barges and small vessels drawing less than 12 feet.

(537) (2) Anchorage F is reserved for the use of naval vessels and, except in cases of emergency, no other vessel may anchor in Anchorage F without permission from the Captain of the Port, New London, CT.

(538) (3) Except in emergencies, vessels shall not anchor in New London Harbor or the approaches thereto outside the anchorages defined in paragraph (a) of this section unless authorized to do so by the Captain of the Port.

(539) **§110.148 Johnsons River at Bridgeport, Conn. (a) The anchorage grounds.** In Johnsons River, beginning at

(540) point "A" 41°10′12.3″N., 73°09′50.2″W.; to

(541) point "B" 41°10′12.3″N., 73°09′52.1″W.; to

(542) point "C" 41°10′10.0″N., 73°09′54.9″W.; to

(543) point "D" 41°10′05.0″N., 73°09′56.1″W.; to

(544) point "E" 41°10′04.0″N., 73°09′55.9″W.; to

(545) point "F" 41°10′05.0″N., 73°00′54.5″W,; to

(546) point "G" 41°10′05.8″N., 73°09′54.5″W.; thence to the point of beginning.

(547) **(b) The regulations.** The anchorage is for use by commercial and pleasure craft. Temporary floats or buoys for marking anchors or moorings will be allowed. The anchoring of vessels and placing of temporary anchors or mooring piles are under the jurisdiction of the local harbor master. Fixed mooring piles or stakes will not be allowed.

(548) **§110.150 Block Island Sound N.Y. (a) The anchorage ground.** A ¾- by 2-mile rectangular area approximately 3 miles east-northeast of Gardiners Island with the following coordinates:

(549) 41°06′12″N., 72°00′05″W.

(550) 41°07′40″N., 72°01′54″W.

(551) 41°08′12″N., 72°01′10″W.

(552) 41°06′46″N., 71°59′18″W.

(553) **(b) The regulations.** This anchorage ground is for use of U.S. Navy submarines. No vessel or person may approach or remain within 500 yards of a U.S. Navy submarine anchored in this anchorage ground.

(554) **§110.155 Port of New York. (a) Long Island Sound–(1) Anchorage No. 1.** Southwest of a line between Neptune Island and Glen Island ranging from Aunt Phebe Rock Light and tangent to the north edge of Glen Island; southwest of a line tangent to the northeast edge of Glen Island and Goose Island breakwater; southwest of a line bearing southeasterly from the southwest end of Goose Island breakwater and on range with the south gable of the Casino on the northeast end of Glen Island; west of a line ranging from the east edge of Goose Island breakwater to the west edge of the north end of Hart Island; west of Hart Island; and northwest of a line extending from Hart Island Light to Locust Point; excluding from this area, however, (i) the waters northeast of a line ranging 303° from the southwest end of Hart Island; northwest of a line ranging from the water tank at the north end of Davids Island 207°40′ to the northwest end of City Island; and south of latitude 40°52′12″; and (ii) the waters west of Hunter Island; and south of a line ranging from the most southerly end of Glen Island tangent to the most northerly end of Hunter Island.

(555) (i) Boats shall not anchor in this area in buoyed channels.

(556) (ii) Boats shall be so anchored as to leave at all times an open, usable channel, at least 50 feet wide, west and south of Glen Island.

(557) NOTE: Special anchorage areas in this anchorage are described in §110.60.

(558) **(2) Anchorage No. 1–A.** Southwest of a line ranging from Duck Point, Echo Bay, through Bailey Rock Lighted Buoy 3 BR; northwest of a line ranging from Hicks Ledge Buoy 2H to Old Tom Head Rocks Buoy 4; and north of a line ranging from Old Tom Head Rocks Buoy 4 to the southernmost point of Davenport Neck.

(559) NOTE: The special anchorage area in this anchorage is described in §110.60(b–1).

(560) **(3) Anchorage No. 1–B.** West of a line ranging from the point on the southwest side of the entrance of Horseshoe Harbor, Larchmont, to Hicks Ledge Buoy 2H; north of a line ranging from Hicks Ledge Buoy 2H to Duck Point; and in Echo Bay north and west of the channel.

(561) NOTE: The special anchorage area in this anchorage is described in §110.60(b–1).

(562) **(4) Anchorage No. 2.** West of a line from Locust Point tangent to the northeasterly sea wall at Throgs Neck.

(563) NOTE: Special anchorage areas in this anchorage are described in §110.60.

(564) **(5) Anchorage No. 3.** Northeast of a line from the south side of Barker Point to Gangway Rock Bell Buoy 27; southeast of a line from Gangway Rock Bell Buoy 27 to Sands Point Reef Lighted Buoy 25; and southwest of a line from Sands Point Reef Lighted Buoy 25 through Sands Point Light to Sands Point.

(565) **(6) Anchorage No. 4.** Manhassett Bay, excluding the seaplane restricted area described in §207.35; and that portion of Long Island Sound northeast of a line ranging from Stepping Stones Light through Elm Point Buoy 2 to Elm Point; southeast of a line ranging from Stepping Stones Light to Gangway Rock Bell Buoy 27; and southwest of Anchorage No. 3.

(566) NOTE: Special anchorage areas in this anchorage are described in §110.60.

(567) **(7) Anchorage No. 5.** In Little Neck Bay; and east of a line ranging from Fort Totten flagpole to Hart Island Light; and south of Anchorage No. 4.

(568) NOTE: Special anchorage areas in this anchorage are described in §110.60.

(569) **(b) East River–(1) Anchorage No. 6.** On Hammond Flats north of a line bearing 260° from the head of the pier on Throgs Neck at the foot of Pennyfield Avenue to the north tower of Bronx-Whitestone Bridge at Old Ferry Point.

(570) **(2) Anchorage No. 7.** South of a line from Whitestone Point to the outer end of Willets Point Wharf.

(571) **(3) Anchorage No. 8.** North of a line bearing 259° between the north tower of the Bronx-Whitestone Bridge at Old Ferry Point and a point at latitude 40°47′57″, longitude 73°52′16″; thence east of a line bearing 0° to latitude 40°48′06″; thence southeast of a line parallel to the bulkhead extending northeasterly to latitude 40°48′20″; thence north of a line bearing 296° to shore.

(572) **(4) Anchorage No. 9.** East of a line from College Point Reef Light tangent to the west side of College Point; and south of a line from College Point Reef Light to Whitestone Point.

(573) **(5) Anchorage No. 10.** An area in Flushing Bay, beginning at

(574) 40°46′49″N., 73°52′21″W.; to

(575) 40°47′20″N., 73°51′55″W.; to

(576) 40°47′38″N., 73°51′15″W.; and an area on the west side of Bower Bay, beginning at

(577) 40°46′58″N., 73°53′46″W.; to

(578) 40°47′03″N., 73°53′39″W.; to

(579) 40°47′00″N., 73°53′31″W.; to

(580) 40°46′55″N., 73°53′32″W.; to

(581) 40°46′49″N., 73°53′39″W.

(582) NOTE: Special anchorage areas in this anchorage are described in §110.60.

(583) **(6) Anchorage No. 11.** An area in East River beginning at a point on a pierhead at

(584) 40°47′55.0″N., 73°53′19.5″W.; to

(585) 40°47′40.0″N., 73°51′58.0″W.; to

(586) 40°47′16.0″N., 73°52′15.0″W.

(587) (7) (Reserved)

(588) **(8) Anchorage No. 14.** In Hallets Cove, east of a line from a point on shore 100 feet west of the southerly prolongation of 2d Street, Astoria, to Gibbs Point.

(589) **(c) Hudson River (1) Anchorage No. 16.** North of a line on a range with the north side of the north pier of the Union Dry Dock and Repair Company Shipyard, Edgewater, New Jersey; west of a line ranging 25° from a point 120 yards east of the east end of said pier to a point (500 yards from the shore and 915 yards from the Fort Lee flagpole) on a line ranging approximately 100°22′ from the Fort Lee flagpole toward the square chimney on the Medical Center Building at 168th Street, Manhattan; and south of said line ranging between the Fort Lee flagpole and the square chimney on the Medical Center Building.

(590) (i) When the use of Anchorage No. 16 is required by naval vessels, the vessels anchored therein shall move when the Captain of the Port directs them.

(591) **(2) Anchorage No. 17.** North of a line bearing 66° from shore to a point at latitude 40°51′34″, longitude 73°56′54″; thence west of a line bearing 29° to latitude 40°52′27″, longitude 73°56′16″; thence 20° to latitude 40°54′17″, longitude 73°55′23″; thence 15° to latitude 40°56′20″, longitude 73°54′39″; thence south of a line bearing 284° to shore.

(592) (i) When the use of Anchorage No. 17 is required by naval vessels, the vessels anchored therein shall move when the Captain of the Port directs them.

(593) **(3) Anchorage No. 18–A.** East of lines bearing 8° from the northwest corner of the crib icebreaker north of the New York Central Railroad Company drawbridge across Spuyten Duyvil Creek (Harlem River) to a point 250 yards offshore and on line with the New York Central Railroad signal bridge at the foot of West 231st Street, extended, at Spuyten Duyvil, Bronx, New York; thence bearing 19° to the channelward face of the Mount St. Vincent Dock at the foot of West 261st Street, Riverdale, Bronx, New York.

(594) (i) When the use of Anchorage No. 18–A is required by naval vessels, the vessels anchored therein shall move when the Captain of the Port directs them.

(595) (4)(Reserved)

(596) **(5) Anchorage No. 19.** An area located east of the Weehawken-Edgewater Channel beginning at a point on the Manhattan shoreline at

(597) 40°46′47.8″N., 73°59′22.3″W.; to

(598) 40°46′59.8″N., 73°59′52.8″W.; to

(599) 40°47′42.5″N., 73°59′18.0″W.; to

(600) 40°48′27.0″N., 73°58′45.5″W.; to

(601) 40°49′28.0″N., 73°58′06.2″W.; to

(602) 40°50′15.5″N., 73°57′18.0″W.; to

(603) 40°51′02.3″N., 73°56′59.0″W.; to

(604) 40°51′00.8″N., 73°56′51.0″W.; thence following the shoreline to the point of beginning.

(605) (i) No vessel may anchor in Anchorage No. 19 without permission from the Captain of the Port.

(606) (ii) Each vessel shall report its position within Anchorage No. 19 to the Captain of the Port immediately after anchoring.

(607) (iii) No vessel may conduct lightering operations in Anchorage No. 19 without permission from the Captain of the Port.

(608) (iv) When the use of Anchorage No. 19 is required by naval vessels, the vessels anchored therein shall move when the Captain of the Port directs them.

(609) (v) No vessel over 800 feet, in length overall, or 40 feet in draft may anchor in Anchorage No. 19 unless it notifies the Captain of the Port at least 48 hours before it arrives in New York Harbor.

(610) (d) **Upper Bay-(1) Anchorage No. 20-A.** That area enclosed by coordinates starting at

(611) 40°42′02.5″N., 74°02′25.5″W.; to

(612) 40°42′06.5″N., 74°02′19.5″W.; to

(613) 40°42′05.0″N., 74°01′58.4″W.; to

(614) 40°41′54.5″N., 74°01′59.2″W.; thence to

(615) 40°41′53.0″N., 74°02′23.0″W.

(616) (i) See 33 CFR 110.155 (d)(6), and (1).

(617) (2) **Anchorage No. 20-B.** That area enclosed by coordinates starting at

(618) 40°41′47.0″N., 74°02′31.5″W.; to

(619) 40°41′42.0″N., 74°01′02.0″W.; to

(620) 40°41′35.3″N., 74°02′04.2″W.; to

(621) 40°41′29.9″N., 74°02′07.8″W.; to

(622) 40°41′42.6″N., 74°02′32.7″W.; thence back to the beginning.

(623) (i) See 33 CFR 110.155 (d)(6), (d)(16), and (1).

(624) (3) **Anchorage No. 20-C.** That area enclosed by coordinates starting at

(625) 40°41′42.0″N., 74°02′43.0″W.; to

(626) 40°41′25.4″N., 74°02′10.7″W.; to

(627) 40°41′01.7″N., 74°02′26.2″W.; to

(628) 40°41′09.0″N., 74°02′41.5″W.; to

(629) 40°41′20.0″N., 74°02′59.2″W.; thence back to the beginning.

(630) (i) See 33 CFR 110.155 (d)(6), (d)(16), and (1).

(631) (4) **Anchorage No. 20-D.** That area enclosed by coordinates starting at

(632) 40°41′09.5″N., 74°02′49.5″W.; to

(633) 40°40′59.2″N., 74°02′27.9″W.; to

(634) 40°40′44.5″N., 74°02′37.5″W.; to

(635) 40°40′42.7″N., 74°03′07.6″W.; thence back to the beginning.

(636) (i) See 33 CFR 110.155 (d)(6), (d)(16), and (1).

(637) (5) **Anchorage No. 20-E.** That area enclosed by coordinates starting at

(638) 40°40′38.2″N., 74°02′59.6″W.; to

(639) 40°40′39.4″N., 74°02′40.9″W.; to

(640) 40°40′09.2″N., 74°03′00.7″W.; to

(641) 40°40′24.4″N., 74°03′24.6″W.; thence back to the beginning.

(642) (i) See 33 CFR 110.155 (d)(6), (d)(16), and (1).

(643) (6) No vessel may occupy this anchorage for a period of time in excess of 72 hours without the prior approval of the Captain of the Port.

(644) (7) **Anchorage No. 20-F.** That area enclosed by coordinates starting at

(645) 40°40′12.1″N., 74°03′41.6″W.; to

(646) 40°39′53.7″N., 74°03′10.8″W.; to

(647) 40°39′34.7″N., 74°03′23.3″W.; to

(648) 40°39′49.9″N., 74°03′57.8″W.; thence back to the beginning.

(649) (i) See 33 CFR 110.155 (d)(9), (d)(16), and (1).

(650) (8) **Anchorage No. 20-G.** That area enclosed by coordinates starting at

(651) 40°39′30.1″N., 74°04′08.0″W.; to

(652) 40°39′32.0″N., 74°03′53.5″W.; to

(653) 40°39′27.5″N., 74°03′42.5″W.; to

(654) 40°39′13.0″N., 74°03′51.0″W.; to

(655) 40°39′09.5″N., 74°04′23.1″W.; thence back to the beginning.

(656) (i) See 33 CFR 110.155 (d)(9), (d)(16), and (1).

(657) (9) This anchorage is designated a naval anchorage. The Captain of the Port may permit commercial vessels to anchor temporarily in this anchorage, ordinarily not more than 24 hours,

when the anchorage will not be needed for naval vessels. Upon notification of an anticipated naval arrival, any commercial vessel so anchored must relocated at its own expense.

(658) (10) **Anchorage No. 21-A.** That area enclosed by coordinates starting at

(659) 40°40′22.5″N., 74°01′35.2″W.; to

(660) 40°40′20.5″N., 74°01′27.7″W.; to

(661) 40°39′48.9″N., 74°01′22.4″W.; to

(662) 40°38′54.7″N., 74°02′18.9″W.; to

(663) 40°39′03.0″N., 74°02′26.3″W.; thence back to the beginning.

(664) (i) See 33 CFR 110.155 (d)(16) and (l).

(665) (11) **Anchorage No. 21-B.** That area enclosed by coordinates starting at

(666) 40°40′23.8″N., 74°02′10.9″W.; to

(667) 40°40′26.2″N., 74°01′49.5″W.; to

(668) 40°40′22.5″N., 74°01′35.2″W.; to

(669) 40°39′03.0″N., 74°02′26.3″W.; to

(670) 40°38′54.7″N., 74°02′18.9″W.; to

(671) 40°38′43.7″N., 74°02′30.3″W.; to

(672) 40°39′19.3″N., 74°03′03.3″W.; to

(673) 40°39′22.3″N., 74°03′02.4″W.; to

(674) 40°40′18.6″N., 74°02′25.5″W.; thence back to the beginning.

(675) (i) See 33 CFR 110.155 (d)(16) and (l).

(676) (ii) No vessel with a draft of 10 feet (3.048 meters) or less may occupy this anchorage without the prior approval of the Captain of the Port.

(677) (12) **Anchorage No. 21-C.** That area enclosed by coordinates starting at

(678) 40°39′19.3″N., 74°03′03.3″W.; to

(679) 40°38′43.7″N., 74°02′30.3″W.; to

(680) 40°38′41.6″N., 74°02′32.5″W.; to

(681) 40°38′03.0″N., 74°02′48.7″W.; to

(682) 40°38′03.0″N., 74°03′03.5″W.; to

(683) 40°38′38.4″N., 74°03′15.5″W.; thence back to the beginning.

(684) (i) See 33 CFR 110.155 (d)(16) and (l).

(685) (ii) No vessel with a draft of 33 feet (10.0584 meters) or less may occupy this anchorage without the prior approval of the Captain of the Port.

(686) (13) **Anchorage No. 23-A.** That area enclosed by coordinates starting at

(687) 40°38′36.5″N., 74°04′13.5″W.; to

(688) 40°38′37.0″N., 74°03′49.0″W.; to

(689) 40°38′23.4″N., 74°03′37.2″W.; to

(690) 40°37′49.5″N., 74°03′25.7″W.; to

(691) 40°37′49.8″N., 74°03′50.1″W.; to

(692) 40°37′50.0″N., 74°03′50.2″W.; to

(693) 40°37′53.0″N., 74°04′07.0″W.; thence back to

(694) 40°38′36.5″N., 74°04′13.5″W.

(695) (i) See 33 CFR 110.155 (d)(16) and (l).

(696) (ii) No vessel may occupy this anchorage for a period of time in excess of 48 hours without the prior approval of the Captain of the Port.

(697) (iii) No vessel with a length overall in excess of 670 feet (204.216 meters) may occupy this anchorage without the prior approval of the Captain of the Port.

(698) (iv) No vessel with a draft of 40 feet (12.192 meters) or more may occupy this anchorage without the prior approval of the Captain of the Port unless it anchors within 5 hours after ebb current begins at the Narrows.

(699) (v) See 33 CFR 334.85 for information on anchoring near the U.S. Navy restricted area adjacent to this anchorage.

(700) (14) **Anchorage No. 23-B.** That area enclosed by coordinates starting at

(701) 40°37′49.8″N., 74°03′50.1″W.; to

(702) 40°37′49.5″N., 74°03′25.7″W.; to

(703) 40°37′27.0″N., 74°03′18.1″W.; to

(704) 40°37′23.0″N., 74°03′59.0″W.; to

(705) 40°37′30.0″N., 74°04′04.0″W.; to

(706) 40°37′37.5″N., 74°03′46.0″W.; thence back to

(707) 40°37′49.8″N., 74°03′50.1″W.

(708) (i) See 33 CFR 110.155 (d)(13)(ii) and (iv), (d)(16), and (l).

(709) (ii) No vessel with a length overall of 670 feet (204.216 meters) or less may occupy this anchorage without the prior approval of the Captain of the Port.

(710) (iii) See 33 CFR 334.85 for information on anchoring near the U.S. Navy restricted area adjacent to this anchorage.

(711) (15) **Anchorage No. 24.** That area enclosed by coordinates starting at

(712) 40°37′23.0″N., 74°03′59.0″W.; to

(713) 40°37′27.0″N., 74°03′18.1″W.; to

(714) 40°36′40.1″N., 74°03′02.2″W.; to

(715) 40°36′25.5″N., 74°02′56.4″W.; to

(716) 40°36′21.0″N., 74°03′11.0″W.; to

(717) 40°36′25.0″N., 74°03′17.5″W.; thence back to the beginning.

(718) (i) See 33 CFR 110.155 (d)(13) (ii) and (iv), (d)(16), and (l).

(719) (ii) No vessel with a length overall of less than 800 feet (243.84 meters), or with a draft of less than 40 feet (12.192 meters) may occupy this anchorage without the prior approval of the Captain of the Port.

(720) (16) Any vessel anchored in or intending to anchor in Federal Anchorage 20-A through 20-G, 21-A through 21-C, 23-A and 23-B, 24 or 25 must comply with the following requirements:

(721) (i) No vessel may anchor unless it notifies the Captain of the Port when its anchors, of the vessel's name, length, draft, and its position in the anchorage.

(722) (ii) Each vessel anchored must notify the Captain of the Port when it weighs anchor.

(723) (iii) No vessel may conduct lightering operations unless it notifies the Captain of the Port before it begins lightering operations.

(724) (iv) Each vessel lightering must notify the Captain of the Port at the termination of lightering.

(725) (v) No vessel may anchor unless it maintains a bridge watch, guards and answers Channel 16 FM, and maintains an accurate position plot.

(726) (vi) If any 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.

(727) (vii) No vessel may anchor unless it maintains the capability to get underway within 30 minutes except with prior approval of the Captain of the Port.

(728) (viii) 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.

(729) (ix) Each vessel in a "dead ship" status must engage an adequate number of tugs alongside during tide changes. A tug alongside may assume the Channel 16 FM radio guard for the vessel after it notifies the Captain of the Port.

(730) (x) No vessel may lighter in a "dead ship" status without prior approval from the Captain of the Port.

(731) (e) **Lower Bay–(1) Anchorage No. 25.** That area enclosed by coordinates starting at

(732) 40°35′58.2″N., 74°02′18.4″W.; to

(733) 40°36′12.0″N., 74°01′29.0″W.; to

(734) 40°36′03.0″N., 74°00′52.5″W.; to

(735) 40°34′57.5″N., 74°00′25.0″W.; to

(736) 40°34′40.0″N., 74°01′03.0″W.; to

(737) 40°34′53.0″N., 74°01′56.1″W.; to

(738) 40°35′23.9″N., 74°02′04.8″W.; thence back to the beginning.

(739) (i) See 33 CFR 110.155 (d)(16) and (l).

(740) (ii) When the use of this anchorage is required by naval vessels, any commercial vessels anchored therein must move when directed by the Captain of the Port.

(741) **(f) Lower Bay–(1) Anchorage No. 26.** In Sandy Hook Bay south of a line extending from Point Comfort to Sandy Hook Point Light.

(742) NOTE: Anchorages Nos. 49–F and 49–G in this area are reserved for vessels carrying explosives (see paragraph (m) (4) and (5) of this section) and are excluded from use as general anchorages.

(743) (i) Pleasure or commercial craft may not navigate or moor within 750 yards of the Naval Ammunition Depot Pier at Leonardo, New Jersey, nor anchor in the approach channel or the turning basin adjacent thereto.

(744) (ii) When immediate action is required and representatives of the Coast Guard are not present in sufficient force to exercise effective control of shipping, the Commanding Officer of the Naval Ammunition Depot at Earle, New Jersey, may control the anchorage or movement of any vessel, foreign or domestic, to the extent he deems necessary to insure the safety and security of his command.

(745) **(2) Anchorage No. 27–(i) Atlantic Ocean.** Beginning at Sandy Hook Light 15 to

(746) 40°28′52″N., 74°00′03″W.; to

(747) 40°28′41″N., 73°58′54″W.; to

(748) 40°25′58″N., 73°55′00″W.; thence 180° to

(749) 40°23′46″N., thence 270° toward Highland Light and Sandy Hook shore; thence following the easterly shoreline of Sandy Hook to the point of beginning.

(750) (ii) **Romer Shoal,** Beginning at

(751) 40°27′30″N., 73°55′00″W.; thence 000° to

(752) 40°29′05″N.; thence to

(753) 40°31′25″N., 74°00′55″W.; to

(754) 40°32′11″N., 74°01′41″W.; to

(755) 40°32′12″N., 74°02′07″W.; thence 180° to

(756) 40°31′27″N.; thence to

(757) 40°30′13″N., 74°00′07″W.; thence to the point of beginning.

(758) **(iii) Flynns Knoll.** Beginning at Sandy Hook Channel Lighted Bell Buoy 18; thence along the north side of Sandy Hook Channel to Sandy Hook Channel Lighted Buoy; thence along the southwest side of Swash Channel to Junction Buoy; thence along the east side of Chapel Hill Channel to Chapel Hill Channel Buoy 2; and thence to the point of beginning.

(759) **(3) Anchorage No. 28.** West of lines bearing 154°30′ from Fort Wadsworth Light to Craven Shoal Lighted Bell Buoy 19A, thence in succession to the buoys marking the east side of West Bank and the buoys on the west side of Chapel Hill Channel to Southwest Spit Junction Lighted Gong Buoy, thence 182° to a line extending from Sandy Hook Point Light to Point Comfort; north of the latter line and the New Jersey shore; and east of a line bearing 353° from the head of the Keansburg Steamboat Pier at Point Comfort, through Great Kills Flat Buoy 4, to the Staten Island shore; excluding from this area, however, (i) the waters west of a line ranging from the stack on Hoffman Island 344° through the northeast corner of the T-shaped pier at South Beach; northwest of a line ranging from Great Kills Light 39° and tangent to the offshore face of the T-shaped pier at Midland Beach; and northeast of a line ranging from the stack on Swinburne Island 301° to the shore end of the north jetty at New Creek; and (ii) the waters west of a line ranging from Conover Light at Leonardo, New Jersey, 340° through Old Orchard Shoal Light; northwest of a line bearing 230° from the stack on Hoffman Island; and northeast of a line ranging from Great Kills Light 332° through Marine Park Light at Crooks Point.

(760) NOTE: A special anchorage area in this anchorage is described in §110.60 (r–1).

(761) (g) (Reserved)

(762) **(h) Newark Bay–(1) Anchorage No. 34.** South of the bridge of the Central Railroad Company of New Jersey; west of lines from a point on the bridge 100 yards west of the west pier of the west lift span to Newark Bay Channel Buoy 5, thence to the east end of the dike north of Shooters Island; north of the dike and a line ranging from the west end of the dike through Kill Van Kull Light 18 and Kill Van Kull Buoy 20; and east of a line 250 feet east of and parallel to the Singer Manufacturing Company bulkhead.

(763) NOTE: A portion of this general anchorage is described as a special anchorage in §110.60(r).

(764) (2) (Reserved)

(765) **(3) Anchorage No. 36.** South of Port Newark Terminal Channel; west of a line ranging from a point 200 yards west of Newark Bay Light 3 to a point 100 yards west of the west pier of the west lift span of the Central Railroad of New Jersey Bridge; and north of said bridge.

(766) **(4) Anchorage No. 37.** North of the Central Railroad of New Jersey bridge; east of a line ranging from a point 200 yards east of the east pier of the east lift span of the bridge to a point 200 yards east of the east end of the lift span of the Pennsylvania-Lehigh Valley Railroad bridge; and south of the latter bridge.

(767) NOTE: A portion of this general anchorage is described as a special anchorage in §110.60(q).

(768) **(5) Anchorage No. 38.** North of the Pennsylvania-Lehigh Valley Railroad bridge; east of lines ranging through a point 200 yards east of the east end of the lift span of the said bridge and the red channel buoys marking the dredged channel in Newark Bay and Hackensack River; and south of the Central Railroad Company of New Jersey bridge.

(769) **(6) Anchorage No. 39.** Between the entrance channels of the Hackensack and Passaic Rivers, northwest of lines from the abutment of the Central Railroad of New Jersey bridge on the west side of the Hackensack River to Hackensack River Light 1, and thence to Newark Bay Light 5, and east of a line from said light ranging toward the southeast corner of the Texas Company wharf, and of a line ranging from the southeast corner of Gross Wharf to the abutment and end of fill of the Central Railroad of New Jersey bridge on the east side of the Passaic River.

(770) **(i) Arthur Kill–(1) Anchorage No. 41.** The passage between Pralls Island and Staten Island included between a line running 29° from the extreme northwest point of Pralls Island to a point on Staten Island and a line from the southern point of Pralls Island to the north side of the mouth of Neck Creek at Travis, Staten Island.

(771) **(2) Anchorage No. 42.** East of lines ranging from the head of the Tottenville Shipyard Company pier at Tottenville, Staten Island, to the first pier of the Outerbridge Crossing west from the Staten Island shore, thence to Arthur Kill Light 10, thence to Arthur Kill Light 14, and thence to Arthur Kill Lighted Buoy 16; and south of a line from thence to Smoking Point.

(772) **(j) Raritan Bay–(1) Anchorage No. 44.** An area in Raritan Bay located at the junction of Arthur Kill and Raritan River, beginning at

(773) 40°30′07″N., 74°15′13″W.; to

(774) 40°30′01″N., 74°15′30″W.; to

(775) 40°29′27″N., 74°15′06″W.; to

(776) 40°29′24″N., 74°15′01″W.; to

(777) 40°29′15″N., 74°14′55″W.; to

(778) 40°29′14″N., 74°15′25″W.; to

(779) 40°29′48″N., 74°15′48″W.; thence to the point of beginning.

(780) (i) The anchorage is restricted to deepdraft vessels except that barges may moor in that portion of the anchorage southerly of latitude 40°29′22″.

(781) (ii) No vessel shall occupy the deepdraft portion of the anchorage for a longer period than 48 hours without a permit from the Captain of the Port.

(782) **(2) Anchorage No. 45.** West of the Raritan Bay Channel leading into Arthur Kill; north of the Raritan River Channel leading into Raritan River; and east of the Cutoff Channel between Raritan River and Arthur Kill, except that part of the said area occupied by Anchorage No. 44.

(783) (3) (Reserved)

(784) **(4) Anchorage No. 46.** West of the west limit of Anchorage No. 28, as defined by a line bearing 353° from the head of the Keansburg Steamboat Pier at Point Comfort, through Great Kills Flat Buoy 4 to the Staten Island shore; north of Raritan Bay Channel as defined by the buoys and lights marking the north side of the channel, including Princess Bay; northeast of Raritan Bay Channel leading into Arthur Kill; and south of a line bearing 243° from the gable of a house at Ward Point, Staten Island.

(785) **(5) Anchorage No. 47.** South of the Raritan River Channel from opposite the Sun Oil Company pier at South Amboy to Raritan River Buoy 3; thence south of a line in the direction of Boundary Daybeacon to latitude 40°28′48.5″, longitude 74°14′31.6″; thence south of lines through Raritan Bay Light 7B, Raritan Bay Light 3A, and the buoys marking the south side of Raritan Bay Channel off Seguine Point to the west limit of Anchorage No. 28 as defined by a line bearing 353° from the head of the Keansburg Steamboat Pier through Great Kills Flat Buoy 4 to the Staten Island shore; and west of the latter line.

(786) (i) Vessels shall not anchor in the channel to Keyport Harbor west of lines ranging from Keyport Channel Buoy 1 to Keyport Channel Buoy 9, thence through Keyport Channel Buoys 11 and 13 to the northeast corner of the easterly steamboat wharf; and east of a line extending from a point 400 yards west of Keyport Channel Buoy 1 tangent to the west shore at the mouth of Matawan Creek.

(787) Note: Anchorage No. 49–D in this area is reserved for vessels carrying explosives (see paragraph (m) (3) of this section) and is excluded from use as a general anchorage.

(788) (k) (Reserved)

(789) (1) (1) No vessel in excess of 800 feet (243.84 meters) in length overall or 40 feet (12.192 meters) in draft may anchor unless it notifies the Captain of the Port at least 48 hours prior to entering Ambrose Channel.

(790) (2) Except in cases of great emergency, no vessel shall be anchored in the navigable waters of the Port of New York outside of the anchorage areas established in this section, nor cast anchor within a cable or pipe line area shown on a Government chart, nor be moored, anchored, or tied up to any pier, wharf, or vessel in such manner as to obstruct or endanger the passage of any vessel in transit by, or to or from, adjacent wharves, piers, or slips.

(791) (3) No vessel shall occupy for a longer period than 30 days, unless a permit is obtained from the Captain of the Port for that purpose, any anchorage for which the time of occupancy is not otherwise prescribed in this section. No vessel in a condition such that it is likely to sink or otherwise become a menace or obstruction to navigation or anchorage of other vessels shall occupy an anchorage except in an emergency, and then only for such period as may be permitted by the Captain of the Port.

(792) (4) Whenever, in the opinion of the Captain of the Port, such action may be necessary, that officer may require any or all vessels in any designated anchorage area to moor with two or more anchors.

(793) (5) Every vessel whose crew may be reduced to such number that it will not have sufficient men on board to weigh anchor at any time shall be anchored with two anchors, with mooring swivel put on before the crew shall be reduced or released, unless the Captain of the Port shall waive the requirement of a mooring swivel.

(794) (6) Anchors of all vessels must be placed well within the anchorage areas, so that no portion of the hull or rigging shall at any time extend outside the boundaries of the anchorage area.

(795) (7) Any vessel anchoring under circumstances of great emergency outside of the anchorage areas must be placed near the edge of the channel and in such position as not to interfere with the free navigation of the channel nor obstruct the approach to any pier nor impede the movement of any boat, and shall move away immediately after the emergency ceases, or upon notification by the Captain of the Port.

(796) (8) The Captain of the Port may grant a revocable permit for the habitual maintenance and use of a given mooring space in an anchorage area. Application information for a mooring permit is available from:

(797) Captain of the Port, Mooring Permit Section, Building 109, Governors Island, New York, N.Y. 10004.

(798) (i) A mooring permit is issued to an individual, for his exclusive use, of a specific mooring, of a specific type, at a specific location, for a specific vessel.

(799) (ii) Mooring permits shall expire on April 30 of the year after issuance.

(800) (iii) Mooring permits are not transferable.

(801) (iv) Moorings are shown on the large scale chart which may be seen at the office of the Captain of the Port–New York.

(802) (v) Mooring anchor, chain, and pendant: (Note: Contact Captain of the Port for anchor type and weight, minimum chain size requirement, and placement of anchor.) These requirements may be waived or modified by the Captain of the Port upon written request from the applicant for such waiver or modification.

(803) (vi) The mooring buoy shall be white in color with the Captain of the Port mooring permit number, in black letters, clearly visible at all times. The buoy is to extend not less than 1 foot above the surface of the water at all times, exclusive of flagstaffs, rings, quick pickup devices, etc.

(804) (vii) All required equipment shall be provided by, installed by, and remain the property of the permit holder.

(805) (viii) Mooring equipment should be raised at least every 2 years, inspected for deterioration and replaced if necessary.

(806) (ix) Each person holding a mooring permit shall make what the Captain of the Port–New York considers reasonable use of the mooring. Nonuse of a mooring up to 30 days during the boating season is deemed reasonable.

(807) (x) Moorings for which permits have expired without renewal or have been revoked by the Captain of the Port–New York shall be removed by the owner within 10 days of such expiration or revocation.

(808) (xi) Granting of a Captain of the Port–New York mooring permit does not give a right of access across private property. Arrangements for access shall be made by the permit holder.

(809) (xii) Each person to whom a Captain of the Port–New York mooring permit is issued agrees to hold harmless the United States, its officers, agents, and employees, for any death, personal injury, or damage which may result from the use of the permit or the rights granted under the permit.

(810) (xiii) No vessel shall continuously occupy a mooring when a vessel in regular traffic requires the berth or when navigation would be menaced or inconvenienced thereby.

(811) (xiv) No vessel shall moor in any anchorage in such a manner as to interfere with the use of a duly authorized mooring buoy. Nor shall any vessel moored to a buoy authorized by a Captain of the Port–New York permit be moored such that any portion of that vessel comes within 50 feet of a marked or dredged channel.

(812) (xv) No vessel shall be navigated within the limits of an anchorage at speed exceeding 6 knots when in the vicinity of a moored vessel.

(813) (xvi) In an emergency the Captain of the Port may shift the position of any unattended vessel moored in or near any anchorage.

(814) (9) Barge dispensing stations and stake boats may be anchored in such places as the Captain of the Port may designate.

(815) (10) Upon approval of the District Engineer, Corps of Engineers, the Captain of the Port may permit wrecking plant or other vessels legally engaged in recovering sunken property, or in laying or repairing pipe lines or cables legally established, or plant engaged in dredging operations, to anchor within channels of the Port of New York. Permit issued by the Captain of the Port is not necessary for plant engaged upon works of river and harbor improvement under the supervision of the District Engineer, but the District Engineer will notify the Captain of the Port in advance of all such proposed work.

(816) (11) Whenever the maritime or commercial interests of the United States so require, the Captain of the Port is hereby empowered to shift the position of any vessel anchored within the anchorage areas, of any vessel anchored outside the anchorage areas, of any vessel which is so moored or anchored as to impede or obstruct vessel movements in any channel or obstruct or interfere with range lights and of any vessel which, lying at the exterior end of a pier or alongside an open bulkhead, obstructs or endangers the passage of vessels in transit by, or to or from, adjacent wharf property or impedes the movements of vessels entering or leaving adjacent slips.

(817) (12) A vessel upon being notified to move into the anchorage limits or to shift its position on anchorage grounds, shall get under way at once or signal for a tug, and shall change position as directed, with reasonable promptness.

(818) (13) Nothing in this section shall be construed as relieving any vessel or 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, or for otherwise violating law.

(819) (14) Any vessel prohibited by these rules from anchoring in a specific anchorage because of the vessel's length or draft may anchor in the anchorage with permission from the Captain of the Port.

(820) (m) **Anchorages for vessels carrying explosives–(1)** (Reserved)

(821) **(2) Anchorage No. 49–F (emergency naval anchorage).** That portion of Sandy Hook Bay bounded by a line bearing 170°, 3,800 yards, from a point bearing 281°30′, 2,050 yards from Sandy Hook Light; thence 260°, 500 yards; thence 350°, 3,800 yards; thence 080°, 500 yards, to the point of beginning.

(822) (i) This anchorage is to be used for the anchorage of naval vessels during emergencies only.

(823) (ii) No pleasure or commercial craft shall navigate or moor within this area at any time when naval vessels which are moored in the area display a red flag by day or a red light by night.

(824) **(3) Anchorage No. 49–G (naval anchorage).** That portion of Sandy Hook Bay bounded by a line bearing 208°, 1,350 yards, from a point bearing 292°30′, 3,600 yards, from Sandy Hook Light; thence 298°, 620 yards; thence 002°, 1,250 yards; thence 107°, 1,150 yards, to the point of beginning.

(825) (i) No pleasure or commercial craft shall navigate or moor within this area at any time when vessels which are moored in the area display a red flag by day or red light by night.

(826) **(n) Regulations for explosive anchorages.** (1) Anchorages Nos. 49–C, 49–F, and 49–G are reserved for vessels carrying explosives. All vessels carrying explosives shall be within these areas when anchored, except as provided in paragraph (n)(6) of this section.

(827) (2) A written permit shall be obtained from the Captain of the Port before vessels carrying explosives, or on which explosives are to be loaded, may proceed to the anchorages provided for them; and no vessel shall occupy a berth in such anchorage except by authority of such permit, which permit may be revoked at any time.

(828) (3) Vessels used in connection with loading or unloading explosives on vessels in anchorage areas, including tugs and stevedore boats, shall carry a written permit from the Captain of the Port. The Captain of the Port may, in his discretion, require every person having business on board vessels which are being loaded with explosives, other than members of the crew, to have a pass from the Captain of the Port in such form as he shall prescribe. Such permit or pass shall be shown whenever required by him or by his authorized agents.

(829) (4) Whenever any vessel not fitted with mechanical power anchors in the explosives anchorages while carrying explosives, the Captain of the Port may require the attendance of a tug upon such vessel when in his judgment such action is necessary.

(830) (5) Vessels carrying explosives shall comply with the general regulations in paragraph (1) of this section when applicable.

(831) (6) The District Engineer, Corps of Engineers, may authorize, in writing, a vessel carrying explosives for use on river and harbor works or on other work under federal permit issued by the District Engineer to anchor in or near the vicinity of such work without a permit from the Captain of the Port. The District Engineer will prescribe the quantities of such explosives allowed on such vessel and the conditions under which they are to be stored and handled, and will furnish the Captain of the Port with a copy of such safety instructions together with a copy of his written authorization.

(832) (7) Every vessel loading, unloading, transporting, or containing explosives shall display by day a red flag at least 16 square feet in area at its masthead, or at least 10 feet above the upper deck if the vessel has no mast, and shall display by night a red light in the same position specified for the flag.

(833) (8) When local regulations of any place require previous local authority for the transfer of explosives or fireworks between vessels or between a vessel and a wharf or other place ashore, the Captain of the Port will permit the removal from the anchorage of such vessel containing explosives to any place covered by such local regulations only when he is satisfied that the required local authority has been granted.

(834) Note: The anchorage in this section are regulated under Title I, Ports and Waterways Safety Act of 1972 as stated in §110.1a(a) of this Part. The penalties for violating regulations under this Act are stated in §110.1a (b) of this Part.

(835) **§110.156 Randall Bay, Freeport, Long Island, N.Y. (a) The anchorage grounds.** Southward of a line 312 feet south of and parallel to the south side of Casino Street; eastward of a line 215 feet east of and parallel to the east side of West Side Avenue, said line extending southerly to a point 233 feet north of the prolonged north side of Clinton Street; northeastward of a line from the last-mentioned point to a point 243 feet southerly of the prolonged south side of Clinton Street and 210 feet east of the east side of Prospect Street; eastward of a line 210 feet east of and parallel to the east side of Prospect Street; northward of a line 25 feet north of and parallel to the prolonged north side of Suffolk Street; westward of a line 210 feet west of and parallel to the west side of South Long Beach Avenue, said line extending northerly to a point 222 feet south of the prolonged south side of Queens Street; southwestward of a line from the last-mentioned point to a point 74 feet northerly of the prolonged north side of Queens Street and 120 feet west of the west side of Roosevelt Avenue; and westward of a line 120 feet west of and parallel to the west side of Roosevelt Avenue.

(836) **(b) The regulations.** (1) When applied for, a berth in this anchorage, if available, may be assigned to any vessel by the Captain of the Port of New York.

(837) (2) The Captain of the Port is authorized to issue permits for maintaining mooring buoys within the anchorage. The method of anchoring these buoys shall be as prescribed by the Captain of the Port.

(838) (3) No vessel shall anchor in the anchorage in such manner as to interfere with the use of a duly authorized mooring buoy.

(839) (4) No vessel shall be navigated within the anchorage at a speed exceeding six knots.

(840) (5) In case of emergencies, the Captain of the Port is authorized to shift the position of any unattended vessel moored in or near the anchorage.

Part 117–Drawbridge Operation Regulations
Subpart A–General Requirements

(841) **§117.1 Purpose.**

(842) This subpart prescribes general requirements relating to the use and operation of drawbridges across the navigable waters of the United States.

(843) **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.

(844) **§117.3 Applicability.**

(845) The provisions of this subpart not in conflict with the provisions of Subpart B apply to each drawbridge.

(846) **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.

(847) **§117.4 Definitions.**

(848) Certain terms used in this part are defined in this section.

(849) **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.

(850) **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, radioantennae, 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.

(851) **Nonstructural**. The term "nonstructural" means that the item is not rigidly fixed to the vessel and is thus susceptible to relocation or alteration.

(852) **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.

(853) **§117.5 When the draw shall open.**

(854) 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.

(855) **§117.7 General duties of drawbridge owners and tenders.**

(856) (a) Drawbridge owners and tenders shall operate the draw in accordance with the requirement in this part.

(857) (b) Except for drawbridges not required to open for the passage of vessels, owners of drawbridges shall ensure that:

(858) (1) The necessary drawtenders are provided for the safe and prompt opening of the draw;

(859) (2) The operating machinery of the draw is maintained in a serviceable condition; and

(860) (3) The draws are operated at sufficient intervals to assure their satisfactory operation.

(861) **§117.9 Delaying opening of a draw.**

(862) No person shall unreasonably delay the opening of a draw after the signals required by §117.15 have been given.

(863) **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.

(864) **§117.11 Unnecessary opening of the draw.**

(865) No vessel owner or operator shall–

(866) (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

(867) (b) Signal a drawbridge to open for any purpose other than to pass through the drawbridge opening.

(868) **§117.15 Signals.**

(869) (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.

(870) (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.

(871) (3) Any of the means of signaling described in this subpart sufficient to alert the party being signaled may be used.

(872) (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.

(873) (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.

(874) (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.

(875) (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.

(876) (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.

(877) (c) Visual signals. (1) The visual signal to request the opening of a draw is–

(878) (i) A white flag raised and lowered vertically; or

(879) (ii) A white, amber, or green light raised and lowered vertically.

(880) (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–

(881) (i) A white flag raised and lowered vertically;

(882) (ii) A white, amber, or green light raised and lowered vertically, or

(883) (iii) A fixed or flashing white, amber, or green light or lights.

(884) (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–

(885) (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

(886) (ii) A fixed or flashing red light or lights given not more than 30 seconds after the vessel's opening signal.

(887) (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.

(888) (d) Radiotelephone communications. (1) Radiotelephones may be used to communicate the same information provided by sound and visual signals.

(889) **NOTE:** Call signs and radio channels for drawbridges equipped with radiotelephones are included with the bridge descriptions in chapters 4 through 12.

(890) (2) The vessel and the drawtender shall monitor the frequency used until the vessel has cleared the draw.

(891) (3) When radiotelephone contact cannot be initiated or maintained, sound or visual signals under this section shall be used.

(892) **§117.17 Signalling for contiguous drawbridges.**

(893) 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.

(894) **§117.19 Signalling when two or more vessels are approaching a drawbridge.**

(895) 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.

(896) **§117.21 Signalling for an opened drawbridge.**

(897) 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.

(898) **§117.23 Installation of radiotelephones.**

(899) (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.

(900) (b) The District Commander gives written notice of the proposed requirement to the bridge owner.

(901) (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.

(902) (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.

(903) **§117.24 Radiotelephone installation identification.**

(904) (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.

(905) (b) The sign shall give notice of the radiotelephone and its calling and working channels–

(906) (1) In plain language; or

(907) (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.

(908) **§117.31 Operation of draw for emergency situations.**

(909) (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.

(910) (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:

(911) (1) Federal, State, and local government vessels used for public safety;

(912) (2) vessels in distress where a delay would endanger life or property;

(913) (3) commercial vessels engaged in rescue or emergency salvage operations; and

(914) (4) vessels seeking shelter from severe weather.

(915) **§117.33 Closure of draw for natural disasters or civil disorders.**

(916) 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.

(917) **§117.35 Operations during repair or maintenance.**

(918) (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.

(919) (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.

(920) (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.

(921) (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.

(922) **§117.37 Opening or closure of draw for public interest concerns.**

(923) (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.

(924) (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.

(925) (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.

(926) **§117.39 Closure of draw due to infrequent use.**

(927) 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.

(928) **§117.41 Maintenance of draw in fully open position.**

(929) 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.

(930) **§117.43 Changes in draw operation requirements for regulatory purposes.**

(931) 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.

(932) **§117.45 Operation during winter in the Great Lakes area.**

(933) (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.

(934) (b) Notice of these determinations is disseminated in Local Notices to Mariners and other appropriate media. Notices indicate–

(935) (1) The name and location of the bridge affected;

(936) (2) The period of time covered; and

(937) (3) The telephone number and address of the party to whom requests for openings are given.

(938) **§117.47 Clearance gauges.**

(939) (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.

(940) (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).

(941) **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.

(942) **§117.49 Process of violations.**

(943) (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.

(944) (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

(945) **§117.51 Purpose.**

(946) This subpart prescribes specific requirements relating to the operation of certain drawbridges.

(947) **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 upstream. The drawbridges on the Atlantic Intracoastal Waterway are listed from north to south and on the Gulf Intracoastal Waterway from east to west.

(948) **§117.53 Applicability.**

(949) (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.

(950) (b) A requirement in this subpart which varies from a general requirement in Subpart A supersedes the general requirement.

(951) (c) All other general requirements in Subpart A not at variance apply to the bridges listed in this subpart.

(952) (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.

(953) **§117.55 Posting of requirements.**

(954) (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.

(955) (b) The signs shall be of sufficient size and so located as to be easily read at any time from an approaching vessel.

(956) (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.

(957) **§117.57 Advance notice.**

(958) 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.

(959) **§117.59 Special requirements due to hazards.**

(960) 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.

(961) **CONNECTICUT**

(962) **§117.202 Cold Spring Brook.**

(963) The draw of the footbridge, mile 0.1 at old Saybrook, shall open within 15 minutes of a mariner's request by telephone. To enable mariners to request bridge openings, the owner shall maintain and monitor a telephone at the bridge and provide a means for mariners to secure their boats upstream and downstream of the bridge in order to use this telephone.

(964) **§117.205 Connecticut River.**

(965) (a) The owners of the AMTRAK Old Saybrook-Old Lyme Bridge, mile 3.4, the Route 82 Bridge, mile 16.8, and the CONRAIL Middletown-Portland Bridge, mile 32.0, shall provide, and keep in good legible condition,, clearance gauges with figures not less than twelve (12) inches which designed, installed and maintained according to the provisions of §118.160 of this chapter.

(966) (b) The draws of the AMTRAK Old Saybrook-Old Lyme Bridge, mile 3.4, and the CONRAIL Middletown-Portland Bridge, mile 32.0, shall be opened as soon as practicable for all non-commercial vessels that cannot pass under the closed draws, but in no case shall the delay be more than 20 minutes from the time the opening was requested.

(967) (c) The draw of the Route 82 Bridge, mile 16.8, at East Haddam, shall open on signal except that, from 15 May to 31 October, between 9 a.m. and 9 p.m., the draw need open for recreational vessels on the hour and half-hour only. The draw shall open on signal for commercial vessels at all times.

(968) **§117.207 Housatonic River.**

(969) (a) The draw of the US 1 bridge, mile 3.5 at Stratford, shall open on signal; except that, from 7 a.m. to 9 a.m. and 4 p.m. to 5:45 p.m. Monday through Friday, the draw need not be opened for the passage of vessels.

(970) (b) The draw of the Metro-North (Devon) bridge, mile 3.9 at Stratford, shall operate as follows:

(971) (1) The draw shall open on signal; except as follows:

(972) (i) From 7 a.m. to 9 a.m. and from 4 p.m. to 5:45 p.m. Monday through Friday except Federal holidays or an emergency, the draw need not be opened for the passage of vessels.

(973) (ii) From 5:30 a.m. to 7 a.m. and from 5:45 p.m. to 8:15 p.m. except Saturdays, Sundays, and Federal holidays, the draw need not be opened more than once in any 60 minute period.

(974) (iii) From 9 p.m. to 5 a.m., the draw shall open on signal if notice is given before 4 p.m. on the day of the intended passage.

(975) (2) A delay in opening the draw shall not exceed 20 minutes for the passage of approaching trains from the time of the request.

(976) **§117.209 Mianus River.**

(977) The draw of the Metro-North bridge, mile 1.0 at Greenwich, shall operate as follows:

(978) (a) From 5 a.m. to 9 p.m.–

(979) (1) The draw shall open on signal immediately for the passage of commercial vessels and as soon as practicable but no later than 20 minutes after the signal to open for the passage of all other vessels.

(980) (2) When a train scheduled to cross the bridge without stopping has passed the Greenwich or Riverside stations and is in motion toward the bridge, the draw shall open as soon as the train has crossed the bridge.

(981) (b) From 9 p.m. to 5 a.m., the draw need not be opened for the passage of vessels.

(982) **§117.211 Mystic River.**

(983) (a) The draw of the Amtrak railroad bridge, mile 2.4 at Mystic, shall operate as follows:

(984) (1) From April 1 to October 31, the draw shall open on signal.

(985) (2) From November 1 to March 31, the draw shall open on signal from 5 a.m. to 9 p.m. From 9 p.m. to 5 a.m., the draw shall open on signal if at least eight hours notice is given.

(986) (3) Public vessels of the United States, state and local vessels used for public safety, vessels in an emergency, and commercial vessels shall be passed immediately at any time; however, the opening may be delayed up to eight minutes to allow trains, which have entered the drawbridge block and are scheduled to cross the bridge without stopping, to clear the block.

(987) (4) All other vessels shall be passed as soon as practicable but no later than 20 minutes after the signal to open is given.

(988) (b) The draw of the US 1 bridge, mile 2.8 at Mystic, shall open on signal, with a maximum delay of 20 minutes; except:

(989) (1) From May 1 through October 31 from 7:15 a.m. to 7:15 p.m., the draw need only open hourly at quarter past the hour.

(990) (2) From November 1 through April 30 from 7:15 p.m. to 5:15 a.m., the draw shall open on signal upon eight hours notice.

(991) (3) Public vessels of the United States, state and local vessels used for public safety, vessels in an emergency, and commercial vessels shall be passed immediately at any time.

(992) (4) All other vessels shall be passed as soon as practicable but no later than 20 minutes after the signal to open is given.

(993) **§117.213 New Haven Harbor, Quinnipiac and Mill Rivers.**

(994) The draws of the Tomlinson bridge, mile 0.0, the Ferry Street bridge, mile 0.7, and the Grand Avenue bridge, mile 1.3, across Quinnipiac River, and the Chapel Street bridge, mile 0.4 across Mill River, shall operate as follows:

(995) (a) The draws shall open on signal, except as follows:

(996) (1) From 7:30 to 8:30 a.m., noon to 12:15 p.m., 12:45 to 1 p.m. and 4:45 to 5:45 p.m., the draws need not be opened.

(997) (2) From 9 p.m. to 5 a.m. from October 1 through April 30, the draw of the Ferry Street bridge, Quinnipiac River, shall open on signal, unless the drawtender is at the Grand Avenue or Chapel Street bridges. In this event, a delay of up to one hour may be expected.

(998) (3) From 11 p.m. to 7 a.m., the draw of the Grand Avenue bridge, Quinnipiac River, shall open on signal if at least one hour notice is given to the drawtender at the Ferry Street bridge. In the event that the drawtender is at the Chapel Street bridge, a delay of up to an additional hour may be expected.

(999) (4) From 9 p.m. to 5 a.m., the draw of the Chapel Street bridge, Mill River, shall open on signal if at least one hour notice is given to the drawtender at Ferry Street bridge. In the event that the drawtender is at the Grand Avenue bridge, a delay of up to an additional hour may be expected.

(1000) (b) Public vessels of the United States, state or local government vessels used for public safety, commercial vessels, and vessels in distress shall notify the operator of the Tomlinson and the Ferry Street bridges and shall be passed through each of the bridges listed in this section as soon as possible at any time.

(1001) (c) The sound signals for requesting the opening of each bridge are as follows:

(1002) (1) The Tomlinson bridge, two short blasts of a whistle or horn.

(1003) (2) The Ferry Street bridge, one short blast of a whistle or horn.

(1004) (3) The Grand Avenue bridge, one prolonged blast of a whistle or horn.

(1005) (4) The Chapel Street bridge, three short blasts of a whistle or horn.

(1006) (d) The drawtender shall acknowledge sound signals in the following manner:

(1007) (1) When the draw can be opened immediately, the same signal as the requesting signal.

(1008) (2) When the draw cannot be opened immediately, or is open and must close, with four short blasts of a whistle or horn, to be repeated until acknowledged by the vessel by the same signal.

(1009) (3) When the draw can be reopened, the drawtender shall sound the opening signal and open the draw if any vessels are waiting to pass.

(1010) (e) The following visual signals may be used in addition to sound signals for requesting the opening of each bridge when sound signals may not be heard. A white flag by day or a white light by night shall be swung in full circles at arm's length in full sight of the bridge and facing the draw.

(1011) (f) The drawtender shall acknowledge visual signals in the following manner:

(1012) (1) When the draw can be opened immediately, a white flag by day or a green light by night swung up and down vertically a number of times in full sight of the vessel.

(1013) (2) When the draw cannot be opened immediately, or is open and must close, a red flag by day or a red light by night, swung back and forth horizontally in full sight of the vessel, to be repeated until acknowledged by the vessel by the same signal.

(1014) **§117.215 Niantic River.**

(1015) (a) The draw of the Amtrak bridge, mile 0.0 at Niantic, shall open on signal; except that, from April 1 through October 31 from 8 p.m. to 4 a.m. and from November 1 through March 31 from 6 p.m. to 6 a.m., the draw shall open on signal if at least one hour notice is given. When a train scheduled to cross the bridge without stopping has entered the drawbridge block, a delay in opening the draw may occur until the train has cleared the block.

(1016) (b) The draw of the S156 bridge, mile 0.1 at Niantic, shall open on signal; except that, from 7 a.m. to 8 a.m., and from 4 p.m. to 5 p.m. Monday through Friday except holidays, the draw shall open only for the passage of commercial vessels.

(1017) **§117.217 Norwalk River.**

(1018) (a) The draw of the Washington Street S136 bridge, mile 0.0 at Norwalk, shall open on signal; except that, from 7 a.m. to 8:45 a.m., 11:45 a.m. to 1:15 p.m., and 4 p.m. to 6 p.m. Monday through Friday except holidays, the draw need not be opened for the passage of vessels that draw less than 14 feet of water. The opening signal is three short blasts. Vessels drawing 14 feet of water or more shall add one prolonged blast after the three short blasts.

(1019) (b) The draw of the Metro-North "WALK" bridge, mile 0.1 at Norwalk, shall open on signal as follows:

(1020) (1) From 5 a.m. to 9 p.m., except that, from Monday through Friday excluding holidays, the draw need not be opened from 7 a.m. to 8:45 a.m. and 4 p.m. to 6 p.m., unless an emergency exists.

(1021) (2) Only once in any 60-minute period from 5:45 a.m. to 7 a.m. and 6 p.m. to 7:45 p.m.

(1022) (3) From 9 p.m. to 5 a.m., if at least four hours notice is given.

(1023) (4) A delay of up to 20 minutes may be expected if a train is approaching so closely that it may not be safely stopped.

(1024) **§117.219 Pequonnock River.**

(1025) (a) Public vessels of the United States and vessels in distress shall be passed through the draw of each bridge as soon as possible.

(1026) (b) The draw of the Stratford Avenue Bridge, mile 0.1 at Bridgeport, shall open on signal; except that, the draw need not

open for passage of vessels from 6:45 a.m. to 7:15 a.m., and 7:45 a.m. to 8:15 a.m., 11:45 a.m. to 1:15 p.m., and 4:30 p.m. to 6:10 p.m. The opening signal is one prolonged blast followed by one short blast.

(1027) (c) The draw of the Metro-North "PECK" bridge, mile 0.3 at Bridgeport, shall open on the signal of three blasts as follows:

(1028) (1) From 5:45 a.m. to 9 p.m. except:

(1029) (i) From Monday through Friday, excluding holidays or emergencies, the draw need not be opened from 6:45 a.m. to 7:15 a.m., 7:45 a.m. to 8:15 a.m., and 4:30 p.m. to 6:10 p.m.

(1030) (ii) From Monday through Friday, excluding holidays, or emergencies, the draws need not be opened more than once during the periods 5:45 a.m. to 6:45 a.m., 7:15 a.m. to 7:45 a.m., 8:15 a.m. to 9 a.m., and 6:10 p.m. to 8:15 p.m.

(1031) (2) From 9 p.m. to 5:45 a.m., the draws shall open on signal if at least eight hours notice is given.

(1032) (3) The draw need not open on signal if a train is approaching so closely that it may not be safely stopped, however, the delay in opening the draw shall not exceed 7 minutes from time of the request.

(1033) (d) The draw of the Congress Street Bridge, mile 0.4 at Bridgeport, shall open on signal as follows:

(1034) (1) From 8 a.m. to 9 p.m.; except that the draw need not open for the passage of other than commercial vessels from 11:45 a.m. to 1:15 p.m. and for all vessels from 4:30 p.m. to 6:10 p.m.

(1035) (2) From 9 p.m. to 8 a.m., if at least eight hours notice is given; except that the draw need not open for the passage of vessels from 6:45 a.m. to 7:15 a.m., and from 7:45 a.m. to 8 a.m.

(1036) (3) The opening signal is two prolonged blasts followed by two short blasts.

(1037) (e) The draw of the East Washington Street bridge mile 0.6, shall open on the signal of one prolonged blast followed by two short blasts if at least 24 hours notice is given.

(1038) (f) The draw of the Grand Street bridge, mile 0.9 at Bridgeport, need not be opened for the passage of vessels. However, the draw shall be returned to operable condition within 12 months after notification by the District Commander to do so.

(1039) **§117.221 Saugatuck River.**

(1040) (a) The draw of each moveable bridge shall open at all times as soon as possible for passage of a public vessel of the United States, vessel in tow or for a vessel in distress.

(1041) (b) The draw of the Metro-North "SAGA" Bridge, mile 1.1 at Saugatuck shall operate as follows:

(1042) (1) Year-round need not open:

(1043) (i) Weekdays from 7 a.m. to 8:10 a.m. and 5:30 p.m. to 7 p.m. except on federal holidays;

(1044) (ii) From 9 p.m. to 5 a.m.

(1045) (2) From October 1-May 31, open on signal:

(1046) (i) Weekdays from 8:10 a.m.-4 p.m.;

(1047) (ii) Weekends and federal holidays 7 a.m.-4 p.m.;

(1048) (iii) If at least eight hours notice is given: daily, from 5 a.m.-7 a.m., 4 p.m.-5:30 p.m. and 7 p.m.-9 p.m., and weekends and federal holidays from 5:30 p.m.-7 p.m.

(1049) (3) From June 1-September 30, open on signal 5 a.m.-9 p.m., except as provided in paragraph (b)(1)(i) of this section.

(1050) (4) A delay in opening the draw not to exceed 10 minutes may occur when a train scheduled to cross the bridge without stopping has entered the drawbridge block.

(1051) (c) The draw of the Route 136 Bridge, mile 1.3 at Saugatuck shall operate as follows:

(1052) (1) Year-round, need not open weekdays, except federal holidays, from 7 a.m. to 8:30 a.m. and 5:30 p.m. to 7:30 p.m.

(1053) (2) From April 15-October 31, open on signal if at least two hours notice is given, except as provided in paragraph (c)(1) of this section.

(1054) (3) From November 1-April 14, open on signal:

(1055) (i) From 8:30 a.m. to 3 p.m. if at least eight hours notice is given:

(1056) (ii) From 3 p.m. to 8:30 a.m., if at least 24 hours notice is given, except as provided in paragraph (c)(1) of this section.

(1057) **§117.223 Shaw Cove.**

(1058) The draw of the Amtrak bridge, mile 0.0 at New London, shall open on signal from December 1 through March 31 from 8 a.m. to 5 p.m. Monday through Friday. From December 1 through March 31 from 5 p.m. to 8 a.m. and on Saturdays and Sundays, the draw shall open on signal if at least eight hours notice is given. From April 1 through November 30 from 5 a.m. to 10 p.m., the draw shall open on signal; and, from 10 p.m. to 5 a.m., the draw shall open on signal if at least one hour notice is given. A delay of up to 10 minutes may be expected if a train is approaching so closely that it may not be safely stopped. When a vessel is in an emergency that may endanger life or property, the draw shall open as soon as possible.

(1059) **§117.224 Thames River.**

(1060) The draw of the Amtrak bridge, mile 3.0 in New London, shall open–

(1061) (a) Immediately on signal for vessels owned or operated by the United States Government, state and local vessels used for public safety, vessels in an emergency, and commercial vessels; except, when a train scheduled to cross the bridge without stopping has passed the Midway, Groton, or New London stations and is in motion toward the bridge, the draw shall not be opened for the passage of any vessel until the train has crossed the bridge; and

(1062) (b) As soon as practicable for all other vessels but no later than 20 minutes after the signal to open is given.

(1063) **§117.225 Yellow Mill Channel.**

(1064) The draw of the Stratford Avenue bridge, mile 0.3 at Bridgeport, shall open on signal if at least 24 hours notice is given. Public vessels of the United States and vessels in distress shall be passed as soon as possible.

(1065) **MASSACHUSETTS**

(1066) **§117.585 Acushnet River.**

(1067) (a) The drawspan will be opened promptly, provided proper signal is given, on the following schedule:

(1068) (1) On the hour between 6:00 a.m. and 10:00 a.m. inclusive.

(1069) (2) At a quarter past the hour between 11:15 a.m. and 6:15 p.m. inclusive.

(1070) (3) At all other times on call.

(1071) (b) The draw will be opened at any time for vessels whose draft exceeds 15 feet, for vessels owned or operated by the U.S. Government, the State of Massachusetts, or by local authorities.

(1072) (c) Each opening of the draw, from the time vehicular traffic flow is stopped until the flow resumes, shall not exceed 15 minutes except for vessels whose draft exceeds 15 feet or in extraordinary circumstances.

(1073) (d) The Massachusetts Department of Public Works shall keep posted in a conspicuous location on the upstream and downstream sides of the bridge, where it can be read easily at any time, a copy of the regulations in this subpart.

(1074) **§117.587 Apponagansett River.**

(1075) (a) The draw of the Padanaram Bridge, mile 1.0, shall open on signal 1 May through 31 October from 5 a.m. to 9 p.m. daily as follows:

(1076) (1) The bridge shall open on signal, twice an hour, on the hour and the half hour between 5 a.m. and 9 a.m. and between 8 p.m. and 9 p.m.

(1077) (2) The bridge shall open on signal, once an hour, on the hour between 9 a.m. and 8 p.m.

(1078) (b) At all other times the bridge shall open if at least four (4) hours advance notice is given.

(1079) (c) The owners of this bridge shall provide and maintain mooring facilities for vessels to make fast while waiting for the bridge to open.

(1080) (d) The owners of this bridge shall provide and keep in good legible condition, clearance gauges for each draw with figures not less than twelve (12) inches high designed, installed and maintained according to the provisions of section 118.160 of this chapter.

(1081) **§117.589 Cape Cod Canal.**

(1082) The draw of the Conrail railroad bridge, mile 0.7 at Bourne, shall operate as follows:

(1083) (a) The draw is normally in the fully open position except for the passage of trains or for maintenance. No signal is required if the draw is in the fully open position.

(1084) (b) If the draw is not in the fully open position, the opening signal is one prolonged and one short blast.

(1085) (c) Signals to be sounded from the bridge are–

(1086) (1) Immediately preceding the opening of the draw, one prolonged blast;

(1087) (2) Immediately preceding the closing of the draw, two prolonged blasts;

(1088) (3) When a vessel has sounded the opening signal and the draw cannot be opened immediately, five short blasts in a rapid succession; and

(1089) (4) When the draw is closed and visibility is reduced in foggy weather, five short blasts in rapid succession every two minutes.

(1090) **§117.598 Eel Pond Channel.**

(1091) The following requirements apply to the draw of Eel Pond (Water Street) drawbridge at mile 0.0 at Falmouth, Massachusetts.

(1092) (a) The draw shall open at all times as soon as possible for public vessels of the United States, State or local vessels used for public safety, and vessels in distress. The opening signal for these vessels shall be four or more short blast of a whistle, horn, or radio request.

(1093) (b) The owners of this bridge shall provide and keep in good legible condition clearance gauges for each draw with figures not less than 12 inches high designed, installed and maintained according to the provisions of section 118.160 of these regulations.

(1094) (c) The draw shall operate as follows:

(1095) (1) On signal from October 15 through May 14, from 8 a.m. to 5 p.m. except as provided in paragraph (c)(3)(i) of this section.

(1096) (2) Need open on signal only on the hour and half hour as follows:

(1097) (i) From May 15 through June 14 and from September 16 through October 14, from 7 a.m. to 7 p.m.

(1098) (ii) From June 15 through September 15, from 6 a.m. to 9 p.m.

(1099) (3) The draw shall open on signal if at least 8 hours advance notice is given:

(1100) (i) At all times on Christmas, New Years, Easter and all Sundays in January and February.

(1101) (ii) At all other times not stipulated in paragraphs (c)(1) and (c)(2) of this section.

(1102) **§117.607 Mitchell River.**

(1103) The draw of the Chatham highway bridge, mile 0.2 at Chatham, shall open on signal from May 1 through October 31 from 8 a.m. to 4 p.m. if at least one hour notice is given, and from 4 p.m. to 8 a.m. if at least 12 hours notice is given. From November 1 through April 30, the draw shall open on signal if at least 24 hours notice is given. Notice is given to the duty officer at the Chatham Police Department Headquarters.

(1104) **§117.619 Taunton River.**

(1105) The Bristol County Bridge, mile 10.3 at Berkley, shall operate as follows:

(1106) (a) Public vessels of the United States and state or local vessels used for public safety shall be passed as soon as possible.

(1107) (b) The owners of this bridge shall provide and keep in good legible condition clearance gauges for each draw with figures not less than 12 inches high designed, installed and maintained according to the provisions of §118.160 of this chapter.

(1108) (c) Shall open on signal if at least 24 hours notice is given by commercial and recreational vessels.

(1109) **§117.620 Westport River-East Branch.**

(1110) The Westport Point Bridge, mile 1.2 at Westport, shall operate as follows:

(1111) (a) Public vessels of the United States and state or local vessels used for public safety shall be passed as soon as possible.

(1112) (b) The owners of this bridge shall provide and keep in good legible condition clearance gauges for each draw with figures not less than 12 inches high designed, installed, and maintained, according to the provisions of §118.160 of this chapter.

(1113) (c) That the draw of the Westport Point Bridge, mile 1.2 at Westport, shall open on signal if at least 24 hours notice is given by commercial and recreational vessels.

(1114) **NEW JERSEY**

(1115) **§117.709 Cheesequake Creek.**

(1116) (a) The draw of the S35 bridge, mile 0.0 at Morgan, South Amboy, shall open on signal; except that, from May 15 through October 15 from 7 a.m. to 7 p.m., the draw need only open on the hour. From December 1 through March 31 from 11 p.m. to 7 a.m., the draw need not be opened for the passage of vessels.

(1117) (b) The draw of the New Jersey Transit Rail Operations railroad bridge, mile 0.2, operates as follows:

(1118) (1) The draw shall open on signal; except that, at least four hours notice is required–

(1119) (i) From January 1 through March 31 from 6 p.m. to 6 a.m.;

(1120) (ii) From April 1 through April 30 and November 1 through November 30 from 10 p.m. to 6 a.m. Monday through Thursday, and midnight Sunday through 6 a.m. Monday; and

(1121) (iii) From December 1 through December 31 from 10 p.m. to 6 a.m.

(1122) (2) The owners of the bridge shall provide and keep in good legible condition two board gages painted white with black figures not less than eight inches high to indicate the vertical clearance under the closed draw at all stages of the tide. The gages shall be so placed on the bridge that they are plainly visible to operators of vessels approaching the bridge either up or downstream.

(1123) **§117.719 Elizabeth River.**

(1124) (a) The draw of the South Front Street bridge, mile 0.0 at Elizabeth, shall open on signal; except that, from 12 midnight to 7 a.m., the draw shall open on signal if at least three hours notice is given.

(1125) (b) The draws of the South First Street bridge, mile 0.4 at Elizabeth, shall open on signal if at least three hours notice is given.

(1126) (c) The draws of the New Jersey Transit Rail Operations railroad bridge, mile 0.7, the Baltic Street bridge, mile 0.9, the Summer Street bridge, mile 1.3, the South Street bridge, mile 1.8, and the Bridge Street bridge, mile 2.1, all at Elizabeth, need not be opened for the passage of vessels.

(1127) **§117.723 Hackensack River.**

(1128) (a) The following requirements apply to all bridges across the Hackensack River:

(1129) (1) Public vessels of the United States, state or local vessels used for public safety, and vessels in distress shall be passed through the draw of each bridge as soon as possible without delay. The opening signal for these vessels is four or more short blasts of a whistle or horn, or a radio request.

(1130) (2) The owners of each bridge shall provide and keep in good legible condition clearance gauges for each draw, with figures not less than 18 inches high for bridges below the turning basin at mile 4.0, and 12 inches high for bridges above mile 4.0. The gauges shall be designed, installed and maintained according to the provisions of section 118.160 of this chapter.

(1131) (3) Trains and locomotives shall be controlled so that any delay in opening the draw shall not exceed 10 minutes except as provided in paragraph (a)(1) of this section. However, if a train moving toward the bridge has crossed the home signal for the bridge before the signal requesting the opening of the bridge is given, the train may continue across the bridge and must clear the bridge interlocks before stopping or reversing.

(1132) (4) New Jersey Transit Rail Operations' (NJTRO) roving crews shall consist of two qualified operators on each shift, each having a vehicle which is equipped with marine and railroad radios, a cellular telephone, and emergency bridge repair and maintenance tools. This crew shall be split with one drawtender stationed at Upper Hack and the other drawtender at the HX drawbridge. Adequate security measures shall be provided to prevent vandalism to the bridge operating controls and mechanisms to ensure prompt openings of NJTRO bridges.

(1133) (5) Except as provided in paragraphs (b) through (h) of this section, the draws shall open on signal.

(1134) (b) Except as provided in paragraph (a)(1) of this section, the draw of the NJTRO Lower Hack Bridge, mile 3.4 at Jersey City shall open on signal if at least one hour advance notice is given to the drawtender at the Upper Hack bridge, mile 6.9 at Secaucus, New Jersey. In the event the HX drawtender is at the Newark/Harrison (Morristown Line) Bridge, mile 5.8 on the Passaic River, up to an additional half hour delay is permitted.

(1135) (c) Except as provided in paragraph (a)(1) of this section, the draw of AMTRAK's Portal bridge, mile 5.0 at Little Snake Hill, need not be opened Monday through Friday, except federal holidays, from 7:20 a.m. to 9:20 a.m. and from 4:30 p.m. to 6:50 p.m. At all other times, an opening may not be delayed for more than 10 minutes, unless the drawtender and the vessel operator communicating by radiotelephone, agree to a longer delay.

(1136) (d) Except as provided in paragraph (a)(1) of this section, the draw of the NJTRO Upper Hack Bridge, mile 6.9 at Secaucus, N.J. shall open on signal unless the drawtender is at the HX bridge, mile 7.7 at Secaucus, N.J. over the Hackensack River; then up to a half hour delay is permitted.

(1137) (e) Except as provided in paragraph (a)(1) of this section, the draw of the NJTRO HX bridge, mile 7.7 at Secaucus, shall open on signal if at least one half hour notice is given to the drawtender at the Upper Hack Bridge.

(1138) (f) Except as provided by paragraph (a)(1) of this section, the draw of the S46 bridge mile 14.0 at Little Ferry, shall open on signal if at least six hours notice is given.

(1139) (g) The draw of the Harold J. Dillard Memorial (Court Street) bridge, mile 16.2 at Hackensack, N.J. shall open on signal from 7 a.m. to 11 p.m. From 11 p.m. to 7 a.m., and at all times on weekends and Federal Holidays, the draw shall open on signal if at least eight hours notice is given to the drawtender or the Bergen County Police Communication Center in Hackensack, New Jersey, except as provided by paragraph (a)(1) of this section.

(1140) (h) The draw of the New York Susquehanna and Western Railroad bridge, mile 16.3, and the Midtown bridge, mile 16.5, both at Hackensack, need not be opened for the passage of vessels, however, the draws shall be restored to operable condition with 12 months after notification by the District Commander to do so.

(1141) **§117.734 Navesink River (Swimming River).**

(1142) The owners of all bridges over the waterway shall provide and keep in good legible condition two broad gages painted white with black figures not less than eight inches high to indicate the vertical clearance under the closed draw at all stages of the tide. The gages shall be so placed on the bridge that they are plainly visible to operators of vessels approaching the bridge either up or downstream.

(1143) **§117.735 Newark Bay.**

(1144) The following requirements apply to all bridges across this waterway:

(1145) (a) Public vessels of the United States, state or local vessels used for public service, and vessels in distress shall be passed through the draw without delay. The opening signal from these vessels is four or more short blasts of a whistle or horn or a radio request.

(1146) (b) The owners of these bridges shall provide and keep in good legible condition two board gages painted white with black figures not less than 12 inches high to indicate the vertical clearance under the closed draw at all stages of the tide. The gages shall be so placed on the bridge that they are plainly visible to operators of vessels approaching the bridge either up or downstream.

(1147) (c) Trains and locomotives shall be controlled so that any delay in opening the draw span shall not exceed five minutes. However, if a train moving toward the bridge has crossed the home signal for the bridge before the signal requesting opening of the bridge is given, the train may continue across the bridge and must clear the bridge interlocks before stopping.

(1148) **§117.736 Oceanport Creek.**

(1149) The draw of the New Jersey Transit Rail Operations bridge, mile 8.4 near Oceanport, shall open on signal from May 15 through September 15 between 5 a.m. and 9 p.m.; except that, the bridge need not open 6 a.m. to 7:45 a.m. and 5:30 p.m. to 7:30 p.m. on weekdays except holidays. The draw shall open on signal upon four hours notice from May 15 through September 15 between 9 p.m. and 5 a.m., and from September 16 through May 14; except that, the draw need not be opened from 6 a.m. to 7:45 a.m. and 5:30 p.m. to 7:30 p.m. on weekdays except holidays. Public vessels of the United States and vessels in distress shall be passed as soon as possible at any time.

(1150) **§117.738 Overpeck Creek.**

(1151) (a) The draws of the Conrail and the New York, Susquehanna and Western railroad bridges, mile 0.0 both at Ridgefield Park, N.J. operate as follows:

(1152) (1) The draws shall open on signal if at least 24 hours notice is given.

(1153) (2) Public vessels of the United States, state or local vessels used for public safety, and vessels in distress shall be passed through the draw of each bridge as soon as possible.

(1154) (3) The owners of these bridges shall provide and keep in good legible condition two board gages painted white with black

figures not less than 12 inches high to indicate the vertical clearance under the closed draw at all stages of the tide. The gages shall be so placed on the bridge that they are plainly visible to operators of vessels approaching the bridge either up or downstream.

(1155) (b) Trains and locomotives shall be controlled so that any delay in opening the draw span shall not exceed five minutes. However, if a train moving toward the bridge has crossed the home signal for the bridge before the signal requesting opening of the bridge is given, the train may continue across the bridge and must clear the bridge interlocks before stopping.

(1156) **§117.739 Passaic River.**

(1157) (a) The following requirements apply to all bridges across the Passaic River:

(1158) (1) Public vessels of the United States, state or local vessels used for public service, and vessels in distress shall be passed through the draw of each bridge as soon as possible without delay at any time. The opening signal from these vessels is four or more short blasts of a whistle or horn or a radio request.

(1159) (2) The owners of these bridges shall provide and keep in good legible condition two board gages painted white with black figures not less than 12 inches high to indicate the vertical clearance under the closed draw at all stages of the tide. The gages shall be so placed on the bridge that they are plainly visible to operators of vessels approaching the bridge either up or downstream.

(1160) (3) Trains and locomotives shall be controlled so that any delay in opening the draws shall not exceed five (5) minutes except as provided in paragraphs (a)(1) and (c) of this section. However, if a train moving toward the bridge has crossed the home signal for the bridge before the signal requesting the opening of the bridge is given, the train may continue across the bridge and must clear the bridge interlocks before stopping or reversing.

(1161) (4) New Jersey Transit Rail Operations' (NJTRO) roving crews shall consist of two qualified operators, on each shift, each having a vehicle which is equipped with marine and railroad radios, a cellular telephone, and emergency bridge repair and maintenance tools. This crew shall be split with one drawtender stationed at the Upper Hack and the other drawtender at the HX drawbridge on the Hackensack River. "Adequate security measures" shall be provided to prevent vandalism to the bridge operating controls and mechanisms to insure prompt openings of NJTRO bridges.

(1162) (5) Except as provided in paragraphs (b) through (m) of this section, the draws shall open on signal.

(1163) (b) The draw of the Jackson Street bridge, mile 4.6 at Harrison, shall open on signal; except that, notice must be given before 2:30 a.m. for openings between 3 a.m. and 8:30 a.m. and before 2:30 p.m. for openings between 4:30 p.m. and 7 p.m.

(1164) (c) The draw of the Amtrak Dock bridge, mile 5.0 at Harrison, need not be opened from 7:20 a.m. to 9:20 a.m. and 4:30 p.m. to 6:50 p.m. Monday through Friday except Federal holidays. At all other times, an opening may be delayed no more than 10 minutes, unless the drawtender and the vessel operator, communicating by radiotelephone, agree to a longer delay.

(1165) (d) The draw of the Bridge Street bridge, mile 5.6 at Harrison, shall open on signal; except that, notice must be given before 2:30 a.m. for openings between 3 a.m. and 8:30 a.m. and before 2:30 p.m. for openings between 4:30 p.m. and 7 p.m. Public vessels of the United States shall be passed as soon as possible at any time.

(1166) (e) The draw of the NJTRO Newark-Harrison (Morristown Line) bridge, mile 5.8 at Harrison, New Jersey shall operate as follows:

(1167) (1) Open on signal if at least one hour advance notice is given to the drawtender at the Upper Hack bridge mile 6.9, across the Hackensack River at Secaucus, N.J. In the event, the HX drawtender is at the Lower Hack Bridge, mile 3.4 on the Hackensack River at Jersey City then up to an additional half hour delay is permitted.

(1168) (2) Need not open from 7:15 a.m. to 9 a.m. and from 4:30 p.m. to 6:50 p.m. Monday through Friday except federal holidays.

(1169) (f) The draw of the Route 280 (Stickel Memorial) bridge, mile 5.8 at Harrison, shall open on signal of at least eight hours notice is given. In an emergency, the draw shall open as soon as possible but not more than two hours after the opening request.

(1170) (g) The draw of the Clay Street bridge, mile 6.0 at Harrison, shall open on signal; except that, notice must be given before 2:30 a.m. for openings between 3 a.m. and 8:30 a.m. and before 2:30 p.m. for openings between 4:30 p.m. and 7 p.m.

(1171) (h) The draw of the New Jersey Transit Rail Operations bridge, (West Arlington) mile 8.0 at Kearney, shall open on signal from 7 a.m. to 11 p.m. if at least eight hours notice is given. From 11 p.m. to 7 a.m., the draw need not be opened.

(1172) (i) The draw of the Avondale bridge, mile 10.7 at Lyndhurst, shall open on signal; except that, notice must be given before 2:30 a.m. for openings between 3 a.m. and 8:30 a.m. and before 2:30 p.m. for openings between 4:30 p.m. and 7 p.m.

(1173) (j) The draw of the New Jersey Transit Rail Operations bridge, mile 11.7 at Lyndhurst, shall open on signal from 8 a.m. to 4 p.m. if at least six hours notice is given. From 4 p.m. to 8 a.m., the draw need not be opened.

(1174) (k) The draw of the Route 3 bridge, mile 11.8 at Rutherford, shall open on signal if at least six hours notice is given.

(1175) (l) The draw of the Douglas O. Mead (Union Avenue) Bridge at Rutherford, mile 13.2, shall open on signal, except that:

(1176) (1) From 4 p.m. to 8 a.m., the draw shall open if at least eight hours notice is given; and

(1177) (2) On Christmas and New Year's Day, the draw shall open if notice is given prior to 4 p.m. the day prior.

(1178) **Note.**–Telephone 201-438-5076 for opening requests.

(1179) (m) The draws of the following bridges need not be opened for the passage of vessels:

(1180) (1) Gregory Avenue bridge, mile 14.0 at Wallington.

(1181) (2) Second Street Bridge, mile 14.7 at Wallington.

(1182) (3) West Eighth Street bridge, mile 15.3 at Garfield.

(1183) **§117.743 Rahway River.**

(1184) The draw of the Conrail bridge, mile 2.0 at Linden, shall open on signal from April 1 through November 30 from 6 a.m. to 10 p.m. At all other times, the draw shall open on signal if at least four hours notice is given.

(1185) **§117.747 Raritan River, Arthur Kill, and their tributaries.**

(1186) The draws of all bridges shall open on signal; except that, from 7:30 a.m. to 10 a.m. and 5 p.m. to 7:30 p.m., the draws may be opened for the passage of vessels for periods no longer than 10 minutes or remain closed for the passage of land traffic for no longer than 10 minutes. Public vessels of the United States and state or local vessels used for public safety shall be passed at any time. The owners of each bridge shall maintain a tug at the drawbridge to control and aid in the passage of vessels. The owners shall provide and keep in good legible condition two board gages painted white with black figures not less than eight inches high to indicate the vertical clearance under the closed draw at all stages of the tide. The gages shall be so placed on the bridges that they are plainly visible to operators of vessels approaching the bridges either up or downstream.

(1187) **§117.755 Shrewsbury River.**

(1188) (a) The draw of the S36 bridge, mile 1.8 at Highlands, shall open on signal; except that, from Memorial Day through Labor Day on Saturdays, Sundays and holidays from 10 a.m. to 7 p.m., the draw need be opened only on the hour and half hour. The owners of the bridge shall provide and keep in good legible condition two board gages painted white with black figures not less than eight inches high to indicate the clearance under the closed draw at all stages of the tide. The gages shall be so placed on the bridge that they are plainly visible to operators of vessels approaching the bridge either up or downstream.

(1189) (b) The draw of the Monmouth County highway bridge, mile 4.0 at Sea Bright, shall open on signal; except that, from May 15 through September 30 on Saturdays, Sundays, and holidays from 9 a.m. to 7 p.m., the draw need be opened only on the hour and half hour. The draw need not be opened at any time for a sailboat, unless it is under auxiliary power or is towed by a powered vessel. The owners of the bridge shall provide and keep in good legible condition two board gages painted white with black figures not less than eight inches high to indicate the clearance under the closed draw at all stages of the tide. The gages shall be so placed on the bridge that they are plainly visible to operators of vessels approaching the bridge either up or downstream.

(1190) **§117.756 South River.**

(1191) The draw of the CONRAIL bridge, mile 2.8 at South River shall open on weekdays (exclusive of holidays) from December 1 through the last day of February if at least four hours notice is given. From March 1 through November 30, and December 1 through the last day of February on weekends and holidays the draw shall be maintained open to navigation except for closure to accommodate passage of a train. The draw shall be opened as soon as possible at all times for passage of a public vessel of the United States.

(1192) **§117.761 Woodbridge Creek.**

(1193) The draws of the State Street bridge, mile 0.5, and the railroad bridge, mile 0.6, both at Sewaren, shall open on signal if at least four hours notice is given.

(1194) **NEW YORK**

(1195) **§117.771 Bronx River.**

(1196) (a) The draw of the Bruckner Boulevard Bridge, mile 1.1, at the Bronx, New York, shall open on signal if at least 4 hours notice is given to the New York City Department of Transportation (NYCDOT) Radio Hotline, or NYCDOT Bridge Operations office, except that between 7 a.m. and 9 a.m., and 4 p.m. and 6 p.m. Monday through Friday, the bridge need not be opened for the passage of vessels.

(1197) (b) The draw of the Conrail Bridge, mile 1.6 at the Bronx, New York, need not be opened for the passage of vessels.

(1198) (c) The owners of the Bruckner Boulevard Bridge, mile 1.1, and the Conrail Bridge, mile 1.6, both at the Bronx, New York, shall provide and keep in good legible condition two clearance gauges designed, installed and maintained in accordance with the provisions of §118.160 of this chapter.

(1199) **§117.775 Coney Island Creek.**

(1200) The draws of the Cropsey Avenue bridge, mile 0.4, the Stillwell bridge, mile 0.6, and the New York City Transit Authority bridges near Stillwell Avenue, mile 0.7, all at New York City, need not be opened for the passage of vessels.

(1201) **§117.779 Eastchester Bay (Arm of).**

(1202) The draw of the highway bridge, mile 2.2 between Rodman Neck and City Island, need not be opened for the passage of vessels.

(1203) **§117.781 East River.**

(1204) The following requirements apply to the Roosevelt Island bridge, mile 6.4 at New York City, as follows:

(1205) (a) Public vessels of the United States Government, state or local vessels used for public safety, and vessels in distress shall be passed through the draws of each bridge as soon as possible without delay at anytime. The opening signal from these vessels shall be four or more short blasts of a whistle, horn or radio request.

(1206) (b) The owners of each bridge shall provide and keep in good legible condition clearance gauges for each draw with figures not less than 12 inches high designed, installed and maintained according to the provisions of §118.160 of these regulations.

(1207) (c) The draw of the Roosevelt Island bridge shall open on signal if at least two hour advance notice is given to the drawtender at the Grand Street/Avenue bridge, mile 3.1 across Newtown Creek (East Branch), the New York Department of Transportation (NYCDOT) Radio Hotline or NYCDOT Bridge Operations Office. In the event the drawtender is at Borden Avenue or Hunters Point Avenue bridges mile 1.2 and 1.4, respectively, across Dutch Kills, up to an additional half hour delay may be required.

(1208) **§117.783 Flushing Creek.**

(1209) The draws of the Northern Boulevard bridge, mile 0.2, the Roosevelt Avenue bridge, mile 0.8, and the Long Island Railroad bridge, mile 1.0, all at New York City, need not be opened for the passage of vessels.

(1210) **§117.787 Gowanus Canal.**

(1211) The draws of the Third Street bridge, mile 1.8, the Carroll Street bridge, mile 2.0, and the Union Street bridge, mile 2.1, all at New York City, shall open on signal; except that, from May 1 through September 30, the draws shall open on signal if at least six hours notice is given to the New York City Highway Department's Radio (Hotline) Room.

(1212) **§117.789 Harlem River.**

(1213) (a) The draws of all the bridges across the Harlem River, except the Spuyten Duyvil railroad bridge, need not be opened from 5 p.m. to 10 a.m. However, at all times, public vessels of the United States, and New York City vessels used for public safety shall be passed through the draw of each bridge listed in this section as soon as possible.

(1214) (b) The draws of the railroad bridges across this waterway need not open on signal from the time an express passenger train scheduled to cross the bridge is within five minutes of the bridge until the train has crossed the bridge.

(1215) (c) The draws of the bridges at 103rd Street, mile 0.0, Willis Avenue, mile 1.5, 3rd Avenue, mile 1.9, Madison Avenue, mile 23, 145th Street, mile 2.8, Macombs Dam, mile 3.2, 207th Street, mile 6.0, and the two Broadway bridges, mile 6.8, shall open on signal from 10 a.m. to 5 p.m. if at least four hours notice is given to the New York City Highway Radio (Hotline) Room.

(1216) (d) The draw of the Triborough (125th Street) bridge, mile 1.3, shall open on signal from 10 a.m. to 5 p.m. if at least four hours notice is given.

(1217) (e) The draw of the Conrail (Park Avenue) bridge, mile 2.1, shall open on signal from 10 a.m. to 5 p.m., except as provided in paragraph (b) of this section.

(1218) (f) The draw of the Spuyten Duyvil railroad bridge, mile 7.9, shall open on signal at any time, except as provided in paragraph (b) of this section.

(1219) **§117.791 Hudson River.**

(1220) (a) The draws of the bridges listed in this section shall open as soon as possible at any time for the passage of the following vessels:

(1221) (1) Downbound vessels during a freshet of a height exceeding an elevation determined by the District Commander.

(1222) (2) Public vessels of the United States.

(1223) (3) State or local vessels used for public safety.

(1224) (4) Vessels of 500 tons or more.

(1225) (5) Tugs with a tow on a hawser.

(1226) (b) The draws of the bridges listed in this section shall not remain open for more than 15 minutes and may remain closed for up to 10 minutes to allow accumulated land traffic to pass.

(1227) (c) The draw of the Conrail bridge, mile 146.2 between Albany and Rensselaer, shall open on signal; except that, from December 16 through March 31, the draw shall open on signal if at least 24 hours notice is given.

(1228) (d) The draw of the state highway bridge, mile 150.2 between Troy and Menands, need not be opened for the passage of vessels.

(1229) (e) The draw of the highway bridge, mile 152.7 between Troy and Green Island, operates as follows:

(1230) (1) From April 1 through December 15, the draw shall open on signal from 9 a.m. to 4 p.m.; except that, the draw need not be opened from 6 p.m. to 7 a.m., unless notice is given before 4:30 p.m. of the time the vessel is expected to pass, and need not open from 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m.

(1231) (2) From December 16 through March 31, the draw need not be opened.

(1232) (f) The draws of the 112th Street bridge, mile 155.4 between Troy and Cohoes operate as follows:

(1233) (1) The draws shall open on signal from 9 a.m. to 4 p.m.

(1234) (2) The draws shall open on signal from 6 p.m. to 7 a.m., if notice is given, before 4:30 p.m., of the time the vessel is expected to pass.

(1235) (3) The draws need not be opened from 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m.

(1236) (4) During the period that the Federal Lock at Troy is inoperative, the draws need not be opened for the passage of vessels, provided that emergency openings be made as soon as possible.

(1237) **§117.793 Hutchinson River (Eastchester Creek).**

(1238) (a) The following requirements apply to all bridges across Hutchinson River (Eastchester Creek);

(1239) (1) The owners of each bridge shall provide and keep in good legible condition clearance gauges for each draw figures not less than 12 inches high designed, installed and maintained according to the provision of §118.160 of this chapter.

(1240) (2) Trains and locomotives shall be controlled so that any delay in opening the draw shall not exceed ten minutes except as provided in §117.31(b). However, if a train moving toward the bridge has crossed the home signal for the bridge before the signal requesting opening of the bridge is given, the train may continue across the bridge and must clear the bridge interlocks before stopping.

(1241) (3) Except as provided in paragraphs (b) and (c) of this section each draw shall open on signal.

(1242) (b) The draws of the Hutchinson River Parkway Bridge, mile 0.9, and the New England Thruway (I-95) Bridge, mile 2.2, both at New York City, shall open on signal if at least six hours notice is given.

(1243) (c) The draw of the South Fulton Avenue Bridge, mile 2.0, shall open on signal from three hours before to three hours after the predicted high tide. For the purposes of this section, predicted high tide occurs four hours after predicted high water for New York (Battery), as given in the tide tables published by the National Oceanic and Atmospheric Administration (NOAA).

(1244) (1) At all other times, the bridge shall open on signal if at least four hours advance notice is given to the Westchester County Road Maintenance Division during normal work hours or to the County's Parkway Police at all other times.

(1245) (2) The bridge tender shall honor requests for opening within six hours after predicated high water if such request is given to the bridge tender while he or she is on station (three hours before to three hours after predicted high tide).

(1246) **§117.795 Jamaica Bay and Connecting Waterways.**

(1247) (a) The draw of the Marine Parkway bridge, mile 3.0 over Rockaway Inlet, shall open on signal Monday through Friday from 8 a.m., to 4 p.m. At all other times, the draw shall open on signal if at least eight hours notice is given: however, the draw shall open on signal if at least a one hour notice is given for the passage of U.S. Navy or National Oceanic and Atmospheric Administration vessels.

(1248) (b) The draws of the New York City highway bridge, mile 0.8 across Mill Basin on Belt Parkway, need not be opened for the passage of vessels from noon to 9 p.m. on Sundays from May 15 to September 30, Memorial Day, Independence Day, and Labor Day. However, on these days, from two hours before to one hour after predicted high tide, the draw shall open on signal. For the purpose of this section, predicted high tide occurs 15 minutes later than that predicted for Sandy Hook, as given in the tide tables published by the National Oceanic and Atmospheric Administration. At all times, public vessels of the United States and state or local vessels used for public safety shall be passed as soon as possible.

(1249) (c) The draws of the New York City Cross Bay Boulevard bridge, mile 10.0, and the New York City Transit Authority bridge, mile 10.6 both across the North Channel at Hamilton Beach, need not be opened for the passage of vessels.

(1250) **§117.799 Long Island, New York Inland Waterway from East Rockaway Inlet to Shinnecock Canal.**

(1251) (a) At all times, public vessels of the United States, state or local vessels used for public safety and vessels in distress shall be passed through the draws of each bridge listed in this section as soon as possible.

(1252) (b) The draw of each bridge listed in this section need not be opened for sailing vessels, unless the vessels are under machinery power or under tow, if an opening would unduly delay other vessel or vehicular traffic.

(1253) (c) The owners of the bridges listed in this section shall provide and keep in good legible condition two board gages painted white with black figures not less than eight inches high to indicate the vertical clearance under the closed draw at all stages of the tide. The gages shall be so placed on the bridges that they are plainly visible to operators of vessels approaching the bridges either up or downstream.

(1254) (d) The draws of the West Bay bridge, mile 0.1 across Quantuck Canal, Beach Lane bridge, mile 1.1 across Quantuck Canal, Quoque bridge, mile 1.1 across Quoque Canal, the Smith Point bridge, mile 6.1 across Narrow Bay, and Ponquoque Point bridge, mile 78.0 across Shinnecock Bay, shall open on signal from October 1 through April 30 from 8 a.m. to 4 p.m. and from May 1 through September 30 from 6 a.m. to 10 p.m. At all other times during these periods, the draws shall open as soon as possible but no more than one hour after a request to open is received.

(1255) (e) The draw of the Atlantic Beach Bridge across Reynolds Channel, mile 0.4, shall open on signal–

(1256) (1) From October 1 through May 14;

(1257) (2) From May 15 through September 30, except that it need be opened only on the hour and half hour from 4 p.m. to 7 p.m. on weekdays and from 11 a.m. to 9 p.m. on Saturdays, Sundays, Memorial Day, Independence Day, and Labor Day; and

(1258) (3) From May 15 through September 30, from two hours before to one hour after predicted high tide. Predicted high tide occurs 10 minutes earlier than that predicted for Sandy Hook, as given in the tide table published by the National Oceanic and Atmospheric Administration.

(1259) (f) The draw of the Loop Parkway Bridge across Long Creek, mile 0.7, shall open on signal every other hour on the even hour; except that, from April 1 through October 31 on Saturdays, Sundays, and Federal holidays, the draw shall open on signal every three hours beginning at 3 a.m. If an opening is desired at other than a scheduled time, notice may be given from the telephone located on either side of the bridge or via marine radiotelephone.

(1260) (g) The draw of the Long Beach Bridge across Reynolds Channel, mile 4.7, shall open on signal; except that:

(1261) (1) From midnight to 8 a.m. year-round, the draw shall open on signal if at least four hours notice is given; and

(1262) (2) From 3 p.m. to 8 p.m. on Saturdays, Sundays, and holidays from May 15 through September 30, the draw need be opened only on the hour and half hour.

(1263) (h) The draw of the Meadowbrook State Parkway bridge, mile 12.8 across Sloop Channel, shall open on signal if at least one half hour notice is given to the New York State Department of Transportation, as follows:

(1264) (1) Every other hour on the even hour.

(1265) (2) From April 1 through October 31 on Saturdays, Sundays, and Federal holidays, every three hours beginning at 1:30 a.m. Notice may be given from the telephone located at the moorings on each side of the bridge or by marine radiotelephone.

(1266) (i) The draws of the Wantagh State Parkway bridge, mile 16.1 across Goose Creek, and the Captree State Parkway bridge, mile 30.7 across State Boat Channel at Captree Island, shall open on signal if at least one half hour notice is given to the New York State Department of Transportation, as follows:

(1267) (1) Every other hour on the even hour.

(1268) (2) From April 1 through October 31 on Saturdays, Sundays, and Federal holidays, every three hours beginning at 3 a.m. Notice may be given from the telephone located at the moorings on each bridge or by marine radiotelephone.

(1269) **§117.801 Newtown Creek, Dutch Kills, English Kills and their tributaries.**

(1270) (a) The following requirements apply to all bridges across Newtown Creek, Dutch Kills, English Kills and their tributaries:

(1271) (1) Public vessels of the United States Government, state or local vessels used for public safety, and vessels in distress shall be passed through the draws of each bridge as soon as possible without delay at anytime. The opening signal from these vessels shall be four or more short blasts of a whistle, horn or radio request.

(1272) (2) The owners of each bridge shall provide and keep in good legible condition clearance gauges for each draw with figures not less than 12 inches high designed, installed and maintained according to the provisions of §118.160 of these regulations.

(1273) (3) Trains and locomotives shall be controlled so that any delay in opening the draw shall not exceed five minutes. However, if a train moving toward the bridge has crossed the home signal for the bridge before the signal requesting opening of the bridge is given, that train may continue across the bridge and must clear the bridge and must clear the bridge interlocks before stopping.

(1274) (4) Except as provided in paragraphs (b) through (e) of this section, each draw shall open on signal.

(1275) (b) The draws of the Long Island Railroad bridges, mile 1.1 across Dutch Kills, both at New York City shall open on signal if at least six hours notice is given to the Long Island Railroad Movement Bureau except as provided in paragraphs (a)(1) and (a)(3) of this section.

(1276) (c) The draw of the Borden Avenue bridge, mile 1.2 across Dutch Kills at New York City (NYC), shall open on signal if at least one hour advance notice is given to the drawtender at the Grand Street/Avenue bridge, mile 3.1 across Newton Creek (East Branch), the New York City Department of Transportation (NYCDOT) Radio Hotline, or NYCDOT Bridge Operations Office. In the event the drawtender is at the Roosevelt Island bridge, mile 6.4 across East River of the Hunters Point Avenue bridge, mile 1.4 across Dutch Kills, New York, up to an additional half hour delay may be required.

(1277) (d) The draw of the Hunters Point Avenue bridge, mile 1.4 across Dutch Kill, New York City, shall open on signal if at least one hour advance notice is given to the drawtender at the Grand Street/Avenue bridge, mile 3.1 across Newtown Creek (East Branch), the New York City Department of Transportation (NYCDOT) Radio Hotline or NYCDOT Bridge Operations Office. In the event the drawtender is at the Roosevelt Island bridge, mile 6.4 across East River, or the Borden Avenue bridge, mile 1.2 across Dutch Kills, up to an additional half hour may be required.

(1278) (e) The draw of Grand Street/Avenue bridge, mile 3.1 across Newtown Creek (East Branch), at New York City, shall open on signal unless the drawtender is at the Borden Avenue or Hunters Point Avenue Bridges, mile 1.2 and 1.4, respectively, across Dutch Kills, New York or the Roosevelt Island bridge, mile 6.4 across East River. In this event, a notice to New York City Department of Transportation Radio Hotline, or NYCDOT Bridge Operations Office shall be given, to which a delay of up to one hour may be required.

(1279) **§117.805 Peekskill (Annsville) Creek.**

(1280) The draw of the Conrail bridge, mile 0.0 at Peekskill, need not be opened for the passage of vessels.

(1281) **§117.807 Richmond Creek.**

(1282) The draw of the Richmond Avenue bridge, mile 2.0 at New York City, need not open for the passage of vessels.

(1283) **§117.813 Wappinger Creek.**

(1284) The draw of the Metro-North Commuter railroad bridge, mile 0.0 at New Hamburg, 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.

(1285) **§117.815 Westchester Creek.**

(1286) The draw of the Bruckner Boulevard bridge, mile 1.7, shall open on signal; except that, from 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. Monday through Friday, the draw need not be opened for the passage of vessels. Public vessels of the United States, state or local vessels used for public safety, or vessels in distress shall be passed without delay. The owners of the bridge shall provide and keep in good legible condition two board gages painted white with black figures not less than nine inches high to indicate the vertical clearance under the closed draw at all stages of the tide. The gages shall be so placed on the bridge that they are plainly visible to operators of vessels approaching the bridge either up or downstream.

(1287) **RHODE ISLAND**

(1288) **§117.907 Providence River.**

(1289) The draw of the US1 (Point Street) bridge, mile 7.5 at Providence, need not be opened for the passage of vessels from 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. At all other times, the draw shall open on signal if at least 24 hours notice is given to the Director of Public Works, City Hall, Providence. Public vessels of the United States, state and local vessels used for public safety, loaded, self-propelled cargo vessels, and assisting tugs shall be passed as soon as possible.

(1290) **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:

(1291) **§ 160.1 Purpose.**

(1292) Part 160 contains regulations implementing the Ports and Waterways Safety Act (33 U.S.C. 1221) and related statutes.

(1293) **§160.3 Definitions.**

(1294) For the purposes of this subchapter:

(1295) "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.

(1296) "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.

(1297) "Commandant" means the Commandant of the United States Coast Guard.

(1298) "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.

(1299) "Deviation" means any departure from any rule in this subchapter.

(1300) " 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.

(1301) "ETA" means estimated time of arrival.

(1302) "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.

(1303) "Person" means an individual, firm, corporation, association, partnership, or governmental entity.

(1304) "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.

(1305) "Tanker" means a self-propelled tank vessel constructed or adapted primarily to carry oil or hazardous materials in bulk in the cargo spaces.

(1306) "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.

(1307) "Vehicle" means every type of conveyance capable of being used as a means of transportation on land.

(1308) "Vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water.

(1309) "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.

(1310) "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.

(1311) **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.

(1312) "VTS Special Area" means a waterway within a VTS area in which special operating requirements apply.

(1313) **§160.5 Delegations.**

(1314) (a) District Commanders and Captains of the Ports are delegated the authority to establish safety zones.

(1315) (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.

(1316) (c) Under the provisions of 33 CFR §1.05-1, District Commanders have been delegated authority to establish regulated navigation areas.

(1317) (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.

(1318) **§160.7 Appeals.**

(1319) (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.

(1320) (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 docu-

mentation 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.

(1321) (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.

(1322) (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

(1323) **§160.101 Purpose.**

(1324) 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.

(1325) **§160.103 Applicability.**

(1326) (a) This subpart applies to any–

(1327) (1) Vessel on the navigable waters of the United States, except as provided in paragraphs (b) and (c) of this section;

(1328) (2) Bridge or other structure on or in the navigable waters of the United States; and

(1329) (3) Land structure or shore area immediately adjacent to the navigable waters of the United States.

(1330) (b) This subpart does not apply to any vessel on the Saint Lawrence Seaway.

(1331) (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–

(1332) (1) Innocent passage through the territorial sea of the United States;

(1333) (2) Transit through the navigable waters of the United States which form a part of an international strait.

(1334) **§160.105 Compliance with orders.**

(1335) Each person who has notice of the terms of an order issued under this subpart must comply with that order.

(1336) **§160.107 Denial of entry.**

(1337) 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.

(1338) **§160.109 Waterfront facility safety.**

(1339) (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–

(1340) (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 Section 4417a of the Revised Statutes, as amended, (46 U.S.C. 391a) 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

(1341) (2) Conduct examinations to assure compliance with the safety equipment requirements for structures.

(1342) **§160.111 Special orders applying to vessel operations.**

(1343) Each District Commander or Captain of the Port may order a vessel to operate or anchor in the manner directed when—

(1344) (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;

(1345) (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

(1346) (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.

(1347) **§160.113 Prohibition of vessel operation and cargo transfers.**

(1348) (a) Each District Commander or Captain of the Port may prohibit any vessel subject to the provisions of section 4417a of the Revised Statutes (46 U.S.C. 391a) 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.

(1349) (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:

(1350) (1) Fails to comply with any applicable regulation;

(1351) (2) Discharges oil or hazardous material in violation of any law or treaty of the United States;

(1352) (3) Does not comply with applicable vessel traffic service requirements;

(1353) (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.

(1354) (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.

(1355) (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.

(1356) **§160.115 Withholding of clearance.**

(1357) (a) Each District Commander or Captain of the Port may request the Secretary of the Treasury, or the authorized representative thereof, to withold or revoke the clearance required by 46 U.S.C. 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

(1358) **§160.201 Applicability and exceptions to applicability.**

(1359) (a) This subpart prescribes notification requirements for U.S. and foreign vessels bound for or departing from ports or places in the United States.

(1360) (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:

(1361) (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

(1362) (2) Oil Spill Recovery Vessels (OSRVs) when engaged in actual spill response operations or during spill response exercises.

(1363) (c) Section 160.207 does not apply to the following:

(1364) (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.

(1365) (2) Each vessel operating exclusively within a Captain of the Port zone.

(1366) (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–

(1367) (i) Name of the vessel;

(1368) (ii) Country of registry of the vessel;

(1369) (iii) Call sign of the vessel;

(1370) (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;

(1371) (v) Name of the registered owner of the vessel;

(1372) (vi) Name of the operator of the vessel;

(1373) (vii) Name of the classification society of the vessel;

(1374) (viii) Each port or place of destinations;

(1375) (ix) Estimated dates and times of arrivals at and departures from these ports or places; and

(1376) (x) Name and telephone number of a 24-hour point of contact.

(1377) (4) Each vessel arriving at a port or place under force majeure.

(1378) (5) Each vessel entering a port of call in the United States in compliance with the Automated Mutual Assistance Vessel Rescue System (AMVER).

(1379) (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).

(1380) (7) Each barge.

(1381) (8) Each public vessel.

(1382) (9) United States or Canadian flag vessels, except tank vessels or vessels carrying certain dangerous cargo, which operate solely on the Great Lakes.

(1383) (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.

(1384) **§160.203 Definitions.**

(1385) As used in this subpart:

(1386) "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.

(1387) "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.

(1388) "Certain dangerous cargo" includes any of the following:

(1389) (a) Class A explosives, as defined in 46 CFR 146.20–7 and 49 CFR 173.53.

(1390) (b) Oxidizing materials or blasting agents for which a permit is required under 49 CFR 176.415.

(1391) (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).

(1392) (d) Each cargo under Table 1 of 46 CFR Part 153 when carried in bulk.

(1393) (e) Any of the following when carried in bulk:

(1394) Acetaldehyde

(1395) Ammonia, anhydrous

(1396) Butadiene

(1397) Butane

(1398) Butene

(1399) Butylene Oxide

(1400) Chlorine

(1401) Ethane
(1402) Ethylene
(1403) Ethylene Oxide
(1404) Methane
(1405) Methyl Acetylene, Propadiene Mixture, Stabilized
(1406) Methyl Bromide
(1407) Methyl Chloride
(1408) Phosphorous, elemental
(1409) Propane
(1410) Propylene
(1411) Sulfur Dioxide
(1412) Vinyl Chloride

(1413) "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.

(1414) "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

(1415) "Hazardous condition" means any condition that could adversely affect the safety of any vessel, bridge, structure, or shore area or the environmental quality of any port, harbor, or navigable water of the United States. This condition could include but is not limited to, fire, explosion, grounding, leakage, damage, illness of a person on board, or a manning shortage.

(1416) "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.

(1417) "Port or place of departure" means any port or place in which a vessel is anchored or moored.

(1418) "Port or place of destination" means any port or place to which a vessel is bound to anchor or moor.

(1419) "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.

(1420) **§160.205 Waivers.**

(1421) 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.

(1422) **§160.207 Notice of arrival: vessels bound for ports or places in the United States.**

(1423) (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.

(1424) (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.

(1425) (c) The Captain of the Port of the port or place of destination in the United States must be notified of—

(1426) (1) Name of the vessel;

(1427) (2) Country of registry of the vessel;

(1428) (3) Call sign of the vessel;

(1429) (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;

(1430) (5) Name of the registered owner of the vessel;

(1431) (6) Name of the operator of the vessel;

(1432) (7) Name of the classification society of the vessel;

(1433) (8) Name of the port or place of departure;

(1434) (9) Name of the port or place of destination;

(1435) (10) Estimated date and time of arrival at this port or place; and

(1436) (11) Name and telephone number of a 24-hour point of contact.

(1437) **§160.209 Notice of arrival: vessels bound from the high seas for ports or places on the Great Lakes.**

(1438) In addition to complying with the requirement of §160.207, the owner, master, agent, or person in charge of a vessel bound from the high seas for any port or place of destination on the Great Lakes shall notify the Commander, Ninth Coast Guard District, at least 24 hours before arriving at the Snell Locks, Massena, New York of—

(1439) (a) The name and country of registry of the vessel; and

(1440) (b) The estimated time of arrival at the Snell Locks, Massena, New York.

(1441) **§160.211 Notice of arrival: vessels carrying certain dangerous cargo.**

(1442) (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:

(1443) (1) Name of the vessel;

(1444) (2) Country of registry of the vessel;

(1445) (3) Call sign of the vessel;

(1446) (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;

(1447) (5) Name of the registered owner of the vessel;

(1448) (6) Name of the operator of the vessel;

(1449) (7) Name of the classification society of the vessel;

(1450) (8) Name of the port or place of departure;

(1451) (9) Name of the port or place of destination;

(1452) (10) Estimated date and time of arrival at this port or place;

(1453) (11) Name of telephone number of a 24-hour point of contact;

(1454) (12) Location of the vessel at the time of the report;

(1455) (13) Name of each of the certain dangerous cargoes carried;

(1456) (14) Amount of each of the certain dangerous cargoes carried;

(1457) (15) Stowage location of each of the certain dangerous cargoes carried; and

(1458) (16) Operational condition of the equipment under §164.35 of this chapter.

(1459) (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.

(1460) **§160.213 Notice of departure; vessels carrying certain dangerous cargo.**

(1461) (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:

(1462) (1) Name of the vessel:

(1463) (2) Country of registry of the vessel;

(1464) (3) Call sign of the vessel;

(1465) (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;

(1466) (5) Name of the registered owner of the vessel;

(1467) (6) Name of the operator of the vessel;

(1468) (7) Name of the classification society of the vessel;

(1469) (8) Name of the port or place of departure;

(1470) (9) Name of the port or place of destination;

(1471) (10) Estimated date and time of arrival of this port or place;

(1472) (11) Name and telephone number of a 24-hour point of contact;

(1473) (12) Name of each of the certain dangerous cargoes carried;

(1474) (13) Amount of each of the certain dangerous cargoes carried;

(1475) (14) Stowage location of each of the certain dangerous cargoes carried; and

(1476) (15) Operational condition of the equipment under §164.35 of this chapter.

(1477) (b) The owner, master, agent, or person in change of a barge departing from a port or place in the United States for any other port or place and carrying 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.

(1478) **§160.215 Notice of hazardous conditions.**

(1479) Whenever there is a hazardous condition on board a vessel, the owner, master, agent or person in charge shall immediately notify the Captain of the Port of the port or place of destination and the Captain of the Port of the port or place in which the vessel is located of the hazardous condition.

Part 161–Vessel Traffic Management

Subpart A–Vessel Traffic Services

(1480) **General Rules**

(1481) **§161.1 Purpose and Intent.**

(1482) (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.

(1483) (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.

(1484) (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.

(1485) (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.

(1486) **§161.2 Definitions.**

(1487) For the purposes of this part:

(1488) "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.

(1489) "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:

(1490) (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.

(1491) (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.

(1492) (3) Vessel characteristics that affect or restrict maneuverability, such as cargo arrangement, trim, loaded condition, underkeel clearance, speed, or similar characteristics.

(1493) "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.

(1494) "Towing Vessel" means any commercial vessel engaged in towing another vessel astern, alongside, or by pushing ahead.

(1495) "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.

(1496) "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:

(1497) (1) Every power-driven vessel of 40 meters (approximately 131 feet) or more in length, while navigating;

(1498) (2) Every towing vessel of 8 meters (approximately 26 feet) or more in length, while navigating; or

(1499) (3) Every vessel certificated to carry 50 or more passengers for hire, when engaged in trade.

(1500) "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.

(1501) "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.

(1502) "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.

(1503) **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.

(1504) "VTS Special Area" means a waterway within a VTS area in which special operating requirements apply.

(1505) "VTS User" means a vessel, or an owner, operator, charterer, master, or person directing the movement of a vessel, that is:

(1506) (a) Subject to the Vessel Bridge-to-Bridge Radiotelephone Act; or

(1507) (b) Required to participate in a VMRS within a VTS area (VMRS User).

(1508) "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.

(1509) **§161.3 Applicability.**

(1510) 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.

(1511) **§161.4 Requirement to carry the rules.**

(1512) Each VTS User shall carry on board and maintain for ready reference a copy of these rules.

(1513) **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.

(1514) **§161.5 Deviations from the rules.**

(1515) (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.

(1516) (b) Requests to deviate from any provision in this part due tocircumstances 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.

(1517) **Services, VTS Measures, and Operating Requirements**

(1518) **§161.10 Services.**

(1519) 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:

(1520) (a) Hazardous conditions or circumstances;

(1521) (b) Vessel congestion;

(1522) (c) Traffic density;

(1523) (d) Environmental conditions;

(1524) (e) Aids to navigation status;

(1525) (f) Anticipated vessel encounters;

(1526) (g) Another vessel's name, type, position, hazardous vessel operating conditions, if applicable, and intended navigation movements, as reported;

(1527) (h) Temporary measures in effect;

(1528) (i) A description of local harbor operations and conditions, such as ferry routes, dredging, and so forth;

(1529) (j) Anchorage availability; or

(1530) (k) Other information or special circumstances.

(1531) **§161.11 VTS measures.**

(1532) (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:

(1533) (1) Designating temporary reporting points and procedures;

(1534) (2) Imposing vessel operating requirements; or

(1535) (3) Establishing vessel traffic routing schemes.

(1536) (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.

(1537) **§161.12 Vessel operating requirements.**

(1538) (a) Subject to the exigencies of safe navigation, a VTS User shall comply with all measures established or directions issued by a VTS.

(1539) (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.

(1540) (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.

(1541) **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.

(1542) (c) As soon as practicable, a VTS User shall notify the VTS of any of the following:

Table161.12(b)—VESSEL TRAFFIC SERVICES (VTS) CALL SIGNS, DESIGNATED FREQUENCIES, AND MONITORING AREAS

Vessel traffic services (call sign)	Designated frequency[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 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 east 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]
Houston Traffic		The navigable waters north of 29°N., west of 94°20′W., south of 29°49′N., and east of 95°20′W.:
	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 Offshore Vessel Movement. Reporting Service San Francisco Traffic.	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.
	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.

Vessel traffic services (call sign)	Designated frequency[1] (channel designation)	Monitoring area
	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 Marrowstone Point and Lagoon Point in Admiralty Inlet and south of a line drawn due east from the southernmost tip of Possession Point 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; 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 Marrowstone Point and Lagoon Point and all waters east of Whidbey Island north of a line drawn due east from the southernmost tip of Possession Point on Whidbey Island to the shoreline.
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 of 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 enforce 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 designated 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.

(1543) (1) A marine casualty as defined in 46 CFR 4.05-1;

(1544) (2) Involvement in the ramming of a fixed or floating object;

(1545) (3) A pollution incident as defined in §151.15 of this chapter:

(1546) (4) A defect or discrepancy in an aid to navigation;

(1547) (5) A hazardous condition as defined in §160.203 of this chapter;

(1548) (6) Improper operation of vessel equipment required by Part 164 of this chapter;

(1549) (7) A situation involving hazardous materials for which a report is required by 49 CFR 176.48; and

(1550) (8) A hazardous vessel operating condition as defined in §161.2.

(1551) **§161.13 VTS Special Area Operating Requirements.**

(1552) The following operating requirements apply within a VTS Special Area:

(1553) (a) A VTS User shall, if towing astern, do so with as short a hawser as safety and good seamanship permits.

(1554) (b) A VMRS User shall:

(1555) (1) Not enter or get underway in the area without prior approval of the VTS;

(1556) (2) Not enter a VTS Special Area if a hazardous vessel operating condition or circumstance exists;

(1557) (3 Not meet, cross, or overtake any other VMRS User in the area without prior approval of the VTS; and

(1558) (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

(1559) **§161.15 Purpose and Intent.**

(1560) (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.

(1561) (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).

(1562) **§161.16 Applicability.**

(1563) The provisions of this subpart shall apply to the following VMRS Users:

(1564) (a) Every power-driven vessel of 40 meters (approximately 131 feet) or more in length, while navigating;

(1565) (b) Every towing vessel of 8 meters (approximately 26 feet) or more in length, while navigating; or

(1566) (c) Every vessel certificated to carry 50 or more passengers for hire, when engaged in trade.

(1567) **§161.17 Definitions.**

(1568) 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).

(1569) **§161.18 Reporting requirements.**

(1570) (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);

(1571) (2) Establish other means of reporting for those vessels unable to report on the designated frequency; or

(1572) (3) Require reports from a vessel in sufficient time to allow advance vessel traffic planning.

(1573) (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).

(1574) (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.

(1575) **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.

(1576) (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.

(1577) **§161.19 Sailing Plan (SP).**

(1578) Unless otherwise stated, at least 15 minutes before navigating a VTS area, a vessel must report the:

(1579) (a) Vessel name and type;

(1580) (b) Position;

(1581) (c) Destination and ETA;

(1582) (d) Intended route;

(1583) (e) Time and point of entry; and

(1584) (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.

(1585) **§161.20 Position Report (PR).**

(1586) A vessel must report its name and position:

(1587) (a) Upon point of entry into a VTS area;

(1588) (b) At designated reporting points as set forth in subpart C; or

(1589) (c) When directed by the VTC.

(1590) **Note:** Notice of temporary reporting points, if established, may be published via Local Notices to Mariners, general broadcast or the VTS User's Manual.

(1591) **§161.21 Sailing Plan Deviation Report (DR).**

(1592) A vessel must report:

(1593) (a) When its ETA to a destination varies significantly from a previously reported ETA;

(1594) (b) Any intention to deviate from a VTS issued measure or vessel traffic routing system; or

(1595) (c) Any significant deviation from previously reported information.

(1596) **§161.22 Final Report (FR).**

(1597) A vessel must report its name and position:

(1598) (a) On arrival at its destination; or

(1599) (b) When leaving a VTS area.

(1600) **§161.23 Reporting exemptions.**

(1601) (a) Unless otherwise directed, the following vessels are exempted from providing Position and Final Reports due to the nature of their operation:

(1602) (1) Vessels on a published schedule and route;

TABLE 161.18(a).—THE IMO STANDARD SHIP REPORTING SYSTEM

A	ALPHA	Ship	Name, call sign or ship station identity, and flag.
B	BRAVO	Dates and time of event	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 system.	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 full names of communications stations/ frequencies guarded.
N	NOVEMBER	Time of next report	Date time group expressed as in (B).
O	OSCAR	Maximum present static draught 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 endanger 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).
S	SIERRA	Weather conditions	Brief details of weather and sea conditions prevailing.
T	TANGO	Ship's representative and/or owner.	Details of name and particulars of ship's representative and/or owner for provision of information.
U	UNIFORM	Ship size and type	Details of length, breadth, tonnage, and type, etc., as required.
V	VICTOR	Medical personnel	Doctor, physician's assistant, nurse, no medic.
W	WHISKEY	Total number of persons on board.	State number.
X	XRAY	Miscellaneous	Any other information as appropriate. (i.e., a detailed description of a planned operation, which may include: its duration; effective area; any restrictions to navigation; notification procedures for approaching 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.)

(1603) (2) Vessels operating within an area of a radius of three nautical miles or less; or

(1604) (3) Vessels escorting another vessel or assisting another vessel in maneuvering procedures.

(1605) (b) A vessel described in paragraph (a) of this section must:

(1606) (1) Provide a Sailing Plan at least 5 minutes but not more than 15 minutes before navigating within the VTS area; and

(1607) (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.

(1608) (c) In those VTS areas capable of receiving automated position reports from Automatic Identification 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.

(1609) (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:

(1610) (i) Notify the VTC;

(1611) (ii) Make voice radio position reports at designated reporting points as required by §161.20(b) of this part;

(1612) (iii) Make other voice radio reports as directed; and

(1613) (iv) Restore the AISSE to operating condition as soon as possible.

(1614) (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:

(1615) (i) Make required voice radio position reports at designated reporting points required by §161.20(b) of this part; and

(1616) (ii) Make other voice radio reports as directed.

(1617) **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.

(1618) **Note:** All geographic coordinates contained in part 161 (latitude and longitude) are expressed in North American Datum of 1983 (NAD 83).

(1619) **§161.25 Vessel Traffic Service New York.**

(1620) 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.

(1621) **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.

(1622) **§161.30 Vessel Traffic Service Louisville.**

(1623) The VTS area consists of 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 13.0 feet or above.

(1624) **§161.35 Vessel Traffic Service Houston/Galveston.**

(1625) (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 Turnin 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.

(1626) (b) Precautionary Areas.

TABLE 161.35(b)—VTS HOUSTON/GALVESTON PRECAUTIONARY AREAS

Precautionary area name	Radius (yards.)	Center point	
		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 Precautionary 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 & 54A	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 the 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 Point	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 95°04.8'W	
8	Shell Oil	Boggy Bayou	29°44.1'N 95°08.0'W	
9	Greens Bayou	Greens Bayou	29°44.8'N 95°10.1'W	
10	Hess Turning Basin	Hunting Bayou Turning Basin	29°44.3'N 95°12.1'W	
11	Lyondell Turning Basin	Sims Bayou Turning Basin	29°43.2'N 95°14.4'W	
12	I-610 Bridge	I-610 Bridge	29°43.5'N 95°16.0'W	
13	Houston Turning Basin	Buffalo Bayou	29°45.0'N 95°17.4'W	

(1627) (c) Reporting Points (see above).

(1628) **§161.40 Vessel Traffic Service Berwick Bay.**

(1629) (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 Berwick Lock northwest one statute mile along the Lower Atchafalaya River.

(1630) (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.

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-Atchafalaya 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	Conard'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	

(1631) (c) Reporting Points (see above).

(1632) **§161.45 Vessel Traffic Service St. Marys River.**

(1633) (a) The VTS area consists of the navigable waters of the St. Marys River and lower Whitefish Bay from 45°57′N. (De Tour Reef Light) to the south, to 46°38.7′N. (Ile Parisienne Light) to the north, except the waters of the St. Marys Falls Canal, and to the east along a line from La Pointe to Sims Point, within Potagannissing Bay and Worsley Bay.

(1634) (b) Reporting Points.

TABLE 161.45(b)—VTS ST. MARYS RIVER REPORTING POINTS

Designator	Geographic name	Geographic description	Latitude/ Longitude	Notes
1	Ile Parisienne	Ile Parisienne Light	46°37.3′N 84°45.9′W	Downbound Only.
2	Gros Cap Reef	Gros Cap Reefs Light	46°30.6′N 84°37.1′W	Upbound Only.
3	Round Island	Round Island Light 32	46°26.9′N 84°31.7′W	
4	Pointe Louise	Pointe Louise Light	46°27.8′N 84°28.2′W	
5	West End of Locks	West Center Pierhead Light	46°30.2′N 84°22.2′W	Downbound Only.
6	East End of Locks	East Center Pierhead Light	46°30.1′N 84°20.3′W	Upbound.
7	Mission Point	Light 99	46°29.2′N 84°18.1′W	
8	Six Mile Point	Six Mile Point	46°26.1′N 84°15.4′W	
9	Ninemile Point	Light 80	46°23.5′N 84°14.1′W	
10	West Neebish Channel	Light 29	46°16.9′N 84°12.5′W	Downbound Only.
11	Munuscong Lake Junction	Lighted Junction Buoy	46°10.8′N 84°05.6′W	
12	De Tour Reef	De Tour Reef Light	46°56.9′N 83°53.7′W	

Part 162–Inland Waterways Navigation Regulations

(1635) **§162.1 General.**

(1636) 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.

(1637) **§162.15 Manhasset Bay, N.Y.; seaplane restricted area.** (a) The restricted area. An area in Manhasset Bay between the shore at Manorhaven on the north and the southerly limit line of the special anchorage area in Manhasset Bay, west area at Manorhaven (described in 33 CFR 110.60), on the south; its axis being a line bearing 166°50′ true from latitude 40°50′17.337″, longitude 73°43′03.877″, which point is on the south side of Orchard Beach Boulevard at Manorhaven; and being 100 feet wide for a distance of 380 feet in a southerly direction from the south side of Orchard Beach Boulevard, and thence flaring to a width of 300 feet at the southerly limit line.

(1638) (b) The regulations. (1) Vessels shall not anchor or moor within the restricted area.

(1639) (2) All vessels traversing the area shall pass directly through without unnecessary delay, and shall give seaplanes the right-of-way at all times.

(1640) **§162.20 Flushing Bay near La Guardia Airport, Flushing, N.Y.; restricted area.** (a) The area. An area in the main channel in Flushing Bay extending for a distance of 300 feet on either side of the extended center line of Runway No. 13–31 at La Guardia Airport.

(1641) (b) The regulations. (1) All vessels traversing in the area shall pass directly through without unnecessary delay.

(1642) (2) No vessels having a height of more than 35 feet with reference to the plane of mean high water shall enter or pass through the area whenever visibility is less than one mile.

Part 164–Navigation Safety Regulations (in part). For a complete description of this part see 33 CFR 164.

(1643) **§164.01 Applicability.**

(1644) (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.

(1645) (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–

(1646) (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;

(1647) (2) Used solely for assistance towing as defined by 46 CFR 10.103;

(1648) (3) Used solely for pollution response; or

(1649) (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.

(1650) **§164.02 Applicability exception for foreign vessels.**

(1651) (a) This part (including §§164.38 and 164.39) does not apply to vessels that:

(1652) (1) Are not destined for, or departing from, a port or place subject to the jurisdiction of the United States; and

(1653) (2) Are in:

(1654) (i) Innocent passage through the territorial sea of the United States; or

(1655) (ii) Transit through navigable waters of the United States which form a part of an international strait.

(1656) **§164.03 Incorporation by reference.**

(1657) (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 the 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.

(1658) (b) The materials approved for incorporation by reference in this part and the sections affected are as follows:

(1659) *American Petroleum Institute (API)*, 1220 L Street NW., Washington, DC 20005

(1660) API Specifications 9A, Specification for Wire Rope, Section 3, Properties and Tests for Wire and Wire Rope, May 28, 1984 ..... **164.74**

(1661) *American Society for Testing and Materials (ASTM)*, 1916 Race Street, Philadelphia, PA 19103

(1662) ASTM D4268-93, Standard Test Method for Testing Fiber Ropes **164.74**

(1663) *Cordage Institute*, 350 Lincoln Street, Hingham, MA 02043

(1664) CIA-3, Standard Test Methods for Fiber Rope Including Standard Terminations, Revised, June 1980..... **164.74**

(1665) *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**

(1666) *International Telecommunication Union Radiocommunication Bureau (ITU-R)*, Place de Nations CH-1211 Geneva 20 Switzerland

(1667) (1) ITU-R Recommendation M.821, Optional Expansion of the Digital Selective-Calling System for Use in the Maritime Mobile Service, 1992 ..... **164.43**

(1668) (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**

(1669) *Radio Technical Commission for Maritime Services*, 655 Fifteenth Street, NW., Suite 300, Washington,m DC 20005

(1670) (1) RTCM Paper 12-78/DO-100, Minimum Performance Standards, Loran C Receiving Equipment, 1977 .....**164.41**

(1671) (2) RTCM Paper 194-93/SC104-STD, RTCM Recommended Standards for Differential NAVSTAR GPS Service, Version 2.1, 1994 ..... **164.43**

(1672) (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**

(1673) (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 20, 1993 ..... **164.72**

(1674) **§164.11 Navigation under way: General.**

(1675) The owner, master, or person in charge of each vessel underway shall ensure that:

(1676) (a) The wheelhouse is constantly manned by persons who–

(1677) (1) Direct and control the movement of the vessel; and

(1678) (2) Fix the vessel's position;

(1679) (b) Each person performing a duty described in paragraph (a) of this section is competent to perform that duty;

(1680) (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;

(1681) (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;

(1682) (e) Buoys alone are not used to fix the vessel's position;

(1683) **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.

(1684) (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;

(1685) (g) Rudder orders are executed as given;

(1686) (h) Engine speed and direction orders are executed as given;

(1687) (i) Magnetic variation and deviation and gyrocompass errors are known and correctly applied by the person directing the movement of the vessel;

(1688) (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.);

(1689) (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.

(1690) (1) Current velocity and direction for the area to be transited are known by the person directing the movement of the vessel;

(1691) (m) Predicted set and drift are known by the person directing movement of the vessel;

(1692) (n) Tidal state for the area to be transited is known by the person directing movement of the vessel;

(1693) (o) The vessel's anchors are ready for letting go;

(1694) (p) The person directing the movement of the vessel sets the vessel's speed with consideration for–

(1695) (1) The prevailing visibility and weather conditions;

(1696) (2) The proximity of the vessel to fixed shore and marine structures;

(1697) (3) The tendency of the vessel underway to squat and suffer impairment of maneuverability when there is small underkeel clearance;

(1698) (4) The comparative proportions of the vessel and the channel;

(1699) (5) The density of marine traffic;

(1700) (6) The damage that might be caused by the vessel's wake;

(1701) (7) The strength and direction of the current; and

(1702) (8) Any local vessel speed limit;

(1703) (q) The tests required by §164.25 are made and recorded in the vessel's log; and

(1704) (r) The equipment required by this part is maintained in operable condition.

(1705) (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.

(1706) (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.

(1707) (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.

(1708) **§164.13 Navigation underway: tankers.**

(1709) (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.

(1710) (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.

(1711) (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.

(1712) (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:

(1713) (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).

(1714) (2) A qualified helmsman is present at the helm and prepared at all times to assume manual control.

(1715) (3) The tanker is not operating in any of the following areas:

(1716) (i) The areas of the traffic separation schemes specified in subchapter P of the chapter.

(1717) (ii) The portions of a shipping safety fairway specified in part 166 of this chapter.

(1718) (iii) An anchorage ground specified in part 110 of this chapter.

(1719) (iv) An area within one-half nautical mile of any U.S. shore.

(1720) **§164.15 Navigation bridge visibility.**

(1721) (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:

(1722) (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 (1640 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 obstructure must not exceed 5 degrees.

(1723) (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.

(1724) (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.

(1725) (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.

(1726) (b) A clear view must be provided through at least two front windows at all times regardless of weather conditions.

(1727) **§164.19 Requirements for vessels at anchor.**

(1728) The master or person in charge of each vessel that is anchored shall ensure that–

(1729) (a) A proper anchor watch is maintained;

(1730) (b) Procedures are followed to detect a dragging anchor; and

(1731) (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 a being ready to veer chain, let go a second anchor, or get underway using the vessel's own propulsion or tug assistance.

(1732) **§164.25 Tests before entering or getting underway.**

(1733) (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:

(1734) (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:

(1735) (i) Each remote steering gear control system.

(1736) (ii) Each steering position located on the navigating bridge.

(1737) (iii) The main steering gear from the alternative power supply, if installed.

(1738) (iv) Each rudder angle indicator in relation to the actual position of the rudder.

(1739) (v) Each remote steering gear control system power failure alarm.

(1740) (vi) Each remote steering gear power unit failure alarm.

(1741) (vii) The full movement of the rudder to the required capabilities of the steering gear.

(1742) (2) All internal vessel control communications and vessel control alarms.

(1743) (3) Standby or emergency generator, for as long as necessary to show proper functioning, including steady state temperature and pressure readings.

(1744) (4) Storage batteries for emergency lighting and power systems in vessel control and propulsion machinery spaces.

(1745) (5) Main propulsion machinery, ahead and astern.

(1746) (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.

(1747) (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.

(1748) (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:

(1749) (1) Operation of the main steering gear from within the steering gear compartment.

(1750) (2) Operation of the means of communications between the navigating bridge and the steering compartment.

(1751) (3) Operation of the alternative power supply for the steering gear if the vessel is so equipped.

(1752) **§164.30 Charts, publications, and equipment: General.**

(1753) 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.

(1754) **§164.33 Charts and publications.**

(1755) (a) Each vessel must have the following:

(1756) (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–

(1757) (i) Are of a large enough scale and have enough detail to make safe navigation of the area possible; and

(1758) (ii) Are currently corrected.

(1759) (2) For the area to be transited, a currently corrected copy of, or applicable currently corrected extract from, each of the following publications:

(1760) (i) U.S. Coast Pilot.

(1761) (ii) Coast Guard Light List.

(1762) (3) For the area to be transited, the current edition of, or applicable current extract from:

(1763) (i) Tide tables published by the National Ocean Service.

(1764) (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.

(1765) (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.

(1766) (c) As used in this section, "currently corrected" means corrected with changes contained in all Notices to Mariners published by Defense Mapping Agency Hydrographic/Topographic Center, or an equivalent foreign government publication, reasonably available to the vessel, and that is applicable to the vessel's transit.

(1767) **§164.35 Equipment: All vessels.**

(1768) Each vessel must have the following:

(1769) (a) A marine radar system for surface navigation.

(1770) (b) An illuminated magnetic steering compass, mounted in a binnacle, that can be read at the vessel's main steering stand.

(1771) (c) A current magnetic compass deviation table or graph or compass comparison record for the steering compass, in the wheelhouse.

(1772) (d) A gyrocompass.

(1773) (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.

(1774) (f) An illuminated rudder angle indicator in the wheelhouse.

(1775) (g) The following maneuvering information prominently displayed on a fact sheet in the wheelhouse:

(1776) (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.

(1777) (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.

(1778) (3) For each vessel with a fixed propeller, a table of shaft revolutions per minute for a representative range of speeds.

(1779) (4) For each vessel with a controllable pitch propeller, a table of control settings for a representative range of speeds.

(1780) (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.

(1781) (6) The maneuvering information for the normal load and normal ballast condition for–

(1782) (i) Calm weather-wind 10 knots or less, calm sea;

(1783) (ii) No current;

(1784) (iii) Deep water conditions-water depth twice the vessel's draft or greater; and

(1785) (iv) Clean hull.

(1786) (7) At the bottom of the fact sheet, the following statement;

(1787) **Warning.**

(1788) 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:

(1789) (1) Calm weather-wind 10 knots or less, calm sea;

(1790) (2) No current;

(1791) (3) Water depth twice the vessel's draft or greater;

(1792) (4) Clean hull; and

(1793) (5) Intermediate drafts or unusual trim.

(1794) (h) An echo depth sounding device.

(1795) (i) A device that can continuously record the depth readings of the vessel's echo depth sounding device, except when operating on the Great Lakes and their connecting and tributary waters.

(1796) (j) Equipment on the bridge for plotting relative motion.

(1797) (k) Simple operating instructions with a block diagram, showing the changeover procedures for remote steering gear control systems and steering gear power units, permanently displayed on the navigating bridge and in the steering gear compartment.

(1798) (l) An indicator readable from the centerline conning position showing the rate of revolution of each propeller, except when operating on the Great Lakes and their connecting and tributary waters.

(1799) (m) If fitted with controllable pitch propellers, an indicator readable from the centerline conning position showing the pitch and operational mode of such propellers, except when operating on the Great Lakes and their connecting and tributary waters.

(1800) (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.

(1801) (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.

(1802) **§164.37 Equipment: Vessels of 10,000 gross tons or more.**

(1803) (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.

(1804) **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.

(1805) (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.

(1806) **§164.38 Automatic radar plotting aids (ARPA).** (See 33 CFR 164.)

(1807) **§164.39 Steering gear: Foreign tankers.**

(1808) (a) This section applies to each foreign tanker of 10,000 gross tons or more, except a public vessel, that–

(1809) (1) Transfers oil at a port or place subject to the jurisdiction of the United States; or

(1810) (2) Otherwise enters or operates in the navigable waters of the United States, except a vessel described by §164.02 of this part.

(1811) (b) *Definitions*. The terms used in this section are as follows:

(1812) *Constructed* means the same as in Chapter II-1, Regulations 1.1.2 and 1.1.3.1, of SOLAS 74.

(1813) *Existing tanker* means a tanker–

(1814) (1) For which the building contract is placed on or after June 1, 1979;

(1815) (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;

(1816) (3) The delivery of which occurs on or after June 1, 1982; or

(1817) (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.

(1818) *Public vessel, oil, hazardous materials, and foreign vessel* mean the same as in 46 U.S.C. 2101.

(1819) *SOLAS 74* means the International Convention for the Safety of Life at Sea, 1974, as amended.

(1820) *Tanker* means a self-propelled vessel defined as a tanker by 46 U.S.C. 2101(38) or as a tank vessel by 46 U.S.C. 2101(39).

(1821) (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.

(1822) (d) Each tanker constructed before September 1, 1984, must meet the requirements of Chapter II-1, Regulation 29.19, of SOLAS 74.

(1823) (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.

(1824) (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.

(1825) **§164.40 Devices to indicate speed and distance.**

(1826) (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:

(1827) (1) Each tank vessel constructed before September 1, 1984, operating on the navigable waters of the United States-

(1828) (i) If of 40,000 gross tons or more, by January 1, 1985;

(1829) (ii) If of 10,000 gross tons or more but less than 40,000 gross tons, by January 1, 1986.

(1830) (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-

(1831) (i) If of 40,000 gross tons or more, by September 1, 1986;

(1832) (ii) If of 20,000 gross tons or more, but less than 40,000 gross tons, by September 1, 1987;

(1833) (iii) If of 15,000 gross tons or more, but less than 20,000 gross tons, by September 1, 1988.

(1834) (b) The device must meet the following specifications:

(1835) (1) The display must be easily readable on the bridge by day or night.

(1836) (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.

(1837) (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.

(1838) **§164.41 Electronic position fixing devices.**

(1839) (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:

(1840) (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/D0-100 dated December 20, 1977, entitled "Minimum Performance Standards (MPS) Marine Loran-C Receiving Equipment". Each receiver installed on or after June 1, 1982, must have a label with the information required under paragraph (b) of this section. If the receiver is installed before June 1, 1982, the receiver must have the label with the information required under paragraph (b) by June 1, 1985.

(1841) (2) A satellite navigation receiver with:

(1842) (i) Automatic acquisition of satellite signals after initial operator settings have been entered; and

(1843) (ii) Position updates derived from satellite information during each usable satellite pass.

(1844) (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, DC 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.

(1845) **Note.**–The Federal Radionavigation Plan is available from the National Technical Information Service, Springfield, Va. 22161, with the following Government Accession Numbers:

(1846) Vol 1, ADA 116468

(1847) Vol 2, ADA 116469

(1848) Vol 3, ADA 116470

(1849) Vol 4, ADA 116471

(1850) (b) Each label required under paragraph (a)(1) of this section must show the following:

(1851) (1) The name and address of the manufacturer.

(1852) (2) The following statement by the manufacturer:

(1853) This receiver was designed and manufactured to meet Part 2 (Minimum Performance Standards) of the RTCM MPS for Marine Loran-C Receiving Equipment.

(1854) **§164.42 Rate of turn indicator.**

(1855) 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.

(1856) **§164.43 Automatic Identification System Shipborne Equipment.**

(1857) (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:

(1858) (1) Twelve-channel all-in-view Differential Global Positioning System (dGPS) receiver;

(1859) (2) Marine band Non-Directional Beacon receiver capable of receiving dGPS error correction messages;

(1860) (3) VHF-FM transceiver capable of Digital Selective Calling (DSC) on the designated DSC frequency; and

(1861) (4) Control unit.

(1862) (b) An AISSE must have the following capabilities:

(1863) (1) Use dGPS to sense the position of the vessel and determine the time of the position using Universal Coordinated Time (UTC);

(1864) (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;

(1865) (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;

(1866) (4) Achieve a course error of less than 0.5 degrees from true course over ground in the course information transmitted to a VTS;

(1867) (5) Achieve a speed error of less than 0.05 knots from true speed over ground in the speed information transmitted to a VTS;

(1868) (6) Receive and comply with commands broadcast from a VTS as DSC messages on the designated DSC frequency;

(1869) (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;

(1870) (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;

(1871) (9) Display a visual alarm to indicate to shipboard personnel when a failure to receive or utilize the RTCM messages occurs;

(1872) (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

(1873) (11) Display two RTCM type 16 messages, one of which must display the position error in the position error broadcast.

(1874) (c) An AISSE is considered non-operational if it fails to meet the requirements of paragraph (b) of this section.

(1875) **Note:** Vessel Traffic Service (VTS) areas and operating procedures are set forth in Part 161 of this chapter.

(1876) **§164.51 Deviations from rules: Emergency.**

(1877) 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.

(1878) **§164.53 Deviations from rules and reporting: Non-operating equipment.**

(1879) (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.

(1880) (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.

(1881) **§164.55 Deviations from rules: Continuing operation or period of time.**

(1882) 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.

(1883) **§164.61 Marine casualty reporting and record retention.**

(1884) 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–

(1885) (a) Ensure compliance with 46 CFR 4.05, "Notice of Marine Casualty and Voyage Records," and

(1886) (b) Ensure that the voyage records required by 46 CFR 4.05-15 are retained for–

(1887) (1) 30 days after the casualty if the vessel remains in the navigable waters of the United States; or

(1888) (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.

(1889) **§164.70 Definitions.**

(1890) For purposes of §§164.72 through 164.82, the term–

(1891) *Current edition* means the most recent published version of a publication, chart, or map required by §164.72.

(1892) *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.

(1893) *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.

(1894) *Swing-meter* means an electronic or electric device that indicates that rate of turn of the vessel on board which it is installed.

(1895) *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.

(1896) *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.

(1897) **§164.72 Navigational-safety equipment, charts or maps, and publications required on towing vessels.**

(1898) (a) Except as provided by §164.01(b), each towing vessel must be equipped with thefollowing navigational-safety equipment:

(1899) (1) *Marine Radar.* By August 2, 1997, a marine radar that meets the following applicable requirements:

(1900) (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–

(1901) (A) The requirements of the Federal Communications Commission (FCC) specified by 47 CFR part 80; and

(1902) (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.

(1903) (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–

(1904) (A) The requirements of the FCC specified by 47 CFR part 80; and

(1905) (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.

(1906) (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–

(1907) (A) The requirements of the Federal Communications Commission (FCC) specified by 47 CFR part 80; and

(1908) (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.

(1909) (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–

(1910) (A) The requirements of the FCC specified by 47 CFR part 80; and

(1911) (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.

(1912) (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.

(1913) (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.

(1914) (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.)

(1915) (4) *Magnetic Compass.* Either–

(1916) (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

(1917) (ii) An illuminated card-type magnetic steering compass readable from the vessel's main steering station.

(1918) (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.

(1919) (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.

(1920) (b) Each towing vessel must carry on board and maintain the following:

(1921) (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.

(1922) (i) The charts or maps must be of a large enough scale and have enough detail to make safe navigation of the areas possible.

(1923) (ii) The charts or maps must be either–

(1924) (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

(1925) (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.

(1926) (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.

(1927) (3) *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:

(1928) (i) If the vessel is engaged in towing exclusively on Western Rivers–

(1929) (A) U.S. Coast Guard Light List;

(1930) (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

(1931) (C) River-current tables published by the ACOE or a river authority, if available.

(1932) (ii) if the vessel is engaged other than in towing exclusively on Western Rivers–

(1933) (A) Coast Guard Light List;

(1934) (B) Notices to Mariners published by the National Imagery and Mapping Agency, or LNMs published by the Coast Guard;

(1935) (C) Tidal-Current tables published by the NOS, or river-current tables published by the ACOE or a river authority:

(1936) (D) Tide tables published by the NOS; and

(1937) (E) U.S. Coast Pilot.

(1938) (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:

TABLE 164.72.—EQUIPMENT, CHARTS OR MAPS, AND PUBLICATIONS FOR TOWING VESSELS OF 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 II[1] Stabilization Category BRAVO.	RTCM Paper 71–95/SC112–STD Version 1.1, Display Category II[1] Stabilization Category BRAVO.	RTCM Paper 71–95/SC112–STD Version 1.1, Display Category I[2] Stabilization Category ALPHA.
Towing vessels of 300 GT or more.	RTCM Paper 191–93/SC112–X Version 1.2 (except the Azimuth stabilization requirement in paragraph 3.10).[1]	RTCM Paper 191–93/SC112–X Version 1.2 (except the Azimuth 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. (2) Current edition or currently corrected edition.	(1) Large enough scale. (2) Current edition or currently corrected edition.	(1) Large enough scale. (2) Currently corrected edition.
General publications.	(1) U.S. Coast Guard Light List (2) Notices to Navigation or Local Notice to Mariners. (3) River-current Tables.	(1) U.S. Coast Guard Light List (2) Local Notice to Mariners (3) Tidal-current Tables (4) Tide Tables (5) U.S. Coast Pilot	(1) U.S. Coast Guard Light List. (2) Local Notice to Mariners. (3) Tidal-current Tables. (4) Tide Tables. (5) U.S. Coast Pilot.

Notes:

[1]Towing vessels with existing radar must meet this requirement by August 2, 1998.

[2]Towing vessels with existing radar must meet this requirement by August 2, 1998, but do not need to meet the display and stabilization requirement until August 2, 2001.

[3]A towing vessel may carry either a swing-meter or a magnetic compass.

(1939) **§164.74 Towline and terminal gear for towing astern.**

(1940) (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:

(1941) (1) The size and material of each towline must be–

(1942) (i) Appropriate for the horsepower or bollard pull of the vessel;

(1943) (ii) Appropriate for the static loads and dynamic loads expected during the intended service;

(1944) (iii) Appropriate for the sea conditions expected during the intended service;

(1945) (iv) Appropriate for exposure to the marine environment and to any chemicals used or carried on board the vessel;

(1946) (v) Appropriate for the temperatures of normal stowage and service on board the vessel;

(1947) (vi) Compatible with associated navigational-safety equipment; and

(1948) (vii) Appropriate for the likelihood of mechanical damage.

(1949) (2) Each towline as rigged must be–

(1950) (i) Free of knots;

(1951) (ii) Spliced with a thimble, or have a poured socket at its end; and

(1952) (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.

(1953) (3) The condition of each towline must be monitored through the–

(1954) (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 D4268-93, Standard Test Method for Testing

Fiber Ropes; or Cordage Institute CIA 3, Standard Test Methods for Fiber Rope Including Standard Terminations;

(1955) (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 D4268-93; or Cordage Institute CIA 3, Standard Test Methods;

(1956) (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);

(1957) (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–

(1958) (A) Nautical miles on, or time in service of, the towline;

(1959) (B) Operating conditions experienced by the towline;

(1960) (C) History of loading of the towline;

(1961) (D) Surface condition, including corrosion and discoloration, of the towline;

(1962) (E) Amount of visible damage to the towline;

(1963) (F) Amount of material deterioration indicated by measurements of diameter and, if applicable, measurements of lay extension of the towline; and

(1964) (G) Point at which a tensile test proves the minimum breaking strength of the towline inadequate by the standards of paragraph (a)(1) of this section, if necessary; and

(1965) (v) Keeping on board the towing vessel or in company files of a record of the material condition of the towline when inspected under paragraphs (a)(3)(iii) and (iv) of this section. Once this record lapses for three months or more, except when a vessel is laid up or out of service or has not deployed its towline, the owner, master, or operator shall retest the towline or remove it from service.

(1966) (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:

(1967) (1) The material and size of the terminal gear are appropriate for the strength and anticipated loading of the towline and for the environment;

(1968) (2) Each connection is secured by at least one nut with at least one cotter pin or other means of preventing its failure;

(1969) (3) The lead of the towline is appropriate to prevent sharp bends in the towline from fairlead blocks, chocks, or tackle;

(1970) (4) There is provided a method, whether mechanical or non-mechanical, that does not endanger operating personnel but that easily releases the towline;

(1971) (5) The towline is protected from abrasion or chafing by chafing gear, lagging, or other means;

(1972) (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

(1973) (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.

(1974) **§164.76 Towline and terminal gear for towing alongside and pushing ahead.**

(1975) The owner, master, or operator of each vessel towing alongside or pushing ahead shall ensure the face wires, spring lines, and push gear used–

(1976) (a) Are appropriate for the vessel's horsepower;

(1977) (b) Are appropriate for the arrangement of the tow;

(1978) (c) Are frequently inspected; and

(1979) (d) Remain serviceable.

(1980) **§164.78 Navigation under way: Towing vessels.**

(1981) (a) The owner, master, or operator of each vessel towing shall ensure that each person directing and controlling the movement of the vessel–

(1982) (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;

(1983) (2) Can fix the position of the vessel using installed navigational equipment, aids to navigation, geographic reference-points, and hydrographic contours;

(1984) (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.);

(1985) (4) Evaluates the danger of each closing visual or radar contact;

(1986) (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;

(1987) (6) Knows the speed and direction of the current, set, drift, and tidal state for the area to be transited; and

(1988) (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.

(1989) (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.

(1990) **§164.80 Tests and inspections.**

(1991) (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:

(1992) (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.

(1993) (2) *Navigational equipment.* A test of all installed navigational equipment.

(1994) (3) *Communications.* Operation of all internal vessel control communications and vessel-control alarms, if installed.

(1995) (4) *Lights.* Operation of all navigational lights and all searchlights.

(1996) (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.

(1997) (6) *Propulsion systems.* Visual inspection of the spaces for main propulsion machinery, of machinery, and of devices for monitoring machinery.

(1998) (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:

(1999) (1) *Navigational equipment.* Tests of onboard equipment as required by §164.25.

(2000) (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.

(2001) **§164.82 Maintenance, failure, and reporting.**

(2002) (a) *Maintenance.* The owner, master, or operator or each towing vessel shall maintain operative the navigational-safety equipment required by §164.72.

(2003) (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.

(2004) (c) *Reporting.* The owner, master, or operator of each towing vessel whose equipment is inoperative or otherwise impaired while the vessel is operating within a Vessel Traffic Service (VTS) Area shall report the fact as required by 33 CFR 161.124. (33 CFR 161.124 requires that each user of a VTS report to the Vessel Traffic Center as soon as practicable:

(2005) (1) Any absence or malfunction of vessel-operating equipment for navigational safety, such as propulsion machinery, steering gear, radar, gyrocompass, echo depth-sounding or other sounding device, automatic dependent surveillance equipment, or navigational lighting;

(2006) (2) Any condition on board the vessel likely to impair navigation, such as shortage of personnel or lack of current nautical charts or maps, or publications; and

(2007) (3) Any characteristics of the vessel that affect or restrict the maneuverability of the vessel, such as arrangement of cargo, trim, loaded condition, under-keel clearance, and speed.)

(2008) (d) *Deviation and authorization.* The owner, master, or operator of each towing vessel unable to repair within 96 hours an inoperative marine radar required by §164.72(a) shall so notify 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.

(2009) (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.

(2010) (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

(2011) **§165.1 Purpose of part.**

(2012) The purpose of this part is to–

(2013) (a) Prescribe procedures for establishing different types of limited or controlled access areas and regulated navigation areas;

(2014) (b) Prescribe general regulations for different types of limited or controlled access areas and regulated navigation areas;

(2015) (c) Prescribe specific requirements for established areas; and

(2016) (d) List specific areas and their boundaries.

(2017) **§165.5 Establishment procedures.**

(2018) (a) A safety zone, security zone, or regulated navigation area may be established on the initiative of any authorized Coast Guard official.

(2019) (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 including the following:

(2020) (1) The name of the person submitting the request;

(2021) (2) The location and boundaries of the safety zone, security zone, or regulated navigation area;

(2022) (3) The date, time, and duration that the safety zone, security zone, or regulated navigation area should be established;

(2023) (4) A description of the activities planned for the safety zone, security zone, or regulated navigation area;

(2024) (5) The nature of the restrictions or conditions desired; and

(2025) (6) The reason why the safety zone, security zone, or regulated navigation area is necessary.

(2026) (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.)

(2027) (c) Safety Zones and Security Zones. If, for good cause, the 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.

(2028) **§165.7 Notification.**

(2029) (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.

(2030) (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.

(2031) (c) Notification of the termination of the rule is usually made in the same form as the notification of its establishment.

(2032) **§165.8 Geographic coordinates.**

(2033) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizonal 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

(2034) **§165.10 Regulated navigation area.**

(2035) 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.

(2036) **§165.11 Vessel operating requirements (regulations).**

(2037) Each District Commander may control vessel traffic in an area which is determined to have hazardous conditions, by issuing regulations—

(2038) (a) Specifying times of vessel entry, movement, or departure to, from, within, or through ports, harbors, or other waters;

(2039) (b) Establishing vessel size, speed, draft limitations, and operating conditions; and

(2040) (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.

(2041) **§165.13 General regulations.**

(2042) (a) The master of a vessel in a regulated navigation area shall operate the vessel in accordance with the regulations contained in Subpart F.

(2043) (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

(2044) **§165.20 Safety zones.**

(2045) 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.

(2046) **§165.23 General regulations.**

(2047) Unless otherwise provided in this part–

(2048) (a) No person may enter a safety zone unless authorized by the COTP or the District Commander;

(2049) (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;

(2050) (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

(2051) (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

(2052) **§165.30 Security zones.**

(2053) (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.

(2054) (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–

(2055) (1) Vessels,

(2056) (2) Harbors,

(2057) (3) Ports and

(2058) (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.

(2059) **§165.33 General regulations.**

(2060) Unless otherwise provided in the special regulations in Subpart F of this part–

(2061) (a) No person or vessel may enter or remain in a security zone without the permission of the Captain of the Port;

(2062) (b) Each person and vessel in a security zone shall obey any direction or order of the Captain of the Port;

(2063) (c) The Captain of the Port may take possession and control of any vessel in the security zone;

(2064) (d) The Captain of the Port may remove any person, vessel, article, or thing from a security zone;

(2065) (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

(2066) (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 Areas

(2067) **§165.40 Restricted Waterfront Areas.**

(2068) 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.

Subpart F–Specific Regulated Navigation Areas and Limited Access Areas

(2069) **§165.121 Safety Zone Rhode Island Sound, Narragansett Bay, Providence River.**

(2070) (a) Location. The following areas are established as safety zones:

(2071) (1) For Liquefied Petroleum Gas (LPG) vessels while at anchor in the waters of Rhode Island Sound; in position 41°25N., 71°23W., a Safety Zone with a radius of one-half mile around the LPG vessel.

(2072) (2) For Liquefied Petroleum Gas (LPG) vessels while transitting Narragansett Bay and the Providence River; a moving Safety Zone from a distance of two (2) miles ahead to one (1) mile astern to the limits of the navigable channel around the LPG vessel.

(2073) (3) For Liquefied Petroleum Gas (LPG) vessels while moored at the LPG facility, Port of Providence; a safety zone within 50 feet around the vessel. No vessel shall moor within 200 feet from the LPG vessel. All vessels transiting the area are to proceed with caution to minimize the effects of wake around the LPG vessel.

(2074) (4) For Liquefied Petroleum Gas (LPG) vessels while moored with manifolds connected at the LPG Facility, Port of

Providence; a Safety Zone within a 100 foot radius around the shoreside manifold while connected. This is in addition to the requirements for LPG vessels while moored at the LPG Facility, Port of Providence.

(2075) (b) The Captain of the Port Providence will notify the maritime community of periods during which this safety zone will be in effect by providing advance notice of scheduled arrivals and departures of LPG vessels via Marine Safety Information Radio Broadcast on VHF Marine Band Radio, Channel 22 (157.1 MHz).

(2076) (c) Regulations. The general regulations governing safety zones contained in §165.23 apply.

(2077) **§165.122 Providence River, Providence, R.I. regulated navigation area.**

(2078) (a) Description of the regulated navigation area (RNA). The Regulated Navigation Area (RNA) encompasses the deep draft channel between Narragansett Bay Entrance Lighted Horn Buoy NB (LLNR 17675) 41°23.0′N., 71°23.4′W., and Fox Point, Providence.

(2079) (b) Regulations. (1) The following restrictions apply in the portion of the regulated area between Conimicut Light (LLNR 18305) and Channel Light 42 (Fuller Rock Light, (LLNR 18580)).

(2080) (i) No vessel with a draft greater than 35 feet may transit when water depth is at or below mean low water.

(2081) (ii) Vessels with drafts greater than 35 feet but less than 38 feet may transit when water depth is other than that on or below mean low water, provided there is sufficient depth under the keel to prevent grounding.

(2082) (iii) Vessels with drafts greater than or equal to 38 feet must obtain permission, 48 hours in advance of the desired transit time, from the Captain of the Port, Providence to transit.

(2083) (2) Vessels with drafts greater than 35 feet must have at least one mile of visibility to transit the regulated area between Conimicut Light (LLNR 18305) and Channel Light 42 (LLNR 18580, Fuller Rock Light).

(2084) (3) Vessels over 65 feet in length are prohibited from passing, meeting, or overtaking other vessels over 65 feet in length in the regulated area from:

(2085) (i) Gaspee Point to Channel Light 42, (Fuller Rock Light, LLNR 18580).

(2086) (ii) Conimicut Point Reach (Conimicut Light, LLNR 18305) to Channel Lighted Buoy 19, 41°43.7′N., 71°21.8′W., (LLNR 18330) and Channel Lighted Buoy 20, 41°43.7′N., 71°21.8′W., (LLNR 18335).

(2087) (4) Vessels over 65 feet in length inbound for berths up the Providence River, planning to transit through the deep draft channel, are required to make Safety Signal (SECURITE) calls on both VHF channels 13 and 16 at the following geographic locations: Pilot's Station, Abeam of Castle Hill, Approaching the Newport bridge, South of Prudence Island, Abeam of Sandy Point, Abeam of Popasquash Point, Approaching the Southern End of Rumstick Neck Reach, Abeam of Conimicut Point Light (LLNR 18305), Abeam of Gaspee Point, Abeam of Sabin Point and upon mooring.

(2088) (5) Vessels over 65 feet in length outbound for sea down in Providence River Channel transiting through this regulated navigation area are required to make SECURITE calls on VHF channels 13 and 16 at the following geographic locations: one-half hour prior to departure from the berth, at departure from the berth, Abeam of Sabin Point, Abeam of Gaspee Point, and Abeam of Conimicut Light (LLNR 18305).

(2089) (6) Vessels 65 feet and under in length and all recreational vessels when meeting deep draft commercial vessel traffic in the Providence River Channel between Conimicut Light (LLNR 18305) and Channel Light 42 (LLNR 18580, Fuller Rock Light) shall keep out of the way of the oncoming deep draft commercial vessel.

(2090) (7) The Captain of the Port, Providence, may authorize a deviation from these regulations.

(2091) (c) Enforcement. Violations of this regulated navigation area should be reported to the Captain of the Port, Providence, at (401) 435-2300. Persons in violation of these regulations will be subject to civil penalty under §165.13(b) of this part.

(2092) **§165.130 Sandy Hook Bay, New Jersey-security zone.**

(2093) (a) Naval Ammunition Depot Piers.–The waters within the following boundaries are a security zone-A line beginning on the shore at

(2094) 40°25′57″N., 74°04′32″W.; then to

(2095) 40°27′52.5″N., 74°03′14.5″W.; then to

(2096) 40°27′28.3″N., 74°02′12.4″W.; then to

(2097) 40°26′29.2″N., 74°02′53″W.; then to

(2098) 40°26′31.1″N., 74°02′57.2″W.; then to

(2099) 40°25′27.3″N., 74°03′41″W.; then along the shoreline to the beginning point.

(2100) (b) Terminal Channel. The waters within the following boundaries are a security zone-A line beginning at

(2101) 40°27′41.2″N., 74°02′46″W.; then to

(2102) 40°28′27″N., 74°02′17.2″W.; then to

(2103) 40°28′21.1″N., 74°02′00″W.; then to

(2104) 40°28′07.8″N., 74°02′22″W.; then to

(2105) 40°27′39.8″N., 74°02′41.4″W.; then to the beginning.

(2106) (c) The following rules apply to the security zone established in paragraph (b) of this section (Terminal Channel) instead of the rule in §165.33(a)

(2107) (1) No vessel shall anchor, stop, remain or drift without power at any time in the security zone.

(2108) (2) No vessel shall enter, cross, or otherwise navigate in the security zone when a public vessel, or any other vessel, that cannot safely navigate outside the Terminal Channel, is approaching or leaving the Naval Ammunition Depot Piers at Leonardo, New Jersey.

(2109) (3) Vessels may enter or cross the security zone, except as provided in paragraph (c)(2) of this section.

(2110) (4) No person may swim in the security zone.

(2111) **§165.140 New London Harbor, Connecticut-security zone.**

(2112) (a) Security zones–

(2113) (1) Security Zone A. The waters of the Thames River west of the Electric Boat Division Shipyard enclosed by a line beginning at a point on the shoreline at

(2114) 41°20′22.1″N., 72°04′52.8″W.; then west to

(2115) 41°20′28.7″N., 72°05′03.5″W.; then to

(2116) 41°20′53.3″N., 72°05′06.6″W.; then to

(2117) 41°21′03″N., 72°05′06.7″W.; then due east to a point on the shoreline at

(2118) 41°21′03″N., 72°05′00″W.; then along the shoreline to the point of beginning.

(2119) (2) Security Zone B. The waters of the Thames River, west of the Naval Submarine Base, New London, Conn., enclosed by a line beginning at a point on the shoreline at

(2120) 41°23′15.8″N., 72°05′17.9″W.; then to

(2121) 41°23′15.8″N., 72°05′22″W.; then to

(2122) 41°23′25.9″N., 72°05′29.9″W.; then to

(2123) 41°23′33.8″N., 72°05′34.7″W.; then to

(2124) 41°23′37.0″N., 72°05′38.0″W.; then to

(2125) 41°23′41.0″N., 72°05′40.3″W.; then to

(2126) 41°23′47.2″N., 72°05′42.3″W.; then to

(2127) 41°23′53.8″N., 72°05′43.7″W.; then to

(2128) 41°23′59.8″N., 72°05′43.0″W.; then to

(2129) 41°24′12.4″N., 72°05′43.2″W.; then to a point on the shoreline at

(2130) 41°24′14.4″N., 72°05′38″W.; then along the shoreline to the point of beginning.

(2131) (b) Special regulation. Section 165.33 does not apply to public vessels when operating in Security Zones A or to vessels owned by, under hire to, or performing work for the Electric Boat Division when operating in Security Zone A.

(2132) **§165.150 New Haven Harbor, Quinnipiac River, Mill River.**

(2133) (a) The following is a regulated navigation area: The waters surrounding the Tomlinson Bridge located within a line extending from a point A at the southeast corner of the Wyatt terminal dock at 41°17′50″N., 72°54′36″W.; thence along a line 126°T to point B at the southwest corner of the Gulf facility at 41°17′42″N., 72°54′21″W.; thence north along the shoreline to point C at the northwest corner of the Texaco terminal dock 41°17′57″N., 72°54′06″W.; thence along a line 303°T to point D at the west bank of the mouth of the Mill River 41°18′05″N., 72°54′23″W.; thence south along the shoreline to point A.

(2134) (b) Regulations. (1) No person may operate a vessel or tow a barge in this Regulated Navigation Area in violation of these regulations.

(2135) (2) Applicability. The regulations apply to barges with a freeboard greater than ten feet and to any vessel towing or pushing these barges on outbound transits of the Tomlinson Bridge.

(2136) (3) Regulated barges may not transit the bridge–

(2137) (i) During the period from one hour to five hours after high water slack,

(2138) (ii) When the wind speed at the bridge is greater than twenty knots, and

(2139) (iii) With the barge being towed on a hawser, stern first.

(2140) (4) Regulated barges with a beam greater than fifty feet must be pushed ahead through the bridge.

(2141) (5) If the tug operator does not have a clear view over the barge when pushing ahead, the operator shall post a lookout on the barge with a means of communication with the operator.

(2142) (6) Regulated barges departing the Mill River may transit the bridge only between sunrise and sunset. Barges must be pushed ahead of the tug, bow first, with a second tug standing by to assist at the bow.

(2143) (7) Nothing in this section is intended to relieve any person from complying with–

(2144) (i) Applicable Navigation and Pilot Rules for Inland Waters;

(2145) (ii) Any other laws or regulations;

(2146) (iii) Any order or direction of the Captain of the Port.

(2147) (8) The Captain of the Port, New Haven, may issue an authorization to deviate from any rule in this section if the COTP finds that an alternate operation can be done safely.

(2148) **§165.155 Northville Industries Offshore Platform, Riverhead, Long Island, New York-safety zone.**

(2149) (a) The following area is established as a safety zone during the specified condition:

(2150) (1) The waters within a 500 yard radius of the Northville Industries Offshore Platform, Long Island, New York, 1 mile North of the Riverhead shoreline at 41°00′N., 072°38′W., while a liquefied Petroleum Gas (LPG) vessel is moored at the Offshore Platform. The safety zone remains in effect until the LPG vessel departs the Offshore Platform.

(2151) (b) The general regulations governing safety zone contained in 33 CFR 165.23 apply.

(2152) (c) The Captain of the Port will notify the maritime community of periods during which this safety zone will be in effect by providing notice of scheduled moorings at the Northville Industries Offshore Platform of LPG vessels via Marine Safety Information Radio Broadcast.

(2153) **§165.167 Safety Zone; Annual Rensselear Festival Fireworks Display, Hudson River, New York.**

(2154) (a) *Location.* The safety zone includes the waters of the Hudson River, shore to shore, north of 42°38′12″N. (NAD 1983) and south of the Dunn Memorial Bridge, Albany, New York.

(2155) (b) *Effective period.* This section is in effect annually on the third Saturday in September from 8:30 p.m. until 10 p.m., unless extended or exterminated sooner by the Captain of the Port New York. The effective period will be announced annually via Safety Marine Information Broadcasts and locally issued notices.

(2156) (c) *Regulations.*

(2157) (1) The general regulations contained in 33 CFR 165.23 apply.

(2158) (2) All persons and vessels shall comply with the instructions of the Coast Guard Captain of the Port or the designated on scene patrol personnel. U.S. Coast Guard patrol personnel include commissioned, warrant, and petty officers of the Coast Guard. Upon being hailed by a U.S. Coast Guard vessel via siren, radio, flashing light, or other means, the operator of a vessel shall proceed as directed.

(2159) **§165.160 New York, New Jersey, Sandy Hook Channel, Raritan Bay, Arthur Kill-Safety Zone.**

(2160) (a) The following areas are established as Safety Zones during the specified conditions:

(2161) (1) For incoming tank vessels loaded with Liquefied Petroleum Gas, the waters within a 100 yard radius of the LPG carrier while the vessel transits the Sandy Hook Channel, Raritan Bay East and West Reach, Ward Point Bend East and West Reach, and the Arthur Kill to the LPG receiving facility. The Safety Zone remains in effect until the LPG vessel is moored at the LPG receiving facility in the Arthur Kill.

(2162) (2) For outgoing tank vessels loaded with LPG, the waters within a 100 yard radius of the LPG carrier while the vessel departs the LPG facility and transits the Arthur Kill, Ward Point Bend West and East Reach, Raritan Bay West and East Reach, and Sandy Hook Channel. The safety zone remains in effect until the LPG vessel passes the Scotland Lighted Horn Buoy "S" (LLNR 1619) at the entrance to the Sandy Hook Channel.

(2163) (b) The general regulations governing safety zones contained in 33 CFR 165.23 apply.

(2164) (c) The Captain of the Port will notify the maritime community of periods during which this safety zone will be in effect by providing advance notice of scheduled arrivals and departures of loaded LPG vessels via a Marine Safety Information Radio Broadcast.

(2165) **§165.167 Safety Zone; Annual Rensselear Festival Fireworks Display, Hudson River, New York.**

(2166) (a) *Location.* The safety zone includes the waters of the Hudson River, shore to shore, north of 42°38′12″N. (NAD 1983) and south of the Dunn Memorial Bridge, Albany, New York.

(2167) (b) *Effective period.* This section is in effect annually on the third Saturday in September from 8:30 p.m. until 10 p.m., unless extended or exterminated sooner by the Captain of the Port New York. The effective period will be announced annually via SafetyMarine Information Broadcasts and locally issued notices.

(2168) (c) *Regulations.*

(2169) (1) The general regulations contained in 33 CFR 165.23 apply.

(2170) (2) All persons and vessels shall comply with the instructions of the Coast Guard Captain of the Port or the designated on scene patrol personnel. U.S. Coast Guard patrol personnel include commissioned, warrant, and petty officers of the Coast Guard. Upon being hailed by a U.S. Coast Guard vessel via siren, radio, flashing light, or other means, the operator of a vessel shall proceed as directed.

Part 166–Shipping Safety Fairways

(2171) **Subpart A–General**

(2172) **§166.100 Purpose.**–The purpose of these regulations is to establish and designate shipping safety fairways and fairway anchorages to provide unobstructed approaches for vessels using U.S. ports.

(2173) **§166.103 Geographic Coordinates.**

(2174) 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.

(2175) **§166.105 Definitions.**

(2176) (a) "Shipping safety fairway" or "fairway" means a lane or corridor in which no artificial island or fixed structure, whether temporary or permanent, will be permitted. Temporary underwater obstacles may be permitted under certain conditions described for specific areas in Subpart B. Aids to navigation approved by the U.S. Coast Guard may be established in a fairway.

(2177) (b) "Fairway anchorage" means an anchorage area contiguous to and associated with a fairway, in which fixed structures may be permitted within certain spacing limitations, as described for specific areas in Subpart B.

(2178) **§166.110 Modification of areas.**

(2179) Fairways and fairway anchorages are subject to modification in accordance with 33 U.S.C. 1223(c); 92 Stat. 1473. Subpart B-Designation of Fairways and Fairway Anchorages (in part)

(2180) §166.500 Areas along the Atlantic Coast.

(2181) (a) Purpose. Fairways, as described in this section are established to control the erection of structures therein to provide safe vessel routes along the Atlantic Coast.

(2182) (b) Designated areas.-(1) Off New York Shipping Safety Fairway.

(2183) (i) Nantucket to Ambrose Safety Fairway. The area enclosed by rhumb lines, (North American Datum of 1927 (NAD-27)), joining points at:

(2184) 40°32′20″N., 73°04′57″W.

(2185) 40°30′58″N., 71°58′25″W.

(2186) 40°34′07″N., 70°19′23″W.

(2187) 40°35′37″N., 70°14′09″W.

(2188) 40°30′37″N., 70°14′00″W.

(2189) 40°32′07″N., 70°19′19″W.

(2190) 40°28′58″N., 72°58′25″W.

(2191) 40°27′20″N., 73°04′57″W.

(2192) (ii) Ambrose to Nantucket Safety Fairway. The area enclosed by rhumb lines, NAD-27, joining points at:

(2193) 40°24′20″N., 73°04′58″W.

(2194) 40°22′58″N., 72°58′26″W.

(2195) 40°26′07″N., 70°19′09″W.

(2196) 40°27′37″N., 70°13′46″W.

(2197) 40°22′37″N., 70°13′36″W.

(2198) 40°24′07″N., 70°19′05″W.

(2199) 40°20′58″N., 72°58′26″W.

(2200) 40°19′20″N., 73°04′58″W.

Part 167-Offshore Traffic Separation Schemes

(2201) **Subpart A-General**

(2202) **§167.1 Purpose.** The purpose of the regulations in this part is to establish and designate traffic separation schemes and precautionary areas to provide access routes for vessels proceeding to and from U.S. ports.

(2203) **§167.5 Definitions.**

(2204) (a) "Traffic separation scheme" (TSS) means a designated routing measure which is aimed at the separation of opposing streams of traffic by appropriate means and by the establishment of traffic lanes.

(2205) (b) "Traffic lane" means an area within defined limits in which one-way traffic is established. Natural obstacles, including those forming separation zones, may constitute a boundary.

(2206) (c) "Separation zone or line" means a zone or line separating the traffic lanes in which ships are proceeding in opposite or nearly opposite directions; or separating a traffic lane from the adjacent sea area; or separating traffic lanes designated for particular classes of ships proceeding in the same direction.

(2207) (d) "Precautionary area" means a routing measure comprising an area within defined limits where ships must navigate with particular caution and within which the direction of traffic flow may be recommended.

(2208) **§166.10 Operating rules.**

(2209) The operator of a vessel in a TSS shall comply with Rule 10 of the International Regulations for Preventing Collisions at Sea, 1972, as amended.

(2210) **§167.15 Modification of schemes.**

(2211) (a) A traffic separation scheme or precautionary area described in this Part may be permanently amended in accordance with 33 U.S.C. 1223 (92 Stat. 1473), and with international agreements.

(2212) (b) A traffic separation scheme or precautionary area in this Part may be temporarily adjusted by the Commandant of the Coast Guard in an emergency, or to accommodate operations which would create an undue hazard for vessels using the scheme or which would contravene Rule 10 of the International Regulations for Preventing Collisions at Sea, 1972. Adjustment may be in the form of a temporary traffic lane shift, a temporary suspension of a section of the scheme, a temporary precautionary area overlaying a lane, or other appropriate measure. Adjustments will only be made where, in the judgment of the Coast Guard, there is no reasonable alternative means of conducting an operation and navigation safety will not be jeopardized by the adjustment. Notice of adjustments will be made in the appropriate Notice to Mariners and in the Federal Register. Requests by members of the public for temporary adjustments to traffic separation schemes must be submitted 150 days prior to the time the adjustment is desired. Such Requests, describing the interference that would otherwise occur to a TSS, should be submitted to the District Commander of the Coast Guard District in which the TSS is located. Atlantic East Coast

(2213) **§167.150 Off New York Traffic Separation Scheme and Precautionary Areas.**

(2214) The specific areas in the Off New York Traffic Separation Scheme and Precautionary Areas are described in §§167.151, 167.152, 167.153, 167.154, and 167.155 of this chapter.

(2215) **§167.151 Precautionary areas.**

(2216) (a) A circular precautionary area with a radius of seven miles is established centered upon Ambrose Light in geographic position

(2217) 40°27.50′N., 73°49.90′W.

(2218) (b) A precautionary area is established between the traffic separation scheme "Eastern Approach, off Nantucket" and the traffic separation scheme "In the Approach to Boston, Massachusetts." (1) The precautionary area is bounded to the east by a circle of radius 15.5 miles, centered upon geographic position

(2219) 40°35.00′N., 69°00.00′W., and is intersected by the traffic separation scheme "In the Approach to Boston, Massachusetts" and "Off New York" at the following geographic positions:

(2220) 40°50.33′N., 68°57.00′W.

(2221) 40°23.75′N., 69°14.63′W.

(2222) (2) The precautionary area is bounded to the west by a line connecting the two traffic separation schemes between the following geographic positions:

(2223) 40°36.75′N., 68°15.16′W.

(2224) 40°48.00′N., 69°03.33′W.

(2225) **§167.152 Eastern approach, off Nantucket.**

(2226) (a) A separation zone is established bounded by a line connecting the following geographic positions:

(2227) 40°28.75′N., 69°14.83′W.

(2228) 40°27.62′N., 70°13.77′W.

(2229) 40°30.62′N., 70°14.00′W.

(2230) 40°31.75′N., 69°14.97′W.

(2231) (b) A traffic lane for westbound traffic is established between the separation zone and a line connecting the following geographic positions:

(2232) 40°36.75′N., 69°15.17′W.

(2233) 40°35.62′N., 70°14.15′W.

(2234) (c) A traffic lane for eastbound traffic is established between the separation zone and a line connecting the following geographic positions:

(2235) 40°22.62′N., 70°13.60′W.

(2236) 40°23.75′N., 69°14.63′W.

(2237) **§167.153 Eastern approach, off Ambrose Light.**

(2238) (a) A separation zone is established bounded by a line connecting the following geographic positions:

(2239) 40°24.33′N., 73°04.97′W.

(2240) 40°24.20′N., 73°11.50′W.

(2241) 40°26.00′N., 73°40.93′W.

(2242) 40°27.00′N., 73°40.75′W.

(2243) 40°27.20′N., 73°11.50′W.

(2244) 40°27.33′N., 73°04.95′W.

(2245) (b) A traffic lane for westbound traffic is established between the separation zone and a line connecting the following geographic positions:

(2246) 40°32.33′N., 73°04.95′W.

(2247) 40°32.20′N., 73°11.50′W.

(2248) 40°28.00′N., 73°40.73′W.

(2249) (c) A traffic lane for eastbound traffic is established between the separation zone and a line connecting the following geographic positions:

(2250) 40°25.05′N., 73°41.32′W.

(2251) 40°19.20′N., 73°11.50′W.

(2252) 40°19.33′N., 73°04.97′W.

(2253) **§167.154 Southeastern approach.**

(2254) (a) A separation zone is established bounded by a line connecting the following geographic positions:

(2255) 40°03.10′N., 73°17.93′W.

(2256) 40°06.50′N., 73°22.73′W.

(2257) 40°22.45′N., 73°43.55′W.

(2258) 40°23.20′N., 73°42.70′W.

(2259) 40°08.72′N., 73°20.10′W.

(2260) 40°05.32′N., 73°15.28′W.

(2261) (b) A traffic lane for northwest-bound traffic is established between the separation zone and a line connecting the following geographic positions:

(2262) 40°08.98′N., 73°10.87′W.

(2263) 40°12.42′N., 73°15.67′W.

(2264) 40°24.02′N., 73°41.97′W.

(2265) (c) A traffic lane for southeast-bound traffic is established between the separation zone and a line connecting the following geographic positions:

(2266) 40°21.82′N., 73°44.55′W.

(2267) 40°02.80′N., 73°27.15′W.

(2268) 39°59.43′N., 73°22.35′W.

(2269) **§167.155 Southern approach.**

(2270) (a) A separation zone is established bounded by a line connecting the following geographic positions:

(2271) 39°45.70′N., 73°48.00′W.

(2272) 40°20.63′N., 73°48.33′W.

(2273) 40°20.87′N., 73°47.07′W.

(2274) 39°45.70′N., 73°44.00′W.

(2275) (b) A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographic positions:

(2276) 39°45.70′N., 73°37.70′W.

(2277) 40°21.25′N., 73°45.85′W.

(2278) (c) A traffic lane for southbound traffic is established between the separation zone and a line connecting the following geographic positions:

(2279) 40°20.53′N., 73°49.65′W.

(2280) 39°45.70′N., 73°54.40′W.

(2281) **Note.**–Use of LORAN C enables masters of appropriately equipped vessels to be informed highly accurately and continuously about the vessel's position in the area covered by this scheme.

(2282) **§167.3 Geographic coordinates.**

(2283) 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.

Part 207–Navigation Regulations

(2284) **§207.20 Cape Cod Canal, Mass.; use, administration, and navigation.** (a) Limits of canal. The canal, including approaches, extends from the Canal Station Minus 100 in Cape Cod Bay, approximately one and six-tenths (1.6) statute miles seaward of the Canal Breakwater Light, through dredged channels and land cuts to Cleveland Ledge Light in Buzzards Bay approximately four (4) statute miles southwest of Wings Neck.

(2285) (b) Supervision. (1) The movement of ships, boats and craft of every description through the canal and the operation and maintenance of the waterway and all property of the United States

pertaining thereto shall be under the supervision of the Division Engineer, U.S. Army Engineer Division, New England, Corps of Engineers, Waltham, Massachusetts, or the authorized representative of the division engineer, the Engineer-In-Charge of the Cape Cod Canal. The division engineer or the Engineer-In-Charge from time to time will prescribe rules governing the dimensions of vessels which may transit the waterway, and other special conditions and requirements which will govern the movement of vessels using the waterway.

(2286) (2) The Engineer-In-Charge, through the marine traffic controller on duty, will enforce these regulations and monitor traffic through the canal. The marine traffic controller on duty is the individual responsible for interpretation of these regulations with respect to vessels transiting the canal. Vessels transiting the canal must obey the orders of the marine traffic controller.

(2287) (3) The government has tugs stationed at the West Boat Basin for emergency use on an on-call basis. A patrol vessel is manned and operational 24-hours a day.

(2288) (c) Communications. There is a marine traffic controller on duty 24 hours a day, seven days a week, in the traffic control center located at the Canal Administrative Office. The primary method of communications between the canal and vessels transiting will be by VHF-FM Marine radio. The traffic controller can also be contacted by telephone.

(2289) (1) For radio communications, call the traffic controller on channel 16 to establish contact. The transmissions will then be switched to channel 12 or 14 as the working channel to pass information. Channel 13 is also available at the canal office; however, the use of channel 13 should be limited to emergency situations or whenever vessels do not have one of the other channels. All four channels are monitored continuously by the traffic controller. Radio discipline will be adhered to in accordance with FCC rules and regulations.

(2290) (2) For telephone communications with the traffic controller, call (508) 759–4431.

(2291) (3) Vessels shall maintain a radio guard on Marine VHF-FM channel 13 during the entire passage through the canal.

(2292) (4) All radio communications in the vicinity of the canal are tape recorded for future reference.

(2293) (d) Vessels allowed passage. The canal is open for passage to all adequately powered vessels properly equipped and seaworthy, of sizes consistent with safe navigation as governed by the controlling depths and widths of the channel and the vertical and horizontal clearances of the bridges over the waterway. The granting of permission for any vessel to proceed through the waterway shall not relieve the owners, agents and operators of full responsibility for its safe passage. No vessel having a greater draft forward than aft will be allowed to transit the canal. Craft of low power and wind driven are required to have and use auxiliary power during passage throughout the canal as defined in paragraph (a) of this section. Low powered vessels will be required to await slack water or favorable current for canal transit.

(2294) (e) Tows. (1) Tows shall be made-up outside the canal entrances. All vessels engaged in towing other vessels not equipped with a rudder shall use two lines or a bridle and one tow line. If the vessel in tow is equipped with a rudder or a ship shaped bow, one tow line may be used. All tow lines of hawsers must be hauled as short as practicable for safe handling of the tows. No towboat will be allowed to enter the waterway with more than two barges in tow unless prior approval is granted by the Engineer-In-Charge; requests must be submitted 12 hours in advance of the passage.

(2295) (2) The maximum length of pontoon rafts using the canal will be limited to 600 feet, and the maximum width to 100 feet. Pontoon rafts exceeding 200 feet in length will be required to have an additional tug on the stern to insure that the tow is kept in line. The tugs used must have sufficient power to handle the raft safely.

(2296) (3) Dead ships are required to transit the canal during daylight hours and must be provided with the number of tugs sufficient to afford safe passage through the canal. (A dead ship will not be allowed to enter the canal unless prior approval is granted by the Engineer-In-Charge; requests must be submitted 12 hours in advance of the passage).

(2297) (f) Dangerous Cargoes. The master or pilot of any vessel or tow carrying dangerous cargoes must notify the Marine Traffic Controller prior to entering the canal. Dangerous cargoes are defined as those items listed in 33 CFR 126.10 when carried in bulk (i.e., quantities exceeding 110 U.S. gallons in one tank) plus Class A explosives (commercial or military) as listed in 49 CFR 173.53 (commercial) and 46 CFR 146.29–100 (military), liquified natural gas and liquified petroleum gas. Transportation of dangerous cargoes through the canal shall be in strict accordance with existing regulations prescribed by law. In addition, vessels carrying dangerous cargoes shall comply with the following requirements.

(2298) (1) They must have sufficient horsepower to overcome tidal currents or they will be required to wait for favorable current conditions.

(2299) (2) Transits will be during daylight hours.

(2300) (3) No transit will be permitted when visibility conditions are unstable or less than 2 miles at the approaches and throughout the entire length of the canal.

(2301) (4) Transits must await a clear canal for passage.

(2302) (g) Obtaining clearance. (1) Vessels under 65 feet in length may enter the canal without obtaining clearance. All craft are required to make a complete passage through the canal except excursion craft which may operate and change direction within the canal in accordance with procedures coordinated with the marine traffic controller on duty. When the railroad bridge span is in the closed (down) position, all vessels are directed not to proceed beyond the points designated by the stop signs posted east and west of the railroad bridge. Vessels proceeding with a fair tide (with the current) should turn and stem the current at the designated stop points until the railroad bridge is in the raised (open) position.

(2303) (2) Vessels 65 feet in length and over shall not enter the canal until clearance has been obtained from the marine traffic controller by radio. See paragraph (c) "Communications" for procedures. If a vessel, granted prior clearance, is delayed or stops at the mooring basins, state pier, or the Sandwich bulkhead, a second clearance must be obtained prior to continuing passage through the canal.

(2304) (3) Vessels will be given clearance in the order of arrival, except when conditions warrant one-way traffic, or for any reason an order of priority is necessary, clearance will be granted in the following order.

(2305) (i) First-To vessels owned or operated by the United States, including contractors' equipment employed on canal maintenance or improvement work.

(2306) (ii) Second-To passenger vessels.

(2307) (iii) Third-To tankers and barges docking and undocking at the Canal Electric Terminal.

(2308) (iv) Fourth-To merchant vessels, towboats, commercial fishing vessels, pleasure boats and miscellaneous craft.

(2309) (4) Procedures in adverse weather-Vessels carrying flammable or combustible cargoes as defined in 46 CFR 30.25 will be restricted from passage through the canal when visibility is less than ½ mile. Other vessels may transit the canal in thick weather by use of radar with the understanding that the United States Government will assume no responsibility: And provided, That clearance has been obtained from the marine traffic controller.

(2310) (h) Traffic lights. There are three sets of traffic lights showing red, green, and yellow that are operated on a continuous basis at the canal. The traffic lights apply to all vessels 65 feet in length and over. The traffic lights are a secondary system that is operated in support of the radio communications system. The traffic lights are located at the easterly canal entrance, Sandwich, and at the westerly entrance to Hog Island Channel at Wings Neck. A third traffic light is located at the Canal Electric Terminal basin on the south side of the canal in Sandwich, and applies only to vessels arriving and departing that terminal.

(2311) (1) Westbound traffic-When the green light is on at the eastern (Cape Cod Bay) entrance, vessels may proceed westward through the canal. When the red light is on, any type of vessel 65 feet in length and over must stop clear of the Cape Cod Bay entrance channel. When the yellow light is on, vessels 65 feet in length and over and drawing less than 25 feet may proceed as far as the East Mooring Basin where they must stop. Prior to continuing passage through the canal, clearance must be obtained from the marine traffic controller.

(2312) (2) Eastbound traffic-When the green light is on at Wings Neck, vessels may proceed eastward through the canal. When the red light is on, vessels 65 feet and over in length and drawing less than 25 feet must keep southerly of Hog Island Channel Entrance Buoys Nos. 1 and 2 and utilize the general anchorage areas adjacent to the improved channel. Vessel traffic drawing 25 feet and over are directed not to enter the canal channel at the Cleveland Ledge Light entrance and shall lay to or anchor in the vicinity of Buzzards Bay Buoy No. 11 (FLW & Bell) until clearance is granted by the canal marine traffic controller or a green traffic light at Wings Neck is displayed. When the yellow light is on, vessels may proceed through Hog Island Channel as far as the West Mooring Basin where they must stop. Prior to continuing passage through the canal, clearance must be obtained from the marine traffic controller.

(2313) (i) Railroad Bridge Signals. The following signals at the Buzzards Bay Railroad Bridge will be given strict attention.

(2314) (1) The vertical lift span on the railroad bridge is normally kept in the raised (open) position except when it is lowered for the passage of trains, or for maintenance purposes. Immediately preceding the lowering of the span, the operator will sound two long blasts of an air horn. Immediately preceding the raising of the span, the operator will sound one long blast of an air horn. When a vessel or craft of any type is approaching the bridge with the span in the down (closed) position and the span cannot be raised immediately, the operator of the bridge will so indicate by sounding danger signals of four short blasts in quick succession.

(2315) (2) When the lift span is in the down (closed) position in foggy weather or when visibility is obscured by vapor, there will be four short blasts sounded from the bridge every two minutes.

(2316) (j) Speed. All vessels are directed to pass mooring and boat basin facilities, the state pier, and all floating plant engaged in maintenance operations of the waterway at a minimum speed consistent with safe navigation. In order to coordinate scheduled rail traffic with the passage of vessels, to minimize erosion of the canal banks and dikes from excessive wave wash and suction, and for the safety of vessels using the canal, the following speed regulations must be observed by vessels of all types, including pleasure craft. The minimum running time for the land cut between the East Mooring Basin (Station 35) and the Administration Office in Buzzards Bay (Station 388) is prescribed as follows; Head tide, 60 minutes; Fair tide, 30 minutes; and Slack tide, 45 minutes.

(2317) The minimum running time between the Administration Office (Station 388) and Hog Island Channel westerly entrance Buoy No. 1 (Station 661) is prescribed as follows: Head tide, 46 minutes; Fair tide, 23 minutes; and Slack tide, 35 minutes. The running time at slack water will apply to any vessel which enters that portion of the canal between stations 35 and 661, within the period of one-half hour before or after the predicted time of slack water as given in the National Ocean Service publication "Current Tables, Atlantic Coast, North America." The minimum running time during a head tide or a fair tide shall apply to any vessel which enters that portion of the canal between Station 35 and 661 at any time other than designated above for time requirements at slack tide. Vessels of any kind unable to make a through transit of the land cut portion of the canal against a head current of 6.0 knots within a maximum time limit of 2 hours 30 minutes shall be required to obtain the assistance of a helper tug at the vessel owner's expense or await favorable tide conditions prior to receiving clearance from the marine traffic controller. In the event vessels within the confines of the canal fail to perform and are unable to make sufficient headway against the currents, the marine traffic controller may activate a helper tug in accordance with paragraph (k) of this section.

(2318) (k) Management of vessels. (1) Vessels within the limits of the canal shall comply with applicable navigation rules.

(2319) (2) Vessels within the limits of the canal shall comply with the applicable requirements for the use of pilots established by the Coast Guard, including but not limited to those contained in 46 CFR 157.20–40. Vessels will not be granted clearance to enter the canal until the marine traffic controller has been notified of the name of the pilot who will be handling the vessel.

(2320) (3) The master of a vessel will be responsible for notifying the marine traffic controller as soon as an emergency situation appears to be developing. When in the opinion of the marine traffic controller an emergency exists, he/she can require the master to accept the assistance of a helper vessel. Whether or not assistance is provided by a government vessel or by a private firm under contract to the government, the government reserves the right to seek compensation from the vessel owners for all costs incurred.

(2321) (4) Right of Way-All vessels proceeding with the current shall have the right of way over those proceeding against the current. All craft up to 65 feet in length shall be operated so as not to interfere with the navigation of vessels of greater length.

(2322) (5) Passing of vessels-The passing of one vessel by another when proceeding in the same direction is prohibited except when a leading low powered ship is unable to make sufficient headway. However, extreme caution must be observed to avoid collision, and consideration must be given to the size of the ship to be overtaken, velocity of current and wind, and atmospheric conditions. Masters of vessels involved shall inform the marine traffic controller on duty of developing situations to facilitate coordination of vessel movement. Meeting or passing of vessels at the easterly end of the canal between Station Minus 40 and Station 60 will not be permitted, except in cases of extreme emergency, in order to allow vessels to utilize the center line range to minimize the effects of hazardous eddies and currents. Due to bank suction and tidal set, meeting and passing of vessels at the following location will be avoided:

(2323) (i) Sagamore Bridge.

(2324) (ii) Bourne Bridge.

(2325) (iii) Railroad Bridge.

(2326) (iv) Mass. Maritime Academy.

(2327) (6) Unnecessary delay in canal-Vessels and other type crafts must not obstruct navigation by unnecessarily idling at low speed when entering or passing through the canal.

(2328) (7) Stopping in the waterway-Anchoring in the Cape Cod Canal Channel is prohibited except in emergencies. For the safety of canal operations it is mandatory that the masters of all vessels anchoring in or adjacent to the canal channel (Cape Cod Bay to Cleveland Ledge Light) for any reason, immediately notify the marine traffic controller.

(2329) (8) Utilization of mooring and boat basins and the Sandwich Bulkhead-Vessels mooring or anchoring in the mooring or boat basins at the Sandwich bulkhead must do so in a manner not to obstruct or impede vessel movements to and from facilities. These facilities are of limited capacity and permission to occupy them for periods exceeding 24 hours must be obtained in advance from the marine traffic controller. Mooring in the West Boat Basin at Buzzards Bay, near the railroad bridge, is not permitted except in an emergency. Fishing boats, yachts, cabin cruisers and other craft utilizing the East Boat Basin on the south side of the canal at Sandwich, Massachusetts are not permitted to tie up at the Corps of Engineers landing float or anchor in a manner to prevent canal floating plant from having ready access to the float. All vessels or barges left unattended must be securely tied with adequate lines or cables. The United States assumes no liability for damages which may be sustained by any craft using the bulkhead at Sandwich or the canal mooring or boat basin facilities. Vessels shall not be left unattended along the face of the government bulkhead. A responsible person with authority to authorize and/or accomplish vessel movement must remain onboard at all times.

(2330) (1) Grounded, wrecked or damaged vessels. In the event a vessel is grounded, or so damaged by accident as to render it likely to become an obstruction and/or hazard to navigation in the waterway, the division engineer or the division engineer's authorized representative shall supervise and direct all operations that may be necessary to remove the vessel to a safe locality.

(2331) (n) Deposit of refuse. No oil or other allied liquids, ashes, or materials of any kind shall be thrown, pumped or swept into the canal or its approaches from any vessel or craft using the waterway, nor shall any refuse be deposited on canal grounds, marine structures, or facilities.

(2332) (o) Trespass to property. Subject to the provisions of paragraph (q) of this section trespass upon the canal property is prohibited.

(2333) (p) Bridges over the canal. The government owns, operates and maintains all bridges across the canal which include one railroad bridge and two highway bridges. The division engineer or his/her authorized representative may establish rules and regulations governing the use of these bridges.

(2334) (q) Recreational use of canal.–(1) Policy. (i) It is the policy of the Secretary of the Army acting through the Chief of Engineers to provide the public with safe and healthful recreational opportunities within all water resource development projects administered by the Chief of Engineers, including the canal and government lands part thereof. Any recreational use of the canal and those lands shall be at the users own risk.

(2335) (ii) All water resource development projects open for recreational use shall be available to the public without regard to sex, race, creed, color or national origin. No lessee, licensee, or concessionaire providing a service to the public shall discriminate against any person or persons because of sex, race, creed, color or national origin in the conduct of operations under the lease, license or concession contract.

(2336) (2) Motor vehicles. Operation of motor vehicles, motorcycles, minibikes, mopeds, motorbikes, snowmobiles, and all types of off-road vehicles is prohibited on government lands and service roads except in areas specifically designated for such operation.

(2337) (3) Swimming. Swimming, skin diving, snorkling, and scuba diving in the canal between the east entrance in Cape Cod Bay and the west entrance at Cleveland Ledge Light are prohibited. Diving operations may be authorized by the Engineer-In-Charge in conjunction with operation and maintenance of the canal.

(2338) (4) Camping. Overnight tenting or camping on government land is prohibited except in areas designated by the division engineer. Bourne Scenic Park and Scusset Beach State Reservation are designated camping areas. Persons asleep during hours of darkness in or out of vehicles shall be considered as campers.

(2339) (5) Fishing. Persons may fish with rod and line from the banks of the canal on Federally owned property except areas designated by the division engineer. Fishing and lobstering by boat in the Cape Cod Canal between the east entrance in Cape Cod Bay and the west entrance at Cleveland Ledge Light are prohibited. Fishing by boat is permitted in the area west of the State Pier in Buzzards Bay, provided that all craft stay out of the channel defined by United States Coast Guard buoys and beacons. Fish and game laws of the United States and the Commonwealth of Massachusetts will be enforced.

(2340) (6) Hunting. Hunting is permitted in accordance with game laws of the United States and the Commonwealth of Massachusetts.

(2341) (7) Fires. No open fires will be allowed at any time except by special permission and then shall be continuously overseen and in compliance with state or town laws.

(2342) (8) Control of animals and pets. (i) No person shall bring or have horses in camping, picnic, swimming beaches or developed recreation areas.

(2343) (ii) No person shall bring dogs (except seeing eye dogs), cats, or other pets into developed recreation areas unless penned, caged, or on a leash no longer than six feet or otherwise under physical restrictive controls at all times.

(2344) (9) Restrictions. (i) The division engineer may establish a reasonable schedule of visiting hours for all or portions of the project area and close or restrict the public use of all or any portion of the project by the posting of appropriate signs indicating the extent and scope of closure. All persons shall observe such posted restrictions.

(2345) (ii) The operation or use of any audio or other noise producing device including, but not limited to, communications media and vehicles in such a manner as to unreasonably annoy, endanger persons or affect vessel traffic through the canal is prohibited.

(2346) (10) Explosives, firearms, other weapons and fireworks. (i) The possession of loaded firearms, ammunition, projectile firing devices, bows and arrows, crossbows, and explosives of any kind is prohibited unless in the possession of a law enforcement officer or Government employee on official duty or used for hunting during the hunting season as permitted under paragraph (q)(6) of this section, or unless written permission has been received from the division engineer.

(2347) (ii) The possession or use of fireworks is prohibited unless written permission has been received from the division engineer.

(2348) (11) Public property. Destruction, injury, defacement or removal of public property including natural formations, historical and archeological features and vegetative growth is prohibited without written permission of the division engineer.

(2349) (12) Abandonment of personal property. (i) Abandonment of personal property is prohibited. Personal property shall not be left unattended upon the lands or waters of the project except in accordance with this regulation. After a period of 24 hours, abandoned or unattended personal property shall be impounded and stored at a storage point designated by the division engineer. The division engineer shall assess a reasonable impoundment fee, which shall be paid before the impounded property is returned to its owners.

(2350) (ii) The division engineer shall, by public or private sales or otherwise, dispose of all lost, abandoned, or unclaimed personal property that comes into his/her custody or control. However, efforts should be made to find the owner, the owner's heirs or next of kin, or legal representatives. If the owner, heirs or next of kin, or legal representative is determined but not found, the property may not be disposed of until the expiration of 120 days after the date when notice, giving the time and place of the intended sale or other disposition, has been sent by certified or registered mail to that person at last known address. When diligent effort to determine the owner, owner's heirs or next of kin, or legal representative is unsuccessful, the property may be disposed of without delay, except that if it has a fair market value of $25 or more the property generally may not be disposed of until three months after the date it is received at the Cape Cod Canal Administrative Office. The net proceeds from the sale of property shall be placed into the Treasury of the United States as miscellaneous receipts.

(2351) (13) Lost and found articles. All abandoned/lost articles shall be deposited by the finder at the Canal Administration office or with Canal ranger. The finder shall leave his/her name, address, and phone number. All lost articles shall be disposed of in accordance with procedures set forth in paragraph (q)(12) of this section.

(2352) (14) Advertisement. Advertising by the use of billboards, signs, markers, audio devices or any other means whatever is prohibited unless written permission has been received from the division engineer.

(2353) (15) Commercial activities. The engaging in or solicitation of business without the written permission of the division engineer is prohibited.

(2354) (16) Unauthorized structures. The construction or placing of any structure of any kind under, upon or over the project lands or waters is prohibited unless a permit has been issued by the division engineer. Structures not under permit are subject to summary removal by the division engineer.

(2355) (17) Special events. Prior approval must be obtained from the Engineer-In-Charge for special events, recreational programs and group activities. The public shall not be charged any fee by the sponsor of such event unless the division engineer has approved in writing the proposed schedule of fees.

(2356) (18) Interference with government employees. Interference with any government employee in the conduct of official duties pertaining to the administration of these regulations is prohibited.

(2357) **§207.50 Hudson River Lock at Troy, N.Y.; navigation.** (a) Authority of lockmaster. 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 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 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 or 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 assistants.

(2358) (b) Signals. Steamboats or tows desiring lockage in either direction shall give notice to the lock tenders, when not more than three-fourths mile from the lock, by one long blast of (10 seconds' duration), followed by one short blast (of three seconds' duration), on a whistle or horn. When the lock is ready for entrance a green light will be shown from the river wall. An amber light will indicate that the lock is being made ready for entrance. A red light will indicate that the approaching vessel must wait. Whenever local conditions make it advisable the visual signals will be supplemented by sound signals as follows:

(2359) (1) One long blast of a horn to indicate that the vessel must wait.

(2360) (2) One short blast of a horn to indicate that the lock is being made ready for entrance.

(2361) (3) Two short blasts of a horn to indicate permission to enter the lock.

(2362) (4) Four short and rapid blasts to attract attention, indicate caution, and signal danger.

(2363) (c) Draft of boats. Deep-draft boats must clear the miter sills by at least 3 inches. Boats drawing too much water will not be allowed to lighter cargo in the entrances.

(2364) (d) Precedence at the lock. The vessel arriving first at the 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 lock. Vessels arriving at or opposite such posts or markers will be considered as having arrived at the lock within the meaning of this paragraph. If the traffic is crowded in both directions; up and down lockages will usually be made alternately, but the lock tender may permit two or more lockages to be made at one time in the same direction when this will not cause unreasonable delay. In case two or more boats or tows are to enter for the same lockage, they shall enter as directed by the lock tender. No boat shall run ahead of another while in the lock. The boat that enters first shall leave first.

(2365) (e) Lockage of pleasure boats. The lockage of pleasure boats, house boats or like craft shall be expedited by locking them through with commercial craft (other than barges carrying gasoline or highly hazardous materials) in order to utilize the capacity of the lock to its maximum. Lockage of pleasure craft may be made with commercial craft carrying petroleum products other than gasoline provided a clear distance of at least 100 feet between such vessels can be maintained in the lock. 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.

(2366) (f) Stations while waiting. Boats waiting their turn to enter the lock must lie at a sufficient distance from the lock and in such a position as to leave sufficient room for the passage of boats leaving the lock.

(2367) (g) Unnecessary delay. (1) Boats must not cause delay in entering or leaving the lock. Masters and pilots will be held to a strict accountability in this matter, and those with tows must provide enough men to move barges promptly. Boats failing to enter the lock with reasonable promptness after being signaled will lose their turn.

(2368) (2) Tugboats arriving with their tows in a condition which will delay locking shall lose their turn if so ordered by the lock tender. Leaking boats may be excluded until put in shape to be passed through safely.

(2369) (h) Mooring. Boats in the lock or waiting in the entrance shall be moored where directed by the lock tender, by bow, stern, and spring lines, to the snubbing posts or line hooks. Tying boats to the lock ladders is strictly prohibited.

(2370) (i) Protection of lock gates. Boats will not be permitted to enter or leave the lock until the lock gates are at rest in the gate recesses and the lock tender has directed the boat to start.

(2371) (j) Damage to walls, etc. All craft passing through the lock must be free from projections or sharp corners which might scar the walls or injure other parts. Steamboats must be provided with suitable fenders, etc. One man shall be kept at the head of every tow till it has cleared the lock and guide walls, and shall use the fender to prevent scarring the walls.

(2372) (k) Handling machinery. None but employees of the United States will be allowed to move any valve, gate, or other machinery belonging to the lock.

(2373) (1) Refuse in lock. Throwing ashes, refuse, or other obstruction in the entrances or in the lock, or on the walls thereof, and passing coal from flats or barges to a steamboat while in the lock is prohibited.

(2374) (n) Trespass on United States property. Trespass on United States property, or willful injury to the banks, masonry, fences, trees, houses, machinery, or other property of the United States at or near the lock is strictly prohibited.

(2375) (o) Penalties. In addition to the penalties prescribed by law, boats which fail to comply with the regulations in this section will thereafter be refused lockage until assurances have been received, satisfactory to the District Engineer, Corps of Engineers, New York, New York, that the regulations will be complied with.

(2376) **§207.60 Federal Dam, Hudson River, Troy, N.Y.; pool level.** (a) Whenever the elevation of the pool created by the Federal dam at Troy, N.Y., shall fall to a point level with the crest of the main spillway, the elevation of which is 14.33 feet mean sea level, the operation of the power plant shall cease and further operation thereof shall be suspended until such time as the water level rises to or above 14.43 feet mean sea level.

(2377) (b) Flashboards may be maintained on the section of the spillway of the dam having an elevation of 14.33 feet mean sea level in order to increase the elevation of this section to an elevation equal to that of the auxiliary spillway, or 16.33 feet mean sea level: Provided, That the flashboards are so erected as to drop automatically when the pool level rises to an elevation of 18.5 feet mean sea level, and conform in other respects to the plans attached thereto.

(2378) (c) The tide staff to be used in determining the elevation of the pool shall be the ceramic tide staff now located on the westerly face of the east lock wall north of the northerly gates, the zero of which is set 2 feet below mean sea level.

(2379) (d) The regulations of the pool level and the maintenance of flashboards shall be subject to the supervision and approval of the District Engineer, New York City.

(2380) **§207.800 Collection of navigation statistics.**

(2381) (a) Definitions. For the purpose of this regulation the following terms are defined:

(2382) (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.)

(2383) (2) Offenses and Violations mean:

(2384) (i) Failure to submit a required report.

(2385) (ii) Failure to provide a timely, accurate, and complete report.

(2386) (iii) Failure to submit monthly listings of idle vessels or vessels in transit.

(2387) (iv) Failure to submit a report required by the lockmaster or canal operator.

(2388) (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.

(2389) (4) Person or entity means an individual, corporation, partnership, or company.

(2390) (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.

(2391) (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.

(2392) (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: Company A is the barge owner, and the barge transports corn from Minneapolis, MN to New Orleans, LA, with fleeting at Cairo, IL.

(2393) (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.

(2394) (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.

(2395) (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.

(2396) (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.

(2397) (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.

(2398) (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.

(2399) (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.

(2400) (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.

(2401) (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.

(2402) (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:

(2403) (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.

(2404) (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.

(2405) (B) Vessels idle during the month must also be reported.

(2406) (C) Notwithstanding the above requirements, the following waterborne vessel movements need not be reported:

(2407) (1) Movements of recreational vessels.

(2408) (2) Movements of fire, police, and patrol vessels.

(2409) (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.

(2410) (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.

(2411) (5) Specific movements granted exemption in writing by the Waterborne Commerce Statistics Center.

(2412) (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.

(2413) (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.

(2414) (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).

(2415) (1) The name of the shipper of the commodity, and the shipper's Internal Revenue Service number or Social Security number, must be reported on the form.

(2416) (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.

(2417) (3) Refer to 19 CFR part 24 for detailed information on exemptions and ports subject to the Harbor Maintenance Tax.

(2418) (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.

(2419) (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.

(2420) (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.

(2421) (c) Penalties for Noncompliance. The following penalties for noncompliance can be assessed for offenses and violations.

(2422) (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.

(2423) (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.

(2424) (3) Denial of Passage. In addition to these fines, penalties, and imprisonments, the lockmaster or canal operator can refuse to allow vessel passage.

(2425) (d) Enforcement Policy. Every means at the disposal of the Army Corps of Engineers will be utilized to monitor and enforce these regulations.

(2426) (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.

(2427) (i) Data on purchase and sale of vessels.

(2428) (ii) U.S. Coast Guard vessel documentation and reports.

(2429) (iii) Data collected at Locks, Canals, and other facilities operated by the Corps.

(2430) (iv) Data provided by terminals on ENG Form 3926.

(2431) (v) Data provided by the other Federal agencies including the Internal Revenue Service, Customs Service, Maritime Administration, Department of Transportation, and Department of Commerce.

(2432) (vi) Data provided by ports, local facilities, and State or local governments.

(2433) (vii) Data from trade journals and publications.

(2434) (viii) Site visits and inspections.

(2435) (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.

(2436) (3) Administrative Assessment of Civil Penalties. Civil penalties may be assessed in the following manner.

(2437) (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.

(2438) (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.

(2439) (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.

(2440) (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

(2441) **§334.1 Purpose.**

(2442) The purpose of this part is to:

(2443) (a) Prescribe procedures for establishing, amending and disestablishing danger zones and restricted area;

(2444) (b) List the specific danger zones and restricted areas and their boundaries; and

(2445) (c) Prescribe specific requirements, access limitations and controlled activities within the danger zones and restricted areas.

(2446) **§334.2 Definitions**

(2447) (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.

(2448) (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.

(2449) **§334.3 Special policies.**

(2450) (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.

(2451) (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),

(2452) (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.

(2453) **§334.4 Establishment and amendment procedures.**

(2454) (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:

(2455) (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.

(2456) (2) Name of waterway and if a small tributary, the name of a larger connecting waterbody.

(2457) (3) Name of closest city or town, county/parish and state.

(2458) (4) Location of proposed or existing danger zone or restricted area with a map showing the location, if possible.

(2459) (5) A brief statement of the need for the area, its intended use and detailed description of the times, dates and extent of restriction.

(2460) (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.

(2461) (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:

(2462) (i) Applicable statutory authority or authorities; (40 Stat. 266; 33 U.S.C. 1) and (40 Stat. 892; 33 U.S.C. 3).

(2463) (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.

(2464) (iii) The address of the District Engineer as the recipient of any comments received.

(2465) (iv) The identity of the applicant/proponent;

(2466) (v) The name or title, address and telephone number of the Corps employee from whom additional information concerning the proposal may be obtained;

(2467) (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.

(2468) (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:

(2469) (i) The Federal Aviation Administration (FAA) where the use of airspace is involved.

(2470) (ii) The Commander, Service Force, U.S. Atlantic Fleet, if a proposed action involves a danger zone off the U.S. Atlantic coast.

(2471) (iii) Proposed danger zones on the U.S. Pacific coast must be coordinated with the applicable commands as follows:

(2472) Alaska, Oregon and Washington:

(2473) Commander, Naval Base, Seattle

(2474) California:

(2475) Commander, Naval Base, San Diego

(2476) Hawaii and Trust Territories:

(2477) Commander, Naval Base, Pearl Harbor

(2478) (c) Public hearing. The District Engineer may conduct a public hearing in accordance with 33 CFR part 327.

(2479) (d) Environmental documentation. The District Engineer shall prepare environmental documentation in accordance with appendix B to 33 CFR part 325.

(2480) (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.**

(2481) (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.

(2482) **§334.5 Disestablishment of a danger zone.**

(2483) (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.

(2484) (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.

(2485) **§334.6 Datum.**

(2486) (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.

(2487) (b) For further information on NAD 83 and National Service nautical charts please contact; Director, Coast Survey (N/CG2), National Ocean Service, NOAA, 1315 East-West Highway, Station 6147, Silver Spring, MD 20910-3282.

(2488) **§334.60 Cape Cod Bay south of Wellfleet Harbor, Mass.; naval aircraft bombing target area.**

(2489) (a) The danger zone. A circular area with a radius of 1,000 yards having its center on the aircraft bombing target hulk James Longstreet in Cape Cod Bay at latitude 41°49′46″, longitude 70°02′54″.

(2490) (b) The regulations. (1) No vessel shall enter or remain in the danger zone at any time, except as authorized by the enforcing agency.

(2491) (2) This section shall be enforced by the Commandant, First Naval District, and such agencies as he may designate.

(2492) **§334.70 Buzzards Bay, and adjacent waters, Mass.; danger zones for naval operations.**

(2493) (a) Atlantic Ocean in vicinity of Nomans Land–

(2494) (1) The area. The waters surrounding Nomans Land within an area bounded as follows: Beginning at

(2495) 41°12′30″, 70°50′30″; thence northwesterly to

(2496) 41°15′30″, 70°51′30″; thence northeasterly to

(2497) 41°17′30″, 70°50′30″; thence southeasterly to

(2498) 41°16′00″, 70°47′30″; thence south to

(2499) 41°12′30″, 70°47′30″; thence westerly to the point of beginning.

(2500) (2) *The regulations.* No vessel or person shall at any time enter or remain within a rectangular portion of the area bounded on the north by latitude 41°16′00″, on the east by longitude 70°47′30″, on the south by latitude 41°12′30″, and on the west by longitude 70°50′30″, or within the remainder of the area between November 1 and April 30, inclusive, except by permission of the enforcing agency.

(2501) (3) The regulations in this paragraph shall be enforced by the Commandant, First Naval District, and such agencies as he may designate.

(2502) **§334.75 Thames River, Naval Submarine Base New London, Restricted Area.**

(2503) (a) The area: The open waters of the Thames River approximately 5 nautical miles upriver from its mouth along the boundary between Groton and Waterford, Connecticut, within an area bounded as follows:

(2504) From a point on the eastern shore at

(2505) 41°24′14.4″N., 72°05′38.0″W., then northerly along the coast to

(2506) 41°24′20.0″N., 72°05′37.9″W., then westerly across the river to a point on the western shore at

(2507) 41°24′20.0″N., 72°05′55.5″W., then southerly along the coast to a point on the western shore at

(2508) 41°24′05.0″N., 72°05′55.7″W., then easterly to the western edge of the dredged channel to a point located at

(2509) 41°24′04.1″N., 72°05′51.2″W., then southerly along the western edge of the dredged channel to a point at

(2510) 41°24′00″N., 72°05′52.6″W., then southerly along the western edge of the dredged channel to a point located at

(2511) 41°23′57.1″N., 72°05′52.5″W., then southerly to buoy "11" located at a point at

(2512) 41°23′45.6″N., 72°05′53.7″W., then southerly to buoy "B" on the northeastern shore of Mamacoke Hill to a point at

(2513) 41°23′33.8″N., 72°05′53.7″W., then southerly along the shore to buoy "A" at

(2514) 41°23′25.0″N., 72°05′45.4″W., then southeasterly to buoy "9" at a point located at

(2515) 41°23′15.0″N., 72°05′35.0″W., then easterly to a point on the eastern shore at

(2516) 41°23′15.0″N., 72°05′17.9″W., then northerly along the shore to a point on the eastern shore at

(2517) 41°23′15.8″N., 72°05′17.9″W., then along the following points:

(2518) 41°23′15.8″N. 72°05′22.0″W.

(2519) 41°23′25.9″N. 72°05′29.9″W.

(2520) 41°23′33.8″N. 72°05′24.7″W.

(2521) 41°23′37.0″N. 72°05′38.0″W.

(2522) 41°23′41.0″N. 72°05′40.3″W.

(2523) 41°23′47.2″N. 72°05′42.3″W.

(2524) 41°23′53.8″N. 72°05′43.7″W.

(2525) 41°23′59.8″N. 72°05′43.0″W.

(2526) 41°24′12.4″N. 72°05′43.2″W. Then to the point of beginning on the eastern shore.

(2527) (b) The regulations.

(2528) (1) Vessels and other watercraft within the designated navigation channel may proceed through the restricted area at normal operating speeds without stopping. Vessels and watercraft may also utilize the water area within the restricted area located between the western edge of the designated channel and the western shore for fishing, anchoring and other recreational uses. However, all persons, vessels and watercraft, except U.S. military personnel and vessels must leave the restricted area when notified by personnel of the New London Submarine Base that such use will interfere with submarine maneuvering, operations or security.

(2529) (2) Commercial fishermen and shell fishermen may fish within the restricted area provided their vessels display registration numbers issued by the Naval Submarine Base, New London, Connecticut. The registration numbers may be obtained by contacting the Commanding Officer, Naval Submarine Base New London. All commercial fishermen and shell fishermen must also leave the restricted area when notified by personnel of the New London Submarine Base that such use will interfere with submarine maneuvering, operations or security.

(2530) (3) Vessels which are owned, operated or sponsored by local, state municipalities or academic institutions preparing for or participating in a water sport or water related recreational event sponsored by those local or state municipalities or academic institutions, or private or commercial vessels engaged in observing the conduct of the above event shall be exempt from the restrictions above, providing:

(2531) (i) The Commanding Officer, Naval Submarine Base New London, and the Coast Guard Captain of the Port are advised in writing at least 4 hours in advance of the event, or

(2532) (ii) The event was publicized in such a manner that the local public in general had a reasonable opportunity to learn of the event 48 hours in advance.

(2533) (4) The regulations in this section shall be enforced by the Commander, U.S. Naval Submarine Base New London, Connecticut, and such agencies as he/she may designate.

(2534) **§334.78 Rhode Island Sound, Atlantic Ocean, approximately 4.0 nautical miles due south of Lands End in Newport, Rhode Island; restricted area for naval practice minefield.**

(2535) (a) The area. The open waters of Rhode Island Sound approximately 4.0 nautical miles due south of Lands End, Newport, Rhode Island, within an area bounded as follows: Beginning at

(2536) 41°20′29″N., 71°19′54″W.; thence 2000 yards easterly to

(2537) 41°20′29″N., 71°18′34″W.; thence 3000 yards southerly to

(2538) 41°18′57″N., 71°18′34″W.; thence 2000 yards westerly to

(2539) 41°18′57″N., 71°19′54″W.; thence 3000 yards northerly to the point of beginning.

(2540) (b) *The regulations.* (1) No persons, vessels or other watercraft will be allowed to enter the designated area during minefield training.

(2541) (2) The practice minefield will consist of six inert drill mines each 16 inches in diameter and 5 feet long and one concrete sonar target 48 inches in diameter and 48 inches high located within the designated area. The sonar target will be permanently located in the extreme northeast corner within the designated drill minefield area. The six drill mines will be steel with all internal mechanisms and explosives removed and concrete filled. Drill mines will be removed from the designated area within 72 hours after each minehunting training exercise.

(2542) (3) Training activities will be limited to minehunting operations using only onboard sonar. Neither variable depth sonar devices or mechanical minesweeping operations will be utilized in the area.

(2543) (4) Training periods will be 2-3 days in length and 10-15 times a year, however during the time period July 1–mid-October, minehunting exercises will be held to minimum.

(2544) (5) Notice to mariners will be issued 6–8 weeks in advance of a scheduled practice exercise by the Commander, U.S. Naval Base, Newport, Rhode Island.

(2545) (6) The regulations of this section shall be enforced by the Commander, U.S. Naval Base, Newport, Rhode Island, and such agencies as he/she may designate.

(2546) **§334.80 Narragansett Bay, R.I.; restricted area.** (a) Beginning at a point on the east shore of Conanicut Island at

(2547) 41°33′15″; thence southeasterly to

(2548) 41°32′44″, 71°21′17″; thence southerly to

(2549) 41°32′09″, 71°21′17″; thence southeasterly to

(2550) 41°31′50″, 71°21′10″; thence southeasterly to

(2551) 41°31′26″, 71°20′33″; thence easterly to

(2552) 41°31′27″, 71°20′06″; thence northerly to a point on the southwesterly shore of Prudence Island at

(2553) 41°35′00″; thence northerly along the southwesterly shore of Prudence Island to a point at

(2554) 41°35′43″, 71°20′15.5″; thence northwesterly to

(2555) 41°37′21″, 71°20′48″; thence west to

(2556) 41°37′21″, 71°21′48″; and thence south to

(2557) 41°33′54″, 71°21′48″.

(2558) (b) *The regulations*: (1) No person or vessel shall at any time, under any circumstances, anchor or fish or tow a drag of any kind in the prohibited area because of the extensive cable system located therein.

(2559) (2) Orders and instructions issued by patrol craft or other authorized representatives of the enforcing agency shall be carried out promptly by persons or vessels in or in the vicinity of the prohibited area.

(2560) (3) The regulations in this section shall be enforced by the Commander U.S. Naval Base, Newport, R.I., and such agencies as he may designate.

(2561) **§334.85 New York Harbor, adjacent to the Stapleton Naval Station, Staten Island, New York; restricted area.**

(2562) (a) *The area.* The waters of New York Harbor beginning at a point on shore at

(2563) 40°38′02″N., 074°04′24″W.; thence easterly to

(2564) 40°38′02.5″N., 074°04′09″W.; thence southerly to

(2565) 40°37′53″N., 074°04′07″W.; thence east-southeasterly to

(2566) 40°37′50″N., 074°03′50.2″W.; thence south-southeasterly to

(2567) 40°37′37.5″N., 074°03′46″W.; thence southwesterly to the shore line at

(2568) 40°37′24.5″N., 074°04′18″W.; thence northerly along the shore line to the point of origin.

(2569) (b) *The regulations.* (1) The portion of the restricted area extending from the shore out a line 600 feet east of the U.S. Pierhead Line is closed to all persons and vessels except those vessels owned by, under hire to or performing work for Naval Station New York, Staten Island, New York.

(2570) (2) The portion of the restricted area beginning 600 feet seaward of the U.S. Pierhead Line is open to transiting vessels only. Vessels shall proceed across the area by the most direct route and without unnecessary delay. For vessels under sail, necessary tacking shall constitute a direct route.

(2571) (3) Commercial vessels at anchor will be permitted to swing into the seaward portion of the restricted area while at anchor and during the tide changes.

(2572) (c) *Enforcement.* The regulations in this section shall be enforced by the Commanding Officer, Naval Station New York, and such agencies as he/she shall designate.

(2573) **Title 46–Shipping**

Part 15–Manning Requirements (in part)

Subpart I–Vessels in Foreign Trade

(2574) **§15.1001 General.**

(2575) Self-propelled vessels engaged in foreign commerce are required to use a pilot holding an appropriately endorsed Federal first class pilot's license issued by the Coast Guard when operating in the navigable waters of the United States specified in this subpart.

(2576) **§15.1030 New York and New Jersey.**

(2577) The following U.S. navigable waters located within the States of New York and New Jersey when the vessel is making an intra-port transit, to include, but not limited to, a movement from a dock to a dock, from a dock to an anchorage, from an anchorage to a dock, or from an anchorage to an anchorage, within the following listed operating areas:

(2578) (a) East River from Execution Rocks to New York Harbor, Upper Bay;

(2579) (b) Hudson River from Yonkers, New York to New York Harbor, Upper Bay;

(2580) (c) Raritan River from Grossman Dock/Arsenal to New York Harbor, Lower Bay;

(2581) (d) Arthur Kill Channel;

(2582) (e) Kill Van Kull Channel;

(2583) (f) Newark Bay;

(2584) (g) Passaic River from Point No Point to Newark Bay;

(2585) (h) Hackensack River from the turning basin to Newark Bay; and

(2586) (i) New York Harbor, Upper and Lower Bay.

(2587) **§15.1040 Massachusetts.**

(2588) The following U.S. navigable waters located within the State of Massachusetts when the vessel is in transit, but not bound to or departing from a port within the following listed operating areas:

(2589) (a) Cape Cod Bay south of 41°48′54″N.;

(2590) (b) The Cape Cod Canal; and

(2591) (c) Buzzards Bay east of a line extending from the southernmost point of Wilbur Point (41°34′55″N., 70°51′15″W.) to the easternmost point of Pasque Island 41°26′55″N., 70°50′30″W.)

(2592) **Title 50, Wildlife and Fisheries**

PART 222–ENDANGERED FISH OR WILDLIFE

Subpart A–Introduction

(2593) **§222.1 Purpose of regulations.**

(2594) The regulations contained in this part identify the species or subspecies of fish or wildlife determined to be endangered under either the Endangered Species Conservation Act of 1969 or the Endangered Species Act of 1973, and presently deemed endangered species under the Endangered Species Act of 1973, which are under the jurisdiction of the Secretary of Commerce, and establish procedures and criteria for issuance of permits for the taking, importation, exportation, or otherwise prohibited acts, involving endangered fish or wildlife.

(2595) **§222.2 Scope of regulations.**

(2596) (a) The regulations of this part apply only to endangered fish or wildlife.

(2597) (b) The provisions in this part are in addition to, and are not in lieu of, other regulations of parts 217 through 222 of this chapter which may require a permit or prescribe additional restrictions or conditions for the taking, importation, exportation, and interstate transportation of fish or wildlife.

Subpart D–Special Prohibitions

(2598) **§222.32 Approaching North Atlantic right whales.**

(2599) (a) *Prohibitions.* Except as provided under paragraph (c) 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:

(2600) (1) Approach (including by interception) within 500 yards (460 m) of a right whale by vessel, aircraft, or any other means;

(2601) (2) Fail to undertake required right whale avoidance measures specified under paragraph (b) of this section.

(2602) (b) *Right Whale avoidance measures.* Except as provided under paragraph (c) of this section, the following avoidance measures must be taken if within 500 yards (460 m) of a right whale:

(2603) (1) If underway, a vessel must steer a course away from the right whale and immediately leave the area at a slow safe speed;

(2604) (2) An aircraft must take a course away from the right whale and immediately leave the area at a constant airspeed.

(2605) (c) *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 is applicable:

(2606) (1) Paragraphs (a) and (b) of this section do not apply if a right whale approach is authorized by NMFS through a permit issued under subpart C (Endangered Fish or Wildlife Permits) of this part or through a similar authorization.

(2607) (2) Paragraphs (a) and (b) of this section do not apply where compliance would create an imminent and serious threat to a person, vessel, or aircraft.

(2608) (3) Paragraphs (a) and (b) 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 NMFS or a NMFS designee prior to the approach.

(2609) (4) Paragraphs (a) and (b) of this section do not apply to an aircraft unless the aircraft is conducting whale watch activities or is being operated for that purpose.

(2610) (5) Paragraph (b) 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) of this section.

PART 226–DESIGNATED CRITICAL HABITAT

Subpart A–Introduction

(2611) **§226.1 Purpose of regulations.**

(2612) The regulations contained in this part identify those habitats designated as critical under section 7 of the Endangered Species Act, as amended, by the Assistant Administrator for Fisheries, National Oceanic and Atmospheric Administration, for those endangered and threatened species under the jurisdiction of the Secretary of Commerce. The list of these species is found in 50 CFR 222.23(a) for endangered species and 50 CFR 227.4 for threatened species.

(2613) **§226.2 Scope of regulations.**

(2614) (a) The critical habitat designations contained in this part apply only to the endangered and threatened species listed in this part.

(2615) (b) Regulations implementing section 7 of the Endangered Species Act, as amended, are found in 50 CFR part 402.

(2616) (c) The provisions in this part are in addition to, and not in lieu of other regulations of parts 217 through 227 and 402 of this chapter.

Subpart B–Critical Habitat for Marine Mammals

(2617) **§226.13 North Atlantic Ocean.**

(2618) Northern Right Whale (*Eubalaena glacialis*)

(2619) (a) *Great South Channel*. The area bounded by

(2620) 41°40′N., 69°45′W.;

(2621) 41°00′N., 69°05′W.;

(2622) 41°38′N., 68°13′W.; and

(2623) 42°10′N., 68°31′W.

(2624) (b) *Cape Cod Bay, Massachusetts*. The area bounded by

(2625) 42°04.8′N., 70°10′W.;

(2626) 42°12′N., 70°15′W.;

(2627) 42°12′N., 70°30′W.;

(2628) 41°46.8′N., 70°30′W. and on the south and east by the interior shore line of Cape Cod, Massachusetts.

(2629) (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.

3. CAPE COD TO SANDY HOOK

(1) The Atlantic coast from Cape Cod to Sandy Hook embraces part of the coast of Massachusetts and all of the coasts of Rhode Island, Connecticut, and New York. To the mariner this area presents problems of unusual difficulty because of the offlying shoals, strong and variable currents, large amounts of fog, and turbulence of wind and sea in the great storms that so frequently sweep it. Additionally, the mariner is faced with the great volume of waterborne traffic that moves through the area to and from the Port of New York.

(2) **Prominent features.**–The principal geographic features include Georges Bank, Nantucket and Vineyard Sounds, Buzzards Bay, Narragansett Bay, Long Island Sound and tributaries, and New York Harbor and tributaries including the Hudson River.

(3) Cape Cod, a long peninsula jutting eastward from the mainland of Massachusetts, may be likened to an arm bent upward at the elbow. It was originally formed by the last great glacier and has been refashioned by the seas and wind. The outer end of The Cape, as it is called by eastern New Englanders, is a barren region of sand dunes with long yellow beaches, while much of the remainder of the forearm is bleak grassy country. The southern side of the deltalike plain of Cape Cod has been cut along high bluffs by the surf and waves. This section of the coast is covered with growth of pitch pine and scrub oak.

(4) Nantucket, Martha's Vineyard, the Elizabeth Islands, and numerous smaller islands were also formed by the glacier. The plains of Martha's Vineyard and Nantucket are broad grassy heaths. The Elizabeth Islands are hilly and partly wooded, and generally the shores are low bluffs.

(5) The western shore of Buzzards Bay is of moderate height, very gently sloping, cleared, and cultivated with occasional groves of trees. Several towns and the city of New Bedford are visible along the shores.

(6) Between Buzzards and Narragansett Bays the coast is a mass of sand dunes with steep faces forming a line along the shore. Several headlands along this stretch of coast have fine sand beaches between them.

(7) The boundary line between Massachusetts and Rhode Island strikes the coast just westward of Quicksand Point.

(8) Among the islands in Narragansett Bay are Rhode (Aquidneck) Island, Conanicut, and Prudence. These rather large islands are gently sloping, undulating, and covered with cultivated fields and orchards, and occasional groves of trees.

(9) Westerly from Point Judith to Napatree Point is a continuous line of beaches behind which are many saltponds. These ponds have been formed by the sea breaking through the outer sand barrier and then depositing sand to close the opening. The shore near the water is low, grassy, and nearly level, but gradually rises with a series of gentle curves to higher wooded lands some distance back.

(10) Block Island is another formation of the glacier. A prominent feature of the island is the entire absence of trees. The surface when viewed from eastward has a grassy undulating appearance, and the hills in many places show steep sandy faces. Near the shoreline the land is low, but rapidly rises toward the center of the island to steep hills covered only with grass and dotted occasionally with houses.

(11) The boundary line between Rhode Island and Connecticut follows the Pawcatuck River to above the head of navigation.

(12) The coastline of Connecticut is rockbound and rugged, with numerous sandy beaches and occasional salt meadows or marshland. The surface is mildly rolling near the shore. The depression of small valleys along the shore has created a number of good harbors. The shoreline has been well developed commercially and residentially. It is lined with seaside resorts, State parks, and bathing beaches.

(13) The boundary line between Connecticut and New York follows the Byram River for slightly over 1 mile.

(14) Long Island, originally formed by the glacier and thrusting about 105 miles eastward from New York Bay to a point abreast of New London, faces the New England coast across Long Island Sound on the north. The long, narrow outline of the island resembles that of a whale. Its eastern end is split by Peconic Bay and the 35- and 25-mile peninsulas thus formed are the north and south flukes. The island is almost a plain. On the north coast, bluffs rise to a height of 200 feet. South of these, extending well into the island's midsection, run several chains of hills. The south shore is a barrier beach from about 30 miles west of the eastern extremity to the western end, which has been developed into a series of bathing resorts.

(15) **Disposal Sites** and **Dumping Grounds.**–These areas are rarely mentioned in the Coast Pilot, but are shown on the nautical charts. (See Disposal Sites and Dumping Grounds, chapter 1, and charts for limits.)

(16) **Aids to navigation.**–Lights, radiobeacons, and buoys are the principal guides that mark the approaches to the important harbors. Many of the light stations have fog signals and radiobeacons, particularly those in the vicinity of the larger ports.

(17) (See the Light List for a complete description of navigational aids.)

(18) **Loran.**–Loran C provides the mariner with good navigation coverage along this section of the coast.

(19) **Radar** is an important aid in most of this area, but should not be relied upon for ranges to the beach in areas such as the south coast of Long Island which offer a relatively low relief. Many of the coastal buoys are equipped with radar reflectors. Radar is of particular importance in detecting other traffic and in the prevention of collisions during periods of low visibility, which are common in this area.

(20) **COLREGS Demarcation Lines.**–Lines have been established to delineate those waters upon which mariners must comply with the Inland Navigational 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.)

(21) **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.)

(22) **Harbor entrances.**–The entrances to most of the harbors have dredged channels marked with navigational aids and are easy of access. In some cases jetties and breakwaters extend offshore from the entrances. The entrances to the inlets along the south

shore of Long Island are subject to frequent change due to the shifting sand bars.

(23) **Traffic Separation Schemes (Traffic Lanes)** have been established in the approaches to Buzzards Bay, Narragansett Bay, and New York Harbor. (See chapters 5, 6, and 11, respectively, for details.)

(24) **Vessel Traffic Service, New York**, operated by the U.S. Coast Guard, serves New York Harbor. (See **161.1 through 161.25**, chapter 2, for regulations.)

(25) **Channels.–Federal project depth** is the dredging depth of a channel as authorized by an Act of Congress upon recommendation of the Chief of Engineers, U.S. Army. **Controlling depth** in a channel is its least depth; it restricts use of the channel to drafts less than that depth.

(26) Where deepwater channels are maintained by the Corps of Engineers and the controlling depths are printed on the charts in tabular form, the Coast Pilot usually gives only the project depths. Owing to constant shoaling in places, depths may vary considerably between maintenance dredgings; consult the Notice to Mariners for channel depths subsequent to charted information.

(27) Where secondary channels are maintained regularly by the Corps of Engineers, the Coast Pilot gives the controlling depths together with the dates of the latest surveys.

(28) In the case of other channels, the controlling depths printed in the Coast Pilot are from the latest available reports which may, however, be several years old.

(29) **Anchorages.**–There are numerous anchorages in Nantucket and Vineyard Sounds, Buzzards, Narragansett, and Gardiners Bays, and Long Island Sound, where vessels with good ground tackle can ride out any gale. Between Cape Cod and Sandy Hook, the more important harbors, either commercially or as harbors of refuge, are New Bedford, Newport, Providence, New London, New Haven, and Bridgeport on the mainland, Greenport and Port Jefferson on Long Island, City Island, New York, and vast New York Harbor. (See **Part 110,** chapter 2, for limits and regulations.)

(30) **Dangers.**–The most important dangers confronting the navigator when approaching the area are the great banks and shoals in the eastern approach. The remainder of the isolated dangers throughout the area and in the approaches to the harbors are for the most part well marked and charted.

(31) **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 (156.80 MHz) for passage instructions.

(32) **Northern right whales** are the world's most endangered large whale. The population, perhaps fewer than 300 animals, occurs along the east coast of the United States and Canada. Because right whales mate, rest, feed, and nurse their young at the surface, 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.

(33) *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. Right whales occur seasonally in Cape Cod Bay (peak season: January through April), the Great South Channel (peak season: April through June), Stellwagen Bank (peak season: July through September), Jefferys Ledge (peak season: July through mid-December), and the Bay of Fundy (Grand Manan Basin) (peak season: June through December). The first two areas are federally designated critical habitats for right whales. Stellwagen Bank and Jefferys Ledge are located in the federally designated Gerry E. Studds Stellwagen Bank National Marine Sanctuary. The Grand Manan Basin is a Canadian whale conservation area. Seasonal right whale advisories and sighting reports are broadcast periodically for these areas by Coast Guard Broadcast Notice to Mariners, NAVTEX, NOAA Weather Radio, Cape Cod Canal Vessel Traffic Control, the Bay of Fundy Vessel Traffic Control, and other means.

(34) *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 below. They have paddle like flippers nearly as wide as they are long, and a broad, deeply notched tail, see diagrams following.

(35) *Early Warning System*: As weather and conditions permit, a dedicated seasonal-program of overflights and vessel surveys (principally in Cape Cod Bay and the Great South Channel) provide whale sighting information to the Coast Guard, NOAA Weather Radio, and others for broadcast purposes. Many right whales however, go undetected.

(36) *Precautions*: The National Marine Fisheries Service's Northeast Implementation Team recommends the following precautionary measures be taken to avoid northern right whales.

When transiting right whale critical habitat:

(37) As soon as possible prior to entering right whale critical habitat, check Coast Guard Broadcast Notice to Mariners, NAVTEX, NOAA Weather Radio, Cape Cod Canal Vessel Traffic Control, the Bay of Fundy Vessel Traffic Control, and other sources for recent right whale sighting reports.

(38) To the extent possible, review right whale identification materials and maintain a sharp watch with lookouts familiar with spotting whales.

(39) When planning passage through a right whale critical habitat, attempt to avoid night-time transits, and whenever practical, minimize travel distances through the area. Anticipate delays due to whale sightings.

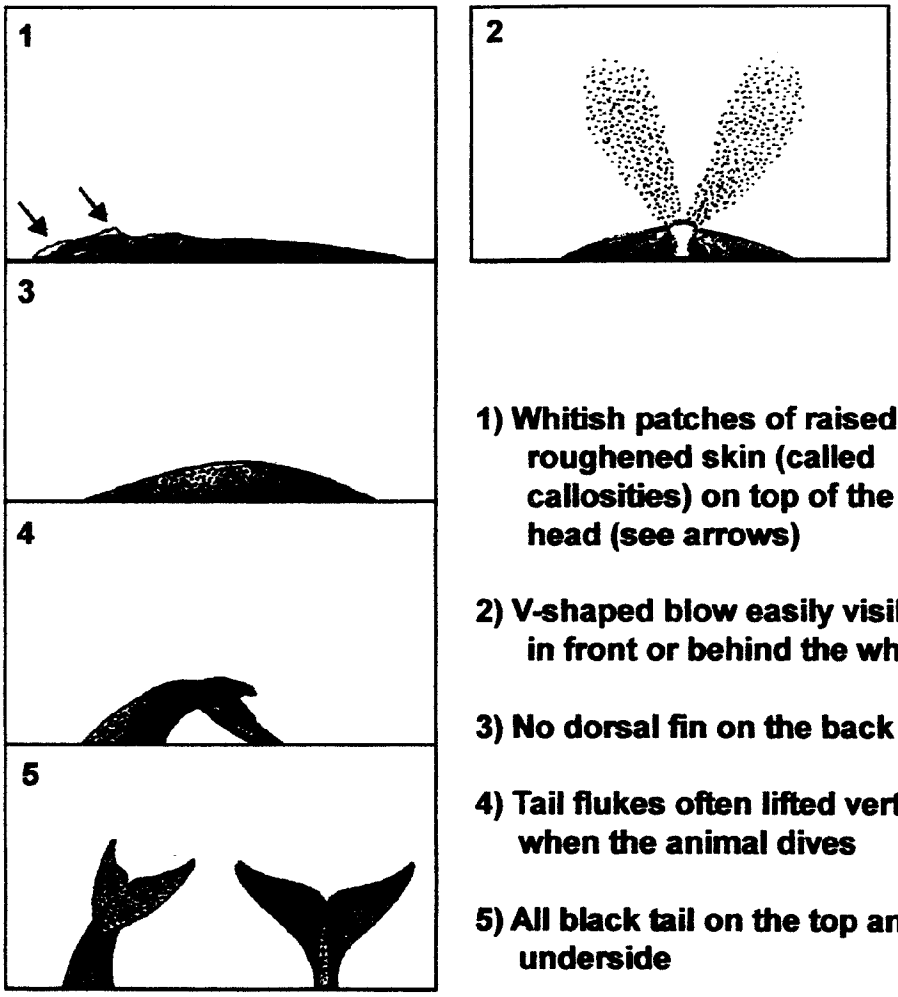
(40) When the ability to spot whales is reduced (e.g. night, fog, rain, etc.), mariners should bear in mind that reduced speed may minimize the risk of ship strikes. Two of the best documented ship strikes involve a juvenile right whale struck and killed by a vessel proceeding at 15 knots and an unidentified whale, possibly a humpback whale, struck but not re-sighted by the vessel, also moving at 15 knots.

In all coastal and offshore waters along the east coast:

(41) If a right whale sighting is reported within 20-nautical miles of a ship's position, post a lookout familiar with spotting whales.

(42) 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

Northern right whale



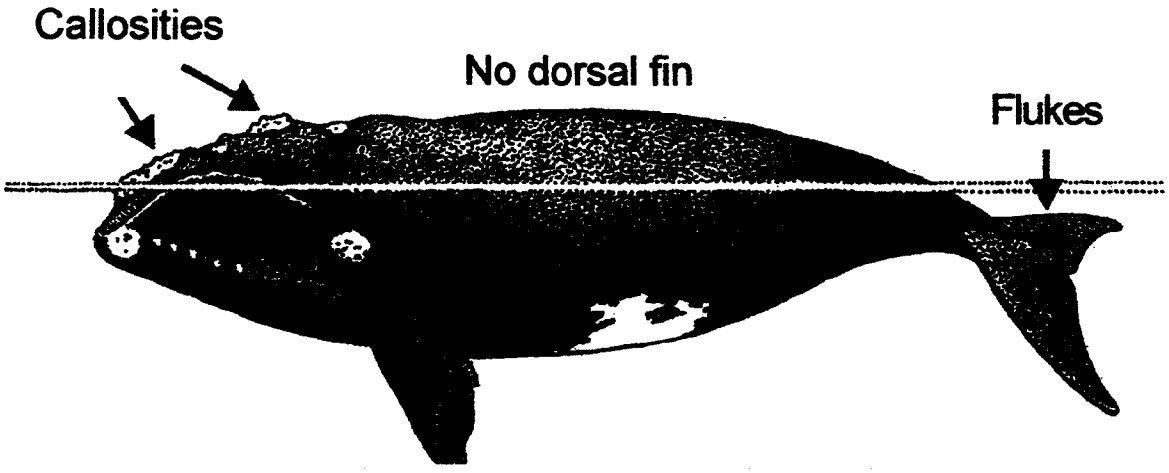
1) Whitish patches of raised and roughened skin (called callosities) on top of the head (see arrows)

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



location, bearing in mind that reduced speed may minimize the risk of ship strikes.

(43) Do not assume right whales will move out of your way. Right whales, generally slow moving, 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).

(44) 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 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:

(45) location and time of the accident or sighting,

(46) speed of the vessel,

(47) size of the vessel,

(48) water depth,

(49) wind speed and direction,

(50) description of the impact,

(51) fate of the animal, and

(52) species and size, if known.

(53) Right whales can occur anywhere along the east coast. Therefore, mariners are urged to exercise prudent seamanship in their efforts to avoid right whales.

(54) **Charts 13204, 13200.–Georges Bank** is an extensive bank with depths of less than 50 fathoms, extending for over 150 miles northeastward from the offshore end of Nantucket Shoals.

(55) In heavy weather the danger area may be considered to be the oval-shaped top of the bank which is about 80 miles long in a northeast and southwest direction and which has a maximum width of about 50 miles. The bottom within this area is extremely broken and irregular, with a great number of ridges and shoal spots having depths of less than 10 fathoms. Between these shoals are channels of varying widths in which depths of about 20 fathoms may be found. All of this area lies within the 30-fathom curve and so much of it has depths of less than 20 fathoms that it may practically all be considered to lie within a generalized 20-fathom curve.

(56) On the southeast side of the bank, outside the 20-fathom curve, the water deepens gradually and with such regularity that soundings would be of considerable value in approaching the bank. On the northwest side the water deepens more rapidly.

(57) The bottom is generally of sand, sometimes with shell, and in places pebbles. Bottom samples as obtained during surveys are shown in a great many places on the charts.

(58) The two principal dangers on Georges Bank are Georges Shoal and Cultivator Shoal, which are near the center of the danger area. Around these shoals the sea breaks in depths of 10 fathoms during heavy weather, and the locality should be avoided by deep-draft vessels.

(59) **Georges Shoal** is a ridge about 13 miles long on which are several shallow depths of 1½ to 3 fathoms.

(60) **Cultivator Shoal**, about 20 miles westward of Georges Shoal, is a ridge nearly 15 miles long, on which depths of 3 to 10 fathoms are found. The 3-fathom spot is near the north end of the shoal. In December 1980, a submerged obstruction was reported about 8.7 miles northwest of the 3-fathom spot in about 41°43′N., 68°23′W.; vessels engaged in bottom operations are advised to exercise caution in the area.

(61) The entire area within the 20-fathom curve has an extremely broken bottom. There are numerous ridges and shoal spots on which depths dangerous to navigation, particularly in heavy weather, may be found. These shoal spots generally have steep sides, and very little or no indication of their existence is given by soundings. Tide rips and swirls, as well as overfalls, are common in the vicinity of these spots, but are not always visible. They show best with a smooth sea and with the current flowing in certain directions. These disturbances are not usually over the shoalest depths, but are commonly alongside them. Small, detached overfalls may be seen in 20 fathoms of water. The tidal currents are rotary with no period of slack water. The velocity at strength is about 2 knots, and the velocity of the minimum current which occurs about midway between the times of strength is about 1 knot. The hourly velocities and directions of the tidal current are shown by means of current roses on National Ocean Service charts.

(62) A navigator must bear in mind while in an area of this character that it is impossible for the surveyor, without a vast expenditure of time, to determine and locate all of the shoalest spots on the many dangerous shoals found. Sudden shoaling on such a bank must be considered an indication of possibly dangerous water. This bank has not been wire dragged.

(63) **Nantucket Shoals** is the general name of the numerous different broken shoals which lie southeastward of Nantucket Island and make this one of the most dangerous parts of the coast of the United States for the navigator. These shoals extend 23 miles eastward and 40 miles southeastward from Nantucket Island. They are shifting in nature, and the depths vary from 3 to 4 feet on some to 4 and 5 fathoms on others, while slues with depths of 10 fathoms or more lead between those farthest offshore. The easterly edge of the shoals has depths of 3 and 4 fathoms in places.

(64) **Area to be avoided.**–Because of the great danger of stranding and for reasons of environmental protection, the International Maritime Organization (IMO) has established an area to be avoided in the area of Nantucket Shoals. All vessels carrying cargoes of oil or hazardous materials and all other vessels of more than 1,600 gross tons should avoid the area bounded by the following points:

(65) 41°16.5′N., 70°12.5′W.;

(66) 40°43.2′N., 70°00.5′W.;

(67) 40°44.5′N., 69°19.0′W.;

(68) 41°04.5′N., 69°19.0′W.;

(69) 41°23.5′N.; 69°31.5′W.; and

(70) 41°23.4′N., 70°02.8′W.

(71) The currents in the area are strong and erratic, reaching a velocity of 3 to 5 knots around the edges of the shoals. They are made erratic by the obstruction of the shoals, in some cases being deflected to such an extent as to cause the direction to change 180° from one side of the shoal to the other.

(72) The tidal current over the shoals is rotary, turning clockwise. Observations in the area indicate an average velocity at strength of about 2.5 knots, but this probably varies appreciably from place to place. Similarily the direction of the current at strength probably depends on the orientation of channels between shoal areas.

(73) Since the current is rotary, there is no true slack. Observations in the area show an average minimum of about 0.5 knot.

(74) The tidal current near Nantucket Shoals Lighted Horn Buoy N is rotary, turning clockwise. The average velocity at strength is 0.8 knot; the average minimum is 0.6 knot.

(75) Hourly average velocities and directions for Davis Bank and the area near Nantucket Shoals Lighted Horn Buoy N, referred to predicted times of maximum flood at Pollock Rip Channel, are furnished in the Tidal Current Tables. However the tidal currents are appreciably influenced by winds.

(76) Nantucket Shoals should be entirely avoided by deep-draft vessels when possible and by light-draft vessels without local knowledge, on account of the treacherous currents. There are, however, channels through these various shoals which can be negotiated with local knowledge and caution. In calm weather at slack water these shoals are sometimes difficult to see, and a vessel is liable to be taken into shoaler water than was intended.

(77) Calm, clear days are few; when the sea is calm it is usually foggy, and when clear, it is usually rough. Also to be expected is a considerable amount of hazy weather, which limits visibility.

(78) Should it become necessary to anchor in this area, open sea anchorage may be had anywhere that depths permit. Due consideration should be given to the close proximity of shoals and possibility of dragging due to the winds and currents. Generally it has been found best to avoid the deeper channels and, when rougher water is experienced, to anchor in the lee of a shoal, which would tend to knock down the heavier swells. A scope of five to one or greater should always be used.

(79) **Nantucket Shoals Lighted Horn Buoy N** (40°30′N., 69°26′W.), replacing Nantucket Shoals Lightship, is a large navigational buoy (LNB) about 51 miles south-southeastward of Nantucket Island. The buoy, 40 feet in diameter, is red with the words U.S. COAST GUARD on the buoy body and the letter N on the daymarks. The buoy shows a light 40 feet above the water and is equipped with a fog signal, a radiobeacon, and a radar beacon (Racon).

(80) Nantucket Shoals is made up of the following parts:

(81) This buoy is centered inside the traffic separation zone of the traffic separation lanes of "Eastern Approach Off Ambrose" to the "Traffic Separation Scheme Off New York". (See charts 12300 and 13006.)

(82) **Phelps Bank**, the southeasternmost part of the Nantucket Shoals, is about 6.5 miles long and 2.5 miles wide. A lighted whistle buoy, marking the entrance to the Boston Harbor Traffic Separation Scheme, is about 12 miles eastward of Phelps Bank.

(83) **Asia Rip**, the shoalest point of the bank with 5¾ fathoms, is at the southern end. The wreck of the SS OREGON, covered 3¼ fathoms, is at 40°45′N., 69°19′ W., 3 miles south-southeastward of Asia Rip. A lighted gong buoy is about 1 mile southward of the wreck.

(84) **Middle Rip**, with a least-found depth of 4 fathoms and lying north-northwest of Phelps Bank, is about 13.5 miles long and 4.5 miles wide. This shoal consists of two large parts with depths of 4 fathoms on the east and 6¼ fathoms on the west, separated by a channel with a depth of 7 fathoms and four outlying shoals of 8 to 10 fathoms.

(85) **Fishing Rip**, bow-shaped, with depths of 3 to 10 fathoms, is about 26 miles long north and south and 6.5 miles wide at its widest point. The north point is 20 miles 073° and the south point is 27.5 miles 136°, respectively, from Sankaty Head Light. A large wreck area, marked by a lighted gong buoy, is near the southern part of Fishing Rip. A wreck and a submerged obstruction are also near the southern portion of the rip in about 41°00.0′N., 69°27.0′W. and 41°01.0′N., 69°29.7′W., respectively.

(86) The unmarked channel westward of Fishing Rip is obstructed by three shoals in the northern section which have least-found depths of 7½, 4½, and 10 fathoms. In the southern part of this channel are four shoals with depths of 8 to 10 fathoms.

(87) **Davis Bank**, the innermost of the outer Nantucket Shoals, is bow-shaped and has depths of 2¾ to 10 fathoms of water over it. The bank is about 30 miles long north and south and has a greatest width of 4 miles. The wreck of the vessel PROGRESS is off the inner edge of the bank about 13 miles north-northeastward of the southern end of the bank.

(88) The channel westward of Davis Bank is marked on its west side by lighted and unlighted buoys. A radar beacon (Racon) is at the northernmost lighted buoy. The use of this channel should be restricted to clear weather due to the strong currents encountered throughout this area.

(89) **Chart 13200.**–The inner Nantucket Shoals all lie within the 10-fathom curve. The area is very foul. Only a few of the shoals are described. **Davis South Shoal**, about 20 miles south-southeast of Sankaty Head, consists of two spots of 2¾ and 2½ fathoms about 1.5 miles apart. A buoy is about 1 mile north-northeastward of the 2½-fathom spot. A lighted whistle buoy is about 15 miles southward of the shoal.

(90) **Old South Shoal**, consisting of two spots of 2½ fathoms with a 2-fathom spot and foul ground between them, is about 13.5 miles southeast of Sankaty Head. This shoal is unmarked.

(91) **Charts 13200, 13237.–Great Rip,** about 13 miles east-southeast of Sankaty Head, has depths of 1 to 2¾ fathoms. This shoal is about 7 miles long north and south and 1 to 2 miles wide. A lighted buoy marks its southern end. About 1.5 miles westward of Great Rip and separated from it by depths of 14 to 19 fathoms is an unnamed and unmarked shoal of 1½ to 2½ fathoms. Breakers are usually observed on the shoal.

(92) **Rose and Crown** is a boot-shaped shoal with its southern end about 10.5 miles east of Sankaty Head. The shoal extends about 5 miles northward and then 3 miles westward. Depths of 1¼ and 1½ fathoms are found in the leg of the boot, a depth of ½ fathom and marked by a lighted whistle buoy northeastward of it forms the heel, and a depth of 1¼ fathoms is found in the toe. Northward of the toe of Rose and Crown is a shoal with foul ground and spots of 1½ and 2½ fathoms. Rose and Crown breaks heavily.

(93) **Bass Rip**, about 2.5 miles eastward of Sankaty Head, is about 3.5 miles long north and south. A depth of ½ fathom is 3 miles 115° from the light. The northern end of the shoal has a depth of 2 fathoms. **Old Man Shoal** extends 4.5 miles southwestward from a point 1.5 miles off the southeastern end of Nantucket Island. Depths of 1¼ to 2¾ fathoms are found on this shoal.

(94) **McBlair Shoal,** the northernmost of the Nantucket Shoals and marked on its northern side by lighted buoys, forms part of the southern side of Great Round Shoals Channel. Depths on this shoal vary from 2¼ to 3½ fathoms.

(95) **Great South Channel** is the passage between the easternmost of the Nantucket Shoals and the westernmost shoal spots of Georges Bank. The approximate center of the channel extends from 40°36′N., 68°55′W. to 41°38′N., 68°55′W. The channel is about 27 miles wide and has depths of 19 fathoms and greater throughout, with lesser depths along the eastern and western edges.

(96) **Northern Right Whales.**–Great South Channel lies within the federally designated critical habitat for northern right whales, the most endangered large whale species in the world (fewer than 350 animals). The designated critical habitat delineates the only known area where these whales give birth. (See chart 13200). These slow moving animals are vulnerable to collisions with ships and this is the leading cause of documented mortality for northern right whales. It is recommended that all large vessels (over 100 gross tons) operating in the critical habitat:

(97) (a) Keep a watch for whales during daylight hours.

(98) (b) Monitor NAVTEX transmissions for information on the location of right whales sighted inmthe vicinity. Local ships' pilots may also provide such information when it is available.

(99) (c) If a right whale is reported within 20 nautical miles of a vessel's intended course, it is recommended that the vessel proceed with caution during the 24 hour period following the time of the sighting. It is known that right whales can accelerate to a speed of approximately 6 knots. When it is believed that a vessel will pass in close proximity of whales, it may be reasonable and prudent to slow a vessel's speed accordingly, when a reduction in speed will not hinder the safe operation of the vessel. (See **50 CFR 226.1, 226.2, and 226.13(a)**, chapter 2, for habitat boundary and regulations.)

(100) The Great South Channel is a feeding area for endangered northern right whales in spring (peak season: April through June).

(101) **Submarine canyons** are indentations in the edge of the **Continental Shelf** which is bounded on its seaward side by the 100-fathom curve. They may be traced from depths of 1,000 fathoms or more to the shoaler areas of the Continental Shelf. The navigator who has available some means of echo sounding should have in mind the various canyons found in this locality. The soundings in crossing them are very characteristic in each case, and such soundings may be used to determine the vessel's position with considerable accuracy.

(102) The names of some of the most important submarine canyons are shown on the charts. The longitude following the name is approximate and only given to assist in locating the feature on the chart. **Corsair Canyon**, 66°10′W., on the eastern side of Georges Bank, has a northwesterly trend. On the southern side and toward the western end of Georges Bank, having a northerly trend, are **Lydonia Canyon**, 67°40′W.; **Gilbert Canyon**, 67°50′W.; **Oceanographer Canyon**, 68°05′W.; and **Welker Canyon**, 68°30′W. Southeastward and southward of Nantucket Shoals, having a northerly trend, are **Hydrographer Canyon**, 69°00′W.; **Veatch Canyon**, 69°35′W.; and **Atlantis Canyon**, 70°15′W. **Block Canyon**, 71°20′W., is south-southeasterly of Block Island Sound and has a north-northwesterly trend. **Hudson Canyon**, 72°20′W., extends northwestward to the mouth of the Hudson River. The inshore section of this canyon is called **Mud Gorge**.

(103) **Wrecks.**–Many vessels have been wrecked along this coast as a result of collision, foundering, and other causes. Most of the offshore wrecks have been located and wire dragged to determine the least depth over the highest projecting part. Dangerous wrecks for the most part are marked by buoys of various colors and shapes and often show a quick-flashing or an interrupted quick-flashing light.

(104) Many vessels have grounded in fog on the south side of Long Island and on Block Island. Probably many of these wrecks could have been avoided if frequent soundings had been taken in approaching the coast. Vessels equipped to do so should make good use of the electronic aids to navigation systems along the coast to check their position frequently.

(105) **Lobster pots.**–The coastal waters contain numerous lobster pots. Small painted wooden buoys of various designs and colors, secured by small lines, float on the surface; in some cases a second buoy, usually an unpainted wooden stick or bottle and difficult to see, is attached to the lobster pot. These buoys extend from shore out to, and in many cases across, the sailing routes. Small yachts and motor boats are cautioned against fouling them, which is liable to result in a sprung shaft or lost propeller. Fishtraps and fish havens are discussed in chapter 1.

(106) **Fishweirs** are numerous along the outside coast and inside waters. The stakes often become broken off and form a hazard to navigation, especially at night. The areas within which fishweirs are permitted have been established under Federal authority and are shown on charts of 1:80,000 scale and larger. The exact locations of the weirs within the designated areas are not shown. Strangers should proceed with caution when crossing areas of possible fishweirs, and should avoid crossing such areas at night.

(107) **Danger zones** have been established within the area of this Coast Pilot. (See **Part 334,** chapter 2, for limits and regulations.)

(108) **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.

(109) 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.

(110) The mariner should be acquainted with the general and specific regulations for drawbridges over waterways to be transited.

(111) **Routes.**–Approaching this section of the coast is dangerous for all vessels because of the off-lying banks and shoals, the strong and variable currents, frequency of fog, and the broken nature of the bottom. Soundings alone are of little value in establishing the position of a vessel, but the depth should be checked frequently to insure that the vessel clears all dangers.

(112) In thick weather especially, the greatest caution is necessary, and vessels equipped to do so should make good and timely use of the electronic aids to navigation systems to check their position frequently. The depth should never be shoaled to less than 15 fathoms without an accurate fix having been obtained, and it is advisable to remain offshore in depths of 20 fathoms or more.

(113) The part of Georges Bank lying between latitude 41°05′N., and 42°00′N., and longitude 67°17′W., and 68°35′W. should be avoided. In heavy weather the sea breaks on the spots with 10 fathoms or less, and strong tide rips are encountered. The tide rips do not always indicate shoal water.

(114) Vessels passing southward of the dangerous part of Georges Bank should keep in 30 fathoms or more. Approaching this part of the bank from eastward or southward, the water shoals gradually. Approaching from the westward, the depths are irregular and the water shoals abruptly in places of 20 fathoms or less. On the north side of Georges Bank between longitudes 66°00′W., and 68°00′W., the 100-fathom and 50-fathom curves are only a few miles apart, and when approaching the dangerous part of the bank from northward 50 fathoms may be taken as a good depth to avoid the shoals.

(115) Vessels equipped with echo sounding devices and following the 100-fathom curve along the south side of Georges Bank can frequently verify their position when crossing the several submarine gorges or canyons.

(116) Approaching New York from the vicinity of Nantucket Shoals Lighted Horn Buoy N, a slight allowance should be made for a southwesterly set of the current. Should the wind be easterly,

it is customary to allow, in order to make a course good, a set of the current with it of at least 0.5 knot.

(117) The **North Atlantic Lane Routes** are described in **Pub. No. 140, Sailing Directions, North Atlantic Ocean (Planning Guide),** published by the Defense Mapping Agency Hydrographic/Topographic Center, Washington, D.C. They are shown on *Pilot Chart No. 16 of the North Atlantic Ocean.

(118) Deep-draft vessels coming from Cape Hatteras, Chesapeake Bay, Delaware Bay, or New York usually make Nantucket Shoals Lighted Horn Buoy N, thence through Great South Channel to Cape Cod or the Gulf of Maine.

(119) Vessels of medium draft coming from the southward, or southbound from Boston or ports farther east, may use Cape Cod Canal, or Vineyard and Nantucket Sounds via Pollock Rip Channel. Great Round Shoals Channel is also available, but seldom used, as an entrance to or exit from Nantucket Sound. The controlling depth for these passages is from 27 to 32 feet. They avoid Nantucket Shoals and are used by coasting vessels. Small vessels and pleasure craft usually pass through Long Island Sound when proceeding coastwise.

(120) **Currents.**–The Tidal Current Tables should be consulted for specific information about times, directions, and velocities of the current at the numerous locations throughout the area. It must be borne in mind that the current to which a vessel is subjected at any time is the combination of tidal current, wind current, and other currents such as those due to drainage or oceanic circulation.

(121) Away from the immediate vicinity of the shore, the tidal currents are generally rotary. They shift direction, usually clockwise, at an average rate of about 30° an hour. They attain velocities of 1 to 2.4 knots or more throughout the Nantucket Shoals-Georges Bank area, the larger velocities occuring generally over the shoaler parts of the area. Between Nantucket Island and Sandy Hook their velocities generally do not exceed 0.5 knot except in the vicinities of the entrances to the larger bays and inland waterways, where the velocities increase as the entrances are approached. For considerable distances from the entrances, strengths of flood and ebb set, respectively, toward and away from those entrances, and minimums of velocity, corresponding to the slacks of reversing currents, set at right angles to the directions of the flood and ebb strengths.

(122) Offshore and away from the influence of the tidal flow into and out of the Gulf of Maine and the larger bays, the tidal current maintains an approximate uniform velocity. Shifting its direction continuously to the right, it sets in all directions of the compass during each tidal cycle of 12.4 hours.

(123) In the offshore area between Cape Cod and Sandy Hook there is a resultant southward drift which is stronger in winter than in summer and has an average velocity less than 0.1 knot.

(124) **Wind currents.**–Wind currents are very complicated. Their velocities and directions depend upon a number of factors such as 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.

(125) The velocity of the current relative to that of the wind also varies with the location. It follows, therefore, that local wind current information is desirable. Such information based upon extensive current and wind observations at a number of stations is given in the Tidal Current Tables.

(126) The largest current velocities likely to occur during storms at a number of locations offshore and in the sounds are given as follows: Pollock Rip Entrance Lighted Whistle Buoy PR, 2.5 knots; Stone Horse Shoal, 4 knots; Great Round Shoal Channel Entrance Lighted Horn Buoy GRS, Nantucket Entrance, 2.5 knots; 3 miles north of Nantucket Shoals Lighted Horn Buoy N, 2.5 knots; Cross Rip Shoal, 2.5 knots; Hedge Fence Lighted Gong Buoy 22, Nantucket Sound, 2.5 knots; 3.3 miles southwestward of Cuttyhunk Light, 2 knots; Brenton Reef, 1.5 knots; 0.5 mile south of Bartlett Reef, Long Island Sound, 2.5 knots; 3 miles southward of Cornfield Point, 4 knots; 3 miles north of Nantucket Traffic Lane Lighted Whistle Buoy NB, 1.5 knots; Ambrose Light, 2 knots.

(127) **Weather, Cape Cod to Sandy Hook.**–From Georges Bank and the shoals of Nantucket to New York Harbor, fog, currents, winds and waves are constant threats to safe navigation. The following text describes the weather problems that face the mariner when navigating these waters. This section presents an overall, seasonal picture of the weather that can be expected in the offshore waters along the coast of the mid-Atlantic region from Cape Cod, MA, to Sandy Hook, NJ. Detailed information, particularly concerning navigational weather hazards, can be found in the weather articles in the following chapters.

(128) All weather articles in this volume are the product of the National Oceanographic Data Center (NODC) and the National Climatic Data Center (NCDC). The meteorological and climatological tables are the product of the NCDC. Both centers are entities of the National Environmental Satellite, Data, and Information Service (NESDIS) of the National Oceanic and Atmospheric Administration (NCAA). If further information is needed in relation to the content of the weather articles, meteorological tables or climatological tables, contact the National Climatic Data Center, Attn: Customer Service Division, Federal Building, 151 Patton Avenue, Room 120, Asheville, NC 28801-5001. You may also contact the CSD at 828-271-4994, or fax your request to 828-271-4876.

(129) Climatological tables for coastal locations, meteorological tables for the coastal ocean areas, and a table of mean surface water temperatures and densities relevant to locations discussed within this volume, follow the appendix. The climatological tables are a special extraction from the International Station Meteorological Climate Summary. The ISMCS is a CD-ROM jointly produced by the National Climatic Data Center, Fleet Numerical Meteorology and Oceanography Detachment-Asheville, and the U.S. Air Force Environmental Technical Applications Center, Operating Location-A. The meteorological tables for the ocean areas are compiled from observations made by ships in passage and extracted from the National Climatic Data Center's Tape Deck-1129, Surface Marine Observations. Listed in the appendix are National Weather Service offices and radio stations which transmit weather information.

(130) Marine Weather Services Charts published by the National Weather Service show radio stations that transmit marine weather broadcasts and additional information of interest to mariners. These charts are for sale by the National Ocean Service Distribution Division (N/ACC3). (See appendix for address.)

(131) **Extratropical Cyclones.**–One of the biggest problems in these waters is the winter storm; the most powerful of these is the "Nor'easter". It generates rough seas, strong winds and high tides that threaten safety at sea and cause damage in port. These storms do not often come without warning. Approaching from the U.S. mainland or from the seas to the south they are usually well fore-

casted. Difficulty arises when they develop or deepen explosively off the mid Atlantic coast. Sometimes called "Hatteras Storms", these lows can grow from small, weak frontal waves to full blown systems in less than 24 hours. Not only can their circulation expand to cover most of the western North Atlantic but they often accelerate rapidly northeastward. In the exposed waters these storms can generate 40-foot (12 m) waves and hurricane force winds. Each year more than 40 extratropical systems move across or close to this coast. They average about two to four per month, but as many as ten can affect the region in a single month. Most systems are weak, but a few generate gales and rough seas for hundreds of miles; particularly from September through April.

(132) The major winter storm track runs in a line approximately from Cape Hatteras to Cape Cod. Most of the storms that follow this track intensify; the center of intensification is off Delaware Bay. In addition to the forecast certain atmospheric changes indicate a storm is approaching. The most dependable early indicator is falling pressure. A definite weather change is likely if you observe pressure falls exceeding 2 mb every 3 hours; a drop of 5 mb/3 hours indicates a strong change while 10 mb/3 hours warns of an impending extreme event.

(133) As a storm approaches, winds strengthen, clouds thicken and lower and precipitation begins. Early in the storm's life wind waves can become steep very quickly making it difficult to reach port especially when you have to navigate an inlet where breaking waves are treacherous. In deeper waters, waves can build to over 20 feet. During winter the possibility of superstructure icing calls for an early course of action based upon the latest forecast and a knowledge of your vessel.

(134) **Cold Fronts.**–This weather hazard usually approaches 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 area quite rapidly. Their speed varies from about 10 to 20 knots in summer up to 40 knots in winter. From spring through fall these fronts are often preceded by dense fog.

(135) 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 ahead of a fast moving front. They may even contain tornados or waterspouts. These storms can inflict considerable damage on fishing vessels and small craft.

(136) **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 while in the greatest storms the diameter may reach 500 miles. 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. 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):

(137) **Tropical Depression.**–An organized system of clouds and thunderstorms with a defined circulation and maximum sustained winds of 38 miles per hour (33 knots) or less.

(138) **Tropical Storm.**–An organized system of strong thunderstorms with a defined circulation and maximum sustained winds between 39 and 73 miles per hour (34 to 63 knots).

(139) **Hurricane.**– An intense tropical weather system with a well- defined circulation and a maximum sustained wind speed of 74 miles per hour (64 knots) or greater.

(140) While the following term is not normally used in tropical cyclone advisories it may appear in related products.

(141) **Tropical Wave.**–A minor tropical disturbance in the easterly trade winds, which could develop into a tropical depression but lacks evidence of a closed circulation; also known as easterly wave.

(142) 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 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 (6.1 m) or more above normal. About 3 to 4 feet (1 to 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.

(143) **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.

(144) 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.

(145) 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.

(146) **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. It collates 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 as well as the Eastern North Pacific Ocean. Its 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.

(147) For tropical storms and hurricane 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 implanted. 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 landfall 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 form of probabilities of hurricane strikes, for coastal locations and even offshore coordinates, and storm position forecasts for up to 72 hours in advance.

(148) **Hurricane Havens.**–This section is condensed from the **Hurricane Havens Handbook for the North Atlantic Ocean** published by the Naval Environmental Prediction Research Facility at Monterey, CA. While this study concentrates on New York, NY, New London, CT, and Newport, RI, the climatology and principles of navigation can be applied to the entire region; the navigation information can be applied to winter storms as well. For practical purposes any tropical cyclone that approaches within 180 miles is considered a "threat". Data is also incorporated from the Global Tropical/Extra tropical Cyclone Climatic Atlas CD-ROM jointly produced by the National Climatic Data Center and the Fleet Numerical Meteorology and Oceanography Detachment-Asheville.

(149) 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 mid latitudes 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.

(150) Of the 117 tropical cyclones that threatened New York from 1842-1995, 100 occurred from August through October with the main threat in September. The hurricane (winds > 64 knots) threat has a peak in August and September; 81 of the 117 hurricanes occurred in those months. Tropical cyclones usually move in from the south or southwest. During this same period New Haven was threatened by 108 tropical cyclones, 91 of which occurred from August through October. Hurricanes are most likely during August and September when 75 out of the total of 108 occurred. The direction of approach is most likely from the south or southwest. Because of the natural protection offered by the shape of the coast from Cape Cod to Cape Hatteras, most recurving storms either make landfall south of Hatteras or pass New England well offshore to the southeast. The majority of storms pass well to the southeast of New England, following the Gulf Stream. Occasionally storms accelerate on a more northerly track similar to the disastrous hurricane of 1938, which advanced rapidly up the east coast, offshore near Hatteras, across central Long Island, into Connecticut and finally through Vermont. This hurricane's forward speed reached 52 knots, an advance that would be difficult to prepare for, even with today's sophisticated warning methods. It is the exceptionally fast-moving storm that poses the greatest threat. For example, based on climatology, a September storm located off Miami would reach New York in about 3 or 4 days. However, the 1938 hurricane traveled this distance in about 30 hours. Tropical cyclones tend to accelerate as they move north of about 30 N. Forward speeds range from 25 to 30 knots for those crossing the New York - New England coast compared to 20 to 25 knots for those passing offshore to the southeast.

(151) Since wind records were available in the New York Harbor area, sustained winds have reached hurricane force (64 knots) only once. The September 1944 hurricane produced 64-knot winds at Central Park and 70-knot winds at La Guardia. Other hurricanes that have caused considerable damage were storms in September 1821, September 1938, August 1954 (Carol) and September 1960 (Donna). During a recent 44-year period along the Connecticut-Rhode Island coast, three hurricanes produced winds that have been estimated to have reached at least minimal hurricane strength. The 1944 hurricane, Carol and the 1938 storm were the three. The 1938 storm was the worst as winds in the New London area were estimated at 78 to 87 knots.

(152) In addition to strong winds, the hurricane brings rough seas, heavy rains, and storm surges. New York's Lower Bay is subject to wave action due to an open quadrant, east through south, to the Atlantic. The size and depth of the bay also provide sufficient fetch for a strong wind to generate destructive waves. Deep ocean swells approaching from the open quadrant would be reduced by shoals at the entrance to Lower Bay, between Sandy Hook and Rockaway Point. Upper Bay, Newark Bay, lower Hudson River and East River are subject to limited wave action. Long Island Sound is a deep water sound with a generous fetch in an east-west direction. New London Harbor is well protected from wave action. Although a west wind can produce large seas in the Sound they are greatly reduced on entering the harbor channel. Within Narragansett Bay wave action is severely limited by short fetch for most wind directions. Wave action generated within the Bay will create minimal problems for ships at anchor if the scope of chain employed is set to give the best riding conditions.

(153) Storm tides can produce a high water level, which in addition to innundating coastal areas, may allow wind waves to cause

destruction in areas normally unaffected by waves. Combined storm surge and tide have produced water levels of over 10 feet (3 m) above mean low water in the New York Harbor area and levels greater than 15 feet (4.6 m) above mean low water in western Long Island Sound. New London is one of the few east coast ports to have experienced a major storm surge in this century. The storm surge of September 21, 1938 hit New London as an apparent tidal bore (wall of water) causing considerable destruction. This surge was slightly greater than that expected once in a hundred years and was likely due to the fast moving nature of this hurricane. At Newport storm tides were measured at 10.8 feet (3.3 m) above mean sea level during the 1938 hurricane. The top winter extratropical storm produced a 6.0-ft (1.8 m) surge on the 30th of November, 1963.

(154) In summary New York Harbor is recommended as a hurricane haven. It is a large national harbor with many excellent berthing facilities and good deep-water anchorages. Natural topographic features and numerous man-made structures offer good wind protection. The bathymetry and orientation of the harbor relative to the normal path of hurricanes tend to mitigate the wind wave and ocean swell danger although storm surge is a sufficient threat. The main New London harbor is not a haven for most vessels during a hurricane although the inner harbor is considered safe for most ships. The surrounding topography provides some protection from east through southeast winds for the eastern shore of the main and inner harbor, however the lower western shore of the main harbor is very exposed to southeast through south winds. The entire harbor is subject to the possibility of major storm surge flooding. The port of Newport is located inside Narragansett Bay, which has deep water anchorages within its confines. Although these anchorages are not well sheltered from winds, they have proven hurricane haven properties for ships able to steam at anchor.

(155) Flooding associated with hurricane-induced high tides is the principle threat to small craft in the area. They should be hoisted and secured ashore above projected flood levels whenever possible. Best protection is inside some type of storage building to prevent possible damage by flying objects or to prevent the possibility of broken tie-downs in high winds. Local knowledge is the best guide to weathering a storm in small harbors.

(156) **Waves.**–In late March of 1984 a 968-mb Low off the New Jersey coast generated a 33-foot (10.1 m) wave at Buoy 44005 (42.7°N., 68.3°W) while Buoy 41002 (40.1°N., 73.0°W) measured a 47-foot (14.3 m) wave during Gloria in September 1985. Systems similar to these are partly responsible for the rough seas encountered along this coast from September through April. The Buoy closest to the area, 44003, (40.8°N., 68.5°W), in 10 years of operation has measured a 29-foot (8.8 m) wave in February and 25-foot (7.6 m) waves from October through April. It has been estimated that over the open waters along this coast maximum significant waves should reach 30 feet (9 m). 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.

(157) This table can be used to project a range of wave heights that might be expected in deep water. If significant wave heights of 10 feet (3 m) are forecast then the most frequently observed waves should be 5- to 6-foot (1.7 - 1.8 m) range while one wave in 100 should reach 17 feet.

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

(158) A giant or rogue wave might reach 25 feet (7.6 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 (6.1 m) then a rogue wave could reach 50 feet (15.2 m) if the water depth could support it.

(159) Rough sea conditions are usually generated by gales out of the northwest through northeast. Waves greater than 8 feet (2.4 m) occur about 10 to 15 percent of the time in winter. From fall through spring, wave heights of more than 7 feet (2.1 m) frequently last one day or more; in midwinter they often last 2 days or more. In addition to coastal storms, cold fronts with rapidly shifting winds can create dangerous seas.

(160) Steep waves are often more dangerous than high waves with a gentle slope. Waves appear menacing when the ratio of wave height to length reach 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, periods of less than 6 seconds can create problems for boats under 100 feet in length. Waves of 10 feet or more with periods of 6 to 10 seconds can affect comfort in 100- to 200-foot (30.5 to 61 m) vessels. When wind waves reach 20 feet they become hazardous to vessels under 200 feet in length and provide a rough ride for larger ships. Waves moving into shallow water become steeper and break when the depth is about 1.3 times the wave height. Areas such as Nantucket Shoal and Georges Shoals are dangerous in heavy weather. Wave steepness is also increased by tidal currents, particularly when they oppose the wind.

(161) 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 1000-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 lenghts that range from about three-fourths to twice the ships length can have this effect. Pitching is heaviest when the ship's speed produces synchronism between the period of encounter and the ships natural pitching period–this often occurs at or near normal ship speeds.

(162) When in running before a following sea, the greatest danger arises when 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.

(163) **Winds.**–Migratory weather systems cause winds that frequently change in strength and direction. In general winds are generally westerly but often take on a northerly component in winter and a southerly one in summer. Strongest winds are generated by lows and cold fronts in fall and winter and by fronts and thunderstorms during spring and summer. Extreme winds are usually associated with a hurricane or severe northeaster and could reach 125 knots. Sustained winds of 100 knots should occur about every 50 years on the average; gusts are usually about 30 percent higher.

(164) In the open seas, away from the influence of land, winds are stronger and less complex. From December through March they are mainly out of the west through north with gales occurring about 6 to 12 percent of the time. Windspeeds, in general, increase with distance from the coast. If winds persist for a long time over a long fetch they will generate rough seas. Winter windspeeds of 20 knots or more persist for more than 12 hours about 50 percent of the time; however these winds often shift and a new fetch is established. Summer winds are usually out of the south through southwest and gales are infrequent. During the spring and fall winds are more variable.

(165) Coastal winds are complex since they are influenced by the topography. Over land speeds are reduced. However channels and headlands can redirect the wind and even increase the speed by funnelling the wind. In general you will find southerly components in summer and northerly ones in winter. In sheltered waters like Buzzard Bay, Narragansett Bay and the harbors of Long Island Sound there are a large percentage of calms, particularly during the morning hours. When the existing circulation is weak and there is a difference between land and water temperature, a land-sea breeze circulation may be set up. As the land heats faster than the water, a sea breeze is established during the day; this onshore flow may reach 15 knots or more. At night the land cools more rapidly often resulting in a weak breeze off the land. In many locations the sea breeze serves to reinforce the prevailing summer wind.

(166) **Visibilities.**–Fog, precipitation, smoke and haze all reduce visibilities. Fog is the most restrictive and persistent. It forms when warm, moist air moves across colder water, when very cold air moves over warmer water, or when moist air is cooled to near its dew point by radiation or rainfall. These conditions can be triggered by a number of weather situations.

(167) Prior to the arrival of a cold front there is often a warm, southerly flow of air across cool Gulf waters resulting in dense fog. Warm or stationary fronts can also bring fog while rainfall from lows and fronts can create an evaporation fog. Along the coast radiation fog is common on clear, calm nights although it usually burns off during the morning hours. In the spring, coastal fog may occur near the mouths of rivers and streams that are fed by cold snowmelt.

(168) Sea temperatures increase, in general, from north to south, but the variation is usually only a few degrees over open water. Close to the coast water temperature are usually warmer in summer and colder in winter than offshore readings. Water temperatures in summer range from about 66° to 74°F (18.9 to 23.3°C) while in winter the range is from about 34° to 37°F (1.1 to 2.8°C).

(169) Advection fog is most common in late spring and early summer when south and southwest winds bring warm humid air over the still-cold Labrador Current. Near Georges Bank visibilities fall to less than 1 mile up to 30 percent of the time. While these frequencies drop to the southwest, fog remains a problem in this season.

(170) The areas along the coast, at the heads of bays within the rivers may be comparatively clear while fog is very thick outside. The frequency of fog over land and water is usually in opposition. Land fog is often most frequent in fall and winter compared to the spring and summer maximum of sea fog. Consequently figures for poor visibility at inland or sheltered harbors are no guide to conditions at sea or in the approaches.

(171) **Superstructure Icing.**–Heavy winter weather can cause ice to collect on ships sailing these waters. At its worst superstructure icing can sink a vessel. when air temperature drops below the freezing point of sea water (About 28.6°F) strong winds and rough seas will cause large amounts of sea spray to freeze to the superstructure and those parts of the hull that escape a frequent washing by the sea. Ice amounts increase rapidly with falling air and sea temperatures as well as increasing windspeeds. The most dangerous conditions exist when gales last for several days in temperatures of 28°F or lower. The ice buildup on a trawler can exceed 5 tons per hour.

(172) A moderate rate of ice accumulation usually occurs when air temperatures are equal to or less than 28°F with winds of 13 knots or more. When air temperatures drop to 16°F or below and winds reach 30 knots or greater, ice collects more rapidly. On a 300- to 500-ton vessel it would accumulate at more than 4 tons per hour and is called severe. December, January and February are the worst months. The potential for moderate icing exists about 5 to 10 percent of the time.

(173) In addition to sea spray, ice is also caused by freezing rain or drizzle and fog in freezing conditions. While these two causes could create enough weight on the rigging to cause it to fall, this is minor in comparison with the freezing spray hazard. Icing on the superstructure elevates the center of gravity, decreasing the metacentric height. It increases the sail area and heeling moment due to wind action. Its non-uniform distribution changes the trim. It can hamper steerability and lower ship speed. Icing also creates hazardous deck conditions.

(174) If you can't avoid the weather conditions that cause icing, experience and research have helped develop some guidelines. The first two courses of action when encountering potential icing conditions are to seek shelter from the sea and to steer towards warmer water. Once icing has begun it is prudent to slow down enough so that little or no spray is taken aboard. It is also important to keep ice from building up by whatever means are available. This includes crewmen using tools or baseball bats to remove ice from the deck and superstructure.

(175) Any effort to control the rate of accumulation will buy time. In general heaving to with the bow into the wind and sea as much as possible and varying the course slightly to ensure a minimum symmetrical build up is a good rule. However, experiments have shown that on a trawler with its stern to the wind, loss of stability is only about one-half of that in the ahead condition. When the wind is 30 degrees off the bow the loss of stability is 50 percent greater than in the ahead condition. Also ice accumulates more rapidly on the windward side causing a heeling into the wind. This listing is partially offset by the action of the wind so that a shift to a reciprocal course after icing has built up could be disastrous. When ice builds up significantly it is important to remember that the removal of one ton of ice 50 feet from the vessels center of gravity is as effective as removing 10 tons of ice 5 feet above the center of gravity.

(176) **Immersion Hypothermia.**–Immersion hypo-thermia 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.

(177) Cold lowers body temperature, which in turn slows the heartbeat, lower 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.

(178) 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.

(179) 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 water 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 arm 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 together 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.

(180) 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! 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.

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°	2-7 hrs	2-40 hrs.
68°-77°F	3-12 hrs.	3 hrs. - indef.
77°F and above	indefinite	indefinite

(181) **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.

(182) 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-third 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.

(183) 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.

(184) 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.

(185) 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.

(186) Frostbite usually begins when the skin temperature falls within the range of 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 susceptible to freezing are those with surfaces large in relation to their volume, such as toes, fingers, ears, nose, chin and cheeks.

(187) **Optical Phenomena**.–Optical phenomena range from electromagnetic displays to intricate geometrical patterns. The aurora and Saint Elmo's fire are electromagnetic displays. Halos, coronas, parhelia, sun pillars, and related effects are optical phenomena associated with the refraction and diffraction of light through suspended cloud particles; mirages, looming, and twilight phenomena such as the "green flash" are associated with refraction of light through air of varying density. Occasionally, sunlight is refracted simultaneously by cloud suspensions and by dense layers of air producing complex symmetric patterns of light around the sun. A mirage is caused by refraction of light rays in a layer of air whose density increases or decreases rapidly, near the surface. A marked decrease in density with increasing altitude causes looming, towering, and superior mirages. Looming occurs when objects appear to rise above their true elevation. Objects below the horizon may actually be brought into view. This apparent effect often leads to a serious underestimation of horizontal distances Unimpressive landmarks, and distant ships may acquire startling characteristics through apparent vertical stretching; this phenomenon is known as towering. A superior mirage is so named because of the appearance of an image above the actual object. Ships have been seen with an inverted image above and an upright image floating above that.

(188) Inferior mirages result from the upward bending of light rays in an unstable air mass. This phenomenon is observed locally whenever a superheated land mass or a wide expanse of open water is overrun by cold air. Sinking below the horizon, of relatively close objects, may result in an overestimation of horizontal distances. Occasionally a complicated vertical temperature distribution, may transform hilly coastlines into impressive walls of lofty pinnacles. This phenomenon is known as Fata Morgana. On clear days, just as the upper rim of the sun disappears below the horizon, green light is sometimes refracted from the solar spectrum. This brief phenomenon is called the green flash.

(189) Floating ice crystals (cirriform clouds, light snow flakes, ice fog, or drifting snow) may cause the refraction of light into a variety of faintly colored arcs and halos. This phenomenon, which may be recognized from the fact that the red band is closest to the light source, includes halos, arcs that open toward or away from the sun, mock images, and various geometrical figures that may be located in various parts of the sky with references to the sun.

(190) Fogbows, resulting from refraction through suspended water particles, are seen in the region of the sky directly opposite from the sun, or the antisolar point. These bows, although occasionally brilliantly colored, are normally seen as broad white bands with faintly colored borders. Rainbows are also observed.

(191) When atmospheric particles are about equal in size to the wavelength of light, diffraction is likely to occur. Diffractional phenomena frequently show properties similar to those of refraction except for the reversal in the spectrum colors, violet now being closest to the source of light. The Brocken bow, or glory, appears on clouds or fog banks as a colored ring around the projected shadow of the observers hear. The solar and lunar coronas, which are observed only through high clouds, resemble the halo except that they may assume increasingly larger diameters as the size of the particles decrease. When the light from the sun or the moon diffracted by cirrus or cirrostratus, iridescence may sharply delineate the outline of clouds in brilliant green, blue, pink, orange, or purple.

(192) Refraction of sunlight takes place whenever the intervening particles are larger than the wavelength. Thus, sunlight that is reflected from ice crystals is transformed into sun pillars and parhelic circles. When both phenomena occur in combination they form the remarkable sun cross. Paricelenci circles are observed with moonlight.

(193) The **auroral borealis** (northern lights) and **St. Elmo's fire** are two types of electrical phenomena sometimes observed in this region. The zone of maximum auroral frequency extends along the periphery of a 20- to 25- degree circle whose center is at the magnetic pole. Auroras are generally associated with moonless nights. An artificial maximum exists in winter because of the longer hours of darkness. No conclusive evidence is available to show that a seasonal variation in the frequency of auroras exists. However, periods of intense sunspot activity are reflected in a maximum occurrence of this electrical phenomenon.

(194) Generally auroras may be classified as having either a ray structure (rays, streams, draperies, corona) or a nebulous appearance (homogeneous quiet arc, homogeneous band, pulsating arcs, pulsating arcs, pulsating surfaces, diffuse luminous surfaces, and feeble glow). Flaming auroras, which fall in neither category, may be added to this list. Moreover, auroras may remain uniformly red, green, or purple, or assume a rapid succession of these colors. Brilliant shifting auroras are invariably accompanied by magnetic storms and electrical interference with communications.

(195) St. Elmo's fire is occasionally observed in this area, but because of its faintness it is most commonly observed during the night hours and on dark overcast days. These eerie flickers of bluish light are usually caused by the unusual electrification of the snow-filled air, which is most likely when the wind is strong. St. Elmo's fire is restricted to the tips of such objects as ship masts, wind vanes, and airplane wings.

(196) **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 with cargo temperature and moisture content is vital for hold ventilation decisions. It is also a parameter used in forecasting fog formation.

(197) **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.

(198) 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 cases discretion must be used.

(199) **Ice.**–(Refer to discussion under ports affected.)

(200) During some winter months or when threatened by icing conditions, lighted buoys may be removed from station or replaced by unlighted buoys; unlighted buoys, and daybeacons and lights on marine sites also may be removed. (See Light List.)

(201) The **International Ice Patrol (IIP)** was formed in 1914 to patrol the Grand Banks of Newfoundland to detect icebergs and warn mariners of their location. Under the 1974 Safety of Life at Sea (Solas) Convention, 20 member-nations agreed to share the $2.5 million annual cost of operating the patrol. The U.S. Coast Guard conducts the patrol and maintains IIP records.

(202) Today the IIP is coordinated from its operations center at Groton, Connecticut. Its staff presently numbers 13, including Coast Guard and civil service specialists. The usual ice season runs from March through September but can vary. Flying out of the Canadian Forces Base at Gander, Newfoundland, USCG aircraft cover the ice area, a piece of water twice the size of the State of Texas. Its southern boundary is nearly the latitude of New York City and it reaches halfway across the Atlantic, with Newfoundland on the northwest and Greenland and Iceland on the north and northeast. A normal flight lasts seven hours and can cover 35,000 square miles.

(203) Once sighted, a berg's location, size, and configuration all are entered into a computer drift model, used until it is resighted or melts.

(204) The IIP attempts to locate and track bergs south of the 52nd parallel, and particularly those south of the 48th which may be hazardous to navigation near the Grand Banks. When sighting data is entered into the drift program, predicted positions of bergs are calculated at 0000 and 1200 GMT.

(205) All shipping is requested to assist in the operation of the IIP by radio reporting all sightings of ice at once to the IIP through any U.S. Coast Guard communications station. Ice sightings reports should include: precise position, size and shape of berg, concentration of ice, and thickness of ice (refer to IIP chart for filing reports). A list of the radio stations broadcasting IIP Bulletins and frequencies and times of broadcasts is published annually in Local Notices to Mariners of the First and Third Coast Guard Districts and in Radio Navigational Aids, Pub. 117, issued by the Defense Mapping Agency Hydrographic/Topographic Center.

(206) The IIP operations center can be reached by telephone at (203) 441-2626, or the Coast Guard Operations Center in New York at (212) 668-7878. Vessels carrying Marisat equipment can send messages at their own expense to COAST GUARD NY (Telex 126831).

(207) Once daily, a radio facsimile chart of the area depicting ice distribution is broadcast. The IIP seeks comments on its services to mariners, particularly on the effectiveness of the times and frequencies of radio transmissions. Mariners are requested to mail facsimile charts received at sea to International Ice Patrol, 1082 Shennecossett Road, Groton, CT 06340-6095. The frequency used, time of receipt, and vessel position at time of receipt should be indicated.

SIZES OF ICEBERGS

SIZE		HEIGHT		LENGTH	
		(feet)	(meters)	(feet)	(meters)
Growler	(G)	0-3	0-1	0-19	0-5
Small	(S)	4-50	1-15	20-200	6-60
Medium	(M)	51-150	16-45	201-400	61-122
Large	(L)	151+	46+	401+	123+

TYPES OF ICEBERGS

SHAPE		DESCRIPTION
Blocky	(B)	Steep sides with flat top. Very solid. Length-height radio less than 5:1.
Tilted Blocky	(V)	Blocky iceberg which has tilted to present a triangular shape from the side.
Drydock	(K)	Eroded such that a large U-shaped slot is formed with twin columns. Slot extends into or near waterline.
Pinnacled	(P)	Large central spire or pyramid.
Dome	(D)	Large round smooth top. Solid-type iceberg.
Tabular	(T)	Flat-topped iceberg with length-height ratio greater than 5:1.

(208) **Principal ports.**–The principal deep-draft commercial ports within the area of this Coast Pilot are: New Bedford and Fall River, Mass.; Tiverton and Providence, R.I.; New London and Bridgeport, Conn.; New York, Albany and Port Jefferson, N.Y.; and Elizabeth and Newark, N.J.

(209) Other deep-draft facilities are located on Cape Cod Canal; Narragansett Bay; off Northville and Northport, N.Y., on Long Island Sound; and on the Hudson River between New York City and Albany, N.Y.

(210) **Pilotage,** with few minor exceptions, is compulsory for all foreign vessels and U.S. vessels under register entering and departing the Port of New York and New Jersey and other ports within the area of this Coast Pilot, and for all such vessels transiting Block Island Sound, Narragansett Bay, and Long Island Sound. (See **207.20,** chapter 2, for Pilotage Regulations on the Cape Cod Canal.)

(211) Pilotage is optional for coastwise vessels that have on board a pilot properly licensed by the Federal Government for the waters which the vessel travels.

(212) Arrangements for pilots should be made by the ships' agents at least 24 hours in advance at all of the ports. New York is the only port at which the pilot boat remains on station. Detailed information on pilotage procedures is given in the text for the ports concerned.

(213) **Towage.**–Tugs are available at all 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 ships' agents or the pilots. (See the text for the ports concerned as to the availability of tugs.)

(214) **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.

(215) **Harbormasters** where appointed are mentioned in the text. They usually have charge of the anchorage and berthage of vessels.

(216) **Supplies.**–General supplies, including fuel oil, diesel oil and fuel, gasoline, water, and marine supplies are available at the principal ports. Similar items but in more limited quantities can be obtained at many places mentioned under descriptions of the different ports.

(217) **Repairs-salvage-wrecking.** – Complete facilities for large vessels are available in New York Harbor. The extent and types of facilities at other places are shown in the text under the description of the ports.

(218) **Small-craft facilities.**–There are numerous places where fuel, supplies, repairs, slips for dockage, and launching ramps are available for small craft. For the various towns and isolated places, the Coast Pilot includes generalized information about marine facilities; details are given in the series of small-craft charts published for many places.

(219) **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)).**

(220) **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 at New York City.

(221) **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.

(222) **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 Government and

the District of Columbia, and may not be observed by all the States in every case.

(223) In addition, the following holidays are also observed in the States covered by this Coast Pilot:

(224) Lincoln's Birthday, February 12: Connecticut, New Jersey, and New York.

(225) Evacuation Day, March 17: Massachusetts, Boston and Suffolk County only.

(226) Good Friday: Connecticut and New Jersey.

(227) Patriots Day, third Monday in April: Massachusetts.

(228) Rhode Island Independence Day, May 4: Rhode Island.

(229) Bunker Hill Day, June 17: Massachusetts, Boston and Suffolk County only.

(230) Victory Day, second Monday in August: Rhode Island.

(231) General Election Day, first Tuesday after the first Monday in November: New Jersey, New York, and Rhode Island.

4. OUTER CAPE COD AND NANTUCKET SOUND

(1) This chapter describes the outer shore of Cape Cod and Nantucket Sound including Nantucket Island and the southern and eastern shores of Martha's Vineyard. Also described are Nantucket Harbor, Edgartown Harbor, and the other numerous fishing and yachting centers along the southern shore of Cape Cod bordering Nantucket Sound.

(2) **COLREGS Demarcation Lines.**–The lines established for this part of the coast are described in **80.135** and **80.145**, chapter 2.

(3) **Chart 13246.–Cape Cod** is a long peninsula forming the easterly extremity of Massachusetts. It makes out from the mainland in an easterly direction for 31 miles, then extends northward for over 20 miles. This cape forms the southern and eastern shores of Cape Cod Bay, the northern shore of Nantucket Sound, and the eastern shore of Buzzards Bay. The northern trend of Cape Cod, forming what is sometimes called the **Hook of the Cape**, is known as the Lower Cape. This section is well settled and composed almost entirely of sandy lands, with high bare sand dunes and low nearly level plains. The portion of Cape Cod between Chatham and Cape Cod Canal is known as the Upper Cape. This region is wooded and is well settled by numerous towns and villages.

(4) The tidal current velocities between Race Point and Highland Light are very strong, but diminish to less than 1 knot between Highland Light and Chatham Light. Strengths of flood and ebb set northward and southward, respectively, along the coast. The time of current changes rapidly, the strength of flood or ebb occurring about 2 hours later off Nauset Beach Light than off Chatham Light.

(5) **Chart 13249.–Provincetown Harbor,** formed by a turn in the northern end of the hook of Cape Cod, has a diameter of about 2 miles. It is one of the best harbors on the Atlantic Coast, having a sizable anchorage area in depths of 12 to 57 feet with excellent holding ground. Coasters and fishermen find protection here in gales from any direction.

(6) The historical town of **Provincetown**, on the northwestern side of the harbor, is at the site of the first landing of the MAYFLOWER in the new world. Supplies and hull repair facilities are available in Provincetown. Engine repairs are available by arrangement.

(7) The approach and entrance to the harbor are free of dangers and are marked by three lights and by Pilgrim Monument, a slim stone structure 348 feet above the water; two standpipes are about 0.2 mile westward and a steel tank is 1.5 miles northeastward of the monument. A 2,500-foot stone breakwater is about 300 yards southeastward of the end of the town pier (MacMillan Wharf). The breakwater extends northeastward from a point in 42°02′45″N., 70°10′55″W., approximately parallel to the shoreline. The east and west ends of the breakwater are each marked by a light. Strangers should exercise caution when operating in the area. In September 1981, an 8-foot shoal spot was reported in the approach to the town pier in about 42°02′50″N., 70°10′56″W. Numerous fishing vessels work out of Provincetown during the year. During the summer, floats are set out that are capable of mooring vessels up to 40 feet. Larger vessels must tie up at permanent piers. Anchorage inside the breakwater is reported to be fair to poor, mud bottom with much debris. The marina close southwest of MacMillan Wharf maintains 40 mooring buoys on the west side of the harbor.

(8) All moorings and berthing in the harbor are under the control of the **harbormaster,** who has an office at the end of the town pier. The harbormaster monitors VHF-FM channel 16 24 hours.

(9) The Captain of the Port, Boston, has established a fairway 100 yards wide extending from 42°02′00″N., 70°09′35″W. to 42°02′43″N., 70°11′01″W., and in the area extending about 100 yards around the piers in Provincetown Harbor. Anchorage is prohibited in this fairway.

(10) **Provincetown Coast Guard Station** is about 0.4 mile southwest of the town pier.

(11) The finger pier northeastward of the Coast Guard pier is in ruins. Mariners should exercise caution while navigating in the area.

(12) **Cape Cod Canal is described in chapter 5. Complete information about the harbors and ports in Cape Cod Bay is contained in United States Coast Pilot 1, Atlantic Coast, Eastport to Cape Cod.**

(13) **Charts 13249, 13246.**–Between **Wood End** (42°01.2′N., 70°11.3′W.) and **Race Point,** the westernmost point of Cape Cod, shoals that rise abruptly from deep water extend a maximum of about 0.6 mile from shore. **Race Point Light** (42°03.7′N., 70°14.6′W.), 41 feet above the water, is shown from a white tower on the northwest point of Cape Cod. A fog signal is at the light and an aero radiobeacon is close northeastward of the light.

(14) **Peaked Hill Bar** includes shoals with a least depth of 10 feet about 3.5 miles northeast of Race Point Light.

(15) The bar is about 0.6 mile offshore and extends for about 4 miles paralleling the coastline. This area should be given a berth of at least 2 miles. A lighted whistle buoy is about 2.5 miles off the bar and about 5 miles northwestward of Highland Light. Keeping in a depth of 20 fathoms will ensure passing 2.5 to 3 miles off the eastern side of Cape Cod.

(16) **Chart 13246.**–From Race Point, the shore of Cape Cod curves northeastward, eastward, and then southeastward for about 9 miles to the **Highlands**, and is composed of bare sand dunes of various heights. The sand dunes begin to be covered with a brownish-looking growth of grass, and the land is higher as the Highlands are approached. The water shoals somewhat abruptly within 0.5 mile of the shore and care must be taken not to go inside the 10-fathom curve.

(17) **Highland Light** (42°02.3′ N., 70°03.7′W.), 173 feet above the water, is shown from a 66-foot white tower with covered way to the dwelling on a high bluff of the Highlands. The light station has a fog signal.

(18) **Prominent objects** include a stone crenellated tower, a red brick stack, and three spherical radar domes on the summit of a ridge, 0.5 mile south of Highland Light.

(19) The shore southward from the Highlands for 12 miles to Nauset Beach Light has a slight curve. The terrain continues hilly with narrow valleys at intervals. From Highland Light to near the

Chatham entrance the water continues to shoal abruptly within 0.5 mile of the shore.

(20) Two spires at **Truro**, 2.5 miles south of Highland Light, are prominent. A tank stands out near the shore about 9 miles south-southeastward of Highland Light in **South Wellfleet**.

(21) **Nauset Beach Light**, (41°51.6′N., 69°57.2′W.), 114 feet above the water, is shown from a 48-foot conical tower, the upper part red and the lower part white, on the beach at **Eastham**. A lighted whistle buoy is 5 miles northeastward of the light. The buildings of a former Coast Guard station, about 1 mile south of the light, are conspicuous.

(22) The coast from Nauset Beach Light turns gradually southward to Chatham, a distance of 11 miles, and becomes lower and less steep. The terrain slopes gently back from the beach and is covered with a scanty growth of grass.

(23) **Nauset Harbor**, 3.3 miles south of Nauset Beach Light, is used by small local craft. The area offshore of the harbor is a chain of shifting sandbars. Breakers are present in this vicinity at all stages of the tide and even during the calmest weather. The area is extremely dangerous for any vessel larger than a runabout or for anyone without local knowledge. Strangers should never attempt to enter. A cluster of houses is on Nauset Heights south of the entrance, where the ground is somewhat higher than the land just northward.

(24) The harbor has three arms extending northward into **Nauset Bay**, northwestward into **Salt Pond Bay** and **Salt Pond**, and westward into **Town Cove** which is about 2 miles long in a southwesterly direction. Private seasonal buoys mark the channel from the entrance to Town Cove. A marina is on the west bank about 0.5 mile from the head of the cove. Gasoline, water, moorings, berths, marine supplies, and a concrete ramp are available. Craft to 25 feet can be handled for hull or engine repairs, or dry open or covered storage. In August 1981, depths of 4 feet were reported alongside the service dock.

(25) The outer coast is eroding from east of **North Chatham** northward for about 3 miles. Waves wash across the beach barrier into the sound in several places at high water. A conspicuous standpipe with a red and white checkered band around the top is about 0.6 mile southward of **Chatham Port**.

(26) **Charts 13248, 13246.–Chatham,** about 11.5 miles southward of Nauset Beach Light, is on fairly high ground on the west side of **Chatham Harbor. Chatham Light** (41°40.3′N., 69°57.0′W.), 80 feet above the water, is shown from a white conical tower on the west side of the harbor. **Chatham Coast Guard Station** is near Chatham Light.

(27) Several spires and a tall stack at Chatham are prominent.

(28) In January 1987, a break occurred in **Nauset Beach,** the barrier beach protecting Chatham Harbor, creating a new inlet into the harbor east of Chatham Light. This break is now the only entrance into Chatham Harbor. The break is used by small local fishing and pleasure craft with a smooth sea. The break is unmarked, extremely dangerous, and should be avoided by those without local knowledge. The Coast Guard has established a **rough bar advisory light,** 62 feet above the water, on a skeleton tower near Chatham Light in about 41°40′17.4″N., 69°57′00.1″W. to promote safety for small-boat operators. The light has a dayboard which is diamond-shaped, painted white with an international orange border, and with the words "Rough Bar" in black letters. The light, when activated, is flashing yellow. The light will be activated when the seas exceed 2 feet in height and are considered hazardous for small boats. Small-boat operators are cautioned, however, that if the light is not flashing it is no guarantee that sea conditions are favorable. Currents are extremely strong and dangerous surf can build up quickly on the outer bar with an ebb current. Shoals are constantly shifting near the break and extreme caution is advised. Ocean waves carry into the harbor and reportedly break as far north as Tern Island. Anchoring and even mooring in much of Chatham Harbor is not recommended. Mariners unfamiliar with the area are advised to stay east of Chatham Beach Lighted Whistle Buoy C (41°39.2′N., 69°55.5′W.).

(29) About 2.7 miles south of Chatham Light, at what used to be the end of Nauset Beach, is a large area of shoals which extends southwestward to Monomoy Island. There is no marked channel through the shoals. Small vessels with local knowledge use the area with a smooth sea; strangers should avoid the area. These shoals are dangerous in thick weather and vessels in the vicinity should stay in depths of 8 fathoms or more.

(30) The passage inside the barrier beach from Chatham Light to the head of navigation in **Orleans,** on the west side of Meeting House Pond, is about 7.9 miles long and used by small-craft. The passage, marked by private, seasonal buoys, leads northerly from the break through Chatham Harbor, Pleasant Bay, The Narrows, Little Pleasant Bay, and The River to Meeting House Pond. The channel requires local knowledge.

(31) A small-craft facility is in a protected basin in the cove between **Morris Island** and the mainland, about 0.5 mile south of Chatham Light. In 1992 it was reported this facility could not be reached from Chatham Harbor due to severe shoaling south of Chatham Light. The facility can reportedly be reached from Chatham Roads by way of a channel south of Morris Island (see chart 13229). Berths, gasoline, water, ice, marine supplies, launching ramp, and storage facilities are available. A hydraulic trailer can handle craft to 45 feet for hull and engine repairs. In June 1992, depths to 2 feet were reported in the basin.

(32) A boat basin is in **Aunt Lydias Cove** between **Tern Island** and Chatham. In March-June 1995, the controlling depth of the dredged channel was 6 feet with 8 feet in the basin. Conditions are rapidly changing. A fish pier is in the basin. Commercial fishing boats operate from the cove. The **harbormaster** can be contacted on VHF-FM channel 16.

(33) **Bassing Harbor**, at the north end of Chatham Harbor, is the entrance to **Ryder Cove** and **Crows Pond.** A small-craft facility is on the south side of Ryder Cove, about 0.5 mile inside the entrance. A town launching ramp is close westward of the facility. Private seasonal aids mark the channel from Chatham Harbor to the town ramp. A 5 mph **speed limit** is enforced in the cove. A forklift at the facility can haul out craft to 25 feet. Gasoline, water, ice, marine supplies, moorings, and storage facilities are available; hull and engine repairs can be made. In August 1981, a reported depth of 3 feet could be carried to the small-craft facility.

(34) **Nickersons Neck**, on the north side of Crows Pond and the south side of Pleasant Bay, has a country club on the north side.

(35) **Round Cove**, at the southwest end of Pleasant Bay has a town wharf and launching ramp. A combination antenna and flagpole on the west bank of the cove is conspicuous.

(36) **The Narrows** is a passage between Sipson Island and the mainland and connects Pleasant Bay with Little Pleasant Bay. The passage is marked by private seasonal buoys.

(37) **Little Pleasant Bay** extends about 1.5 miles northward to Barley Neck. A launching ramp is on the west bank of the entrance to **Paw Wah Pond** on the south side of **Namequoit Point**.

(38) **Namequoit River** leads westward from the head of Little Pleasant Bay to **Areys Pond**. In August 1981, depths of 2 feet were reported in Namequoit River, and the channel into the pond had depths of 3 feet. A small-craft facility on the north side of the pond has a 50-foot marine railway, a 2-ton crane, moorings, water, marine supplies, a launching ramp, and storage facilities; hull, rigging, and sail repairs can be made.

(39) An arm, known as **The River**, extends northward from the entrance to Namequoit River for about 1 mile to **Meeting House Pond.** Private seasonal buoys partially mark the channel from The River to the pond. A town landing and launching ramp are on the north side of the channel leading to the pond. A small-craft facility is on the north side of the pond. In August 1981, depths of 4 feet were reported in the channel to the pond. A hydraulic trailer at the facility can handle craft to 50 feet. Berths and moorings in depths of 6 to 10 feet, gasoline, water, ice, a launching ramp, and storage facilities are available; hull and engine repairs can be made. A town ramp is on the east side of the pond southeastward of the small-craft facility.

(40) **Chart 13237.–Nantucket Sound** is between the south coast of Cape Cod on the north, Nantucket Island and part of Martha's Vineyard on the south, and joins Vineyard Sound on the west to provide an inside passage. Nantucket Sound has a length of about 23 miles in an east-west direction and a width of 6 to 22 miles. At the eastern entrance and within the sound are numerous shoals. Between these shoals are well-marked channels making the navigation of these waters comparatively easy for powered vessels and also sailing vessels with a fair wind. The shoals at the eastern entrance are subject to considerable shifting while those inside are somewhat stable. Boulders are along the shores.

(41) The channel through Nantucket Sound and Vineyard Sound has a controlling depth of about 30 feet and provides an inside passage for vessels of medium draft to avoid Nantucket Shoals. This route is used principally by coastwise vessels and pleasure craft. The navigational aids are colored and numbered for passing through the sound from the eastward.

(42) Monomoy and Nantucket Shoals are eastward and southeastward of the eastern entrance to Nantucket Sound. Owing to the great extent and distance offshore of some parts of these shoals, and the strong and baffling tidal currents which set over them, their navigation in thick or foggy weather is hazardous. In clear weather the lights and buoys render navigation of the two principal channels, Pollock Rip and Great Round Shoal, comparatively easy. For the purpose of description Great Round Shoal Channel will be considered as the dividing line between Monomoy and Nantucket Shoals.

(43) Numerous **fishtraps** are located in Nantucket Sound, particularly along the southern shore of Cape Cod. These areas may be marked by private lights.

(44) **Chart 13244.–Monomoy Shoals** consist of numerous detached shoals extending about 5.5 miles in an easterly direction and 9.5 miles in a southeasterly direction from **Monomoy Point 13244**, the northeast entrance point of Nantucket Sound. Narrow sloughs separate the many parts of the shoals. It should be remembered that the shoals are shifting in character and are subject to change in location and depth.

(45) A dangerous wreck, reported covered 15 feet, is off Monomy Island in about 41°35′07″N., 69°57′41″W. Mariners are advised to exercise extreme caution while navigating in the area.

(46) **Bearse Shoal** and **Pollock Rip**, extending about 5 miles eastward of Monomoy Point, are a series of sand shoals and ridges with little water over them in places. Pollock Rip Channel is between the shoals.

(47) **Broken Part of Pollock Rip**, covered 10 to 18 feet, is eastward of Pollock Rip.

(48) **Stone Horse Shoal, Little Round Shoal,** and **Great Round Shoal** are portions of a continuous series of sand shoals and ridges covered 4 to 18 feet. These shoals are directly eastward of the entrance to Nantucket Sound and between the two main channels. Southward and eastward of these shoals are numerous shoal spots, including **Orion Shoal**, covered 16 to 19 feet.

(49) **Handkerchief Shoal**, extending for 5 miles southwestward from Monomoy Point, is covered 2 to 18 feet. A spot that uncovers 2 feet is about 2.7 miles southwest of the point. On the northwest side the water shoals gradually and soundings will indicate an approach to danger, but on the southeast side the shoal rises abruptly from the deeper water. Handkerchief Shoal is uneven and shifting in character. Vessels should not attempt to pass northward of the buoys marking the southern end and southeast side of the shoal.

(50) **Chart 13237.–Nantucket Shoals** is the general name of the numerous broken shoals which extend 23 miles eastward and 39 miles southeastward of Nantucket Island. These extremely dangerous shoals are described in chapter 3; caution must be exercised in this area.

(51) **Halfmoon Shoal**, near the center of Nantucket Sound, is covered 9 feet. Its southern end is marked by a lighted bell buoy. Depths of 17 and 22 feet are 2.5 and 1.5 miles, respectively, southeastward of the shoal. Deep-draft vessels should use care to avoid them. A lighted gong buoy is 1.3 miles east-northeast of the 22-foot spot.

(52) **Cross Rip Shoal**, about 2.5 miles west-southwestward of Halfmoon Shoal, has a least depth of 11 feet. Its northern edge is marked by a lighted gong buoy. A shoal covered 24 feet extends 1.2 miles eastward of the buoy. Caution must be exercised in passing between this shoal and the shoal making out southwestward from Halfmoon Shoal.

(53) **Horseshoe Shoal**, about 7.5 miles long, bares in places at extreme low water. Its western side is marked by two buoys and its northern and southeastern sides by lighted buoys. The main channel passes between the southeastern lighted buoy and the lighted gong buoy marking Cross Rip Shoal.

(54) **L'Hommedieu Shoal**, covered 3 feet, and **Hedge Fence**, covered 5 feet, lie in an east-west direction in the western end of Nantucket Sound and the eastern end of Vineyard Sound. The water deepens abruptly at the edge of these shoals, and soundings will give little warning of approaching dangers. The main channel passes southward of Hedge Fence Shoal. L'Hommedieu Shoal is marked by buoys at its north, east, and west ends. Hedge Fence is marked by a lighted gong buoy on its southeastern side, and a buoy on its western end.

(55) The numerous other shoals in Nantucket Sound are discussed with the land features near them.

(56) **Channels.**–Two principal channels lead from the eastward into Nantucket Sound. The northerly one is through Pollock Rip Channel and Butler Hole, and the southerly one through Great Round Shoal Channel. Between the numerous shoals in Nantucket Sound are two well-marked channels leading to the eastern end of Vineyard Sound. Muskeget Channel, discussed later in this chapter, leads into the sound from the southward, eastward of Chappaquiddick Island.

(57) **Chart 13244.–Pollock Rip Channel** and **Butler Hole** form the most direct channel leading from points northward of Cape Cod to Nantucket Sound. The channel leads between Bearse Shoal and Pollock Rip, thence eastward of Handkerchief Shoal, and has a least known depth of 27 feet. Since large-vessel traffic may be encountered in this channel, fishing vessels and small craft should avoid the area during thick or foggy weather. The channel is well marked by navigational aids. In August 1985, shoaling was reported on the north side of Pollock Rip Channel near Lighted Gong Buoy 4 (41°33′22.6″N., 69°54′35.4″W.), 9 feet in about 41°33′38.8″N., 69°55′29.6′W., and 10 feet in about 41°33′27.9″N., 69°55′17.8″W. In August 1986, a 22-foot shoal spot was reported in about 41°33′30.8″N., 69°54′01.2″W., about 0.4 mile northeastward of Lighted Gong Buoy 4. Shoaling to 11 feet 0.3 mile northwestward of the buoy was also reported. Caution is advised when transiting the area.

(58) Submerged piling, the remains of the former Monomoy Point Light structure, may exist about 0.3 mile southward of Monomoy Point. An abandoned lighthouse about 1.2 miles northward of the point is prominent.

(59) **Great Round Shoal Channel**, about 10 miles southward of Pollock Rip Channel, is used by many large fishing vessels transiting Nantucket Sound from New Bedford to Georges Bank and sometimes by sailboats that are headed by the wind so as to prevent their working through Pollock Rip Channel. The buoyed channel has a controlling depth of about 27 feet between Great Round Shoal and Nantucket Shoals.

(60) **Chart 13237.**–The **Main Channel** of Nantucket Sound leads southward of Halfmoon Shoal, through **Cross Rip Channel**, southward of Horseshoe Shoal, through the fairway between Hedge Fence and Squash Meadow, and thence into the eastern end of Vineyard Sound. The channel is used by most of the vessels bound through Nantucket Sound and is well marked by navigational aids. With care a least depth of 30 feet can be carried through the channel, but the draft of the vessels using it seldom exceeds 24 feet.

(61) **Cross Rip Lighted Gong Buoy 21** (41°26.9′N., 70°17.5′W.), replacing Cross Rip Lightship, marks the northern edge of Cross Rip Shoal.

(62) **North Channel** leads along the north side of Nantucket Sound, on either side of Bishop and Clerks, northward of Horseshoe Shoal, between Wreck Shoal and Eldridge Shoal, northward of L'Hommedieu Shoal, and through one of the openings in the shoals westward of L'Hommedieu Shoal into Vineyard Sound. This channel is used mostly by craft bound to points on the north shore of Nantucket Sound and by vessels bound through the sound during northerly winds or in winter when the prevailing northerly winds keep the north shore of the sound free from drift ice. The least depth in the channel is about 16 feet. Lighted and unlighted buoys mark the channel.

(63) **Anchorages.**–Sailing vessels working through the sound against a head wind usually anchor during the night, or if becalmed and drifting toward the shoals it is best to anchor and wait for a favorable current or change of wind. The only anchorages for vessels of over 10-foot draft that afford shelter from all winds are Nantucket Harbor, Hyannis Harbor, and Edgartown inner harbor. Vineyard Haven, the anchorage most used by coasters, is exposed to northeasterly winds. In northerly winds the best anchorages are off Dennis Port, Hyannis Port, and along the north shore. The anchorage off Falmouth is used in most winds by vessels with good ground tackle. In easterly winds vessels sometimes anchor in smooth water westward of Handkerchief Shoal or inside Great Point. Good shelter from easterly winds can also be found in Chatham Roads and Edgartown outer harbor. In southerly and westerly winds Edgartown Harbor and Vineyard Haven are the best anchorages. With the aid of the chart and the directions given under the discussion of these harbors, strangers can enter the anchorages.

(64) Several **general anchorages** are in Nantucket Sound and its eastern approaches. (See **110.1 and 110.140(c)(3) through (c)(7) and (d)**, chapter 2, for limits and regulations.)

(65) **Routes.**–Because of the numerous shoals, strong tidal currents, thick fog at certain seasons, and vessels which may be encountered in the narrow parts of the channel through Nantucket Sound, the navigator must use more than ordinary care when in these waters.

(66) In clear weather, day or night, the aids are readily distinguished and sufficiently numerous to enable a stranger to follow the channel without difficulty. The strongest currents will be encountered in Pollock Rip Channel, between Pollock Rip Channel Lighted Buoy 8 and Handkerchief Shoal Buoy 14, and off East and West Chop. In some places the current sets directly on the shoals and in a calm, sailing vessels are sometimes obliged to anchor to prevent going aground. Most of the shoals rise abruptly from deep water and the bottom is very irregular, so soundings alone cannot be depended upon to keep clear of danger. Sailing vessels with a favorable current and with some local knowledge beat through the sound against a head wind in clear weather. If they find they are losing ground, they come to anchor within the prescribed anchorages under the lee of one of the shoals, or in one of the harbors until the wind or current changes.

(67) In thick weather or fog when the aids cannot be seen, vessels in the vicinity of Pollock Rip Channel are cautioned against anchoring in the channel or near any of the aids. Steamers and tows passing through the channel in thick weather depend almost entirely on radar navigation and the sound signals of the aids, making it necessary for them to pass close to the aids.

(68) Vessels off Pollock Rip Channel entrance desiring to anchor, wind and sea permitting, should stand westward and anchor west of a line joining Pollock Rip Channel Buoy 2A and Chatham Bar Lighted Gong Buoy 1. Anchorage may also be had in depths of 5 to 10 fathoms about 3 miles south-southwestward of Pollock Rip Entrance Lighted Horn Buoy PR and northeastward of Broken Part of Pollock Rip.

(69) In Great Round Shoal Channel, the tidal currents are not as strong as in Pollock Rip Channel. Easterly winds make high tides and strong westerly currents. Westerly winds make low tides and strong easterly currents.

(70) Pollock Rip Channel and Great Round Shoal Channel are subject to change; vessels of deep draft should wait for a favorable tide.

(71) The Main Channel through Nantucket Sound is well marked, and strangers should experience little difficulty in navigating it. Vessels must take care to avoid the 24-foot shoal extending 1.2 miles eastward of the buoy marking Cross Rip Shoal and the 17- to 22-foot shoals 2.5 and 1.5 miles, respectively, southeastward of Halfmoon Shoal.

(72) The North Channel through Nantucket Sound has broken ground with depths of 16 to 17 feet in some places. Strangers should not attempt this channel at night.

(73) **Currents.**–The Tidal Current Tables and the Narragansett Bay to Nantucket Sound Tidal Current Charts contain detailed current information for many locations in this area.

(74) At the eastern entrance to Pollock Rip Channel the flood current sets about 053° and the ebb 212°.

(75) Daily predictions for Butlers Hole at the western end of Pollock Rip Channel are published in the Tidal Current Tables.

(76) In the vicinity of **Great Round Shoal Channel Entrance Lighted Whistle Buoy GRS,** off the south end of Great Round Shoal, the tidal current is rotary, turning clockwise. The average velocity at strength is 1.3 knots, and the average minimum velocity is 0.3 knot. Tide rips and water surface agitation caused by upwelling may be observed across the 10-fathom contour east of Buoy GRS. (See Tidal Current Tables for predictions.)

(77) From the eastern entrance of Nantucket Sound to the lighted gong buoy off Hedge Fence, the time of current becomes gradually later; the average velocity at strength varies from about 1 to 2 knots.

(78) **Weather, Nantucket Sound and Vicinity.**–Winter winds and waves along with spring and early summer fogs provide weather hazards in these waters. From October through March gales can be expected about 3 to 6 percent of the time and are frequently out of the west and northwest. Some wind and current interactions can also create problems. The most severe of these is found at the west entrance to the Cape Cod Canal. Rough seas can develop here when the tide ebbing out of the canal opposes a brisk southwest wind. Another well known "rough spot" is the West Chop off the north corner of Martha's Vineyard. At a maximum ebb or flood the current runs 3.5 knots here and when it is opposed by the wind a nasty chop is set up.

(79) In general, over open waters, waves of 12 feet (3.7 m) or more can be expected 5 to 15 percent of the time from November through February. In the shallow portions of Nantucket Sound these frequencies drop, but waves may break before reaching these heights.

(80) The characteristic advection fog, formed by warm air over cool water, is most frequent from April through August. At this time visibilities drop below 2 miles 10 to 18 percent of the time; May, June and July are the worst and caution is advised, particularly near the numberous shoal areas in these waters. In addition to to affecting visibility, fog also distorts sound so the direction of warning bells and horns may be difficult to discern accurately.

(81) Thunderstorms can occur in any season but are most likely in spring and summer. Sometimes they appear as squall lines with strong, gusty winds preceding the rain. Occasionally winds can gust to 60 knots.

(82) **Pilotage** is not compulsory for vessels passing through Nantucket Sound; it is only compulsory for foreign and U.S. vessels under register entering or clearing ports. Pilots for the sound or Monomoy and Nantucket Shoals may be obtained at Boston by vessels coming from northward, or at New York by vessels coming from westward.

(83) Vessels requiring a tow usually take a tug from the port of their departure.

(84) **Monomoy Island,** a national wildlife refuge on the northeastern side of Nantucket Sound, is a low, narrow spit covered with sand dunes. Vessels sometimes anchor off the east shore of the island in depths of 4 to 6 fathoms to await a favorable current for entering the sound. Off Monomoy Point, the south end of the island, shoals make off up to 5 miles eastward.

(85) **Tidal currents** average about 2 knots at strength in the channel 0.2 mile west of Monomoy Point. The flood current sets 170°, and the ebb 346°.

(86) The large bight formed by Monomoy Island and the north shore of Nantucket Sound, eastward of Point Gammon, has extensive shoals scattered throughout and bordering the shores. Not all of the shoals are marked by buoys.

(87) **Chart 13229.–Chatham Roads,** at the northeast end of Nantucket Sound, is between the extensive shoals which extend northwestward from the northern end of Monomoy Island and the shoals extending 1.6 miles from the shore of Cape Cod at Harwich Port. The roads is the approach to **Stage Harbor** and the prominent summer resort of **Chatham** on the hilly ground at the northeast shore of Nantucket Sound.

(88) **Stage Harbor Light** (41°39.5′N., 69°59.1′W.), 42 feet above the water, is shown from a modular tower on the northeast side of Chatham Roads on the north side of the entrance to Stage Harbor.

(89) Among the conspicuous landmarks approaching Chatham Roads and Stage Harbor are the domes of the National Weather Service's installation on the eastern side of Morris Island, a radio tower at South Chatham, church spires, Chatham Light, and Stage Harbor Light.

(90) A dredged channel, marked by buoys, leads from Chatham Roads for about 1.1 miles into Stage Harbor. The entrance is in an area of shifting sandbars and is subject to shoaling. In April 1996, the midchannel controlling depth was 4 feet.

(91) A narrow channel, marked by private seasonal buoys, leads northerly from Stage Harbor through Mitchell River to Mill Pond and has a depth of about 6 feet. This channel is crossed by a highway bridge that has an inoperable bascule span with a clearance of 8 feet. In 1981, the bridge was being reconstructed to provide a clearance of 8½ feet for a span of 19 feet; when in the open position the bascule span will overhang the channel, providing an unobstructed width of 15 feet. (See **117.1 through 117.59 and 117.607,** chapter 2, for drawbridge regulations.)

(92) Good **anchorage** for vessels up to 18-foot draft can be had in Chatham Roads in depths of 21 to 30 feet, good holding ground. This anchorage is insecure for small craft in heavy southwesterly gales. Small craft can find a well-sheltered anchorage in Stage Harbor.

(93) **Routes.**–Vessels approaching Chatham Roads from the southward should pass westward of Handkerchief Shoal and the extensive shoals westward of Monomoy Island. Approaching from the westward pass either side of Bishop and Clerks and thence southward of the seasonal lighted whistle buoy off **Kill Pond Bar**, a shoal covered 4 to 11 feet off the northwest entrance to Chatham Roads. When off the entrance to Chatham Roads, steer **063**° with Stage Harbor and Chatham Lights in range. This course will lead about 500 yards southeastward of Chatham Roads Bell Buoy 3 and north of the buoy marking **Common Flat**, the shoal on the eastern side of the roads, to the Stage Harbor approach buoy about 0.8 mile west-southwestward of Stage Harbor Light. An anchorage may be had northward of the approach buoy in depths of about 28 feet. Boats continuing to Stage Harbor will pick up the channel entrance buoys about 800 yards southwestward of Stage Harbor Light. The channel is well marked.

(94) A 5 mph **speed limit** is enforced in the harbor.

(95) The harbor is closed by **ice** for short periods each winter. Local fishermen will act as pilots for craft desiring one.

(96) The commercial fish piers in Stage Harbor are on **The Neck** at the head of the dredged channel opposite **Stage Island** and on the west bank of Oyster Pond River just above the first bend about 0.7 mile above the entrance to the river.

(97) There are a marina and boatyard on the north side of Stage Harbor adjacent to the fish piers, and a marina on **Mitchell River** just west of the bridge. The marine railway at the boatyard can haul out craft up to 50 feet for hull and engine repairs or dry open or covered storage. Storage is also available at the bridge. Gasoline, diesel fuel, water, ice, marine supplies, and moorings are

available at Stage Harbor and at the bridge. A 10-ton crane and hydraulic trailer at the marina at the bridge can handle craft to 28 feet. Berthage in 7 feet of water and a launching ramp are also available at the bridge. A launching ramp is on **Sears Point.**

(98) **Oyster Pond River** extends from Stage Harbor for about 0.7 mile in a northwesterly direction, thence for 0.8 mile in a northeasterly direction into **Oyster Pond.** Private seasonal aids mark the channel at the bend in the river. Shoaling to 2 feet was reported at the bend in August 1981. On the west bank at the bend there are a town wharf, a launching ramp, and a fish wharf. At 0.3 mile and 0.5 mile above the bend on the west bank are two boatyards and marinas. The largest marine railway at the yards can haul out craft up to 44 feet for hull and engine repairs or dry open or covered storage. Gasoline, diesel fuel, water, ice, marine supplies, launching ramps, berthage, and moorings are available.

(99) **Mill Creek**, 1.6 miles northwestward of Stage Harbor Light, is used only at high water by small local craft. The entrance between the jetties was reported to have 1½ feet in 1964. The tall radio tower of Chatham Radio Station WCC is prominent about 0.4 mile west of the jetties. **Cockle Cove** has been entered by small boats through one of the breakthroughs in the sandbar.

(100) **Saquatucket Harbor**, is entered about 3.5 miles westward of Stage Harbor Light. A dredged channel leads from Chatham Roads to an anchorage basin at the head of the harbor. The entrance is protected by jetties. In June 1990, the midchannel controlling depth was 4 feet to the anchorage basin with depths of 2 to 6 feet in the basin. Shoaling to bare extends into the channel on the eastern side just above Buoy 8. In June 1993, a submerged obstruction was reported about 10 yards south of Buoy 4. Buoys mark the channel, and a light marks the outer end of the east jetty. A marina is on the north side of the anchorage basin. Gasoline, diesel fuel, limited berths, water, electricity, ice, and a launching ramp are available. In August 1981, a depth of 6 feet was reported at the marina berths. The **harbormaster** here also supervises Wychmere Harbor, Allen Harbor, Herring River, and Round Cove in Pleasant Bay. A 5 mph **speed limit** is enforced in these areas. The harbormaster can be contacted by telephone (617-432-2562).

(101) **Wychmere Harbor**, 3.7 miles westward of Stage Harbor Light, is a circular basin with a bulkheaded entrance protected by two jetties. The west jetty is hook-shaped and marked on the end by a light. The east jetty is short. The harbor is used by fishing and pleasure craft. The village of **Harwich Port** is west of the harbor. A church spire about 0.5 mile westward of the harbor and a hotel on the west bank of the entrance are conspicuous.

(102) In August 1994, the reported controlling depth across the bar was 8 feet. Inside the jetties, the channel has a depth of 6 feet to the harbor. The channel is subject to shoaling. The outer anchorage basin, known locally as Harwich Port Harbor, has a depth of about 8 feet with good holding ground.

(103) There is a large summer club-hotel and wharf on the west side of the jettied entrance. A town wharf is on the east side. A boatyard is at the inner end of the channel. Gasoline, diesel fuel, a 45-foot marine railway, water, ice, marine supplies, berths, lifts to 2 tons, and storage facilities are available; hull and engine repairs can be made. A patrol boat enforces a **speed limit** of 5 mph; the patrol boat is equipped with VHF-FM channels 16, 22, and 68. The **harbormaster** who supervises Wychmere Harbor has his office at Saquatucket Harbor. He can be reached by telephone (617-432-2562) for advice on moorings or local conditions.

(104) **Allen Harbor**, about 4.8 miles west of Stage Harbor Light, has a narrow entrance between two jetties into **Doanes Creek**. Allen Harbor is at the head of the creek. The west jetty is marked by a private seasonal light. An elevated water tank north of the harbor is a good landmark.

(105) In April 1979, the controlling depth in the entrance channel was 5 feet. Private seasonal buoys mark the channel. The harbor affords good shelter for small craft.

(106) Allen Harbor Yacht Club is at the head of the harbor at the east end of the highway bridge. The pier and float were reported to have 6 feet alongside. A town landing and launching ramp at the west end of the bridge were reported to have about 6 feet alongside. A marina and boatyard on the west side at the head of the harbor has a 15-ton forklift and a hydraulic trailer that can handle craft to 42 feet for hull and engine repairs and dry open and covered storage. Gasoline, diesel fuel, water, ice, marine supplies, and berthage in 6 feet of water are available. The **harbormaster** who supervises Allen Harbor has his office at Saquatucket Harbor. He can be reached by telephone (617-432-2562) for local information.

(107) **Herring River**, 6 miles west of Stage Harbor Light, has a large prominent hotel on the west side and windmill on the east side of the entrance. The entrance, between two small jetties, is subject to shoaling. The approach is marked by private seasonal buoys, and the outer end of the west jetty is marked by a private seasonal light. In 1973, the midchannel controlling depth was 6 feet in the entrance channel. A basin dredged in the river just below the bridge has moorings for craft drawing up to 3 feet. The fixed bridge, about 0.3 mile above the mouth, has a 14-foot fixed span with a clearance of 10 feet. State Route 28 highway bridge about 0.8 mile above the mouth has a 20-foot fixed span with a clearance of 7 feet. Limited supplies may be obtained at **Dennis Port** about 0.7 mile westward of the river.

(108) **Swan Pond River**, about 1.9 miles west of Herring River, is a narrow shallow creek bordered by marsh, which drains **Swan Pond**. Fishermen and pleasure craft enter at high water. Fish wharves are on the east bank just above the bridge about 0.3 mile above the mouth.

(109) **Bass River,** 9.6 miles westward of Stage Harbor Light, is entered between two jetties. A light is on the west jetty. A seasonal lighted bell buoy, 1.1 miles southward of the jetty light, marks the approach. A channel marked by private seasonal buoys leads over the bar from about 0.4 mile southward of the jetty light through the jetties to an anchorage basin in the lower part of the river, and thence to the highway bridge at South Dennis, 3.1 miles above the mouth. The bridge has a 25-foot fixed span with a clearance of 10 feet. The entrance to the anchorage basin and the channel over the bar are subject to shoaling. In August 1981, the reported controlling depths were 3 feet in the entrance channel, thence 5 feet to South Yarmouth, and thence 2 feet to the bridge at **South Dennis.** In December 1992, severe shoaling was reported across the mouth of the river. Private seasonal buoys mark the channel to Follins Pond, about 6.1 miles above the mouth.

(110) State Route 28 highway bridge crossing the river between **West Dennis** and **South Yarmouth**, about 1.5 miles above the mouth, has a 30-foot fixed span with a clearance of 15 feet.

(111) A 5 mph **speed limit** is enforced on the river.

(112) About 0.8 mile above the mouth, a channel leads eastward to a lagoon; a dredged depth of 10 feet was reported in the channel and lagoon. West Dennis Yacht Club is at the head of the lagoon.

(113) Bass River Yacht Club is on the west side about 0.5 mile below the first highway bridge. A marina and boatyard adjacent to the club has a marine railway that can haul out craft up to 40 feet for hull and engine repairs or dry open and covered storage. Gasoline, diesel fuel, water, ice, moorings, berthage in 3½ feet of water, and a launching ramp are available. The marina monitors VHF-

FM channel 16. Town landings and launching ramps are on both sides of the river at and below the bridge.

(114) Rental boats, gasoline, bait, and tackle can be obtained at a fishing pier just north of the east end of the bridge. A marina, above the pier, has gasoline, launching ramp, a 15-ton hoist, berths, water, and storage facilities; hull and engine repairs can be made.

(115) Two fixed bridges, railroad and highway, cross the river about 0.7 mile above the highway bridge at South Dennis. Least clearances are: 25 feet horizontal, and 8 feet vertical.

(116) In August 1981, it was reported that about 4 feet could be carried at high water to a marina and boatyard on **Kellys Bay**, about 0.3 mile above the railroad and highway bridges. A mobile lift at the yard can haul out craft to 28 feet for hull and engine repairs or dry open or covered storage. Gasoline, water, moorings, and berths are available. In August 1981, depths of 5 to 6 feet were reported at the boatyard.

(117) **Dogfish Bar**, an extensive shoal area off Bass River entrance, is covered 1 to 6 feet. A small breakwater, formerly used as a shelter for small craft, is on the easterly end of the bar, about 1 mile southeastward of Bass River West Jetty Light. The area around the breakwater and northeasterly of it has shoaled. Rocks awash at low water are about 0.4 mile northwestward of the breakwater. These rocks are marked by a private seasonal buoy. A fish haven, marked by a private buoy, is about 2 miles south of the breakwater, and a fishtrap marked by a private seasonal light is 1.8 miles southwest of the breakwater.

(118) **Parkers River**, about 1.2 miles west of Bass River, is entered between two jetties and extends 1.3 miles northward to **Seine Pond**. A motel on the east side of the entrance is prominent. Local knowledge should be obtained before entering the river. In February 1993, the entrance channel had a reported controlling depth of 3 feet. The entrance is reported to shoal quickly after dredging. A fixed highway bridge crosses the river about 1 mile above the entrance.

(119) Local fishermen and pleasure craft enter and moor in dredged slips on the east side of the river. An unnamed creek, about 0.2 mile above the mouth, leads westward 0.5 mile to **Lewis Pond.** Small craft can enter the creek only at high water. Small craft may enter the pond but there are no moorings or services available. A marina is on the east side of the river just below the highway bridge; berths are available.

(120) **Point Gammon**, 12 miles west-northwestward of Monomoy Point, is the eastern entrance point to Hyannis Harbor. The point, prominent and wooded, is marked by an abandoned lighthouse tower. A reef, partly bare at low water, extends about 0.3 mile south of the point. Extensive flats with rocks awash at low water extend 1 mile northwestward of the point. **Gazelle Rock**, covered 5 feet and marked by a seasonal lighted buoy, is about 0.5 mile south-southeastward of the point. **Senator Shoal**, covered 11 feet and unmarked, is about 1 mile southeastward of the point. **Hallets Rock**, covered 15 feet, is about 1 mile south of the point. In September 1990, a sunken wreck was reported about 0.2 mile southward of Hallets Rock in about 41°35.3′N., 70°15.7′W. A fishtrap marked by a private seasonal light is about 0.5 mile west of the point.

(121) **Bishop and Clerks**, about 2.2 miles southward of Point Gammon, is an extensive shoal area. The center of the shoal is marked by a daybeacon on a group of rocks where a lighthouse tower was formerly located. Several rocks awash at low water are on the arm of the shoal that extends about 0.9 mile south of the daybeacon. A rock, covered 5 feet, is 0.7 mile south-southeastward of the daybeacon. The rest of the shoal is covered 8 to 18 feet. A lighted gong buoy, about 1.15 miles southward; an unlighted buoy, about 0.75 mile westward; and a lighted bell buoy, about 0.7 mile northeastward of the daybeacon, mark the limits of the shoal area. Caution should be exercised when in the vicinity of this shoal.

(122) **Broken Ground**, a shoal area westward of the south end of Bishop and Clerks, has depths of 14 to 18 feet. **West Southwest Ledge**, 1.6 miles southwest of Point Gammon and northwest of Bishop and Clerks, has depths of 13 to 18 feet. A lighted bell buoy is northward of the ledge and marks the approach to Hyannis Harbor. A group of dangerous rocks and obstructions are on the edge of the flat that extends northwestward from Point Gammon and into the approach to Hyannis Harbor. An obstruction, reported in 1988 and covered 11 feet in about 41°37′03.8″N., 70°17′24.1″W., is the westernmost and marked close W by Hyannis Harbor Lighted Buoy 4.

(123) **Hyannis Harbor,** protected by a breakwater, is used as a harbor of refuge by coasting vessels and pleasure craft of less than 14-foot draft. A light is on the end of the breakwater. The harbor is the approach to Hyannis Port, on the west side of the harbor, Lewis Bay, and Hyannis at the head of the northwest arm of Lewis Bay.

(124) The most prominent objects when approaching the harbor are: the daybeacon on **Great Rock,** two red and white checkered standpipes, a light blue tank, the breakwater light, the abandoned lighthouse tower on Point Gammon, and the square gray stone church belfry on the hill overlooking Hyannis Port to the westward.

(125) Depths of 13 to 16 feet are in the approach channel, but it is somewhat obstructed by the flats extending westward from Point Gammon and an extensive shoal with numerous rocks extending southeastward from Hyannis Point. In October-November 1983, depths of 7 to 15 feet were available in the protected basin northward of the breakwater light.

(126) **Routes.**–Vessels approaching Hyannis Harbor from the eastward should shape a course to pass about 1,000 yards south of Hallets Rock, exercising caution to avoid the reported wreck mentioned earlier, thence about **317°** to a point about 0.6 mile southwestward of Great Rock Daybeacon 4A, and thence about **012°** to pass about 100 yards or more eastward of the breakwater light. Anchor 300 yards northeastward or northward of the east end of the breakwater in depths of 15 to 20 feet, soft bottom. Small craft can anchor in the northern portion of the harbor in depths of 6 to 12 feet, but care must be taken to keep clear of a charted, visible wreck and the area around a former wharf as submerged pilings may be encountered.

(127) Approaching from the westward, from a position about midway between Horseshoe Shoal Buoy 7 and Wreck Shoal Bell Buoy 8 (chart 13237), steer about **054°** to pass about 1400 yards east of Hodges Rock Buoy 2, and thence about **012°** to pass about 100 yards eastward of the breakwater light in entering the harbor. **Ice** seldom interferes with the movement of vessels in Hyannis Harbor during normal winters; the prevailing northerly winds keep the harbor clear. However, during severe winters or persistent southwesterly winds, the harbor may be temporarily closed to navigation. During particularly severe winters, the harbor has been closed by ice for up to 3 months. **Hyannis Port** is a summer resort with many prominent homes. A privately dredged channel, with reported depths of 6 feet in August 1981, leads to the Hyannis Port Yacht Club landing on the west shore of the harbor. A private seasonal buoy marks the channel.

(128) **Lewis Bay,** with depths of 2 to 11 feet, extends northeastward from Hyannis Harbor. In the northwest corner of the bay is

the channel to the summer resort of **Hyannis**. The town has a hospital. Hyannis Yacht Club is on the west of the bay. A channel, marked by private seasonal buoys, leads westward to Hyannis Yacht Club. The club has a launching ramp and can accommodate craft to 140 feet; a reported dockside depth of 8 feet is available.

(129) A dredged channel leads from Hyannis Harbor into Lewis Bay, thence to an anchorage basin north of **Harbor Bluff**, thence to the town wharf at Hyannis, at the westernmost end. In July-August 1991, the controlling depths were 10 feet to the anchorage basin, thence 8 feet in the anchorage basin except for lesser depths along the edges, thence 5½ feet to the town wharf. The channel is well marked but is subject to shoaling, especially in the vicinity of Lewis Bay Approach Channel Buoy 9. Heavy vessel traffic should be expected during summer months. A riprap jetty extends 1,000 feet southerly from **Dunbar Point**.

(130) Vessels entering Lewis Bay must be guided by the buoys marking the dredged channel and by the color of the water, deepest where it is darkest.

(131) **Anchorages.**-Vessels with drafts up to 13 feet may anchor in the anchorage northeast of Hyannis Breakwater. Small craft can anchor in Lewis Bay west of the channel, off Hyannis Yacht Club and north of Dunbar Point. Limited anchorage is reported available in the basin north of Harbor Bluff.

(132) Several small-craft facilities and launching ramps are along the northwestern arm of Lewis Bay northward of Harbor Bluff. (See the small-craft facilities tabulation on chart 13229 for services and supplies available.) Limited berths are also available at the town landing at the bulkhead on the west side at the head of the arm. A **dockmaster** is usually in attendance at this landing from 0900 to 1700 hours and can be reached by telephone (508-775-1120) for local information on moorings and berthings. The **harbormaster** can be contacted by telephone (508-790-6273), through the Barnstable police department (508-775-0387), or VHF-FM channels 16 and 9. A police boat from the town of Barnstable and a Yarmouth Harbor Patrol boat patrol Hyannis Harbor during the summer. A 6 mph **speed limit** is enforced in Lewis Bay north of Harbor Bluff and in Hyannis Harbor in the channel leading to the yacht club.

(133) Seasonal ferries to Nantucket and Martha's Vineyard berth in the harbor at Hyannis. Barnstable Municipal Airport is just north of the town.

(134) Westward of Hyannis Harbor breakwater the water is shoal with numerous rocks extending well offshore. **Eddie Woods Rock**, covered 5 feet and unmarked, is 0.6 mile southwestward of the breakwater light. A fishtrap marked by a private seasonal light is about 0.4 mile south of the rock.

(135) **Squaw Island**, 1 mile westward of Hyannis Harbor Breakwater Light 5, is marked by a tower. **Hyannis Point**, the southerly tip of the island, is on the eastern side of Centerville Harbor.

(136) Southward of Hyannis Point and Centerville Harbor are numerous shoals and rocks. **Southwest Ground**, the area about 1.5 miles south of Hyannis Point, has numerous rocks and shoal spots necessitating extreme caution for vessels navigating the area. **Southwest Rock**, about 1.1 miles south of Hyannis Point, is marked by a buoy. Unmarked rocks, some awash at low water and others covered 2 to 6 feet, are between the buoy and Hyannis Point.

(137) **Hodges Rock**, covered 5 feet and marked by a buoy, is 1 mile southward of Southwest Rock Daybeacon. An unmarked rock covered 8 feet is 300 yards east of Hodges Rock. **Bearse Rock**, covered 5 feet and marked by a buoy, is 0.5 mile southwestward of Southwest Rock Daybeacon. **Channel Rock**, covered 5 feet and marked by a buoy, is 0.4 mile west of Bearse Rock. **Gallatin Rock**, covered 4 feet and marked by a buoy, is 0.4 mile southwestward of Bearse Rock. **Collier Ledge**, 1.5 miles west-southwestward of Southwest Rock Daybeacon, is awash at low water. It is marked by a lighted buoy in the summer and an unlighted buoy in the winter.

(138) **Gannet Ledge**, covered 5 feet and marked by a buoy, is 1.1 miles southwest of Hyannis Point. **Gannet Rocks**, 0.3 mile north of Gannet Ledge, include two unmarked rocks 7 and 3 feet high and a rock covered 4 feet. **Spindle Rock**, awash at low water and marked by a buoy, is near the head of Centerville Harbor. A rock awash at low water and a rock covered 2 feet are 200 yards north of the buoy. Two unmarked rocks covered 6 feet are 1.7 miles southwestward of Hyannis Point.

(139) **Centerville Harbor** is a bight 2 miles wide in the north shore of Nantucket Sound westward of Hyannis Point. A church spire and an elevated tank in **Centerville**, the village inland from the head of the harbor, are used as guides for entering the harbor. **Craigville Beach**, on the north side of the harbor, is a popular bathing beach. The approach to Centerville Harbor is obstructed by the previously mentioned rocks and shoals. The natural channel with depths of 9 to 10 feet leads to the anchorage. Anchorage with good holding ground may be had in depths of 15 to 21 feet; however, vessels seldom anchor here for shelter as the harbor is exposed to southerly winds. The shoals off the entrance somewhat break the force of the seas from southward, but not sufficently to make it a safe anchorage. Strangers should not enter except in the daytime with clear weather. Ice closes the harbor in the winter.

(140) **East Bay**, on the west side of Centerville Harbor, has depths of 1 to 4 feet. Small pleasure boats enter the bay en route to Centerville River. The entrance to East Bay, protected by a jetty on the southwestern side, had a reported controlling depth of about 5 feet in August 1981, but is subject to shoaling. **Centerville River**, which enters the northeast side of the bay, has been privately dredged to a depth of 5 feet for a width of 40 feet practically to the head of navigation. In August 1981, a reported depth of about 3 feet could be taken over the bar into Centerville River. The pier ruins of a former footbridge are on either side of the river about 0.3 mile above East Bay. Small boats moor in the river off Centerville or tie up to private piers. A 6 mph **speed limit** is enforced in the river.

(141) A conspicuous stone tower with a mushroom-shaped top is on the north side of the river about 0.5 mile above the former footbridge. A town landing is on the north side just above the tower. A launching ramp is on the west shore of East Bay. A conspicuous wooden tower with a balcony on top is 0.3 mile southwestward of the jetty.

(142) **Cotuit Anchorage,** 6.5 miles west of Point Gammon, is an anchorage for small craft between the shoals which make off the shore. The anchorage is exposed to southerly winds and is seldom used except by local craft. The channel to the anchorage is marked by buoys, and vessels of less than 6-foot draft should experience no difficulty in keeping in the best water. **Lone Rock**, covered 4 feet and marked by a buoy, is near the southern side of the anchorage. A long shoal, covered 4 feet and marked by a buoy at its southeast end, is 0.5 mile northeastward of Lone Rock.

(143) **West Bay**, on the north side of Cotuit Anchorage and 19 miles west of Stage Harbor, has a jettied entrance about 150 feet wide and is the approach to the village of **Osterville**, on the east side of the bay. A private seasonal light marks the end of the east jetty. A seasonal lighted buoy about 1 mile southeastward of the entrance marks the approach, and an unlighted buoy marks a 4-foot shoal about 0.7 mile south of the entrance. Private seasonal

buoys mark the channel through West Bay. An elevated water tank, about 0.7 mile northward of the bridge at Osterville, is conspicuous. In August 1981, a reported depth of 6 feet was available in the channel to the highway bridge. The channel is subject to shoaling, and strangers should obtain local information before entering the bay.

(144) Anchorage in depths of about 6 feet may be found in the bay just northward of the highway bridge. **Ice** closes the bay for about 2 months each year. The wharves at Osterville have reported depths of 6 to 10 feet alongside.

(145) Small-craft facilities are on either side of the channel north of the highway bridge. Gasoline, diesel fuel, marine railways up to 60 feet, lifts up to 50 tons, berths, moorings, water, ice, marine supplies, storage facilities, and launching ramps are available; hull and engine repairs can be made. The Wianno Yacht Club is on the east side of the channel at the highway bridge. Berths are available on **Baxter Neck**, on the channel at the head of North Bay leading to **Prince Cove**.

(146) **Little Island**, about 1 mile northward of the entrance to West Bay, separates West Bay from **North Bay** to the northward. In August 1981, a reported depth of 5 feet was available in the narrow channel eastward of Little Island into North Bay. Strangers should obtain local information before navigating in North Bay, which has depths of about 6 to 17 feet. The **harbormaster** at Osterville can be contacted for local information on moorings and berthing; telephone (617-428-2017). A 6 mph **speed limit** is enforced in Cotuit, North, and West Bays by the police boat from the town of Barnstable.

(147) The highway bridge across the channel between Osterville and Little Island has a 31-foot bascule span with a clearance of 15 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) Advance arrangements for bridge openings can be made through the Department of Public Works.

(148) **Cotuit Bay**, northwestward of Cotuit Anchorage, is separated from West Bay by **Osterville Grand Island**. **Cotuit** is a village on the west side of the bay. A church spire and two elevated water tanks are prominent. A town wharf, with a depth of about 5 feet at its face, and a small-craft launching ramp are at the village. A privately dredged channel, with a reported depth of 4 feet in August 1981, leads from Cotuit Anchorage to off **Cotuit Highlands**, thence the channel, with a reported depth of 5 feet, curves between **Sampsons Island** and **Bluff Point** into Cotuit Bay. The approach is marked by a seasonal lighted bell buoy. The channels into Cotuit Bay and North Bay are marked by private seasonal buoys. A reported depth of about 8 feet was in the channel from Cotuit Bay to North Bay in August 1981. **Seapuit River**, south of Osterville Grand Island, connects Cotuit Bay and West Bay. The privately dredged channel in the river had a reported controlling depth of 5 feet in August 1981. Cotuit Bay is usually closed by **ice** each winter.

(149) **Popponesset Bay**, west of Cotuit Anchorage, is shoal with depths of 1 to 4 feet in the greater part of the bay. In April 1984, depths of less than 1 foot were reported in the entrance north of **Thatch Island**.

(150) A small marina is on **Daniels Island** near the bridge to **Popponesset Island.** A launching ramp, berths, water, and some services are available. A privately marked channel with a reported depth of about 3 feet leads to a marina on **Mashpee Neck.** Gasoline, berths, moorings, storage facilities, and engine repairs are available. A flatbed trailer at the marina can haul out craft to 30 feet.

(151) **Wreck Shoal**, about 3 miles south of Cotuit Anchorage, is about 1.4 miles long in an east-west direction and about 0.3 mile wide. Depths on the shoal range from 4 to 13 feet. A lighted bell buoy marks the east end of the shoal and another lighted bell buoy southwestward of the shoal marks the channel between Wreck Shoal and Eldridge Shoal. An unmarked shoal covered 8 to 15 feet is about 1.5 miles northeast of Wreck Shoal and southward of Cotuit Anchorage approach. Broken ground with a least known depth of 13 feet is between this shoal and Wreck Shoal.

(152) **Eldridge Shoal**, about 0.9 mile south of Wreck Shoal, is about 1 mile long in a northeasterly direction and about 0.2 mile wide. Depths on the shoal range from 5 to 14 feet. A buoy marks the northern side. A channel between Eldridge and Wreck Shoals has depths of 23 to 41 feet. A channel between Eldridge and Horseshoe Shoals has depths of 21 feet or more.

(153) **Succonnesset Shoal** extends about 2.4 miles westward from Wreck Shoal to the shoal area off the shore southwestward of **Succonnesset Point**. Depths of 1 to 5 feet are on the shoal. A lighted buoy is off the west end. Between Succonnesset and Wreck Shoals is a narrow unmarked channel. Between Succonnesset and L'Hommedieu Shoals, a shoal area with a least depth of 9 feet is marked by a buoy.

(154) **Waquoit Bay**, 5 miles southwestward of Cotuit Anchorage, has depths of 1 to 8 feet. The entrance, about 250 feet wide, is between two stone jetties. A private seasonal light marks the end of the easterly jetty. In 1971, the controlling depth in the entrance channel was reported to be 4 feet. A seasonal lighted bell buoy, about 0.6 mile west-southwestward of the jetties, marks the approach, and buoys mark a 5-foot channel for about 0.8 mile through the bay. The Waquoit Yacht Club is on the west side at the head of the bay.

(155) **Great River** and **Little River** empty into the southeasterly side of Waquoit Bay. A marina is on the west side of Little River, about 0.5 mile above its junction with Great River. Gasoline, berths, a 35-foot marine railway, limited marine supplies, a launching ramp, and storage facilities are available; hull and engine repairs can be made. A reported depth of about 3 feet can be carried to the marina.

(156) Between Waquoit Bay and Falmouth Inner Harbor about 3.6 miles to the westward, are several ponds formed by the barrier beach, some of which have outlets. Many jetties or groins are built out from the shore for beach erosion control.

(157) **Eel Pond**, about 0.8 mile westward of the entrance to Waquoit Bay, is entered through a narrow jettied entrance. A private seasonal light on the west jetty and a midchannel buoy about 500 yards southeastward of the light mark the approach. The privately marked channel into the pond had a reported controlling depth of less than 2 feet in March 1985. The channel is subject to shoaling; extreme caution and local knowledge is advised.

(158) A boatyard is on the west side of the northeasterly arm of Eel Pond at the mouth of **Childs River**. In August 1981, a depth of 4 feet was reported available from inside the jetties to the boatyard. Gasoline, diesel fuel, water, limited moorings and berthage, a 45-foot marine railway, storage facilities, and marine supplies are available at the boatyard; hull and engine repairs can be made.

(159) **Seapit River**, about 0.8 mile southward of the mouth of Childs River, connects the northeasterly arm of Eel Pond with the upper part of Waquoit Bay. A reported depth of about 3 feet can be carried in Seapit River. The river is marked by private seasonal buoys.

(160) **Menauhant** is a summer resort on the west side of Eel Pond and the east side of **Bournes Pond**. Menauhant Yacht Club is on the west side of Eel Pond. The entrance to Bournes Pond is reported closed to navigation by a fixed highway bridge.

(161) **Green Pond**, about 1 mile westward of Eel Pond and 4.2 miles eastward of Nobska Point, has a narrow jettied entrance, which in August 1981 had a reported controlling depth of 7 feet. The entrance is reported to shoal rapidly after dredging; local knowledge is advised. A private seasonal light marks the west jetty. A seasonal lighted buoy marks the approach, and private seasonal buoys mark the channel above the jetties.

(162) The village of **Davisville**, on the east side of Green Pond, and the village of **Acapesket**, on the west side of the pond, are principally summer resorts.

(163) Menauhant Road highway bridge crossing Green Pond about 0.3 mile inside the entrance has a 23-foot fixed span with a clearance of 5 feet. In August 1981, it was reported that 6 feet could be carried to a marina and boatyard on the east side at the bridge. The boatyard has a 30-ton mobile hoist that can handle craft for hull and engine repairs and dry open or covered storage. Gasoline, diesel fuel by truck, moorings, berths, water, ice, marine supplies, and launching ramps are available at both facilities.

(164) Moorings, berths, water, ice, marine supplies, and a launching ramp are also available at an outboard marina at the northwest end of the bridge.

(165) Chapter 5 describes other ports on the south side of Cape Cod westward of Green Pond.

(166) **Chart 13241.–Nantucket Island,** on the southeast side of Nantucket Sound, is about 13 miles long, hilly, partly wooded, and covered with vegetation that flourishes in sandy soil. The highest part of the island, about 100 feet high, is in the eastern part; the eastern and southern sides have steep and sand bluffs. The northern shore is fringed with shoals for a distance of about 1 mile. The island was for more than a century a principal seat of the whaling industry and since has become a famous summer resort.

(167) **Great Point**, the northeastern end of Nantucket Island, is a long, low, sandy point marked by **Nantucket (Great Point) Light** (41°23.4′N., 70°02.9′W.), 71 feet above the water and shown from a white tower.

(168) **Point Rip** is a shoal extending 3.8 miles east-northeastward of Great Point. For 2 miles from the point, the shoal has little water over it; farther eastward the depths range from 12 to 18 feet. Buoys mark the northeasterly and easterly sides of the shoal. Shoal water with depths of 16 to 22 feet extends about 1 mile northward from these buoys; a lighted bell buoy marks the northern side of the shoal water. A rock, covered 11 feet, is 2.2 miles southeastward of Nantucket Light.

(169) **Squam Head** is a summer resort on the east side of Nantucket Island, about 5 miles south of Great Point. Several large houses show prominently from seaward.

(170) **Sesachacha Pond**, 6.3 miles southeastward of Great Point, has a nonnavigable cut into it through the shore. From seaward, breakers mark the cut. In the winter the entrance fills in, and each spring it is cut through for drainage purposes.

(171) **Sankaty Head Light** (41°17.0′ N., 69°58.0′W.), 158 feet above the water, is shown from a 70-foot white tower, with a red band in the middle, on a high bluff on the east side of the island.

(172) **Siasconset**, a village on the southeast end of the island, is marked by a prominent standpipe. The village has seasonal bus service with Nantucket.

(173) The south shore of Nantucket Island has no harbors and is frequented only by local fishermen. A loran tower about 0.6 mile southward of Siasconset and a tank and several towers along the south coast are prominent from offshore.

(174) The thorofare between the western point of Esther Island and Tuckernuck Island is full of shifting unmarked shoals. The passage is used only by small fishing vessels and a few pleasure craft. Private seasonal aids mark the channel.

(175) **Tuckernuck Island, Esther Island,** and **Muskeget Island** are low sandy islands extending westward from Nantucket Island. They are separated by sandbars, some bare at low water, which are constantly shifting.

(176) **Madaket Harbor** and **Hither Creek**, immediately to the southward, are on the western side of Nantucket Island. Madaket Harbor is shoal with depths of 2 to 10 feet. The northerly approach to the harbor and creek is marked by a seasonal lighted bell buoy. The channel that leads southward from over the bar in Nantucket Sound is marked by private seasonal buoys, floats, and markers. With local knowledge, a depth of about 3½ feet can be carried over the bar and channel to Hither Creek. Local knowledge is also required to enter the harbor from the southwest. A public boat landing and a boatyard are in Hither Creek. Gasoline, berths, a 10-ton mobile hoist, storage facilities, ice, provisions, water, and marine supplies are available at the boatyard; hull and engine repairs can be made.

(177) **Chart 13242.–Nantucket Harbor** is near the middle of the north shore of Nantucket Island. A shallow lagoon about 5 miles long extends northeastward from the harbor. The harbor is the approach to the town of **Nantucket** on the western shore. The principal industry is fishing. Small coastal tankers carry fuel to Nantucket. Year-round passenger, vehicle, and cargo ferry service is maintained between Nantucket and the mainland, to either Woods Hole or Hyannis. A passenger ferry also operates from Falmouth and Oak Bluffs during the summer.

(178) Prominent from offshore are: a radio tower about 1.2 miles east of Madaket Harbor; a standpipe (chart 13241) about 1.5 miles west of Nantucket; a gilded cupola atop a church clock tower, and a church belfry about 500 yards northwestward of it; the spire of a large white church in the town; and the navigational lights at the entrance to Nantucket Harbor.

(179) **Brant Point Light** (41°17.4′ N., 70°05.5′W.), 26 feet above the water, is shown from a white cylindrical tower connected to the shore by a footbridge on the west side of the entrance to the harbor. A fog signal and radiobeacon are at the light. **Brant Point Coast Guard Station** is on the point.

(180) **Channels.**–A dredged channel leads from Nantucket Sound to deep water in Nantucket Harbor off Brant Point. In May 1992, the controlling depths were 14 feet (15 feet at midchannel) to Buoy 9, thence 14 feet in the west half and 12 feet in the east half of the channel except for lesser depths to 9 feet along the edges.

(181) Shoal water extends about 1 mile offshore on both sides of the entrance, which is protected by two breakwaters. The breakwaters are partially submerged at half tide. The east breakwater is submerged for almost all its length. An opening for small craft is in the east breakwater about 300 yards off **Coatue Point**. A light and fog signal mark the outer end of the east breakwater, and a buoy marks the outer end of the west breakwater.

(182) A lighted bell buoy about 900 yards off the breakwater light marks the approach, and the channel is marked by a **162°** lighted range and buoys.

(183) In 1981, a submerged obstruction was reported in the approach to Nantucket Harbor in about 41°23′24″N., 70°09′24″W.

(184) A 6 mph **speed limit** is enforced in the harbor.

(185) **Anchorages.**–Anchorage in Nantucket Harbor may be had in depths of 6 to 17 feet off the south and southwest sides of Brant Point or in depths of 12 to 17 feet in the general anchorage south of Brant Point. (See **110.1 and 110.142**, chapter 2, for limits

and regulations.) In general, the bottom is sticky. Although shelter is afforded to vessels it is advisable for small craft to use heavy tackle as the harbor becomes choppy with easterly winds. Caution should be exercised to avoid anchoring in the fairway and maneuvering area to the ferry wharf or the cable area northeast of Brant Point.

(186) The long sweep of strong northeast winds down the harbor makes anchorage for small craft off the wharves dangerous and uncomfortable. Small craft may find more sheltered anchorage under these conditions in Head of the Harbor (chart 13241) or, with local knowledge, in Polpis Harbor (chart 13241).

(187) Launch service is available to craft at moorings or at anchor in the harbor.

(188) **Routes** (chart 13237).–Vessels approaching Nantucket Harbor from Pollock Rip Channel can set a direct course from Handkerchief Shoal Buoy 14 (41°29.2′N., 70°05.1′W.) to the lighted bell buoy off the entrance. Approaching from the channel northward of Cross Rip Lighted Horn Buoy 21 (41°26.9′N., 70°17.5′ W.), pass to the eastward of Tuckernuck Shoal Lighted Bell Buoy 1, and then head for the lighted bell buoy off the entrance to Nantucket Harbor. In 1996, a visible wreck was reported 0.3 mile E of Tuckernuck Shoal Lighted Bell Buoy 1 in about 41°24′10″N., 70°09′53″W.

(189) **Tides and currents.**–The mean range of tide at Nantucket Harbor is 3 feet. The tidal current off the entrance has a velocity of 0.3 knot; the flood setting eastward and the ebb westward. The tidal current in the entrance channel sets into the harbor at a velocity of 1.2 knots and outward on the ebb at a velocity of 1.5 knots.

(190) **Weather, Nantucket and vicinity.**–The climate of Nantucket is influenced directly by the proximity of the ocean and is characterized by cool summers and comparatively mild winters. Extremes of either maximum or minimum temperatures are very rare. The mild temperatures of the winter season are neutralized to a degree by sustained periods of high wind. The summers, though cool, are very humid. Heavy fogs are frequent, particularly during the spring and summer. There is a marked lag in the seasons as compared with inland areas.

(191) July and August are relatively cool with average maximum temperatures around 75°F (23.9°C) and average minimums about 61°F (16.1°C). The average temperature for the island is about 50°F (10°C). January and February are the coldest months, having normal mean temperatures near freezing, that is, average maximum of 38°F (3.3°C) and average minimum of 25°F (-3.9°C). The extreme maximum temperature for Nantucket is 100°F (37.8°C) recorded in August 1975 while the extreme minimum is -3°F (-19.4°C) recorded in December 1962. An average year sees 100 days with temperatures below 32°F (0°C) and only one day with a temperature below 5°F (-15°C). Seldom do temperatures exceed 90°F (32.2°C), a fact which has occurred only during June, July, and August.

(192) The average wind velocity is about 11 knots with the highest monthly averages during December through April. Gales have occurred during every month except June and July. Coast storms are frequent during the winter with winds of 40 knots or more. Hurricanes, during the late summer and fall, may cause high winds. Since 1871, forty tropical storms or hurricanes have passed within 50 nautical miles of Nantucket. There have been ten direct hits. The latest was tropical storm Esther in 1961. Esther had been a 125-knot hurricane earlier, but was dissipating at the time it crossed the island.

(193) Precipitation is fairly evenly distributed throughout the year averaging about 41 inches (1041 mm) in any given year. An average of 180 days each year records precipitation with 28 days having greater than 0.50 inches (13 mm). The wettest month is December averaging 4.35 inches (111 mm) and the driest month is June averaging only 2.2 inches (56 mm). Total snowfall for the winter season averages about 30 inches (762 mm); however, melting is usually rapid and snow cover rarely lasts more than a very few days. The greatest snowfall in a 24-hour period was 14.9 inches (397) in February 1952. February is the snowiest month averaging nearly nine inches (229 mm). Snow is absent from May through September. An average five days each year records greater than 1.5 inches (38 mm) of snowfall. An average of 18 thunderstorms effect the island in a given year with the greatest frequency occurring during July and August. Fog is present about 200 days each year.

(194) Except in severe winter, the harbor is seldom closed by local formation of ice. However, the harbor is frequently closed by drift ice from the sound which packs and remains across the entrance during northerly winds.

(195) (See page T-1 for **Nantucket climatological table.**)

(196) Nantucket Boat Basin, on the west side of Nantucket Harbor, is entered about 0.4 mile south-southwestward of Brant Point Light. The basin is enclosed on the north and south sides by Straight Wharf and Commercial Wharf, respectively, and its entrance is protected by two long bulkheads on the east and southeast sides. Depths in the basin range from 3 to 10 feet. About 180 slips are available in the basin, and yachts 100 feet long and larger can be accommodated. The outer end of the north side of Straight Wharf is used by excursion boats. A private seasonal light is shown off the end of the wharf and is operated only when tour boats are approaching the wharf in fog. Gasoline, diesel fuel, and ice can be obtained on the south side of Commercial Wharf. Water and electricity are available at each slip. The basin's dockmaster has his office on the outer end of Commercial Wharf. The dockmaster can be contacted on VHF-FM channel 16.

(197) The Woods Hole-Martha's Vineyard and Nantucket Steamship Authority Wharf is about 0.1 mile northward of the boat basin. A private light is shown from the roof of a shed on the northeast end of the wharf, and is operated only when Authority vessels are approaching the wharf in fog. The submerged ruins of a pier which uncover at low water are between the boat basin and the Steamship Authority Wharf. A buoy marks the ruins. Unpainted pile dolphins mark the former pierhead. Mariners are advised to exercise caution in this area.

(198) A boatyard, about 0.2 mile southward of Nantucket Boat Basin, has moorings, gasoline, a 23-ton mobile hoist, storage facilities, water, and marine supplies; hull and engine repairs can be made. The channel leading to the boatyard, marked by private seasonal buoys, had a reported controlling depth of 6 feet in August 1981.

(199) Nantucket maintains ferry service with the mainland and daily airline service with New York and Boston. Seasonal bus and taxi service is also available.

(200) **Chart 13241.**–A narrow unmarked channel leads through the lagoon northeast of Nantucket Harbor to **Head of the Harbor.** In September 1981, a reported depth of about 3 feet could be carried with local knowledge as far as the village of **Wauwinet** on the southeast shore of Head of the Harbor. Unmarked shoals and foul areas extend off the several points.

(201) **Polpis Harbor** is at the east end of the harbor just south of Head of the Harbor. The entrance channel, marked by private seasonal buoys, had a reported controlling depth of 6 feet in March-April 1994.

(202) **Charts 13238, 13233, 13241, 13237.–Muskeget Channel** is an opening 6 miles wide on the south side of Nantucket Sound between Muskeget and Chappaquiddick Islands. The opening is full of shifting shoals. The best water is found close to the eastward of Wasque Shoal and about 1.5 miles eastward of the eastern shore of Chappaquiddick Island. Although this channel is partly buoyed, strangers should never attempt it as tidal currents with velocities of 2 to 5 knots make navigation dangerous. The currents through the channel are strong, having a velocity of 3.8 knots on the flood and 3.3 knots on the ebb about 1.5 miles east of Wasque Point. The flood sets north-northeastward and ebbs south-southwestward.

(203) **Wasque Shoal** extends southward of **Wasque Point**, the southeastern extremity of Chappaquiddick Island. The shoal, which dries about 2 miles south of Wasque Point, rises abruptly from the deep water of Muskeget Channel.

(204) **Mutton Shoal**, 0.6 mile east of Wasque Shoal, has a least depth of 5 feet and is marked on its southwestern side by a lighted bell buoy. The best water in Muskeget Channel is between Mutton and Wasque Shoals. Eastward of Mutton Shoal are numerous shoals covered 2 to 6 feet.

(205) Between Muskeget Channel and the main channel north of Cross Rip Shoal are numerous shoals, some of which are separated by unmarked channels. **Tuckernuck Shoal**, northeast of Muskeget Channel, has a least depth of 2 feet; it is marked on the northeastern end by a lighted bell buoy and a buoy on the northern side. **Shovelful Shoal**, westward of Tuckernuck Shoal, is covered 3 to 17 feet. **Long Shoal**, northwestward of Shovelful Shoal, is covered 3 to 16 feet. **Edwards Shoal**, south of Cross Rip Shoal, has a least known depth of 10 feet. **Norton Shoal**, southwestward of Cross Rip Shoal and covered 8 feet, is marked by a buoy on its north side. **Hawes Shoal**, westward of Norton Shoal, has a least depth of 1 foot; buoys mark its northwestern and southwestern ends.

(206) **Charts 13238, 13233.–Martha's Vineyard** and **Chappaquiddick Island** have a combined length of 18 miles; the two islands are separated by Edgartown Harbor, Katama Bay, and the narrow slough connecting them. The northern extremity of Martha's Vineyard is about 3 miles southeastward of the western end of Cape Cod. Martha's Vineyard is well settled, especially along its northern shore, and is popular as a summer resort. Along the northern shore the island presents a generally rugged appearance. The southern shore is low and fringed with ponds, none of which has navigable outlets to the sea. Approaching from the south, the principal landmarks are a standpipe at Edgartown, an aerolight near the center of the island, a church spire near **Chilmark** in the western part, a tall radar tower north of Chilmark, and Gay Head on the west side.

(207) Communication with the mainland is by ferry, airline, cable, and telephone. The principal towns are Edgartown, Oak Bluffs, and Vineyard Haven.

(208) **Cape Poge**, the northeastern point of Chappaquiddick Island, is a bare, bluff, precipitous head, which may appear from a distance to be a small island. **Cape Poge Light** (41°25.2′ N., 70°27.2′W.), 65 feet above the water, is shown from a white conical tower on the cape.

(209) **Cape Poge Flats**, extending about 1.5 miles northeastward from Cape Poge, are marked at the northeast end by a bell buoy. The southerly edge of the white sector of West Chop Light is about 0.9 mile north of the buoy. Shoal water extends about 0.4 mile offshore westward and northwestward of Cape Poge. A buoy, 1 mile west-northwestward of Cape Poge Light, marks the western side of the shoal water.

(210) **Cape Poge Bay**, a lagoon of considerable size in the northern part of Chappaquiddick Island, is entered from Edgartown Harbor. The unmarked entrance is used mostly by local pleasure and fishing craft. In September 1981, it was reported that 4 feet could be carried through the entrance channel with local knowledge.

(211) **Edgartown Harbor**, on the eastern side of Martha's Vineyard and westward of Cape Poge, is divided into an outer and an inner harbor. The outer harbor is used principally as a harbor of refuge in southerly and easterly winds and as a night anchorage. At the head of the outer harbor, a narrow arm makes southward into Katama Bay, forming the inner harbor. The inner harbor affords good anchorage and is the approach to **Edgartown,** a fishing and resort town on the western shore. Many yachts and pleasure craft use the harbor during the summer.

(212) **Katama Bay**, used by local fishermen and small pleasure craft, is large and shallow. Extensive shoaling has been reported in the southerly end of the bay. A 4 mph **speed limit** is enforced in the bay.

(213) **Prominent features.–Edgartown Harbor Light** (41°23.4′N., 70°30.2′ W.), 45 feet above the water, is shown from a white conical tower on the west side of the head of Edgartown outer harbor. Also prominent are: a wooden tower and several flagpoles about 0.2 mile northwestward of the light, a church belfry in the town and a microwave tower 1.3 miles to the southwestward, a standpipe about 1 mile southwestward of the light, and the numerous beach cabanas on Chappaquiddick Point.

(214) **Channels.**–The buoyed channel through the outer harbor is free from dangers and has depths of 20 to 37 feet until nearly up to Edgartown Light. Near the light the channel narrows and makes a sharp bend westward, leading to the wharves at the town. In October 1986, depths of 16 feet could be carried from the outer harbor to off the town. Abreast the town, the channel narrows and has depths of 13 to 31 feet. The channel then curves southward to Katama Bay. It is bordered on the eastern side by Middle Ground. Depths of 15 to 31 feet are found for about 1.2 miles south of the town. The southern half of Katama Bay is full of shoals, and is subject to frequent changes. Also subject to change is the shoreline between the southern part of Katama Bay and the ocean.

(215) **Anchorages.**–Anchorage with good shelter from easterly gales is found westward of Cape Poge on the eastern side of the outer harbor. In westerly and southerly gales vessels find shelter in the southern end of the outer harbor about 0.4 mile eastward or east-southeastward from Edgartown Light. In northerly or northeasterly gales vessels usually go to Woods Hole or Tarpaulin Cove for sheltered anchorage. Vessels should not anchor in the channel abreast the town where the bottom is hard sand, the channel narrow, and tidal currents strong. Southeast of the town, anchorage may be found south of Middle Ground in depths of 24 to 30 feet, sticky bottom.

(216) Small craft usually anchor in the **special anchorage** in the vicinity of Middle Ground. (See **110.1** and **110.38**, chapter 2, for limits and regulations.)

(217) **Dangers.**–On the western side of the outer harbor is a shoal area extending 2.8 miles northward of Edgartown Light. A seasonal bell buoy marks two 11-foot spots at the northern edge of the shoal; vessels entering or leaving the harbor pass eastward of this buoy. The depths over the remainder of the shoal are irregular, and there are a rock awash and several rocks covered 3 to 5 feet. Strangers should never attempt to pass across this shoal. The chan-

nel into Edgartown Harbor is marked by a lighted buoy and unlighted buoys.

(218) **Sturgeon Flats**, covered 2 to 18 feet, extend about 600 yards off the southeastern shore of the outer harbor between the narrow entrance to Cape Poge Bay and the entrance to the inner harbor.

(219) A sandbar is making off eastward from Edgartown Light. A buoy is on the eastern end of the shoal. Except for this shoal, the entrance to the inner harbor is not difficult to navigate. **Middle Ground**, in the inner harbor south of the town, has a least depth of 10 feet.

(220) **Routes** (chart 13237).–Vessels approaching Edgartown Harbor from the eastward, from a position about 400 yards north of Cross Rip Lighted Horn Buoy 21, can steer **267°**, heading for the standpipe on Martha's Vineyard southward of Oak Bluffs, passing northward of Muskeget Channel Bell Buoy 7. When Cape Poge Light bears 155°, head south-southwestward into the harbor.

(221) Vessels approaching from the westward and passing northward of Squash Meadow can head on a **180°** course from a position about 0.5 mile southward of Hedge Fence Lighted Gong Buoy 22 to enter the harbor. In the daytime, the channel southward of Squash Meadow is sometimes used. Strangers in sailing vessels seldom enter the inner harbor, as a fair wind is necessary to keep in the channel.

(222) **Tides and currents.**–The mean range of tide is 1.9 feet. The tidal current in the narrow part of the channel inside Edgartown Light and off the town has a double flood and a double ebb, and in general follows the direction of the channel. Near the middle of each flood or ebb period there is an approximate slack preceded and followed by maximum of velocity. The average velocity is about 1 knot. (See the Tidal Current Tables for predictions.)

(223) **Fogs** are prevalent during the summer and at times appear without warning. Drift ice from the sound, driven into the entrance by the wind, obstructs the entrance to sailing vessels during a part of the winter. It is reported that the harbor is normally closed by ice during January and February. The Chappaquiddick ferry channel is usually kept open. The tidal currents keep the inner harbor open except for a few days at a time during severe winters.

(224) There are no pilots for Edgartown Harbor. Tugs are seldom used, and none is available. Fishing craft or the harbormaster's vessel will act as tugs in an emergency.

(225) The **harbormaster** has control of the anchorage of vessels in the harbor. He will usually be found at the Edgartown Yacht Club and can be contacted by radiotelephone on VHF-FM channel 16 or by telephone (617-627-4746). Copies of harbor regulations may be obtained from the harbormaster.

(226) The depth at the Town Wharf is 25 feet. Depths at the other wharves are about 11 feet. A marina, boatyard, and a yacht club are at Edgartown. The boatyard has a marine lift that can handle craft to 9 tons for hull and engine repairs and dry open or covered storage. Gasoline, diesel fuel, water, ice, marine supplies, and moorings are available. Launch service to moored craft is available.

(227) A small ferry operates between Edgartown and Chappaquiddick Island. No schedule is maintained, but the ferry runs on call. There is seasonal bus service to Oak Bluffs, Vineyard Haven, and other island points. Ferries connect Oak Bluffs and Vineyard Haven with Woods Hole, Falmouth, Hyannis, and Nantucket.

(228) **Sengekontacket Pond**, about midway between Edgartown and Oak Bluffs, has two entrances which are subject to shoaling. The southerly entrance is the main entrance and had a reported controlling depth of 10 feet in August 1981. There are no public landings in the pond, and it is used by local and fishing craft only. The south entrance is crossed by a fixed highway bridge with a 13-foot span and a clearance of 5 feet. The fixed highway bridge over the north entrance also has a clearance of 5 feet.

(229) **Squash Meadow** is a shoal south of the main channel through Nantucket Sound and about 4 miles northwest of Cape Poge. The hard sand shoal has depths of 5 to 16 feet and is marked on its southeastern end by a bell buoy and on its western end by a buoy.

(230) **Harthaven** is a small pond northward of Sengekontacket Pond. The entrance is through a privately dredged channel between two short jetties. In 1976, depths of 4 feet were reported in the entrance. The pond has depths of 2 to 6 feet. There are no services or landings in the pond.

(231) **Lone Rock**, covered 4 feet and marked by a buoy, is 350 yards offshore about 750 yards southeastward of Oak Bluffs wharf.

(232) **Rhode Island Rock**, covered 9 feet, is about 700 yards northward of the breakwater light.

(233) **Oak Bluffs Harbor**, 4.8 miles northwestward of Edgartown Harbor Light, is a landlocked basin frequented by pleasure craft and some fishing vessels. The entrance is protected by two breakwaters. A light is on the end of the north breakwater. **Oak Bluffs** is a summer resort and fishing village on the harbor. Prominent are a church dome and a cupola in the village and the bluff north of the entrance.

(234) In September 1981, the entrance channel had a reported controlling depth of 9 feet, thence depths of 11 feet were reported in the harbor. Numerous submerged rocks, covered 10 to 15 feet, are in the harbor approach, in an area within 0.4 mile of shore bounded on the north by a line extending northeasterly from the breakwaters and on the south by Lone Rock. A submerged obstruction, covered 9 feet, is reported in this area in about 41°27′37″N., 70°33′04″W. A buoy is about 75 yards southwest of the obstruction. The chart is the best guide for approaching the harbor, however, it is advised that mariners transiting the area exercise extreme caution as other uncharted rocks may exist.

(235) East Chop Yacht Club is on the north side of the harbor, and several private piers are on the west side. The town wharf extends along the bulkhead on the south and east sides of the harbor. The town maintains berths with electricity, a launching ramp, and guest moorings. Gasoline, diesel fuel, water, ice, and some marine supplies are available.

(236) Martha's Vineyard hospital is on the beach road close westward of the town. The **harbormaster** is at the town wharf; telephone (617-693-0920 or 617-693-0737).

(237) A no-wake **speed limit** is enforced in the harbor.

(238) Oak Bluffs Wharf, about 0.2 mile southward of the breakwater light, is reported to have a depth of 13 feet at the head. Several obstructions with lesser depths have been reported about 400 yards northeast of the wharf face. A private seasonal light and fog signal are operated from the seaward end of the wharf when ferry vessels are approaching the wharf in fog. There is seasonal ferry service from the wharf to Woods Hole and Nantucket. Seasonal ferry service is also maintained between Falmouth and Hyannis. The ferries from Falmouth and Hyannis berth alongside the bulkhead on the east side of the harbor. Seasonal bus service connects most places on the island. There is air service from Martha's Vineyard Airport about 4.5 miles southwestward of the town.

(239) A 530-foot groin, marked at its outer end by a daybeacon and partially submerged at high water, is about 650 yards south of the ferry wharf; caution is advised.

(240) Other ports on the north side of Martha's Vineyard, westward of Oak Bluffs Harbor, are described in chapter 5.

5. VINEYARD SOUND AND BUZZARDS BAY

(1) This chapter describes Vineyard Sound and Buzzards Bay following the Massachusetts coast of Vineyard Sound, the northwestern shore of Martha's Vineyard, the eastern shore of Buzzards Bay, the Cape Cod Canal, and the western shore of Buzzards Bay. Also described are Woods Hole, Cuttyhunk, Onset, Wareham, and the port of New Bedford, as well as the numerous fishing and yachting centers along the sound and bay.

(2) **COLREGS Demarcation Lines.**–The lines established for this part of the coast are described in **80.145,** chapter 2.

(3) **Charts 13230, 13237, 13218.**–Vineyard Sound and Buzzards Bay are deep and easily navigated day or night. Vineyard Sound, together with Nantucket Sound, provides an inside route from New York to Boston which avoids Nantucket Shoals. Buzzards Bay, together with Cape Cod Canal and Cape Cod Bay, provides the shortest deep-draft route between New York and Boston.

(4) **Vineyard Sound** is bounded on the north by the southwestern part of Cape Cod and the Elizabeth Islands, and on the south by part of Martha's Vineyard, which presents a rugged and generally inaccessible shoreline. To the west, it joins Rhode Island Sound on a line between Cuttyhunk Island and Gay Head. To the east, it joins Nantucket Sound on a line between Nobska Point and West Chop and provides an inside passage clear of Nantucket Shoals. The navigational aids are colored and numbered for passing through the sound from the eastward. The channel through the sound is well marked and generally free of dangers.

(5) Deep-draft vessels entering or leaving Vineyard Sound should stay at least 3.5 miles southward of the southwest end of Cuttyhunk Island and pass southeast of "NA" buoy.

(6) **Anchorages.**–Woods Hole is the only anchorage providing shelter from all winds for vessels drawing more than 10 feet. In northerly and westerly winds, good anchorage may be had in Tarpaulin Cove. In southerly winds, shelter can be had in Menemsha Bight, although Vineyard Haven is generally used. Several general anchorages are in Vineyard Sound. (See **110.1 and 110.140 (c) (1), (c) (2), and (d),** chapter 2, for limits and regulations.)

(7) With southerly or westerly gales, there is a heavy sea in the westerly entrance to the sound, and a heavy sea occurs at times off the entrance of Quicks Hole. To avoid this, Quicks Hole is frequently used, especially by sea tows.

(8) **Tides and currents.**–The mean range of tide in Vineyard Sound varies from 1.4 feet at West Chop to 2.9 feet at Gay Head. The time of current becomes somewhat earlier from Hedge Fence westward through Vineyard Sound. The current velocity increases from 1.4 knots at Hedge Fence Lighted Gong Buoy 22 to about 3 knots off West Chop Light, and then gradually diminishes to 1.2 knots off Gay Head Light. (See "Current Diagram-Vineyard and Nantucket Sounds" in the Tidal Current Tables, and the Tidal Current Charts, Narragansett Bay to Nantucket Sound, for the hourly velocities and directions of the current.)

(9) At the western entrance to Vineyard Sound, west-northwestward of Gay Head Light, the tidal current is rotary, turning clockwise. The velocity is only 0.2 to 0.5 knot. Since the tidal current is weak, winds greatly affect it and the current frequently sets approximately with the winds.

(10) **Weather, Vineyard Sound, Buzzards Bay and vicinity.**–Buzzards Bay is open to winds out of the south and southwest, which are common from spring through fall. Winds increase as they move from the surrounding land out over the Bay. Its northeast-southwest orientation causes southwesterlies to strengthen as they funnel up from the mouth of the Bay to its head. The result is that speeds are often double those at nearby land stations and southwesterlies may prevail even when land stations are reporting west or northwest winds. However, as a general rule southwesterlies blow harder close to the Elizabeth Islands than in the middle of the Bay. The relatively shallow water of the Bay increases the steepness of waves and their closeness to one another; this can cause a stiff chop. With southerly or westerly gales there is a heavy sea in the westerly entrance to Vineyard Sound and heavy seas occur at times off the entrance to Quicks Hole.

(11) **Charts 13238, 13233, 13229.–East Chop** and **West Chop** are prominent points on the north side of Martha's Vineyard and on the east and west side of the entrance to Vineyard Haven. Both points terminate in high wooded bluffs which show prominently from the sounds; each is marked by a light.

(12) **West Chop Light** (41°28.8′N., 70°36.0′W.), 84 feet above the water, is shown from a white conical tower at the summit of West Chop. A fog signal is sounded from the light station.

(13) A lighted gong buoy, 0.5 mile northeastward of the light, and a buoy, 0.5 mile eastward of the light, mark shoal water and rocks awash to the eastward of West Chop. It has been reported that during strong tidal currents, the buoy may be submerged.

(14) **Alleghany Rock**, covered 6 feet and marked by a buoy, is 700 yards northward of West Chop Light.

(15) **East Chop Light** (41°28.2′N., 70°34.1′W.), 79 feet above the water, is shown from a white tower on the east side of the entrance to Vineyard Haven. **East Chop Flats**, covered 5 to 18 feet, extend 0.2 mile northward and 0.5 mile eastward of East Chop. A lighted bell buoy, about 0.5 mile east-northeastward, and a buoy, about 350 yards northward of the light, mark the flats.

(16) **Vineyard Haven Harbor** is a funnel-shaped bight in the northern side of Martha's Vineyard between East Chop and West Chop, about 1.4 miles long in a southwest direction and about 1.3 miles wide at the entrance. This haven, easy of access, is the most important harbor of refuge for coasters between Provincetown and Narragansett Bay. The depths range from 46 feet at the entrance to 15 feet near the head of the harbor.

(17) Although Vineyard Haven Harbor is exposed to northeasterly winds, vessels with good ground tackle can ride out most blows. The greatest danger encountered by vessels at anchor in a northeast gale is from vessels with poor ground tackle, which are likely to drift, foul other vessels, and then go ashore.

(18) The harbor is the approach to the village of **Vineyard Haven**. A detached breakwater, marked on its southeastern end by a light, is on the flats on the western side of the harbor near the head; a privately maintained fog signal is at the light. The fog signal and a private light, on the southeast corner of the ferry wharf at the head of the harbor, are activated when a ferry approaches the slip in a fog.

(19) **Channels.**–The natural channel is clear; soundings are the best guide for finding anchorage. When well inside the entrance,

the water shoals gradually toward the western shore, but the eastern shore is steep and should be given a berth of about 0.2 mile. Channel depths of 16 feet or more are available to the ferry wharf at Vineyard Haven.

(20) **Anchorage.**–Vessels anchor according to draft, anywhere from the points at the entrance to the head of the harbor. Shallow-draft vessels favor the western shore.

(21) Vessels entering the harbor with a head wind or light breeze, at the end of a favorable current through the sound, should continue on in the channel until the harbor is well opened before standing in for the anchorage. This will help clear the entrance points. Approaching from the eastward, vessels will keep clear of Squash Meadow and East Chop Flats by keeping in the white sector of West Chop Light. Good anchorage is northeastward of the breakwater buoy in 20 to 23 feet. The anchorage basin behind the breakwater has depths of 5 to 12 feet and is usually filled to capacity during the summer. When anchoring in the harbor, care must be taken to avoid obstructing the approach to the ferry slip and the approach to the oil wharves on the southerly side of the harbor.

(22) **Dangers.**–Flats, partly bare at low water and marked by a buoy, make off 300 yards from the eastern shore of the harbor about 1 mile inside East Chop Light. A rock, covered 9 feet and marked by a buoy, is 0.3 mile northward of the breakwater light.

(23) **Tides and currents.**–The mean range of tide is 1.7 feet. The tidal currents have little velocity in the harbor; however, care should be taken on the ebb, which sets westward, not to approach too closely to West Chop as the current in that vicinity sets on the ledges eastward and northward of the point.

(24) The **harbormaster** has control of the anchoring of vessels in the inner harbor; he will usually be found at the town dock on the west side of the harbor and can be contacted by radiotelephone on VHF-FM channel 16, or by telephone (617-693-1368). A 4 mph **speed limit** is enforced inside the breakwater and within 150 feet of moored craft.

(25) Pilots are not available at Vineyard Haven. A twin-screw, 500-hp tug, also equipped for salvage work, is based in the harbor.

(26) The ferry wharf at the head of the channel has a depth of 24 feet reported at the outer face. The ferry slip is on the north side and inshore end of the wharf. A private light is on the northeast corner of the wharf. The light and a private fog signal, on the southeastern end of the breakwater, are activated when a ferry is approaching the slip in a fog. Several other wharves, two marinas, and a boatyard are in the harbor. A yacht club is on the west side of the harbor, about 0.3 mile northward of the breakwater. (See the small-craft facilities tabulation on chart 13229 for services and supplies available.)

(27) Guest moorings, maintained by the town, are available off the municipal wharf, 200 yards northward of the ferry wharf; other moorings can be hired from the boatyard and marinas.

(28) The Martha's Vineyard Hospital is on the beach road near Oak Bluffs.

(29) The Woods Hole-Martha's Vineyard and Nantucket Steamship Authority maintains year-round ferry service from Woods Hole. Air service is available from Martha's Vineyard Airport, about 4 miles south of the town.

(30) **Lagoon Pond**, eastward of the town of Vineyard Haven, has its entrance about 0.5 mile northeastward of Vineyard Haven Breakwater Light. A short jetty, marked by a light, extends from the northwestern end of the jutting point on the northerly side of the entrance. In March 1992, the controlling depth through the entrance was 6½ feet. The channel is marked by private buoys. The pond, used by local and fishing craft, has depths of 5 to 25 feet with shoaler depths near the shore. **Robbins Rock** is off the west shore, about 1 mile above the bridge. The highway bridge across the entrance has a 30-foot bascule span with a clearance of 15 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) Advance arrangements for bridge openings can be made by contacting the harbormaster or drawtender (telephone: 617-693-1212).

(31) **Charts 13230, 13229.–Falmouth Harbor,** the open roadstead off the south shore of Cape Cod eastward of Nobska Point Light, affords an anchorage for vessels in 24 to 36 feet about 0.8 mile from shore. Smaller vessels can anchor closer to the shore in 15 to 18 feet. The bottom is generally sticky and good holding ground; the depths shoal gradually toward the shore. The anchorage affords a lee in northerly winds; in southerly winds the sea is somewhat broken by L'Hommedieu Shoal and the shoals westward of it so that a vessel with good ground tackle can ride out a gale in comparative safety. (See **110.1 and 110.140 (c) (5), and (d)** chapter 2, for limits and regulations of the anchorage area.)

(32) Falmouth Harbor is frequently used by vessels with good ground tackle that prefer this anchorage to the anchorage in Vineyard Haven Harbor, which may be crowded in bad weather. Vessels approaching the anchorage are cautioned to stay clear of the two shoal areas with depths of 10 to 16 feet marked by buoys which extend westward of L'Hommedieu Shoal.

(33) Vessels can enter Falmouth Harbor from the southward on a course of **344°** with West Chop Light astern, and pass about 0.1 mile westward of Falmouth Harbor East Shoal Buoy 17. Vessels in the vicinity of Nobska Point Light can pass 0.4 mile eastward of the light on a north-northeasterly course, and when Tarpaulin Cove and Nobska Point Lights are nearly in range, stand eastward to an anchorage. In November 1987, a sunken wreck was reported 1 mile east of Nobska Point Light in about 41°31′00″N, 70°38′00″W.

(34) **Falmouth Heights**, about 3 miles east-northeast of Nobska Point Light and east of the town of **Falmouth**, is a prominent yellow bluff on the summit of which are numerous homes and a large hotel.

(35) **Falmouth Inner Harbor**, westward of Falmouth Heights, is a dredged basin about 0.7 mile long and less than 0.1 mile wide, on the north side of Falmouth Harbor. A tall green standpipe, about 1.5 miles westward of Falmouth, is one of the most prominent landmarks in this vicinity. The yacht club dock and flagpole, just inside the entrance on the east side of the harbor, are conspicuous from close inshore. The harbor is entered through a dredged channel between two jetties; a light marks the end of the west jetty. In May 1989, the controlling depth was 6½ feet (8 feet at midchannel) in the entrance channel, thence 7 feet (8 feet at midchannel) in the inner harbor. Depths of less than 6 feet were in the NW portion of the inner harbor.

(36) **Tides and currents.**–The mean range of tide at Falmouth Heights is 1.3 feet. The tidal current in the sound about 1.5 miles south of the harbor sets east-northeastward on the flood at a velocity of 2.3 knots, and west-southwestward on the ebb at 1.7 knots.

(37) There are several small-craft facilities in Falmouth Inner Harbor. (See the small-craft facilities tabulation on chart 13229 for services and supplies available.) The **harbormaster** is at the town-operated Falmouth Marina, on the west side halfway up the harbor; telephone (617-548-9796). The harbormaster monitors VHF-FM channels 16, 12, and 9. A ferry operates in the summer to Oak Bluffs from the wharf at the head of the harbor.

(38) **Nobska Point**, about 29 miles westward of Monomoy Point, is a bluff with **Nobska Point Light** (41°30.9′N., 70°39.4′W.), 87 feet above the water, shown from a white tower,

at the south end. A fog signal is at the light. **Nobska Point Ledges,** partly bare at low water, extends 150 yards eastward and southwestward from the point.

(39) **Charts 13233, 13229.–Middle Ground,** covered 4 to 17 feet, is the easterly half of a narrow, somewhat shifting ridge that extends for about 9 miles westward from a point about 0.5 mile northwestward of West Chop Light. A buoy is at the northeast end, and a lighted bell buoy off the southwestern end.

(40) **Lucas Shoal**, covered 12 to 18 feet, is the southwestern end of the ridge. It is separated from the Middle Ground by a natural channel with a depth of 31 feet. A buoy marks the southwestern end of the shoal.

(41) **Lake Tashmoo**, a landlocked pond on the northwest side of Martha's Vineyard, is entered through a narrow jettied entrance which had a reported controlling depth of 2½ feet in September 1981. The lake, only used by local craft, has general depths of 3 to 10 feet. A private seasonal light marks the east jetty and private seasonal buoys mark the channel through a shoal area just inside the entrance.

(42) A 4 mph **speed limit** is enforced in the pond. Anchoring is prohibited in the entrance channel.

(43) A small boatyard is on the easterly side of the lake; a flatbed trailer can handle craft up to 30 feet for hull and engine repairs. Guest moorings and limited supplies are available.

(44) **Norton Point** and **Cape Higgon** are prominent bluffs on the northwest side of Martha's Vineyard about 3 and 8 miles, respectively, southwestward of West Chop Light.

(45) **Menemsha Bight**, on the northerly side of the western end of Martha's Vineyard 2.5 miles east of Gay Head, affords shelter from southerly and easterly winds in depths of 25 to 60 feet, sticky bottom. (See **110.1 and 110.140 (c) (1) and (d)**, chapter 2, for limits and regulations for the anchorage area.) There are no dangers in the bight if the shore is given a berth of 0.3 mile.

(46) **Menemsha Creek,** on the northwestern shore of Martha's Vineyard and about 3 miles eastward of Gay Head Light, is entered from Menemsha Bight through a dredged channel that leads southeastward to **Menemsha Basin**, on the north shore just inside the entrance. From the basin, the dredged channel continues southward through the creek to Menemsha Pond, about 1 mile above the entrance. The entrance to the creek is protected by jetties. The east jetty is marked by a light. A bell buoy, about 300 yards northwestward of the light, marks the channel approach, and buoys and daybeacons mark the channel.

(47) In May 1986, the controlling depth was 8 feet to Menemsha Basin, thence depths of 2 feet could be carried to Menemsha Pond; depths of 6½ to 10 feet were available in the larger northwestern part of Menemsha Basin and 3½ to 5 feet in the smaller southeastern part, except for shoaling to 1 foot in the southeastern corner. The channel south of Menemsha Basin is reported to shoal rapidly after dredging; mariners are advised to seek local knowledge before attempting to go beyond Menemsha Basin.

(48) **Menemsha** is a small fishing village on Menemsha Basin. **Menemsha Pond**, a rectangular basin about 1 mile long and 0.7 mile wide, has general depths of 2 to 18 feet, with the deepest water in the southern half of the pond.

(49) **Tides and currents.**–The mean range of tide in Menemsha Bight is 2.7 feet. The tidal currents through the entrance have an estimated velocity of 3 knots or more. Slacks are reported to occur 45 minutes after local high and low waters.

(50) Guest moorings are available in Menemsha Basin, and anchoring is permitted in the pond. Berths are also available at the public facilities at Dutcher Dock, on the northeast side of the basin. Commercial fishing and charter boats berth at the dock or at the private piers on the west side of the basin. **Menemsha Coast Guard Station** is on the south side of the basin. The **harbormaster** controls all berthing and mooring in the basin. The harbormaster has an office at Dutcher Dock and can be contacted by radiotelephone on VHF-FM channel 16 or by telephone (617-645-2846).

(51) A marina is on the east side of Menemsha Basin. Repairs and hauling of craft to 45 feet can be arranged. Gasoline, diesel fuel, water, ice, launching ramp, and marine supplies are available.

(52) Seasonal bus service is available from Menemsha to Vineyard Haven and other points on the island.

(53) **Gay Head**, the westerly end of Martha's Vineyard, is a prominent high bluff. It is marked by **Gay Head Light** (41°20.9′ N., 70°50.1′W.), 170 feet above the water, shown from a 51-foot red brick tower on the head. A lighted gong buoy is 1.6 miles northwestward of the light.

(54) **Devils Bridge** is a reef making off 0.8 mile northwestward of Gay Head. The reef has a depth of 2 feet about 0.4 mile offshore and 17 feet at its end.

(55) **Nomans Land**, about 5.5 miles southward of Gay Head, is a prominent, high, and rocky island. Except for a small section on its northwestern side, the shore consists of clay and gravel cliffs 10 to 18 feet high with boulders lining the shores. In the interior of the island are many hills, the highest over 100 feet high, with considerable marshy area between the hills. A **danger zone** surrounds Nomans Land. (See **334.70**, chapter 2, for limits and regulations.)

(56) Several sunken rocks and ledges are in the passage between Nomans Land and Martha's Vineyard. **Lone Rock**, covered 8 feet, and **Old Man**, a ledge covered 4 feet, are marked by buoys. A buoyed channel about 0.7 mile wide between the islands may be used by small vessels in the daytime. Shoal water extends 0.5 mile southward of **Squibnocket Point,** the southernmost point of Martha's Vineyard.

(57) **Charts 13230, 13229.–Elizabeth Islands**, including Nonamesset, Uncatena, Weepecket, Naushon, Pasque, Nashawena, Penikese, and Cuttyhunk Islands, extend about 14 miles west-southwest from the southwest end of Cape Cod. The islands, forming part of the northern shore of Vineyard Sound, separate the sound from Buzzards Bay. They are hilly and partly wooded; the shores are, in general, low bluffs. Westward of Woods Hole are several buoyed channels between the islands, but Quicks Hole is the only one recommended for strangers.

(58) **Charts 13235, 13229.–Woods Hole** is that water area lying between the southwest tip of Cape Cod and Uncatena and **Nonamesset Island**, the easternmost of the Elizabeth Islands, with Buzzards Bay on the northwest and Vineyard Sound on the southeast; it includes Great and Little Harbors in the eastern part, and Hadley Harbor in the western part. Woods Hole is also the approach to the town of **Woods Hole** on the northeastern shore of Great Harbor. The town is a busy commercial center and a transshipping point for passengers and freight to and from Nantucket and Martha's Vineyard. During the summer it is an active resort and frequently a port of call by yachts passing through to Vineyard Sound or Buzzards Bay. The deepest draft entering Great Harbor in 1981 was 14 feet. There is considerable waterborne commerce in seafood products and general cargo.

(59) **Prominent features.**–The most prominent landmark approaching Woods Hole is Nobska Point and light. A light marks

the south end of **Juniper Point**, the finger of land separating Little and Great Harbors. Also prominent is the house high on Juniper Point, a standpipe 2.2 miles northward of Nobska Point, a water tower and stacks in the town, the dome of the Woods Hole Oceanographic Institution, and the buildings of the National Marine Fisheries Service and the Marine Biological Laboratory.

(60) **Channels.–Woods Hole Passage**, a dredged section through the northern part of Woods Hole, connects Vineyard Sound and Great Harbor with Buzzards Bay, and consists of **The Strait** and a spur channel known as the **Branch** at the western end of The Strait, and **Broadway**, the southerly entrance to The Strait from Vineyard Sound. In August 1989, the controlling depths were 13 feet in The Strait, except for shoaling to 11 feet near the north edge of the channel between Buoys 2 and 6, 12 feet (13 feet at midchannel) in the Branch, and 11 feet in Broadway. The northerly entrance from Great Harbor into The Strait is preferred over Broadway with its sharp turn, which is difficult in strong currents, especially for low-powered vessels and vessels under sail.

(61) The passage through Woods Hole, between numerous ledges and shoals, is marked by navigational aids. However, tidal currents are so strong that the passage is difficult and dangerous without some local knowledge. Buoys in the narrowest part of the channel sometimes are towed under, and a stranger should attempt passage only at slack water.

(62) The entrance to **Great Harbor** from Vineyard Sound, between Great Ledge and Nonamesset Shoal, has depths of over 20 feet. A **344°** lighted entrance range leads into the harbor from Vineyard Sound to the wharves at Woods Hole in Great Harbor. A lighted bell buoy marks the entrance and lighted and unlighted buoys mark the channel. When entering on the range, mariners should guard against the current from Buzzards Bay, which has a tendency to set vessels eastward.

(63) The deepest draft using the passage is 11 feet. These channels are marked by buoys and lights, but extreme caution and slack water are required to safely navigate them with drafts greater than 8 feet. Mariners entering from Buzzards Bay should keep in mind that the buoys are colored and marked for passage from Vineyard Sound to Buzzards Bay.

(64) **Anchorages.**–(See **110.1 and 110.140 (c) and (d)**, chapter 2, for limits and regulations of the deepwater anchorages in the vicinity of Woods Hole.) An anchorage about 0.2 mile square, with poor holding ground and irregular depths ranging from 20 to 60 feet, is at the head of Great Harbor. Shoals covered 5 to 9 feet are northwest of the anchorage. Good anchorage in depths of 30 to 48 feet is also available about 200 yards northwest of the National Marine Fisheries Service's wharf. Small craft can find good anchorage in Little Harbor and Hadley Harbor.

(65) **Dangers.**–Numerous ledges and shoals border the channel through Woods Hole. **Great Ledge**, an extensive rocky shoal awash at low water with a full northwest gale, lies between the entrances to Little and Great Harbors; it is marked by a buoy. **Coffin Rock**, eastward of Great Ledge and covered 6 feet, is marked by a lighted buoy 120 yards eastward of it. **Nonamesset Shoal**, covered 11 feet, extends about 0.2 mile eastward from Nonamesset Island, at the entrance to Great Harbor. **Parker Flats** extend as much as 150 yards off the eastern shore of Great Harbor northward of Juniper Point. Most of these dangers are marked by buoys.

(66) Fringing the passage westward of Great Harbor are many other ledges and shoals. **Red Ledge**, grassy, and **Grassy Island**, with its surrounding ledge marked by a light, are on the western side of Great Harbor Channel. In 1997, a dangerous wreck was reported 250 yards north-northeastward of Grassy Island Ledge Light in about 41°31′24″N., 70°40′32″W. **Middle Ledge**, which uncovers 1 foot in places and is marked by buoys, is on the south side of The Strait. A ledge, awash at low water and marked by a light, is about 250 yards westward of Middle Ledge. **Hadley Rock**, covered 5 feet, is some 500 yards west-southwestward of the light west of Middle Ledge. A rocky shoal area extends more than 0.3 mile westward of **Penzance Point**, the southern extremity of **Penzance**, which is the curving peninsula sheltering the west and northwest sides of Great Harbor. Most of the dangers adjoining the passage channel are marked by navigational aids.

(67) In October 1985, a sunken wreck was reported about 0.3 mile west of Penzance in about 41°31.4′N., 70°41.7′W.

(68) **Tides and currents.**–The mean range of tide is 1.4 feet off Little Harbor, about 1.8 feet off Woods Hole Oceanographic Institution, and 3.6 feet off Hadley Harbor. Strong northwesterly winds may lower the water in the passage as much as 2 feet.

(69) The velocity of the current is about 3.5 knots in The Strait southward of Penzance Point. (See the Tidal Current Tables for predictions, and the Tidal Current Charts, Narragansett Bay to Nantucket Sound, for the hourly velocities and directions of the current.) Both the velocity of the current and time of slack water are affected by strong winds. At the north entrance to Woods Hole in Buzzards Bay, the velocity of the tidal current is 0.8 knot, whereas at the eastern entrance to The Strait in Great Harbor, it is about 1.3 knots. In the upper part of Great Harbor, near the National Marine Fisheries Service's wharf, the currents are barely perceptible, and vessels at anchor lie head to wind.

(70) Drift **ice** is brought through from Buzzards Bay, but seldom interferes with navigation except in unusually severe winters, when it may close the entrance from the bay. Small craft may experience difficulty in severe winters, but powered vessels usually proceed through the ice. The strong tidal currents usually keep Great Harbor open.

(71) **Routes.**–The following directions are good for medium-draft vessels entering Woods Hole at slack water. Approaching from the eastward, pass about 0.3 mile southward of Nobska Point on a west-southwesterly course until on Great Harbor Lighted Range, or from a point close to Nobska Point Lighted Bell Buoy 26, steer 279° until on the entrance range. Approaching from the westward in Vineyard Sound, give the south side of the Elizabeth Islands a berth of about 0.5 mile and steer for Nobska Point Light on any bearing between 045° and 051° until on the entrance range.

(72) **Wharves.**–The ferry pier of the Woods Hole-Martha's Vineyard and Nantucket Steamship Authority is on the eastern side of Great Harbor. When a ferry is approaching in fog, a private fog signal is sounded, a private quick flashing white light is shown from the southwest corner of the pier, and a private quick flashing yellow light is shown from the southwest corner of the ferry slip. The ferry to Naushon Island lands at the service wharf about 60 yards north of the ferry pier. The buildings and wharf of the Woods Hole Oceanographic Institution are northwestward of the ferry pier. Northwestward of the Oceanographic Institution are the wharves of the Marine Biological Laboratory; the wharf, basin, and buildings of the National Marine Fisheries Service; the town pier; and several private buildings.

(73) Depths at the principal piers vary from 11 to 30 feet. A breakwater extends about 90 yards southwestward from the south end of the National Marine Fisheries Service wharf. The front entrance range light is near the end of the breakwater. Foul ground extends about 50 yards northwestward of the outer end of the breakwater.

(74) **Eel Pond**, an extension of Great Harbor to the northeastward, is a basin with depths of 10 to 20 feet. In August 1981, the narrow entrance to the pond had a reported controlling depth of 8

feet. A highway bridge over the entrance channel has a 31-foot bascule span with a clearance of 5 feet. (See **117.1 through 117.59 and 117.598,** chapter 2, for drawbridge regulations.) The piers of the Marine Biological Laboratory are along the southwest side of the pond. A boatyard in Eel Pond has a marine railway that can handle craft to 70 feet long for hull and engine repairs. Gasoline, diesel fuel by truck, water, ice, marine supplies, limited berths, and moorings are available at the boatyard. The **harbormaster** has an office in Falmouth.

(75) Seasonal ferry service is available from Woods Hole to Nantucket and Oak Bluffs, Martha's Vineyard. Year-round ferry service is available to Vineyard Haven, Martha's Vineyard.

(76) **Woods Hole Coast Guard Station** is on the west side of **Little Harbor** about 450 yards northward of Juniper Point. A dredged buoyed channel leads from Vineyard Sound to a turning basin off the Coast Guard wharf on the west shore. In January-February 1979, the controlling depth was 12 feet in the channel with 12 feet available in the basin. The east side of the harbor is used as a mooring area for local craft. Depths of 12 to 2 feet are reported in the mooring area. Numerous rocks awash are in this part of the harbor; extreme caution is advised. A 6 mph **speed limit** is enforced in the harbor by the Falmouth Harbormaster.

(77) **Hadley Harbor**, in the western portion of Woods Hole at the northwest end of Nonamesset Island, is suitable only for small craft. It is reached by a narrow, crooked channel. The deeper entrance, marked by buoys, is between ledges on both sides; the northern ledge is marked by a private daybeacon. The inner harbor forms a well-sheltered anchorage for small craft.

(78) Two wharves, with depths of about 9 feet at their ends, are on the western side of Hadley Harbor. A private wharf, with a depth of about 7 feet at its end, is at the western end of Nonamesset Island.

(79) **Charts 13233, 13230, 13229.–Naushon Island**, the largest of the Elizabeth Islands, extends west-southwestward from Uncatena and Nonamesset Islands.

(80) **Weepecket Islands**, in Buzzards Bay off the northeastern part of Naushon Island, are bare and rocky.

(81) **Weepecket Rock**, on a rocky ledge about 0.7 mile northeastward of the northernmost of the Weepecket Islands, is covered 8 feet, and is marked by a lighted gong buoy.

(82) **Lackeys Bay**, between Nonamesset Island and **Jobs Neck**, the southeastern extremity of Naushon Island, is shoal with numerous bare rocks.

(83) **Note.**–In November 1990, an unexploded World War II ordnance was reported about 0.5 mile southeastward of Lackeys Bay in about 41°29′34.5″N., 70°41′15.0″W.

(84) **Tarpaulin Cove**, about 5 miles west-southwest of Nobska Point, is a bight about 0.5 mile in diameter, in the south shore of Naushon Island. The cove affords shelter from northerly and westerly winds, and is frequently used. A light is on the southwest side of the cove. Anchorage in depths of 14 to 18 feet, good holding ground, is in the cove with the light bearing between 212° and 189°. Deep-draft vessels should anchor farther out in depths of 36 feet or more. The eastern and northern shores should be given a berth of 200 yards. Rocks are near the western shore and should be given a berth of over 300 yards; buoys mark the dangers.

(85) **Charts 13233, 13230, 13229.–Robinsons Hole** is a narrow buoyed passage from Vineyard Sound to Buzzards Bay between the western end of Naushon Island and the eastern end of Pasque Island. It has numerous rocks and ledges, and strong tidal currents. The buoys often tow under, and the passage should never be attempted by strangers; it is used occasionally by local fishermen. It has been reported that currents sometimes reach a velocity of 5 knots in the passage. The velocity in the narrow part is about 3 knots. The flood sets southeastward and the ebb northwestward into Buzzards Bay. (See the Tidal Current Tables for predictions, and the Tidal Current Charts, Narragansett Bay to Nantucket Island, for the hourly velocities and directions of the current.)

(86) **Quicks Hole**, between Pasque Island and **Nashawena Island,** is the only passage between Vineyard Sound and Buzzards Bay eastward of Cuttyhunk available for vessels of over 10-foot draft. The clearly defined entrance from Vineyard Sound, about 0.6 mile wide, is about 4 miles southwestward of Tarpaulin Cove and about 5 miles north of Gay Head. The passage is used considerably by tows, especially during westerly or southerly winds, to avoid the very heavy sea in the entrance to Vineyard Sound, and also because a secure anchorage from these winds can be had, if necessary, on the north side of Nashawena Island. The passage is considered unsafe for a long tow at night, but otherwise it may be used by steamers either night or day.

(87) Vessels should follow a midchannel course through the passage. The channel is nearly straight with a width of about 0.2 mile. General depths are 30 feet or more, but there are several spots of 16 to 18 feet and others of 21 to 27 feet. Because of the broken nature of the bottom, the passage is not recommended for a stranger drawing more than 21 feet. Buoys mark the channel.

(88) The aids in Quicks Hole are colored and numbered for passage from Vineyard Sound to Buzzards Bay.

(89) The eastern side of Quicks Hole is foul, and no attempt should be made to pass eastward of the lighted buoy. **Felix Ledge**, 0.2 mile off the eastern shore of Nashawena Island, is covered 16 feet and marked by a buoy.

(90) In November 1985, a sunken wreck was reported on the west side of the passage in about 41°26.5′N., 70°51.0′W.

(91) **Lone Rock**, covered 4 feet and marked by a lighted buoy, is off the northern entrance, about 0.7 mile northward of **North Point**, the northeastern extremity of Nashawena Island.

(92) **Tides and currents.**–The mean range of tide is 2.5 feet at the south end and 3.5 feet at the north end of Quicks Hole. The tidal currents have considerable velocity in Quicks Hole, about 2 to 2.5 knots, and a sailing vessel should not attempt to pass through unless with a strong favorable wind on a favorable current. Deep-draft vessels should be careful not to be set off their courses. With a strong westward current through Vineyard Sound, there is a northward current through Quicks Hole; with a strong eastward current in Vineyard Sound, the current sets southward through Quicks Hole. Strong winds affect the regularity of the currents. (See the Tidal Current Tables for predictions, and the Tidal Current Charts, Narragansett Bay to Nantucket Sound, for the hourly velocities and directions of the current.)

(93) **Penikese Island**, grassy and hilly, is about 1.3 miles northwestward of **Knox Point**, the northwestern extremity of Nashawena Island. Shoal water extends from Penikese Island to **Gull Island**, a small islet 0.5 mile southeastward. No attempt should be made to pass between them. Rocky ledges extend southward and westward from Gull Island; buoys are on the southern edge of this area. The channels to Cuttyhunk Harbor from Buzzards Bay are southward of the ledges.

(94) **Cuttyhunk Harbor** is formed by the bight between Nashawena Island and **Cuttyhunk Island**, the westernmost of the Elizabeth Islands. Northward of the harbor are Penikese and Gull Islands and several ledges, which shelter the harbor from winds from that direction. The harbor is exposed to winds from the northeastward. Weather-bound coasting vessels and fishermen

sometimes use the anchorage in the harbor. The harbor is the approach to the village of **Cuttyhunk** and to **Cuttyhunk Pond;** the latter is entered through a dredged cut in the eastern end of Cuttyhunk Island. **Copicut Neck** forms the northerly side of Cuttyhunk Pond.

(95) **Cuttyhunk Light** (41°24.8′N., 70°57.0′W.), 63 feet above the water, is shown from a 45-foot white skeleton tower with a red and white diamond-shaped daymark shown from a small house at the base of the tower on the western side of Cuttyhunk Island.

(96) Also prominent from offshore is a 50-foot-high monument on an island in **Westend Pond** on the western end of Cuttyhunk Island.

(97) Vessels bound for Cuttyhunk Harbor generally approach from Buzzards Bay. The principal dangers are marked by buoys. Strangers should not enter except in the daytime with clear weather. If entering from the northwestward, a greater draft than 10 feet should not be taken in. The approach from northeastward is deeper.

(98) **Canapitsit Channel**, between the east end of Cuttyhunk Island and Nashawena Island, is used by small boats and is partially marked by buoys. In November 1980, the channel had a controlling depth of 5½ feet. The buoys at this entrance are often dragged off station by strong currents and heavy seas. The channel should never be used during a heavy ground swell. With southerly winds, heavy seas will break across the entrance.

(99) **Channels.**–A dredged channel leads from Cuttyhunk Harbor into Cuttyhunk Pond to a turning basin at the western terminal in the pond and an anchorage basin in the eastern part of the pond north of the channel. In May 1997, the entrance channel into the pond had a midchannel controlling depth of 9 feet; thence in June 1989, the centerline controlling depth was 6 feet in the pond channel to the turning basin, with 8 to 10 feet in the turning basin. The anchorage basin had depths of 8 to 10 feet. The jettied entrance is marked by a light on the north jetty and by a buoy off the end of the submerged south jetty. A bell buoy marks the entrance to the channel.

(100) **Anchorage.**–Limited anchorage with reported poor holding ground may be found in depths of 10 to 24 feet in Cuttyhunk Harbor. The shores on both sides of the harbor are foul, and the anchorage is in the middle.

(101) **Dangers.**–Shoals extend 0.6 mile northeastward of Cuttyhunk Island. **Whale Rock** and **Pease Ledge** uncover at low water. **Middle Ground**, covered 9 feet, is 0.5 mile north of **Copicut Neck** in the northwestern approach to the harbor. **Middle Ledge**, covered 15 feet, is about 0.4 mile east of Middle Ground. **Edwards Rock**, covered 7 feet, is 250 yards northeastward of Whale Rock. These dangers except for Middle Ledge, are buoyed. An unmarked rocky shoal, covered 12 feet, is in the middle of the northwestern approach about 0.2 mile southeastward of Middle Ledge. Numerous other rocks and ledges covered 4 to 12 feet are between Cuttyhunk Island and the ledges southwestward of Penikese and Gull Islands. The eastern point at the entrance and the eastern shore of the harbor should be given a berth of over 300 yards.

(102) **Routes.**–In approaching Cuttyhunk Harbor from eastward in Buzzards Bay, take care to avoid Lone Rock, 0.7 mile northward of the northeastern end of Nashawena Island. Thence pass northwestward of Cuttyhunk East Entrance Lighted Bell Buoy CH (41°26′34.1″N., 70°53′21.9″W), and thence to anchorage according to draft in the harbor.

(103) In approaching from westward, from a position about midway between Ribbon Reef Buoy and Cuttyhunk Light, steer 051° until abeam of Middle Ground Buoy MG, distance 600 yards. Pass midway between Middle Ground and Penikese Island, passing northward of Middle Ledge and the 12-foot spot southeastward of it, and then swinging southeasterly to the harbor anchorage, or southward to the entrance to Cuttyhunk Pond.

(104) **Tides and currents.**–The mean range of tide at Cuttyhunk Pond entrance is 3.4 feet. The current velocity in Canapitsit Channel is 2.6 knots on the flood which sets south-southeastward, and 1.7 knots on the ebb which sets northwestward. In the channel southward of Penikese Island, the flood sets eastward and the ebb westward at about 0.8 knot. (See Tide Tables and Tidal Current Tables for predictions, and the Tidal Current Charts, Narragansett Bay to Nantucket Sound, for the hourly velocities and directions of the current.)

(105) Drift **ice** is carried into Cuttyhunk Harbor with northerly winds and closes the harbor during severe winters.

(106) **Small-craft facilities.**–There is a service wharf on the south side of the channel at the entrance to the pond and a marina on the south side of the basin at the head of the channel in the pond. A yacht club and a fishing club are on the island. Gasoline, diesel fuel, water, ice, berthage, and moorings are available. Limited lodging in cottages is available on the island. The **harbormaster** can be reached by telephone (617-966-9295). There is daily launch service with New Bedford in the summer and twice weekly in the winter; seaplane service is also available.

(107) **Charts 13218, 13228, 13230, 13229.–Buzzards Bay** is the approach to New Bedford, many small towns and villages, and the entrance of Cape Cod Canal. The bay indents the south shore of Massachusetts, extending in a northeasterly direction from **Rhode Island Sound**. The bay is enclosed on the south side, and separated from Vineyard Sound, by the Elizabeth Islands.

(108) The shores are irregular, rocky in character, and broken by many bays and rivers. Large boulders are common, in places extending a considerable distance from shore, thus making close approach to the shore dangerous.

(109) The bottom in the main part of the bay and approach is very broken with boulder reefs in places. Vessels should proceed with caution when crossing shoal areas in the tributaries of the bay where the depths are not more than about 6 feet greater than the draft. Caution must also be exercised in the vicinity of the wrecks shown on the chart. Deep water prevails as far as Wings Neck, above which the bay is full of shoals.

(110) **Traffic Separation Scheme (Buzzards Bay)** has been established in the approach to Buzzards Bay through Rhode Island Sound. (See charts 13218 and 12300.)

(111) The Scheme is composed basically of **directed traffic lanes** each with one-way inbound and outbound traffic lanes separated by a **defined traffic separation zone** and a **precautionary area.** The Scheme is recommended for use by vessels approaching or departing from Buzzards Bay, but is not necessarily intended for tugs, tows, or other small vessels which traditionally operate outside of the usual steamer lanes or close inshore.

(112) **The Traffic Separation Scheme has been designed to aid in the prevention of collisions at the approaches to the major harbors, but is not intended in any way to supersede or alter the applicable Navigation Rules. Separation zones are intended to separate inbound and outbound traffic lanes and be free of ship traffic, and should not be used except for crossing purposes. Mariners should use extreme caution when crossing traffic lanes and separation zones.** (See Traffic Separation Schemes, chapter 1, for additional information.)

(113) The **precautionary area** in the southwest part of Rhode Island Sound has a radius of 5.4 miles centered on 41°06′06″N.,

71°23′22″W., excluding those areas of the circle bounded by imaginary lines extended between the outer limits of the inbound and outbound traffic lanes. (Note that this precautionary area is common to the Traffic Separation Schemes for the approaches to both Buzzards Bay and Narragansett Bay. The Traffic Separation Scheme for the approach to Narragansett Bay is described in chapter 6.)

(114) The **separation zone** is a 1-mile-wide zone centered in the following positions: (i) 41°10′09″N., 71°19′09″W., (ii) 41°21′48″N., 71°07′06″W.

(115) The **inbound traffic lane** is a 1-mile-wide lane with a length of about 14.8 miles. Entering the traffic lane at a point in about 41°09′36″N., 71°18′00″W., a course of **038**° follows the centerline of the traffic lane to its end, thence steer usual courses to destination.

(116) The **outbound traffic lane** is a 1-mile-wide lane with a length of about 14.8 miles. Entering the traffic lane at a point in about 41°22′25″N., 71°08′06″W., a course of **218**° follows the centerline of the traffic lane to a junction with the precautionary area.

(117) The Traffic Separation Scheme is not buoyed.

(118) Buzzards Bay has six entrances, but two of these are so narrow and dangerous as to exclude their use except by small craft with local knowledge. The four major entrances are the main channel, from westward, passing north of Cuttyhunk Island; Cape Cod Canal from northeastward; and Quicks Hole and Woods Hole from the southward. The two hazardous entrances are Canapitsit Channel, between Cuttyhunk and Nashawena Islands, and Robinsons Hole, between Pasque and Naushon Islands.

(119) The western entrance has a clear width of 4.3 miles between Sow and Pigs Reef and Hen and Chickens. The bottom in this entrance is irregular and rocky, and there are spots with depths of 17 to 34 feet. Because these shoal areas are surrounded by deeper water, vessels of 16-foot draft or more must exercise extra caution when entering the bay. In heavy southwest gales the sea breaks over some of these spots.

(120) The best guides for entering the bay from westward are Buzzards Bay Entrance Light, Cuttyhunk Light, and the lighted buoys in the entrance. Gay Head Light and Cuttyhunk Light are the guides for vessels approaching from the southward.

(121) **Buzzards Bay Entrance Light** (41°23.8′N., 71°02.0′W.), 67 feet above the water, is shown from a tower on a red square superstructure on red piles about 4 miles 254° from Cuttyhunk Light. The name BUZZARDS is painted in white on the sides. A fog signal is at the light.

(122) **Anchorages.**–New Bedford Inner Harbor affords anchorage for vessels of 25-foot draft. Cuttyhunk Harbor affords anchorage in depths of 10 to 24 feet; except for the small-craft inner harbor, it is exposed to northerly winds. A good anchorage sheltered from all southerly winds may be had off the north shore of Nashawena Island eastward of Penikese and Gull Islands in depths of 40 to 48 feet. This anchorage, frequently used by tows, is available for vessels of any draft; however, care must be taken to stay clear of the fishtrap area in the vicinity. Two general anchorages are off the western entrance to Cape Cod Canal. (See **110.1 and 110.140 (b) (1), (b) (2), and (d)**, chapter 2, for limits and regulations.)

(123) **Dangers.–Hen and Chickens**, extending 1.4 miles southward of Gooseberry Neck, is a reef consisting of many large boulders, most of them baring a foot or less. The reef is in two large groups; the southerly group is the larger. Numerous covered rocks are well away from the visible part of the danger. A narrow ledge covered 5 to 14 feet extends about 0.4 mile northward from the visible part of Hen and Chickens. A buoy is north of the ledge. **Old Cock,** a rock awash, and **The Wildcat,** covered 5 feet and unmarked, are in the southern shoal area. The south edge of the shoal is marked by a buoy. Strangers are advised to stay outside the 5-fathom curve in this vicinity.

(124) **Sow and Pigs Reef**, much of which is dry or awash, extends about 1.5 miles west-southwestward from Cuttyhunk Island. Its outer end is marked by a lighted bell buoy. An unmarked rocky shoal, covered 20 feet, is 0.9 mile westward of Cuttyhunk Light. In 1997, a rock was reported 1.2 miles south of Cuttyhunk Light with 27 feet of water over it in about 41°23.5′N., 70°57.0′W. Numerous obstructions and rocks with a least depth of 31 feet were reported to extend as much as 3 miles southward of Sow and Pigs Reef.

(125) **Ribbon Reef**, a detached ledge covered 18 feet, is about 1.5 miles northwestward of Cuttyhunk Light. **Coxens Ledge**, covered 23 feet and marked by a lighted bell buoy, is 1.2 miles northward of Ribbon Reef.

(126) **Mishaum Ledge**, a group of several rocky spots with a least depth of 8 feet, extends about 1.7 miles southward of Mishaum Point. It is marked by a lighted gong buoy off its southeast end. A lighted bell buoy marks a rocky shoal covered 22 feet about 1 mile north-northwestward of the north end of Penikese Island. An unmarked rocky shoal covered 18 feet is 0.5 mile north of the island.

(127) In June 1991, a sunken wreck was reported about 0.7 mile northeast of Penikese Lighted Bell Buoy 6 in about 41°28.4′N., 70°55.8′W.

(128) **Tides and currents.**–The mean range of tide varies from 3.0 feet at Westport Harbor to 4.2 feet at Bird Island near the head of the bay. The tidal currents in the passages between Buzzards Bay and Vineyard Sound have considerable velocity and require special attention. At Hen and Chickens Lighted Gong Buoy 3, the tidal current is rotary, turning clockwise. Tide rips occur when a sea is running against the current. Maximum velocities are about 0.5 knot. Minimum velocities average about 0.2 knot. (See the Tide Tables and Tidal Current Tables for predictions, and the Tidal Current Charts, Narragansett Bay to Nantucket Sound, for the hourly velocities and directions of the current.)

(129) **Ice.**–The head of Buzzards Bay and the harbors in that vicinity are generally closed to navigation during the winter. The approaches to the harbors on the eastern shore are rendered dangerous by drift ice. In severe winters the drift ice extends across the bay and joins the local formations on the western shore, forming an impassable barrier for short periods. Ice forms more rapidly in the bay with winds from north to west as the western shore forms a shelter from such winds. When the field ice extends sufficiently out toward the channel as to be affected by the winds from north to west, the outer edges are broken up and carried off to the eastern or southern shore where they form drift ice. Under ordinary circumstances a northeast wind, if continued for 48 hours, will clear the bay of ice. Southerly winds, especially southeastern, diminish the extent and weaken the strength of the pack. Some of the lighted buoys are removed from station or replaced by unlighted buoys when endangered by ice.

(130) The southern side of Buzzards Bay from Cuttyhunk to Woods Hole has been discussed previously in this chapter.

(131) **Charts 13230, 13229.–Quissett Harbor,** 1.7 miles northeastward of the western entrance to Woods Hole, is used by small pleasure craft. **The Knob**, a small hillock on the north point of the entrance, and the homes on the eastern shore of the harbor are

prominent. A standpipe, 1.2 miles northeastward of the entrance, is conspicuous.

(132) A seasonal lighted buoy marks the entrance, and buoys mark the entrance channel, thence private seasonal aids mark the best water to the northeast end of the harbor. In August 1981, a depth of about 8 feet was reported available in the channel. Mariners are advised to steer a midchannel course through the entire entrance channel to avoid numerous rocks on both sides of the channel.

(133) Anchorage can be found in the middle of the harbor in depths of 11 to 18 feet, sticky bottom. Local craft generally moor in the northeastern part of the harbor off the boatyard at the town of **Quissett**. The boatyard has an L-shaped pier and a float which was reported to have about 15 feet alongside. Gasoline, water, ice, berths, moorings, some marine supplies, storage facilities, and marine railways up to 40 feet are available; hull and engine repairs can be made. The **harbormaster** can be contacted through the boatyard.

(134) **Hamlin Point**, 2 miles north-northeastward of Quissett Harbor, is marked by a prominent hotel with twin cupolas. A shoal, covered 12 feet near its outer end, extends about 1 mile westward of the point, where it is marked by a buoy. **Gifford Ledge**, covered 10 feet, is 1.4 miles north-northwestward of Hamlin Point. **Great Sippewisset Rock**, awash and marked by a private seasonal daybeacon, is 0.4 mile offshore about 1.1 miles northward of Hamlin Point. A shoal area, foul with rocks awash and covered, extends 0.3 mile offshore eastward of the daybeacon.

(135) **West Falmouth Harbor**, 5 miles northward of Woods Hole, has depths of 1 to 6 feet and bares in places at low water. The entrance is protected by a breakwater extending about 700 feet southward of **Little Island**, the north point of the entrance, and by a short jetty on the northwest end of **Chappaquoit Point**. A tower and the summer homes on Chappaquoit Point are prominent. The entrance is marked by a seasonal lighted bell buoy and an unlighted buoy on the south side and by an unlighted buoy on the north side; these buoys mark reefs that extend westward from both entrance points. Seasonal private buoys mark the channel in the harbor.

(136) In August 1981, it was reported that 4 feet could be taken through the narrow, privately marked channel in the harbor to the anchorage basin off the town wharf at the village of **West Falmouth** on the east shore of the harbor. Depths of 5 feet were reported alongside the wharf in August 1981. Gasoline, moorings, electricity, and a launching ramp are available. The **harbormaster** has an office at the town wharf. A 6 mph **speed limit** is enforced in the harbor.

(137) **Charts 13236, 13229.–Wild Harbor** (41°38.3′N., 70°38.9′W.), 7 miles northward of Woods Hole, is a small cove on the south side of **Nyes Neck** affording anchorage in northerly or easterly winds. A tower on Nyes Neck is prominent. The entrance is clear in midchannel, with depths of 13 to 20 feet inside. A seasonal lighted buoy marks the entrance, and buoys mark the shoals extending from the entrance points. The shores are foul, and the easterly part of the harbor is shoal. The reported depth in the privately dredged channel into **Silver Beach Harbor** to a small basin is about 3 feet, but is subject to shoaling. A stone jetty extends off the south side of the entrance to the basin. The basin is a **special anchorage.** (See **110.1** and **110.40,** chapter 2, for limits and regulations.)

(138) A town wharf and surfaced ramp are in the basin. In August 1981, depths of 4 feet to bare were reported alongside the wharf. Ice and provisions are available.

(139) **Megansett Harbor**, the approach to the towns of **North Falmouth, Megansett,** and **Cataumet,** is entered between Nyes Neck on the south and **Scraggy Neck** on the north. The natural channel is buoyed as far as the rock breakwater at Megansett. The breakwater is marked at the end by a light. A yacht club and a town wharf are just inside the breakwater. In August 1981, depths of 4 to 5 feet were reported alongside the wharf; water is available. The harbor has extensive shoals and ledges, but by following the buoyed channel a draft of about 8 feet can be carried to an anchorage in the outer harbor in depths of 10 to 22 feet. Inside the breakwater, anchorage is available in 6 to 12 feet, taking care to avoid the shoals on the north side of the harbor and the rock awash near the center in 41°39′27″N., 70°37′31″W. **Cataumet Rock,** covered 7 feet and marked by a buoy, is on the south side of the entrance; Seal Rocks are on the north side and marked by a seasonal lighted buoy.

(140) **Fiddlers Cove** (41°38.9′N., 70°38.2′W.) is a small-craft harbor on the south shore of Megansett Harbor, about 0.5 mile east-southeastward of Cataumet Rock. A channel, privately dredged to a reported depth of 7 feet, leads southward to a marina and boatyard in a dredged basin on the east side of the cove. A seasonal lighted whistle buoy marks the approach, and private seasonal buoys mark the channel. Gasoline, diesel fuel, water, ice, berthage, moorings, and marine supplies are available. There is a surfaced ramp, and craft up to 40 feet in length can be hauled out on a flatbed trailer for hull and engine repairs and storage. In August 1981, depths of 5 to 7 feet were reported in the basin at the bulkhead and at the berths.

(141) **Halftide Rock**, awash at low water, is about 500 yards southwestward of the end of the Megansett breakwater. **Rands Harbor**, about 0.3 mile east of Fiddlers Cove, is a private boat basin with little or no water.

(142) **Squeteague Harbor**, northward of Megansett, is entered through a narrow channel from the head of Megansett Harbor. The privately marked channel had a reported depth of about 2 feet in August 1981; local knowledge is advised. The village of **Cataumet** is on the northerly shore of the harbor.

(143) **Seal Rocks**, about 0.3 mile southwestward of Scraggy Neck, on the north side of Megansett Harbor entrance, are partly bare at half tide and marked by a seasonal lighted buoy about 300 yards southwest of their southern end. Part of an old concrete barge is aground on the rocks. **Southwest Ledge**, extending about 0.7 mile westward of Seal Rocks, consists of two patches of shoals covered by 2 to 18 feet and marked by buoys on its northern, western, and southern sides. A rock awash is in the northerly shoal.

(144) **Pocasset Harbor** and Red Brook Harbor share a common entrance between Scraggy Neck and Wings Neck. **Bassetts Island** separates Pocasset Harbor from Red Brook Harbor. Broken ground with depths of 17 to 19 feet in places extends across the entrance. Entering about 250 yards north of buoys marking the north side of Southwest Ledge, vessels of about 14-foot draft can anchor westward of Eustis Rock Buoy in depths of 20 to 30 feet. This anchorage is exposed to westerly winds. **Eustis Rock**, about 0.2 mile north of Scraggy Neck, is covered 5 feet and marked by a buoy. The area eastward of Eustis Rock to Bassetts Island is shoal.

(145) A narrow buoyed channel, with a reported depth of about 8 feet in August 1981, leads north of Bassetts Island to Pocasset Harbor. **Barlows Landing**, at the northeast end of the harbor, has a depth of 1½ feet. A small-craft launching ramp is just south of the landing.

(146) **Hospital Cove**, about 0.2 mile southward of the southern end of Bassetts Island, is entered through a natural buoyed channel that leads southeastward from a point about 0.4 mile east-south-

eastward of Eustis Rock to a small anchorage in the cove. A depth of about 6 feet can be carried in the channel, and there are depths of 8 to 14 feet in the anchorage. In August 1981, a shoal at the south tip of Bassetts Island was reported to be shifting westward in the vicinity of Buoy 3; caution is advised. A boulder reef extends northeastward from Scraggy Neck in the approach to the cove. Several private piers with depths of 5 to 8 feet alongside are in the cove.

(147) **Red Brook Harbor**, eastward of Bassetts Island, is approached from the northward through the channel that leads through Pocasset Harbor, and from the southward through the channel that leads through Hospital Cove. **Hen Cove** is immediately northward of Red Brook Harbor. The channels are buoyed. In August 1981, reported depths of 8 feet and 6 feet could be carried through the north and south channels, respectively. Because of numerous submerged rocks in and near the edges of the channel, local knowledge is advised.

(148) A marina is on the east shore of Red Brook Harbor about 500 yards southeastward of **Handy Point;** a 35-ton mobile lift is available. A boatyard with a 20-ton mobile lift is on the east side of the small cove, about 300 yards south of the marina. Both facilities have berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, and storage facilities, and can make hull and engine repairs. Electronic repairs can be made at the marina. Depths of 10 feet are reported at the marina berths and 8 feet at the boatyard berths.

(149) **Wings Neck**, 9 miles northward of Woods Hole, extends about 2 miles in an west-southwest direction into Buzzards Bay. The neck is a prominent peninsula, irregular, and hilly. The anchorage areas southwestward of the neck are discussed with the Cape Cod Canal. A yacht club and private piers are on the east shore of the neck. Traffic signals for the Cape Cod Canal are displayed from a tower on Wings Neck. (See **207.20,** chapter 2, for details.)

(150) **Pocasset River**, between the northeastern end of Wings Neck and **Bennets Neck**, is entered from the north side of Wings Neck through a privately dredged channel that leads southward between two jetties to a highway bridge about 0.4 mile above the entrance. In August 1981, a reported depth of 6 feet could be carried to the bridge. The bridge has a fixed span with a clearance of 7 feet. Only very small boats go above the bridge. A boatyard is on the south side of the river at the bridge. Gasoline, water, some marine supplies, storage facilities, and a 35-foot marine railway are available; hull and engine repairs can be made. A town wharf and floats are on the north side of the river at the bridge.

(151) **Tobys Island**, just northward of the entrance of Pocasset River and on the south side of Phinneys Harbor, is connected to the mainland by a causeway.

(152) **Phinneys Harbor**, between Tobys Island on the east and **Mashnee Island** on the west, is approached from Buzzards Bay through a buoyed channel that leads along the northerly side of Wings Neck to another buoyed channel into the harbor. A light is at the bend of the approach channel. Depths of about 10 feet can be carried in the inner channel, and greater depths are available in the approach channel. The harbor is used as an anchorage by small boats. Mashnee Island, once an island, is now connected with the mainland by a landfill causeway. A group of rocks awash, marked by a buoy, is 0.2 mile off the east shore of the harbor, and another rock, covered 4 feet, and marked by a buoy, is 0.1 mile north of Tobys Island.

(153) The village of **Monument Beach** is on the east shore. A marina is at the long town pier in the cove in the southeastern corner of the harbor. Berthage in 8 to 10 feet is available at the pier. Gasoline, water, ice, marine supplies, moorings, and a surfaced ramp are available.

(154) **Back River**, a stream which is nearly bare except near its entrance, empties into the north side of Phinneys Harbor. Small craft sometimes anchor in the entrance. A railroad bridge and a highway bridge crossing the river about 0.2 mile above the mouth have fixed spans with a minimum clearance of 4 feet. A boatyard is on the south bank between the bridges. In August 1981, a depth of about 1½ feet was reported available in the river to the boatyard. A forklift is used to haul out boats up to 26 feet at the yard, while boats up to 37 feet in length can be hauled out on a flatbed trailer at a paved ramp at Barlows Landing and then brought to the yard for hull and engine repairs or dry open or covered storage. A launching ramp and marine supplies are available at the yard.

(155) **Gray Gables** is on the north side of the head of the Back River.

(156) **Cape Cod Canal** is a deep-draft sea-level waterway connecting Buzzards Bay and Cape Cod Bay. The waterway is 15 miles long from Cleveland East Ledge Light to deep water in Cape Cod Bay. The canal shortens the distance between points north and south of Cape Cod by 50 to 150 miles and provides an inside passage to avoid Nantucket Shoals. The canal is maintained by the Federal Government as a free waterway. (See **207.20,** chapter 2, for the regulations governing the use, administration, and navigation of the Cape Cod Canal.)

(157) **Traffic lights.**–Traffic lights (red, green, and yellow) are located at the easterly canal entrance at Sandwich; at the Canal Electric Terminal basin on the south side of the canal at Sandwich; and at the westerly entrance of Hog Island Channel at Wings Neck. These signals apply to all vessels over 65 feet in length that desire to transit the canal. (See **207.20 (h),** chapter 2, for detailed information on signals.)

(158) **Prominent features.–Cleveland East Ledge Light** (41°37.9′N., 70°41.7′W.), 74 feet above the water, is shown from a white cylindrical tower and dwelling on a white caisson on the east side of the entrance channel approaching Cape Cod Canal from Buzzards Bay. A racon and fog signal are at the light station. The railroad bridge over the canal at the village of Buzzards Bay, and the highway bridge at Bourne are also prominent.

(159) **Canal Breakwater Light 6** (41°46.8′N., 70°29.4′W.), 43 feet above the water, is shown from a red cylindrical tower on the end of the north breakwater at the east entrance to Cape Cod Canal from Cape Cod Bay. A fog signal is at the light. The most prominent landmark when approaching from Cape Cod Bay is the tall lighted stack of the powerplant about 1.1 miles west-southwestward of Canal Breakwater Light 6. The high-level highway bridge across the canal at Sagamore, 2.5 miles west of the breakwater light, is also prominent. The breakwaters at the east entrance to the canal should not be confused with the smaller jetties at Sandwich Harbor, 1 mile to the southeastward, nor should the two white church spires back of Sandwich Harbor be mistaken for the range structure marking the entrance to the canal.

(160) **Channels.**–A Federal project provides for a channel 32 feet deep through the Cape Cod Canal. (See Notice to Mariners and latest editions of the chart for controlling depths.) Deep-draft vessels should obtain the latest information as to available depths so as to pass through the canal during maximum stages of high water if the draft of the vessel is near the controlling depth. In 1981, it was reported that the east entrance was being privately maintained to a depth of 40 feet to the New England Petroleum Company wharf about 1.2 miles west of Canal Breakwater Light 6.

(161) The approach channels from both the west and the east are marked with lighted ranges and other navigational aids. The canal itself is lighted at night on both banks by mercury vapor lights, generally 500 feet apart.

(162) **Anchorages.**–General anchorages are on each side of Cleveland Ledge Channel between Cleveland Ledge Light and Wings Neck. (See **110.1 and 110.140 (b)** and **(d)**, chapter 2, for limits and regulations.) In 1971, a dangerous submerged rock was reported just inside the easterly edge of Anchorage D in about 41°40′05″N., 70°40′17″W. In January 1984, an obstruction was reported in Anchorage C in about 41°40′00″N., 70°41′35″W.

(163) Mooring basins, with tieup dolphins, are at both ends of the canal. One is on the east side of Hog Island Channel abreast of Hog Island, where shoaling to bare in about 41°43′49″N., 70°37′53″W. was reported in September 1979. The other is just inside the eastern entrance to the canal. A small boat basin is on the south side of the channel just inside the eastern entrance to the canal; depths of 8 to 13 feet were available in the basin in June 1969.

(164) **Bridges.**–The Cape Cod Canal is crossed by three bridges. The railroad bridge at the village of Buzzards Bay, 7.8 miles above Cleveland East Ledge Light, has a vertical-lift span with a clearance of 7 feet down and 135 feet up. The span is normally maintained in the raised position and lowered for the passage of trains. (See **117.1 through 117.59, 117.589, and 207.20(i)**,, chapter 2, for drawbridge regulations.) The State Route 25/28 highway bridge at Bourne, 9 miles above Cleveland Ledge Light, has a fixed span with a clearance of 135 feet. The U.S. 6/State Route 3 highway bridge at Sagamore, 11.8 miles above Cleveland East Ledge Light, has a fixed span with a clearance of 135 feet.

(165) The minimum clearance of the overhead power cables across the canal is 160 feet.

(166) **Tides and currents.**–The mean range of tide is 3.5 feet at the railroad bridge near the Buzzards Bay entrance and 8.7 feet at the Cape Cod Bay entrance. The large differences in range and timing of the tide between Buzzards Bay and Cape Cod Bay cause strong currents in the canal. Tides may lower the canal level 2 feet below mean low water or even more if attended by heavy offshore winds.

(167) Daily predictions for the tidal current in Cape Cod Canal at the railroad bridge are given in the Tidal Current Tables. Under ordinary conditions, the tidal current has a velocity of 4.0 knots on the flood, which sets eastward, and 4.5 knots on the ebb, which sets westward.

(168) Due to the strong tidal currents in the canal, especially during spring tides, low-powered vessels should await slack water or favorable current. Navigators are warned to be on the alert for possible "bank suction" and "bank cushion," the effects of which may cause a vessel to take a sudden and decided sheer.

(169) **Weather, Buzzards Bay and vicinity.**–Fog is said to be less dense over Cape Cod Canal than outside, but at times a water vapor rises from the canal to such an extent that traffic has to be suspended. The canal proper never has been closed by ice, but occasionally Buzzards Bay and Cape Cod Bay become so congested with ice that navigation through the canal is prevented.

(170) **Pilotage, Cape Cod Canal.**–At the canal, Canal Traffic Control, voice call "WUA21" or "Cape Cod Canal Control", monitors VHF-FM channels 16, 13, 12 and 14; usually works on 12 or 14. The masters of all vessels required by the Coast Guard to carry a pilot are required to notify Canal Traffic Control, prior to entering the waterway, the name of the pilot bringing the vessel through. See **207.20(k)**, Management of vessels, chapter 2.

(171) Pilotage service for the canal is available from Northeast Marine Pilots, Inc., 243 Spring Street, Newport, RI 02840, telephone 401-847-9050 (24 hours), 800-274-1216, FAX 401-847-9052, Cable RISPILOT, Newport, RI 02840.

(172) Pilotage is also available from Boston Pilots, Pier No. 1, Bremen Street, East Boston, MA, telephone 617-569-4500, 617-962-4970 (night), FAX 617-569-4502, Cable BOSPILOTS, East Boston.

(173) The pilot boat, CAPE COD CANAL PILOT BOAT, which serves both ends of the canal, is owned and operated by Northeast Marine Pilots, Inc. The 39-foot boat has a black hull and white superstructure with the word PILOT on the sides. She monitors channels 16, 13, 14 and 10; works on 13, 12 or 14.

(174) Pilots meet vessels off the eastern entrance to the canal between the sea buoy and the breakwater in about 41°47.9′N., 70°28.5′W., and by prearrangement off the west end of Cleveland Ledge at the western entrance.

(175) Pilots also meet vessels 2.5 to 3 miles southeast of Brenton Reef Light within an area bounded by

(176) 41°23.6′N., 71°22.4′W.,

(177) 41°22.6′N., 71°22.0′W.,

(178) 41°24.2′N., 71°20.0′W.,

(179) 41°22.6′N., 71°20.6′W. This pilot boarding area is southward of a line extending from Point Judith to Sakonnet Point.

(180) Pilots also meet vessels in the vicinity of Point Judith Lighted Whistle Buoy 2, within a 1-mile radius circle centered in 41°17.2′N., 71°30.4′W.

(181) Pilot services are generally arranged for in advance by ships' agents or directly by shipping companies.

(182) **Launch service.**–Launch service is available from the CAPE COD PILOT BOAT; arrange through Northeast Marine Pilots, Inc.

(183) **Towage.**–Tugs to 2,200 hp are based at the village of Buzzards Bay; arrangements for their services are usually made through ships' agents. Tugs monitor VHF-FM channel 13 when expecting a vessel, and use channel 18A as a working frequency.

(184) **Coast Guard.**–Cape Cod Canal Coast Guard Station is on the east side of the entrance to the canal about 1 mile northeastward of Sandwich Harbor.

(185) **Wharves.**–State Pier, site of the **Massachusetts Maritime Academy,** on the north side of Cape Cod Canal, 0.6 mile below the railroad bridge at the village of Buzzards Bay, is 600 feet long with about 25 feet alongside the berthing face. In August 1981, shoaling to 10 feet was reported in the basin off the berthing face in about 41°44′15″N., 70°37′35″W. In August 1981, the reported controlling depth on the channel side of the pier was 25 feet. Permission to berth at the pier must be obtained from the academy. Vessels should not attempt to go alongside or leave the pier except at periods of slack water. Passing vessels are requested to proceed slowly to avoid damage to lines and other equipment at the pier.

(186) The New England Petroleum Company mooring platform, on the south side of Cape Cod Canal, 1.2 miles westward of Canal Breakwater Light 6, provides berthing for tank vessels up to 750 feet long with drafts of 40 feet. Vessels over 50,000 tons or 32-foot draft moor at high water slack during daylight hours only. Vessels under 50,000 tons moor at high water slack, day or night. Petroleum products are pumped to storage tanks ashore.

(187) **Supplies.**–Gasoline, diesel fuel, water, ice, marine supplies, and a paved ramp are available at the boat basin just inside the Cape Cod Bay entrance to the canal. Temporary berthage and anchorage are also available at the basin.

(188) **Communications.**–Information on operating conditions, widths, depths, or other data on the canal is available at all hours, day or night, by calling the canal office at Buzzards Bay (617-759-4431).

(189) Vessels which are to transit the Cape Cod Canal will monitor channel 16 continuously to establish contact with traffic controllers. The vessels will be asked to switch to channel 12 or channel 14 as a working channel to pass information between the traffic controllers and the vessel. However, channel 13 may be used only when the above channels are not available.

(190) The radiotelephone at the Cape Cod Canal Office, Buzzards Bay, Mass., is in continuous operation. Call letters are WUA-21, and the frequencies are channels 13, 16, 12, and 14. Vessels equipped for communication with the Cape Cod Canal Office are requested to keep their radiotelephone tuned to these frequencies.

(191) **Buttermilk Bay**, at the northeast end of Buzzards Bay, has depths of about 1 to 7 feet. A dredged marked channel and **Cohasset Narrows** connect the bay with Cape Cod Canal. In April-May 1991, the controlling depth was 5 feet to the railroad bridge about 1.1 miles above the channel entrance, except for shoaling to 1½ feet in the east half of the channel between Buoy 3 and Buoy 5. In June 1990, severe shoaling was reported between Buoy 4 and Buoy 5. In December 1992, a rock was reported just below the railroad bridge in about41°44′46″N., 70°37′22″W. Two bridges cross Cohasset Narrows; the railroad bridge has a bascule span with a clearance of 6 feet, but is kept in a closed position and used as a fixed bridge. The highway bridge, immediately above, has a fixed span with a clearance of 9 feet. Several small piers for shallow-draft boats are the only facilities in Buttermilk Bay. Gasoline is available in the bay.

(192) **Butler Cove**, on the western side of Cohasset Narrows southwesterly of the bridges, has depths of 3 to 5 feet.

(193) **Onset Bay**, between **Sias Point** on the north and **Hog Neck** on the south, is the approach to the village of **Onset**. A dredged marked channel leads westward from Cape Cod Canal along the southerly side of the bay to a turning basin off the village. Two anchorage areas, one on each side of the channel, are at the head of the channel. In October 1995, the midchannel controlling depth was 14 feet to the turning basin, thence depths of 13 to 15 feet were available in the basin; depths of 6 to 8 feet were available in the eastern anchorage basin with 7½ feet available in the western anchorage basin.

(194) **Wickets Island** is a high and wooded islet in the middle of the bay. The buoys in the entrance channel are frequently towed under because of the strong currents. A rock, covered 8 feet, is near the channel entrance about 75 yards northeast of Hog Island Channel Light 11. In August 1981, two rocks, covered 4 to 5 feet, were reported on the north edge of the channel between Buoys 2 and 4; caution is advised.

(195) A **special anchorage** is in the northern part of Onset Bay. (See **110.1** and **110.45,** chapter 2, for limits and regulations.) Additional anchorages are available at the head of the dredged channel.

(196) A 5 mph **speed limit** is enforced above Wickets Island.

(197) The Onset town wharf, on the north side of the turning basin, has depths of about 14 feet at its face. The **harbormaster** has an office at the wharf. The harbormaster monitors VHF-FM channel 16 and uses channel 9 as a working frequency; call sign KYQ-833. Several small-craft facilities are on the north side of the bay along the southwesterly side of Long Neck. (See the small-craft facilities tabulation on chart 13229 for services and supplies available.) Onset has bus service.

(198) **East River** empties into Onset Bay southeast of Onset. A draft of 3 feet can be taken to an anchorage just above the highway bridge which connects Onset and Long Neck. The bridge has a fixed span with a clearance of 11 feet.

(199) **Stony Point Dike**, a sandspit breakwater about 5 feet high, extends about 1.8 miles south-southwesterly from **Cedar Island Point** to Abiels Ledge. The breakwater protects Hog Island Channel. Cleveland Ledge Channel Range Front Light is on the outer end of the breakwater. **Abiels Ledge,** between the channel and the south end of the dike, is covered 3 feet. **Dry Ledge**, 1 mile northwestward of Abiels Ledge, bares at half tide; it is marked by a buoy. **Little Bird Island**, 0.8 mile northward, is surrounded by uneven bottom with depths of 2 to 19 feet between it and the northerly shore of Buzzards Bay.

(200) **Wareham River**, which empties into the northern end of Buzzards Bay, is the approach to the town of **Wareham** on the west bank. **Great Hill**, wooded, 124 feet high, and about 1.5 miles southward of **Long Beach Point**, is prominent when approaching the river. A brick stack and a standpipe in Wareham are conspicuous. The buoyed channel to the town is crooked and twisting; in April-May 1986, the controlling depth was 4 feet from Wareham River Entrance Buoy 14 to the upstream limit of the project. In October 1987, a sunken wreck was reported in the vicinity of Wareham River Entrance Buoy 10. A rock covered 6 feet is in the entrance about 350 yards south-southwest of Dry Ledge in about 41°41′59.9″N., 70°41′41.6″W., and several rocks and shoal spots covered 9 to 14 feet are within 0.75 mile west to southwest of the ledge. A shoal makes off southeasterly from **Cromeset Point**, 0.6 mile southward of Long Beach Point. In August 1981, it was reported that Long Beach Point covers at high water; caution is advised. The section near **Quahaug Bar,** north of Long Beach Point, is subject to shoaling. Depths shoal to 2 and 3 feet close to the buoyed channel. Small craft sometimes anchor just north of Long Beach Point. Highway and railroad bridges over the river above the wharves have 28-foot fixed spans with a clearance of 2 feet.

(201) The mean range of the **tide** at the entrance to Wareham River is about 4 feet. The velocity of the current is not great enough to materially interfere with a sailing vessel having a good breeze. During the first half of the ebb the current below the wharves of the town sets across the flats westward of the channel, and during the whole of the ebb it sets across the flats eastward of the channel below Long Beach Point. (See the Tidal Current Tables for predictions.) The river **ices** over for short periods during most winters.

(202) Vessels approaching Wareham river from Buzzards Bay pass 0.8 mile east of Bird Island Light and steer **351°** to the buoyed channel. Strangers should obtain local information regarding channel depths before navigating the river.

(203) The depth at the Wareham town landing was reported to be about 4½ feet in August 1981. The Wareham Harbor Patrol patrols the harbor during the summer boating season and enforces a **speed limit** of 5 knots. A boatyard, on the western side of Wareham Neck about 0.3 mile below the bridges, has a marine railway that can handle craft up to 45 feet for hull and engine repairs or storage. Gasoline, disel fuel, water, marine supplies, and a 25-ton mobile hoist are available. In August 1981, depths of about 6 feet were reported alongside the boatyard service float. Wareham has bus service.

(204) **Marks Cove**, on the west side of the channel to Wareham River between **Swifts Beach** on the north and **Cromeset Neck** on the south, has depths of 2 to 5 feet. The cove is used by small boats. In 1961, a 6-foot channel was dredged by the State through

the cove from the 6-foot contour to **Cedar Island** at the entrance to **Cedar Island Creek**.

(205) **Weweantic River**, entered southward of Cromeset Neck, has a narrow and crooked channel partly obstructed by rocks. A reported depth of about 3 feet can be carried past the rocks and as far as the highway bridge, with local knowledge. The channel is not marked. An overhead power cable crossing the river about 1.4 miles above the mouth has a clearance of 51 feet. The highway bridge, which is 1.7 miles above the mouth, has two fixed spans with a clearance of 5 feet. The channel is through the northeasterly 45-foot span. The river is navigable for 2 miles above the highway bridge by small craft drawing less than 2 feet. A small marina is just above the bridge. Gasoline, moorings, water, storage facilities, marine supplies, and outboard motor repairs are available. A flatbed trailer at the marina can haul out boats to 25 feet. In August 1981, depths of 5 to 6 feet were reported alongside the gasoline dock.

(206) From Wareham River to New Bedford the shore is indented sharply by rocks and ledges extending offshore nearly 2 miles in places.

(207) **Wings Cove**, between **Great Hill Point** southeast of Great Hill and **Piney Point** on the eastern side of **Sippican Neck**, has depths of 8 to 17 feet in its outer section. The cove affords protection from westerly winds; it is used only by small local craft.

(208) **Butler Point** is at the southern tip of Sippican Neck. Shoal water extends about 0.4 mile southward from the point to **Bird Island,** a round, low flat island.

(209) Southward and westward of Bird Island are several buoyed dangers. **Bird Island Reef**, covered 15 to 18 feet, is about 0.4 mile east-southeastward. About 0.5 mile southwestward is **Centerboard Shoal,** covered 12 feet. **The Bow Bells**, isolated shoals covered 11 to 18 feet, are about 0.6 to 1 mile southwest of Centerboard Shoal. An unlighted gong buoy is about 1.15 miles southward of Bird Island.

(210) **Sippican Harbor**, scene of much pleasure-boat activity, makes into the north shore of Buzzards Bay about 3 miles southward of Wareham River. The harbor is the approach to **Marion**, a small town on the western shore. It is entered between Bird Island on the east and **Converse Point** on the west. Prominent features include the abandoned lighthouse on Bird Island and the conspicuous house and flagpole on Converse Point. The standpipe on Sippican Neck can also be seen for a considerable distance.

(211) The town dock at Marion, approached through a channel marked by private seasonal buoys, has reported depths of 4 to 5 feet alongside. A yacht club and two boatyards at Marion provide gasoline, guest moorings, water, ice, marine supplies, mobile hoists to 30 tons, hull and engine repairs, and storage facilities. The boatyard at the head of the harbor can also provide diesel fuel. In August 1988, a reported depth of 4 feet could be carried to this boatyard. The **harbormaster**, who controls all mooring and anchoring in the harbor, monitors VHF-FM channels 16 and 9.

(212) **Mendells Rock** and **Seal Rocks** are shoal, rocky areas, northward of Converse Point extending up to 0.2 mile off the west shore of the harbor. **Planting Island**, a peninsula extending about 0.6 mile northwesterly from Sippican Neck, is on the eastern side of the harbor. At **Ram Island**, off Marion, the passage between the island and the western shore is less than 275 yards wide. The currents in the narrow portion of the channel have considerable velocity at times. **Little Island** lies on the western side of the channel about 0.2 mile northwestward of Ram Island. The buoyed channel has a reported depth of about 12 feet from the entrance to Marion.

(213) **Blankinship Cove** and **Planting Island Cove**, on the eastern side of Sippican Harbor, have a common entrance northward of Ram Island. They have general depths of 3 to 5 feet. **Meadow Island** separates the two coves. **Gibbs Rock**, marked by a private seasonal daybeacon, is 50 yards off the north point of Ram Island. A rock awash is charted 120 yards north of the daybeacon.

(214) **Hammett Cove** in the northeastern part of Sippican Harbor is shallow and used only by small local craft. The approach to the cove is marked by private seasonal buoys. Charted obstructions are close westward of the buoys.

(215) The mean range of **tide** at Marion is 4.0 feet. **Ice** usually closes Sippican Harbor for about a month or more each winter.

(216) **Aucoot Cove**, about 0.8 mile southwestward of Sippican Harbor, has depths of 10 to 19 feet. A 4-foot spot is near the center of the cove in about 41°40′23.2″N., 70°45′23″W., and the head of the cove is foul. The harbor is protected from all winds except southeast. An unmarked channel with depths of less than 1 foot leads to a boatyard west of **Haskell Island.** Local knowledge and a high tide are required to navigate to the boatyard, which can haul out craft up to 40 feet in length. The yard does general repairs and machine work. Gasoline, diesel fuel by truck, and marine supplies are available. The other coves between Sippican and Mattapoisett Harbors are foul and seldom entered.

(217) **Chart 13229.–Mattapoisett Harbor,** about 3.5 miles southwest of Sippican Harbor and 5 miles northeastward of New Bedford Harbor, is the approach to the town of **Mattapoisett**. The harbor is used by numerous yachts during the summer. Although exposed to southeasterly winds, the ledges at the entrance somewhat break the sea from that direction. A light on **Ned Point** marks the approach. A standpipe is in the town. Vessels anchor between Ned Point and the wharves in 13 to 17 feet.

(218) The entrance between **Angelica Point** and **Strawberry Point** on the east and **Mattapoisett Neck** on the west is about 1.5 miles wide. A buoyed natural channel leads through the numerous rocks and ledges in the entrance to the anchorage area off the town. The channel has a depth of about 14 feet but because of the broken bottom, vessels should proceed with caution over areas where the charted depths are not more than 6 feet greater than the draft. Strangers should not attempt to enter at night.

(219) There are many shoals and rocks, most of them buoyed, off the points and in the entrance. Off the west side of the entrance, **Mattapoisett Ledge** extends about a mile southeasterly from Mattapoisett Neck. **Nye Ledge**, covered 7 to 17 feet, about 0.4 mile southeastward of Mattapoisett Ledge, is marked by a seasonal lighted bell buoy. In or near the entrance channel are **Gallatin Rock**, covered 10 feet; **Sunken Ledge,** covered 3 feet; **Snow Rock**, covered 5 feet; and **Barstow Rock**, covered 8 feet. Near the town wharf, a rock, covered 3 feet, is marked by a buoy.

(220) A **special anchorage** is in Mattapoisett Harbor. (See **110.1 and 110.45a**, chapter 2, for limits and regulations.)

(221) The mean range of **tide** in the harbor is 3.9 feet. The stone wharf at the town has a reported depth of 6 feet alongside. Diesel fuel, gasoline, oil, water, ice, marine supplies, and a surfaced ramp are available. A boatyard in town can handle craft to 60 feet long and 7 feet in draft at the town ramp. A 5 mph **speed limit** is enforced in the mooring areas.

(222) A boatyard on the east side of the harbor provides limited guest berths, gasoline, diesel fuel, electricity, water, ice, storage facilities, marine supplies, and a 30-ton mobile hoist; hull and engine repairs are available. In August 1981, a reported depth of 5 feet could be carried to the boatyard.

(223) **Ram Island**, about 1.5 miles southwestward of Mattapoisett Harbor, is a low, grassy island connected to Mattapoisett Neck by a narrow shoal. Rocks and shoal water surround the island.

(224) **Cormorant Rock**, 0.9 mile southeastward of Ram Island, bares at half tide and is marked by a daybeacon. Ledges with very little water over them surround the daybeacon at a distance of 150 yards. A rock, covered 14 feet, is about 0.2 mile northeastward of the daybeacon; depths of 18 to 21 feet extend 0.2 mile southward. The channel between the rock and Ram Island has depths of about 15 feet.

(225) **Nasketucket Bay** is entered between Cormorant Rock on the east and **West Island** on the west. Northward and westward of West Island the bay is greatly obstructed by rocks and small islands. Because of these obstructions, only small craft proceed through the bay to **Little Bay**, at the head, or up **Nasketucket River.** The edges of Little Bay are foul, but excellent anchorage in all but strong southerly winds is available in the center of the bay in 3 to 6 feet, sticky mud. The entrance is made treacherous by obstructions and wind and should not be attempted without local knowledge. Numerous rocks, including **Whale Rock**, are on the east side of West Island at the entrance. A causeway connects the western side of West Island with **Long Island**. A fixed span in the causeway has a clearance of 5 feet. The depth at the bridge is 6 feet. The approach from southward to the west side of West Island runs among many sunken rocks and shoals, and is very dangerous. The causeway between Long Island and **Sconticut Neck**, the neck of land forming the east side of New Bedford Harbor, completely blocks passage between the two.

(226) Bare rocks and shoaling extend about 1 mile southerly of West Island, and from there to the New Bedford Harbor entrance are numerous isolated rocks and ledges, the most dangerous of which are buoyed. **Mosher Ledge**, about 1.1 miles south of **Wilbur Point**, has a least depth of 6 feet. Strangers should stay south of the buoys marking these dangers.

(227) **New Bedford Harbor**, a tidal estuary at the mouth of **Acushnet River** on the northwestern side of Buzzards Bay, is the approach to the city of New Bedford and the town of Fairhaven. The harbor is about 166 miles from The Battery at New York via Long Island Sound, and 83 miles from Boston via Cape Cod Canal. The harbor includes all the tidewater lying northerly of a line from Clarks Point at the southern extremity of New Bedford to Wilbur Point at the southern end of Fairhaven and extends to the head of navigation on Acushnet River at Acushnet. The outer harbor consists of the area south of the hurricane barrier at Palmer Island, and the inner harbor consists of the area north of the barrier to a short distance above the New Bedford-Fairhaven Bridge.

(228) **New Bedford** is a manufacturing city on the west side of the Acushnet River. **Fairhaven** is on the east side of the river. Principal shipping includes receipt of general cargo and frozen fish; exports are general cargo. Commercial fishing craft operate from the ports. The deepest draft entering is about 30 feet at high water.

(229) The approach from Buzzards Bay and the entrance to New Bedford Harbor are much obstructed by ledges and shoals, between which are several channels leading to the dredged entrance. The bottom is very broken, characterized by large boulders; vessels should proceed with caution when crossing areas off the general track when the charted depths are not more than 6 to 8 feet greater than the draft.

(230) **Prominent features.**–From the main channel numerous landmarks can be seen on the westerly side. Dumpling Rocks Light 5A off Round Hill Point, about 3 miles west of the channel, is conspicuous. About 0.5 mile westward of the radar dome on Round Hill Point is a radio tower. **Clarks Point**, on the west side of the channel, is marked by a granite fort. About 0.7 mile northeast of the point is Butler Flats Light near the edge of the shoal. A group of three stacks is on the west side of the inner harbor. Although there are no landmarks on Sconticut Neck, **Fort Phoenix** is a promontory fairly conspicuous just east of the channel, almost opposite Palmer Island. Several church spires are prominent in Fairhaven. A tall radio tower is on **Popes Island** in the inner harbor. A private light is on the northeast point of **Palmer Island,** about 0.2 mile inside the hurricane barrier. The lights marking the eastern and western sides of the hurricane barrier are also prominent.

(231) **Butler Flats Light** (41°36.2′N., 70°53.7′W.), a private aid 53 feet above the water, is shown from a white conical tower on a black cylindrical pier about 0.7 mile north-northeast of Clarks Point.

(232) **COLREGS Demarcation Lines.**–The lines established for Buzzards Bayand Vineyard Sound are described in **80.145**, chapter 2.

(233) **Channels.**–A Federal project provides for a 30-foot deep channel from Buzzards Bay to the turning basin just above the New Bedford-Fairhaven Bridge. (See Notice to Mariners and latest edition of charts for controlling depths.) The 350-foot-wide channel is constricted to 150 feet by a hurricane barrier across the inner harbor, protecting New Bedford Harbor, extending from the western shore over Palmer Island to Fort Phoenix on the east. The 150-foot gated opening will be kept in the open position during fair weather, but is closed during periods of high winds or high tides, or when a hurricane is expected. Lights marking the eastern and western sides of the opening are shown from the top of each of the two gate operations houses, 48 feet above the water. A fog signal is sounded from the west barrier light.

(234) Hurricane barrier traffic lights are displayed on the north side of the smaller, northerly house on the west side of the entrance and adjacent to the old fort at Clarks Point. Green lights are displayed when the gate is open. Red lights are displayed from 20 minutes before the start of closing the gate through reopening. In addition to the traffic lights, three flashing white strobe lights are shown; two from atop the west barrier operating house, one facing toward the harbor and one facing toward the bay, and a third light facing toward the bay adjacent to the old fort at Clarks Point. These sychronized lights flash every 20 seconds, but flash every 2 seconds from 20 minutes before the start of closing the gate through reopening.

(235) The controlling depth above the turning basin to the Coggeshall Street Bridge is about 15 feet. Above that point in Acushnet River there is little traffic except by launches and small craft.

(236) **Routes.**–The main channel to New Bedford Harbor is from Buzzards Bay Midchannel Lighted Bell Buoy BB (41°30.8′N., 70°50.1′W.) through the buoyed channel eastward of **Negro Ledge**.

(237) There are several other passages with least depths of about 21 feet that lead from Buzzards Bay to New Bedford Harbor west of the main channel. However, they are not as well marked as the main channel; unmarked shoals with depths of 9 to 18 feet are near the course lines.

(238) From a position about 0.3 mile south of Mishaum Ledge Lighted Gong Buoy 5 (chart 13230), a course can be set to pass about 500 yards east of Dumpling Rocks Light 5A to about 500 yards northwest of Decatur Rock Buoy 12, thence on a **006°** course to join the main channel near Butler Flats Light.

(239) An alternate approach can be made from a position about 0.3 mile southeastward of Wilkes Ledge Lighted Buoy 7 on a course of **004°** to join the main channel near Butler Flats Light. The high elevated tank at Fairhaven is a good leading mark for this leg.

(240) Strangers should not attempt to enter New Bedford Harbor except in clear weather when the aids are visible. Vessels should proceed with caution where the charted depths are less than 6 to 8 feet greater than the draft, because of the broken character of the bottom.

(241) **Anchorages.**–Before proceeding into New Bedford Harbor, vessels occasionally anchor in depths of 20 to 30 feet about 0.7 mile south of Clarks Point. Two general anchorages are in the outer harbor. (See **110.1 and 110.140 (a) and (d)**, chapter 2, for limits and regulations.) In the inner harbor vessels may anchor in the two dredged anchorage areas on either side of the channel in depths of 25 to 30 feet.

(242) **Dangers.**–The entrance to New Bedford Harbor is full of rocks and ledges, some covered 3 feet or less. Obstructions near the entrance passages are marked with buoys. The chart is the best guide.

(243) **Dumpling Rocks**, bare and covered, extend 0.4 mile southeastward from Round Hill Point. A light is on the easterly rock. A buoy marks the southeastern portion of the shoal area around the rocks, and a gong buoy is about 400 yards east of the light.

(244) **Wilkes Ledge**, 1.8 miles southeastward of Round Hill Point, is the southernmost danger at the entrance to the harbor. It is covered 9 feet with a wreck near the easterly part; a lighted buoy is close south-southwestward of the wreck.

(245) **Bridges.**–Four bridges cross Acushnet River at New Bedford. The first, the US6/New Bedford-Fairhaven Bridge, has a swing span with a clearance of 6 feet. (See **117.1 through 117.59 and 117.585**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign WHH-238. About 1 mile above this drawbridge is the Coggeshall Street Bridge, which has a fixed span with a clearance of 8 feet. A highway bridge with a fixed span and a clearance of 8 feet is just below the Coggeshall Street Bridge. About 1.3 miles above the Coggeshall Street Bridge is a fixed bridge with a clearance of 6 feet.

(246) **Tides.**–The mean range of tide is 3.7 feet.

(247) **Currents.**–Tidal currents are weak. From a series of current observations, conducted by the Corps of Engineers over a 2-day period in October 1965 at the center of the navigation opening of the New Bedford Hurricane Barrier, it was revealed that the maximum flooding and ebbing velocities were about 2.4 knots; average flood setting 344° and the ebb 144°. During flooding or ebbing a slight set towards the east barrier abutment may be experienced. During this same period it was further revealed that the time of slack water occurred about 30 minutes before the time of low or high water; that the maximum ebbing velocity occurred about 2 hours after the time of high tide; that the maximum flooding velocity occurred about 4 hours after the time of low tide; and that, generally, the maximum current occurred at about the same time as the most rapid change in the vertical height of the tide was taking place.

(248) **Weather, New Bedford Harbor and vicinity.**–The prevailing winds during the winter are from north to west, and during the summer from south to southwest. Thick fog is reported to close in quickly with little warning in New Bedford Harbor.

(249) **Ice.**–The channels and anchorage area usually are navigable throughout the year, although in prolonged periods of extreme cold weather the harbor as well as all of Buzzards Bay may be closed to navigation because of ice. Such conditions are infrequent and of short duration. Steamers generally can make their way through the ice in the harbor.

(250) **Pilotage, New Bedford.**–Pilotage is compulsary for foreign vessels and U.S. vessels under register. Pilotage for New Bedford is available from Northeast Marine Pilots, Inc., Newport, RI, 02840; telephone 401-847-9050 (24-hours), 800-274-1216, FAX 401-847-9052, cable RISPILOT, Newport. Pilots usually board vessels

(251) (a) off Buzzards Bay Midchannel Lighted Bell Buoy BB (41°30.8′N., 70°50.1′W.) or

(252) (b) about 1.5 miles eastward of Narragansett Bay Entrance Lighted Horn Buoy NB within an area bounded by

(253) 41°23.6′N., 71°22.4′W.,

(254) 41°22.6′N., 71°22.0′W.,

(255) 41°24.2′N., 71°20.0′W.,

(256) 41°22.6′N., 71°20.6′W. This latter pilot boarding area is southward of a line extending from Point Judith to Sakonnet Point. Vessels arriving from sea should approach this latter boarding station via the Narragansett Bay Traffic Separation Scheme inbound traffic lane.

(257) Pilots board vessels from the NEW BEDFORD PILOT, 35-foot with black hull with white superstructure with the word Pilot on the side. The pilot office and NEW BEDFORD PILOT monitor VHF-FM channel 16 and work on 10 and 18A. The pilots recommend that vessels, delayed because of weather or other reasons, anchor about 0.5 mile southwestward of Buzzards Bay Lighted Bell Buoy BB.

(258) Pilot services are generally arranged for in advance by ships' agents.

(259) **Towage.**–Oceangoing vessels usually require tug assistance when docking and undocking. Tugs up to 2,200 hp are based at New Bedford, and arrangements for their services are usually made through ships' agents. Tugs monitor VHF-FM channel 13 when expecting a vessel, and use channel 18A as a working frequency.

(260) New Bedford is a **customs port of entry.**

(261) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(262) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(263) New Bedford has several hospitals.

(264) **Coast Guard** vessels moor at the State Pier.

(265) **Harbor regulations.**–The New Bedford Harbor Development Commission, through the **harbormaster,** enforces the harbor regulations. The State Pier Traffic Manager is the State authority who directs anchoring, berthing, and movement of vessels, and discharging operations at the State Pier. Vessels are expected to proceed slowly in the vicinity of the piers. State laws forbid pollution and dumping of refuse and rocks inside the harbor. The harbormaster has an office just north of the State Pier.

(266) **Wharves.**–The New Bedford waterfront has many piers and wharves. The fishing industry uses most of these facilities. Only the deep-draft facilities are described, and the alongside depths for these facilities are reported; for information on the latest depths contact the operator. All of the facilities described have highway connections, and most have rail connections. Water is available at most piers and wharves. Cargo in the port is usually handled by ship's tackle. A 250-ton floating "A" frame derrick is available for heavy lifts by prior arrangement.

(267) New Bedford South Terminal Wharf: 500 yards westward of Palmer Island; 1,600 feet long; 30 feet alongside; 250,000 cubic feet of refrigerated storage; receipt of seafood products; owned by several seafood companies.

(268) Commonwealth Edison Co. Pier: 300 yards northward of South Terminal Wharf; north side 740 feet long, with dolphins; 30 feet alongside; receipt of petroleum products; vessels usually berth with bow inshore; owned by Commonwealth Electric and operated by New England Petroleum Corp.

(269) State Pier: 500 yards northward of New Bedford Gas and Edison Light Co. Pier; face 450 feet long, north side 600 feet long, south side 775 feet long; 30 feet alongside; 125,000 square feet covered storage; receipt and shipment of general cargo; owned and operated by the Commonwealth of Massachusetts, Division of Waterways.

(270) Maritime Terminal Wharf: westward of Fish Island; 600 feet long; 31 feet alongside; 3 million cubic feet of refrigerated storage; receipt of frozen food, fish, and chilled foodstuffs; shipment of general cargo; owned and operated by Maritime Terminal, Inc.

(271) Bridge Terminal Wharf: northeast side of Fish Island; 450 feet long; 28 feet alongside; 500,000 cubic feet of refrigerated space; receipt of frozen and chilled foodstuffs; owned and operated by Bridge Terminal, Inc.

(272) Frionor Processing and Distribution Center Wharf: 200 yards northwest of Fish Island; 580 feet long; 25 to 28 feet alongside; 63,400 square feet of refrigerated space, 57,500 square feet of freezer space, 34,700 square feet of covered storage space; receipt of frozen fish; owned and operated by Frionor Norwegian Frozen Fish Ltd.

(273) New Bedford North Terminal Wharf: 400 yards northwest of Fish Island; 1,000 feet long; 30 feet alongside; 14 acres of open storage; owned by New Bedford Harbor Development Commission and operated by various tenants.

(274) **Supplies.**–Gasoline, diesel fuel, water, provisions, and marine supplies of all kinds are available. Diesel oil and marine bunker fuels are available by truck. The water is excellent for drinking and boiler use; a water boat services craft at anchor.

(275) **Repairs.**–There are several boatyards at Fairhaven that can make hull, engine, and electronic repairs; storage facilities are also available. The largest marine railway in the area can handle vessels up to 130 feet, 800 tons, and 16-foot draft. Lifts to 50 tons are also available. Several repair firms in New Bedford are available for above-the-waterline repairs and engine repairs. Derrick lighters, some with air compressors and diving equipment, are also available.

(276) **Communications.**–There is only rail freight service to Boston and frequent bus service to Providence, Boston, and New York. A mail and passenger boat makes trips to Cuttyhunk twice weekly in the winter and daily in the summer. Seasonal passenger ferry service is also available to Martha's Vineyard. Air service is available to Boston, New York, Martha's Vineyard, Nantucket, and Cape Cod.

(277) The coast between New Bedford Harbor and the entrance of Sakonnet River is fringed with extensive shoals, many of them rocky and a considerable number of them well offshore. The entrances to several inlets are shoal and are used only by local fishing and pleasure boats.

(278) **Clarks Cove**, between New Bedford Harbor and Apponagansett Bay, affords anchorage in depths of 12 to 22 feet. It is exposed to southerly weather and is seldom used. Several small piers can accommodate small craft. Several rocks are off **Moshers Point** on the west side of the cove.

(279) **Apponagansett Bay,** about 2 miles southwestward of Clarks Point, shelters numerous pleasure craft and a few fishermen in the summer, but the bay is insecure in southeasterly gales. **Nonquitt** and **Bayview** are villages on the south side of the entrance and **South Dartmouth** is on the northerly shore. **Padanaram Breakwater** is marked on the southern end by a light. The approach to the bay is obstructed by numerous ledges and rocks, and strangers should enter only in the daytime with clear weather. Inside the breakwater the channel is marked by buoys. **Dartmouth Rock**, covered 4 feet, is on the northeast side of the channel. Private seasonal anchorage buoys mark the area off South Dartmouth, which is usually very crowded in the summer. A highway bridge at the village has a swing span with a channel width of 31 feet and a clearance of 8 feet. (See **117.1 through 117.59 and 117.587**, chapter 2, for drawbridge regulations.) Above the bridge, small craft anchor in a narrow channel near the eastern shore.

(280) The **harbormaster** controls anchoring and berthing in the harbor and can be contacted through the police department or VHF-FM channel 16. The **speed limit** in the harbor is 5 mph.

(281) Southward of the bridge is the landing of the New Bedford Yacht Club with depths of 7 to 11 feet off its face. Diesel fuel, gasoline, water, ice, sewage pump-out, and some marine supplies are available. Two nearby boatyards and a marina can provide limited guest berths, storage, complete marine supplies, and hull, engine, rigging, and sail repairs. The largest marine railway can handle craft to 55 feet; mobile hoists to 35 tons are also available. In August 1981, depths of 3 to 11 feet were reported at the slips.

(282) **Round Hill Point**, about 3.5 miles southwestward of Clarks Point, is marked by a prominent round hill on which is a white tower and a radar installation. Care should be taken not to confuse this tower with Dumpling Rocks Light 5A. Westward of the hill is a radio tower.

(283) Between Round Hill Point and **Salters Point**, 1.1 miles southwestward, **Hunts Rock Breakwater** extends 270 yards in a northeast-southwest direction.

(284) **Mishaum Point**, 1.9 miles southwestward of Round Hill Point, is the southern point of **Smith Neck**. Shoal water extends about 0.2 mile off the point.

(285) **Chart 13228.–Slocums River,** westward of Mishaum Point, has a bar at the entrance nearly bare at low water. The channel inside is narrow, unmarked, and little used. **Slocums Ledge**, extending 0.6 mile westward of Mishaum Point, covered 2 to 7 feet, is marked by a buoy. **Pawn Rock** uncovers 3 feet and is 0.2 mile easterly of **Barneys Joy Point**, the point on the west side of the river entrance.

(286) **Gooseberry Neck**, about 4 miles southwestward of Mishaum Point, is marked by several prominent towers. The neck, irregular and elongated, extends about 1 mile southward from **Horseneck Beach** to which it is joined by a narrow roadway over rock fill. The water surrounding the neck is very foul.

(287) Hen and Chickens and the dangers southward of it have been previously discussed under the entrance to Buzzards Bay.

(288) In addition to Hen and Chickens, numerous rocks and reefs surround Gooseberry Neck. Shoal water extends 0.6 mile southwestward of the neck to **Lumber Rock**, covered 4 feet and marked by a buoy, and over 0.5 mile westward to **Browing Ledge**, covered 6 feet. **Little Southwest Rock** is about 0.3 mile northeastward of Lumber Rock.

(289) **Westport River** empties into the large bight between Gooseberry Neck and Sakonnet Point (chart 13221). The mouth of the river is between **Horseneck Point**, 2.7 miles northwest of Gooseberry Neck, and **The Knubble**, a protruding mound of gran-

ite marked by a light about 0.2 mile south of Horseneck Point. The river is the approach to **Westport Harbor**, the area just inside the entrance; the village of **Westport Point**, on the north shore of the east branch of the river; and the village of **Acoaxet**, westward of The Knubble. Fishing and pleasure boats use the river as far as Westport Point.

(290) The channel is narrow and crooked, and marked by buoys. The depth over the bar is reported to be about 7 feet with about 8 feet in the buoyed channel to Westport Point. Depths over the bar are continually changing, and local information should be obtained as to depths and best water. Numerous rocks are in the channel below the bridge at Westport Point; caution is advised.

(291) Boats should not try to enter during strong southerly winds as heavy seas break over the entrance bar. About 1 mile above the entrance the river divides into two branches. The west branch is shallow, with a narrow channel marked by private seasonal buoys, and is used by local craft to opposite **Toms Point,** about 1.6 miles above the entrance. Above the Westport Point bridge, the east branch is marked by private seasonal buoys as far as the Hix Bridge, 4.7 miles above Westport Point. A reported depth of about 4 feet can be carried to this bridge with local knowledge.

(292) A highway bridge with a 49-foot bascule span and a clearance of 21 feet at the center crosses the river at Westport Point, about 2 miles above the mouth. (See **117.1 through 117.59 and 117.620**, chapter 2, for drawbridge regulations.) Hix highway bridge, about 6 miles above the mouth, has a 35-foot fixed span with a clearance of 3 feet. An overhead power cable on the north side of Hix bridge has a clearance of 37 feet.

(293) Approaching Westport River, boats must take care to pass westward of the dangers off Gooseberry Neck and eastward of the dangers off the river entrance. Numerous rocks and ledges are southward of the entrance to the river. **Twomile Rock**, 1 mile southeastward of Westport Harbor Entrance Light 5 on The Knubble, is marked by a daybeacon. Shoals with depths of 5 to 18 feet are southeasterly of the rock. A buoy is 0.35 mile south-southeast of the rock. **Halfmile Rock,** 3 feet high, is 325 yards southeast of the light on The Knubble. The shoal water surrounding the rock is marked by a buoy. The area south of The Knubble is very foul. Other unmarked dangers include **Twomile Ledge**, extending 1 mile south of The Knubble, and covered 2 to 12 feet; **Joe Burris Ledge** covered 14 feet, midway between Halfmile Rock and Twomile Rock, and **Pinetree Ground**, about 1 mile south of Twomile Rock, covered 25 to 30 feet.

(294) The shore in this vicinity should be given a berth of about 1.3 miles to avoid numerous rocks and ledges extending about 1 mile offshore for 2.5 miles westward of Westport Harbor.

(295) The mean range of **tide** is 3.0 feet. The tidal current in the entrance has a velocity of 2.5 knots, and caution is recommended when navigating the river. (See the Tidal Current tables for predictions.)

(296) Two piers, used by fishing and pleasure boats, are at Westport Point. These piers have reported depths of about 10 feet at their faces. Berthing at the piers is under the control of the **harbormaster,** who can be contacted through the town hall or police department.

(297) A 5 mph **speed limit** is enforced in the harbor.

(298) A boatyard and a marina are in the harbor. The boatyard is on Horseneck Point about 0.5 mile west of the highway bridge. The marina is on Westport Point about 0.1 mile west of the highway bridge. Berths, moorings, gasoline, diesel fuel, water, ice, launching ramps, and marine supplies are available. The largest marine railway is at the boatyard and can handle craft up to 60 feet for hull and engine repairs and dry open or covered storage.

(299) **Quicksand Point** is about 1.5 miles west of The Knubble. The boundary line between Massachusetts and Rhode Island is near the point. **Cutty Wow Rock**, awash at low water, is 1 mile southwestward of the point.

(300) **Briggs Point**, 2 miles southwestward of Quicksand Point, is surrounded by shoals and rocks. **Halfway Rock**, 2 feet high, is 0.4 mile southeastward of the point.

6. NARRAGANSETT BAY

(1) This chapter describes the Sakonnet River, Narragansett Bay, Mount Hope Bay, and Taunton and Providence Rivers. Also discussed are the ports of Newport, Fall River, and Providence, as well as the numerous other yachting and fishing centers in this area.

(2) **COLREGS Demarcation Lines.**–The lines established for this part of the coast are described in **80.145**, chapter 2.

(3) **Charts 13221, 13218.–Narragansett Bay**, opening into the north side of **Rhode Island Sound** 17 miles westward of Buzzards Bay entrance, is the approach to the cities of Newport, Providence, Fall River, and Taunton, as well as numerous towns and villages. **Rhode Island**, the largest island in the bay, forms the eastern shore of the bay proper. The entrance is between Brenton Point, the southwestern part of Rhode Island, on the east, and Point Judith Neck on the west. The bay is about 18 miles long from the entrance to the mouth of Providence River. Navigation of the bay is easy during day or night in clear weather as it is marked by navigational aids. The large **Conanicut Island** and **Prudence Island**, and several smaller islands, divide the bay into two passages. Sakonnet River, although not a part of Narragansett Bay, is included with it in the following discussion.

(4) East Passage is good for a least depth of about 60 feet for about 11 miles up the marked channel to the entrance of the dredged channel to Providence. West Passage is the approach to Dutch Island Harbor, Wickford, Greenwich Bay, and Providence River. Vessels of over 16-foot draft rarely go above Dutch Island Harbor without a pilot, but vessels of 16-foot draft or less should have no difficulty in going to the head of the bay and Providence River. Sakonnet River is good for a depth of 18 feet from the mouth to Mount Hope Bay.

(5) **Traffic Separation Scheme Narragansett Bay** has been established in the approach to Narragansett Bay through Rhode Island Sound. (See charts 13223, 13221, 13218, 12300.)

(6) The Scheme is composed basically of **directed traffic lanes** each with one-way inbound and outbound traffic lanes separated by a **defined traffic separation zone,** and two **precautionary areas,** one at the southern end and the other at the northern end of the directed traffic lanes and separation zones. The Scheme is recommended for use by vessels approaching or departing from Narragansett Bay, but is not necessarily intended for tugs, tows, or other small vessels which traditionally operate outside of the usual steamer lanes or close inshore.

(7) **The Traffic Separation Scheme has been designed to aid in the prevention of collisions at the approaches to major harbors, but is not intended in any way to supersede or alter the applicable Navigation Rules. Separation zones are intended to separate inbound and outbound traffic lanes and be free of ship traffic, and should not be used except for crossing purposes. Mariners should use extreme caution when crossing traffic lanes and separation zones.** (See Traffic Separation Schemes, chapter 1, for additional information.)

(8) The **southern precautionary area** in the southwest part of Rhode Island Sound has a radius of 5.4 miles centered on 41°06′06″N., 71°23′22″W., excluding those areas of the circle bounded by imaginary lines extending between the outer limits of the inbound and outbound traffic lanes. (Note that the southern precautionary area is common to the Traffic Separation Schemes for the approaches to both Narragansett Bay and Buzzards Bay.) The Traffic Separation Scheme for the approach to Buzzards Bay is described in chapter 5.

(9) The **separation zone** is a 2-mile-wide zone centered upon the following positions: (i) 41°22′39″N., 71°23′22″W., (ii) 41°11′07″N., 71°23′22″W.

(10) The **inbound traffic lane** is a 1-mile-wide lane with a length of about 11.5 miles. Entering the traffic lane at a point in about 41°11′06″N., 71°21′24″W., a course of **000°** follows the centerline of the traffic lane to a junction with the northern precautionary area.

(11) The **outbound traffic lane** is a 1-mile-wide lane with a length of about 11.5 miles. Entering the traffic lane at a point in about 41°22′39″N., 71°25′24″W., a course of **180°** follows the centerline of the traffic lane to a junction with the southern precautionary area.

(12) The **northern precautionary area** has a 3.55-mile radius centered on a point in about (41°25′35″N., 71°23′22″W.), excluding those areas of the circle bounded by imaginary lines extending between the outer limits of the inbound and outbound traffic lanes.

(13) A 2-mile-wide **restricted area** extends from the northern limits of the Narragansett Bay Approach traffic separation zone to 41°24.7′N. This restricted area within the precautionary area will only be closed to vessel traffic by the Naval Undersea Warfare Center Division, Newport, during periods of daylight and optimum weather conditions for torpedo range use. The closing of the restricted area will be indicated by the activation of red flashing lights on naval vessels supporting the torpedo range activities. There would be no vessel restrictions expected during inclement weather or when the torpedo range is not in use.

(14) The Traffic Separation Scheme is not buoyed. A group of buoys within the separation zone and the precautionary area mark the torpedo range; these buoys are not related to the Scheme.

(15) **Narragansett Bay Entrance Lighted Horn Buoy NB** (41°23.0′N., 71°23.4′W.) is at the north end of the separation zone and is equipped with a fog signal and racon.

(16) A **safety zone** has been established about 2 miles northward of Buoy NB for Liquefied Petroleum Gas (LPG) vessels. (See **165.20, 165.23, and 165.121,** chapter 2, for limits and regulations.)

(17) **Security Broadcast System, Narragansett Bay.**–In conjunction with various maritime interests, the Coast Guard has developed a system of recommended radiotelephone procedures for Narragansett and Mount Hope Bays that is designed to supplement the Vessel Bridge-to-Bridge Radiotelephone Regulations (33 CFR 26) (see chapter 2). These **voluntary** procedures consist of Security calls to be made by vessel masters, pilots, or operators on VHF-FM channel 13 (156.65 MHz) at designated points. The procedures are designed to give notice of unseen vessels, give notice of intended movement, clear channel 13 of traffic unrelated to navigation, give each vessel information on all others in the immediate vicinity, and to do so at little cost and with as little radiotelephone traffic as possible. These recommendations do not relieve a master, pilot, or operator of any requirements of law or regulation. There is no guarantee that every vessel will follow them.

(18) Inbound vessels should make Security calls when abeam of Narragansett Bay Entrance Lighted Horn Buoy NB, when off Castle Hill Light, and when at the south end of Prudence Island (state whether bound for Providence or Fall River). The call at Castle Hill Light alerts outbound vessels so that they can pass East Passage Lighted Bell Buoy 11 close aboard, as during ebb current they tend to be set toward the center of the channel. Vessels bound for Providence should make additional Security calls when off Popasquash Neck and when approaching Bullock Point Light 26A. Vessels bound for Fall River should call Brightman Street Bridge when they enter Mount Hope Bay to allow sufficient time for opening of the bridge.

(19) Vessels outbound from Providence should make Security calls when leaving their dock and when off Popasquash Neck. Vessels outbound from Fall River should make calls when leaving their dock, when approaching Mount Hope Bridge, and when off Gould Island.

(20) **Anchorages.**–The principal anchorages for vessels seeking shelter are Newport Harbor in the East Passage and Dutch Island Harbor in the West Passage. These harbors afford anchorage with good holding ground for deep-draft vessels, and are sometimes used by coasting vessels on the passage between Vineyard Sound and Long Island Sound. Good anchorage will be found almost anywhere in the bay under the lee of islands or the shore, where vessels becalmed or at night frequently anchor. Point Judith Harbor of Refuge is just west of Point Judith. General and explosives anchorages are in Narragansett Bay. (See **110.1 and 110.145,** chapter 2, for limits and regulations.)

(21) **Routes.**–Vessels approaching from eastward should shape their approach to pass well south of Seal Ledge and Brenton Reef. Brenton Reef and other dangers on the easterly side of the entrance will be avoided by keeping Castle Hill Light bearing eastward of 003° and passing westward of the lighted whistle buoy and the gong buoy off Brenton Reef and the bell buoy off Butter Ball Rock. Approaching from westward, from a position with Point Judith Light bearing 344° distant 2 miles, vessels may steer **028°** for about 9 miles to a position 0.5 mile west of Castle Hill Light, thence follow the navigational lights in the bay. The recommended route, however, for deep-draft vessels is via the Narragansett Bay Approach Traffic Separation Scheme, which is described earlier in this chapter.

(22) **Tides.**–The tidal movement in Narragansett Bay with its vertical and horizontal constituents–tide and current, respectively–is a continuation of the tide wave of the Atlantic Ocean. This wave sweeps into the three entrances between Sakonnet Point and Point Judith and continues up the bay and into each of its tributaries until stopped by rapids or other obstructions. As is usual when oceanic tidal movements enter inland waterways, the nature of the movement is modified by the hydrographic features encountered. In this area the local features are such that the current movement in particular is subject to considerable distortion. The mean range of the tide varies from about 3.5 feet at the entrance to 4.6 feet at Providence. (See the Tide Tables for predictions.)

(23) **Currents.**–The flood current in Narragansett Bay frequently has two maximums of velocity separated by a minimum velocity which at times becomes an ebb flow. Over the greater part of the bay, the usual maximum flood or ebb velocity is from 0.2 knot in the broad portions of the waterways to 1.5 knots in the more constricted sections. Velocities of about 1.4 knots occur at the bridges in Seekonk River, a velocity of about 1.7 knots in the narrows at the mouth of Kickamuit River, and a velocity of 2.3 to 2.7 knots at the bridges in Sakonnet River. In Sakonnet River, from the highway bridge to its mouth, current velocities are small, being generally less than 0.5 knot. (See the Tidal Current Tables for predictions, and the Tidal Current Charts, Narragansett Bay, for hourly velocities and directions of the current.)

(24) **Weather, Narragansett Bay and vicinity.**–In the entrance to the bay and its approaches, fogs are more prevalent from April to October. The fogs are brought in by winds from east through south to southwest and are cleared off by northerly and westerly winds. The usual duration of the fog is 4 to 12 hours, but periods of 4 to 6 days have been known with only short clear intervals. The head of the bay will sometimes be free from fog while the entrance is completely shut in.

(25) Navigation of the bay and its tributaries is sometimes impeded by floating ice and in severe winters by packs of field ice. The ice which breaks up in Providence River and Mount Hope Bay is set by north and northeast winds down the bay through East Passage. If there is much ice, a gorge is sometimes formed at Fort Adams, but it is of short duration. The passages are rarely closed for any length of time below Gould Island in the East Passage and Dutch Island in the West Passage. During January and February, Mount Hope Bay, Bristol Harbor, Warren, Providence River, Greenwich Bay, and Wickford are usually closed to sailing vessels unaided by power. The inner harbor of Newport is also sometimes closed during these months with the exception of a channel kept open by vessels. It can get nasty at the mouth of Narragansett Bay when strong winds oppose the currents. Rounding Point Judith can be rough or interminable, due to the confluence of tidal currents. Also local wind conditions can cause the tide to turn earlier or later than predicted in the tables.

(26) **Pilotage, Narragansett Bay and Other Rhode Island Waters.**–Pilotage is compulsary for foreign vessels and U.S. vessels under register when entering and departing Narragansett Bay and all ports of the waters of the State of Rhode Island.

(27) Pilots for Narragansett Bay are available from Northeast Marine Pilots,Inc., Newport, RI; telephone 401-847-9050 (24 hours), 800-274-1216, FAX 401-847-9052, cable RISPILOT, Newport.

(28) Pilots board vessels about 1.5 miles eastward of Narragansett Bay Entrance Lighted Horn Buoy NB within an area bounded by

(29) 41°23.6′N., 71°22.4′W.,

(30) 41°22.6′N., 71°22.0′W.,

(31) 41°24.2′N., 71°20.0′W.,

(32) 41°22.6′N., 71°20.6′W. This pilot boarding area is southward of a line extending from Point Judith to Sakonnet Point. Vessels arriving from sea should approach this boarding station via the Narragansett Bay Traffic Separation Scheme inbound traffic lane.

(33) Vessels bound for Long Island Sound ports may board pilots in the vicinity of Point Judith Lighted Whistle Buoy 2, within a 1-mile radius circle centered in 41°17.2′N., 71°30.4′W.

(34) Pilots board from the Northeast Marine Pilots, Inc. pilot boat NORTHEAST II, 49-foot, with grey hull and superstructure and the word PILOT on the side; or RHODE ISLAND PILOT, 35-foot, with black hull and white superstructure and the word PILOT on the side; or NORTHEAST I, 49-foot, similiarly marked as the RHODE ISLAND PILOT. A vessel should confirm her ETA by VHF-FM radio at least 2 hours before arrival. The pilot office monitors channels 16, 10 and 14. The pilot boats monitor channels 16, 10, 13, and 14, and work on 10.

(35) Vessels to be boarded should provide a ladder 3 feet above the water on the lee side.

(36) Pilot services are generally arranged at least 24 hours in advance through ships' agents or directly by shipping companies.

(37) **Chart 13221.–Sakonnet River,** on the easterly side of Narragansett Bay, is between the mainland and the eastern shore of Rhode Island. The width of the river varies from 0.7 to 2 miles except at its northern end where a least width of 0.3 mile is found. The river is little used except by fishing vessels and small craft. A private light is about 75 yards north-northwest of the tower.

(38) The channel of Sakonnet River is good for a depth of 18 feet from the mouth to Mount Hope Bay. There are numerous shoals and outlying rocks, but the dangers are well marked by buoys. Except for the breakwater light off Sakonnet Harbor, no lighted aids are in the river, and strangers should not attempt to navigate it at night.

(39) Good anchorage for vessels drawing up to 17 feet can be had in midriver just below High Hill Point in depths of 21 to 28 feet. Although open to the southward, a heavy sea seldom reaches as far as this anchorage. In southeasterly gales the water is comparatively smooth inside the mouth of the river. Fishermen seeking shelter frequently anchor on the flats in the bight northward of Fogland Point in depths of 10 to 14 feet.

(40) **Sakonnet Point**, at the eastern entrance to Sakonnet River, is surrounded by bare and submerged rocks. Several islets and islands are south of the point. **Schuyler Ledge**, with a least depth of 8 feet, is about 0.8 mile southward of the point, and is marked by a bell buoy. A seasonal fishtrap area marked by private buoys is about 0.7 mile southwest of the point.

(41) **Cormorant Rock**, a bare dark rock off the western side of the entrance to the river, is about 0.8 mile south of **Sachuest Point**, the southeastern extremity of Rhode Island. Vessels should not pass between Cormorant Rock and **Cormorant Reef**, 0.3 mile southward of the rock. The least depth on the reef is 4 feet; it is marked by a bell buoy.

(42) The mean range of **tide** at Sakonnet Point is 3.1 feet. (See the Tide Tables for predictions.)

(43) The two bridges and the remains of the abandoned highway bridge at the north end of Sakonnet River act as dams to maintain the water at different levels on either side of them, causing dangerous **currents** through the openings. The currents change with great rapidity both in velocity and in direction, and are characterized by a double flood. (See the Tidal Current Tables for predictions, and the Tidal Current Charts, Narragansett Bay, for hourly velocities and directions of the current.) Vessels usually pass through the draws near the times of slack water.

(44) The river north of Fogland Point is usually closed by **ice** for short periods each winter. Ice packs occur at the railroad bridge.

(45) Vessels proceeding up Sakonnet River should follow a midriver course to the constricted part of the river, thence follow the channel marked by buoys into Mount Hope Bay.

(46) **Sakonnet Harbor**, a small-boat harbor on the northerly side of Sakonnet Point, about 2 miles northeastward of the entrance lighted whistle buoy, is protected by an 800-foot breakwater extending in a northerly and easterly direction from **Breakwater Point**. A light marks the outer end. In July 1994, the harbor had a controlling depth of 6 feet except for shoaling to 5 feet along the southern edge and 2½ feet along the NW edge. The holding ground in the harbor is reported to be poor. A marina on the southwest side of the harbor provides berths, gasoline, diesel fuel, and electricity. In August 1981, depths of 6 feet were reported alongside the berths.

(47) The western shore of Sakonnet River from the entrance to Sandy Point should be given a berth of 0.4 mile to avoid shoals with depths of 7 to 17 feet. Rocks extend up to 500 yards offshore between Sachuest Point and **Flint Point**, about 1 mile northward. **Flint Point Ledge**, about 0.5 mile north-northeast of Flint Point, has a least depth of 7 feet; a buoy marks the ledge. **Black Point** is a rocky bluff on the western side of the river, 2.6 miles northward of Flint Point. **Sandy Point** and **McCorrie Point**, low and backed by high land, are 3.9 and 5.4 miles, respectively, northward of Flint Point.

(48) The channel passes eastward of **Gould Island,** a high wooded island, 2.5 miles north-northeastward of McCorrie Point. This Gould Island should not be confused with one of the same name in East Passage. A rock with a depth of 1 foot is northwestward of the island and is marked by a buoy.

(49) The eastern side of Sakonnet River is bolder than the western side. The east shore should be given a berth of 0.7 mile from Sakonnet Point to **Church Point**, a flat point with bluffs at the water, about 2.8 miles northward of Sakonnet Point. **Old Bull**, with a depth of 1 foot, is about 0.5 mile southward of Church Point and marked by a buoy. A church spire at **Little Compton**, about 1.7 miles east of Church Point, is prominent. **High Hill Point**, about 3 miles north of Church Point, is a prominent small hill with bluffs at the water. **Fogland Point**, about 0.9 mile northward of High Hill Point, is a projecting prominent point; the westerly and northerly sides should be given a berth of over 200 yards. **Almy Rock**, bare at low water, is 0.3 mile southwest of Fogland Point. The broad bights between Fogland Point and the bridge are shoal.

(50) **Nannaquaket Pond**, on the east side of Sakonnet River eastward of Gould Island, has a narrow entrance 8 feet deep crossed by a fixed bridge with a clearance of 12 feet. The deeper water in the entrance is along the northern shore; several rocks are off the southern shore. The currents have considerable velocity. The northern part of the pond has depths up to 26 feet; the remainder has depths of about 3 feet.

(51) **The Cove**, on the western side of the river south of the bridges, has a depth of about 9 feet in the entrance; the 31-foot-wide fixed highway bridge across the entrance has a clearance of 25 feet. Depths are generally 3 to 4 feet in the cove.

(52) **Tiverton** is a town on the eastern bank of Sakonnet River north and south of the bridges. Oil tankers call at Tiverton. The oil piers northward of the bridges have reported depths of about 32 to 35 feet alongside.

(53) Small-craft facilities at Tiverton and at **Almy Point** on the west side of Sakonnet River across from Tiverton can provide berths, electricity, gasoline, diesel fuel, water, ice, storage, marine supplies, a launching ramp, and hull and engine repairs. Marine railways on both sides of the river, at Tiverton and Almy Point, can handle craft to 55 feet. Mobile hoists to 35 tons are available at Almy Point.

(54) The channel at the north end of Sakonnet River, 0.6 mile above Gould Island, is restricted to a width of 100 feet between the abutments of a former highway bridge. The fixed highway bridge, 0.8 mile to the northward, has a clearance of 65 feet. About 200 feet north of the highway bridge, a railroad bridge across the river has a swing span with a clearance of 12 feet in the west opening. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) In July 1991, the bridge was reported to be maintained in the open position. The overhead power cable at the railroad bridge has a clearance of 81 feet.

(55) **Chart 13223.**–The southern shore of Rhode Island is rocky with numerous offlying rocks and ledges. Numerous prominent residences are on the eastern side of **Newport Neck**, the southwestern part of Rhode Island. A large brick residence with several towers is on the southeastern point of Newport Neck. **Easton Point** is about 1.3 miles eastward of Newport Neck. A stone tower with a short spire at each corner can be seen from offshore, about 0.7 mile northward of Easton Point. Westward of Easton Point is a bathing beach with a prominent pavilion. Several private landings are northward of **Gooseberry Island**, a small islet south of Newport Neck. Local knowledge is required to proceed to the landings.

(56) **East Passage**, the principal passage in Narragansett Bay, extends between Rhode Island on the east and Conanicut and Prudence Islands on the west. It is the most direct route to Newport, Bristol, Providence, Mount Hope Bay, and Taunton River.

(57) The Newport Bridge, a fixed highway suspension bridge, crosses East Passage about 3.6 miles above the entrance, between Jamestown and Newport. Clearances through the 1,500-foot center span are 213 feet at the center, 205 for the mid 1,000 feet, and 194 feet for the remainder of the center span. A privately maintained fog signal is sounded at the bridge.

(58) **Brenton Point** is the southwestern extremity of Rhode Island and the eastern entrance point of East Passage.

(59) **Brenton Reef**, bare in places, extends 0.5 mile south-southwestward of the point and is marked by a gong buoy. Another reef extends 0.5 mile offshore just eastward of the point; **Seal Rock** is at the southeastern end of the reef.

(60) **Seal Ledge**, about 0.5 mile south of Seal Rock, has depths of 12 to 30 feet and is marked by a bell buoy. **Haycock Ledge**, 0.4 mile eastward of Seal Rock, has a least depth of 11 feet.

(61) **Beavertail Point** is the southern extremity of Conanicut Island, on the western side of the entrance to East Passage. **Beavertail Light** (41°27.0′N., 71°24.0′W.), 64 feet above the water, is shown from a square granite tower attached to a white dwelling at Beavertail Point. A fog signal and a radiobeacon are at the light. Several antennas and radar towers are north of the light. **Newton Rock,** a covered rock, is about 0.1 mile southward of the point; a bell buoy is about 0.2 mile southwestward of the rock.

(62) **Hull Cove**, about 1 mile northeastward of Beavertail Light, is rocky and exposed to southerly winds. **Castle Hill**, the westernmost point of Rhode Island, is marked by Castle Hill Light; a fog signal is at the light. **Castle Hill Coast Guard Station** is close east of the light. **Butter Ball Rock,** about 0.2 mile south of the light and marked by a bell buoy, uncovers 1 foot.

(63) **Mackerel Cove** indents the southern shore of Conanicut Island about 1.6 miles northeastward of Beavertail Light. A house with a cupola is prominent on **Southwest Point**, the eastern entrance point of the cove. The cove is exposed to southerly weather and is seldom used. The Jamestown Bridge shows prominently over the bar at the head of the cove on entering East Passage. **Kettle Bottom Rock**, about 0.2 mile southeastward of Southwest Point, is bare and marked by a gong buoy.

(64) **Bull Point**, the southeastern point of Conanicut Island, is rugged and rocky, and fringed by shoals which are marked by buoys. **Fort Wetherill** is on the point. **The Dumplings**, northeast of Bull Point, are numerous bare and covered rocks and islets. The most southerly islet has a tall house on it, covering almost the entire islet.

(65) **Fort Adams** is on a peninsula off the north side of Newport Neck. The buildings and masonry of the fort are promient on the western slope of the peninsula. A dock extending northward from the fort is marked by a light and fog signal.

(66) **Newport Harbor**, on the western shore of Rhode Island and the eastern side of East Passage, 3.5 miles above Beavertail Light, is an important harbor of refuge for coasters, tows, and yachts. Its approach is well marked by navigational aids, and the harbor is of easy access day and night. A State regulatory buoy in the entrance to the inner harbor marks a **"5 mph no wake" zone. Goat Island,** 0.6 mile long in a north-south direction, is a major pleasure boating center and divides Newport Harbor into an outer and inner harbor. The outer harbor, on the western side of Goat Island, is northward of The Dumplings and southward of Gould Island. The inner harbor is on the eastern side of Goat Island and extends along the western front of Newport.

(67) A marina, hotel, recreational and service facilities, and marine supplies are available on Goat Island.

(68) **Newport**, a city on the inner harbor, is one of the principal summer resorts on the Atlantic Coast. Some coastwise traffic uses the port, but few foreign vessels enter it. A Naval Education and Training Center is here, from which several Navy ships operate.

(69) **Prominent features.**–The following objects are prominent when approaching Newport Harbor either from the southward or northward: a hotel on Goat Island; a white building of the yacht club near Ida Lewis Rock in the southerly part of the harbor; church spires in the town; and the buildings of the Naval Education and Training Center and Naval War College on Coasters Harbor Island in the north part of the harbor. To the westward on Conanicut Island are several large hotels and a standpipe. Numerous navigational aids mark the passages through the harbor.

(70) The entrance to the outer harbor from the southward is unobstructed; the entrance from northward, passing either side of Gould Island, is clear, but the passage eastward of Rose Island is partly obstructed by the rocks and ledges between Rose and Coasters Harbor Islands.

(71) The inner harbor has two entrances north and south of Goat Island. A fixed highway bridge with a 40-foot span and a clearance of 14 feet connects the Newport mainland to the northern part of Goat Island. This bridge limits the size of vessels that can enter the inner harbor from the northern approach.

(72) **General anchorages** are in the outer and inner harbor and, except in emergencies, vessels must anchor in these areas. (See **110.1 and 110.145, (a) (1), (a) (3) through (a) (5), and (d),** chapter 2, for limits and regulations.) **Special anchorages** are in Brenton Cove and in the inner harbor east and northeast of Goat Island. (See **110.1, 110.1a, and 110.46,** chapter 2, for limits and regulations.) Vessels of more than 18-foot draft anchor in the outer harbor in depths of 36 to 100 feet with good holding ground.

(73) Good anchorage is in **Brenton Cove**, the bight eastward of Fort Adams, which is used frequently by yachts. When entering, the western shore should be given a berth of 200 yards.

(74) In 1981, the harbormaster requested that transient craft anchor only in the northern part of the Brenton Cove anchorage and in the anchorage northeast of Goat Island.

(75) Shoals with little water over them make out nearly 300 yards from the southern shore of the inner harbor to **Ida Lewis Rock** and **Little Ida Lewis Rock**; the latter is marked by a daybeacon.

(76) Goat Island is marked by a light at its northern end and a light and fog signal at its southern end. Buoys mark the shoals along the southeasterly and southerly sides of the island.

(77) **Rose Island**, privately owned, is surrounded by a shoal with little water over it. The shoal extends about 0.4 mile northeastward of the island where it rises abruptly from deep water. A rocky area extends southward from Rose Island and is marked by a buoy. A private light marks the southeast point of the island.

Mitchell Rock, with a depth of 14 feet and marked by a gong buoy, is about 0.1 mile southeast of the dock on the southeast side of the island. **Citing Rock**, 2 feet high, is 350 yards east of the north end of the island and on the edge of the shoal surrounding Rose Island. **Tracey Ledge**, covered 10 feet, is about 0.3 mile eastward of Rose Island and marked by a buoy.

(78) **Gull Rocks** are about midway between Rose Island and Coasters Harbor Island. Buoys mark the ends of the shoals and rocks that extend northward and southward of the rocks. There is deep water between Gull Rocks, Rose Island, and Coasters Harbor Island. A rock, covered 17 feet and marked by a buoy, is about 0.3 mile north-northwestward of Gull Rocks.

(79) Off the northern and southern sides of **Coasters Harbor Island** are numerous rocks and ledges. A private light marks an obstruction in the channel south of the island **St. Patrick Rock,** covered 5 feet, is about 0.3 mile southeastward of the island. The island has numerous buildings. Two highway bridges connecting the island to Newport have 31-foot fixed spans with clearances of 3 feet. Overhead power cables of unknown clearance cross the harbor 0.1 mile north of the northern bridge.

(80) The western portion of the outer harbor is generally free of dangers northward of The Dumplings.

(81) **Tides.**–The mean range of tide is 3.5 feet. (See the Tide Tables for predictions.)

(82) **Currents.**–In the entrance off Bull Point the flood current is often irregular. There may be a long period of slack water preceding the flood, or there may be a double flood. The flood reaches a strength of about 1.2 knots; the ebb is regular and averages 1.5 knots at strength.

(83) Northward of Bull Point, tidal current velocities seldom exceed 1 knot. In the inner harbor they are usually less than 0.5 knot. (See the Tidal Current Tables for predictions, and the Tidal Current Charts, Narragansett Bay, for hourly velocities and directions of the current.)

(84) **Weather, Newport and vicinity.**–The prevailing winds are southwesterly in the summer and northwesterly in the winter. The heaviest gales are usually from the northwest and northeast.

(85) The harbor and its approaches are navigable throughout the year, although in severe winters **ice** may interfere with navigation in the inner harbor for short periods. Vessels and tugs keep ice well broken up in the main channel through the inner harbor.

(86) July is the warmest month with an average maximum of 79°F (26.1°C) and average minimum of 63°F (17.2°C). January is the coldest month, having normal mean temperatures near freezing, that is, average maximum of 38°F (3.3°C) and average minimum of 23°F (-5°C). The extreme maximum temperature for Newport is 98°F (36.7°C) recorded in August 1975 while the extreme minimum is - 9°F (-22.8°C) recorded in January 1982.

(87) Precipitation is fairly evenly distributed throughout the year averaging about 45 inches (1143 mm) in any given year. The wettest month is November averaging 4.57 inches (116 mm) and the driest month is July averaging only 2.94 inches (75 mm). Total snowfall for the winter season averages about 20 inches (508 mm); however, melting is usually rapid and snow cover rarely lasts more than a very few days. The greatest snowfall in a 24-hour period was 20.0 inches (508 mm) in February 1978. January is the snowiest month averaging over seven inches (178 mm). Snow is absent from May through September. An average of only five days each year has snowfall amounts greater than 1.5 inches (38 mm).

(88) **Pilotage, Newport.**–See Pilotage, Narragansett Bay and Other Rhode Island Waters (indexed as such), early this chapter.

(89) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(90) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(91) Newport is a **customs port of entry.**

(92) The Coast Guard **vessel documentation** office at Providence serves Newport. (See appendix for address.)

(93) **Harbor regulations.**–The **harbormaster,** under the supervision of the Recreation Department, is charged with the enforcement of harbor regulations, the movement of vessels, and assignment of moorings and anchoring. The harbormaster may be contacted through the Police Department. The **speed limit** inside the harbor is 5 mph.

(94) **Wharves.**–Facilities include a city wharf and numerous private piers. The depths alongside the principal piers range from about 7 to 18 feet.

(95) **Supplies.**–Gasoline, diesel oil, diesel fuel, water, provisions, and marine supplies may be obtained at Newport.

(96) Launch services are available in the harbor.

(97) **Repairs.**–Newport has a commercial shipyard specializing in repair, construction, and conversion of steel and aluminum vessels. The marine railway is at the shipyard in the inner harbor and can handle vessels to 330 feet long, 63 feet wide, and 21.6 feet in draft. Cranes to 60 tons are available.

(98) **Small-craft facilities.**–There are numerous facilities in Newport harbor. Mobile hoists up to 60 tons are available. Complete small-craft hull and engine repairs can be made.

(99) **Communications.**–Newport has bus and rail transportation. In the summer the ferry between Block Island and Providence calls at Newport.

(100) **Jamestown** is a town on the east side of Conanicut Island in a bight on the west side of East Passage. A standpipe in the southern part of the town and a hotel near the waterfront are prominent. The bight is a popular summer anchorage for local craft. A marina basin protected by a detached breakwater is in the center of the bight. Jamestown has two boatyards. The largest marine railway can handle craft to 80 feet, and the largest lift is 50 tons. Berths, electricity, gasoline, diesel fuel, water, ice, some marine supplies, and complete hull, engine, and electronic repairs are available.

(101) **Potter Cove** is about 1 mile above the marina basin just north of **Taylor Point**. This cove should not be confused with the Potter Cove off Prudence Island. About 1 mile north of Taylor Point are the ruins of a pontoon pier.

(102) **Coddington Point** is about 0.5 mile northward of Coasters Harbor Island on the east shore of East Passage. **Bishop Rock Shoal**, 0.6 mile southwestward of the point, is covered 9 feet and marked by a lighted bell buoy. **The Sisters**, rocks awash westward of the point, are marked by a buoy.

(103) **Coddington Cove**, eastward of Coddington Point, is protected on its north side by a curving breakwater 0.7 mile long, marked at its end by a light and fog signal. Two long finger piers are inside the cove; the north side of the northerly pier is used by the Navy, and the southerly pier is used by a shipyard. Depths of 30 feet are reported alongside both piers. Navy buildings on shore and buildings at the shipyard are conspicuous.

(104) **Danger Zone.**–A prohibited area surrounds Gould Island and extends north to include waters between **Conanicut Island** and Prudence Island. (See **334.80**, chapter 2, for limits and regulations.)

(105) **Gould Island,** a military reservation, is about 2 miles north of Rose Island and 0.8 mile east of Conanicut Island. A light is on the south end of the island. The island is sparsely wooded; a prominent tall water tank is near the center of the island. In August 1986, a submerged obstruction was reported about 0.7 mile northeast of the island in about 41°32′37″N., 71°19′52″W; caution is advised.

(106) **Halfway Rock** and **Fiske Rock** are about 1.8 miles northeastward of Gould Island, on a small ledge bare at its southern end. Halfway Rock is marked by a daybeacon and Fiske Rock by a buoy. Strangers should not pass between these aids.

(107) An elevated tank on the high ground near the southerly end of Prudence Island is prominent from East Passage.

(108) A mussel farming area is about 1.3 miles northeast of the breakwater at Coddington Cove in the vicinity of the pier at **Lawtons.** Submerged equipment and numerous buoys extend several hundred yards offshore and for about 0.5 mile north and south of the pier. Caution is advised in the area.

(109) **Dyer Island**, about 0.8 mile eastward of the southern portion of Prudence Island, is low and brush covered. A reef, partly bare, extends 0.4 miles southward and southwestward of the island, and is buoyed. Between the shoal area south of Dyer Island and Rhode Island is a bar with depths of 9 to 17 feet over it. North of Dyer Island is a reef with depths of 6 to 18 feet.

(110) **Melville**, a military fueling facility, is on the west shore of Rhode Island, east of Dyer Island. Depths alongside the fuel piers range from 40 to 45 feet. An elevated spherical tank, about 0.6 mile south-southeastward of the fuel facility, is prominent.

(111) A small-craft facility is in a basin at **Coggeshall Point,** just north of Melville. Berths, gasoline, diesel fuel, electricity, water, ice, complete marine supplies, and a 50-ton mobile hoist are available; engine, hull, and electronic repairs can be made. In July 1981, depths of 9 to 15 feet were reported in the basin.

(112) Near **Arnold Point**, about 2 miles north of Melville on Rhode Island, is a large prominent lumber mill with a conspicuous stack. A privately dredged channel with a reported depth of about 29 feet in July 1981 leads to a 600-foot pier at the mill. In July 1981, the pier was not in use and was reported to be in disrepair.

(113) **Chart 13224.–Hog Island**, about 1 mile north of Arnold Point, lies in the entrance to Bristol Harbor, dividing the waters into two channels. The island has a rolling wooded terrain on which are a few houses and cottages. Shoal water surrounds the island extending as much as 0.4 mile southward and 0.8 mile northward. The shoal area is marked by lights and buoys.

(114) About 0.6 mile east-northeastward of Hog Island Shoal Light is **Musselbed Shoals**, marked on the outer end of a light. From the light structure a directional light is shown to mark the channel to Mount Hope Bay.

(115) **Charts 13221, 13227.–Mount Hope Bay**, in the northeastern part of Narragansett Bay, is the approach to the city of Fall River and **Taunton River**. There are two approaches to the bay. The approach from the Sakonnet River, previously discussed, is little used. The approach from East Passage is well marked, and with care 34 feet can be carried in the channel into the bay.

(116) **Fall River**, on the eastern shore of the mouth of Taunton River and head of Mount Hope Bay, is an important manufacturing center as well as distribution point of petroleum products. Principal products handled through the port are petroleum products, latex, shellac, cotton, and some lumber.

(117) **Somerset**, about 5.3 miles, and **Dighton**, about 7.5 miles above the Fall River, are towns on the west side of Taunton River. **Taunton**, a manufacturing city, is at the head of navigation about 12.5 miles above Fall River.

(118) **Mount Hope Bridge** crosses the entrance to Mount Hope Bay between **Bristol Point** and Rhode Island. The bridge has two lighted towers which are visible for many miles in clear weather and a fog signal. It is a high-level suspension highway bridge with a clearance of 135 feet.

(119) **Mount Hope** is a prominent hill on the western side of the bay 2 miles northeastward of the suspension bridge. The eastern and western slopes are wooded. **Spar Island** is a small, low island near the center of Mount Hope Bay.

(120) **Borden Flats**, the shoal area northward of the channel in Fall River Harbor, is marked by a light equipped with a fog signal.

(121) Three shallow streams that empty into the northern part of Mount Hope Bay are entered only by local small craft. **Kickamuit River**, the westerly one, has a narrow buoyed entrance through which the currents have considerable velocity. The buoyed channel has a depth of about 6 feet. **Cole River**, the middle of the three, is buoyed on the east side of the entrance. **South Swansea**, on the west shore of **Gardners Neck**, has a boatyard with a 25-ton mobile hoist and a marine railway that can handle craft up to 50 feet for hull, engine, and electronic repairs or storage. Berths, electricity, gasoline, diesel fuel, water, ice, and marine supplies are available. In August 1981, a reported depth of 6 feet could be carried to the boatyard.

(122) A highway bridge, about 1.5 miles above the entrance, has a 41-foot fixed span with a clearance of 7 feet. **Lee River**, the easterly stream, is navigable to a fixed bridge about 1.2 miles above the entrance. A shoal in midchannel just north of the narrow opening through the fill, 0.8 mile above **Brayton Point**, has a depth of 1 foot.

(123) **Channels.**–A Federal project provides for a channel 35 feet deep through Mount Hope Bay to about 0.9 mile above the Brightman Street Bridge across Taunton River at Fall River. (See Notice to Mariners and latest editions of the charts for controlling depths.)

(124) A dredged side channel, about 0.2 mile north of **Common Fence Point** (41°39.3′ N., 71°13.3′W.) at the north end of Rhode Island, leads eastward from the main channel, thence along the North Tiverton waterfront. In August-September 1983, the channel had a controlling depth of 33 feet except for shoaling along the edges and shoaling to 20 feet near Tiverton Upper Channel Lighted Gong Buoy 3.

(125) A privately dredged side channel, about 3.3 miles northeastward of Common Fence Point and marked by buoys and a **326°** private lighted range, leads northwestward from the main channel to a powerplant wharf on the east side of Brayton Point. In November 1980, the channel had a controlling depth of 34 feet, except for shoaling to 33 feet in the entrance widening and 24 feet along the west edge of the widening.

(126) The controlling depth in the channel in Taunton River above Fall River is reported to be 7 feet to **Peters Point**, 6.7 miles above the Brightman Street Bridge, thence 4 feet to Taunton, 12.5 miles above Fall River. Local knowledge is required from Dighton to Taunton. Buoys mark the channel to about a mile beyond the Berkley Bridge, about 3.5 miles below Taunton.

(127) **Anchorages.**–Fall River Harbor has no designated anchorages. Vessels may anchor on either side of the dredged approach channel in the outer harbor or at any locality in Mount Hope Bay where depth and bottom are suitable; the chart is the best guide.

(128) **Bridges.**–At Fall River, two highway bridges cross Taunton River. The first, a fixed bridge at State Pier, has a clearance of

135 feet; a privately maintained fog signal is sounded from the bridge. The second, Brightman Street Bridge, about 1.1 miles above the fixed bridge at State Pier, has a bascule span with a clearance of 27 feet. The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign WQA-833. Between Fall River and Taunton, the river is crossed by three bridges. The highway bridge at Berkley, about 5 miles above Fall River, has a swing span with a clearance of 7 feet. Weir Bridge, the fixed highway bridge at Taunton, has a clearance of 10 feet; the fixed railroad bridge, about 0.2 mile upstream from Weir Bridge, has a clearance of 9 feet. (See **117.1 through 117.59 and 117.619,** chapter 2, for drawbridge regulations.) The overhead power cables crossing Taunton River have least clearances of 145 feet at Fall River and 65 feet near Taunton.

(129) **Caution.**–The fender protection on the southeast side of the Brightman Street bridge has been destroyed, and the Captain of the Port, Providence, has ordered that outbound barges in excess of 1,000 gross tons pass through the bridge only on the flood tide.

(130) **Tides.**–The mean range of tide is 4.4 feet at Fall River and 2.8 feet at Taunton. (See the Tide Tables for predictions.)

(131) **Currents.**–In Taunton River the currents generally follow the direction of the channel and, except at bridges, do not hinder navigation. The ebb is usually stronger than the flood. (See the Tidal Current Tables for predictions, and the Tidal Current Charts, Narragansett Bay, for hourly velocities and directions of the current.)

(132) **Weather, Narragansett Bay and vicinity.**–The prevailing winds are northeasterly for all but the summer months, when the direction is southwesterly. The heaviest gales are usually from the northwest. The approach channel and harbor are generally free from **ice** and are navigable throughout the year. Taunton River is commonly closed from December to March. During severe winters the harbor and Mount Hope Bay are occasionally frozen over, but the channels to the principal wharves are kept open by vessels and tugs operating in the harbor.

(133) **Pilotage, Fall River.**–See Pilotage, Narragansett Bay and Other Rhode Island Waters (indexed as such), early this chapter.

(134) **Towage.**–Tugs to 2,200 hp are available at Fall River and tugs to 3,300 hp are available from Providence for use at Fall River. Vessels are usually met 2 miles below their berth. Large vessels normally require tugs for docking and undocking. Arrangements for tug service should be made at least 6 hours in advance, usually through ships' agents or directly by shipping companies. Tugs are dispatched 24 hours a day. The tugs monitor VHF-FM channels 10, 13, 16, and 18A, and use channel 7A as a working frequency.

(135) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(136) Fall River is a **customs port of entry.**

(137) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) Fall River has several hospitals.

(138) The Coast Guard **vessel documentation** office at New Bedford, Mass., serves Fall River. (See appendix for address.)

(139) The **harbormaster** can be contacted through Fall River City Hall.

(140) **Wharves.**–The piers and wharves at Fall River are along the Taunton and Sakonnet Rivers and in Mount Hope Bay. Only the deep-draft facilities are described. For a complete description of the port facilities refer to Port Series No. 4, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths are reported; for information on the latest depths contact the operator. All the facilities described have highway connections. Fresh water is available at most of the piers and wharves. Cargo in the port is usually handled by ship's tackle.

(141) The **speed limit** is 5 knots in the channel off the piers and wharves.

(142) **Facilities at Tiverton, R.I.** (chart 13221):

(143) Texaco Inc. Tiverton Terminal: (41°38′50″ N., 71°12′40″W.); 50-foot face, 721 feet with dolphins; 35 feet alongside; deck height, 11 feet; receipt of petroleum products; owned by Texaco, Inc.; not being operated in 1983.

(144) Northeast Petroleum Corp., Pier 1: about 250 yards north of Texaco Inc. Terminal; 120-foot face, 700 feet with dolphins; 32 feet alongside; deck height, 9 feet; receipt of petroleum products; owned and operated by Northeast Petroleum Corp.

(145) Northeast Petroleum Corp., Pier 2: about 250 yards north of Northeast Petroleum Corp., Pier 1; 40-foot face, 700 feet with dolphins; 34 feet alongside; deck height, 9 feet; receipt of petroleum products; owned and operated by Northeast Petroleum Corp.

(146) Fuel Storage Co., Tiverton Terminal Pier: east side of Mount Hope Bay, 1.5 miles northward of Northeast Petroleum Corp., Pier 2: 50-foot face, 795 feet with dolphins; 35 feet alongside; deck height, 9 feet; receipt of petroleum products; owned and operated by Fuel Storage Co.

(147) **Facilities at Fall River, east side of Taunton River** (chart 13227): Borden and Remington Corp. Wharf: (41°42′10″ N., 71°10′09″W.); 380-foot face, 28 feet alongside; deck height, 10 feet; receipt of latex and caustic soda; owned by Tillotson Co. and operated by Borden and Remington Corp.

(148) State Pier: 0.2 mile northeast of Borden and Remington Corp. Wharf; 398-foot face, 18 to 35 feet alongside; lower side 620 feet long, 35 feet alongside; deck heights, 17 feet; 85,000 square feet covered storage, about 7 acres of open storage; receipt and shipment of general and roll-on/roll-off cargo; owned by the Commonwealth of Massachusetts, operated by Fall River Line Pier, Inc.

(149) The battleship **USS MASSACHUSETTS,** World War II memorial, and three other U.S. Navy vessels are berthed just northward of the State Pier.

(150) Shell Oil Co. Wharf: about 2 miles above State Pier; 570-foot face, 700 feet with dolphins; 30 feet alongside; deck height, 13 feet; receipt and shipment of petroleum products, receipt of naphtha; owned and operated by Shell Oil Co.

(151) **Facilities on west side of Taunton River** (chart 13227):

(152) Brayton Point Station Dock: (41°42′33″ N., 71°11′21″W.); 1,017 feet long; 34 feet alongside; deck height, 15 feet; coal unloading tower serves conveyor belt system, unloading rate 1,000 tons per hour; receipt of fuel oil and coal; owned and operated by New England Power Co.

(153) Montaup Electric Co. Wharf: about 2.5 miles above Brayton Station Dock; 645 feet long, 34 feet alongside; deck height, 10 feet; two coal unloading towers serve conveyor belts, combined unloading rate 1,200 tons per hour; receipt of coal and fuel oil; owned and operated by Montaup Electric Co.

(154) **Supplies.**–Provisions, marine supplies, gasoline, diesel fuel, and water can be obtained in Fall River. Water is available at most of the berths.

(155) **Repairs.**–Fall River has no drydocking or major repair facilities for deep-draft vessels; the nearest such facilities are at Boston, Mass.

(156) Fall River has two small shipyards, on the west side of the harbor about 0.6 mile above the fixed bridge and on the east side of the harbor about 0.9 mile below the fixed bridge. The northerly

shipyard has a marine railway that can handle vessels to 100 feet long with drafts of 7 feet forward and 13 feet aft. The yard can make repairs to wooden, steel, and aluminum vessels at their berths. The southerly yard specializes in the construction and conversion of steel vessels. Cranes to 250 tons are available for hauling out vessels. In August 1981, depths of 22 to 23 feet were reported alongside.

(157) **Small-craft facilities** are at Fall River, **Somerset** opposite Fall River, Taunton, and at Dighton. Berths, electricity, gasoline, water, ice, storage, launching ramps, marine supplies, and hull and engine repairs are available. The largest marine railways, at Dighton, can handle craft to 55 feet; mobile hoists to 35 tons are also available at Fall River.

(158) **Communications.**–Fall River has railroad freight service and bus service.

(159) **Chart 13224.–Bristol Harbor,** between **Bristol Neck** on the east end and **Popasquash Neck** on the west, is in a cove about 2 miles long and 1.3 miles wide at its southern end, narrowing to 0.4 mile wide at its northern end. The harbor proper, the northern part of the cove, has depths of 15 to 17 feet.

(160) **Bristol** is a town on the eastern side of the harbor. In approaching the harbor the most prominent mark is Mount Hope Bridge. Also prominent are the navigation lights, a stone tower, a stack, and an elevated tank on high ground back of the town. The town has bus service. A ferry operates daily from Bristol to Prudence Island, and summer ferry service is available to Hog Island.

(161) **Hog Island** is in the middle of the entrance to Bristol Harbor. A natural channel with depths of 19 to 25 feet extends on each side of the island. Excellent anchorage may be found in the harbor abreast the town in depths of 15 to 17 feet, soft bottom. A **general anchorage** is in Bristol Harbor. (See **110.1 and 110.145 (c)** and **(d)**, chapter 2, for limits and regulations.)

(162) **Usher Rocks**, about 0.7 mile northeastward of Popasquash Point, are bare at low water. A buoy is eastward of the rocks and on the western side of the western passage to the harbor.

(163) The mean range of **tide** at Bristol is 4.1 feet.

(164) Depths alongside the piers and wharves range from 9 to 13 feet.

(165) A Coast Guard vessel is moored at Bristol. The Coast Guard pier is marked by a light.

(166) A marina and yacht club are on the west side of the harbor. Guest moorings, electricity, gasoline, water, ice, marine supplies, and hull and engine repairs are available. A mobile hoist at the marina can handle craft to 42 feet long. Launching ramps are available on the east side of the harbor. In August 1981, a reported depth of about 9 feet could be carried to the marina.

(167) **Potter Cove**, on the northeast side of **Prudence Island,** is a small nearly landlocked harbor. Buoys mark the entrance channel off **Gull Point.** The north and south ends of Prudence Island are a State park. **Ohio Ledge,** about 2.5 miles northward of Potter Cove, has a least depth of 8 feet and is marked on its southeast side by a bell buoy.

(168) **Warren River**, emptying into the head of Narragansett Bay westward of Bristol Neck, is the approach to the towns of **Warren** and **Barrington**, and **Barrington River**, which joins Warren River at Warren. A church spire in Warren is prominent.

(169) From the bay, the channel to Warren passes between numerous shoals and rocks and is crooked and winding, but well marked. A depth of about 9 feet is in the channel to the lower wharves at Warren, and the same depth is in Barrington River to the fixed highway bridge about 0.5 mile above the entrance.

(170) A State regulatory buoy, about 0.9 mile above the mouth of Warren River, marks a **"Slow no wake" zone.**

(171) An excellent anchorage may be found at the mouth of the Warren River about 0.2 mile from the eastern shore in depths of 14 to 15 feet, soft bottom. There is not room for anchorage in the river for any but small craft. Abreast the lower end of Warren the channel is about 0.1 mile wide, with depths of 13 to 17 feet in midchannel, and small vessels can anchor temporarily at this point.

(172) Vessels approaching the river must take care to avoid **Rumstick Shoal**, which extends nearly 0.6 mile south of **Rumstick Point**, the southernmost point of **Rumstick Neck** and the western entrance point of the river. The shoal has depths of 2 to 12 feet and is marked by buoys. **Rumstick Rock**, 6 feet high, and **Rumstick Ledge,** with rocks that uncover 1 to 5 feet, are on the westerly side of the shoal.

(173) About 0.5 mile above the mouth of Barrington River are a fixed highway bridge with a clearance of 9 feet and a railroad trestle with a 32-foot span and a clearance of 6 feet. In April 1978, rocks were reported under the trestle.

(174) The mean range of **tide** at Warren is 4.6 feet. The **tidal current** off the town of Warren has a velocity of about 1 knot. Strong currents may be encountered in Barrington River.

(175) The **harbormaster** controls docking, mooring, and anchoring, and can be contacted through the Warren Police Department.

(176) A shipyard on the east side of the Warren River at Warren has a hydraulic lift that can handle vessels to 300 tons or 130 feet long. In August 1981, a reported depth of 7 feet could be carried to the shipyard.

(177) Berths, electricity, gasoline, diesel fuel, water, ice, and marine supplies are available in Warren. Depths reported alongside the major wharves range from 7 to 20 feet. A yacht club is on the point near the confluence of the two rivers. Several boatyards are in the vicinity; mobile hoists to 25 tons are available. Covered storage and complete engine, electronic, and hull repairs are available.

(178) **Charts 13224, 13225.–Providence River**, which empties into the head of Narragansett Bay between **Nayatt Point** and **Conimicut Point**, is the approach to the city of Providence, numerous towns and villages, and to Seekonk River.

(179) **Providence** is at the head of navigation on the Providence River, about 7 miles above the entrance, at the junction of the Providence and Seekonk Rivers. The port area includes both sides of the upper navigable channel of the river. The port's chief waterborne commerce is in petroleum products, cement, lumber, steel scrap metal, general cargo, and automobiles.

(180) **Occupessatuxet Cove**, on the west side of the river north of Conimicut Point, is a shallow bight south of **Gaspee Point**. The cove is frequented only by small craft with local knowledge.

(181) **Pawtuxet Cove**, used by pleasure and fishing craft, on the west side of Providence River, is entered about 1 mile northward of Gaspee Point through a dredged channel. The channel leads northward from inside the entrance channel to a turning basin at the head of the cove. The entrance channel is marked by lighted and unlighted buoys. An anchorage basin extends southward from the entrance channel. A State regulatory buoy at the junction of the entrance channel and the channel to the head marks a **slow-no wake zone.** In April 1984, the controlling depth was 3½ feet (4½ feet at midchannel) in the entrance channel, thence 1½ feet to the turning basin at the head of the cove with 1½ to 2 feet in the basin;

4½ feet was available in the anchorage basin southward of the entrance channel. In 1976, a rock awash was in about 41°45′25″N., 71°23′10″W., on the west edge of the anchorage basin. A 12-foot-high protective dike along the east side of the anchorage basin extends southward from **Marsh Island,** on the south side of the entrance channel, to **Rock Island**. **Pawtuxet** is a village on the west side of the cove.

(182) The **harbormaster** in the cove controls anchoring and berthing; he can be contacted through the Warwick City Hall. Berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, and a 15-ton mobile hoist are available. A flatbed trailer can haul out craft to 50 feet long for complete hull and engine repairs.

(183) A yacht club is on the west side of Providence River about 1 mile northward of the entrance to Pawtuxet Cove. Gasoline and guest berths are available.

(184) A privately dredged channel leads from the main channel in Providence River, eastward of Pawtuxet, to a small-craft facility about 0.45 mile southwestward of **Fields Point** (41°47.2′N., 71°22.9′W.). The channel is marked by buoys and, in July 1981, had a reported controlling depth of 10 feet. The ruins of the piers of a former Naval Reserve facility on the south side of Fields Point immediately eastward of the small-craft facility; this area should be avoided.

(185) **Bullock Cove**, on the east side of Providence River 2 miles north of Conimicut Point, is the scene of considerable pleasure boat activity. A dredged channel leads from the Providence River to a mooring basin on the east side of Bullock Point, thence northward 0.5 mile to a mooring and turning basin. In July 1995, the controlling depths were 6 feet to the mooring basin east of Bullock Point; thence in 1990, 3 to 6 feet in the basin, thence 2 feet to the upper basin and 1 to 3 feet in the basin. The entrance channel is marked by buoys and daybeacons. In September 1982, a sunken wreck was reported on the west side of the channel at Bullock Point. There are numerous small-craft facilities in Bullock Cove. The largest marine railway, on Bullock Neck about 300 yards northward of Bullock Point, can handle craft up to 60 feet; berths, electricity, gasoline, diesel fuel, water, ice, storage, launching ramps, marine supplies, a 45-ton mobile crane, a 60-ton mobile hoist, and hull and engine repairs are available. Sail and electronic repairs can be arranged nearby.

(186) **Seekonk River,** which branches off northeasterly from Providence River at Providence, is the approach to **Phillipsdale** and **Pawtucket**. The head of navigation is at Pawtucket, 5 miles above the mouth. Commerce on the river is chiefly in petroleum products. A marina at Pawtucket can provide berths, electricity, water, gasoline, storage facilities, marine supplies, and hull and engine repairs. A flatbed trailer at the marina can haul out craft to 40 feet long. In July 1981, a reported depth of 12 feet was available alongside the marina berths.

(187) **Prominent features.–Conimicut Light** (41°43.0′N., 71°20.7′W.), 58 feet above the water, is shown from a white conical tower on a brown cylindrical pier on the west side of the entrance to Providence River. A fog signal is sounded at the light station. An abandoned lighthouse on Nayatt Point is also prominent in the approach to the river.

(188) **Channels.**–The Federal project for Providence River provides for a channel 40 feet deep from just below Prudence Island Light to **Fox Point** near the junction of Providence and Seekonk Rivers. (See Notice to Mariners and latest editions of the charts for controlling depths.) The channel is well marked with navigational aids.

(189) A **hurricane barrier** crosses the Providence River about 200 yards above Fox Point. The barrier includes three gates which normally will be kept in the opened position until the approach of hurricane weather. The clearances at each of the three river gates are: horizontal, 20 feet; vertical (gate fully opened), 21 feet; and depth over the gate sill, 12.9 feet at mean low water. Red lights mark the channel ends of each gate.

(190) **Seekonk River** empties into the easterly side of Providence River at Fox Point. A marked dredged channel leads from **Cold Spring Point,** about 1.3 miles above Fox Point, to a point about 150 yards southward of Division Street Bridge at Pawtucket, about 2.9 miles above Cold Spring Point. The lower section of the river, from Fox Point to Cold Spring Point, is crooked and winding and marked by buoys. Local knowledge and use of the chart are required to carry the best water. Three areas of submerged boulders with angle iron protrusions, the remains of the approaches and pivot pier of a former swing bridge, are in the river channel at Cold Spring Point in about 41°49′36″N., 71°22′49″W., 41°49′36.5″N., 71°22′50″W., and 41°49′37″N., 71°22′51″W. The shoreward areas have a least depth of 3½ feet, and the area at about midchannel has a least depth of 12 feet. In August-September 1992, the controlling depths were 3½ feet (7 feet at midchannel) to Buoy 27 except for a 4-foot spot near midchannel just above Buoy 19; favor the east side of the channel, thence 3½ feet in the west half and 6½ feet in the east half of the channel to the State Pier, thence 4½ feet to the head of the project just below Division Street Bridge. A **5 mph no wake zone**, marked by State regulatory buoys, is in the entrance channel and above Cold Spring Point.

(191) **Anchorages.**–Vessels anchor as directed by the **harbormaster** on the edge of the channel between Fields Point and Fox Point. Eastward of Fox Point, a few vessels may anchor in the area where a portion of **Green Jacket Shoal** was removed. Preferred small-craft anchorages are in Bullock Cove and Pawtuxet Cove.

(192) **Dangers.**–Numerous rocks and ledges border Providence River Channel on either side. Navigational aids mark the shoal areas off **Bullock Point**, about 1.5 miles above the mouth; off **Sabin Point**, about 3 miles above the Mouth; off **Pomham Rocks**, about 3.5 miles above the mouth; off **Fuller Rock**, about 5 miles above the mouth and **Green Jacket Shoal**, east of Fox Point about 7.4 miles above the mouth.

(193) Providence River channel, between Narragansett Bay Entrance Lighted Horn Buoy NB and Fox Point, is a **regulated navigation area**. (See **165.1 through 165.13, and 165.122**, chapter 2, for limits and regulations.)

(194) **Bridges.**–There are no bridges over Providence River between the mouth and the principal wharves. Point Street Bridge, about 0.3 mile above Fox Point, has a swing span with a clearance of 9 feet. (See **117.1 through 117.59 and 117.907**, chapter 2, for drawbridge regulations.) Two overhead power cables cross the river between this bridge and the Fox Point Hurricane Barrier about 300 yards to the southward; least clearance is 60 feet. A fixed highway bridge about 300 yards north of Point Street Bridge has a clearance of 26 feet.

(195) In Seekonk River, an overhead power cable crossing at **India Point,** 0.5 mile above the mouth, has a clearance of 130 feet. Just above India Point three drawbridges and two fixed bridges cross the river within 0.9 mile. The name of bridge, type, and clearance follows: India Street Bridge, swing span, 4 feet (being maintained in open position in 1983); Washington Bridge South, bascule span maintained in closed position, 40 feet; Washington Bridge North, fixed span, 42 feet; Tunnel Bridge, bascule span, 17 feet; and East Providence, fixed span, 42 feet. Just below the State Pier at Pawtucket are overhead power cables with clear-

ances of 125 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.)

(196) **Tides.**–The mean range of tide at Providence is 4.6 feet, and the maximum range due to the combined effect of wind and other causes may reach 8 feet or more at times.

(197) **Currents.**–Tidal currents are weak in the approach channel and the harbor, except in the constricted parts of Seekonk River. At India Street Bridge the tidal currents have velocities of about 1.4 knots. In Seekonk River the double flood is very pronounced. The velocity near the middle of the flood period is generally less than 0.5 knot and is sometimes in an ebb direction. (See the Tidal Current Tables for predictions, and the Tidal Current Charts, Narragansett Bay, for hourly velocities and directions of the current.)

(198) **Weather, Providence and vicinity.**–The proximity of Narragansett Bay and the Atlantic Ocean plays an important part in determining the climate for Providence and vicinity. In winter, the temperatures are modified considerably, and a good many of the major storms drop their precipitation in the form of rain, rather than snow. In summer, many days that would otherwise be uncomfortably warm are cooled by refreshing seabreezes. At other times of the year, sea fog may be advected over land by onshore winds. In fact, most cases of dense fog are produced in this way; but the number of such days is few, averaging 2 or 3 days per month.

(199) The temperature for the entire year averages around 51°F (10.6°C). January is the coldest month averaging 29°F (-1.7°C), and July the hottest month averaging 73°F (22.8°C). Freezing temperatures occur on the average about 117 days per year and the days with minimums below 5°F (-15°C) average six each year. An average nine days each year record maximums in excess of 90°F (32.2°C). The all-time maximum for Providence is 104°F (40°C) recorded in August 1975 and the all-time minimum is -13°F (-25°C) recorded in January 1976.

(200) Measurable precipitation occurs on about 178 days each year. November is the wettest month averaging 4.48 inches (114 mm) and June the driest averaging 2.89 inches (74 mm). Average annual precipitation is 45.12 inches (1144 mm).

(201) Thunderstorms are responsible for much of the rainfall from May through August. They usually produce heavy, and sometimes even excessive, amounts of rainfall; but since the duration is relatively short, damage is ordinarly light. The summer thunderstorms are frequently accompanied by extremely gusty winds, which may cause some damage to property, especially small pleasure and fishing craft.

(202) The first measurable snowfall of winter usually comes in October. The month of greatest snowfall is usually February which averages about ten inches (254 mm). It is unusual for the ground to remain well covered with snow for any long period of time. The average annual snowfall total is 45 inches (1143 mm). Snow has fallen in every month, October through May. About seven days each year has snowfall greater than 1.5 inches (38 mm).

(203) In early fall, severe coastal storms of tropical origin sometimes bring destructive winds to this area. Even at other times of the year, it is usually coastal storms that produce the most severe weather. Since 1871, twelve tropical storms have come within 25 miles of Providence. The most recent was Hurricane Bob in August 1991. Hurricane Bob passed within 20 miles east of the city with 85-knot winds. Only twelve hours earlier, Bob was packing winds in excess of 100 knots. In September 1960, Hurricane Donna passed about 20 miles west of the city. At the time, Donna had maximum winds of 90 knots. Coastal areas of Rhode Island, Connecticut, and Long Island were raked with winds in excess of 100 knots compliments of Hurricane Donna.

(204) **Ice.**–The approach channel and the harbor are generally free of ice and navigable throughout the year. During severe winters, the harbor and several miles of Providence River and Upper Narragansett Bay are occasionally broken over, but the ice is usually broken up in the channels to the principal wharves by the traffic in the harbor.

(205) The National Weather Service maintains an office at the T.F. Green State Airport; barometers may be compared here. (See appendix for address.)

(206) (See page T-2 for the Providence **climatological table.**)

(207) **Pilotage, Providence.**–See Pilotage, Narragansett Bay and Other Rhode Island Waters (indexed as such), early this chapter.

(208) **Towage.**–Tugs up to 3,300 hp are available at Providence. Large vessels normally require tugs for docking and undocking. Arrangements for tug service should be made 4 hours in advance, and usually through ships' agents or directly by shipping companies. Tugs are dispatched 24 hours a day. Tugs monitor VHF-FM channels 10, 13, 16, and 18, and use channel 7A as a working frequency.

(209) Providence is a **customs port of entry.**

(210) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(211) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(212) Providence has several hospitals.

(213) **Coast Guard.**–A **marine safety office** is in Providence. (See appendix for addresses.)

(214) **Harbor regulations** are enforced by the **harbormaster/port director,** whose headquarters are at the municipal wharf. The harbormaster regulates the movement and anchoring of vessels in the harbor. The **speed** limit in the harbor is 5 knots.

(215) **Wharves.**–The piers and wharves of the port of Providence are along both sides of the Providence River below Fox Point. Only the deep-draft facilities are described. For a complete description of the port facilities refer to Port Series No. 4, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths are reported; for information on the latest depths contact the operator. All the facilities described have highway connections, and most have rail connections. Water is available at most of the piers and wharves. Cargo in the port is usually handled by ship's tackle. Cranes to 200 tons are available.

(216) **Facilities on the east side of Providence River:**

(217) Mobil Oil Corp. Wharf: (41°46′56″N., 71°22′19″W.); 1,225-foot face, 700 feet of berthing space; 20 to 38 feet alongside; deck height, 8 feet; pipelines to storage tanks; receipt and shipment of petroleum products, bunkering vessels; owned and operated by Mobil Oil Corp.

(218) Amoco Oil Co. Wharf: at Kettle Point about 0.9 mile above Mobil Oil Corp. Wharf; 500-foot face, 700 feet with dolphins; 36 feet alongside; deck height, 12 feet; receipt and shipment of petroleum products, bunkering vessels; owned by Amoco Oil Co., operated by Amoco Oil Co. and Atlantic Richfield Co.

(219) Wilkes-Barre Pier: about 2 miles above Mobil Oil Corp. Wharf; 75-foot face, 700 feet of berthing space with dolphins; 40 feet alongside; deck height, 9 feet; receipt of petroleum products and naphtha; owned by Providence and Worcester Railroad Co.,

operated by Union Oil Co. of California, Getty Refining and Marketing Co., and Astroline Corp.

(220) In January 1982, fill operations and pier construction were in progress at the site of the future rail/ship cargo terminal just south of the Wilkes-Barre Pier.

(221) **Facilities on the west side of Providence River:**

(222) Municipal Wharf, Berths 5 and 6 (41°47′25″N., 71°22′54″W.); 1,283-foot face; 35 to 40 feet alongside; deck height, 10½ feet; two 45-ton container cranes; 60 acres open storage; electrical shore power connections; receipt and shipment of general and containerized cargo and heavy equipment; owned by city of Providence, operated by Cranes Associates.

(223) Municipal Wharf, Berths 1, 2, 3, and 4: immediately NW of Berths 5 and 6; 2,190-foot face, 35 to 40 feet alongside; deck height, 10½ feet; cranes to 200 tons; 47,000 square feet of covered storage; 12 acres open storage; electrical shore power connections; receipt and shipment of general cargo, lumber, paper products, automobiles, petroleum products, liquefied petroleum gas, scrap metal, pig iron, and caustic soda; owned by city of Providence; various operators.

(224) New England Bituminous Wharf: about 500 yards above Municipal Wharf; 384-foot face, 30 feet alongside; deck height, 10½ feet; receipt of asphalt; owned and operated by New England Bituminous, Division of John J. Hudson, Inc.

(225) Lehigh Portland Cement Co. Wharf: about 600 yards above Municipal Wharf; 350-foot face, 20 feet alongside; deck height, 10½ feet; receipt of bulk cement; owned by city of Providence, operated by Lehigh Portland Cement Co.

(226) Lone Star Industries Wharf: about 750 yards above Municipal Wharf; 210-foot face, 28 to 30 feet alongside; deck height, 12 feet; receipt of bulk cement; owned and operated by Lone Star Industries, Inc.

(227) Algonquin LNG Wharf: about 0.4 mile above Municipal Wharf; 450-foot face, 25 feet alongside; deck height, 12 feet; receipt of liquefied natural gas; owned by Providence Gas Co., operated by Algonquin LNG, Inc.

(228) Texaco U.S.A., Harbor Junction Pier: about 0.7 mile above Municipal Wharf; 80-foot face, south side 1,040 feet long, 720 feet usable, 32 feet alongside; north side 1,040 feet long, 600 feet usable, 25 feet alongside; deck height, 9 feet; receipt and shipment of petroleum products, bunkering vessels; owned and operated by Texaco, Inc.

(229) Promet Marine Services Pier: about 1 mile above Municipal Wharf; 120-foot face, 37 to 31 feet alongside; south side 596 feet long, 22 feet alongside; north side 596 feet long, 37 feet alongside; deck height, 12 feet; cranes to 100 tons; 11 acres of open storage; receipt and shipment of general cargo and dry bulk materials; repairs to vessels; owned and operated by Promet Marine Services Corp.

(230) Northeast Petroleum Corp. Pier: about 1.2 miles above Municipal Wharf; south side 620 feet long, 600 feet of berthing space; 30 feet alongside; deck height, 11 feet; receipt of petroleum products; owned and operated by Northeast Petroleum Corp.

(231) C. H. Sprague & Son Co. Pier: about 1.25 miles above Municipal Wharf; north side 500 feet long, 520 feet with platforms, 37 feet alongside; deck height, 12 feet; receipt and shipment of petroleum products; bunkering vessels; owned and operated by C. H. Sprague & Son Co.

(232) The principal wharves at Pawtucket have depths of 9 to 14 feet alongside.

(233) **Supplies.**–Gasoline, diesel fuel, diesel oil, bunker fuels, provisions, and marine supplies of all kinds are available. Oil bunkering facilities, for deep-draft vessels, are available at most of the petroleum companies facilities in Providence. Fuel tank barges are also available for bunkering vessels anywhere in the harbor. Water is available at most of the wharves and piers.

(234) **Repairs.**–Providence has no facilities for drydocking deep-draft vessels; the nearest such facilities are at Boston, Mass. Repairs to boilers, machinery, electrical equipment, and hull can be obtained in the port. Several well-equipped machine and welding shops are also available. Some of these concerns also maintain portable equipment for making above-waterline repairs to vessels at their berths.

(235) **Small-craft facilities** at Bullock Cove and Pawtuxet have been discussed earlier in this chapter. A marina on the west side of Providence River between Pawtuxet and Fields Point can provide berths, electricity, gasoline, diesel fuel, water, ice, storage, marine supplies, and hull and engine repairs; a flatbed trailer can haul out craft to 60 feet long. In July 1981, 10 feet was reported in the approach to the marina, with 3 to 6 feet alongside.

(236) **Communications.**–Providence is served by rail, bus, and air. A ferry operates daily in the summer to Newport and Block Island.

(237) **Chart 13223.–West Passage,** between Conanicut and Prudence Islands on the east and Boston Neck on the west, is the approach to Dutch Island Harbor, Wickford, Quonset Point, and East Greenwich. Vessels may also go to Providence by West Passage, although the route through East Passage is deeper and generally used. The following directions for West Passage to Providence River are good for a draft of 19 feet, but local knowledge is required for a draft greater than 12 feet. Approaching from the eastward, pass clear of Brenton Reef Light and steer for the lighted gong buoy off Whale Rock until southwest of Beavertail Light, and thence lay down a northerly course in midchannel with Dutch Island ahead. On the southward approach from off Point Judith Light, a north-northeasterly course will bring the vessel to the lighted gong buoy off Whale Rock. (See also chart 13218). At night a careful study of the light characteristics is necessary as the lights marking East Passage will be seen on the starboard bow when approaching from Point Judith.

(238) The course should pass westward of, and 500 yards off, Dutch Island; thence through the Jamestown-NorthKingston Bridge opening; and thence northerly until about 0.8 mile westward of, and abeam, the south tangent of Hope Island. From here a north-northeasterly course will make the buoys marking the entrance of the natural channel westward of Pine Hill Point on Prudence Island. Then a heading toward Warwick Light until abeam the lighted bell buoy off Northwest Point on Patience Island will bring the vessel in position to swing northeasterly and easterly to the dredged channel to Providence.

(239) **Narragansett Pier**, on the west side of West Passage about 3 miles west-southwestward of Beavertail Point, is a summer resort. The large hotels and a square granite tower are prominent. A municipal bathing beach and pavilion at the Upper Pier are prominent from an easterly direction.

(240) **River Ledge**, about 0.9 mile northeastward of Narragansett Pier, has a least depth of 9 feet and is marked by a buoy. **Whale Rock**, on the western side of the passage about 0.8 mile northeast of River Ledge, is marked by a daybeacon, and a lighted gong buoy is to the eastward. **Little Whale**, covered 4 feet, is about 200 yards north of Whale Rock. Strangers should pass eastward of the lighted gong buoy off Whale Rock.

(241) **Bonnet Shores Beach** is on the north shore of the bight formed by **Bonnet Point**, the point about 1.5 miles north of Whale

Rock. A bathing pavilion at the beach is prominent from a southeasterly direction.

(242) **The Bonnet**, a prominent hill with the shoreward face bold and rocky, is north of Bonnet Point. The shore between Bonnet Point and **South Ferry**, 1.3 miles northward, should be given a berth of 400 yards. Pilings extend 130 yards eastward just south of the old pier at South Ferry. A 200-foot L-shaped pier of the University of Rhode Island is about 150 yards southeastward of the old pier. In July 1981, depths of 20 feet were reported along the outer face with 10 feet reported along the inner face. The buildings of the university, a church spire, and a standpipe are prominent from southward to north of Dutch Island.

(243) **Fox Hill**, on the southern side of the entrance to Dutch Island Harbor, 2.5 miles north of Beavertail Point, is a point which terminates to the northward in Beaverhead, a bluff rocky face.

(244) **Dutch Island Harbor** is in the West Passage of Narragansett Bay about 3 miles north of Beavertail Light. The harbor is a semicircular indentation 0.5 by 1 mile in extent in the west side of Conanicut Island.

(245) A boatyard in the southeastern part of the harbor has a marine railway that can handle craft up to 50 feet for hull and engine repairs. Berths, electricity, gasoline, diesel fuel (by truck), water, ice, storage, a launching ramp, some marine supplies, and a 20-ton lift are available.

(246) **Dutch Island,** a State park about 3.2 miles north of Beavertail Point, is surrounded by shoals and foul ground. A bell buoy is off the northern end of the island and a lighted gong buoy is off the southern end. A square white tower on the southern end of the island is prominent.

(247) Dutch Island Harbor may be approached from northward or southward. The southward entrance is good for a depth of about 28 feet; the northern entrance has an extensive shoal with depths of 15 to 18 feet. As the harbor is of easy access, it is frequently used as a harbor of refuge. Excellent anchorage may be had in depths of 12 to 48 feet, sticky bottom. A **harbormaster** controls all mooring and berthing. Vessels of over 18-foot draft seeking anchorage should give the eastern shore of the harbor a berth of at least 0.4 mile. The eastern shore of Dutch Island should be given a berth of 100 yards.

(248) **General anchorages** are in West Passage of Narragansett Bay. (See **110.1 and 110.145 (b) and (d),** chapter 2, for limits and regulations.)

(249) A bell buoy marks the shoal area off the northern side of Dutch Island. The piers off the east side of the island are in ruins. A shoal extends about 200 yards westward and 350 yards northward of **Beaverhead**. At its northern extremity this shoal rises abruptly from depths of about 40 feet to a depth of 8 feet; a buoy marks the shoal. The southeastern part of the harbor has a shallow cove.

(250) Tidal currents of from 1 to 1.5 knots may be encountered in the vicinity of Dutch Island. Elsewhere in West Passage velocities are usually less than 1 knot. (See the Tidal Current Tables for predictions, and the Tidal Current Charts, Narragansett Bay, for hourly velocities and directions of the current.)

(251) **Saunderstown** is on the western shore of West Passage abreast Dutch Island. A former ferry dock off the town is in ruins. A yacht club is at Saunderstown.

(252) The **Jamestown-North Kingstown Bridge** crossing the passage from just north of Plum Beach has a fixed span with a clearance of 134 feet; a private fog signal is sounded from the west pier of the main channel opening. A replacement fixed highway bridge with a clearance of 135 feet is about 300 feet north of the aforementioned highway bridge. The northerly fixed highway bridge will replace the current southerly fixed highway bridge at an unspecified future date.

(253) From the bridge northward, **Great Ledge** extends along the west shore of Conanicut Island for about 1.5 miles. This ledge is from 175 to 500 yards offshore, culminating in **America Ledge** at its northern end. Numerous rocks are on Great Ledge. Between Plum Beach and **Rome Point**, on the west side of the passage, 1.2 miles north of the bridge, are several rocks, including **Red Rock** and **Old Sergeant**. Bare and covered rocks are northeastward and eastward of Rome Point.

(254) **Fox Island**, 0.4 mile northeast of Rome Point and southward of Wickford Harbor, is small and low. A shoal with numerous submerged rocks including **Seal Rock** extends southward of the island. A narrow channel, suitable only for small craft, is between this shoal and the shoals extending northeastward of Rome Point. **Halfway Ledge** with a depth of 18 feet is about 0.5 mile east of Fox Island.

(255) **Wickford Harbor**, on the western side of Narragansett Bay 8 miles above Beavertail Light, comprises an outer and an inner harbor. The outer harbor is a broad bight between Quonset Point on the north and **Wild Goose Point**, about 0.6 mile westward of Fox Island, on the south. The entrance is about 2 miles wide. Depths in the middle and southern parts of the outer harbor average 13 to 17 feet. The inner harbor entrance is between **Poplar Point**, 1.3 miles northwest of Fox Island on the south, and **Sauga Point**, about 0.4 mile north of Poplar Point, on the north. The harbor is used chiefly by recreational craft, and by oyster and lobster boats. The town of **Wickford** is on the southwestern side of the inner harbor.

(256) Several prominent landmarks are visible when approaching Wickford Harbor. A standpipe at North Kingston (chart 13221), and a church spire in Wickford may be seen for many miles. An abandoned lighthouse on Poplar Point and the light off the point are prominent.

(257) The channel to the inner harbor, marked by buoys, is restricted to a width of about 150 yards by the breakwaters and the shoals off Sauga and Poplar Points. The north breakwater is marked by a light. The channel leads to the junction of three coves, **Fishing Cove** to the northward, **Mill Cove** to the northwestward, and Wickford Cove to the southwestward. A State regulatory buoy just inside the jetties marks a **"Slow no wake" zone.**

(258) **Wickford Cove** is the scene of considerable pleasure-boat activity. A dredged channel in the cove extends between flats, many of which are dry at low water, to a highway bridge about 0.9 mile above the breakwaters. Numerous piles, used as moorings, border the channel for about 0.35 mile below the highway bridge. In October 1990, the channel had a controlling depth of 3½ feet (6 feet at midchannel) to a marina about 750 yards above Buoy 7, thence 4 feet to the highway bridge, except for a 2½-foot spot in about 41°34′12″N., 71°27′03″W. near the northwest corner.

(259) A marked dredged channel in Mill Cove leads to an anchorage basin about 0.7 mile above the breakwaters. In October 1990, the channel had a controlling depth of 8½ feet (10 feet at midchannel) to Point Wharf, about 500 yards above the entrance, thence 4 feet (6½ feet at midchannel) to the head of the project. The anchorage basin had depths of 4 to 5 feet.

(260) Good anchorage may be had in the middle and southern parts of outer Wickford Harbor in depths of 14 to 17 feet. The northern part of the outer harbor has numerous rocks and ledges with a depth of 6 feet. **General Rock**, with a depth of 9 feet over it, is the southerly limit of this shoal, 0.9 mile north-northeastward of Fox Island. A rock with a depth of 8 feet over it is about 500

yards westward of General Rock. **Brig Ledge**, about 0.5 mile north of General Rock, is covered 9 feet. The southern shore of the outer harbor is foul. **Charles Rock**, with a depth of 4 feet, is just inside of the northern breakwater and marked by a buoy.

(261) Vessels approaching Wickford Harbor from the southward, after passing through the main span of the Jamestown-North Kingston Bridge, steer **340°**. When northeastward of Fox Island, steer for Wickford Harbor Light on any bearing between 313° and 290°, anchoring 0.2 mile or more southeastward of the light in depths of 13 to 15 feet, soft bottom.

(262) In severe winters the inner harbor is closed by **ice,** but the outer harbor is usually open although drift ice is occasionally encountered.

(263) Wickford has several small-craft facilities and boatyards. The largest marine railway, on the east of Wickford Cove, can handle craft up to 60 feet. Berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, a launching ramp, mobile hoists to 30 tons, and hull, engine, and electronic repairs are available; wet and dry storage is also available. In July 1981, a reported depth at about 7 feet could be carried to the marine railway at Wickford Cove.

(264) **Quonset Point**, on the north side of Wickford Harbor, is marked by elevated tanks. Near the eastern end of the point are the conspicuous buildings of the Quonset Point Industrial Park. The piers at Quonset Point, and at **Davisville,** about 1.5 miles northward, are usually approached from East Passage until north of Conanicut Island, thence through a buoyed dredged channel to a turning basin off the point from which a channel leads to the piers at Davisville. A depth of about 33 feet can be carried in the channel to the turning basin. With the exception of 27- and 30-foot spots, depths of 32 to 35 feet are available throughout the basin; depths of 30 feet are reported alongside the pier. In December 1965, the controlling depth in the channel to Davisville was 31 feet, thence 27 feet in the turning basin or 28 feet for a middle width of 800 feet through the basin to the piers; depths of 29 feet were available on the southwest side of Pier 1 and in the slip between Piers 1 and 2.

(265) **Hope Island**, about 1.6 miles north of Conanicut Point, has low grassy hills with a few trees. The island is a State estuarine sanctuary and is off limits to visitors during the bird nesting season. Bare and submerged rocks surround the island for about 0.2 mile. **Despair Island** is on the outer end of a rocky ledge extending 0.2 mile northeastward of Hope Island; a buoy is off the northeast side of the ledge. **Scup Rock** and **Round Rock** are off the eastern side of Hope Island, and **Gooseberry Island** and **Seal Rock** are off the western side. A hazardous reef with piles and a boiler awash on it is about 0.4 mile southwestward of the southwest point of Hope Island; a lighted buoy marks the area.

(266) **Allen Harbor** is 2 miles north of Quonset Point. The harbor is entered through a buoyed channel which has a depth of about 8 feet. Depths of 8 to 10 feet are inside.

(267) **Calf Pasture Point** is on the north side of the entrance to Allen Harbor. Abreast the point and for some distance northward of it, a shoal extends 0.5 mile from shore.

(268) **Chart 13224.–Potowomut River**, entering the west side of West Passage, 1.7 miles north of Calf Pasture Point, is separated from Greenwich Bay on the north by **Potowomut Neck**. A depth of about 4 feet can be carried over the bar at the entrance and into the narrow crooked channel inside. Caution is necessary to avoid rocks with depths of 1 foot over them in the entrance. Strangers should not enter the river.

(269) **Round Rock**, about 0.7 mile eastward of Potowomut River entrance, uncovers 3 feet and is marked by a seasonal lighted buoy close eastward. Several other rocks, awash and submerged, lie between Round Rock and the entrance to the river; caution is advised.

(270) The natural channel of West Passage extends between the shoal area eastward of Round Rock and the shoal area westward of Patience Island. The channel has depths of 21 to 70 feet. Buoys mark the entrance from the southward, and a lighted bell buoy marks the northwestward edge of the shoal off Patience Island. The channel is the approach from southward to Greenwich Bay, Warwick Point, and the channel from West Passage to Providence River.

(271) **Patience Island**, 0.2 mile west of the northern end of Prudence Island, is surrounded by shoals and foul ground. The island is a State park and estuarine sanctuary.

(272) **Warwick Point**, the southernmost point of **Warwick Neck**, 0.7 mile northwest of Patience Island, is marked by a light and fog signal.

(273) **Greenwich Bay**, at the northwestern end of Narragansett Bay, is entered between Warwick Neck and Potowomut Neck. Shoal water borders the shore of the bay, but the general depths are 10 feet or more.

(274) **Warwick Cove**, between Warwick Neck and Horse Neck, is in the northeastern part of Greenwich Bay. A marked dredged channel leads from the bay to an anchorage basin at the head of the cove; other anchorage basins in the cove are on the west side of the channel, 0.5 mile above the channel entrance, and on each side of the channel 0.7 mile above the channel entrance. A State regulatory buoy off Horse Neck marks a 5 m.p.h. **speed limit.** In March-April 1984, the controlling depths were 6 feet at midchannel in the channel and 4 to 6 feet in the anchorage basins. A shoal, bare at low water, extends about 150 yards westward from the west side of the channel to the southeast end of Horse Neck. The cove is the scene of considerable pleasure boat activity.

(275) The **harbormaster** in the cove controls berthing and anchorage; contact can be made through the Warwick City Hall. The cove has several marinas and boatyards. Berths, electricity, gasoline, water, ice, storage, launching ramps, marine supplies, and hull and engine repairs are available. The largest mobile hoist, on the west side of the cove about 0.8 mile above the mouth, can handle craft up to 20 tons.

(276) **Brush Neck Cove**, about 0.5 mile west of Warwick Cove, is fronted by a flat with a general depth of about 2 feet. This channel is used by small local craft at high water as far as the pier at Oakland Beach. **Oakland Beach**, on **Horse Neck**, between Brush Neck and Warwick Coves, is a summer resort with bus communication.

(277) **Apponaug Cove**, in the northwestern part of Greenwich Bay, is entered through a marked dredged channel that leads from the bay to a fixed railroad bridge about 0.7 mile above the channel entrance. A State regulatory buoy at the entrance to the cove marks a 5 mph **speed zone.** In August 1990, the channel had a controlling depth of 2½ feet (6 feet at midchannel) to buoy 8, thence a midchannel controlling depth of 4 feet to within about 200 yards of the bridge. The controlling depth in the anchorage basin was 5 feet. In 1979, depths of less than 1 foot were above the bridge. There are several small-craft facilities in the cove and at the west end of Greenwich Bay just southwestward of the entrance channel to the cove. Berths, electricity, gasoline, water, ice, storage facilities, launching ramps, mobile hoists up to 35 tons, and marine supplies are available; hull and engine repairs can be made. The berths and anchorage in Apponaug Cove are

under the control of a **harbormaster;** he can be contacted through the Warwick City Hall.

(278) **Chepiwanoxet Island**, on the western side of the bay northward of the entrance to Greenwich Cove, is a small neck of land with a yellow bluff facing eastward. From this island, shoals with little water over them extend about 500 yards northward and 300 yards eastward and southeastward. Shoals extend about 300 yards northward and westward of **Long Point**, the northwestern extremity of Potowomut Neck.

(279) **Greenwich Cove**, in the southwest end of Greenwich Bay, is about 1.3 miles long and 300 to 600 yards wide. Buoys mark the entrance channel into the cove. State regulatory buoys at the entrance marks a **"Slow no wake" zone.** On the western shore is the town of **East Greenwich**. Depths of about 7 to 11 feet are available in the cove to about 0.5 mile from the head. Good anchorage may be had off some of the small-craft facilities on the west side of the cove in depths of 8 to 11 feet.

(280) The mean range of **tide** is 4.0 feet.

(281) The cove has several boatyards. Berths, electricity, gasoline, water, diesel fuel, ice, marine supplies, wet and dry storage, launching ramps, lifts to 21 tons, and complete engine and hull repairs are available. The **harbormaster** in the cove controls anchoring and berthing; contact can be made through the Warwick City Hall.

(282) From **Sandy Point**, the eastern extremity of Potowomut Neck, shoals with depths of 2 to 9 feet extend northeasterly for about 0.6 mile. Extensive shoals extend off the eastern side of Warwick Neck to Ohio Ledge. **Rocky Point** is on the eastern side of the neck, 1.7 miles north-northeastward of Warwick Point.

(283) The natural channel between the shoals off Warwick Neck and the shoals northward of Patience and Prudence Islands has depths of 19 to 50 feet. A buoy marks the shoal off **Providence Point**, the northernmost point of Prudence Island.

(284) **Chart 13218.**–The shoreline of **Point Judith Neck** between West Passage and Point Judith should be given a berth of at least 0.6 mile. From Narragansett Pier to **Black Point**, a rocky promontory 1.9 miles southward, the shoreline is a rugged rocky ledge with deep water close inshore. The waters between Black Point and Point Judith are boulder-strewn and shoal up gradually.

(285) Three very prominent landmarks are Point Judith Light, the elevated water tank 1.7 miles north of Point Judith, and Hazard's Tower, a high, square stone tower 0.5 mile south of Narragansett Pier. Closer inshore the stone bathing pavilion at the State-operated **Scarborough Beach**, 0.5 mile south of Black Point, and an open stone tower on a house 0.4 mile north of Black Point are prominent.

7. BLOCK ISLAND SOUND

(1) This chapter describes Block Island Sound, Fishers Island Sound, Gardiners Bay, Little Peconic Bay, Great Peconic Bay, and the ports and harbors in the area, the more important of which are Point Judith Harbor, Great Salt Pond, Stonington, Mystic Harbor, and Greenport.

(2) **COLREGS Demarcation Lines.** –The lines established for this part of the coast are described in **80.150 and 80.155,** chapter 2.

(3) **Charts 13205, 13215.–Block Island Sound** is a deep navigable waterway forming the eastern approach to Long Island Sound, Fishers Island Sound, and Gardiners Bay from the Atlantic Ocean. The sound is a link for waterborne commerce between Cape Cod and Long Island Sound. It has two entrances from the Atlantic; an eastern entrance from Rhode Island Sound between Block Island and Point Judith, and a southern entrance between Block Island and Montauk Point. The sound is connected with Long Island Sound by The Race and other passages to the southwestward, and with Fishers Island Sound by several passages between rocky reefs from Watch Hill Point to East Point, Fishers Island.

(4) The north shoreline of Block Island Sound and Fishers Island Sound from Point Judith to New London is generally rocky and broken with short stretches of sandy beach. Many inlets and harbors, especially in the vicinity of Fishers Island, afford harbors of refuge for vessels. Most of the rocks and shoals near the channels are marked with navigational aids.

(5) The southern part of Block Island Sound is bounded by Block Island on the east, the eastern extremity of Long Island, and Gardiners Island on the west. Plum Island and Fishers Island are at the western end of the sound.

(6) The deep water in the central part of Block Island Sound will accommodate vessels of the greatest draft.

(7) Westward of Gardiners Island, enclosed between the northeastern and eastern ends of Long Island, are Gardiners Bay, Shelter Island Sound, Little Peconic Bay, and Great Peconic Bay. This area is well protected but generally shallow, and is not suited for deep-draft vessels. The shoreline is marked by many indentations and shallow harbors. These waters are much used by commercial fishing vessels and small pleasure craft because of the protection afforded and the many anchorages.

(8) **Block Island North Reef** is a sand shoal with depths of 14 feet or less extending 1 mile northward from **Sandy Point** at the north end of Block Island. The shoal should be avoided by all vessels; its depths change frequently, and its position is also subject to a slow change. It is practically steep-to on all sides, so that soundings alone cannot be depended on to clear it. A lighted bell buoy is 1.5 miles northward of the point.

(9) **Southwest Ledge**, 5.5 miles west-southwestward of Block Island Southeast Light, has a least known depth of 23 feet and is marked on its southwest side by Southwest Ledge Lighted Bell Buoy 2. Rocky patches with least depths of 27 and 29 feet extend 1.5 miles northeastward from the ledge. The sea breaks on the shoaler places on the ledge in heavy weather.

(10) Several other dangers that must be guarded against are northward and westward of Southwest Ledge Lighted Bell Buoy 2. These dangers are: two obstructions, about 300 yards apart, covered 31 and 32 feet, marked by a lighted buoy, about 2.2 miles 280° from the lighted bell buoy; and two obstructions, cleared to a depth of 35 feet, about 0.75 mile north of the lighted bell buoy.

(11) The deepest passage in the southern entrance to Block Island Sound is just westward of Southwest Ledge and has a width of over 2 miles; this is the best passage for deep-draft vessels. In heavy weather vessels desiring to enter the sound westward of Block Island should pass westward of Southwest Ledge Lighted Bell Buoy 2, taking care to pass clear of the obstructions mentioned above.

(12) Between the inner patch of rocks and the shoals, which extend 0.9 mile from Block Island, is a channel 1.3 miles wide, with a depth of about 34 feet. Vessels using this channel round the southwest end of Block Island at a distance of 1.5 miles. It is not advisable to use this passage during heavy weather.

(13) The entrance between Point Judith and Block Island is used by vessels coming from the bays and sounds eastward to Long Island Sound. The route generally used is through The Race. Tows of light barges and vessels of 14 feet or less draft sometimes go through Fishers Island Sound, especially during daylight with a smooth sea. This entrance is clear with the exception of Block Island North Reef and the numerous large boulders extending about 4 miles south-southeastward of Point Judith. The coast from Point Judith nearly to Watch Hill should be given a berth of over 1 mile, avoiding the broken ground with depths less than 30 feet.

(14) (Full tidal information, including daily predictions is given in the Tide Tables.)

(15) The effect of strong winds, in combination with the regular tidal action, may at times cause the water to fall several feet below or rise the same amount above the plane of reference of the chart. The mean range of **tide** throughout Block Island Sound varies from about 3 feet at Point Judith to 2 feet at Montauk Point.

(16) **Tidal current** data for a number of locations in Block Island Sound are given in the Tidal Current Tables. Current directions and velocities throughout the sound for each hour of the tidal cycle are shown on Tidal Current Charts, Block Island Sound and Eastern Long Island Sound.

(17) The tidal currents throughout Block Island Sound have considerable velocity; the greatest velocities occur in the vicinity of The Race and in the entrances between Montauk Point, Block Island, and Point Judith. Soundings alone cannot be depended upon to locate the position; the shoaling is generally abrupt in approaching the shores or dangers.

(18) In the middle of the passage between Point Judith and Block Island, the velocity is 0.7 knot. The flood sets westward, and the ebb eastward.

(19) In the passage between Block Island and Montauk Point, the flood sets generally northwestward and the ebb southeastward. In the middle of the passage the velocity is 1.5 knots on the flood and 1.9 knots on the ebb. About 1.2 miles eastward of Montauk Point, the flood sets 346°, ebb 162°, with a velocity of 2.8 knots.

(20) In Block Island Sound and in the eastern part of Long Island Sound, **fogs** are generally heaviest with southeast winds. In these waters the usual duration of a fog is from 4 to 12 hours, but periods of from 4 to 6 days have been known with very short clear intervals. In the autumn, **land fogs,** as they are termed locally,

sometimes occur with northerly breezes, but are generally burned off before midday.

(21) The Race may be said to be the only locality where tidal currents have any decided influence on the movements of the ice. Large quantities of floe ice usually pass through The Race during the ebb, especially if the wind is westerly, and in severe winters this ice causes some obstruction in Block Island Sound and around Montauk Point. These obstructions are the most extensive around the middle of February.

(22) **Weather, Block Island Sound and vicinity.**–Land influences the weather only at the northern edge of the Sound, with a northerly wind. Otherwise the waters are open, similar to the nearby ocean. Winds from all other directions have ample time to increase in strength and the Sound can be as turbulent as any water off the coast. Wind speeds can be double those found on the coast, especially in winter, when average speeds of 16 to 17 knots are common. Gales occur up to 5 percent of the time in winter and are most likely from the west and northwest. Seas built by winds from the southeast through southwest are usually highest since there is no land to interfere with the fetch. Seas of 10 feet (3 m) or more are likely 5 to 7 percent of the time in winter.

(23) Because of relatively cold water, summer fog occurs two to three times more often in these waters than in either Narragansett or Buzzard Bays. For example, in June visibilities drop below 1/2 mile nearly 9 percent of the time.

(24) **Pilotage, Block Island Sound and Long Island Sound.**–Pilotage is compulsary for foreign vessels under register in Block Island Sound and Long Island Sound. A vessel traversing Block Island is enroute to or from Long Island Sound. See Pilotage, Long Island Sound (indexed as such), chapter 8. Vessels bound for Long Island Sound ports may board pilots in the vicinity of Point Judith Lighted Whistle Buoy 2, within a 1-mile radius circle centered in 41°17.2′N., 71°30.4′W.

(25) **Chart 13217.–Block Island**, 5 miles long, is hilly with elevations up to about 200 feet. The shore of the island is fringed in most places by boulders and should be given a berth of over 0.5 mile even by small craft; the shoaling is generally abrupt in approaching the island.

(26) **Weather, Block Island and vicinity.**–Block Island, formed by glaciers, consists of nearly 7,000 acres (2,830 hectares and lies in the Atlantic Ocean about 12 miles east-northeast of Long Island and about the same distance south of Charlestown, RI. Hence, the climate is typically maritime, but under conditions of extreme cold or heat the effect is felt on the island as well as on the mainland. Temperatures of -10°F (-23.3°C, February 1992) and 95°F (35°C, August 1948) have been recorded.

(27) Summers are usually dry. Recorded rainfall for any one month ranges from a trace to 11.51 inches (292 mm). November is the wettest month averaging 4.08 inches (104 mm) and June is the driest averaging 2.46 inches (64 mm).

(28) The warmest month is July with an average high of 76.5°F (24.7°C) and an average low of 63.7°F (17.6°C). The coolest months are January and February. Each average 32°F (0°C). The island is too small to build up cumulonimbus clouds, and local thunderstorms do not occur. Fog occurs on one out of four days in the early summer, when the ocean is relatively cold and foggy days average about 22 each year.

(29) Winters are distinguished for their comparative mildness, maximums average 36°F to 42°F (2.2°C to 5.6°C) and minimums average 26°F (-3.3°C) in January and February. Since the surface winds are usually easterly when snow begins it soon changes to rain or melts rapidly after it piles up. The ocean temperatures are of course always somewhat above freezing and not far off shore are relatively high.

(30) The ocean has a dampening effect on hot winds in summer and an accelerating effect on cold winds from the mainland in the winter. Katabatic winds from Narragansett Bay and Long Island reach as high as 35 knots when anticyclonic conditions prevail on the mainland in winter. The wind velocity averages 15 knots for the year, but the mean is 17 knots in the winter, when gales are frequent. In the early fall most of the tropical storms moving up the coast affect the island to some extent. Since 1871, 13 storms have come within 25 miles of Block Island. The most recent was Hurricane Bob in August 1991. The center of Hurricane Bob passed about ten miles to the west of the island with 85- knot winds.

(31) (See page T-3 for **Block Island climatological table.**)

(32) **Communications.**–A ferry operates daily from Galilee to Great Salt Pond or Old Harbor, carrying mail, passengers, freight, and vehicles. There is summer ferry service from Old Harbor to Providence, via Newport, and to New London. The island has telephone service to the mainland. Air service is also available.

(33) **Block Island Southeast Light** (41°09.2′ N., 71°33.1′W.), 258 feet above the water, is shown from a steel tower on **Mohegan Bluffs** on the southeast point of the island.

(34) About 0.2 mile southeast of the light is the wreck of the large tanker SS LIGHTBURNE. The wreck is marked by a buoy. At **Clay Head**, on the northeast side of Block Island, is a lone white house on top of the bluff. Two nearby silos are conspicuous.

(35) **Block Island North Light** (41°13.7′N., 71°34.6′W.), 58 feet above the water, is shown from a black tower on a gray granite dwelling on Sandy Point at the north end of the island.

(36) **Old Harbor**, frequently used as a harbor of refuge, is an artificial harbor formed by two breakwaters on the east side of Block Island, 1.4 miles northward of Block Island Southeast Light. In May-June 1996, the controlling depths were 13 feet in the entrance channel; thence in 1993, general depths of 14 feet were available in the inner harbor anchorage, thence 8½ feet was available in the basin in the southeast corner of the inner harbor. The harbor is occupied by pleasure craft during the summer. The eastern part of the inner harbor is left clear for the passage of the ferry to the wharf. The basin in the southeast corner of the inner harbor is usually occupied by fishing boats and local craft which tie up along the sides. Gasoline, diesel fuel, and berths are available. The **harbormaster** has an office at the Old Harbor town dock.

(37) The east breakwater extends about 300 yards northward of the entrance of the inner harbor, and is marked at its end by a light and fog signal. A bell buoy is 0.55 mile northward of the breakwater. A light marks the end of the breakwater on the west side at the entrance to the inner harbor.

(38) **Great Salt Pond (New Harbor)**, on the west side of Block Island, is the best harbor in Block Island Sound for vessels of 15-foot draft or less. In easterly gales when the sea is too heavy to enter Old Harbor, a landing can be made at Great Salt Pond. The entrance, about 2 miles south-southwestward of Block Island North Light, is a dredged cut through the narrow beach. The southwestern side of the entrance is protected by a jetty, marked by a light and fog signal at its outer end and by a light at the inner end.

(39) In June 1996, the controlling depth in the left half of the entrance channel was 6½ feet. Shoaling to bare exists in the right half of the channel in the vicinity of Buoy 10 at the mouth of Great Salt Pond. Local knowledge is advised before entering.

(40) The usual anchorage in Great Salt Pond is near the southeast end, off the ferry landing, in 15 to 48 feet, taking care to leave a fairway to the landing. A channel with a reported depth of about 8 feet in July 1981 leads to **Trim Pond,** where local fishing craft are moored.

(41) Small-craft facilities in Great Salt Pond can provide berths, electricity, gasoline, diesel fuel, water, ice, and marine supplies. The marina about 0.3 mile westward of the ferry landing had a reported depth of 16 feet at the face of the dock in July 1981. Sail and engine repairs are available nearby.

(42) The mean range of **tide** is about 2.6 feet.

(43) **Tidal currents** in the entrance to Great Salt Pond have a velocity of 0.3 knot. (See Tidal Current Tables for predictions.)

(44) **Chart 13219.–Point Judith Light** (41°21.7′N., 71°28.9′W.), 65 feet above the water, is shown from an octagonal tower, 51 feet high, with the lower half white, upper half brown. The station has a fog signal. About 100 yards north of the light is **Point Judith Coast Guard Station**. A lighted whistle buoy is about 2.4 miles southward of the light. (See chart 13218.) A prominent elevated water tank is about 1.8 miles northward of the light, and another globular water tank is about 3 miles northwestward of the light.

(45) The area around Point Judith, including the approaches to Point Judith Harbor of Refuge, is irregular with rocky bottom and indications of boulders. Caution is advised to avoid the shoal spots, even with a smooth sea, and to exercise extra care where the depths are not more than 6 feet greater than the draft.

(46) **Point Judith Harbor of Refuge**, on the west side of Point Judith, is formed by a main V-shaped breakwater and two shore-arm breakwaters extending to the shore. The harbor is easy of access for most vessels except with a heavy southerly sea. It is little used by tows. The only soft bottom in the harbor is found in the southern part of the deeper water enclosed by the main breakwater. On the north side the shoaling is gradual; the 18-foot curve is about 0.3 to 0.5 mile offshore.

(47) Near the central part of the harbor are two shoals; the northernmost one has depths of 14 to 18 feet, and the southernmost one has depths of 14 to 16 feet and is marked by a buoy.

(48) The area within the V-shaped breakwater affords protected anchorage for small craft. The breakwater should be given a berth of 200 yards to avoid broken and hard bottom; a rocky shoal area about 100 yards wide, paralleling the west side of the main breakwater northward from the angle should be avoided. A good berth for a vessel is on a line between Point Judith Harbor of Refuge East Entrance Light 3 and Point Judith Harbor of Refuge West Entrance Light 2, midway between them in 22 to 30 feet. This position falls on the edge of the east-west thorofare used by pleasure craft and fishing boats.

(49) In August 1984, a submerged obstruction was reported about 270 yards southeast of Point Judith Harbor of Refuge West Entrance Light 2 in about 41°21′37″N., 71°30′40″W. A dangerous wreck, covered 4½ feet, is about 450 yards westward of Point Judith Harbor of Refuge East Entrance Light 3 in 41°21′34.1″N., 71°30′10.6″W.

(50) The southern entrance to the Harbor of Refuge, known locally as the East Gap, is 400 yards wide; in July 1981, it had a reported controlling depth of about 24 feet with deeper water in the western half of the channel.

(51) The western entrance to the Harbor of Refuge, known locally as the West Gap, is 500 yards wide; in July 1981, it had a reported controlling depth of about 18 feet, with lesser depths on the north side of the entrance.

(52) **Tides and Currents.**–The mean range of tide in the Harbor of Refuge is 3.1 feet. The tidal currents have a velocity of about 0.7 knot at the south entrance. The currents off the west entrance are rotary, with a velocity at strength of 0.5 knot. (See Tidal Current Tables for predictions.)

(53) Considerably stronger currents have been reported to develop especially when the tide is ebbing.

(54) **Point Judith Pond** is a saltwater tidal pond entered between two rock jetties at **The Breachway** in the northwestern part of Point Judith Harbor of Refuge. The east jetty is marked near its seaward end by a daybeacon. The pond extends 3.3 miles northerly to the town of **Wakefield**. It is used extensively by small fishing vessels and pleasure craft, and numerous fish wharves are inside the entrance. The north end of Point Judith Pond affords good anchorage for boats of 4 feet draft or less during a heavy blow.

(55) The village of **Galilee** on the east side of the entrance and **Jerusalem** on the west side at **Succotach Point** have State piers and numerous small piers chiefly used by fishermen. A State fisheries laboratory is just above the State pier at Jerusalem. A State pier superintendent controls the State piers at Galilee and Jerusalem; his office is at the head of the Galilee State Pier.

(56) A channel with three dredged sections marked by buoys and a daybeacon extends from Point Judith Harbor of Refuge along the west side of the pond to the State Pier at Jerusalem, and thence northerly to the turning basin at Wakefield. A branch channel, on the east side, extends northeasterly from the entrance to the pond to the State Pier at Galilee, and into anchorage areas westward of Galilee and southward of Little Comfort Island.

(57) In February 1983, the controlling depths were 11 feet (13 feet at midchannel) to the junction with the Galilee branch channel, thence 11 feet to the State Pier at Jerusalem, thence in December 1985, 4½ feet to the turning basin at Wakefield with 6 feet in the basin except for shoaling to 5 feet along the west limit. In February 1983, the east branch channel had a controlling depth of 15 feet to the State Pier at Galilee, thence 11 feet (14 feet at midchannel) to the anchorage basin southward of Little Comfort Island, thence in October 1985, depths of 4½ to 7 feet were available in the anchorage except for shoaling to 1½ feet along the northeast limit. In February 1983, the anchorage westward of Galilee had depths of 10 feet.

(58) **Tides and Currents.**–The mean range of tide in the pond is 2.8 feet and occurs later than in the Harbor of Refuge by about 10 minutes just inside the entrance and 30 minutes at the north end. The tidal currents in the entrance have a velocity of 1.8 knots on the flood and 1.5 knots on the ebb, and cause slight rips and overfalls at changes of tide. Higher current velocities are reported to occur. (See Tidal Current Tables for predictions.)

(59) Several boatyards and marinas are at Galilee, Jerusalem, Wakefield, and at Snug Harbor, on the west side of the pond about 0.8 mile above the entrance. Berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, storage, launching ramps, and hull and engine repairs are available. The largest marine railway in the area, at the southern end of the waterfront at Snug Harbor, can handle craft up to 150 feet long or 400 tons. In July 1981, a reported depth of 12 feet could be carried to the railway.

(60) Daily ferry service is available to Block Island from Galilee. Daily bus service is operated to Providence.

(61) **Potter Pond**, shallow and landlocked, is joined with Point Judith by a narrow channel near **Snug Harbor**. Local knowledge should be obtained before using this channel, which has depths of 2 to 4 feet and is crossed by overhead power and telephone cables with a clearance of 30 feet at the channel entrance and by a fixed

highway bridge with a clearance of 5 feet about 0.4 mile above the entrance. A current of more than 3 knots develops through the channel on the ebb. The mean range of **tide** in the pond is about 1 foot, and it occurs about 2.5 hours later than in the Harbor of Refuge.

(62) **Chart 13215.**–From Point Judith to Watch Hill the shore is low and for the most part consists of sandy beaches which are broken by several projecting rocky points. Back from the immediate shore are areas of cultivation interspersed with rolling grass-covered or wooded hills. Except for Point Judith Pond, most pond outlets are used only by small local craft. The coast is fringed by broken ground and boulders in places, which should be avoided by deep-draft vessels where the depths are less than 36 to 42 feet.

(63) **Matunuck** is a summer resort about 3 miles west of Point Judith. Southwest of **Matunuck Point** is **Nebraska Shoal**, a patch of boulders covered 18 feet and marked by a buoy. The shoal is at the south end of broken ground, with depths less than 30 feet offshore; the water deepens abruptly around the patch.

(64) **Charlestown Breachway,** 4.5 miles westward of Matunuck Point, is a narrow inlet which leads to **Ninigret Pond,** also known as **Charlestown Pond,** to the westward, and the village of **Charlestown** to the northward. In July 1981, a reported depth of about 2 feet could be taken in the inlet, with depths of about 3 to 6 feet inside. The southern part of Ninigret Pond is mostly mud flats. Local knowledge is required in entering and moving about inside. A small-craft facility is at Charlestown, and one is at the western end of Ninigret Pond; berths, gasoline, electricity, marine supplies, and launching ramps are at both facilities.

(65) **Quonochontaug**, 10.8 miles westward of Point Judith, is a summer settlement at the outlet of **Quonochontaug Pond**. In July 1981, a reported depth of about 3 feet could be carried in **Quonochontaug Breachway,** with depths of 15 to 20 feet reported in the pond. Vessels favor the west side of the entrance to avoid rocks in the easterly half of the entrance.

(66) **Weekapaug Point**, 12.5 miles west of Point Judith, is bold, rocky, and prominent from the southwest and southeast. Two stone jetties, 1,500 feet long, protect the entrance to **Winnapaug Pond** just westward of the point. In July 1981, a reported depth of about 5 feet could be carried in **Weekapaug Breachway** to the pond; vessels favor the west side of the breachway above the bridge. Reported depths in Winnapaug Pond vary from bare to 10 feet. There are numerous shoals and sandbars. Southerly winds cause breakers at the ends of the jetties; extreme caution is advised. The fixed bridge over the entrance has a clearance of 6 feet.

(67) **Old Reef**, with a depth of 5 feet over it, is about 1.5 miles west of Weekapaug Point and about 0.5 mile offshore.

(68) **Chart 13214.–Watch Hill,** about 17.5 miles west of Point Judith, is a high bare bluff on its easterly side with several large hotels and summer houses.

(69) **Watch Hill Light** (41°18.2′N., 71°51.5′W.), 61 feet above the water, is shown from a square gray granite tower, 45 feet high, attached to a white building with a red roof, on **Watch Hill Point**. It is reported that the fog signal at the station is not easily heard eastward of the light, but from the southwest can be heard nearly to Montauk Point. A radiobeacon is 136 yards north-northeast of the light. A lighted whistle buoy, 2.5 miles southward of the light, marks a passage through Block Island Sound.

(70) **Gangway Rock**, awash at low water, is part of a boulder reef extending about 0.2 mile southward from Watch Hill Light. A lighted bell buoy marks the south end of the reef. A submerged rock is about 50 yards northward of the buoy.

(71) **Watch Hill Passage** is the principal entrance to Fishers Island Sound from eastward, and the only one used by strangers. It has a least depth of about 17 feet. A spot with 12 feet over it in the passage is marked by a buoy; the best channel is northward of this buoy, giving it a berth of about 150 yards.

(72) **Watch Hill Reef**, on the southwest side of Watch Hill Passage, has rocks that bare and is marked by a gong buoy.

(73) **Sugar Reef Passage**, between Watch Hill Reef and Sugar Reef, has a width of 0.3 mile; the least depths are about 22 feet.

(74) **Sugar Reef**, some 500 to 600 yards in extent, is covered 2 to 12 feet and should be avoided; it is marked by a buoy off its north side.

(75) **Catumb Passage**, between Sugar Reef and Catumb Rocks, has a width of 150 yards; its least depth is 13 feet.

(76) **Catumb Rocks**, the highest of which are awash, are marked by buoys on the north, southeast, and southwest sides. Rocks covered 1 to 18 feet extend 0.8 mile westward of Catumb Rocks to the buoy that marks the east side of **Lords Passage**. This passage, about 0.3 mile wide, has a least depth of 16 feet.

(77) **Wicopesset Rock**, on the northwesterly side of Lords Passage, is the easterly part of foul ground extending about 0.3 mile to **Wicopesset Island**, which is low and rocky.

(78) **Wicopesset Passage**, between Wicopesset Island and East Point, is narrow and is obstructed by a rock in the middle marked by a buoy; it is suitable only for small craft and should not be used by strangers. A bell buoy marks the southern entrance. Extreme caution is recommended when using the passage as the ebb current is apt to set boats on the foul ground.

(79) Information about the tides and tidal currents in the passages is given with the discussion of Fishers Island Sound.

(80) **Charts 13214, 13212.–Fishers Island,** 6 miles long, is hilly and sparsely wooded. **Chocomount**, 136 feet high, is the highest point on the island. **East Point,** at the east end of the island, is marked by several large houses. The former Coast Guard station at East Harbor, about 1 mile from East Point of Fishers Island, is prominent; numerous buildings on the western part of Fishers Island and a large yellow hotel building are conspicuous. The radar antenna on **Mount Prospect**, near the west end of the island, south shore, is the most prominent landmark on Fishers Island from seaward. The south side of the island is fringed with foul ground which rises abruptly from depths of 42 to 48 feet; but by giving the shore a berth of 0.5 mile, all dangers will be avoided.

(81) **Race Point Ledge**, partly bare at low water, extends about 0.2 mile southwestward from **Race Point**, the southwest extremity of Fishers Island, and is marked at its end by a buoy. Inside the buoy are boulders with 2 to 9 feet over them. The passage between the buoy and Race Rock Light has very irregular bottom; the least depth is about 24 feet. It is suitable only for small vessels with a comparatively smooth sea.

(82) **Race Rock**, on the northeast side of The Race, is nearly 200 yards in diameter, with a depth of 8 feet. A ridge with a least depth of 25 feet is reported extending about 370 yards south of Race Rock. Another ridge, oriented north-south and with a least depth of 40 feet, is about 380 yards east of Race Rock.

(83) **Race Rock Light** (41°14.6′N., 72°02.8′W.), 67 feet above the water, is shown from a granite tower attached to a dwelling on a granite pier on the rock. A fog signal is sounded at the station. The fog signal is reported at times to be inaudible when a vessel is approaching from eastward and is close southward of Fishers Island.

(84) **Charts 13209, 13212.–The Race**, the main entrance to Long Island Sound from eastward, extends between Fishers Island and Little Gull Island, between which is a width of about 3.5 miles. The only dangers are Valiant Rock, nearly in the middle, and Little Gull Island with its reefs.

(85) **Current.**–In the middle of The Race, the flood sets 295° and the ebb 100°, with average velocities of 2.9 knots and 3.5 knots, respectively. There are always strong rips and swirls in the wake of all broken ground in The Race, except for about one-half hour at slack water. The rips are exceptionally heavy during heavy weather, and especially when a strong wind opposes the current, or the current sets through against a heavy sea. (Predicted times of slack water and times and velocities of strength of current are given in the Tidal Current Tables.)

(86) **Little Gull Reef**, with little depth over it and foul ground, extends 0.3 mile east-northeastward from **Little Gull Island.** Deep-draft vessels should avoid this locality. **Little Gull Island Light** (41°12.4′N., 72°06.5′W.), 91 feet above the water, is shown from a gray granite tower, 81 feet high, attached to a red dwelling on a pier. A fog signal is at the light. The light and Race Rock Light are the guides, as soundings cannot be depended upon.

(87) In passing north of Valiant Rock, vessels should keep from 0.5 to 0.8 mile southwestward of Race Rock Light, and craft passing southward of Valiant Rock should hold to a course about 1 mile northeastward of Little Gull Island Light.

(88) **Cerberus Shoal**, 6 miles southeast of Race Rock Light, is about 0.4 mile in diameter, with a least depth of 19 feet on a small rocky patch near its north end. The seas break on this shoal during heavy swells. It is marked by a lighted gong buoy. Near the shoal, tide rips are unusually strong.

(89) **Great Gull Island**, 0.6 mile southwest of Little Gull Island, was formerly a military reservation, but is now privately owned. The pier on the north side is in ruins. A lookout tower on the island is conspicuous.

(90) **Valiant Rock**, with a least depth of 19 feet, is surrounded by shoal area, and the 10-fathom curve surrounding the rock marks the area which should be avoided by deep-draft vessels and preferably all vessels, on account of the heavy swirls and rips. A lighted bell buoy is northward of the rock.

(91) **The Sluiceway**, the passage between Great Gull Island and Plum Island, has several known dangers and very irregular bottom with boulders, and should be avoided. The velocity of the **tidal current** in the passage is 2.6 knots on the flood, and 3.2 knots on the ebb; flood sets 299°, and ebb 133°. Considerably higher velocities occur at times, and tide rips are very bad in heavy weather. Boulders covered 3 to 10 feet are between **Old Silas Rock** and Plum Island. Old Silas Rock is awash at high water. **Middle Shoal Rock**, 0.3 mile northeastward of Old Silas Rock, has a depth of 8 feet.

(92) **Bedford Reef** is broken ground, on which the least found depths are 14 to 16 feet, extending about 1.5 miles southward from broken ground lying between Great Gull and Plum Islands. It should be avoided. **Constellation Rock**, on the southeasterly extension on this broken ground, has 17 feet over it, is marked by a buoy, and lies 1.9 miles southward of Little Gull Island Light.

(93) **Chart 13209.–Montauk Point**, the easterly extremity of Long Island, is a high sandy bluff, on the summit of which is the light. The land is grass covered, with a height of 165 feet at **Prospect Hill**, 2 miles westward of the point. The south side of the point is bold, the 10-fathom curve is about 0.5 mile from shore; depths of 24 feet and less extend 0.8 mile off the northeast side of the point.

(94) **Montauk Point Light** (41°04.3′N., 71°51.4′W.), 168 feet above the water, is shown from a white octagonal, pyramidal tower with a brown band midway of its height and a covered way to a gray dwelling. A fog signal is at the light. A radiobeacon is 0.3 mile south-southwestward of the light.

(95) Surrounding Montauk Point for about 4 miles is a shoal area that has been closely surveyed (see also chart 13215); the bottom is very broken, and extra caution should be observed where the depths are less than 10 feet greater than the draft. In general, the shoals are a series of long narrow ridges, in places only a few yards wide, and their positions are indicated by the rips over them at the strength of the tidal currents.

(96) **Montauk Shoal**, about 2.5 miles south-southeastward of the light, has least depths of 28 feet. **Great Eastern Rock**, 1.5 miles east-northeast of the light, has a least depth of 24 feet. **Phelps Ledge**, just northerly of Great Eastern Rock, is covered by 24 feet. **Endeavor Shoals**, about 2.3 miles northeast of the light, are covered by 19 to 24 feet on a narrow ridge about 0.4 mile long. A lighted gong buoy is off the eastern end of the ridge. In 1981, a sunken wreck was reported about 1 mile north-northeast of Montauk Point Light in about 41°05.2′N., 71°50.8′W.

(97) Vessels drawing up to 20 feet can avoid the dangers eastward and northeastward of Montauk Point in smooth weather by giving the point a berth of over 1 mile and avoiding Great Eastern Rock.

(98) Broken ground with rocky bottom and boulders extends about 2 miles off the north coast west of Montauk Point. **Shagwong Reef**, with a least depth of 8 feet and marked by a lighted bell buoy, is the northern limit of this area. **Shagwong Rock**, with a least depth of 7½ feet and marked by a lighted buoy, and **Washington Shoal**, with a least depth of 15 feet, are between the shore and Shagwong Reef. The principal danger outside Shagwong Reef is a shoal with a depth of 30 feet, 5.3 miles northwestward of Montauk Point.

(99) **Pilotage Pickup Locations Off Montauk Point.**–Pilots generally, or by prearrangement, meet a ship "off Montauk Point". The following pilot associations meet vessels "off Montauk Point" at the locations indicated. For telephone number, FAX number, cable address, description of the boat, frequencies, etc., consult the name of the association under Pilotage, Narragansett Bay and Other Rhode Island Waters (indexed as such), chapter 6; Pilotage, Long Island Sound (indexed as such), chapter 8; and Pilotage, New York Harbor and Approaches (indexed as such), chapter 11.

(100) Sound Pilots, Inc. (division of Northeast Marine Pilots, Inc.), 2 miles east of Montauk Point Lighted Whistle Buoy MP;

(101) Connecticut State Pilots, 3 miles east-southeast of Montauk Point Lighted Whistle Buoy MP;

(102) Constitution State Pilots Association, 3 miles east of Montauk Point Lighted Whistle Buoy MP;

(103) Long Island Sound State Pilots Association, Inc., at Montauk Point Lighted Whistle Buoy MP.

(104) **Montauk Harbor**, in the northern part of **Lake Montauk**, is entered through a dredged channel on the northern shore about 3 miles west of Montauk Point. The entrance is protected by jetties, each of which is marked by a light, and the west jetty has a fog signal. A lighted bell buoy, about 0.3 mile north of the entrance, marks the approach to the harbor. In January 1995, the controlling depth in the channel was 10 feet to the boat basin northwestward of Star Island and to the yacht basin east of the island; in 1982, the boat basin had depths of 9½ feet except for shoaling along the edges. The channel is marked by private seasonal buoys.

(105) **Star Island**, just inside Montauk Harbor, is connected to the mainland by a causeway. A private light is shown from the

eastern side of the island. Depths of 8 to 16 feet are reported in the yacht basin off the eastern side of the island; caution is advised in selecting anchorage because lesser depths may be found. A privately marked channel with a reported controlling depth of about 3 feet in June 1981 leads from the yacht basin to the southern part of Lake Montauk where there are depths of 6 to 8 feet in the center.

(106) **COLREGS Demarcation Lines.**–The lines established for Montauk Harbor are described in **80.155**, chapter 2.

(107) The mean range of **tide** is 1.9 feet.

(108) Tidal **currents** at the entrance to Montauk Harbor have a velocity of 1.2 knots on the flood and about 0.5 knot on the ebb. They are reported to decrease rapidly after entering the harbor and are practically negligible near the yacht club landing on the east side of Star Island. (See Tidal Current Tables for predictions.) **Montauk Coast Guard Station** is at the northern end of Star Island.

(109) There are several small-craft facilities on both sides of the entrance to Montauk Harbor, and a yacht club and several marinas are on the east side of Star Island. Gasoline, diesel fuel, water, ice, marine supplies, and space for transients are available. Lifts to 80 tons can handle craft for complete engine and hull repairs. Groceries and other supplies may be obtained at the village of Montauk.

(110) **Fort Pond Bay** is a semicircular bight about 1 mile wide on the north side of Long Island, 5 miles westward of Montauk Point. The bay is free of dangers, but flats with 8 to 12 feet over them make out 0.2 mile from its eastern shore. The bay affords anchorage in 40 to 50 feet, soft bottom, but is exposed to northerly and northwesterly winds; the shoaling is abrupt on its east and south sides.

(111) **Montauk**, a summer resort at the southeast end of the bay, is the terminus of the Long Island Railroad. A depth of 10 feet was reported alongside the commercial pier on the east side of the bay. There are no public piers available.

(112) **Napeague Bay**, 8 miles westward of Montauk Point, is shallow in the western and southwestern part. **Promised Land Channel**, the buoyed passage southward of Gardiners and Cartwright Islands, has a least centerline depth of about 14 feet; however, the depth is continually changing due to the shifting shoals.

(113) The tidal currents have a velocity of about 1.5 knots through all the channels between the shoals. It is not advisable for vessels drawing more than 10 feet to attempt the passage without local knowledge, and then only when the buoys can be seen.

(114) **Napeague Harbor**, a small-craft refuge in the southwest part of Napeague Bay, can be entered through privately dredged channels northward and southward of **Hicks Island**. In June 1981, the reported controlling depths were 4 feet in the northerly and southerly entrances. Depths in the central part of the harbor range from 1½ to 7 feet; the chart is the best guide. The harbor is especially useful in northeasterly weather when the adjoining bays are unsafe. There are no landings in the harbor.

(115) **Promised Land** is a former fishing village on the southwest side of Napeague Bay. A depth of about 4 feet can be carried to the landing at the yacht club, 1.3 miles westward of Promised Land.

(116) **Gardiners Island**, 11 miles westward of Montauk Point, is partly wooded and has an elevation of 130 feet near its middle. **Cartwright Island** is narrow, low, and sandy, and extends 1 mile in a southerly direction off the south tip of Gardiners Island. Its size and shape are subject to considerable change by storms.

(117) **Crow Head** is the high bluff at the western end of Gardiners Island. Shoal water with depths of 9 to 16 feet extends 1.8 miles southwestward from **Cherry Hill Point**, the westerly end of Gardiners Island, and terminates at **Crow Shoal**. The shoal has depths of 3 to 11 feet and is marked by a buoy. An obstruction covered 12 feet is 200 yards eastward of the buoy.

(118) The bight between the southern part of Gardiners Island and Crow Shoal is **Cherry Harbor**. It has depths of 24 to 27 feet with mud bottom and affords shelter from northeasterly winds. **Bostwick Bay** is the bight on the northwest side of Gardiners Island. It affords excellent anchorage in easterly winds in depths of about 25 feet, but is exposed to all westerly winds.

(119) **Gardiners Point**, a low spit, is at the northerly end of a very shoal bar which extends 1.5 miles north-northwestward from Gardiners Island. This shoal is steep-to on its north and west sides and is marked by a lighted gong buoy. A rock with a depth of 2 feet over it is about 0.8 mile eastward of the north point of Gardiners Island and is marked by a buoy.

(120) The **Ruins**, a concrete structure on Gardiners Point, is Government property and formerly a naval aircraft bombing target; it is prohibited to the public. The Ruins and the area within 300 yards radius of it is dangerous due to the possible existence of undetonated explosives.

(121) A **restricted anchorage** for U.S. Navy submarines is about 3 miles eastward of Gardiners Island. (See **110.1 and 110.150,** chapter 2, for limits and regulations.)

(122) **Gardiners Bay** is at the western end of Block Island Sound from which it is separated by Gardiners Island. The bay is an excellent anchorage easily entered day or night, and is the approach to Shelter Island Sound and the Peconic Bays. The principal entrance is northward of Gardiners Point. The entrance from Long Island Sound is through Plum Gut. The entrance southward of Gardiners Island is used by fishing vessels.

(123) The principal guides for the entrance to Gardiners Bay from Block Island Sound are the lighted gong buoy north of Gardiners Point, Little Gull Light,and Orient Point Light. The white church spires at Orient and Sag Harbor are prominent. When past the lighted gong buoy north of Gardiners Point, vessels can select the anchorage in Gardiners Bay which affords the best lee in the prevailing winds.

(124) The principal dangers in approaching Gardiners Bay from the northward are the broken ground between Constellation Rock and Plum Island, and the shoal making out to Gardiners Point. In the bay, Crow Shoal should be avoided. In general, the shoaling is rather abrupt in approaching these dangers and gradual in approaching the shoals on the western side of the bay.

(125) **Plum Island**, about 2 miles westward of Great Gull Island, is 2.5 miles long, hilly, and bare of trees except near the southwest end, and has several large buildings, a prominent tank and flagpole, and is marked on its western point by Plum Gut Light. The island is a Government reservation and closed to the public.

(126) The bight in the southeast side of Plum Island is foul to **Plum Island Rock,** which is 0.5 mile from shore abreast of the middle of the island, has 1 foot over it and is marked by a buoy.

(127) **Plum Gut Harbor**, on the southwest side of Plum Island, has an entrance between jetties with private seasonal lights on dolphins off the outer ends. The lights are shown daily from sundown to 0130. A private fog signal at the west jetty light is sounded occasionally when Department of Agriculture vessels are navigating in the area. A depth of about 14 feet is in the entrance. Small yachts seeking shelter in an emergency lie alongside the wharves. The harbor is under the supervision of the Department of Agriculture and the Coast Guard, and may be used only with permission.

(128) **COLREGS Demarcation Lines.**–The lines established for Plum Gut Harbor are described in **80.155,** chapter 2.

(129) **Plum Gut**, the entrance to Gardiners Bay from Long Island Sound, is nearly 0.6 mile wide and has sufficient water for vessels of the deepest draft; in the passage are several rocks with depths of 17 to 19 feet over them. Tidal currents set through the passage with great velocity. Steamers, or sailing vessels with a strong favorable wind, should have no difficulty in passing through.

(130) Velocities of the current on flood and ebb are 3.5 and 4.3 knots, respectively. The flood sets northwestward and the ebb southeastward. Heavy tide rips occur. In November 1983, NOAA Ships RUDE and HECK reported that during the flood a countercurrent normally develops along the north shore of Plum Island. This countercurrent is most prevalent within 0.5 mile of the island. Caution is recommended when using this passage.

(131) **Oyster Pond Reef**, extending about 0.5 mile east-northeastward from **Orient Point**, is marked by a light and fog signal. Caution is recommended regarding the fog signal, as it may be difficult to hear at times, particularly with an easterly wind. Numerous boulders and little depth are between the light and Orient Point. **Midway Shoal**, about 0.5 mile east of the light, has 17 feet over it and is marked by a buoy.

(132) When using Plum Gut it is well to give Plum Island and Orient Point Light a berth of 0.2 mile. The best water in the passage will be found on a **295°** course, passing **Pine Point** and the buoy marking Midway Shoal at a distance of 350 yards and passing midway between Orient Point Light and Plum Gut Light on the western end of Plum Island.

(133) A wharf with a depth of 8 feet at its end is on the south side of Orient Point, 1 mile westward of Orient Point Light. A ferry operates between here and New London. A small-craft facility is about 0.1 mile westward of the wharf. Berths, electricity, gasoline, diesel fuel, water, ice, and a launching ramp are available. In June 1981, a reported depth of about 6 feet could be carried to the facility.

(134) **Acabonack Harbor**, at the southeast end of Gardiners Bay, is entered through a privately maintained and marked channel with a reported controlling depth of 2½ feet in the entrance in June 1981. There is deeper water inside.

(135) **Hog Creek Point**, on the southerly side of Gardiners Bay, is generally flat, with bluffs approximately 25 feet in height. **Lionhead Rock**, off the point and marked by a buoy, is awash at high water. Fishtraps are westward of the point.

(136) **Threemile Harbor**, on the south side of Gardiners Bay 1.7 miles southwestward of Hog Creek Point, is entered through a channel with two privately dredged sections. In September 1980, a portion of the wooden bulkhead on the west side of the entrance collapsed into the channel. In June 1981, it was reported that by favoring the east side of the entrance channel a depth of 8 feet could be carried to a point opposite **Maidstone Park**, thence 7 feet to the basin at the head of the harbor. The approach to the harbor is marked by a seasonal lighted bell buoy, and the channel is marked by lighted and unlighted buoys. The jetties at the harbor entrance are marked on the outer ends by private lights. A public commercial landing with reported depths of 8 feet is on the east side of the channel about 0.6 mile above the entrance. A 5 mph **speed limit** is enforced in the harbor.

(137) Anchorage is available in Threemile Harbor in depths of 9 to 14 feet with soft bottom and good holding ground; this is a good anchorage during strong winds. The range of **tide** in the entrance to the harbor is 2.4 feet. The **tidal current** has a velocity of about 3 knots through the entrance.

(138) Small-craft facilities on the east and south sides of Threemile Harbor can provide berths, electricity, gasoline, diesel fuel, water, ice, launching ramps, storage, lifts to 40 tons, and hull and engine repair. Provisions can be obtained at the town of **East Hampton**, 3.5 miles south of Threemile Harbor.

(139) In June 1989, the public pier maintained by the town of East Hampton at the head of the harbor had reported depths of 7 feet at its face and 4 feet on its west side.

(140) **COLREGS Demarcation Lines.**–The lines established for Threemile Harbor are described in **80.155,** chapter 2.

(141) **Chart 12358.–Shelter Island Sound** and Peconic Bays extend westward from Gardiners Bay about 22 miles to Riverhead, the head of navigation on Peconic River. They are much frequented by yachts and other small craft in the summer. Fishtraps and oyster stakes are on many of the shoals.

(142) A depth of about 26 feet can be carried through the channel north of Shelter Island and through Little Peconic Bay as far as Robins Island, and about 13 feet through the channel south of Shelter Island. Across the bar between Little and Great Peconic Bays about 13 feet can be carried. With local knowledge greater depths can be carried in the channels and across the bar. A depth of about 6 feet can be taken to South Jamesport and Riverhead.

(143) The mean range of **tide** is about 2.5 feet. The **tidal currents** have considerable velocity wherever the channel is narrowed. The velocity in the narrower places is about 1.8 knots.

(144) **Ice** obstructs navigation in the coves and shallow harbors during January and February. In severe winters, drift ice is reported to interfere with navigation for short periods of time. In the south arm of Shelter Island Sound, the ice is heavy enough at times to destroy structures exposed to it.

(145) Diesel fuel, gasoline, ice, water, marine supplies, and other provisions can best be obtained at Greenport and Sag Harbor. Several boatyards, shipyards, marine railways, and enclosed basins with excellent repair facilities are at Greenport.

(146) **Ram Head** is a prominent sandy bluff on the western shore of Gardiners Bay. A lower bluff is nearly 1.5 miles westward of Ram Head with numerous houses along the top. A shoal with 7 to 17 feet over it extends about 2.4 miles southeastward from Ram Head.

(147) A boulder with 1 foot over it is 230 yards from shore about 0.3 mile northeastward of the northern point of the entrance to Coecles Harbor. Other boulders with little depth are between this boulder and Ram Head.

(148) The entrance to **Coecles Harbor** is at the south end of Ram Head; the channel is marked by private seasonal buoys and a private seasonal light. In April 1996, the reported controlling depth in the privately maintained entrance channel was 8 feet. The **speed limit** is 5 mph. A marina and boatyard are in the harbor. A mobile hoist at the boatyard can haul out craft up to 35 tons; gasoline, water, ice, diesel fuel, marine supplies, sewage pumpout, berths, guest moorings, storage facilities, and complete engine and hull repairs are available. In June 1981, a reported depth of 5½ feet could be carried to the marina and boatyard.

(149) A **special anchorage** is in Coecles Harbor. (See **110.1 and 110.60(y)**, chapter 2, for limits and regulations.)

(150) **COLREGS Demarcation Lines.**–The lines established for Coecles Harbor are described in **80.155,** chapter 2.

(151) Extensive flats make off from Ram Head and the shore between it and **Hay Beach Point**, the northernmost point of Shelter Island, which is a low flat with a clump of scrub at its end and backed by wooded highland. **Long Beach Point** is a low spit eastward of Hay Beach Point. A bar with little depth extends southwesterly from Long Beach Point to the ruins of a former

lighthouse of which only the 10-foot concrete foundation remains. A private light marks the ruins.

(152) Shoals with depths of 10 to 12 feet extend 0.5 mile eastward from Long Beach Point. The south and west sides of this shoal have depths of 12 to 15 feet, and rise abruptly from the channel. The limits of the shoal south of the point are marked by buoys. The bar has extended southward enough to be a real danger to small craft.

(153) **COLREGS Demarcation Lines.**–The lines established for the Long Island bays are described in **80.155,** chapter 2.

(154) **Orient Harbor**, about 4 miles northwestward of Ram Head, is an excellent anchorage; the depths range from over 20 feet in its southern part to 16 feet at its northern end. **Orient** is a village at the northeast end of Orient Harbor. At the end of the main wharf the depth is 8½ feet. The eastern part of Orient Harbor has depths of 7 to 9 feet. Fish traps are on the shoals.

(155) About 0.4 mile northeastward of **Cleaves Point**, at the southwest end of Orient Harbor, the shore has been cut through to a small pond which is used as a private basin for small craft. The entrance, between two jetties, has a depth of about 3 feet over the bar, with about 6 feet in the basin. Permission is required before anchoring in the basin. Rocks are 0.2 mile south of the entrance.

(156) **Hallock Bay** makes eastward from Orient Harbor on the north side of Long Beach Point. A channel, marked by uncharted private daybeacons, leads into the bay. The bay is shallow and dangers and shoaling have been reported. Local knowledge is advised prior to entering.

(157) **Gull Pond** is 0.3 mile westward of Cleaves Point at the southwest end of Orient Harbor. In July 1981, a reported depth of 4 feet could be carried through the entrance, with depths of 10 to 15 feet reported in the pond. A State launching ramp is available in the pond.

(158) **Greenport** is an important town and the terminus of a branch of the Long Island Railroad. The white church spires, near the northern end of town, and a tank and TV radio tower in the center of town are prominent.

(159) **Greenport Harbor** is formed on the northeast by a 5-foot-high breakwater, which extends 0.2 mile southeastward from **Youngs Point**, nearly to the 18-foot curve, and is marked at its outer end by a light. The depths at the wharves range from 7 to 21 feet. The railroad wharf on the south side of the waterfront can accommodate a vessel up to 100 feet.

(160) **Stirling Basin**, on the northeast side of Greenport, is a part of Greenport Harbor. In July 1981, the reported controlling depth was 8 feet in the entrance channel with 10 to 12 feet in the mooring areas. The entrance channel is marked by private seasonal buoys. Two smaller privately dredged channels with depths of about 9 feet reported are in the northeastern part of the basin. The **harbormaster** for Greenport Harbor controls mooring and berthing in the basin. The **speed limit** is 5 mph.

(161) Small-craft facilities at Greenport can provide berths, electricity, gasoline, diesel fuel, water, ice, storage, marine supplies, and hull and engine repairs. The largest marine railway, at a shipbuilding company at the southeast end of the waterfront, can handle craft up to 400 tons and 15 feet in draft and has a 15-ton crane. Mobile hoists to 50 tons are available. A well-equipped machine shop is also in the town.

(162) A ferry operates between Greenport and Shelter Island. During the summer, bus service is available from Greenport to Orient Point where there is ferry service to New London.

(163) **Dering Harbor**, southward of Greenport and at the northwest end of Shelter Island, is a favorite anchorage for yachts and motorboats. The entrance to the harbor, marked by private buoys, is partially constricted by a disposal area in about midentrance and shoal area with a reported depth of 4 feet in June 1981 that extends from the southwestern entrance point to near the disposal area; caution is advised. In April 1989, it was reported that about 10 feet could be carried into the harbor with local knowledge. Depths of 10 to 14 feet are available in the central part of the harbor, with much lesser depths around the edges. Moorings and float landings for small craft are in the bight at the southwest end of the harbor. Vessels too large to enter can anchor outside the harbor in depths of 14 to 30 feet. The **speed limit** is 5 mph. Small-craft facilities, on the west side of the harbor, can provide berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, sewage pumpout, and hull and outboard engine repairs. A launching ramp is also available. **Shelter Island Heights** is on the southwestern side of Dering Harbor.

(164) **Fanning Point** is on the north shore at the southwest end of Greenport. A shoal extends 300 yards off the point and is marked by a buoy. Four dolphins, part of a former oil facility, are northward of the point. Currents of 2 knots, running fair with the channel, have been reported in the vicinity of Fanning Point.

(165) **Conkling Point**, on the north shore 1 mile southwestward of Fanning Point, is low and sandy at the end and has deep water as close as 150 yards. A marina on the southwest side of the point had a reported depth of 5½ feet in the approach in July 1981. Berths, electricity, gasoline, marine supplies, storage, a launching ramp, and a 30-ton mobile hoist are available. Hull and engine repairs can be made.

(166) **Mill Creek** is the entrance to **Hashamomuck Pond**, about 1.1 miles westward of Conkling Point. In July 1981, the privately dredged entrance channel into the creek had a controlling depth of 4 feet, thence 3½ feet was reported in the channel along the northwest shore of Mill Creek. The entrance channel is marked by private seasonal buoys. About 400 yards eastward of the creek is a small bight entered through a channel with a depth of about 4 feet and marked by private seasonal lights and buoys. In May 1992, severe shoaling was reported across the entrance.

(167) **Jennings Point**, the western end of Shelter Island, is high and wooded. Rocks are off the point close-to, and it should be given a berth of over 150 yards. A lighted buoy is off the point. A gazebo on the point is prominent.

(168) The town of **Southold** is at the head of **Southold Bay**, which is the bight at the western end of Shelter Island Sound westward of Jennings Point. For about a mile northeastward of the entrance jetty, shoals with 12 feet or less extend nearly 0.4 mile from shore and are generally steep-to. The southwest part of the bay is shoal for about 0.3 mile from shore. Anchorage can be selected east-southeast of the jetty at a distance of from 0.2 to 0.4 mile, in 12 to 18 feet.

(169) A small jettied basin is about 0.5 mile northeast of Southold entrance. The overhead power cable crossing the entrance has a clearance of 31 feet. There are no public landings in the basin.

(170) In April 1989, the reported controlling depth was about 3 feet in the privately maintained channels in **Town Creek, Jockey Creek**, and **Goose Creek.** The common entrance to Town Creek and Jockey Creek is marked by private seasonal buoys. The highway bridge at the mouth of Goose Creek has a clearance of 9 feet and the bridge that crosses Jockey Creek has a 45-foot fixed span with a vertical clearance of 6½ feet.

(171) On the shore south of Southold entrance jetty is a prominent white tower.

(172) There are several small-craft facilities on the creeks and along the west shore of Southold Bay from Paradise Point to Con-

kling Point. Berths, electricity, gasoline, water, ice, marine supplies, launching ramps, storage, lifts, and cranes are available. Provisions can be obtained at Southold.

(173) **Paradise Point**, on the west side of Shelter Island Sound, is low and wooded, and from the point a sloping sandspit extends about 0.3 mile eastward and is marked by a lighted buoy. Southward of Paradise Point, shoals with depths of 10 to 15 feet extend from the west shore to midsound; the southeast point of the shoals is marked by a buoy.

(174) The channel south of Shelter Island has numerous shoals, but is easily followed by vessels of 13 feet or less draft when the buoys can be seen. The channel is used by vessels going to Sag Harbor. Vessels operating between Greenport and Sag Harbor prefer the inside route around the western end of Shelter Island. The **tidal current** in the channel between Shelter Island and North Haven Peninsula has a velocity of about 2.4 knots. The approach from Gardiners Bay is across a shoal or bar which extends in a southeasterly direction from Ram Head to the south shore, the depths on which vary from 7 to 11 feet about 1.6 miles from Ram Head, and thence 13 to 17 feet to the buoys which mark the entrance.

(175) **Dangerous Rock**, awash at low water in surrounding depths of about 12 feet, is 0.2 mile south of the channel.

(176) A shoal extends 0.3 to 0.4 mile north of the shore of **Cedar Point** which is marked by a light. The shoal has boulders, and its edge is marked by buoys.

(177) Shoals with boulders and little water over them in places extend nearly 0.5 mile southeastward from **Nicoll Point.** Buoys mark the limit of the channel in this area.

(178) **Northwest Harbor**, between Cedar Island Light and **Barcelona Point**, is strewn with boulders covered by 4 to 6 feet.

(179) **Sand Spit**, an extensive shoal partly bare at half-tide, is between **Mashomack Point**, the southeastern extremity of Shelter Island, and Sag Harbor. The spit is marked by buoys and a light.

(180) A group of rocks locally known as **Gull Island**, showing bare at half-tide, is nearly 0.4 mile northeastward of the breakwater at Sag Harbor.

(181) **Sag Harbor**, about 2.5 miles southwestward of the light on Cedar Point, is protected on the northeast by a breakwater marked at the outer end by a light. A spherical tank, a radio tower, and several flagpoles are prominent landmarks.

(182) In entering Sag Harbor, do not round the breakwater too closely, as a depth of about 6 feet is found near its end. The deepest water is near the buoy. Anchor eastward or northeastward of the end of the former ferry wharf, locally known as Long Wharf. A 5 mph **speed limit** is enforced.

(183) In July 1974, the dredged channel into Sag Harbor had a controlling depth of 8 feet (10 feet at midchannel) through the entrance to the turning basin, 9 feet in the turning basin, 5 feet in the southerly anchorage area, and 7 feet in the main anchorage area. The channel to **Sag Harbor Cove** is about 8 feet deep; this channel and the cove are marked by private seasonal lights and buoys. A 37-foot-wide fixed bridge at the entrance has a clearance of 20 feet. Berths, electricity, gasoline, diesel fuel, storage, marine supplies, water, ice, launching ramps, and complete engine, hull, rigging, and sail repairs are available at Sag Harbor; a 30-ton mobile hoist, near the inner end of the breakwater, can haul out craft up to about 60 feet.

(184) **Smith Cove**, a small bight on the south side of Shelter Island, is a good anchorage for small craft in northerly weather. Depths range from 11 to 30 feet. A marina on the west side of the cove can provide moorings, limited berths, gasoline, electricity, water, and some marine supplies. In June 1981, a depth of 6 feet was reported alongside the pier at the marina. A ferry operates between **South Ferry** on the southwest side of the cove to **North Haven Peninsula**.

(185) **West Neck Harbor** and **West Neck Bay** are shallow bodies of water on the southwest side of Shelter Island. In June 1989, it was reported that a depth of 2 feet could be carried over the bar and into the harbor from Shelter Island Sound. The entrance is close eastward of the seaward end of a peninsula, marked by a private lighted buoy, that separates the harbor from the sound, and the channel follows along the north side of this peninsula. The channel is marked by private buoys. The harbor has numerous private landings. A boatyard with a marine railway can handle craft up to 40 feet for hull and engine repairs. Berths, gasoline, water, ice, a launching ramp, and some marine supplies are available.

(186) A special anchorage is in West Neck Harbor. (See 110.1 and 110.60 y-1, chapter 2, for limits and regulations.)

(187) **Noyack (Noyac) Bay** is between North Haven Peninsula and Jessup Neck and southward of the western end of Shelter Island. No dangers will be encountered if the shores are given a berth of 0.4 mile.

(188) **Mill Creek**, in the southern part of Noyack Bay, is entered through a privately dredged channel that leads to a basin. The channel is marked by private seasonal lights and buoys. In June 1981, the reported controlling depths were 8 feet in the channel and 6 feet in the basin. A clubhouse on the west side of the entrance is prominent. Small-craft facilities in the creek can provide berths, electricity, gasoline, water, ice, storage, a launching ramp, marine supplies, and hull and engine repairs; a 25-ton mobile hoist is available.

(189) **Jessup Neck** is a long narrow strip, partly high and wooded, separating Noyack Bay from Little Peconic Bay. The north end of the neck is a sandspit from which a shoal with 4 to 12 feet over it extends nearly 0.4 mile north-northwestward. A lighted buoy marks the outer end of the shoal area.

(190) A shoal with depths of 5 to 7 feet extends 1.5 miles southwestward from **Great Hog Neck**, on the northwest side at the entrance to Little Peconic Bay; this shoal is marked by a buoy.

(191) Heavy tide rips occur southeast of Great Hog Neck during the flood with a southwesterly wind. At such times, small craft can avoid the worst of them by favoring the shore on the northwest side of the passage.

(192) **Richmond Creek** and **Corey Creek** are at the head of **Hog Neck Bay.** A depth of about 7 feet can be taken in the privately dredged channel leading to a basin in Richmond Creek; the channel is marked by private seasonal buoys. In 1964, the dredged channel leading into and connecting with small boat channels in Corey Creek had a controlling depth of 7 feet. Controlling depths in the small-boat channels inside Corey Creek were 5½ to 6 feet. The entrance channel is marked by private buoys.

(193) **Little Peconic Bay** is about 5 miles long. The southerly shore of the bay is clear if given a berth of 0.4 mile, but shoals extend 0.6 mile from the south end of the bay.

(194) An aquaculture site, marked by private seasonal buoys, is at the south end of Little Peconic Bay about 1 mile north-northwest of the entrance to North Sea Harbor.

(195) A prominent sandy bluff, known locally as **Holmes Hill**, is just west of the entrance to **North Sea Harbor.** In June 1981, the reported controlling depth through the dredged channel into the harbor was 4 feet. The channel is marked by private seasonal buoys and by a private seasonal light at the entrance. This is an excellent harbor of refuge for small craft with drafts not exceeding 3½ feet. The bottom is soft with good holding ground.

(196) A marina in the harbor has gasoline, ice, water, some marine supplies, and a lift that can handle craft to 10 tons; hull and engine repairs can be made.

(197) **Wooley Pond**, 1 mile northeastward of North Sea Harbor, is entered through a dredged channel which, in June 1981, had a reported controlling depth of 6 feet. The channel is marked by private seasonal buoys and by a private seasonal light on the north side of the entrance.

(198) A marina in the pond can provide berths, eletricity, gasoline, water, ice, storage, marine supplies, and hull and engine repairs; a 45-foot marine railway and a 12-ton forklift are available. In June 1981, depths of 5 to 6 feet were reported available at the marina.

(199) **Nassau Point**, the long neck on the northwest side of Little Peconic Bay, has high bluffs on the eastern side. A shoal with little depth over it extends 0.5 mile southward from Nassau Point and is marked by a lighted buoy.

(200) **Cutchogue Harbor**, between Nassau Point and New Suffolk, is used by local boats drawing 6 to 10 feet. On the east shore of the harbor, northwestward of Nassau Point, three channels leading into the ponds have been dredged by private interests. At the middle of the three channels, 0.9 mile northwest of the extremity of Nassau Point, are several private wharves. The channel leads between two jetties, and a depth of about 3 feet can be carried into the pond and 1 foot to some of the wharves.

(201) **Haywater Cove, Broadwater Cove, Mud Creek,** and **East Creek,** used by local interests and sharing a common entrance, are at the head of Cutchogue Harbor. The entrance channel and the channels through these waterways have been privately dredged. The controlling depths are: 6 feet reported in the entrance channel in July 1981, thence 7 feet in Haywater Cove, Broadwater Cove, and Mud Creek, and 6 feet in East Creek in 1966. Shoaling is reported to occur in these areas; caution is advised.

(202) A depth of 8 feet can be taken within 100 feet of the wharves at **New Suffolk** by passing eastward and about 200 yards northward of the buoy westward of Nassau Point and steering westward for the wharves. A small basin, with a depth of about 8 feet reported in 1981, is northward of the wharf. In July 1981, shoaling to 2 feet was reported in the southern part of Cutchogue Harbor, about 0.4 mile east of New Suffolk.

(203) A larger basin at the north end of New Suffolk, locally known as **School House Creek**, extends to the highway. The entrance channel is protected by a short rock jetty, covered at high water, on the south. The depth to the boatyard at the head of the basin was reported to be about 4 feet in June 1981. Berths, gasoline, storage, marine supplies, hull and engine repairs, and a 30-ton moblie hoist are available at the boatyard.

(204) **Wickham Creek,** locally known as Boatmens Harbor, 0.7 mile north of New Suffolk, is entered through a privately dredged entrance channel with a reported controlling depth of 6 feet in July 1981. The channel is marked by private seasonal buoys and bush stakes. Gasoline, water, ice, storage, a launching ramp, and some marine supplies are available in the basin. A flatbed trailer can haul out craft to 32 feet.

(205) In southeast gales, local craft of less than 6-foot draft seek shelter in the small cove, locally known as **Horseshoe Cove**, in the northeast part of Cutchogue Harbor.

(206) The through channel in **North Race**, northward of **Robins Island**, is marked and used only by light-draft boats. **South Race**, the channel southward of Robins Island, has a controlling depth of about 13 feet and is marked by buoys.

(207) An aquaculture site, marked by private buoys, is 0.6 mile southwest of the south end of Robins Island.

(208) Tide rips occur between the mainland and the south end of Robins Island when the tidal current sets against the wind.

(209) **Great Peconic Bay**, about 5 miles in diameter, is used mostly by local motorboats from Shinnecock Canal and by yachts. The bay is generally clear, but extensive shoals make off from the shores, except on its south side. Shinnecock Canal, the entrance from the south, is described in chapter 10.

(210) **Rodgers Rock**, about 1.3 miles west-southwestward of **Cow Neck** and about 1.2 miles south-southwest of Robins Island, has a depth of 6 feet over it and is marked on the northeast side by a buoy. **Robins Island Rock**, 0.8 mile westward of the south end of Robins Island, is awash at low water. It is marked by a buoy. Caution is recommended in this vicinity.

(211) **Sebonac Creek**, on the southeast side of Great Peconic Bay, is used extensively by yachts, and serves as a yacht harbor for the town of Southampton. A privately dredged channel, marked by private seasonal lights and buoys, leads into the creek and had a reported controlling depth of 8 feet in June 1981. The landings are at **West Neck**, a small settlement northeastward of **Ram Island** in **Bullhead Bay**. An obstruction buoy is locally maintained during the summer to mark a rock, covered 1½ feet, about 100 feet westward of the town landing. In June 1981, a reported depth of 5 feet could be carried to the town landing. A 5 mph **speed limit** is enforced.

(212) **Cold Spring Pond**, about 1.6 miles southwestward of Sebonac Creek and 1.1 miles eastward of Shinnecock Canal entrance, is entered through a privately dredged channel which had a reported depth of 2 feet in June 1981. In May 1992, severe shoaling was reported in the entrance. The entrance channel to the pond is marked by a private seasonal light and buoy. An overhead power cable at the entrance to the pond has a clearance of 34 feet.

(213) **James Creek**, on the north shore of Great Peconic Bay opposite the entrance to Shinnecock Canal, is entered through a privately dredged channel that had a reported controlling depth of 6 feet in 1981. The entrance is marked by private seasonal buoys. Small-craft facilities on the creek can provide berths, gasoline, storage, launching ramps, and hull and engine repairs. A flatbed trailer can haul out craft to 30 feet.

(214) **South Jamesport** is a village on **Miamogue Point**, 3.4 miles southwestward of James Creek. Local knowledge is necessary to avoid the shoals in this area, and strangers should take soundings frequently to keep in the best water. A small-craft facility at South Jamesport can provide berths, electricity, gasoline, water, ice, launching ramps, storage, marine supplies, and hull and engine repairs; a 25-ton mobile hoist is available. In June 1981, a reported depth of about 8 feet could be taken to the facility. The town has railroad passenger and bus service.

(215) **Peconic River** empties into the western end of Flanders Bay, about 1.5 miles westward of South Jamesport. The river is entered through a dredged channel marked by private seasonal lights that leads from Flanders Bay to the head of navigation at **Riverhead**, about 2.4 miles above the channel entrance. The dredged channel is approached from deep water in Great Peconic Bay through a marked channel. In June 1991, the controlling depth was 5 feet in the dredged channel. A fixed highway bridge with a clearance of 25 feet crosses the river about 0.9 mile above the mouth.

(216) **Flanders Bay** is the scene of considerable small boat activity. A yacht club is at Riverhead; limited berths, electricity, and water are available.

(217) **Meetinghouse Creek, Terrys Creek,** and **Reeves Creek,** which empty into the northwestern part of Flanders Bay, are

entered through privately dredged channels. In June 1981, the channels had reported controlling depths of 5 feet. The entrance channel leading to, and connecting with, Terrys Creek and Meetinghouse Creek is marked by private seasonal buoys and a private seasonal light. A marina is on Meetinghouse Creek. Berths, electricity, gasoline, water, ice, a 5-ton forklift, 30-ton mobile hoist, launching ramp, storage facilities, and hull and engine repairs are available. In June 1981, a reported depth of 7 feet was available at the marina.

(218) **Reeves Bay**, on the southwest side of Flanders Bay, is entered through a privately dredged channel that leads to the town of **Flanders** on the south side of the bay. In June 1981, the channel had a reported controlling depth of 4 feet. Other dredged channels lead from the entrance channel into several arms of the bay. A boatyard at Flanders has gasoline, storage facilities, marine supplies, and a 10-ton marine railway; hull and engine repairs can be made.

(219) **Chart 13214.–Fishers Island Sound** extends between the mainland of Connecticut and Fishers Island, and forms one of the entrances into Long Island Sound that is used to some extent by light tows and other vessels up to 14-foot draft. The sound has numerous shoals and lobster trap buoys, and the entire area is exceedingly treacherous, characterized by boulder patches that rise abruptly from deep water. Vessels should follow the deeper channels between the shoals and proceed with caution if obliged to cross shoal areas. In general, all shoal spots or abrupt changes of depth are indications of boulders and should be avoided as anchorages.

(220) **Tides and currents.**–In Watch Hill Passage the tidal currents are strong and necessitate caution in navigating. Buoys may be towed under. The flood current sets nearly in the direction of the channel, but has a tendency to northward and the ebb a tendency to southward. The northerly and southerly set is more marked between Napatree Point and Latimer Reef Light.

(221) In Sugar Reef and Catumb Passages the tidal currents set obliquely across the axis of the channel. The flood sets northwestward and the ebb southeastward. The tidal currents in Sugar Reef Passage are about the same velocity as in Watch Hill Passage, but are stronger in Catumb Passage.

(222) In Lords Passage the tidal currents set diagonally across the channel and have a velocity of nearly 2 knots, the ebb being greater than the flood.

(223) In the main channel of Fishers Island Sound, the flood sets westward and the ebb eastward. In the main channel between Napatree Point and Wicopesset Island, the velocity of flood is 1.7 knots and ebb 2.2 knots. The flood sets 284° and the ebb 113°.

(224) In the channel south of Ram Island Reef, the velocities of flood and ebb are 1.3 and 1.6 knots, respectively. The flood sets 255° and the ebb 088°. The direction and velocity of the current are affected by strong winds that may change the duration of flood or ebb.

(225) The strong tidal currents prevent the formation of heavy local **ice**, except in shoal tributaries. The only ice to give trouble is that set in from Long Island Sound by wind and current. The ice formations in Little Narragansett Bay are sufficiently heavy to be destructive to structures exposed to them.

(226) On the south side of Fishers Island Sound, off the north side of **East Point** on Fishers Island, are **Seal Rocks**, partly bare at low water and marked by a buoy. A rocky patch covered 11 feet and marked by a buoy is about 500 yards northeastward of Seal Rocks. **Youngs Rock**, about 0.4 mile westward of Seal Rocks, has about 1 foot over it and is marked by a buoy. A rocky patch extends about 400 yards to the east-northeastward.

(227) **East Harbor** and **Chocomount Cove**, in the north shore of Fishers Island, are sometimes used as anchorages by small craft. There is considerable foul ground in East Harbor and in the approach to Chocomount Cove. The harbor and cove are exposed to northerly winds. A former Coast Guard Station with a boathouse and dock is prominent near the south side of East Harbor. Several small private piers with about 6 feet at their ends are in East Harbor.

(228) The north shore of Fishers Island from East Harbor around into West Harbor has several private landings.

(229) **East Clump** is a cluster of rocks partly bare at high water and marked by a buoy about 0.8 mile north of Fishers Island. From East Clump for some 2.8 miles westward to North Dumpling, there are rocky islets and dangers which must be avoided. These are 0.5 to 0.8 mile off the Fishers Island shore, and most are buoyed. **North Dumpling**, an islet marked by a light and fog signal, is surrounded by rocks awash and foul ground. **Seaflower Reef**, marked by a light, is near the middle of the western entrance of Fishers Island Sound and 0.8 mile northwestward of North Dumpling Light.

(230) **West Harbor**, on the north side of Fishers Island southeastward of North Dumpling Light, affords shelter from southerly winds. In April 1986, the dredged channel leading into the harbor along the west shore had a controlling depth of 12 feet. Foul ground extends across the entrance of West Harbor to near the eastern edge of the dredged channel; the northern limits of the foul ground are buoyed.

(231) A yacht club wharf and another small-craft facility are on the southwest side of the harbor. Gasoline, diesel fuel, water, ice, and hull and engine repairs are available. A marine railway can handle craft up to 40 feet. The head of the harbor is used by boats drawing less than 5 feet which enter by the narrow unmarked channel southward of **Goose Island.**

(232) **Hay Harbor**, at the west end of Fishers Island, is used by small craft.

(233) **Silver Eel Cove (Silver Eel Pond)** is on the west side of Fishers Island, 0.6 mile northeastward of Race Point. The entrance, about 75 feet wide and jettied, is marked by a private light and has a depth of about 13 feet, with similar depths inside. Submerged fender pilings are reported on both sides of the entrance. Dolphins are on the northeast side of the cove, and the channel is clear between them and the wharves on the southwest side. Vessels must go to the wharves as there is no room for anchorage. There is very little dockage available. The entrance is difficult with northwesterly or westerly winds. A lighted bell buoy is about 450 yards off the entrance. A ferry which operates between Fishers Island and New London lands here. During the summer, a Coast Guard unit is stationed inside the entrance to the cove.

(234) On the north side of Fishers Island Sound are: Little Narragansett Bay, and Pawcatuck River leading to the towns of Westerly and Pawcatuck; Stonington Harbor and the town of Stonington; and Mystic Harbor leading to the towns of Noank and Mystic.

(235) **Napatree Beach**, 1.3 miles long between Watch Hill Point and **Napatree Point,** is bare. **Sandy Point,** about 1.4 miles north-northwestward of Napatree Point, is at the northwestern end of a long and narrow sand island in Little Narragansett Bay. An extensive sandspit makes off from the northeasterly and southwesterly sides of the island; give these areas a good berth. The island is subject to continual change; caution is advised.

(236) **Napatree Point Ledge**, a boulder reef with little depth, extends nearly 0.4 mile southward of the point. It is marked by a lighted bell buoy. A sunken wreck is about 0.3 mile eastward of the ledge in about 41°18′N., 71°53′W.

(237) The west side of Napatree Point should not be approached closer than 175 yards to avoid a stone jetty which is covered at high water. Between Napatree Point and the Stonington outer breakwater is an extensive flat on which the depths are 3 to 10 feet, rocky bottom. **Middle Ground**, the western part of the flat, is marked by the outer breakwater, which has a light at its western end. A fog signal is at the light.

(238) A depth of 17 feet can be taken to an anchorage inside this breakwater, giving the light on the breakwater a berth of more than 250 yards. In anchoring, give the inside of the breakwater a berth of over 300 yards to avoid shoals and fishweirs. This anchorage provides good shelter except in southwesterly and westerly winds, although it is seldom used.

(239) **Little Narragansett Bay**, at the eastern end of Fishers Island Sound, is entered at its extreme western end southward of Stonington Point. The channel, with dredged sections, extends generally southeasterly across the bay into Pawcatuck River to Westerly. In December 1989, the controlling depth was 4½ feet from the entrance to Little Narragansett Bay to the entrance to Pawcatuck River, except for shoaling to bare in the middle of the dredged channel section near the turn opposite Little Narragansett Bay Entrance Lighted Buoy 3. Deep water is available, with local knowledge, north of the channel opposite the shoal. In March-April 1983, the controlling depth was 8 feet (10 feet at midchannel) to Certain Draw Point (41°20′33″N., 71°49′52″W.), thence 4 feet (7 feet at midchannel) for about 1.7 miles to a point in about 41°22.1′N., 71°50.1′W., thence 3½ feet at midchannel to Westerly. The channel is well marked.

(240) Caution should be exercised in entering Little Narragansett Bay. Shoal water extends for about 200 yards off **Stonington Point**, and the shoal area north of **Sandy Point** is subject to continual change. Strangers are advised to obtain local information before entering because of rocks and shoal water near the edges of the channel.

(241) In the dredged channel northward of Sandy Point, the currents have a velocity of 1.3 knots. The flood sets eastward and the ebb westward. (See the Tidal Current Tables for predictions and Tidal Current Charts, Block Island Sound and Eastern Long Island Sound, for hourly velocities and directions.)

(242) **Watch Hill Cove**, in the southeastern part of Little Narragansett Bay, is used by small craft. In August 1996, the buoyed dredged channel leading to the cove had a controlling depth of 6 feet (9 feet at midchannel) Depths of 6 to 10 feet are inside the cove and at the wharves. A **special anchorage** is in the cove. (See **110.1 and 110.47,** chapter 2, for limits and regulations.)

(243) A yacht club and town dock are in Watch Hill Cove; berths, guest moorings, electricity, diesel fuel, and water are available. In July 1981, a depth of 10 feet was reported at the face of the town dock.

(244) **Pawcatuck River**, entered just south of **Pawcatuck Point**, extends about 4 miles to Westerly.

(245) About 1 mile above the entrance to Pawcatuck River the **tidal current** has a velocity of 0.6 knot on flood, and 0.5 knot on the ebb. The river is generally closed by **ice** from January to March.

(246) **Colonel Willie Cove**, 0.5 mile above Pawcatuck Point, has a boatyard with a marine railway that can handle craft up to 45 feet for hull and engine repairs. Berths, electricity, gasoline, water, ice, launching ramp, storage facilities, marine supplies, and a 20-ton crane are also available. In July 1981, a reported depth of 4 feet could be carried in the cove to the boatyard.

(247) A **special anchorage** is in **Thompson Cove**, 2 miles above Pawcatuck Point. (See **110.1** and **110.48,** chapter 2, for limits and regulations.) A yacht club pier is in the cove. Private seasonal buoys mark the approach to the pier.

(248) **Westerly**, 4 miles above Pawcatuck Point, is an important manufacturing town.

(249) There are numerous small-craft facilities along both sides of the Pawcatuck River and at the head at Westerly and Pawcatuck, just across the river. The largest marine railway in the area is at Avondale and it can handle craft to 55 feet. Berths, electricity, gasoline, diesel fuel, water, ice, storage facilities, launching ramps, lifts, and marine supplies are available. Depths of 7 to 9 feet are reported at the town dock at Pawcatuck.

(250) **Wequetequock Cove** is a shallow cove at the northern end of Little Narrangansett Bay. A narrow unmarked channel leads eastward of **Elihu Island** into the cove. A depth of about 4 feet can be taken as far as **Goat Island**, about a mile above Sandy Point. A fixed railroad bridge with a clearance of 6 feet crosses the cove about 0.2 mile above Goat Island. A small-craft facility is on the west side of the cove near the head. Berths, gasoline, storage facilities, launching ramp, 4-ton forklift, marine supplies, and hull and engine repairs are available. In July 1981, a reported depth of 2 feet could be carried to the facility.

(251) **Stonington Harbor**, 3 miles northwestward of Watch Hill Point, is protected by breakwaters on each side. Each of the breakwaters is marked at its seaward end by a light. The controlling depth to the inner harbor is about 11 feet. Anchorage can be selected inside the west breakwater in depths of 15 to 18 feet, taking care to keep the south end of Wamphassuc Point bearing northward of 270°. Vessels drawing up to 8 feet can find anchorage in the inner harbor. A rock that bares at low water is about 50 yards southward of the fishing wharf and is marked by a private buoy. **Special anchorages** are in Stonington Harbor. (See **110.1** and **110.50**, chapter 2, for limits and regulations.)

(252) Stonington Harbor is approached from southeastward and westward. Vessels with local knowledge sometimes cross Noyes Shoal from southwestward. The southeastern approach is best, with fewer dangers, and the navigational aids serve as excellent guides to avoid them. In daytime with clear weather, no difficulty should be experienced in entering any of the approaches.

(253) From southeastward, the course from south of Napatree Point Ledge should be west-northwestward until off the buoy at the southwest end of Middle Ground, from which a northerly course can be shaped past the breakwater lights and into the harbor.

(254) From southwestward, a northeasterly course can be shaped from the lighted bell buoy south of Ram Island Reef to south of White Rock, and thence eastward past the north side of Noyes Rock to the harbor.

(255) The inner breakwater, about 400 yards northward of Stonington Point on the east side of the entrance, extends westward about 250 yards and is marked by a light.

(256) **Stonington** is on the east side of the harbor. Traffic is mostly fishing and recreational craft. The wharves have depths of 7 to 12 feet alongside. Following southerly weather, a surge is felt by vessels tied to the southern side of the seaward pier.

(257) A boatyard is in the northeast part of the harbor. Berths, electricity, gasoline, diesel fuel, water, ice, storage, 40-ton lift, marine supplies, and hull, engine, and electronic repairs are available. In July 1981, a reported depth of 7 feet could be carried to the yard. A **harbormaster** is at Stonington.

(258) A railroad causeway, with two fixed spans each having a clearance of 4 feet, crosses Stonington Harbor 0.4 mile above Stonington. Overhead power cables at the openings have clearances of 41 feet.

(259) **Noyes Rock,** 0.4 mile southward of **Wamphassuc Point**, has a least depth of 8 feet. **Noyes Shoal**, with 8 to 17 feet over it, is nearly 1.5 miles long in a west-northwesterly direction; it is marked by a bell buoy near its eastern end.

(260) **Latimer Reef**, about 0.6 mile south of Noyes Shoal, is a very broken and rocky area 0.4 mile long. It is marked by a light at its west end and a buoy at its east end. The eastern end of the reef has a least found depth of 6 feet.

(261) **Latimer Reef Light** (41°18.3′N., 71°56.0′W.), 55 feet above the water, is shown from a white conical tower, brown midway of its height, on a brown cylindrical foundation. A fog signal is at the light.

(262) A detached 11-foot spot, marked by a buoy, is about 0.4 mile northeast of Latimer Reef Light.

(263) **Eel Grass Ground**, about 0.8 mile northwestward of Latimer Reef Light, is a shoal with a least depth of 4 feet, marked by buoys. **White Rock**, about 0.8 mile northeastward of Eel Grass Ground, is bare and prominent. **Red Reef**, covered 1 foot, is 0.2 mile north of White Rock and marked by a buoy. **Ellis Reef**, 0.4 mile northwestward of Eel Grass Ground, is marked on its east side by a daybeacon.

(264) **Mason Island**, 2.5 miles west of Stonington Harbor, is joined to the mainland by a fixed bridge with an 18-foot span and a clearance of 3 feet; the sound end of the island is strewn with boulders. A **special anchorage** is on the east side of Mason Island. (See **110.1 and 110.50a,** chapter 2, for limits and regulations.) An anchorage for small craft is on the west side of the south end of Mason Island where depths range from 8 to 11 feet; caution and local knowledge are required to use this anchorage because of the boulders in the area. A dangerous rock is off the east side of **Mason Point**, the southern extremity of Mason Island, in 41°19′21.6″ N., 71°58′05.0″W.

(265) **Enders Island**, 0.3 mile eastward of the southern end of Mason Island, is connected to it by a fixed bridge with a 15-foot span and a clearance of 6 feet.

(266) **Ram Island Reef**, 1.8 miles westward of Latimer Reef Light, has two detached parts: the southerly section is covered 6½ feet and marked by a lighted bell buoy, and the northerly section, covered by 1 foot, is marked by a daybeacon. Passage between the reef and island is unsafe because of shoals.

(267) **Ram Island**, about 0.4 mile southwest of Mason Island, is wooded and grass-fringed. A shoal, on which are two rocky islets, extends about 0.2 mile northeastward from Ram Island. **Ram Island Shoal**, extending nearly 0.5 mile westward from Ram Island, has little water over it and many rocks bare at low water. **Whaleback Rock** and the islet 300 yards northwestward of it are bare.

(268) The narrow but deep channel along the north side of Ram Island Shoal is the easterly entrance to Mystic Harbor. Between the shoal and Groton Long Point is an area of foul ground and several dangerous rocks, including **Whale Rock**, which bares at low water, at the northwesterly end of Ram Island Shoal. This rock is marked by a seasonal lighted buoy. Leading across the shoal is the buoyed channel, good for about 11 feet, which is used by vessels entering Mystic Harbor from westward.

(269) A rock covered 12 feet is 400 yards eastward of Groton Long Point; about 0.5 mile southerly of that rock is **Intrepid Rock**, with 13 feet over it and marked by a buoy, which should be avoided. **Mouse Island**, marked by several dwellings, is 150 yards southwestward of Morgan Point.

(270) In November 1983, a rock, covered about 2 feet, was reported 0.2 mile west of Mouse Island in about 41°18′52″N., 71°59′50″W.

(271) **Morgan Point**, on the west side at the entrance of Mystic Harbor, is marked by an abandoned light tower. A privately maintained and marked channel leading to the piers in **West Cove** at Noank westward of the point had a least depth of 4 feet reported in July 1981.

(272) **Groton Long Point**, on which is a summer settlement, is about 0.9 mile southwestward of Morgan Point. A reef extends nearly 300 yards southwestward from the point and is marked by a buoy. About 0.3 mile to the west a rock awash at low water is 175 yards off the southwest end of Groton Long Point. It is marked by a buoy.

(273) **Mystic Harbor**, about 6 miles westward of Watch Hill Point, is the approach to the towns of Noank and Mystic. A channel with two dredged sections leads from Fishers Island Sound through Mystic Harbor to the Mystic Seaport Museum Wharf, 0.6 mile northward of the highway bridge at Mystic on the Mystic River. In August-October 1987, the midchannel controlling depths were 10 feet to the highway bridge, thence 8 1/2 feet to the head of the Federal project. The channel is marked by buoys and a light. In November 1984, shoaling and timber debris were reported in the channel in the vicinity of the railroad swing bridge below Mystic.

(274) **Special anchorages** are in Mystic Harbor. (See **110.1, 110.50b, and 110.50d,** chapter 2, for limits and regulations.)

(275) **Routes.**–To enter from eastward, lay a west-northwesterly course from south of the lighted bell buoy marking Napatree Point Ledge for a little over 3 miles to about 400 yards south of the buoy marking the south end of **Cormorant Reef**. From here steer **261°** for the abandoned light tower on Morgan Point in range with the north end of the northern rocky islet off the north end of Ram Island until Mason Point is abeam. Then follow the buoyed channel.

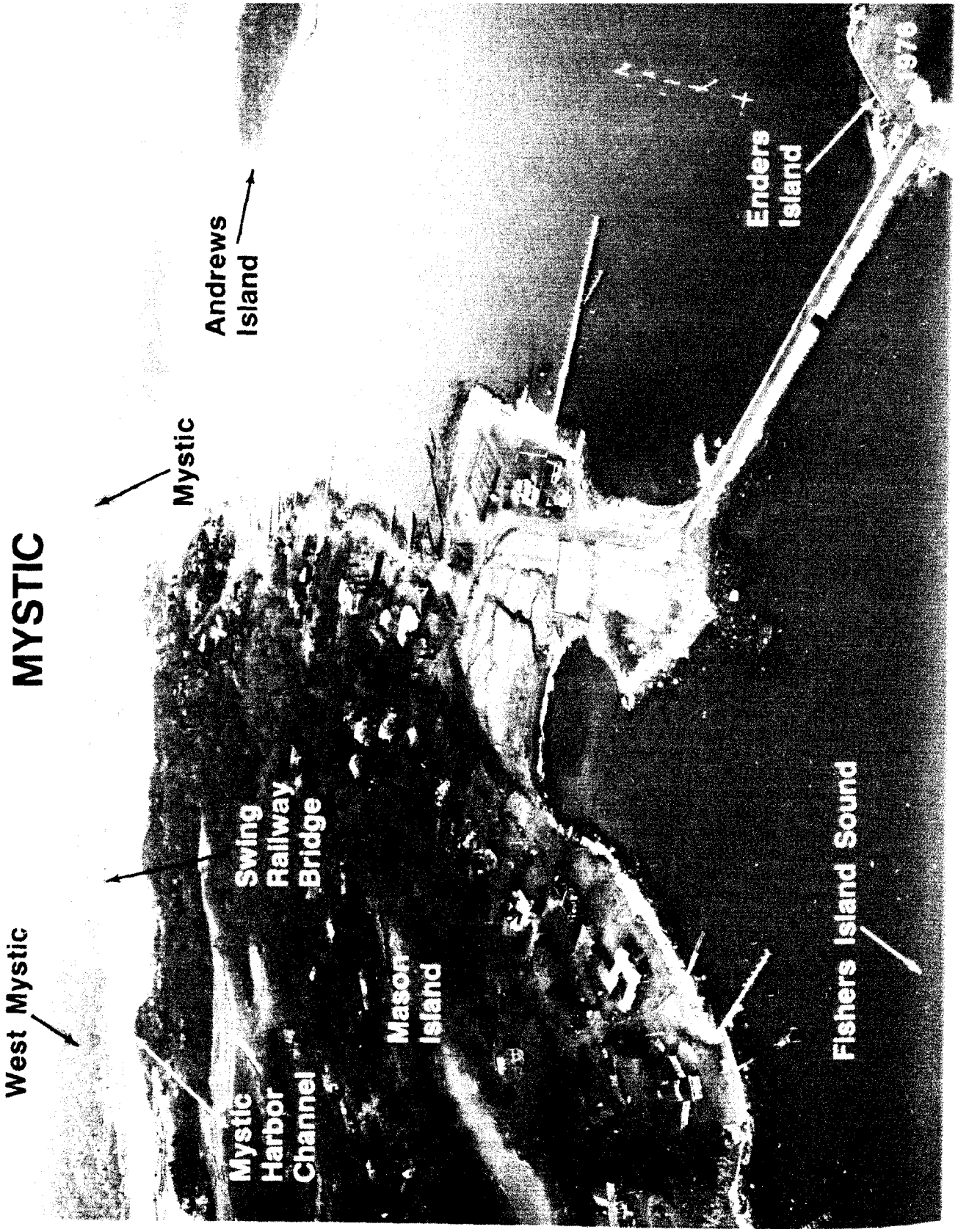
(276) From westward, proceed cautiously from about 100 yards or more southward of the buoy southward of Groton Long Point on an easterly course for about 0.5 mile to Mystic Harbor Channel Buoy 1, then steer a northerly course through the buoyed channel into Mystic Harbor, rounding Noank Light 5 at a distance of about 75 yards.

(277) **Noank** is a town on the west side of the channel through Mystic Harbor. The mean range of the tide is about 2.3 feet. There are several small-craft facilities at Noank and in **West Cove**. Berths, electricity, gasoline, diesel fuel, water, ice, storage facilities, launching ramps, 30-ton mobile lift, and marine supplies are available; hull, engine, sail, and electronic repairs can be made. A **harbormaster** is at Noank.

(278) **Mystic River** flows into Mystic Harbor from northward just below Mystic. The river is used by recreational craft, the local fishing fleet, and by transient craft visiting Mystic Seaport. An **anchorage area** with depths of 3½ to 7 feet is in the lower part of the river between Willow Point and Murphy Point. **Ice** usually closes the river during January and February.

(279) **Willow Point**, 0.6 mile below Mystic, has several small-craft facilities that can provide berths, electricity, water, ice, some engine parts, and marine supplies. A 12-ton crane and 30-ton mobile hoist are available; hull and engine repairs can be made.

(280) A channel, privately marked by daybeacons, leads from the vicinity of Willow Point for 0.3 mile in an easterly direction, thence about 0.4 mile northeastward to a marina on the west side of the mouth of **Pequotsepos Brook**, just below the Amtrak rail-


MYSTIC
West Mystic
Mystic
Andrews Island
Swing Railway Bridge
Mystic Harbor Channel
Mason Island
Enders Island
Fishers Island Sound

road bridge. Berths, electricity, water, ice, storage, marine supplies, a 12-ton mobile hoist, and hull and engine repairs are available. In July 1981, a reported depth of 4 feet could be carried in the channel to the marina.

(281) Several small-craft facilities are on the northern end of Mason Island. Berths, electricity, water, ice, storage facilities, marine supplies, 25-ton mobile hoist, and hull and engine repairs are available. In July 1981, a reported depth of 4 feet could be carried to the facilities.

(282) The Amtrak railroad bridge over Mystic River below Mystic has a swing span with a clearance of 8 feet. The U.S. Route 1 highway bridge at Mystic has a bascule span with a clearance of 4 feet. (See **117.1 through 117.59 and 117.211,** chapter 2, for drawbridge regulations.) The bridgetenders monitor VHF-FM channel 13; call signs KJA–842 and KXR–912, respectively. In 1983, a railroad swing bridge with a design clearance of 8½ feet was under construction immediately south of the railroad bridge; when completed it will replace the existing bridge.

(283) **Mystic**, a town about 2 miles above Noank, has several small-craft facilities. Berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, storage facilities, mobile hoists, and marine railways up to 110 feet are available; hull and engine repairs can be made. A **harbormaster** is at Mystic.

(284) The **Mystic Seaport Museum** is about 0.6 mile above the highway bridge at Mystic. The whaler CHARLES W. MORGAN, full-rigged training ship JOSEPH CONRAD, and Grand Banks fishing schooner L. A. DUNTON are permanently moored at the museum and open to the public. Along the waterfront of the museum property, a mid-19th Century coastal village has been recreated with shops and lofts of that period. Collections of maritime relics are on exhibit in several formal museum buildings.

(285) Above the Mystic Seaport Museum, the channel is very narrow and is marked by privately maintained seasonal daybeacons; boats of about 5-foot draft can be taken to the **Narrows**, and thence depths are 1 and 2 feet to **Old Mystic**. Twin fixed highway bridges crossing the Narrows have clearances of 25 feet. The stream follows the east bank to the next narrows and the west bank to a marina in the bight about 0.3 mile below Old Mystic.

(286) **Charts 13213, 13212, 13214.–Mumford Cove** is entered about 2 miles west of Mystic Harbor. A privately dredged channel leads northward from the entrance to the head of the cove; two spur channels lead eastward from the main channel, about 0.3 mile and 0.6 mile, respectively, above the entrance. The channels are marked by private seasonal buoys and daybeacons. In July 1981, the channels had a reported controlling depth of 2 feet.

(287) **Special anchorages** are in the cove. (See **110.1 and 110.50c,** chapter 2, for limits and regulations.)

(288) **Venetian Harbor** is a yacht basin on the east side of the entrance to Mumford Cove. A channel 75 feet wide leads through stone breakwaters into a basin with depths of about 3 to 7 feet. A submerged jetty extends along the channel from the outer end of the east breakwater. The entrance to the harbor is marked by a light on the outer end of the west breakwater.

(289) **Horseshoe Reef**, 0.5 mile southward of Mumford Cove entrance, is awash at low water, and is marked by a buoy. Broken and rocky grounds extend from the reef to the shore eastward of Mumford Point.

(290) **Vixen Ledge**, with a depth of 10 feet and marked by a buoy, is about 1 mile west of Horseshoe Reef. **Pine Island** is bluff and grassy, about 1.3 miles west of Mumford Point. It is surrounded by shoal water and rocky bottom, and is marked off the southwest side by a lighted bell buoy. A rock, covered 7 feet, in 41°18′35″ N., 72°03′17″W., is about 0.3 mile northwestward of Vixen Ledge.

(291) A **special anchorage** is on the north side of Pine Island. (See **110.1** and **110.51,** chapter 2, for limits and regulations.)

(292) The cove indenting the mainland northward of Pine Island and eastward of **Avery Point**, is entered between Avery Point and westward of Pine Island. The entrance to the cove is marked by two buoys just inside and eastward of Avery Point. Depths shoal from about 10 feet in the entrance to about 1 foot at the head of the cove. A breakwater, marked at its end by a private light, extends southeasterly from the east end of Avery Point. A yacht club, marina, and State launching ramp are in the cove. An unmarked rock awash is about 500 yards 060° from the former lighthouse tower at Avery Point. Berths, guest moorings, gasoline, electricity, water, ice, marine supplies, and a 14-ton mobile hoist are available at the marina; hull and engine repairs can be made. In July 1981, a reported depth of 5 feet could be carried to the marina.

(293) Special purpose buoys maintained by the City of Groton show a **speed limit** of 5 m.p.h. in the area.

(294) A **special anchorage** is in the cove. (See **110.1** and **110.51,** chapter 2, for limits and regulations.)

8. EASTERN LONG ISLAND SOUND

(1) This chapter describes the eastern portion of Long Island Sound following the north shore from Thames River to and including the Housatonic River, and then the south shore from Orient Point to and including Port Jefferson. Also described are the Connecticut River; the ports of New London, New Haven, and Northville; and the more important fishing and yachting centers on Niantic River and Bay, and in Westbrook Harbor, Guilford Harbor, Branford Harbor, and Mattituck Inlet.

(2) **COLREGS Demarcation Lines.**–The lines established for Long Island Sound are described in **80.155** chapter 2.

(3) **Chart 12354.–Long Island Sound** is a deep navigable waterway lying between the shores of Connecticut and New York and the northern coast of Long Island.

(4) In this region are boulders and broken ground, but little or no natural change in the shoals. The waters are well marked by navigational aids so that strangers should experience no difficulty in navigating them. As all broken ground is liable to be strewn with boulders, vessels should proceed with caution in the broken areas where the charted depths are not more than 6 to 8 feet greater than the draft. All of the more important places are entered by dredged channels; during fog, vessels are advised to anchor until the weather clears before attempting to enter. The numerous oyster grounds in this region are usually marked by stakes and flags. These stakes may become broken off and form obstructions dangerous to small craft. Mariners should proceed with caution especially at night.

(5) **Caution.**–Submarine operating areas are in the approaches to New London Harbor, Connecticut River, and off the northern shore of Long Island. As submarines may be operating submerged in these areas, vessels should proceed with caution.

(6) **Anchorages.**–New London Harbor is the most important of the anchorages sought for shelter in the eastern part of Long Island Sound. Niantic Bay and the approach between Bartlett Reef and Hatchett Reef are used to some extent by small vessels when meeting unfavorable weather or reaching the eastern part of the sound. Small vessels can select anchorage eastward or westward of Kelsey Point Breakwater, also in Duck Island Roads. Off Madison there is anchorage sheltered from northerly winds. New Haven Harbor is an important harbor of refuge.

(7) **Tides.**–The time of tide is nearly simultaneous throughout Long Island Sound, but the range of tide increases from about 2.5 feet at the east end to about 7.3 feet at the west end. Daily predictions of the times and heights of high and low waters for New London, Bridgeport, and Willets Point are given in the Tide Tables.

(8) The effect of strong winds, in combination with the regular tidal action, may at times cause the water to fall several feet below the plane of reference of the charts.

(9) **Currents.**–In the eastern portion of Long Island Sound the current turns from ½ to 1½ hours earlier along the north shore than in the middle of the sound.

(10) Proceeding westward from The Race in the middle of the sound, the velocity of current is 1.8 knots off Cornfield Point, about 1 knot off New Haven, 1 knot off Eatons Neck, 0.4 knot between Peningo Neck and Matinecock Point, and 0.5 knot eastward of Hart Island.

(11) About 1.5 miles east-southeastward of Barlett Reef, the velocity of flood is 1.2 knots and ebb 1.6 knots. The flood current sets 285° and the ebb 062°.

(12) At a point about 3 miles southward of Cornfield Point, the flood current sets 256° with a velocity of 2 knots and the ebb sets 094° with a velocity of 1.7 knots.

(13) About 1 mile north of Stratford Shoal (Middle Ground) Light, the velocity is 1 knot, the flood setting westward and the ebb eastward. (See Tidal Current Tables for predictions.) Current directions and velocities at various places throughout the eastern portion of Long Island Sound for each hour of the tidal cycle are shown on the Tidal Current Charts, Block Island Sound and Eastern Long Island Sound.

(14) **Weather, Long Island Sound and vicinity.**–Weather is most favorable from mid-May to mid-October, when the most common hazards are thunderstorms and fog. There is also a rare threat of a tropical cyclone. During June, July and August on the average, there are 20 to 25 days per month with conditions generally considered ideal even for small boaters. Fog is most likely in spring and early summer. Fog, or the lack of it, at inland locations is not a guide to conditions in the Sound or its approaches. Areas along the coast, at the heads of bays and within rivers may be relatively clear, while offshore the fog is thick. For example, on exposed Block Island heavy fog is encountered about 10 to 12 percent of the time from April though August compared to 1 to 3 percent at Westhampton. Thunderstorms on the other hand are more likely over land, but can be viscous in the Sound, especially in a squall line preceding a cold front in spring and early summer. Winter winds are mostly out of the west through north, but gales blow less than 5 percent of the time in these somewhat sheltered waters. Waves are restricted by limited fetch except to the east. However, choppy conditions can create problems.

(15) **Ice.**–In ordinary winters the floating and pack ice in Long Island Sound, while impeding navigation, does not render it absolutely unsafe; but in exceptionally severe winters the reverse is true, none but powerful steamers can make their way.

(16) Drift ice, which is formed principally along the northern shore of the sound under the influence of the prevailing northerly winds, drifts across to the southern side and accumulates there, massing into large fields, and remains until removed by southerly winds, which drive it back to the northerly shore.

(17) In ordinary winters ice generally forms in the western end of the sound as far as Eatons Neck; in exceptionally severe winters ice may extend to Falkner Island and farther eastward.

(18) **Effects of winds on ice.**–In Long Island Sound northerly winds drive the ice to the southern shore of the sound and southerly winds carry it back to the northern shore. Northeasterly winds force the ice westward and cause formations heavy enough to prevent the passage of vessels of every description until the ice is removed by westerly winds. These winds carry the ice eastward and, if of long duration, drive it through The Race into Block Island Sound, thence it goes to sea and disappears.

(19) In New Haven Harbor, the influence of the northerly winds clear the harbor and its approaches unless the local formation is too heavy to be moved. Southerly winds force the drift ice in from the sound and prevent the local formations from leaving the harbor. Tides have little effect upon the ice. Additional infor-

mation concerning ice conditions in the waters adjoining Long Island Sound is given under the local descriptions.

(20) **Vessel Traffic Service, New York**, operated by the U.S. Coast Guard, serves New York Harbor (see **161.501 through 161.580**, chapter 2, for regulations).

(21) **Pilotage, Long Island Sound.**–Pilotage is compulsary in Long Island Sound for foreign vessels and U.S. vessels under register.

(22) The pilot boat sets radio guard at least 1 hour before a vessel's ETA.

(23) Vessels to be boarded should provide a ladder 3 feet above the water on the lee side.

(24) Pilot services are generally arranged at least 24 hours in advance through ships' agents or directly by shipping companies.

(25) Pilotage, in the waters of Long Island Sound, is available from, but not limited to:

(26) Sound Pilots, Inc. (a division of Northeast Marine Pilots, Inc.), 243 Spring Street, Newport RI 02840, telephone 401-847-9050 (24 hours), 800-274-1216, FAX 401-847-9052, Cable RISPILOT, Newport. Pilot boats are RHODE ISLAND PILOT, 35-foot, black hull, white superstructure, word PILOT on sides; NORTHEAST I, 49-foot, black hull, white superstructure, word PILOT on sides; and NORTHEAST II, 49-foot, gray hull, gray superstructure, word PILOT on sides. The boat monitor channels 16, 10, 13, 14; work on 10.

(27) Connecticut State Pilots (a division of Interport Pilots Agency, Inc.), State Pier, New London, CT 06320, telephone 800-346-4877 or 908-787-5554, FAX 908-787-5538, cable PORTPILOTS. Pilot boats are CONNECTICUT PILOT, 65-foot, with blue hull, white superstructure; CONNECTICUT PILOT II, 47-foot, with blue hull, and white superstructure. The boat monitors channels 16 and 13, works on 11.

(28) Constitution State Pilots Association, 500 Waterfront Street, New Haven, CT 06512, telephone 800-229-7456 or 203-783-5991, FAX 516-582-6327. The pilot boat CONSTITUTION, is 65-foot, with black hull, white superstructure, and the word PILOT on sides. The boat monitors 16, 13, and 9A; works on 13 or 9A.

(29) Long Island Sound State Pilots Association, Inc., 1440 Whalley Avenue, Suite 123, New Haven, CT 06515, telephone 203-772-0101, FAX 302-629-9392, Cable LISPILOT, New Haven. The pilot boat LONG ISLAND SOUND PILOT, is 46-foot, with black hull, white superstructure, and the word PILOT in black letters. The boat monitors channel 16; works on 11.

(30) See Pilotage, New London-Groton (indexed as such), this chapter; Pilotage, New Haven (indexed as such), this chapter; Pilotage, Bridgeport (indexed as such), chapter 9; Pilotage, Offshore Terminal, Northville-Riverhead (indexed as such), this chapter; see Pilotage, Offshore Terminal, Northport (indexed as such), chapter 9.

(31) **Charts 13213, 13212, 12372.–New London Harbor**, near the east end of Long Island Sound at the mouth of the **Thames River,** is an important harbor of refuge. Vessels of deep draft can find anchorage here in any weather and at all seasons.

(32) Waterborne commerce in New London Harbor and on the Thames River is chiefly in petroleum products, chemicals, lumber, pulpwood, and general cargo.

(33) **Security Zones** have been established in New London Harbor. (See **165.1 through 165.7, 165.30, 165.33, and 165.140,** chapter 2, for limits and regulations.)

(34) **New London** is a city on the west bank of Thames River about 2.5 miles above the mouth. The town of **Groton** on the east bank is connected to New London by a highway bridge and a railroad bridge. The main harbor comprises the lower 3 miles of Thames River from Long Island Sound to the bridges, and includes Shaw Cove, Greens Harbor, and Winthrop Cove. It is approached through the main entrance channel extending from deep water in Long Island Sound to deep water in the upper harbor. The harbor is generally used by vessels drawing 9 to 30 feet; the deepest draft entering is about 36 feet. Petroleum products, molasses, sulfuric acid, woodpulp, hemp fiber, coconut products, and lumber are the principal waterborne products handled at the port.

(35) **Greens Harbor**, a small-craft shelter just north of the entrance, has general depths of 6 to 17 feet. **Special anchorages** are in the harbor. (See **110.1** and **110.52,** chapter 2, for limits and regulations.)

(36) **New London Coast Guard Station** is at **Fort Trumbull**, on the west side of main channel northward of Greens Harbor.

(37) **Shaw Cove** is a dredged basin about 0.8 mile northward of Greens Harbor. In February 1986, the controlling depth was 15 feet in the entrance channel through the south draw of the bridge, thence depths of 11 to 15 feet were available in the basin. The railroad bridge over the entrance has a swing span with clearances of 6½ feet. (See **117.1 through 117.59 and 117.223**, chapter 2, for drawbridge regulations.)

(38) **Winthrop Cove**, northward of Shaw Cove, is part of the main waterfront channel. The fixed railroad bridge near the head of this cove has a clearance of 4 feet.

(39) **Prominent features.–New London Ledge Light** (41°18.3′N., 72°04.7′ W.), 58 feet above the water, is shown from a red brick building on a square white pier on the west side of New London Ledge; a fog signal is sounded at the station.

(40) Other prominent features in approaching New London Harbor are: New London Harbor Light, on the west side of the entrance channel; the monument at Fort Griswold; the microwave tower atop a building in downtown New London; the large sheds at the shipyard on the east side of the river opposite Fort Trumbull; and the highway bridge at New London.

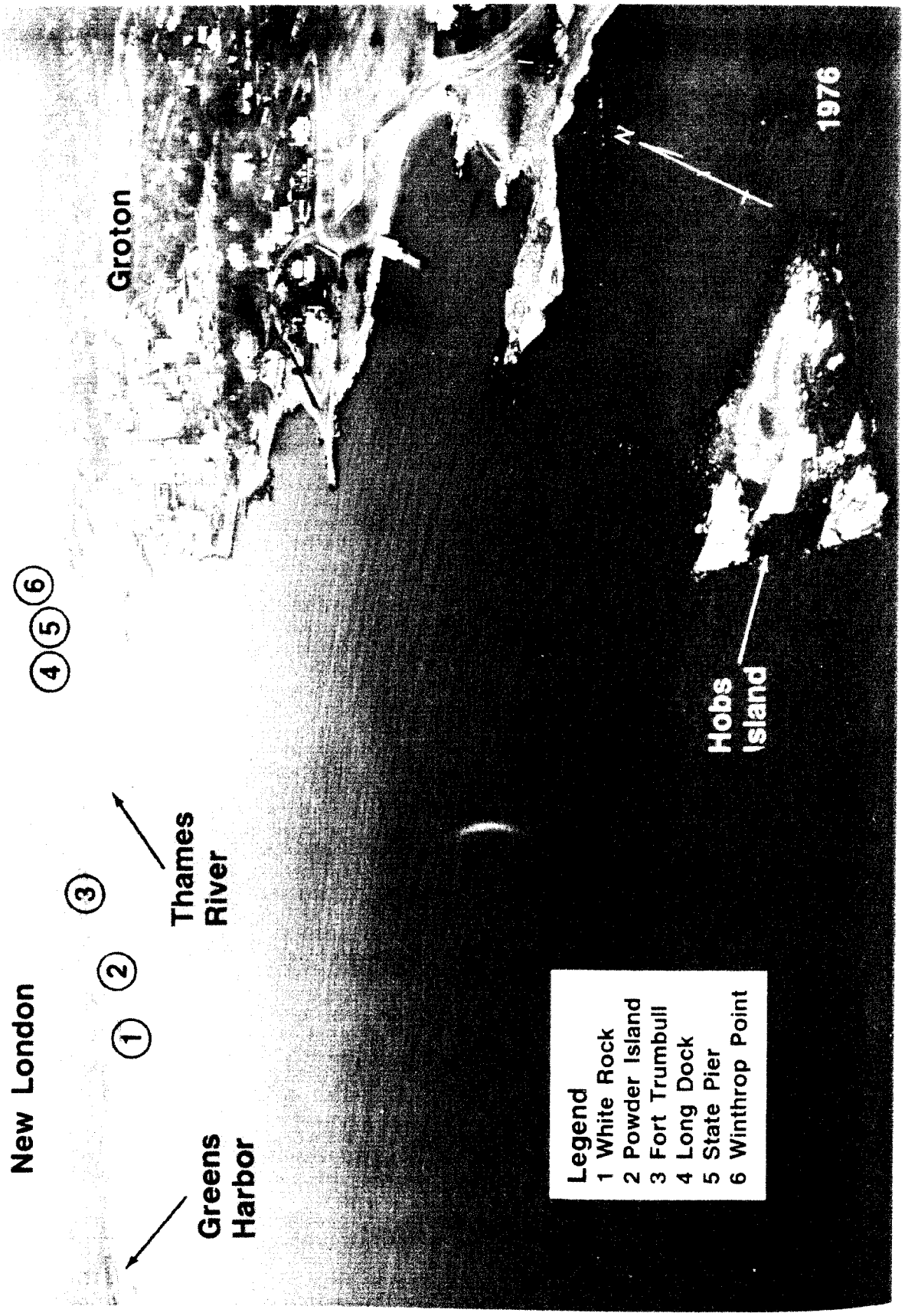
(41) **Channels.**–A U.S. Navy project for New London Harbor provides for a channel 40 feet deep to Fort Trumbull, thence 38 feet to State Pier No. 1, thence 36 feet to the U.S. Navy Submarine Base. A Federal project provides for a channel 23 feet deep in the waterfront channels north of Fort Trumbull and in Winthrop Cove. (See Notice to Mariners and latest editions of the charts for controlling depths.) Lighted and unlighted buoys and a **354°** lighted range mark the channel. The range does not mark the center of the lower end of the channel.

(42) **Pine Island Channel**, northeastward of New London Ledge Light, between Pine Island and Black Ledge, has a rocky and very broken bottom on which the least found depth is 10 feet. It is used some by local vessels between New London Harbor and Fishers Island Sound, but should be avoided by any vessel drawing more than 10 feet.

(43) **Anchorages.**–General and naval anchorages are in the approaches to, and in, New London Harbor. (See **110.1 and 110.147,** chapter 2, for limits and regulations.) Special anchorages are in Greens Harbor and in the vicinity of the U.S. Coast Guard Academy. (See **110.1 and 110.52,** chapter 2, for limits and regulations.)

(44) **Dangers.**–On the west side of the approach to New London Harbor, foul ground extends about 1 mile from shore in the vicinity of **Goshen Point** (chart 13211). The southerly and southeasterly limits of this area are marked by buoys. The area has numerous rocky patches and boulders, some showing above water,

NEW LONDON HARBOR



and should be avoided by small craft. **Rapid Rock,** marked by a buoy on its southeast side, is about 1.6 miles southwestward of New London Ledge Light. It has a least depth of 11 feet. An unmarked ledge covered 38 feet is about 750 yards southeast of Rapid Rock and is the outermost shoal to the southward. **Sarah Ledge**, 0.7 mile northeastward of Rapid Rock and marked by a buoy, has a least depth of 16 feet and is the easternmost shoal on the west side of the main channel approach.

(45) On the east side of the main channel foul ground extends about 1 mile offshore. **New London Ledge**, marked by New London Ledge Light, has a least depth of 7 feet. **Black Ledge**, just to the northeastward of New London Ledge, has a rocky islet, 2 feet high, on it. Depths are 2 to 16 feet on the ledge. Buoys mark the shoal area.

(46) Broken ground fringes the shore southwestward of New London Harbor Light. Rocks with 2 to 11 feet over them extend about 0.2 mile from shore in the bight just southward of the light.

(47) **White Rock**, an islet in Greens Harbor, is 200 yards from the 18-foot curve on the western edge of the channel. **Hog Back**, a small ledge awash at low water, is 150 yards southwestward of White Rock and about 0.3 mile from the western shore, and is marked by two buoys. Rocks, covered 3 to 6 feet, are in the middle of the northern part of Greens Harbor. **Melton Ledge,** northward of White Rock, with one-half foot over it, is 125 yards eastward of **Powder Island** and is marked by a buoy; a rock awash is close westward of Melton Ledge.

(48) **Bridges.**–Four bridges cross the Thames River below Norwich: three near Winthrop Point and one about 0.2 miles southward of Fort Point. The first is the railroad bridge, which has a bascule span with a clearance of 30 feet. (See **117.1 through 117.59 and 117.224,** chapter 2, for drawbridge regulations.) The bridgetender of the railroad bridge monitors VHF-FM channel 13; call sign KT-5473. Just above it are two high-level fixed bridges with clearances of 135 feet, and 7.9 miles farther up the Thames is a fixed highway bridge with a clearance of 75 feet.

(49) Overhead power cables with a clearance of 160 feet cross the river about 5.5 miles below Norwich.

(50) **Tides and currents.**–The mean range of tide at New London is 2.6 feet. Daily predictions are given in the Tide Tables.

(51) The tidal currents follow the general direction of the channel and usually are not strong. At Winthrop Point, on the west side of the river at New London, the velocity is 0.4 knot, and at Stoddard Hill, about 6.5 miles above New London, 0.7 knot on the flood and 0.4 knot on the ebb. During freshets or when the river is high and the wind is from the north, the current can have considerable southerly set even on the flood. Current directions and velocities at various places on the Thames River for each hour of the tidal cycle are shown on the Tidal Current Charts, Block Island Sound and Eastern Long Island Sound.

(52) **Ice** obstructs navigation about 2 months each year above the naval station, which is some 5 miles above New London Ledge Light, but seldom forms below the station. In extremely severe winters, however, heavy ice from the sound, driven in by winds, has been known to extend about 1.8 miles above the entrance. Between New London and the mouth of the river small vessels may navigate with comparative safety in ordinary winters; and even in severe weather it is rare that navigation for small vessels stops for more than a week. Steamers can nearly always enter and leave with safety. Drift ice sometimes forms a decidedly dangerous obstruction in the approaches through Long Island Sound during severe winters, especially during February and March; and small vessels are much hindered in their movements during January, February, and March.

(53) **Freshets** usually occur in the river in the spring. It is reported that they seldom exceed 2 feet above high water at Norwich.

(54) New London Harbor and Thames River are easy of access by day or night, but local knowledge is required to take drafts greater than 20 feet above the submarine base.

(55) **Pilotage, New London-Groton.**–Pilotage is compulsary in Long Island Sound for foreign vessels and U.S. vessels under register. See Pilotage, Long Island Sound (indexed as such),chapter 8. Pilotage for New London is available from: New London Connecticut Pilots Association (NLCPA), 239 Ocean Avenue, New London, CT 06320, telephone 203-443-4431 or 203-443-2401. Pilot boat JM5, 35-foot, red hull, white superstructure, word PILOT on sides. The boat monitors channel 13; works 18 and 79. A NLCPA pilot boards a ship about 2 miles south of New London Ledge Light. The NLCPA requests a 48-hour advance notice of arrival with updates at 24, 12, and 6 hours.

(56) Pilotage for New London is also available from Constitution State Pilots Association (CSPA), 500 Waterfront Street, New Haven, CT 06512, telephone 800-229-7456 or 203-783-5991, FAX 516-582-6327. Pilot boat CONSTITUTION is 65-foot, with black hull, white superstructure, and the word PILOT on sides. The boat monitors 16, 13, and 9A, works on 13 or 9A. The CSPA pilot will meet a New London bound vessel about 2 miles south of New London Ledge Light; also will meet a vessel off Montauk Point. See Pilotage Pickup Locations Off Montauk Point (indexed as such), chapter 7.

(57) Pilotage for New London is also available from Long Island Sound State Pilots Association, Inc. (LISSPA), 1440 Whalley Avenue, Suite 123, New Haven, CT 06515, telephone 203-772-0101, FAX 302-629-9392, Cable LISPILOT, New Haven. Pilot boat LONG ISLAND SOUND PILOT is 46-foot, with black hull, white superstructure, and the word PILOT in black letters. The boat monitors channel 16; works on 11. Among other locations, the LISSPA pilot will meet a ship off Montauk Point. See Pilotage Pickup Locations Off Montauk Point (indexed as such), chapter 7.

(58) Pilotage for New London is also available from Sound Pilots, Inc. (SPI) (a division of Northeast Marine Pilots, Inc.), 243 Spring Street, Newport, RI 02840, telephone 401-847-9050 (24 hours), 800-274-1216, FAX 401-847-9052, Cable RISPILOT, Newport, RI 02840. The pilot boats are NORTHEAST II, 49-foot, with grey hull and superstructure and the word PILOT on the side; or RHODE ISLAND PILOT, 35-foot, with black hull and white superstructure and the word PILOT on the side; or NORTHEAST I, 49-foot, similiarly marked as the RHODE ISLAND PILOT. The SPI pilots meet a ship bound for a Long Island Sound port, off Point Judith, but will also meet a ship off Montauk Point by prearrangement. See Pilotage, Narragansett Bay and Other Rhode Island Waters (indexed as such), chapter 6, and Pilotage Pickup Locations Off Montauk Point (indexed as such), chapter 7.

(59) **Towage.**–Tugs to 3,200 hp are available at New London. Vessels usually proceed to the upper harbor without assistance, although a tug may be required when entering with a head wind and contrary current. Large vessels normally require tugs for docking and undocking.

(60) New London is a **customs port of entry.**

(61) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(62) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) New London has several hospitals.

(63) **Coast Guard.**–The **Captain of the Port** maintains an office at the New London Coast Guard Station. (See appendix for address.)

(64) **Harbor regulations** are in force for New London Harbor. The harbormaster has authority to berth vessels, shifting them if necessary, but occasion for doing so seldom arises.

(65) **Wharves.**–New London Harbor has more than 30 wharves and piers. Most of these facilities are used as repair berths, and for mooring recreational craft, fishing vessels, barges, ferries, and government vessels. Depths alongside these facilities range from 10 to 40 feet. Only the deep-draft facilities are described. For a complete description of the port facilities refer to Port Series No. 4, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths are reported; for information on the latest depths contact the private operator.

(66) **Amerada Hess Corp. Wharf** (41°20′09″N., 72°04′58″W.): on the east side of the river opposite Greens Harbor; T-head pier with 55-foot face, 960 feet of berthing space with dolphins; 40 feet alongside; deck height, 8 feet; pipelines to storage tanks; fresh water connection; railroad and highway connections; receipt and shipment of petroleum products and receipt of molasses; bunkering vessels; owned and operated by Hess Oil and Chemical Division, Amerada Hess Corp.

(67) **State Pier No. 1:** the more easterly of the two long piers southwestward of the Thames River bridges, about 1.3 miles northward of Amerada Hess Corp. Wharf; 200-foot face, 28 to 32 feet alongside; west side 1,000 feet, 28 to 36 feet alongside; east side 1,020 feet, 36 to 38 feet alongside; deck height, 10 feet; 20-ton crane; 153,000 square feet of covered storage, 5 acres open storage; electricity and potable and feed water connections on pier; railroad and highway connections; receipt and shipment of general cargo, woodpulp, copper, hemp, and paper products and mooring naval vessels; owned by State of Connecticut, west side operated by New London Terminal Co., east side and face by U.S. Navy.

(68) **Supplies** of all kinds are available. Gasoline and diesel oil can be obtained from oil companies on 48 hours' notice by tank truck. Water is available at most of the piers, wharves, and marinas.

(69) **Repairs.**–A shipbuilding company at New London can perform all kinds of repairs on steel-hulled vessels. The company has a floating drydock in Winthrop Cove. The drydock has a length of 180 feet, width of 84 feet, and a lifting capacity of 2,000 tons.

(70) Cranes to 70 tons and floating derricks to 25 tons are available at New London.

(71) Several companies in New London are in the business of wrecking, salvage, and marine contracting work. They are equipped with pumps, divers' outfits, floating equipment, and other gear.

(72) **Small-craft facilities.**–There are numerous small-craft facilities in Greens Harbor and Shaw Cove. (See the small-craft facilities tabulation on chart 12372 for services and supplies available.

(73) **Communications.**–New London has good railroad and bus communications. Automobile-passenger ferry service is available to Block Island, Fishers Island, and to Orient Point, Long Island.

(74) Thames River above New London has a dredged channel to Norwich, the head of navigation. In January-June 1978, the controlling depth was 35 feet from above the bridges at New London to the north end of the turning basin opposite Smith Cove, thence in August-September 1974, depths of 16 feet (23 feet at midchannel) to Stoddard Hill, and thence 18 feet to the turning basin at Norwich, and 11 feet in the turning basin. The channel is well marked by navigational aids.

(75) **Caution.**–The dikes along the Thames River from Easter Point (41°28.2′N., 72°04.5′W.) to Norwich are submerged at half tide.

(76) **Pilotage, Thames River.**–For Pilotage for the river see Pilotage, New London-Groton (indexed as such) earlier this chapter.

(77) The **U.S. Coast Guard Academy** is on the west side of Thames River about 1 mile north of the center of New London. The administration building, with its white tower and clock, and the lighted chapel spire are very prominent, but are not visible until almost abeam of the academy. Depths alongside the 410-foot-long academy pier are reported in January 1995, to be 20 feet at the face, 20 feet along the south side, and 20 feet on the north side.

(78) The **U.S. Naval Submarine Base** is on the east side of the Thames River about 2 miles above New London. The submarine escape training tank at the base, 143 feet high with a flashing white light atop, is prominent.

(79) A **restricted area** is off the U.S. Naval Submarine Base. (See **334.75**, chapter 2, for limits and regulations.)

(80) Just below **Gales Ferry**, on the east side about 4 miles above the bridges, are the crew training quarters and boathouses of Harvard and Yale Universities. Opposite Gales Ferry is the town of **Bartlett**, site of a prominent power plant with two tall and conspicuous stacks. A privately dredged channel with depths of about 19 feet leads to the dock and coal tipple.

(81) At **Montville Station**, just above Bartlett, is a dock with a depth of 23 feet at the face. The northeast end of the dock is in ruins. Overhead power cables with a clearance of 160 feet cross the river 0.5 mile above the station near **Kitemaug**.

(82) **Allyn Point**, on the east side about 5 miles above New London, is the site of a large private pier for receiving liquid chemicals, with a reported depth of about 30 feet alongside. It is marked by an elevated water sphere and several small tanks on the pier.

(83) **Fort Point**, on the east side 8 miles above New London, has a long fuel pier marked by privately maintained red lights, and on shore is a building with several stacks. Numerous piles are in the water southward of the pier. The fixed highway bridge crossing the river about 0.2 miles south of Fort Point has a clearance of 75 feet.

(84) The red brick buildings of the Norwich State Hospital are on a bluff just north of Fort Point and are a conspicuous landmark.

(85) At **Thamesville**, on the west side of the river about 1 mile below Norwich, are two finger piers each with breasting dolphins used to receive petroleum products from barges. Depths of 20 to 25 feet are reported alongside the face of the piers.

(86) **Norwich**, a city at the head of navigation on Thames River at its junction with **Shetucket River** and **Yantic River**, is about 11 miles above New London. In 1981, waterborne commerce to Norwich consisted of petroleum products. Small boats generally anchor in Shetucket River just above the fixed bridges at Norwich, which have a minimum clearance of 13 feet.

(87) **Charts 13211, 13212, 12372.–Bartlett Reef Light** (41°16.5′N., 72°08.2′W.), 35 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark, is about 3.3 miles southwestward of New London Ledge Light and marks the south end of **Bartlett Reef.** A fog signal is at the light.

The reef, about 1.3 miles long in a general north-south direction and about 0.3 mile wide, is covered 2 to 12 feet and has rocks awash near its northern end. The north end of the reef is marked by a buoy. A lighted bell buoy and an unlighted buoy are about 0.9 mile southward and about 0.3 mile eastward of the light, respectively.

(88) A **general anchorage** is about 0.8 mile northeastward of Bartlett Reef Light. (See **110.1 and 110.147 (a) (4),** and **(b),** chapter 2, for limits and regulations.)

(89) **Twotree Island**, small and bare, about 1.4 miles northwestward of Bartlett Reef Light, is surrounded by shoals. A buoy marks rocks awash that extend off the northern end of the island.

(90) **Twotree Island Channel** leads northward of Bartlett Reef and Twotree Island. With an adverse current in the sound, this channel is used to some extent by light tows and sailboats with a leading wind in the daytime, as the tidal currents turn about 1 hour earlier along the north shore than in the middle of the sound. About 0.3 mile southwestward of **Seaside**, the tidal currents have a velocity of 1.2 knots, and ebb 1.6 knots. Flood sets westerly and the ebb easterly. The channel is buoyed, but strangers are advised to use it with caution and should never attempt to beat through.

(91) From **Goshen Point** (41°18.0′ N., 72°06.8′W.) westward, there are scattered boulders which extend offshore as much as 0.2 mile in places. **Jordan Cove**, 1.5 miles west of Goshen Point, is foul in its northerly half, and the southerly part is obstructed by **Flat Rock**, bare at low water and marked by a buoy, and **High Rock,** which shows at high water and is marked by a buoy.

(92) **Millstone Point,** on the east side at the entrance of Niantic Bay, is occupied by the buildings of the Millstone Nuclear Power Station. A 389-foot red and white stack at the station and a radio tower on the point are the most conspicuous landmarks in the area. A cove with depths of 9 to 15 feet is on the west side of the point. A rock with 1 foot over it lies 60 feet off the mouth of the cove. The station maintains channel markers and a range for occasional barge traffic. A dredged area for the power station's water intakes is 0.2 mile northwest of the cove.

(93) **Charts 13211, 12372.–White Rock** is an islet on the east side of the entrance to Niantic Bay 0.5 mile westward of Millstone Point. **Little Rock**, two rocks partly bare at low water, is 150 yards east of White Rock. A rock over which the least depth is 8 feet is about midway between Little Rock and the cove at Millstone Point. A shoal spot, covered 12 feet, is 200 yards eastward of the rock. A rock, covered 14 feet, is about 300 yards south-southeast of White Rock and is marked by a lighted bell buoy.

(94) **Niantic Bay**, 4.5 miles westward of New London Harbor, is a good anchorage sheltered from easterly, northerly, and westerly winds. It is a harbor of refuge in northerly gales and can be used by small vessels and tows. The general depth of the bay is about 19 feet; the water shoals gradually northward. The entrance is 1.5 miles wide, and the dangers are marked by buoys or show above water.

(95) **Niantic** and **Crescent Beach** are summer resorts with railroad communication at the north end and northwest side of the bay.

(96) The Niantic Bay Yacht Club basin at Crescent Beach is protected on the south, east, and partially on the north side by a U-shaped breakwater; a private seasonal light is near the outer end of the breakwater.

(97) A **special anchorage** is on the west side of Niantic Bay off Crescent Beach. (See **110.1** and **110.53,** chapter 2, for limits and regulations.)

(98) **Niantic River** empties into the northeast end of Niantic Bay and is entered through a dredged channel that leads from the bay, thence through a narrow passage at the entrance, and thence to a point about 300 yards northward of the entrance to Smith Cove. In August-October 1988, the controlling depth was 6 feet at midchannel to the highway swing bridge about 0.4 mile above the channel entrance, thence 4½ feet to the head of the channel. The channel is marked by daybeacons and seasonal buoys. Two bridges cross the narrow passage at the entrance. The more southerly is the Amtrak bridge, with a 45-foot bascule span and a clearance of 11 feet; the State Route 156 highway bridge, about 0.1 northward, has a bascule span with a clearance of 32 feet. (See **117.1 through 117.59 and 117.215,** chapter 2, for drawbridge regulations.) The bridgetender at each bridge monitors VHF-FM channel 13; call signs KGA-511 and KXR-911, respectively.

(99) Strangers attempting to enter Niantic River are cautioned to pass through the bridges either at slack water or against the current.

(100) Above the head of the dredged channel, small craft can navigate for about another 1.5 miles to **Golden Spur (East Lyme)** with local knowledge. The river from westward of Sandy Point to the stone bulkhead at Golden Spur is deep and clear; vessels generally follow the west bank. **Pine Grove, Sandy Point,** and **Saunders Point** are summer resorts on Niantic River.

(101) The mean range of **tide** is about 2.7 feet in Niantic Bay.

(102) The **tidal currents** through the bridges set fair with the channel; the flood velocity is 1.6 knots and the ebb velocity, 0.8 knot. It has been reported that much greater velocities may be expected under storm and freshet conditions. (See Tidal Current Tables for predictions.) Current directions and velocities for the entrance to the Niantic River for each hour of the tidal cycle are shown on the Tidal Current Charts, Block Island Sound and Eastern Long Island Sound.

(103) **Ice** generally closes the river to navigation for about 3 months during the winter.

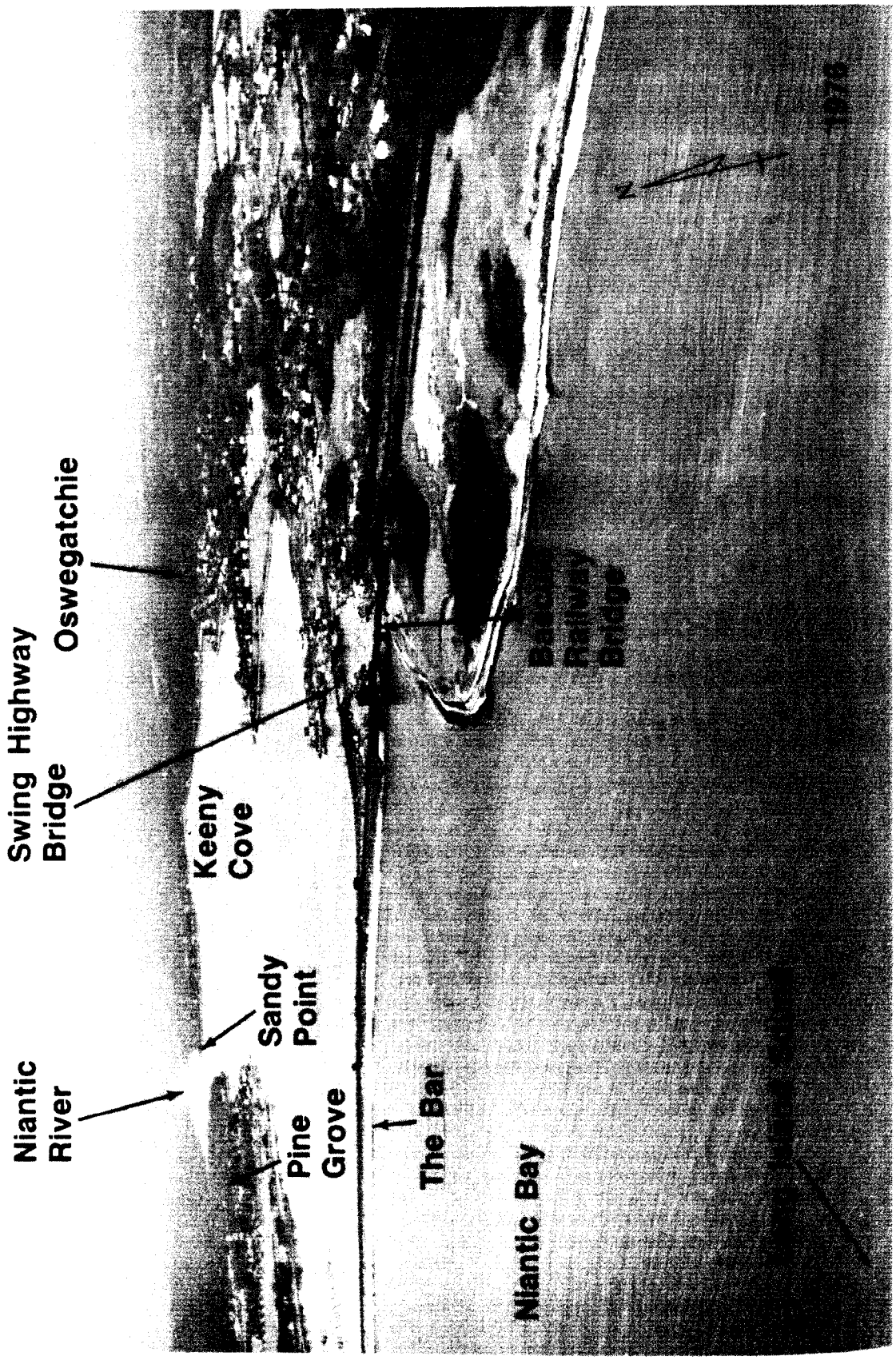
(104) **Smith Cove** is on the west side of Niantic River about 1.5 miles above the channel entrance. A channel, marked by private daybeacons, leads westward from the river channel into the cove. In July 1981, the channel had a reported depth of 5 feet.

(105) There are several small-craft facilities just above the entrance at Niantic and **Waterford**, on the west side and east side of Niantic River, respectively, and in Smith Cove. (See the small-craft facilities tabulation on chart 12372 for services and supplies available.) **Harbormasters** are at Niantic and Waterford. A 6 mph **speed limit** is enforced on the river.

(106) **Black Point**, on the west side at the entrance to Niantic Bay, is flat with bluffs at the water and is occupied by many summer cottages. Broken ground with a least found depth of 20 feet extends 0.6 mile south of the southwest side of the point.

(107) The bight between Black Point and Hatchet Point, about 2.3 miles to the westward, has many rocks showing above high water. **Griswold Island**, on the northeast side of the bight, is high and prominent. Rocks extend 0.35 mile southward and 0.2 mile southwestward of the island. The southwest rocks are marked by a buoy. **South Brother**, in the center, and **North Brother**, in the northwestern part of the bight, are prominent bare rocks. A rock, covered 6 feet, is 250 yards off the west side of Black Point. **Blackboys**, two rocks awash are 0.4 mile southward of Griswold Island. A rock, covered 3 feet and marked by a buoy, is about 0.2 mile southward of Blackboys. **Johns Rock**, covered 5 feet, is 0.3 mile off the northwest side of the bight, about 0.5 mile west-southwestward of South Brother; the range of South Brother well open northward of Griswold Island leads southward of Johns Rock.

NIANTIC BAY


Oswegatchie
Swing Highway Bridge
Keeny Cove
Sandy Point
Niantic River
Pine Grove
The Bar
Niantic Bay
Railway Bridge
N

(108) Strangers entering the bight should proceed with caution, as the bottom is broken; the best route is to pass southward and westward of the buoy southward of Blackboys, and pass on either side of South Brother. **Seal Rock**, 160 yards south of the end of **Giants Neck**, is marked by a buoy on the south side.

(109) A **special anchorage** is east of Giants Neck. (See **110.1** and **110.54**, chapter 2, for limits and regulations.) An unmarked rock is within the anchorage area, about 0.1 mile south of Giants Neck; depth over the rock is not known.

(110) **Hatchett Point** has several large dwellings. A reef extends about 0.2 mile off the southwest side of the point.

(111) **Hatchett Reef**, 0.6 to 1 mile south-southwestward of Hatchett Point, has a least depth of 5 feet and is marked by buoys. Close to the southeast side of the reef the depths are 30 to 48 feet. A bar with 10 to 16 feet over it extends westward from Hatchett Reef to Saybrook Bar.

(112) **Charts 12375, 12377, 12372.–Connecticut River** rises in the extreme northern part of New Hampshire, near the Canadian border, and flows southerly between the States of Vermont and New Hampshire and across Massachusetts and Connecticut to Long Island Sound. It is approximately 375 miles long and is one of the largest and most important rivers in New England. The head of commercial navigation is at Hartford, about 45 miles from the mouth. Waterborne commerce on the river is mostly in petroleum products and chemicals.

(113) The river water is fresh at and above Deep River. Each year after the spring freshets, shoals with least depths of 10 feet are found in places on bars in the upper river; dredging to remove such shoals is begun as soon as the water subsides.

(114) Between the entrance and Middletown the river banks are hard and in some places rocky, but between Middletown and Hartford the river flows through alluvial bottom land, where freshets and ice jams may cause shoaling.

(115) **Channels.**–A Federal project for Connecticut River provides for a 15-foot jettied entrance channel and 15-foot dredged cuts across the bars to Hartford, 45 miles above the entrance. (See Notice to Mariners and the latest editions of the charts for controlling depths.)

(116) The channel above the jettied entrance channel usually follows the banks on the outside of the curves of the river, except through the dredged cuts across the bars which are marked by navigational aids.

(117) **Saybrook Breakwater Light** (41°15.8′N., 72°20.6′W.), 58 feet above the water, is shown from a white conical tower, 49 feet high, on a brown cylindrical pier on the south end of the west jetty at the entrance to Connecticut River. A fog signal is at the light.

(118) **Anchorages.**–Secure anchorage can be had eastward or northeastward of Lynde Point Light. Farther up anchorage can be selected in the wider parts of the channel. Special anchorages are at Old Saybrook, Essex, Chester, Lord Island, Eddy Rock Shoal in the vicinity of Connecticut River Light 45, and Mouse Island Bar vicinity. (See **110.1** and **110.55**, chapter 2, for limits and regulations.)

(119) **Dangers.–Saybrook Outer Bar**, which obstructs the mouth of the Connecticut River, is shifting, with depths of 4 to 12 feet extending nearly 2 miles off the mouth; it is marked off its southeastern end by a lighted bell buoy.

(120) In March 1976, obstructions were reported in the channel at the railroad bascule bridge 3 miles above the mouth of the Connecticut River; a least depth of 13 feet is reported in the channel in area 40 to 50 feet from the east abutment of the bridge. Mariners requiring greater depths are advised to avoid this area of the channel during passages.

(121) **Bridges.**–Several drawbridges and fixed bridges cross Connecticut River between the entrance and Hartford. The distance above the mouth, type, and clearance of each bridge follows: 3 miles, Amtrak railroad with bascule span, 19 feet; 3.5 miles, Raymond E. Baldwin (IS 95) Bridge, fixed highway, 81 feet; 14.6 miles, State Route 82 highway with swing span at East Haddam, 22 feet; 27.8 miles, ConRail railroad with swing span at Middletown, 25 feet; 28 miles, Arrigoni Bridge (State Route 66), fixed highway, 92 feet; 41.2 miles, Wm. H. Putnam Bridge (State Route 3), fixed highway near Wethersfield, 80 feet over main channel; 44 miles, **Charter Oak Bridge (U.S. 5/State Route 15)**, a fixed highway bridge at Hartford, 69 feet for a width of 215 feet; 44.9 miles, Founders Bridge, fixed highway, 46 feet; 45.2 miles, Bulkeley Bridge (I-84), fixed highway, 39 feet; and 46 miles, Conrail fixed railroad, 28 feet. (See **117.1 through 117.59 and 117.205**, chapter 2, for drawbridge regulations.) The bridgetender of the Amtrak bascule railroad bridge at mile 3 monitors VHF-FM channel 13; call sign KT-5414. Vessels requesting the opening of this bridge are cautioned to confirm by radiotelephone that the bascule span is safely raised and stabilized before making passage. The bridgetender of the highway swing bridge at East Haddam at mile 14.6 monitors VHF-FM channel 13; call sign KXR-913.

(122) Overhead power cables across the Connecticut River have a least clearance of 100 feet, except for the one at **Laurel**, 24.2 miles above the mouth, which has a clearance of 65 feet.

(123) **Tides.**–The time of tide becomes later and the range diminishes in progressing up the river. High water and low water at Hartford occur about 4.5 and 6 hours later, respectively, than at the entrance. The mean range of the tide is 3.5 feet at Saybrook jetty, 2.5 feet at Haddam, and 1.9 feet at Hartford.

(124) **Currents.**–At the entrance the currents have considerable velocity at times and always require careful attention, as the tidal current of the sound often sets directly across the direction of the current setting out or in between jetties. This condition is reported to be especially dangerous during the first 3 hours of ebb tide. (Consult the Tidal Current Tables for times and velocities of currents at a number of locations in Connecticut River. In addition, see Tidal Current Charts and Tidal Current Diagrams, Long Island Sound and Block Island Sound, for current directions and velocities at various places in the Connecticut River for each hour of the tidal cycle.)

(125) During the ebb, a strong current runs from the Lyme Landing toward the center of the railroad bridge. Towboats with vessels in tow should steer for the east pier of the draw and should not swing out for the draw until almost in it, to avoid being set to the west side of the channel. Because of river discharge, the ebb current usually will be considerably stronger than the flood. Ebb current velocities of 1 knot or more have been observed under normal conditions on the bars in Connecticut River between Higganum and Hartford; the velocities of the flood currents are much less.

(126) **Freshets** occur principally in the spring, when the snow is melting, although occasional floods have occurred in every month of the year except July and September. At Hartford the usual rise due to spring freshets is between 16 and 24 feet. The highest freshets are generally of short duration, but the period during which the river at Hartford is at the level of 8 feet or more above mean low water averages nearly 2 months of each year. Below Middletown the height of the crest of a freshet decreases rapidly. At the mouth the variation in water level is due to the tides.

(127) **Ice** closes the river to navigation a part of every winter for wooden hull boats. The duration of closing is about 2 months.

(128) **Weather, Hartford and vicinity.**–Hartford is well inside the northern temperate climatic zone in a prevailing west to east movement of air carrying the majority of weather systems into Connecticut from the west. The average wintertime position of the "Polar Front" boundary between cold dry polar air and warm moist tropical air is just south of New England, which helps to explain the extensive winter storm activity and the day-to-day variability of local weather. In the summer, the "Polar Front" has an average position along the New England-Canada border and Hartford has a warm and pleasant climate.

(129) The location of Hartford, relative to the continent and ocean, is also significant. Rapid weather changes result when storms move northward along the Mid-Atlantic Coast, frequently producing strong and persistent northeast winds associated with storms known locally as "coastals" or "northeasters". Seasonally, weather characteristics vary from the cold and dry continental-polar air of winter to the warm, maritimes air of summer, the one from Canada, the other from the Gulf of Mexico, Caribbean Sea, or Atlantic Ocean.

(130) Summer thunderstorms develop in the Berkshire Mountains to the west and northwest, and move over the Connecticut Valley and, when accompanied by wind and hail, sometimes cause considerable damage to crops. Thunderstorm days average 20 each year. June, July, and August are the most favored months. During the winter, rain often falls through cold air trapped in the valley and creates extremely hazardous ice conditions. On clear nights in the late summer or early autumn, cool air drainage into the valley and the moisture from the Connecticut River produce steam and/or ground fog which becomes quite dense throughout the valley and temporarily hampers transportation. An average 162 days each year report fog.

(131) Fog is reported to develop locally in the vicinity of the nuclear power plant's efflux at Haddam Neck and around Gildersleeve Island.

(132) The average annual temperature for Hartford is 50°F (10°C). The warmest month is July with an average temperature of 74°F (23.3°C) and the coolest is January with an average temperature of 26°F (-3.3°C). The warmest temperature on record is 102°F (38.9°C) recorded in July 1966 and the coolest temperature on record is -26°F (-3.3°C) recorded in January 1961. Each month, except June, July, and August has recorded temperatures below freezing. Each month, June through September, has recorded temperatures in excess of 100°F (37.8°C). An average of 18 days each year records temperatures in excess of 90°F (32.2°C) and an average of 134 days each year has a temperature of 32°F (0°C) or cooler. An average of eleven days each year has temperatures of 5°F (-15°C) or lower.

(133) The average annual precipitation for Hartford is 44.20 inches (1123 mm). Precipitation is fairly uniform with the difference between the wettest and driest month being less than one inch (25.4 mm). The wettest month is November, averaging 4.07 inches (104 mm) and the driest month is February averaging 3.13 inches (80 mm). Average snowfall, on an annual basis, totals 44 inches (1118). February 1961 holds the record of the greatest snowfall in a 24-hour period with 14.3 inches (363 mm).

(134) The National Weather Service office is at Bradley International Airport, northwest of Hartford. (See page T-4 for **Hartford climatological table.**)

(135) **Routes.**–To enter Connecticut River from eastward, pass southward of Hatchett Reef and Saybrook Bar, until Saybrook Breakwater Light bears 315°. Steer for Saybrook Breakwater Light on this course through the buoyed opening between the south end of Saybrook Bar and the east end of Long Sand Shoal to the entrance channel between the jetties.

(136) To enter from westward, pass 1 mile southward of Falkner Island Light on course **076°**. This will lead about 0.4 mile northward of the lighted bell buoy on the western end of Long Sand Shoal and about 0.2 mile southward of the lighted bell buoy southward of Cornfield Point. Then steer about **067°**, with Saybrook Breakwater Light a little on the port bow to the entrance channel between the jetties.

(137) **Pilotage, Connecticut River.**–Pilotage is compulsary in Long Island Sound for foreign vessels and U.S. vessels under register. See Pilotage, Long Island Sound (indexed as such), chapter 8. Pilotage for the Connecticut River is available from Connecticut River Pilots Association (CRPA), 104 Nehantic Trail, Old Saybrook, CT 06475, telephone (203) 388-4167. Pilot boat TRUDEE II is 36-foot, with black hull, white superstructure, and with the word PILOT on the house, forward. The boat monitors channel 16 and 13; works on 13. The CRPA pilot boards vessels abeam of the marina at the south end of Saybrook Point.

(138) Pilot services are arranged in advance through ships' agents or directly by shipping companies. A 24-hour advance notice is requested.

(139) Hartford is a **customs port of entry.**

(140) **Wharves.**–The Connecticut River has more than 20 commercial piers and wharves, most of which handle petroleum products from barges or coastal tankers. Most of the facilities below Rocky Hill, about 34 miles above Saybrook Point, are marginal-type wharves, while those above Rocky Hill are finger-type piers with breasting dolphins. Depths of 11 to 15 feet are reported alongside these facilities.

(141) **Supplies and repairs.**–Gasoline, diesel fuel, water, ice, and marine supplies are available at the principal towns and landings along the Connecticut River. Boatyards along the river can make engine, hull, and electronic repairs.

(142) **Charts 12375, 12372.–Old Saybrook** is a village on the west side of Connecticut River, about 1.4 miles northward of Saybrook Breakwater Light. There are several small-craft facilities along the west side of the river from Saybrook Point to **Ferry Point**, about 2 miles to the northward. (See the small-craft facilities tabulation on chart 12372 for services and supplies available.)

(143) A 5 mph **speed limit** is enforced at Old Saybrook between the railroad bridge and the Connecticut Turnpike bridge.

(144) **North Cove**, a dredged small-boat basin that affords excellent anchorage, is entered through a dredged channel that leads westward from the main channel about 0.4 mile northward of Saybrook Point. In April 1992, the controlling depths were 7½ feet in the entrance channel to the basin, except for lesser depths to 4½ feet along the edges, thence general depths of 7½ feet in the eastern part and 6 feet in the western part of the basin with lesser depths to 4 feet near the edges of the entire basin. The entrance channel is marked by private buoys.

(145) From Saybrook Point to Hartford local knowledge is required to carry the best water. Small craft should have no difficulty in following the channel.

(146) **Lieutenant River**, leading to **Old Lyme**, enters the east side of Connecticut River about 1.4 miles northward of Saybrook Point. Pipe stakes mark the south side of the channel across the bar at the entrance A midchannel depth of about 3 feet can be carried over the bar to about 0.2 mile above the second bridge. A railroad bridge with a 33-foot fixed span and a clearance of 11 feet crosses the river 0.4 mile above the entrance. An overhead power cable with a reported clearance of about 10 feet is on the north side of

the bridge. About 0.3 mile above that bridge is a highway bridge with a 24-foot fixed span and a clearance of 6 feet. A **harbormaster** is at Old Lyme.

(147) The passage to the east and north of **Calves Island**, about 1 mile above the railroad bridge crossing Connecticut River, is used extensively for mooring small craft in the summer. This passage is subject to shoaling, particularly on the north side of Calves Island; caution is advised. A sunken barge, covered 2 feet and marked by a private seasonal buoy, is close off the east side of Calves Island in 41°19′31″ N., 72°20′37″W. A small-craft facility is on the east side of the passage just above the entrance. Berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, a 25-ton mobile hoist, and a 20-ton crane are available; hull, engine, and electronic reparis can be made. In July 1981, depths of 25 feet were reported at the facility.

(148) **Lord Cove** has its entrance about 300 yards northward of Calves Island. In July 1981, a depth of 3½ feet was available through the unmarked entrance. The marshlands surrounding Lord Cove and the other coves between Essex and the river mouth at Saybrook are frequented by duck hunters in October and November. Because of danger of gunfire, mariners are cautioned not to stray too close to the numerous duck blinds that exist in this area.

(149) The dredged section of the main channel in Connecticut River westward of Calves Island has numerous obstructions and sunken rocks close to its edges; mariners are advised to exercise caution and to avoid the edges of the channel.

(150) **Haydens Point**, about 4.6 miles above Saybrook Point, is marked by a light. Foul ground is between the light and the shore.

(151) **Essex**, a town on the west bank about 5 miles above Saybrook Point, is the scene of considerable small-boat activity. Depths alongside the town landing are about 6 feet. **Essex Cove** is the area off the main river channel skirting the waterfront at Essex. A dredged channel, marked by private buoys, leads from the main channel through the cove, and thence rejoins the main channel to the northward. In 1973–1974, a controlling depth of 6½ feet was available in the buoyed channel.

(152) A 5 mph **speed limit** is enforced.

(153) A privately marked small-boat channel leads westward from near the southerly end of Essex Cove and northward of **Thatchbed Island** to **Middle Cove**. In July 1981, the channel had a reported depth of 6 feet.

(154) Essex has excellent small-craft facilities. (See the small-craft facilities tabulation on chart 12372 for services and supplies available.)

(155) **Special anchorages** are at Essex. (See **110.1** and **110.55 (a), (a-1), (b),** and **(c),** chapter 2, for limits and regulations.)

(156) **Hamburg Cove** and **Eightmile River**, which empties into the north end of the cove, indent the east side of Connecticut River, 6 miles above Saybrook Point. A dredged channel leads from Connecticut River to a turning basin at **Hamburg**, a village at the head of navigation. In 1977, the controlling depth was 3 feet in the channel with 4 feet in the basin except for shoaling at the north end and along the east edge. There are boulders in places outside the dredged channel, and the entrance channel is outlined by grassy flats on each side. Buoys mark the entrance, and private seasonal buoys and daybeacons mark the remainder of the channel to Hamburg. The center of the turning basin has piles used for moorings. A small-craft facility, on the east side of the basin, has berths, electricity, gasoline, water, ice, and some marine supplies.

(157) **Chart 12377.–Eustasia Island,** 8.5 miles above Saybrook Point, divides the Connecticut River into two channels. A light off the southeast end of the island marks the junction of the two channels. The eastern channel crossing **Potash Bar** through a dredged cut is better marked and easier to follow. The western channel leads to **Pratt Creek**, westward of the southerly end of Eustasia Island, and to the landing at **Deep River** and thence crosses **Chester Creek Bar** through a swash channel to **Chester Creek**. A sand shoal and a rocky reef, both bare at low water, are north of Eustasia Island, between the main channel east of the island and Chester Creek.

(158) In July 1981, it was reported that depths of 15 feet could be carried to the facilities on Pratt Creek and in March 1990, depths to 5 feet were reported to the facilities in Chester Creek. A rock, covered 3 feet, is on the south side of the entrance to Chester Creek in about 41°24′24.1″N., 72°25′46.6″W.

(159) There are several small-craft facilities on Pratt Creek and Chester Creek. Lifts to 25 tons, berths, electricity, gasoline, water, ice, storage, marine supplies, launching ramp, and complete hull and engine repairs are available in the area.

(160) **Special anchorages** are off Chester Creek. (See **110.1 and 110.55 (e–1) and (e–2),** chapter 2, for limits and regulations.)

(161) The Chester-Hadlyme vehicular ferry crosses the river near **Fort Hill**, 2 miles above Eustasia Island. The ferry operates from April through November.

(162) **Special anchorages** are northeastward of Connecticut River Light 45 (41°26.2′ N., 72°27.6′W.), about 12.8 miles above Saybrook Point. (See **110.1** and **110.55 (d)** and **(e),** chapter 2, for limits and regulations.)

(163) On the east side of the river, the turret of the opera house at **East Haddam**, 13.3 miles above Saybrook Point, is prominent. A marina is on the west side of the river just above the swing bridge between East Haddam and **Tylerville.** Limited guest berths, limited marine supplies, electricity, water, and ice are available. In March 1990, a reported depth of 5 feet was available in the marina basin.

(164) The shoal off the west side of the river, just north of East Haddam, is reported to be increasing.

(165) **Salmon Cove**, on the east side of the river, 1 mile above East Haddam, is reported to be navigable only by small craft at high tide. The entrance to the cove is subject to shoaling. Considerable grass in the channel and cove makes boat operation difficult.

(166) Overhead power cables with a least clearance of 86 feet cross the cove about 1.2 miles above the mouth.

(167) A small-craft facility is on the west side of the river about 1.1 miles above East Haddam. Berths, electricity, water, ice, a 10-ton mobile hoist, and a launching ramp are available; hull and engine repairs can be made. In March 1990, a depth of 6 feet was reported at the facility.

(168) **Haddam Island** divides the Connecticut River about 3.2 miles above East Haddam. The main river channel leads eastward of the island through a dredged cut known as Haddam Island Bar Channel. A pinnacle rock, covered 13 feet, is in the approach to Haddam Island Bar Channel in 41°29′31″N., 72°30′49″ W.

(169) The passage westward of Haddam Island is closed by a bare sand shoal lying between the island's southerly tip and the westerly shore of the river.

(170) The shoal off the east side of the river opposite **Higganum Creek**, 5.5 miles above East Haddam, is extending westward.

(171) A rock breakwater extends southward from the east side of the river, 1 mile above Higganum Creek. In 1969, the shoal, about 200 yards southward of the breakwater, was found to be extending southward.

(172) A boatyard is on the north side of the river at **Cobalt**, about 3.5 miles above Higganum Creek. Storage facilities and a

15-ton hoist are available. In October 1990, a reported depth of 7 feet could be carried to the facility.

(173) After passing through the channel in **Paper Rock Shoal**, 9.7 miles above East Haddam, favor the south side of the river to about 300 yards southeastward of **Bodkin Rock**, then cross to the north side and pass it close-to.

(174) About 0.5 mile westward of Bodkin Rock, a dredged section of the channel leads along the southerly shore of Connecticut River and southward of Mouse Island Bar.

(175) **Special anchorages** are along the north and east sides of the river, between Bodkin Rock and Portland. (See **110.1** and **110.55 (f)** and **(g)**, chapter 2, for limits and regulations.)

(176) Caution is recommended when rounding the point on the south side of the river, about 1.5 miles above Bodkin Rock, to avoid a submerged crib that extends northward from the point.

(177) **Portland**, 26.3 miles above Saybrook Point, has several boatyards with marine railways; the largest railway can handle craft to 60 feet for engine and hull repairs. Gasoline, water, berths, ice, storage, marine supplies, sewage pump-out, launching ramps, and lifts to 50 tons are available at Portland. In March 1990, depths of 7 to 9 feet were reported available.

(178) Berthing and water are available at Harbor Park in **Middletown**, across the river from Portland. Depths of 18 feet are reported to be available along the wharves.

(179) Two small-craft facilities are on the east side of the river at **Gildersleeve**, about 2.5 miles above Portland. Gasoline, diesel fuel, water, marine supplies, a launching ramp, and 15- and 20-ton mobile hoists are available, and hull and engine repairs can be made.

(180) From **Belamose**, 6.5 miles above Portland, northward to Hartford, the land is much lower, and the Connecticut River narrows, its curves become more pronounced, and both of its shores have numerous wood-stake-and-rock groins.

(181) A marina on the east side of the river opposite Belamose has gasoline, berths, electricity, water, ice, marine supplies, and a 15-ton lift; engine and hull repairs can be made. In July 1983, the privately marked channel into the marina basin had a reported controlling depth of 7 feet.

(182) At **Rocky Hill**, 1 mile above Belamose, a seasonal vehicular ferry crosses the river to South Glastonbury. A small-craft launching ramp is just above the ferry landing.

(183) The cove at **Crow Point**, on the west side of the river about 5.7 miles above Belamose, is used to obtain land fill. Dredging in the cove is uneven, but the bottom is soft ooze. In July 1981, it was reported that the entrance had shoaled to bare and could be used only by small outboards.

(184) A rock, covered 5 feet, is on the south side of the dredged channel about 0.8 mile above Crow Point in about 41°42′43.0″N., 72°37′46.5″W.; and a shoal that bares is in 41°43′11″N., 72°38′52″W., on the west side of Connecticut River, about 1.9 miles above Crow Point.

(185) **Wethersfield Cove**, on the west side of the river 14 miles above Portland, is entered through a narrow dredged channel that leads to a dredged anchorage basin about 0.3 mile above the entrance. In June 1977, the midchannel controlling depth was 3 feet, and depths of 6 feet were available in the basin. The channel is marked by daybeacons and buoys. The Interstate 91 highway bridge over the entrance has a fixed span with a clearance of 38 feet. The **speed limit** in the channel and cove is 5 knots. Gasoline, water, ice, transient berthing, and some supplies can be obtained at the yacht club on the south side of the cove. A town marina is on the east side of the cove; a launching ramp is available at the facility. The Wethersfield **harbormaster** can be contacted through the local police department or town hall.

(186) The only remaining commercial docks at **Hartford** are the bulk fuel handling facility of the Hartford Electric Light Company's powerplant on the west side of the river, about 0.2 mile below the Charter Oak Bridge, and the Hartford Gas Company's barge unloading facilities on the west side of the river, about 0.5 mile above the Charter Oak Bridge. A flood control dike is along the west side of the river from just north of the Charter Oak Bridge to the Bulkeley Bridge.

(187) Connecticut River above Hartford is practically unimproved, but is navigable about 30 miles to **Holyoke** for boats not exceeding 3-foot draft, when the river is not low. The channel is constantly shifting.

(188) **Chart 12354.–Long Sand Shoal** extends 6 miles westward from off the entrance of Connecticut River and has a greatest width of nearly 0.3 mile. The general depths on the shoal are 4 to 15 feet; bottom is hard and lumpy. Shoaling is abrupt on both sides, but especially on the south side, where the 5-fathom curve is only 100 yards from it in places. The shoal is marked at its eastern end by a buoy, and on the south side and west end by lighted sound buoys.

(189) A fairway lighted whistle buoy is 4.5 miles south of Cornfield Point.

(190) At the western end of Long Sand Shoal and 1 mile southward is an area about 0.6 mile long with rocky and broken bottom, and with a least found depth of 22 feet.

(191) **Sixmile Reef**, about 3 miles southwestward of Long Sand Shoal, is an area of broken ground about 2.5 miles long in a west-northwesterly direction with depths of 19 to 30 feet. The bottom is rocky and shoaling is abrupt in places. A lighted bell buoy is off the southerly edge of this reef. With extreme low tides, due to northerly and westerly winds, this shoal may be dangerous to vessels with 15-foot draft. Tide rips occur on the reef whenever the direction of the tidal currents is opposed to that of the wind. This is especially true during spring tides and a southwest wind.

(192) A ridge with depths of 24 to 36 feet is near the middle of Long Island Sound southward of Sixmile Reef and 5 miles north-northwestward of Horton Point Light. It is marked by a lighted buoy.

(193) **Charts 12375, 12372.–Cornfield Point**, 2 miles westward of Saybrook Breakwater Light, is marked by a large red-roofed stone building. Rocky shoals and foul ground extend about 0.5 mile southerly from this point and for about 1.9 miles westerly. **Cornfield Point Shoal**, a small rocky patch covered 3 feet, is about 0.4 mile south of the point. Westward of this shoal are **Hen and Chickens**, bare in spots at low water, and **Crane Reef**, an area of broken ground with a least depth of 3 feet. These dangers are buoyed. About 0.5 mile westward of the point is **Halftide Rock**, surrounded by foul ground and marked by a private daybeacon.

(194) **Charts 12374, 12372.–Westbrook Harbor** is the western part of the open bight between Cornfield Point and Menunketesuck Island. It has many unmarked submerged rocks and is seldom used as an anchorage; the anchorage in Duck Island Roads is better. The bight is characterized by boulders.

(195) **Westbrook**, a town on the north side of Westbrook Harbor, is marked on its east side by an elevated tank. A **harbormaster** is at Westbrook and can be contacted through the town hall.

(196) **Menunketesuck Island** is the outermost of several low narrow islands connected to the mainland at low water on the west side of Westbrook Harbor. It has boulders at the south end. A boulder reef extends nearly 0.5 mile south-southeastward from the point to the 18-foot curve. Tide rips frequently occur on this reef. A private seasonal buoy is about 0.3 mile southeastward of Menunketesuck Island.

(197) Between Menunketesuck Island and Hammonasset Point, about 4 miles westward, broken ground extends about 1.5 miles offshore. A boulder reef extends 0.5 mile southward from Duck Island to the 18-foot curve and is marked by a buoy. A rock with 1 foot over it is on this reef about 300 yards south of Duck Island. Tide rips have been reported to extend from the vicinity of these rocks to the buoy. During strong flood currents and a southwest wind, tide rips extend from the shoal water southwest of Duck Island to the vicinity of **Southwest Reef** over 1 mile southwestward. Caution is advised when navigating small boats in this vicinity during these conditions.

(198) **Duck Island Roads**, between Menunketesuck Island and **Kelsey Point**, is a harbor of refuge protected by breakwaters 1,100 feet northward and nearly 0.5 mile westward from **Duck Island**, with the added protection of Kelsey Point Breakwater on Stone Island Reef. A prominent landmark on Duck Island is a stone chimney. Both breakwaters extending from Duck Island are marked by lights.

(199) The dredged anchorage enclosed by the breakwaters extending northward and westward from Duck Island is subject to shoaling. General depths of 4 to 7 feet are in the protected area, and 8 to 15 feet in the western end. In addition to the area inside the breakwaters, a small area northward and northeastward of Duck Island North Breakwater Light can be used as an anchorage in southwesterly weather.

(200) The western entrance of Duck Island Roads is easy of access and should be used by vessels with greater draft than 8 feet.

(201) **Routes.**–Pass southward of Duck Island and keep the light on the end of Kelsey Point Breakwater bearing northward of 264° until Duck Island West Breakwater Light 2DI bears 010°, then steer northward. Approaching from westward, the only dangers are the two 16-foot spots south-southwestward of Kelsey Point Breakwater Light, the southerly of which is marked by a buoy.

(202) The eastern entrance of Duck Island Roads is obstructed by a sand shoal with a least depth of 8 feet about 0.3 mile eastward of Duck Island, and by boulder reefs which extend about 0.2 mile off the western side of Menunketesuck Island. This entrance is easy of access for vessels drawing up to 8 feet.

(203) Anchorage in 18 to 24 feet, bottom generally sticky, can be had between the Duck Island West Breakwater Light 2DI and the 17-foot rocky patches southeastward of Kelsey Point. This anchorage is exposed to winds southward of east and west.

(204) **Patchogue River**, used chiefly by fishing and recreational craft, empties into Duck Island Roads just west of Menunketesuck Island. A channel leads from deep water in Duck Island Roads to the first fixed highway bridge, about 0.6 mile above the mouth. The approach channel is marked by buoys, and the river channel is marked by private aids. A light is on the outer end of the breakwater on the west side of the river mouth. In 1995-March 1996, the midchannel controlling depth was 6 feet from the entrance to the first turn near the mouth of Menunketesuck River, thence 6½ feet in the western half of the channel to a point just above Buoy 6, thence 6 feet at midchannel to the head of the project about 60 yards below the first fixed highway bridge. The anchorage basin had depths of 5 to 7 feet.

(205) Several **small-craft facilities** are on the river. (See the small-craft facilities tabulation on chart 12372 for services and supplies available.)

(206) **Menunketesuck River**, sharing the same entrance channel as Patchogue River, is a shallow stream westward of Patchogue River. In July 1981, a depth of about 8 feet was reported to the first fixed highway bridge crossing the river above which depths of less than 1 foot are reported. A shoal was reported extending south from shore at the junction of Patchogue and Menunketesuck Rivers; caution is advised. The junction is marked by a private seasonal buoy. Small-craft facilities on the river can provide berths, electricity, gasoline, diesel fuel, water, ice, storage, marine supplies, and engine and hull repairs; a 12-ton mobile hoist is available. The privately maintained channel in the river is reported to be marked by seasonal private aids; local knowledge is advised.

(207) A 6 mph **speed limit** is enforced on both rivers.

(208) **Kelsey Point Breakwater** extends on **Stone Island Reef** over 0.6 mile south-southeastward from Stone Island and is marked by a light. The least depth on the rocky broken ground southwestward of the light is 16 feet. The outer spot is marked by a buoy. **Stone Island**, at the north end of the breakwater, is mostly covered at high water. Some rocks bare at low water are between the island and the shore. Tide rips frequently occur in the area southwestward from the end of the breakwater to the bell buoy. Depths of 18 feet or less near Kelsey Point Breakwater indicate areas of broken rocky bottom which should be avoided in anchoring. The broken ground east of the breakwater includes depths of 12 feet close to it; the 18-foot patch 0.2 mile east-northeast of the end of the breakwater; **East Ledge** with depths of 2 to 17 feet, which extends 0.4 mile southward from Kelsey Point; and the broken ground with depths of 8 to 17 feet which extends over 0.4 mile southeastward from Kelsey Point.

(209) The bight at the entrance of Clinton Harbor and westward of Kelsey Point Breakwater affords anchorage, but is exposed to southeasterly and southwesterly winds.

(210) **Clinton Harbor**, the bight westward of Kelsey Point Breakwater, is the entrance to **Hammonasset River,** a stream used chiefly by fishing and recreational craft. **Wheeler Rock,** with 1 foot over it, just outside the bar, is marked by a lighted buoy. The channel is marked by buoys to Cedar Island and thence by seasonal private buoys to the anchorage basin at **Clinton**. In November-December 1994, the controlling depth was 4 feet in the western quarter of the channel to Buoy 11A, thence 8 feet in the north half of the channel to the head of the project, thence depths of 5 to 8 feet were available in the anchorage basin on the northeast side of the channel east of the wharves at Clinton. From opposite the basin to the upstream limit of the Federal project, the southwest and south side of the channel is obstructed by a series of pilings. Boats may be moored between the pilings, caution is advised. Above the dredged channel, the midchannel controlling depth is about 2 feet in the Hammonasset River to the overhead pipeline and bridge crossing about 2 miles above Clinton. Private daybeacons mark this section of the channel.

(211) Several boatyards and marinas are in the harbor. (See the small-craft facilities tabulation on chart 12372 for services and supplies available.) Mooring facilities are available by arrangement with the town **dockmaster** who can be contacted through the town hall or police department. A 6 mph **speed limit** is enforced in the harbor. The town maintains a fireboat at Clinton Harbor. The vessel can be contacted through the Clinton Police Department or the Coast Guard.

(212) Northeastward of **Cedar Island** in Clinton Harbor are two narrow crooked channels close together, with depths of about 1 foot. The eastern one is usually marked by bush stakes; it leads to a marina and boatyard just inside the mouth of **Hammock River.** The western channel, marked by a private range, leads to a boatyard on **Indian River.**

(213) **Hammonasset Point**, on the southwest side of Clinton Harbor, is a low marshy area with many wooded knolls. The end of the point is a rocky knoll. **Hammonasset State Park** is marked by a conspicuous flagstaff and the buildings at the recreational center. In the summer it is an active resort. Broken ground with rocky irregular bottom and least depths of 10 to 11 feet extends 0.5 mile southward of Hammonasset Point.

(214) **West Rock** is the outermost of the bare rocks which extend a short distance off the east end of Hammonasset Point. A reef, with two bare rocks and a groin on its inner part, extends 0.3 mile southwestward from the point and is marked by a buoy, northeastward of which tide rips frequently occur. When rounding the point, vessels should not pass between the buoy and Hammonasset Point.

(215) **Madison Reef**, over 2 miles westward of Hammonasset Point, extends over a mile east and west. This reef consists of several rocky patches with depths of 4 to 17 feet, with deeper water between them. **Charles Reef**, with a least depth of 7 feet, is about 0.5 mile southwest of Madison Reef and marked by a buoy.

(216) **Kimberly Reef**, about 1.9 miles southward of Charles Reef, is an area of broken ground with a least depth of 12 feet. An isolated 27-foot spot, marked by a lighted horn buoy, is about 0.2 mile south of the shoal. A bank with depths of 14 to 28 feet extends about 1.5 miles west of Kimberly Reef to Falkner Island.

(217) Vessels of 10-foot draft can anchor northward of Madison Reef, but should proceed with caution to avoid the rocky patches at lesser depths.

(218) **Tuxis Island**, northward of Madison Reef and 0.2 mile south of **Middle Beach**, is high and rocky. Between the island and the shore the water is shallow and the ground foul. Rocks awash are 200 to 600 yards eastward of the island, and an islet is 100 yards westward of the island. A steel bulkhead in ruins, the top of which is awash at high water, extends from shore to **Gull Rock**, a high bare ledge about 300 yards east-northeastward of Tuxis Island.

(219) **Madison**, a town on the railroad, has one landing which bares alongside at low water and is in disrepair. A few small craft moor in the cove on its north side. Rocks, bare at low water, are 100 yards eastward of the landing. A beach club building, with a small stone landing, is northward of Tuxis Island. A church with a prominent tower and gilded dome is 0.8 mile northward of Tuxis Island.

(220) **Charts 12373, 12372.–Guilford Harbor,** a bight 5.5 miles westward of Hammonasset Point, is used only by small craft. **East River** and **Sluice Creek** empty into Guilford Harbor from the northward. The approach to the harbor is obstructed by rocks and foul ground. The outermost dangers are: **Half Acre Rock**, about 0.8 mile southeastward of the entrance channel, which shows at high water; scattered rocks, some bare at low water and others with 7 to 16 feet over them, extending about a mile eastward from Half Acre Rock; **Outer White Top**, about 0.6 mile southwestward of Half Acre Rock, and several rocks northward of it bare at low water; and **Indian Reef**, extending about 1 mile southwestward of Outer White Top, the highest part of which is covered at high water. Indian Reef is marked on its south and southwestern sides by buoys. Stakes and fish traps may exist northward of **Riding Rock**, 0.6 mile northwestward of Half Acre Rock.

(221) The approach channel to Guilford Harbor, marked by buoys, leads along the southeasterly side of Indian Reef, thence westward of Half Acre Rock to a dredged channel about 0.5 mile northwestward of Half Acre Rock. The dredged channel leads northward through the harbor and eastward of **Guilford Point** to a junction with Sluice Creek and East River, about 0.6 mile above the channel entrance. At the junction, the dredged channel leads northwesterly into Sluice Creek for about 0.1 mile and northeasterly into East River for about 0.4 mile to an anchorage basin. Buoys and a private range mark the dredged channel to the junction. In 1985, the reported midchannel controlling depth in the dredged channel was 4 feet to the junction of East River and Sluice Creek, thence in 1981-1982, the midchannel controlling depths were 4 feet in Sluice Creek, thence 5½ feet in East River to the anchorage basin, with 5 to 6 feet in the basin except for shoaling to bare toward the north limit.

(222) In May 1988, a submerged obstruction was reported about 0.3 mile southwest of Half Acre Rock in about 41°51.1′N., 72°39.6′W.

(223) At high water and with local knowledge, small boats can go above the anchorage basin in East River to the fixed railway bridge, about 1.3 miles above the basin. The bridge has a clearance of 4 feet. An overhead power cable with a clearance of 45 feet is about 0.3 miles below the bridge. A town marina, just above the entrance to Sluice Creek, has berths, electricity, water, and a launching ramp. In July 1981, depths of 1 to 2 feet were reported alongside the marina.

(224) A 5 mph **speed limit** is enforced in the harbor.

(225) **West River** empties into the western side of Guilford Harbor 0.2 mile westward of Guilford Point. A railroad bridge about 0.7 mile above the mouth has a clearance of 6 feet. **Guilford** is the town above the railroad bridge. In September 1988-July 1989, a depth of 4½ feet was reported in West River entrance channel; the channel is marked by buoys and a **321°** lighted range.

(226) There are two boatyards with several marinas and marine railways on West River. The largest marine railway can handle craft up to 40 feet; limited supplies, a 12-ton mobile crane, and complete engine and hull repairs are available.

(227) **Falkner Island** and **Goose Islands,** with **Stony Island** to the southward, are about 3 miles south of Guilford Harbor. Each is surrounded by reefs and rocks that bare at low water. A depth of about 16 feet can be carried between Goose Islands and Falkner Island by staying in the middle of the passage and avoiding the 8-foot and 11-foot spots, about 0.35 mile 244° and 0.4 mile 300° from the light on Falkner Island, respectively, and the shoals and reefs extending from the islands. **Falkner Island Light** (41°12.7′N., 72°39.2′ W.), 94 feet above the water, is shown from a 46-foot white octagonal tower near the center of Falkner Island. A lighted gong buoy marks the shoal off the northern end of Falkner Island, and a lighted bell buoy is off the southern end of Stony Island.

(228) From Indian Reef westward are rocky shoals and islets extending from 0.2 to 0.7 mile off **Vineyard Point** and **Sachem Head. Chimney Corner Reef**, about 0.3 mile south of Sachem Head and marked by a buoy, is a rocky broken area on which the least depth is 9 feet. Westward of it are **Goose Rocks Shoals**, on which are **Goose Rocks**, the northerly of which is bare and the southerly one covered at high water. The outer limit of Goose Rocks Shoals is marked by a lighted bell buoy. To ensure clearing the westerly end of Goose Rocks Shoals, care must be taken not to round the buoy too closely.

(229) **Sachem Head Harbor**, an anchorage for small craft on the southwest side of Sachem Head, is 0.3 mile long and 0.1 mile wide, and has depths of 3 to 8 feet at the floats and in the moorings; it is sheltered except from westerly winds. The island forming the south point at the entrance is connected with the shore by a bridge. A yacht clubhouse is on the island. From the north point of the island a breakwater extends 100 yards in a northwesterly direction; a rock awash, marked by a private seasonal light, is off the end of the breakwater. A rock covered at half tide is 50 yards off the southeast side of the harbor, about 350 yards eastward of the end of the breakwater.

(230) The approach to Sachem Head Harbor for small craft from eastward is along the south side of the rocks making off from the south side of Sachem Head. Approaching eastward of Goose Rocks, give the rocks a berth of over 300 yards. The approach from westward is clear between Goose Rocks and Leetes Rocks.

(231) **Uncas Point**, the western extremity of Sachem Head, is marked by a rocky islet on its west side and a privately maintained seasonal light. Just northward of the islet a stone jetty with a bulkhead on its north side extends about 100 yards in a northwesterly direction from the shore. Vessels can anchor in the angle near the shore where the depth is about 4½ feet.

(232) **Joshua Cove**, northwestward of Sachem Head, is little used, but affords good anchorage in its entrance for small vessels in northerly or easterly winds in 6 to 10 feet, soft bottom. The approach from southwestward is clear between Goose Rocks and Leetes Rocks.

(233) **Leetes Rocks**, midway between Sachem Head and the north end of The Thimbles, are two rocks bare at low water, with an area of broken ground around them. A 9-foot spot is about 200 yards southward of the southerly rock, and a 3-foot spot is 0.3 mile northeast of the southerly rock.

(234) **Leetes Island Quarry** is a prominent feature on the south side of **Hoadley Point**; on the north side of the cove eastward of the point are the ruins of an old dock.

(235) **The Thimbles**, about 1.6 miles west of Sachem Head, comprise many islands, islets, and rocks that bare. All of the area, extending over 2 miles from Hoadley Point southwestward to **East Reef**, is foul with rocky bottom and many shoals. To lesser extent, the area from East Reef for 2 miles westward and northwestward to Branford Harbor entrance is dotted with islets and rocks. The whole area is suitable only for small pleasure craft, which are very active here in summer. Many oyster stakes are encountered; these do not mark channels and caution should be used to avoid fouling them. Caution also is advised to avoid fouling the pipelines and cables in the area.

(236) The outermost of The Thimbles proper is **Outer Island**, marked by a house chimney. A boat landing protected by a stone jetty is on the northeast side of this island, and an unmarked rock, bare at lowest tides, is 200 yards eastward. The reefs southwestward of Outer Island, to and including East Reef and **Browns Reef**, are buoyed.

(237) From eastward a buoyed channel leads through The Thimbles. The channel passes between **Wayland Island** and a buoy marking the foul area southward of **Cat Island**. The channel extends between **Davis Island** and **Dogfish Island**, thence north of **East Crib** and **West Crib** into the more open water westward of The Thimbles; it is good for about 13 feet.

(238) **Stony Creek**, a village on the railroad, extends southward to **Flying Point** (41°15.5′N., 72°45.1′W.). A dredged channel west of Flying Point leads north to a turning basin at Stony Creek. The channel is marked by private buoys. In December 1988, the midchannel controlling depths were 3 feet in the channel with 1 to 4 feet in the basin. Rocks were reported in the northwest corner of the basin. Gasoline, marine supplies, inside storage, and a small-craft launching ramp are available at marinas eastward of the turning basin; small craft can be hauled out on a flatbed trailer for hull and engine repairs. The village dock is on the southeast side of the turning basin.

(239) Between the rocks westward of **Rogers Island** and **Blackstone Rocks**, a privately dredged channel, 0.9 mile westward of Flying Point, leads northeastward to a quarry wharf on the west side of a dredged basin. In 1980, the channel and basin had a reported controlling depth of 13 feet. The entrance channel is marked by a private **028°** range consisting of a front and middle light and a rear daybeacon.

(240) **Thimble Island Harbor**, in the western part of The Thimbles, affords good shelter for small craft between **Pot Island** and **Money Island** on the east and **High Island** and **West Crib** on the west. Although open southwestward, the sea from that direction loses much of its force before reaching the inner harbor. A rock with 3 feet over it and marked by a buoy is 80 yards off the east side of High Island, just above its south end. Vessels sometimes anchor near midchannel, between this rock and the north end of Pot Island in depths of 13 to 18 feet, soft bottom, but care should be taken to avoid the cables in the area. The harbor is easy of access between Outer Island and Inner Reef.

(241) **Pine Orchard**, about 3 miles westward of Sachem Head, is a summer resort extending northward and westward of **Brown Point**. A breakwater extending about 300 yards southeastward from Brown Point protects a yacht basin entered through a privately dredged channel that leads from southward of **St. Helena Island** north-northwestward to the basin. In July 1994, the entrance channel and basin had reported depths of 5 feet. The basin approach northward of St. Helena Island has depths of 3 to 5 feet. Gasoline, diesel fuel, ice, and water may be obtained at the yacht club landing.

(242) From Brown Point to Branford Harbor, 2.5 miles westward, bare rocks and shoals extend up to about 2 miles offshore. A seawall extends westward from Brown Point, and the shore is thickly settled. A rock bare at half tide is 600 yards westward of Brown Point and 300 yards from shore.

(243) Rocks bare at low water are eastward of **Haycock Point**, and rocks that bare at half tide are off the southeast side and southwest end of **Green Island**. The foul ground extends about 0.6 mile south-southwestward from Haycock Point, including **Foot Rocks** which are partly above water.

(244) **Branford Reef**, about 1.8 miles southward of Indian Neck and 5 miles eastward of New Haven entrance, is marked by a light. This reef is surrounded by shoal water for a distance of 150 to 450 yards from the light.

(245) Deep water is between Branford Reef and **Negro Heads**, a reef bare in one place at low water about 0.9 mile northward. Shoreward of Negro Heads are **Spectacle Island**, **Sumac Island**, and **Clam Island**, together with numerous rocks bare and covered.

(246) A private boat landing is on the northwest side of Clam Island. Small craft can enter **Maltby Cove** between the bare rocks off the southwest end of Clam Island and **Jeffrey Rock**, favoring the northwest side of Clam Island. Private markers are sometimes at the entrance. The northwest side of the cove is foul, the principal danger being a rock bare at low water near the middle, northwestward of Clam Island; the rock is sometimes marked by a seasonal private spindle.

(247) **Jeffrey Point**, the eastern point at the entrance of Branford Harbor, has a bare rock close to its western end.

(248) **Branford Harbor** is a shallow cove between Jeffrey Point and Johnson Point. Vessels up to 10-foot draft can select anchorage in the harbor southward of the Mermaids in 10 to 14 feet, protected against all but southerly and southwesterly winds. Boats up to 5-foot draft can select a well-sheltered anchorage in the upper part of the harbor above the Mermaids. The harbor is used chiefly for recreational boating and by the small local lobster fishing fleet.

(249) The dangers in the approach and entrance to Branford Harbor either show above water or are marked by buoys. **Cow and Calf**, 1.3 miles southwestward of Jeffrey Point, are two boulders close together bare at low water. Boulders, reported covered 10 feet, are about 0.2 mile northward of Cow and Calf. **Five Foot Rock**, 0.5 mile northeastward of Cow and Calf, has 5 feet over it. **Taunton Rock**, 0.9 mile northeastward of Cow and Calf near the middle of the entrance to Branford Harbor, is large but low and bare. **Blyn Rock**, midway between Johnson Point and Taunton Rock, is covered at extreme high tide. **Bird Rock**, 0.2 mile northward of Blyn Rock, has 5 feet over it.

(250) **Little Mermaid**, showing a little above high water, and **Big Mermaid**, a high rock marked by a light, are near the middle of Branford Harbor. Two bare rocks are near the head of the harbor. A rock, bare at low water and usually marked by stakes, is about 100 feet north-northeastward of the north end of **Lovers Island**.

(251) **Routes.**–To enter Branford Harbor from eastward, pass southward of the lighted buoy marking Negro Heads, steer about **306°** heading for Taunton Rock, and enter between Taunton and Jeffrey Rocks; or a **333°** course with Branford Reef Light astern will lead into the harbor between Jeffrey and Taunton Rocks. From westward, pass southward and over 100 yards eastward of the lighted bell buoy marking Cow and Calf, thence westward of the buoys marking Blyn Rock and Bird Rock to the buoyed channel in the harbor.

(252) Local craft pass northwestward of Cow and Calf Shoal and midway between Johnson Point and Blyn Rock.

(253) **Branford River**, narrow and crooked, extends northeasterly from Branford Harbor. In February-March 1990, the controlling depths in the dredged channel were 8 feet from Branford Harbor to a point about 0.2 mile above **Branford Point**, thence 6½ feet at midchannel to the upstream limit of the dredged channel. In 1981, the wharves at Branford were in disrepair.

(254) At low water the channel above Branford Point is defined by bare shoals on each side. During the summer numerous stakes used as moorings mark both sides of the channel. A privately dredged channel and basin at a marina 0.5 mile east of Branford Point had reported depths of 7 feet in July 1981.

(255) The principal waterborne commerce at Branford is in petroleum products. There are several marinas and boatyards on the river. (See the small-craft facilities tabulation on chart 12372 for services and supplies available.)

(256) A 5 mph **speed limit** is enforced on the river.

(257) The **harbormaster** at Branford controls all moorings and anchoring; he can be contacted through the small-craft facilities.

(258) **Johnson Point** is the western entrance point to Branford Harbor; a rock covered 2 feet is about 100 yards off its south side. A small privately dredged basin on the southwest side of the point is well protected in all but southerly winds. In 1971, it was reported that 4 feet could be carried to and in the basin.

(259) **Gull Rocks**, about 0.3 mile westward of Johnson Point, consist of small islets and submerged rocks that extend about 0.5 mile southwestward from shore on the easterly side of the entrance to a large cove. A rock, bare at half tide, is in the northwestern part of the cove about 350 yards southward of **Short Beach**. The northwest end of the cove has a yacht club landing with a reported depth of 2 feet alongside.

(260) **Farm River Gut**, a small bight on the west side of the cove, is a good anchorage for small craft. Depths range from 4 to 5 feet in the eastern part of the gut with shoaling to bare in the northern and western parts. Two rocks awash are on the north side of the gut about 125 yards inside the entrance. The gut offers good protection from all but easterly winds, mud bottom. A marine railway at a boatyard on the north side of the gut can handle boats to 40 feet for engine and hull repairs. The yard can be reached only at high tide. **Old Clump** is a bare rock about 400 yards south of the bight.

(261) **Farm River,** locally known as East Haven River, about 1.5 miles westward of Branford Harbor, is used by local craft. In July 1981, it was reported that depths of 3 feet could be carried in the river to the fixed bridge with a clearance of 4 feet about 1 mile above the mouth. Several boatyards on the river provide gasoline, berths, electricity, water, storage, and limited marine supplies; diesel fuel can be delivered by truck. A 10-ton mobile hoist and a 12-ton crane can handle vessels for complete engine and hull repairs.

(262) **East Indies Rocks**, about 0.4 mile south of the entrance to Farm River, cover at half tide and are marked by a buoy to the eastward; a rocky shoal with a least depth of 5 feet is 0.2 mile to the eastward. A small ledge, bare at low water, is midway between East Indies Rocks and the south side of Mansfield Point, the western entrance point to Farm River. **Darrow Rocks**, a group of bare rocks, are on the east side of the entrance to the river. The westernmost rocky knoll is marked by a flagstaff. A ledge, bare at low water, with a buoy off its southern end, is 200 yards south of the flagstaff.

(263) **Mansfield Point** and the shore westward of the entrance to Farm River are thickly settled. Bus communication is available to New Haven.

(264) **Charts 12371, 12372.–New Haven Harbor,** an important harbor of refuge, is about 68 miles from New York, 179 miles from Boston via Cape Cod Canal, and 171 miles from Nantucket Shoals Lighted Horn Buoy N (LNB). It comprises all the tidewater northward of the breakwaters constructed across the mouth of the bay, including the navigable portions of the West, Mill, and Quinnipiac Rivers. It is about 2 miles wide. The inner harbor, northward of Sandy Point and Fort Hale, is shallow for the most part, except where the depths have been increased by dredging. The main entrance channel, between Middle Breakwater and the East Breakwater, leads northward to Tomlinson Bridge at New Haven. Anchorage basins for medium draft vessels are on the west side of the channel north of Sandy Point. Waterborne commerce in the harbor consists of petroleum products, scrap metal, lumber, automobiles, gypsum, paper and pulp products, steel products, chemicals, rock salt, and general cargo.

(265) **New Haven**, at the head of the harbor, is an important manufacturing city.

(266) **Prominent features.**–On the approach from well offshore in clear weather, the prominent landmarks are: on East Rock (41°19.7′N., 72°54.4′W.), the Soldiers and Sailors Monument; in New Haven, the Knights of Columbus Building, a tall rectangular structure with circular pillars at its corners; the lighted stack of the powerplant on the east side of the harbor opposite City Point; and on the west side of Mill River, a large gas tank with a red and white checkerboard band around the top and the words "New Haven Gas". The lights on the ends of the breakwaters, the aerolight at Tweed-New Haven Airport, and the abandoned tower on Lighthouse Point are also prominent.

NEW HAVEN HARBOR

(267) **Southwest Ledge Light** (41°14.1′N., 72°54.7′W.), 57 feet above the water, is shown from a white octagonal house on a brown cylindrical pier at the westerly end of East Breakwater. A fog signal is sounded at the light.

(268) **Channels.**–A Federal project for New Haven Harbor provides for an entrance channel 35 feet deep to a point just below the junction of Mill River and Quinnipiac River. The channel is well marked. (See Notice to Mariners and latest editions of the charts for controlling depths.)

(269) **West River**, on the west side of the main channel about 3 miles above Southwest Ledge Light, has a dredged channel marked by buoys to just below the first highway bridge (Kimberly Avenue Bridge), 1.2 miles above the channel entrance. In November 1988-March 1989, the midchannel controlling depth was 9½ feet from the channel entrance to Buoy 18, thence 5½ feet (8 feet at midchannel) to the Connecticut Turnpike Bridge, the head of navigation. An anchorage area is on the south side of the channel about 0.9 mile above the entrance; in 1988-March 1989, the controlling depth was 4½ feet. Principal waterfront facilities are at **City Point**.

(270) **Mill River**, on the west side of **Fair Haven** about 4 miles above Southwest Ledge Light, is entered from the main channel through a dredged entrance channel that branches into an east and west fork to the Grand Avenue Bridge, 0.6 mile above the mouth. In June 1982, the controlling depths were 6½ feet (11 feet at midchannel) to the Chapel Street Bridge about 0.25 mile above the entrance, thence 9 feet through the east bridge opening and 3½ feet through the west opening, thence 6½ feet to the junction with the east and west forks, thence 9½ feet at midchannel for about 250 yards in the east fork, thence in 1980, 1 foot at midchannel to the head of the channel, and in 1980-June 1982, 5½ feet at midchannel for about 225 yards in the west fork, thence in 1980, 1½ feet at midchannel to the head of the channel.

(271) **Quinnipiac River**, on the east side of Fair Haven about 4 miles above Southwest Ledge Light, has a dredged channel to Grand Avenue Bridge, about 1 mile above the mouth. In November-December 1993, the controlling depth was 15 feet at midchannel to the Ferry Street Bridge about 0.5 mile above the mouth, thence 12 feet at midchannel to the Grand Avenue Bridge except for shoaling along the edges.

(272) **Anchorages.**–Inside West Breakwater and the southwest half of Middle Breakwater, anchorage is available for vessels up to 20-foot draft. Caution should be exercised to avoid the fish stakes in this area.

(273) Vessels may anchor northward of Southwest Ledge Light in depths of 18 to 20 feet, soft bottom in places. Care should be taken to avoid the ledges northward of the East Breakwater. Deep-draft vessels awaiting berthing assignments can anchor about 1 mile southward of the sea buoy; holding ground is excellent.

(274) **Morris Cove**, on the east side of the main channel just above Lighthouse Point, affords good anchorage and is used by yachts, but is rough in westerly and southerly winds. In July 1981, isolated, uncharted 40-foot spots were reported in the cove. Caution is advised when anchoring. **New Haven Coast Guard Station** is on the north side of the jutting point, about 1.5 miles northward of Lighthouse Point.

(275) An anchorage basin on the west side of the main channel southward of New Haven Long Wharf is sometimes used, but considerable shoaling is gradually extending into the anchorage from westward. A sunken barge with 5 feet over it is in this anchorage about 550 yards southward of New Haven Long Wharf. In February-March 1985, depths of 10 to 5 feet were available in the anchorage basin with lesser depths along the edges.

(276) An anchorage area, sometimes used by small craft and scows, is northward of the New Haven Long Wharf (Naval Reserve Pier) in the northwest side of the main channel where depths range from about 5 to 6 feet.

(277) No special regulations prescribe the limits within which vessels must anchor, except that the dredged channels must be kept clear.

(278) **Dangers.–Townshend Ledge**, 2.7 miles southeastward of Southwest Ledge Light, has a least depth of 18 feet and is marked by a lighted bell buoy.

(279) **Stony Islet**, 2.2 miles eastward of Southwest Ledge Light, is low, bare, and surrounded by ledges bare at low water to a distance of about 100 yards. A partly bare ledge is about 0.2 mile north-northwestward of Stony Islet. From this ledge and Stony Islet westward to the entrance of New Haven Harbor, an area of foul ground with many rocks bare at low water extends about 0.5 mile offshore. This area should be avoided.

(280) Shoals with 16 to 18 feet over them extend over 0.5 mile southeastward from the breakwaters on both sides of the dredged entrance channel. A spoil area with reported depths of 15 feet is on the eastern side of the entrance channel. An 18-foot spot is on the east side of the main channel, at the first turn westward of Southwest Ledge Light.

(281) The bights on the west shore of New Haven Harbor from Pond Point northward are shoal with bare rocks and foul ground in most of them. The shore is rocky at **Woodmont**, about 2 miles northeastward of Pond Point.

(282) **Black Rock**, bare at low water and marked by a seasonal buoy, is 0.2 mile off the north end of Morris Cove. Opposite, on the west side, is a breakwater, partly covered, extending from **Sandy Point** and marked by a light. **Shag Bank**, a flat extending about 0.5 mile northward from Sandy Point, has a sand tip about 0.1 mile long.

(283) **Bridges.**–Tomlinson Bridge, at the head of the main harbor at the confluence of Mill and Quinnipiac Rivers, has a double bascule span with a clearance of 60 feet. Just above this bridge is a fixed highway bridge with a clearance of 60 feet. The bridgetender of the Tomlinson Bridge monitors VHF-FM channel 13; call sign KXJ-688. An overhead power cable with a clearance of 91 feet crosses the channel just above the fixed highway bridge.

(284) A **regulated navigation area** is at Tomlinson Bridge. (See **165.1 through 165.13, and 165.304,** chapter 2, for limits and regulations.)

(285) Over Mill River, about 0.3 mile above the entrance, is the Chapel Street Bridge with a swing span having clearance of 7 feet. In April 1990, a replacement bridge with a design clearance of 7½ feet was under construction. The fixed highway bridge at Grand Avenue has a clearance of 6 feet over the east fork and a clearance of 2 feet over the west fork. Bridges above this point have minimum clearance of 2 feet. Small unmasted boats go as far as the bridge at State Street, 0.5 mile above Grand Avenue. Overhead power cables crossing the west fork have a minimum clearance of 80 feet.

(286) The Ferry Street Bridge over Quinnipiac River, 0.6 mile above the Tomlinson Bridge, has a bascule span with a clearance of 25 feet. The Grand Avenue Bridge, 0.5 mile farther upstream, has a center-pier swing span with a clearance of 9 feet. Above this are several fixed bridges and trestles.

(287) Kimberly Avenue Bridge over West River has a fixed span with a clearance of 23 feet.

(288) (See **117.1 through 117.59 and 117.213,** chapter 2, for drawbridge regulations.)

(289) **Tides.**–The mean range of tide is 6.2 feet. Extreme tides have been recorded as reaching more than 2.5 feet below the plane of mean low water and more than 8 feet above the same datum.

(290) **Currents.**–In the entrance between the breakwaters, the tidal current has a velocity on flood of 1.4 knots, and ebb 0.9 knot. The flood sets 319° and the ebb 152°. In the draw of Tomlinson Bridge, the velocity is 0.4 knot. The flood sets 015° and the ebb 215°. Ebb velocities are increased by freshets. (Consult the Tidal Current Tables for predicted times and velocities of currents.)

(291) **Ice** generally obstructs navigation to some extent for low-powered vessels from December to March and sometimes extends to the mouth of the harbor. During severe winters the accumulation of ice is local. Except in severe weather, powered vessels can always enter and leave the harbor without much difficulty. In New Haven Harbor northerly winds tend to clear the harbor of ice if the formation is light; southerly winds are apt to force in drift ice from the sound.

(292) **Weather, New Haven and vicinity.**–New Haven's climate is typical of coastal areas of southern New England. It is vigorous without being overly severe. New Haven is located at the widest part of Long Island Sound, and the tempering effect of the water is most pronounced in this vicinity. During the summer season, the sea breeze holds temperatures 5 to 15°F (3 to 8°C) lower in the afternoon; during the winter season, minimum temperatures in the southern section of the city are usually 5 to 10°F (3 to 6°C) higher than those reported from northern sections. The highest summertime temperatures occur with a moderate northerly wind. The lowest winter readings also occur with a northerly wind. The average temperature for New Haven is 51.7°F (10.9°C). July is the warmest month with average extremes of 81°F (27.2°C) and 64°F (17.8°C). January is the coldest month with average extremes of 37°F (2.8°C) and 22°F (-5.6°C). The warmest temperature on record is 100°F (37.8°C) recorded in August 1948 and again in July 1957. The coldest temperature on record is -7°F (-21.7°C) recorded in January 1961.

(293) Precipitation is quite evenly distributed throughout the year with only a 1.25 inch (32 mm) spread between the wettest and driest months. The annual average precipitation is 42 inches (1067 mm). The wettest month, December, averages 4.24 inches (108 mm) and the driest month, June, averages 2.93 inches (74 mm). The elevation of the land increases northward from the station and results in somewhat higher amounts of precipitation in the northern suburbs as well as a few more thunderstorms each year. During the winter, a variety of precipitation is found in most storms. It is common to have rain along the shore, freezing rain and sleet a short distance inland, and snow in the northern parts of the city. Heavy snow is rather uncommon in the immediate coastal area and usually melts in a few days. Farther inland, the snow becomes progressively heavier and a layer of snow covers the ground most of the winter. Annual average snowfall totals 34 inches (864 mm). February is the snowiest month averaging over nine inches (229 mm). Snow has fallen in each month, October through May. The 24-hour record snowfall is 17.1 inches (434 mm) recorded in April 1957.

(294) Prevailing wind direction varies with the seasons. From late spring until fall, winds are predominantly south to southwest due to the effect of the sea breeze. During the winter, the prevailing winds are northerly. Strong southeast winds cause unusually high tides and some local flooding in low-lying coastal areas two or three times a year.

(295) Since 1871, 17 tropical systems have passed within 50 miles of New Haven, Connecticut. The most infamous perhaps, was the hurricane of 1938. This storm passed with 15 miles west of the city on September 21 raking the city with 85-knot winds while moving at a forward speed in excess of 40 knots. Most recently, hurricane Gloria passed within 20 miles to the west on September 27, 1985. Highest winds at time of landfall were barely hurricane strength but two days prior, Gloria had been supporting winds in excess of 125 knots. Due to geographical orientation, all tropical systems approach the coastline from the south or southwest.

(296) The National Weather Service maintains an office at the Tweed-New Haven Airport, about 3 miles southeast of the city. (See page T-6 for **New Haven climatological table.**)

(297) **Routes.**–To enter New Haven Harbor from eastward, it is safer for large vessels to pass southward of Branford Reef and Townshend Ledge to the entrance channel. To enter from westward, pass northward of Stratford Shoal Light at a distance of 1.8 miles and head for the entrance channel.

(298) The passage eastward of East Breakwater has boulder patches and is very broken, but can be used by small craft drawing less than 6 feet, taking care to avoid the foul ground along the northeast side of the passage. This passage is buoyed, and local vessels of 10- to 12-foot draft use it at high water. Avoid **Quixes Ledge,** which extends about 200 yards southeastward from the eastern end of the breakwater, and pass about 100 yards eastward of the breakwater. The principal danger inside the breakwater is the reef, marked by a buoy, that extends 300 yards southwestward from **Lighthouse Point**. **Adams Fall**, a rock with 5 feet over it and marked by a buoy, is 0.4 mile southwestward of Lighthouse Point.

(299) **Pilotage, New Haven.**–Pilotage is compulsary in Long Island Sound for foreign vessels and U.S. vessels under register. See Pilotage, Long Island Sound (indexed as such), chapter 8.

(300) Pilotage for New Haven is available from New Haven Bridgeport Pilots Association (NHBPA), 60 Appletree Lane, Hamden, CT 06518, telephone 203-878-8667.

(301) Pilot boats (rented) utilized by NHBPA pilots are SUSY II, 42-foot, blue hull, white superstructure, word PILOT on side; and GALE, 42-foot, white hull, white superstructure, word PILOT on side. The boat monitors channel 16, 13 and 77; works on 77 and 09. Pilots board about 1 mile south of New Haven Harbor Lighted Whistle Buoy NH.

(302) Pilotage for New Haven is also available from Constitution State Pilots Association (CSPA), 500 Waterfront Street, New Haven, CT 06512, telephone 800-229-7456 or 203-783-5991, FAX 516-582-6327. Pilots of CSPA board vessels from a launch or the tug, at New Haven Harbor Lighted Whistle Buoy NH.

(303) Pilotage for New Haven is also available from Long Island Sound State Pilots Association, Inc. (LISSPA), 1440 Whalley Avenue, Suite 123, New Haven, CT 06515, telephone 203-772-0101, FAX 302-629-9392, Cable LISPILOT, New Haven. Pilot boat LONG ISLAND SOUND PILOT is 46-foot, with black hull, white superstructure, and the word PILOT in black letters. The boat monitors channel 16; works on 11. Among other locations, the LISSPA pilot will meet a ship off Montauk Point. See Pilotage Pickup Locations Off Montauk Point (indexed as such), chapter 7.

(304) Pilotage for New Haven is also available from Sound Pilots, Inc. (SPI) (a division of Northeast Marine Pilots, Inc.), 243 Spring Street, Newport, RI 02840, telephone 401-847-9050 (24 hours), 800-274-1216, FAX 401-847-9052, Cable RISPILOT, Newport, RI 02840. The pilot boats are NORTHEAST II, 49-foot, with grey hull and superstructure and the word PILOT on the side;

or RHODE ISLAND PILOT, 35-foot, with black hull and white superstructure and the word PILOT on the side; or NORTHEAST I, 49-foot, similiarly marked as the RHODE ISLAND PILOT. The SPI pilots meet a ship bound for a Long Island Sound port, off Point Judith, but will also meet a ship off Montauk Point, by prearrangement. See Pilotage, Narragansett Bay and Other Rhode Island Waters (indexed as such), chapter 6, and Pilotage Pickup Locations Off Montauk Point (indexed as such), chapter 7.

(305) Pilot services are arranged in advance through ships' agents or directly by shipping companies.

(306) **Towage.**–Tugs up to 1,800 hp are available at New Haven, and tugs to 4,000 hp can be obtained by prior arrangement. Vessels usually proceed to the harbor without assistance. Large vessels normally require tugs for docking and undocking. Arrangements for tug service should be made 24 hours in advance, usually through ships' agents or directly by shipping companies. The tugs monitor VHF-FM channels 13 and 16 and use channel 19A as a working frequency; call sign KEE-234.

(307) Launch service to ships at anchor is available. Launches monitor VHF-FM channel 16 (156.80 MHz) and use channel 19A (156.95 MHz) as a working frequency.

(308) New Haven is a **customs port of entry.**

(309) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(310) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(311) New Haven has many public and private hospitals.

(312) **Coast Guard.**–The **Captain of the Port** maintains an office in New Haven. The nearest **vessel documentation** office is in Bridgeport, Conn. (See appendix for addresses.)

(313) The **harbormaster** at New Haven has charge of the anchoring of vessels; he can be contacted through the local police department.

(314) The city police maintain a harbor patrol during the summer.

(315) **Wharves.**–The deep-draft facilities at the Port of New Haven are along the north and east sides of the inner portion of New Haven Harbor. Facilities for smaller vessels and barges are along the sides of the harbor and in Mill, Quinnipiac, and West Rivers. Depths alongside the facilities in Quinnipiac River range from about 5 to 15 feet; Mill River, 12 to 13 feet; and West River about 12 to 18 feet. Only the deep-draft facilities are described. For a complete description of the port facilities refer to Port Series No. 4, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths for the facilities described are reported; for information on the latest depths contact the private operator. All the facilities have direct highway connections, and most have railroad connections. Water and electrical shore power connections are available at most piers and wharves.

(316) General cargo at the port is usually handled by ship's tackle; special handling equipment, if available, is mentioned in the description of the particular facility. Cranes up to 250 tons and warehouses and cold storage facilities adjacent to the waterfront are available.

(317) Wyatt Light Oil Pier: north end of harbor 0.35 mile northeastward of New Haven Long Wharf; 150-foot face, 715 feet of berthing space with dolphins, 38 feet alongside; deck height, 11 feet; receipt and shipment of petroleum products; owned and operated by Wyatt, Inc.

(318) Wyatt Heavy Oil Wharf: 50 yards east of Wyatt Light Oil Pier; west side 210 feet, 480 feet of berthing space with dolphins; 30 feet alongside; deck height, 11 feet; receipt and shipment of petroleum products, receipt of asphalt; owned and operated by Wyatt, Inc.

(319) Gulf Refining and Marketing Co. Wharf: on each side of harbor, 200 yards south of Tomlinson Bridge; 60-foot face, 735 feet of berthing space with dolphins; 35 feet alongside; deck height, 13 feet; vessels normally moor starboardside-to; receipt and shipment of petroleum products; owned and operated by Gulf Oil Refining and Marketing Co.

(320) Gulf Refining and Marketing Co. Pier: 100 yards southward of Gulf Refining and Marketing Co. Wharf; north side 400 feet, 25 feet alongside; south side 380 feet, 25 feet alongside; deck height, 10 feet; receipt and shipment of petroleum products; owned and operated by Gulf Refining and Marketing Co.

(321) ARCO Petroleum Products Co. Wharf: 300 yards southwestward of Gulf Refining and Marketing Co. Pier; 110-foot face, 760 feet with dolphins; 35 feet alongside; deck height, 15 feet; vessels normally moor starboardside-to; receipt and shipment of petroleum products; owned and operated by ARCO Petroleum Products Co.

(322) New Haven Terminal, Scrap Metal Dock: 275 yards southward of ARCO Petroleum Products Co. Wharf; 640-foot face; 35 feet alongside; deck height, 14 feet; two 30-ton traveling gantry cranes, crawler cranes to 250 tons; receipt and shipment of general and containerized cargo and steel products, shipment of scrap metal, receipt of copper, zinc, and lumber; owned and operated by New Haven Terminal, Inc.

(323) New Haven Terminal Pier: 50 yards southward of Scrap Metal Dock; north and south sides, 650 feet usable, can accommodate tankers up to 700 feet; 35 and 39 feet alongside, north and south sides, respectively; deck height, 13 feet; cranes up to 50 tons; 36,000 square feet covered storage; receipt and shipment of general cargo, receipt of petroleum products, petrochemicals, chemicals, copper, zinc, lumber, and steel products; owned and operated by New Haven Terminal, Inc.

(324) Exxon Co. Terminal Wharf: 175 yards southward of New Haven Terminal Pier; 80-foot face, 700 feet with dolphins; 35 feet alongside; deck height, 13 feet; vessels normally moor starboardside-to; receipt and shipment of petroleum products; owned and operated by Exxon Co., U.S.A.

(325) **Supplies.**–Oil bunkering terminals at New Haven are maintained by the major oil companies. Fuel oil and diesel oil in the usual commercial grades are obtainable. Barges are available for bunkering in the anchorages outside the breakwaters or at the piers; 24-hour advance notice is required, and arrangements should be made through ships' agents. Water, provisions, and marine supplies can be procured.

(326) **Repairs.**–New Haven has no facilities for making major repairs or for drydocking deep-draft vessels; the nearest such facilities are at Boston, Mass., and New York. Machine shops in the area can make limited repairs to machinery and boilers, and fabricate shafts and other pieces of equipment.

(327) **Small-craft facilities.**–There are excellent facilities on the east and west sides of the harbor and on West and Quinnipiac Rivers. (See the small-craft facilities tabulation on chart 12372 for services and supplies available.)

(328) **Charts 12370, 12364.–Pond Point,** about 5 miles southwestward of the New Haven Harbor entrance, has a rocky shoal with little depth over the greater part of it that extends about 0.3 mile southward. It is marked by a buoy. A prominent white mast is on the point.

(329) **Welches Point**, 0.8 mile westward of Pond Point, forms the east side of the entrance of The Gulf. A reef extends 0.3 mile southward from the point and is marked by a buoy.

(330) **The Gulf**, a bight between Welches Point and Charles Island, about 6.5 miles westward of New Haven Harbor entrance, affords anchorage in 6 to 15 feet and is sheltered in all but southerly and southeasterly winds. The entrance is clear. The shoaling is gradual, and soundings are the best guide on the northwest side of the bight; the western side of Welches Point and the reefs around Charles Island extending to the mainland should be approached with caution, as the shoaling is abrupt. The mean range of **tide** is about 6.6 feet.

(331) **Milford Harbor**, comprising the lower portion of the **Wepawaug River**, is entered at the mouth of the river between two jetties at the head of The Gulf. The westerly jetty extends southward from **Burns Point**, and the easterly jetty is marked by Milford Harbor Light 10. The harbor is used chiefly for recreational boating, and occasionally for the receipt of shellfish and fish. The National Marine Fisheries Service, U.S. Department of Commerce, maintains a laboratory and research vessel base on the west side of the harbor, about 0.2 mile northward of Burns Point.

(332) A dredged channel leads from The Gulf through the jettied entrance to a point about 400 feet above the town wharf, 0.6 mile above Burns Point. In November-December 1991, the controlling depths were 6½ feet (8 feet at midchannel) in the entrance channel and 8 feet in the anchorage basin along the west side of the channel except for lesser depths to 6 feet along the western edge. The channel is marked by a light and lighted and unlighted buoys.

(333) Milford Harbor has several small-craft facilities. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(334) A 5 mph **speed limit** is enforced in the harbor.

(335) **Charles Island**, on the southwest side at the entrance to The Gulf, is low and partly covered with trees. A white flagpole, barely visible over the trees, is on the island. The island is connected to the mainland by **The Bar**, a narrow neck about 0.5 mile long and surrounded by rocks awash and shoals. A buoy marks the end of a shoal that extends 250 yards east-northeastward from the island, and a lighted bell buoy marks the end of a rocky area that extends 0.4 mile southward from the island. Northward of Charles Island is a good anchorage in 10 to 16 feet, sheltered from southerly to southwesterly winds.

(336) Between Charles Island and **Stratford Point**, about 3 miles southwestward, several summer resorts are along the shore and the Housatonic River empties into Long Island Sound just above the point. The shoals which extend southward from Stratford Point toward Stratford Shoal Light (see chart 12354) consist of narrow ridges of hard sand with deeper water between, and have oyster beds marked with stakes. Depths of 12 feet or less extend 1 mile offshore.

(337) **Stratford Point Light** (41°09.1′N., 73°06.2′W.), 52 feet above the water, is shown from a white conical tower, with brown band midway of its height, from the southerly part of the point.

(338) **Chart 12370.–Housatonic River** rises in the Berkshire Hills of western Massachusetts and Connecticut, and empties into Long Island Sound about 10 miles southwestward of the New Haven Harbor entrance. The river is joined by the nonnavigable **Naugatuck River** in the vicinity of Derby, conn. Housatonic River is navigable to a point about 1 mile above Shelton, Conn., where it is closed by a power dam. The head of navigation for all practical purposes is at the towns of Derby and Shelton, 11.5 miles above the entrance. Small vessels can anchor in the river abreast of Stratford, where the channel has an available width of about 500 feet. The waterborne commerce on the river is principally in barge shipments of aggregate, fuel oil to the power plant at Devon, and seasonal commercial shellfishing. Navigation above Devon is limited to recreational boating.

(339) On the east side of the entrance to Housatonic River, a breakwater extends out from **Milford Point** across the bar and is marked at its south end by Housatonic River Breakwater Light 2A. The inner section of the breakwater is awash at high water.

(340) **Channels.**–A Federal project provides for an 18-foot dredged channel from Long Island Sound between the breakwater on the east and Stratford Point on the west upriver for about 4.3 miles to the lower end of Culver Bar. (See Notice to Mariners and the latest editions of the charts for controlling depths.) Above the lower end of Culver Bar, the river channel extends through several dredged sections across river bars to the towns of Derby and Shelton about 11.5 miles above the river entrance. In 1976-1978, the controlling depth was 5 feet (5½ feet at midchannel) to Camp Meeting Bar, 7.1 miles above the channel entrance, thence 2 feet to Twomile Island Bar, thence 1 foot (5½ feet at midchannel) across the bar, and thence 3 feet (5½ feet at midchannel) to Derby and Shelton. In September 1978, shoaling to 3 feet was reported in the channel across Mill Bar. The channel is marked to a point about 2.5 miles below Derby and Shelton.

(341) **Stratford** is a town on the west side of the river 2.3 miles above the entrance. The principal wharf has a depth of about 9 feet at its end. The **harbormaster** at Stratford controls anchorages and moorings, and has jurisdiction from the entrance of the river to the Shelton town line. Harbor regulations may be obtained from the harbormaster who may be contacted through the Stratford police or at the Town Hall.

(342) Stratford has several small-craft facilities. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(343) **Devon** is on the east side about 1 mile above Stratford. Local small craft anchor near the east bank of the river, just north of the highway bridge, in depths up to 10 feet. A 40-foot marine railway at a small–craft facility at Devon can haul out craft for engine and hull repairs; gasoline, water, ice, marine supplies, and storage are available. In July 1981, depths of 4 feet were reported alongside the facility.

(344) **Shelton**, a town on the west side of the river about 11.5 miles above the entrance is connected to **Derby** by two bridges; the town has several important factories. In 1971, the wharves at Derby and Shelton were in ruins and unsuitable for craft of any size.

(345) **Bridges.**–About 1 mile above Stratford is U.S. Route 1 highway bridge with a bascule span having a clearance of 32 feet. Two bridges cross the river about 0.3 mile farther up: the first, Interstate Route 95 fixed highway bridge, has a clearance of 65 feet, and the second, a railroad bridge with a bascule span, has a clearance of 19 feet. The bridgetenders of the U.S. Route 1 bridge and the railroad bridge monitor VHF-FM channel 13; call signs KXJ-695 and KU-6035, respectively. An overhead power cable with a clearance of 135 feet crosses at the railroad bridge. Other cables, near **Pecks Mill**, 1.5 miles above, have minimum clearance of 79 feet.

(346) The fixed highway bridge about 3.7 miles above Stratford has a clearance of 85 feet. At Shelton, two fixed highway bridges and a fixed railroad bridge have a least clearance of 17 feet. In April 1983, the railroad bridge suffered severe structural damage. The area should be avoided, but if transit is necessary, extreme caution should be exercised.

(347) **(See 117.1 through 117.59 and 117.207,** chapter 2, for drawbridge regulations.)

(348) **Tides.**–The mean range of tide is 5.5 feet at Stratford and 5 feet at Shelton. The time of the tide becomes later and the range diminishes in progressing up the river. At Stratford the tide is about 0.8 hour later than at the entrance whereas at Shelton high water is about 1.8 hours later and low water about 2.8 hours later than at the entrance. The river water is fresh about 6 miles above the entrance.

(349) **Currents.**–At the entrance near the end of the breakwater the flood has a strong westerly set. Between Milford Point and **Crimbo Point**, flood and ebb have a velocity of about 1.2 knots. The flood sets about 330° and the ebb 135°. Just north of the draw of the railroad bridge above Stratford, the velocity of flood is 1.1 knots and of ebb, 1.3 knots. In the openings of the bridge the flood current has some easterly set, but the ebb sets fair with the openings. Between that bridge and Shelton the tidal current has a velocity of about 1 knot. Because of the drainage flow of the river, the ebb is usually greater and the flood less than 1 knot. (Consult the Tidal Current Tables for current predictions and further details.)

(350) Spring **freshets** at Shelton rise 10 feet or more above mean high tide.

(351) **Ice** closes the river above Stratford during the winter and sometimes extends to the entrance.

(352) **Routes.**–The channel in Housatonic River is narrow and crooked, with little depth on either side, and across the bars in the channel are dredged cuts 100 feet wide. The tidal currents are strong, especially in the lower part of the river, and strangers are advised to take a pilot. Small craft, without a pilot, should proceed with caution and preferably on a rising tide.

(353) When entering the river during a flood current, care must be taken to avoid being set on the shoals on the west side by strong westerly currents. In the vicinity of Milford Point care should be exercised to avoid a shoal that reportedly extends from Milford Point to the eastern edge of the channel. Care should also be exercised off the extreme northern end of Nells Island as a shoal is reported to have encroached into the channel. By steering a mid-channel course no difficulty should be encountered.

(354) **Pilots** and **tugs** can be obtained at New Haven.

(355) A 5 mph **speed limit** is enforced on the river near anchorage and mooring areas and near boat slips.

(356) **Chart 12354.–Stratford Shoal Middle Ground**, 5.4 miles south of Stratford Point and covered 4½ to 18 feet, is marked by **Stratford Shoal (Middle Ground) Light** (41°03.6′ N., 73°06.1′W.), 60 feet above the water and shown from a gray granite octagonal tower projecting from a house on a pier, and by buoys that mark the outer ends of shoal areas extending 1 mile north, 0.9 mile northeast, and 0.5 mile south of the light. A fog signal is at the light.

(357) **North Shore of Long Island.**–From Orient Point (41°09.6′N., 72°14.0′W.), for about 11 miles to Horton Point, the south shore of Long Island Sound is generally bluff and rocky. The 10-fathom curve is from 0.3 to 0.8 mile from shore, and the shoaling is generally abrupt. The outlying dangers are Orient Shoal and the rocky patch northward of Horton Point.

(358) The prominent features are Browns Hills, a tower at Rocky Point, a tank and television tower at Greenport, and Horton Point Light.

(359) Several rocky shoals, including **Orient Shoal** with a least depth of 7 feet, are offshore in the vicinity of **Rocky Point**, about 5 miles westward of Orient Point. The north end of Orient Shoal is marked by a buoy.

(360) **Horton Point Light** (41°05.1′ N., 72°26.8′W.), 103 feet above the water, is shown from a white square tower attached to a dwelling on the northwest part of the point. The former lighthouse tower is close by, southwestward of the present light.

(361) A rocky shoal with a least found depth of 26 feet is 1.6 miles northward of Horton Point. The shoal is a ridge having a northeast-southwest direction, with abrupt shoaling on its northwest and southeast sides.

(362) From Horton Point for about 32 miles to Old Field Point, the shore is fringed with shoals that extend off a greatest distance of 1.5 miles and rise abruptly from the deep water of Long Island Sound. Boulders are found near the shore on the shoals which extend off 0.5 mile in places. A sand shoal, about 0.5 mile in extent with a least depth of 26 feet, is about 1.1 miles northwestward of Duck Pond Point.

(363) The bluffs begin about 1 mile westward of Goldsmith Inlet and reach their greatest elevation just eastward of **Duck Pond Point**. A valley, formed by a break in the bluffs, is just westward of the point; a bathing pavilion is on the beach. Boulders that bare at low water are on the shoals that fringe the shore between Duck Pond Point and Mattituck Inlet.

(364) **Chart 12358.–Mattituck Inlet,** 6.7 miles southwestward of Horton Point Light, is entered between two short jetties. The inlet is marked by a long break in the bluffs, and numerous storage tanks inside the inlet are prominent. The outer end of the west jetty is marked by a light. A gong buoy about 1 mile north of the jetty light marks the entrance of the inlet. The sides of the channel are sandy, and, although shoaling is liable to occur at the entrance, strangers can enter the inlet without great danger. In September 1987, the controlling depth was 4 feet (6 feet at midchannel) from the entrance for about 1.8 miles to the turning basin at Mattituck with 7 feet available in the basin. The channel is marked by buoys and private markers. The overhead power cable about 1 mile above the entrance has a clearance of 78 feet.

(365) The **tidal currents** have an estimated velocity of about 3 knots in the narrow parts of the entrance of Mattituck Inlet. Slack waters occur possibly 1 hour after the time of high and low water. With northerly and westerly winds, the sea is rough in the entrance. The mean range of **tide** is 5.2 feet at the entrance. The inlet is sometimes closed by **ice** during portions of cold winters.

(366) Several marinas and a boatyard are inside the inlet. A 70-ton mobile hoist at the boatyard can haul out craft for engine, hull, and radio repairs. Marine supplies, gasoline, diesel fuel, water, and covered and wet storage can be obtained. A transient dock, operated by the Mattituck Park Commission, is at the head of the inlet; depths of about 6 feet are at the dock. A **dockmaster** is at the dock; water is available.

(367) **Mattituck** is a village on the railroad at the head of the inlet. Provisions can be obtained.

(368) **Jacobs Point** is about 11 miles southwestward of Horton Point Light. An aquaculture site, marked by private buoys, is about 1.4 miles west-northwest of Jacobs Point.

(369) **Offshore Terminal, Northville-Riverhead.**–An offshore platform for the delivery and receipt of petroleum products is in open roadstead, off Northville, NY (and Riverhead, NY), about 1.2 miles northward of Jacobs Point. It is owned and operated by Northville Industries Corporation, Riverhead, NY.

(370) A safety zone surrounds the offshore facility. (See **166.155**, chapter 2, for limits and regulations.

(371) The facility consists of a 45- by 100-foot steel platform structure with breasting dolphins and mooring dolphins providing two berths; one on the north side and one on the south side. The deck height is 24.5 feet. The north berth has depths alongside of 64 feet, and can accomodate tankers up to 225,000 DWT and up to 1,150-foot length, of 62-foot maximum draft.

(372) The south berth has depths alongside of 50 feet, and can accomodate tankers of up to 42,000 DWT and up to 6,00-foot length, of 42-foot maximum draft. Barges mooring in this berth must be at least 220 feet long.

(373) A private fog signal is on the platform and private lights mark the four corners.

(374) **Wharf.**–An 800-foot barge pier is just east of Jacobs Point and southward of the platform. In May 1991, only the west side of the pier was used for the transhipment of petroleum products. Barges to 30,000 barrel capacity are received. Depth alongside is 16 feet. However, depths of 13 feet surround the area and a 11-foot shoal marked by a private buoy, must be cleared on the recommended southwest approach to, and northwest departure from the west pier berth. Vessels with draft greater than 12 feet should exercise caution when approaching the pier and should endeavor to arrive or depart at high water.

(375) **Prominent feature.**–The numerous light green oil storage tanks on Jacobs Point are prominent.

(376) **Communications.**–Vessels transitting Long Island Sound or approaching the facility may do so through a VHF-FM marine operator. Available marine operator stations' name and channel are:

(377) Riverhead 28

(378) New Bedford 26

(379) New London 26

(380) Bridgeport 24.

(381) Upon the approach of an incoming vessel, the platform, voice call "Northville Industries Offshore Platform", or "Northville-Riverhead Platform", or "Northville-Riverhead Terminal", or "Northville-Riverhead Dock", monitors VHF-FM channels 16, 13 and 19A; works channel 19A.

(382) Vessels calling at the platform are moored at any time, weather conditions permitting. The tidal current periods are substantially the same as at The Race. Strong winds from the north and northwest are experienced during the winter and spring. Tidal currents during maximum ebb and flood may reach 3 knots. The mean range of tide is 5.4 feet.

(383) Vessels awaiting berth at the platform will normally anchor north of the platform. A vessel drawing more than 50 feet of water may wish to anchor in deeper water northwest of the platform. Pilots are familiar with the best anchorages. Holding ground is good and a scope of 8 shots (120 feet) is considered adequate.

(384) **Pilotage, Offshore Terminal, Northville-Riverhead.**–Pilotage is compulsary in Long Island Sound for foreign vessels and U.S. vessels under register. For these vessels, pilotage to this terminal is available from:

(385) Sound Pilots, Inc. (a division of Northeast Marine Pilots, Inc.).

(386) For U.S. enrolled vessels in the coastwise trade, pilotage to this terminal is available from

(387) Connecticut State Pilots (a division of Interport Pilots Agency, Inc.),

(388) Constitution State Pilots Association,

(389) Long Island Sound State Pilots Association, Inc., and

(390) Sound Pilots, Inc. (a division of Northeast Marine Pilots, Inc.).

(391) See Pilotage, Long Island Sound (indexed as such), early this chapter, and Pilotage, New York Harbor and Approaches, (indexed as such), chapter 11.

(392) The pilot serves as docking master and remains on board on standby while the vessel is moored at the platform. Pilot services are arranged in advance through ships' agents or directly by shipping companies.

(393) **Tugs.**–Tug service is available from New Haven, Providence, Brooklyn, or Staten Island on advance notice. Normally two or three tugs are used for docking and one or two tugs for undocking.

(394) **Launch service.**–J & H Launch Service, Port Jefferson (516-331-5336), provides transfer service for vessels at anchor or alongside the platform.

(395) **Supplies.**–Fueling of a ship alongside the platform is not permitted. A ship may fuel while at anchor from a barge. Water is not available from this facility. Stores may be brought on board via launch while alongside or at anchor.

(396) New York City is the **quarantine, customs, immigration,** and **agricultural quarantine** port of entry for Northville. Officials are stationed in New York City. (See appendix for addresses.) Arrangements for such inspections must be made by ships' agents in advance, usually not less than 24 hours Monday through Friday and 48 hours on Saturday and Sunday. Officials will board vessels in the anchorage prior to arrival within the vicinity of the offshore mooring facility.

(397) **Chart 12354.**–Between Mattituck Inlet and Port Jefferson the shore is fringed with rock shoals extending in places 1.5 miles offshore. The outer ends of the shoals are marked by buoys.

(398) **Horse in Bank**, 7.3 miles westward of Mattituck Inlet, is an area of white patches in the brush-covered bluff at **Friars Head**. The feature is at the western end of **Roanoke Point Shoal** and 14 miles westward of Horton Point Light.

(399) The valley of **Wading River**, about 20 miles westward of Horton Point Light, forms a broad break in the high bluffs. The entrance to Wading River is protected by a short jetty on the west side. In July 1981, a reported depth of about 3 feet could be carried in the river to a town launching ramp 0.1 mile above the entrance. A small canal, about 350 yards westward of the entrance to Wading River, leads southward to the site of a nuclear power station. The canal, closed to general navigation, had a reported depth of about 12 feet in June 1989.

(400) **Tuttles White Bank** is a high white bluff 0.6 mile westward of Wading River.

(401) **Charts 12362, 12364.–Mount Sinai Harbor,** 22.5 miles westward of Mattituck Inlet, is marked by a low break in the beach nearly 1 mile long. The approach to the harbor is marked by a buoy. The entrance is protected by two jetties, the outer parts of which are awash at high water. Caution should be exercised when rounding them. A private light marks the outer end of the east jetty. In June 1981, a depth of about 8 feet was reported available through the entrance. The northern part of the harbor has general depths of 10 to 20 feet. A channel marked by private buoys leads eastward from the entrance to small-craft facilities on the north shore of the harbor. The southern part of the harbor is shoal; the chart is the guide. Several **small-craft facilities** are in the harbor. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.) A **speed limit** of 6 mph is enforced in the harbor by the Suffolk County Police.

(402) **Mount Misery**, 180 feet high, between Mount Sinai Harbor and Port Jefferson, slopes off gradually toward the sound

where the bluffs are about 60 feet high and very prominent. Sand banks dug out by sand and gravel companies are very conspicuous.

(403) **Port Jefferson Harbor**, on the south shore of Long Island Sound eastward of Old Field Point, is entered through a dredged channel that leads between two jetties to a docking area near the southwestern end of the harbor; the jetties are each marked by a light. The approach is marked by a lighted whistle buoy, about 1.1 miles northwest of the entrance. Three stacks on the west side near the head of the harbor are conspicuous landmarks. A 12 mph **speed limit** is enforced in the main entrance channel, and a 5 mph **speed limit** is enforced at the head of the harbor in the vicinity of the mooring areas and wharves.

(404) A **121**°-301° measured nautical mile is westward of the entrance to Port Jefferson Harbor on Old Field Beach. The front markers are orange posts about 8 feet high; the rear markers are rectangles mounted on legs about 12 feet high, painted red with a 6-inch black vertical stripe in the middle.

(405) The approach to Port Jefferson Harbor is clear, taking care to avoid **Mount Misery Shoal** with depths of 7 to 12 feet, about 0.8 mile north-northeast of the east jetty light.

(406) In November 1990, the controlling depth was 23 feet (26 feet at midchannel) in the dredged channel through Port Jefferson Harbor to the docking area off an oil wharf at the southern end. Shoaling to 10 feet is near the southwest corner of the southern limit of the project. The channel is marked by lighted and unlighted buoys and a **146**° lighted range. In September 1982, it was reported that due to the closeness of the range lights it may be difficult to determine when they are in line. It was further reported that the range may be obscured by vessels tied up at the oil wharf on the west side of the harbor.

(407) Shoals with little depth are on both sides of the channel from the entrance to Port Jefferson to Lighted Bell Buoy 5 inside the entrance. The ground from the east jetty to the lighted bell buoy is broken, with shoals covered 4 to 11 feet. The lighted bell buoy cannot be seen over the breakwater at low tide by small vessels approaching the harbor.

(408) The mean range of **tide** is 6.6 feet.

(409) **Currents.**–In the channel between the jetties the velocity of the tidal currents is 2.6 knots on flood and 1.9 on ebb; flood sets 151° and the ebb 323°. It is reported that on the ebb there is a current with a velocity of 1 to 2 knots across the entrance to the harbor.

(410) **Ice** forms over the entire harbor and interrupts navigation in very cold weather, but does not endanger shipping in the harbor.

(411) **Pilotage, Port Jefferson.**–Pilotage is compulsary in Long Island Sound for foreign vessels and U.S. vessels under register. For these vessels, pilotage is available from:

(412) Sound Pilots, Inc. (a division of Northeast Marine Pilots, Inc.).

(413) For U.S. enrolled vessels in the coastwise trade, pilotage is available from:

(414) Connecticut State Pilots (a division of Interport Pilots Agency, Inc.),

(415) Constitution State Pilots Association,

(416) Long Island Sound State Pilots Association, Inc., and

(417) Sound Pilots, Inc. (a division of Northeast Marine Pilots, Inc.).

(418) See Pilotage, Long Island Sound (indexed as such), early this chapter, and Pilotage, New York Harbor and Approaches, (indexed as such), chapter 11.

(419) Pilot services are arranged in advance through ships' agents or directly by shipping companies.

(420) **Tugs.**–Tug service is available from New Haven, Providence, Brooklyn, or Staten Island on advance notice. Normally, two tugs are used for docking and one for undocking.

(421) **Port Jefferson** is a town at the southern end of the harbor. The principal industries of the port are the shipping of sand and gravel and the distribution of petroleum products. There are small-craft facilities at the head of the harbor. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.) A launching ramp is at the head of the harbor.

(422) **Wharves.**–Depths ranging from 16 feet to bare are reported alongside the small commercial wharves and piers at the head of the harbor. In June 1983, the depths were 31 feet alongside the oil wharf on the west side of the harbor about 400 yards from the head. The powerplant wharf about 150 yards to the northwestward had depths of 25 to 28 feet alongside in June 1983.

(423) **Communications.**–Port Jefferson is served by railroad and bus. A ferry operates to Bridgeport, Conn.

(424) **Conscience Bay** is entered through a long, narrow channel at the northwest end of Port Jefferson Harbor. The bay and entrance have depths of 1 to 2 feet. Strangers should not attempt to enter as there are many rocks at the entrance.

(425) **Setauket Harbor**, on the western side of Port Jefferson Harbor, has a narrow crooked channel. In June 1981, a reported depth of about 2½ feet was available in the channel to the boatyard at Setauket. The entrance from Port Jefferson is marked by private seasonal buoys. Gasoline, moorings, and limited marine supplies are available at the boatyard; a flatbed trailer can haul out craft to 32 feet long.

(426) **Setauket** is a village on the south shore of Setauket Harbor about 1 mile above the entrance.

9. WESTERN LONG ISLAND SOUND

(1) This chapter describes the western part of Long Island Sound along the north shore from Bridgeport to Throgs Neck, the south shore from Old Field Point to Willets Point, and the East and Harlem Rivers. Also described are the many bays and their tributaries that make into this part of the sound including Bridgeport Harbor, Stamford Harbor, Captain Harbor, Mamaroneck Harbor, Norwalk Harbor, Eastchester Bay, Huntington Bay, Oyster Bay, Hempstead Harbor, Manhasset Bay, Flushing Bay, and New Rochelle Harbor, and the commercial and small-craft facilities found in these waters.

(2) **COLREGS Demarcation Lines.**–The lines established for Long Island Sound are described in **80.155,** chapter 2.

(3) **Chart 12363.–Western Long Island Sound** is that portion of the deep navigable waterway between the shores of Connecticut and New York and the northern coast of Long Island westward of the line between Bridgeport and Old Field Point.

(4) This region has boulders and broken ground, with little or no natural change in the shoals, the waters are well marked by navigational aids so that strangers should experience no difficulty in navigating them. As all broken ground is liable to be strewn with boulders, vessels should proceed with caution when in the vicinity of broken areas where the charted depths are less than 6 to 8 feet greater than the draft. All of the more important places are entered through dredged channels. During fog, vessels are advised to anchor until the weather clears before attempting to enter. The numerous oyster grounds in this region are usually marked by stakes and flags. These stakes may become broken off and form obstructions dangerous to small craft which, especially at night, should proceed with caution when crossing oyster areas.

(5) **Anchorages.**–There is anchorage for large vessels in the bight outside Bridgeport Harbor Light. Cockenoe Harbor is sometimes used by small vessels, but Sheffield Island Harbor is preferred and is sometimes used by tows. Westward of Norwalk Islands, seagoing vessels can anchor toward the north shore and, with good ground tackle, hold on in northerly winds. Captain Harbor affords good shelter, but is rarely used except by local vessels. On the south shore, Huntington Bay and Hempstead Harbor are available for large vessels; Oyster Bay is also used, and Manhasset Bay is available for light-draft vessels. City Island Harbor is a fine resort for coasters.

(6) **Tides.**–The time of tide is nearly simultaneous throughout Long Island Sound, but the range of tide increases from about 2.5 feet at the east end to about 7.3 feet at the west end. Daily predictions of the times and heights of high and low waters for New London, Bridgeport, and Willets Point are given in the Tide Tables.

(7) The effect of strong winds, in combination with the regular tidal action, may at times cause the water to fall several feet below the plane of reference of the charts.

(8) **Currents.**–About 1.3 miles northward of Eatons Neck Light the ebb runs about 5 hours longer than the flood. The current has a velocity of 1.4 knots; the flood sets 283° and the ebb sets 075°.

(9) The direction and velocity of the currents are affected by strong winds which may increase or diminish the periods of flood or ebb. Directions and velocities from Point Judith to Throgs Neck for each hour of the tidal cycle will be found in Tidal Current Charts, Long Island Sound and Block Island Sound. Currents in East River are described in the latter part of this chapter.

(10) **Weather, Western Long Island Sound and vicinity.**–These waters are more protected than the eastern Sound resulting in fewer gales. However, winters are colder and summers warmer due to this sheltering effect. Fog is not so frequent either and tends to burn off quicker than farther east. Winter winds of 16 knots or more are likely about 12 to 15 percent of the time and are predominantly from the west through northwest. Harbors such as Cold Spring, Oyster Bay, Hempstead and Manhasset offer additional shelter. In summer thunderstorms may develop on 4 to 5 days per month. These are most likely during the afternoon or evening.

(11) In Long Island Sound the north and south shores are equally subject to fog, except that on spring and summer mornings, when there is little or no wind, fog will often hang along the Connecticut shore while it is clear offshore and southward.

(12) In the western end of Long Island Sound, although fogs are liable to occur at any time, they are not encountered so often nor do they generally last so long as farther eastward.

(13) **Ice.**–In ordinary winters the floating and pack ice in Long Island Sound, while impeding navigation, does not render it absolutely unsafe, but in exceptionally severe winters the reverse is true; then only the powerful steamers can make their way.

(14) Drift ice, which is formed principally along the northern shore of the sound under the influence of the prevailing northerly winds, drifts across to the southern side and accumulates there, massing into large fields, and remains until removed by southerly winds which drive it back to the northerly shore.

(15) In ordinary winters ice generally forms in the western end of the sound as far as Eatons Neck; in exceptionally severe winters ice may extend to Falkner Island and farther eastward.

(16) **Effects of winds on ice.**–In Long Island Sound northerly winds drive the ice to the southern shore of the sound and southerly winds carry it back to the northern shore. Northeasterly winds force the ice westward and cause formations heavy enough to prevent the passage of vessels of every description until the ice is removed by westerly winds. These winds carry the ice eastward and, if of long enough duration, drive it through The Race into Block Island Sound, from where it goes to sea and disappears.

(17) In Bridgeport Harbor winds from north to northwest clear the harbor of drift ice, and those from southeast through south to southwest force the ice into the harbor from the sound. The outer buoys may be carried out of position by heavy ice during severe winters.

(18) Additional information concerning ice conditions in the waters adjoining Long Island Sound is given under the local descriptions.

(19) **Vessel Traffic Service, New York**, operated by the U.S. Coast Guard, serves New York Harbor (see **161.501 through 161.580**, chapter 2, for regulations).

(20) **Pilotage, Western Long Island Sound.**–Pilotage is compulsary in Long Island Sound for foreign vessels and U.S. vessels under register. For vessels entering Long Island Sound from the east (from sea via Block Island Sound) see Pilotage, Long Island Sound (indexed as such), chapter 8. For vessels entering Long

Island Sound from the west (East River) see Pilotage, New York and Approaches to New York (indexed as such), chapter 11.

(21) **Charts 12369, 12364.–Bridgeport Harbor**, on the north side of Long Island Sound north-northwestward of Stratford Shoal (Middle Ground) Light and about 52 miles from New York, consists of two widely separated units. The main harbor and its branches serve the east and central portions of the city of **Bridgeport**, and Black Rock Harbor and its tributaries serve the western part. Black Rock Harbor and Cedar Creek are described under separate headings. Waterborne commerce at Bridgeport consists mostly of petroleum products, lumber, sand and gravel, building materials, and scrap iron.

(22) **Prominent features.**–The large red and white horizontally banded stack of a powerplant on Tongue Point is the most prominent landmark in this area. Other prominent landmarks include a group of stacks on Steel Point; the towers of a high-voltage line; several church spires; a gas tank with a red and white checkered band at the top, on the west side of Pequonnock River; the radio towers at Pleasure Beach; and Bridgeport Harbor Light 13A. The rays of an aerolight about 1.3 miles northwestward of Stratford Point can be seen from offshore.

(23) **Bridgeport Harbor Channel Approach Lighted Whistle Buoy BH** (41°06.2′N., 73°11.7′W.), is 3.3 miles south-southwest of Bridgeport Harbor Light 13A and marks the entrance to the channel.

(24) **Bridgeport Harbor Light 13A** (41°09.4′N., 73°10.8′W.), 50 feet above the water, is shown from a black skeleton tower with small white house, on a black base, on the west side of the entrance channel near the end of the west breakwater.

(25) **Channels.**–From deep water in Long Island Sound the dredged channel extends north-northeastward between two converging breakwaters into the main harbor, and thence into the three tributaries, Johnsons Creek, Yellow Mill Channel, and Pequonnock River. Federal project depth is 35 feet in the main channel to just below the Connecticut Turnpike bridge. (See Notice to Mariners and latest edition of the chart for controlling depths.)

(26) A powerplant is at **Tongue Point**. A privately dredged channel leads from the main channel to the powerplant's offshore oil wharf on the south side of the point. In 1980, the channel, except for a 17-foot depth on the southwesterly side of the widener, had a reported controlling depth of about 26 feet; depths of 29 to 35 feet were reported alongside the wharf. Another privately dredged channel, used by barges, leads from the main channel to the powerplant's facilities on the east side of the point. In July 1978, the controlling depth in the channel was 10 feet.

(27) **Johnsons Creek**, northward of Pleasure Beach, is entered eastward of Tongue Point through a marked dredged channel leading to anchorage basins; two on the west side, and one at the head of the creek. In July 1980, the controlling depths were 3 feet (12 feet at midchannel) to the anchorage basins on the west side of the creek with 9 feet in the lower, except for shoaling to 7 feet on the southwest edge, and 4½ feet in the upper, thence 7½ feet (9 feet at midchannel) to the anchorage basin at the head with 4½ feet in the basin except for shoaling to 1 foot at the upper end. The highway bridge 0.2 mile above the entrance has a swing span with a clearance of 7 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) Private yacht clubs and two oil-receiving piers are on the creek.

(28) **Yellow Mill Channel** is entered through a dredged channel that leads for about 0.8 mile north-northeastward from just above the first bend in the main channel to the head of the creek. Flats, largely bare at low water, are on both sides of the channel. In July 1990, the midchannel controlling depths were 15 feet to a point about 0.25 mile above the turnpike bridge, thence 4 feet to the head. The Stratford Avenue highway bridge about 0.3 mile above the entrance has a bascule span with a clearance of 11 feet. (See **117.1 through 117.59 and 117.225**, chapter 2, for drawbridge regulations.) About 0.1 mile above the bascule bridge is a fixed turnpike bridge with a clearance of 40 feet. Depths at the wharves are 8 to 15 feet.

(29) **Pequonnock River,** the most westerly of the tributaries, is easily followed by small craft, but larger vessels may need the assistance of a tug to get around the sharp bends. The river is entered through a dredged channel that leads northward from the main channel just below Connecticut Turnpike bridge to the head of navigation just below the Berkshire Avenue Dam, about 1.1 miles above the entrance. In December 1985, the midchannel controlling depth was 14 feet to Grand Street bascule bridge, about 0.9 mile above the entrance, thence 9 feet except for shoaling to 3 feet at the head of navigation. Depths at some of the wharves are 10 to 15 feet, but there is little depth at the others.

(30) **Bridges.**–Type, distance above Steel Point, and clearance of the bridges over Pequonnock River follow: Connecticut Turnpike, fixed, 300 yards, 65 feet; Stratford Avenue, vertical-lift, 500 yards, 8 feet down and 68 feet up; railroad, bascule, 0.5 mile, 18 feet. In April 1993, a replacement bascule bridge with a design clearance of 26 feet was under construction immediately above the existing bridge; Congress Street, bascule, 0.6 mile, 8 feet; highway, bascule, 0.7 mile, 4 feet; highway, Amtrak railroad bascule, maintained in closed position, 0.9 mile, 13 feet. (See **117.1 through 117.59 and 117.219**, chapter 2, for drawbridge regulations.) The bridgetender at the railroad bridge monitors VHF-FM channel 13; call sign KU–6033.

(31) **Anchorages.**–Bridgeport Harbor has two anchorage areas inside the breakwaters. One with depths of 23 to 40 feet is on the east side of the main channel northwestward of Pleasure Beach, and the other with depths of 15 to 25 feet is on the west side of the main channel just northeastward of Tongue Point. A rock covered 10 feet is in the west anchorage in about 41°10′17″N., 73°10′56″W. The rest of the harbor area consists of broad and shallow sand flats. Vessels seeking shelter from strong northerly winds sometimes anchor off the entrance; the holding ground is good.

(32) A **general anchorage** is in Johnsons Creek. (See **110.1 and 110.148,** chapter 2, for limits and regulations.)

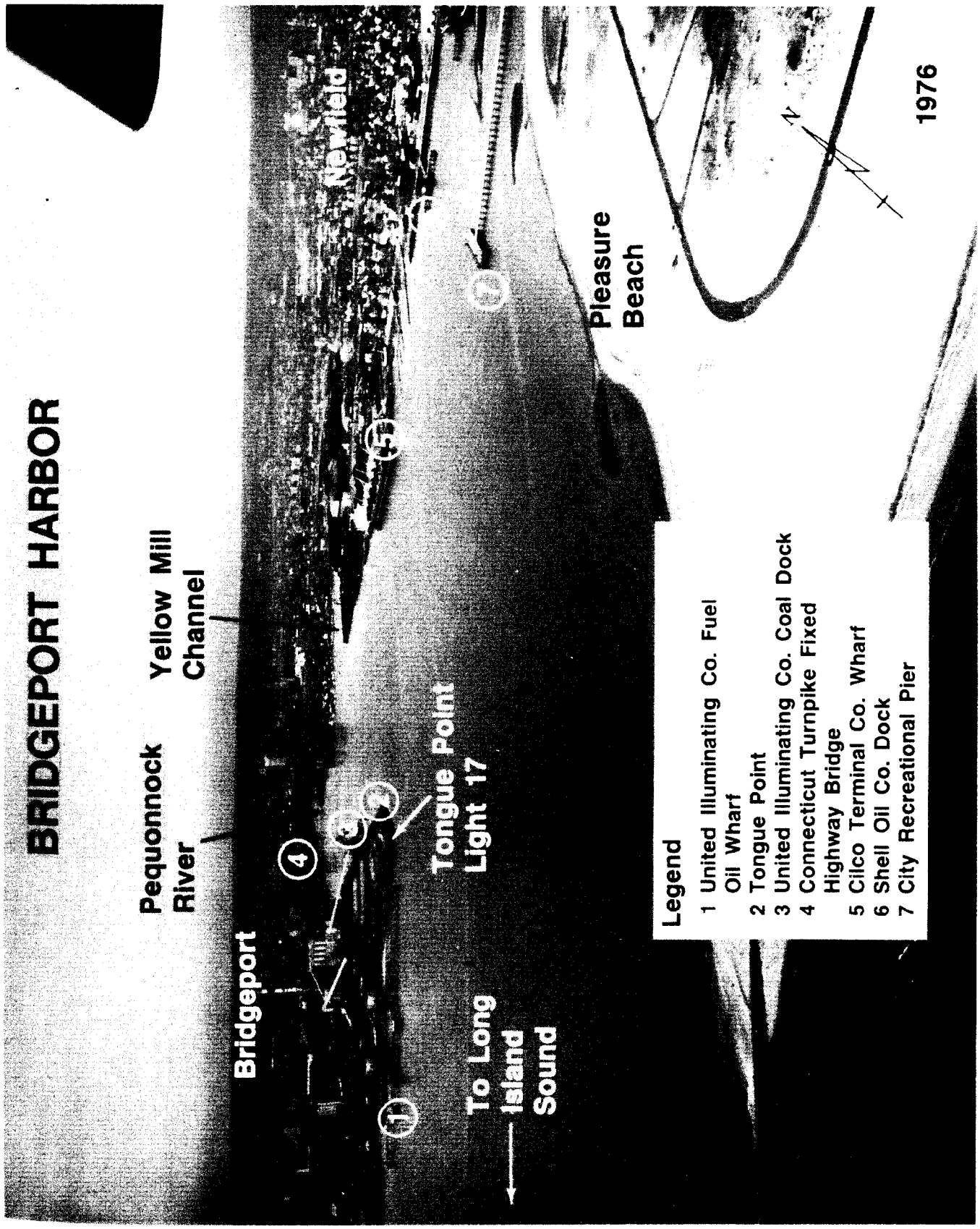
(33) **Dangers.**–The entrance is clear, and the only dangers are the previously discussed shoals on the east, south of Stratford Point, and on the west, the Penfield Reef shoals.

(34) **Tides.**–The mean range of tide is 6.8 feet. (See the Tide Tables for daily predictions of the times and heights of high and low waters.)

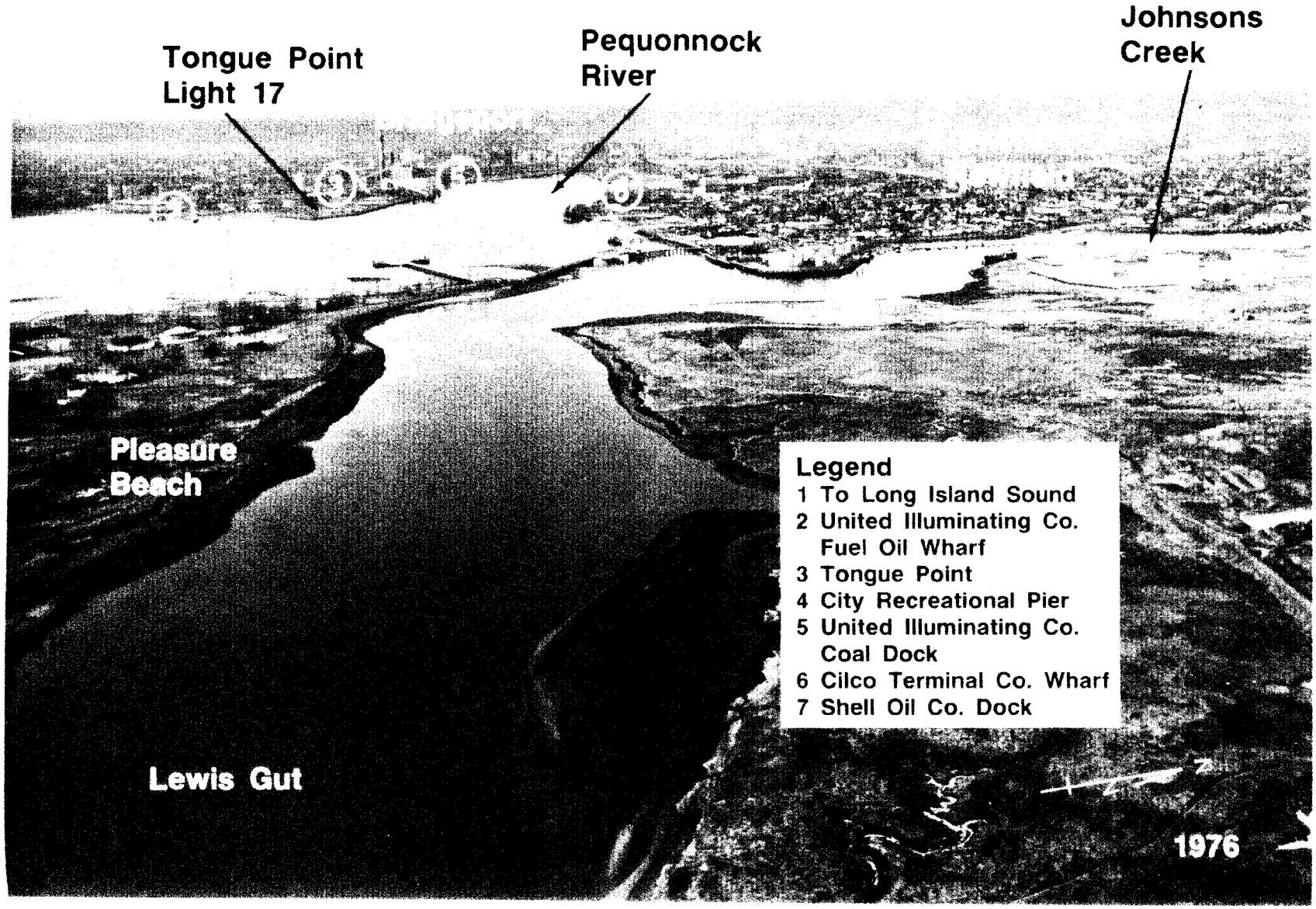
(35) **Currents.**–The velocity of flood or ebb is about 0.7 knot in the entrance between the breakwaters. (See the Tidal Current Tables for predictions.) Inside the harbor the currents are generally weak.

(36) **Ice** does not interfere seriously with navigation in Bridgeport Harbor, although its tributaries are closed at times. The winds from the north and southeast clear the harbor of drift ice, and those from the southwest through the southwest force the ice into the harbor from the sound. The outer buoys may be carried out of position by heavy ice during severe winters.

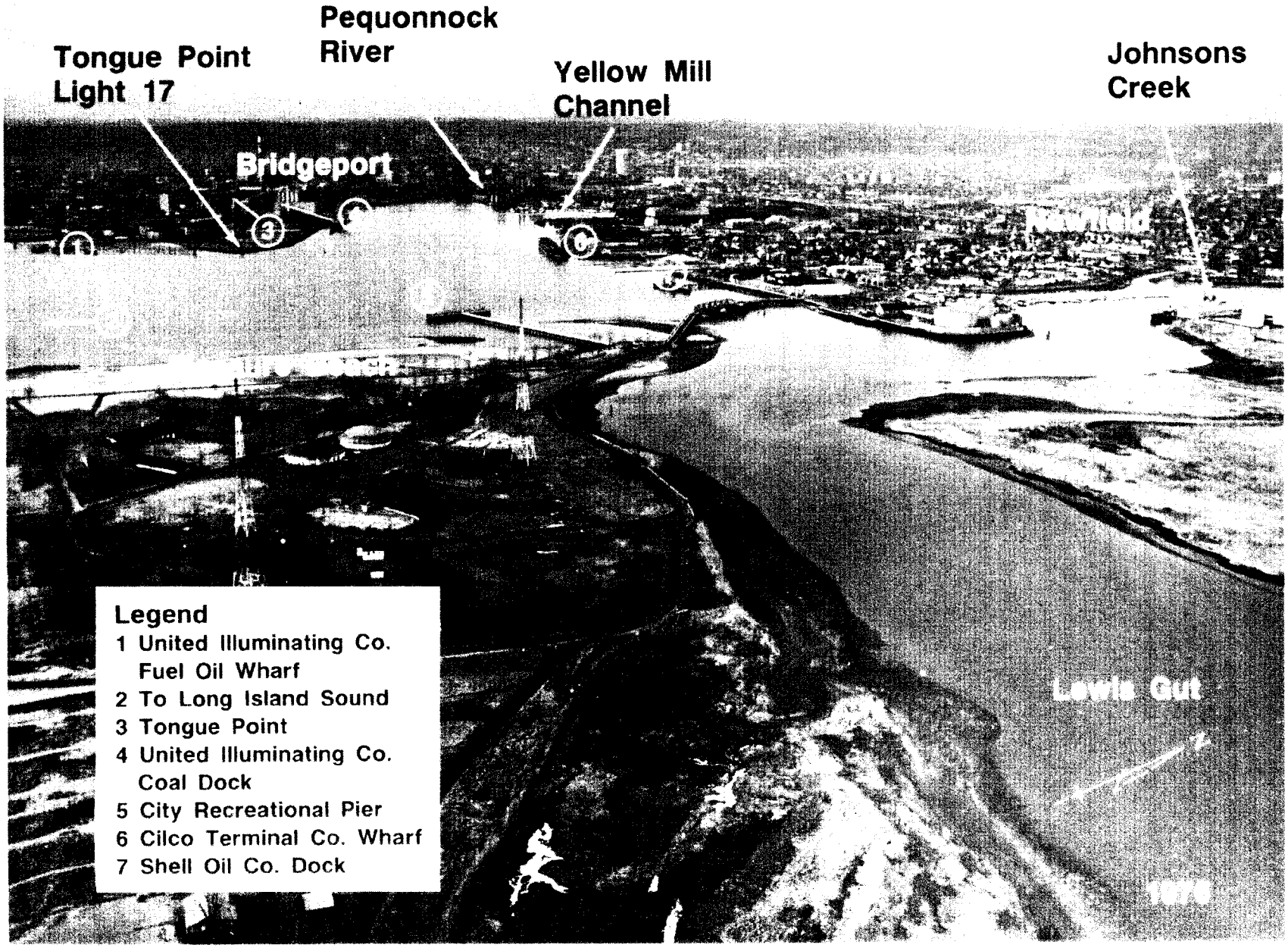
(37) **Weather, Bridgeport and vicinity.**–The terrain of the mainland is of glacial origin and rises in a rolling, mostly wooded, manner to the foothills of the Berkshires, 30 miles to the north,


BRIDGEPORT HARBOR
Pequonnock River
Yellow Mill Channel
Bridgeport
Tongue Point Light 17
To Long Island Sound
Pleasure Beach
Legend
1 United Illuminating Co. Fuel Oil Wharf
2 Tongue Point
3 United Illuminating Co. Coal Dock
4 Connecticut Turnpike Fixed Highway Bridge
5 Cilco Terminal Co. Wharf
6 Shell Oil Co. Dock
7 City Recreational Pier
1976

BRIDGEPORT HARBOR



BRIDGEPORT HARBOR



and the Catskills, about 60 to 70 miles to the northwest. There is some foehn effect (chinook) with north and northwest winds, and the upslope effect with the approach of a coastal low is quite pronounced. The most pronounced topographical effect, however, is that of the land-sea breeze which is most pronounced in the spring, summer, and early autumn. The land-sea breeze effect during this period will inevitably cause a shift in the wind direction, even with a moderately strong isobaric flow.

(38) As a result of the sea breeze, mean monthly temperatures during the summer average 3 to 5 degrees (2 to 3°C) lower than nearby inland stations. Likewise, temperatures during the fall and winter are moderated several degrees owing to the proximity of Long Island Sound. The average annual temperature at Bridgeport is 52°F (11.1°C). The average high is 60°F (15.6°C) and the average low is 44°F (6.7°C). July is the warmest month with average extremes of 82°F (27.8°C) and 66°F (18.9°C). January is the coolest with average extremes of 37°F (2.8°C) and 23°F (-5°C). The record high temperature is 103°F (39.4°C) set in July 1957 while the all-time low temperature is -7°F (-21.7°C) recorded in January 1984.

(39) Precipitation is slightly heavier than at nearby inland stations the year around since coastal low-pressure systems move quite consistently on a track to the south of Bridgeport. One of the greater hazards along the coastal areas in the vicinity of Bridgeport is the accumulation of water (especially during periods of high tide) with the approach of a slowly moving, deepening, low-pressure system from the south. Severe storms occasionally cause inundation of 4 to 5 feet (1.2 to 1.5 m). The average annual precipitation is 41 inches (1041 mm). Precipitation is evenly distributed throughout the year with the difference between the wettest (March) and driest month (February) averaging only 0.89 inches (23 mm). Snowfall averages 26 inches (660 mm) per year and has fallen from October through May. The greatest 24-hour snowfall on record was 16 inches (406 mm) recorded in February 1969.

(40) Bridgeport has been directly affected by 18 tropical storms since 1871. In recent years, tropical storm Belle passed over the site in August 1976. Highest winds were only 60 knots. One day earlier, Belle was packing winds of 105 knots. In September 1985, Hurricane Gloria passed about five miles west of the Bridgeport weather station placing the site in the roughest sector of the storm. Highest gusts approached 75 knots and highest sustained winds were 64 knots. Two days earlier, Gloria had supported winds of 125 knots.

(41) The National Weather Service maintains an office at the Bridgeport Municipal Airport; **barometers** may be compared here. (See appendix for address.) (See page T-5 for the **Bridgeport climatological table.**)

(42) **Pilotage, Bridgeport.**–Pilotage is compulsary in Long Island Sound for foreign vessels and U.S. vessels under register. See Pilotage, Long Island Sound (indexed as such), chapter 8. Pilotage for New Haven is available from New Haven Bridgeport Pilots Association (NHBPA), 60 Appletree Lane, Hamden, CT 06518, telephone 203-878-8667.

(43) Pilot boats (rented) utilized by NHBPA pilots are SUSY II, 42-foot, blue hull, white superstructure, word PILOT on side; and GALE, 42-foot, white hull, white superstructure, word PILOT on side. Boat monitors 16, 13 and 77, works on 77 and 09. Pilots board about 1 mile south of Bridgeport Harbor Channel Approach Lighted Whistle Buoy BH.

(44) Pilotage for Bridgeport is also available from Constitution State Pilots Association (CSPA), 500 Waterfront Street, New Haven, CT 06512, telephone 800-229-7456 or 203-783-5991, FAX 516-582-6327. Pilots of CSPA board vessels from a launch or the tug, at Bridgeport Harbor Channel Approach Lighted Whistle Buoy BH.

(45) Pilotage for Bridgeport is also available from Long Island Sound State Pilots Association, Inc. (LISSPA), 1440 Whalley Avenue, Suite 123, New Haven, CT 06515, telephone 203-772-0101, FAX 302-629-9392, Cable LISPILOT, New Haven. Pilot boat LONG ISLAND SOUND PILOT is 46-foot, with black hull, white superstructure, and the word PILOT in black letters. The boat monitors channel 16; works on 11. Among other locations, the LISSPA pilot will meet a ship off Montauk Point. See Pilotage Pickup Locations Off Montauk Point (indexed as such), chapter 7.

(46) Pilotage for Bridgeport is also available from Sound Pilots, Inc. (SPI) (a division of Northeast Marine Pilots, Inc.), 243 Spring Street, Newport, RI 02840, telephone 401-847-9050 (24 hours), 800-274-1216. FAX 401-847-9052, Cable RISPILOT, Newport, RI 02840. The pilot boats are NORTHEAST II, 49-foot, with grey hull and superstructure and the word PILOT on the side; or RHODE ISLAND PILOT, 35-foot, with black hull and white superstructure and the word PILOT on the side; or NORTHEAST I, 49-foot, similiarly marked as the RHODE ISLAND PILOT. The SPI pilots meet a ship bound for a Long Island Sound port, off Point Judith, but will also meet a ship off Montauk Point by prearrangement. See Pilotage, Narragansett Bay and Other Rhode Island Waters (indexed as such), chapter 6, and Pilotage Pickup Locations Off Montauk Point (indexed as such), chapter 7.

(47) Pilot services are generally arranged in advance through ships' agents or directly by shipping companies.

(48) **Towage.**–Tug service is available from New Haven, Providence, Brooklyn, or Staten Island on advance notice. Deep-draft vessels usually require tugs for mooring in Bridgeport Harbor.

(49) Launch service is available to vessels at anchor.

(50) Bridgeport is a **customs port of entry.**

(51) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(52) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(53) Bridgeport has several hospitals.

(54) **Harbormaster.**–The control of the port is vested in the harbormaster, who maintains an office at the Bridgeport City Hall and can also be contacted through the Bridgeport Police Department.

(55) **Wharves.**–Bridgeport has three principal privately owned and operated deep-draft facilities; one is on the south side of Tongue Point and the other two are on the east side of the harbor opposite Tongue Point. Facilities for smaller vessels and barges are along the sides of the harbor, and on Johnsons Creek, Yellow Mill Channel, and Pequonnock River. Most of the facilities at Bridgeport are of the marginal-type wharf, particularly those in the constricted tributaries. Only the deep-draft facilities are described. For a complete description of the port facilities refer to Port Series No. 4, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths for the facilities described are reported; for information on the latest depths contact the private operators. All of these facilities have highway connections, and most have water connections.

(56) Cargo in the port is usually handled by ship's tackle; special handling equipment, if available, is mentioned in the description of the particular facility.

(57) United Illuminating Co. Fuel Oil Dock: on the south side of Tongue Point; an offshore wharf with 345-foot breasting face, 900 feet with dolphins; 31 to 37 feet alongside; deck height, 20

feet; receipt of fuel oil; owned and operated by United Illuminating Co.

(58) Shell Oil Co. Dock: on the east side of the harbor opposite Tongue Point; 190-foot face, 700 feet with shore moorings; 35 feet alongside; deck height, 13 feet; vessels usually moor portside-to; receipt and shipment of petroleum products; owned by Shell Oil Co. and operated by Shell Oil Co. and International Petroleum Terminals Co.

(59) Cilco Terminal Co. Wharf: 0.3 mile northwestward of Shell Oil Co. Dock; 930-foot face; 33 feet alongside; deck height, 13 feet; 90,000 square feet covered storage, 16 acres of open storage; receipt and shipment of general cargo; receipt of lumber, steel products, and pumice, and shipment of scrap metal; owned and operated by Cilco Terminal Co., Inc.

(60) The city-owned recreational pier, seldom used for mooring vessels, is on the northwest end of Pleasure Beach; the end of the pier has depths of about 20 feet.

(61) The municipal dock, a marginal-type wharf, is on the west side of Pequonnock River, just below the Connecticut Turnpike Bridge. A ferry to Port Jefferson ties up at the dock.

(62) **Supplies.**–Diesel oil, diesel fuel, gasoline, bunker fuel No. 6, lubricants, water, provisions, and marine supplies can be obtained at Bridgeport.

(63) **Repairs.**–Bridgeport has no facilities for making major repairs or for drydocking deep-draft vessels; the nearest facilities are at the ports of Boston, Mass., and New York, N.Y. Bridgeport, however, does have facilities for making above- and below-the-waterline repairs to fishing boats, tugs, and recreational craft, and excellent hull and engine repair facilities for small craft. The largest marine railway in the area can handle vessels to 120 feet and 400 tons. A 10-ton crane is available. Oil pollution control equipment is also available.

(64) **Communications.**–Bridgeport is served by air, rail, and bus. Ferry service to Port Jefferson is available year round.

(65) **Black Rock Harbor**, part of Bridgeport Harbor, although not connected with it other than by Long Island Sound, is entered through a dredged channel about 2 miles westward of the main harbor entrance to Bridgeport. The channel leads northward through Black Rock Harbor, and thence to the head of **Cedar Creek** where it divides into **East Branch** and **West Branch.** Black Rock Harbor and Cedar Creek are the approach by water to the large factories of the western part of the city of Bridgeport.

(66) In November 1991, the controlling depths were 10 feet (13 feet at midchannel) from the entrance to the junction of East Branch and West Branch. Greater depths to about 16 feet were available, with local knowledge, by generally staying near the center and east half of the channel. West Branch had a controlling depth of 14 feet (15 feet at midchannel) and East Branch had depths of 15 feet except for depths decreasing to 5 feet in the upper 70 yards of the project. The channel is marked by buoys and lights for about 1.7 miles above the entrance.

(67) Anchorage in depths of 18 to 22 feet and exposed to southeasterly and northeasterly winds can be found off the entrance, northeast of the bar that makes out from Shoal Point to Black Rock. Small craft drawing less than 6 feet can select anchorage on either side of the dredged channel as far as the yacht club on the east side of Grover Hill.

(68) Depths of 8 to 18 feet are reported alongside some of the wharves in Black Rock Harbor.

(69) To avoid a shoal off the point separating East Branch and West Branch at the head of Cedar Creek, enter East Branch, pass about 100 feet off the wharf on the southeast side below the entrance, and head up the middle. To enter the West Branch, pass 100 feet off the wharves on the southeast side of the branch.

(70) **Fayerweather Island**, on the eastern side of the entrance of Black Rock Harbor, is marked at its south end by the white tower of an abandoned lighthouse. A breakwater and a seawall connect its northern part with the shore eastward.

(71) **Burr Creek**, northward of the town of Black Rock, on the west side of the channel, is the site of a large marina. Berths, gasoline, diesel fuel, electricity, water, ice, a lift, and repair facilities are available. In April 1986, depths of about 4 to 5 feet were reported at the face of the gasoline dock and alongside the boat slips. Burr Creek has many shoals; mariners are advised to seek local knowledge before entering.

(72) Several **small-craft facilities** are in Black Rock Harbor. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(73) **Ash Creek,** about 0.7 mile westward of Fayerweather Island, is entered through a privately dredged channel protected on its southwest side by a jetty. The entrance channel is marked by private buoys and a private seasonal **314°** lighted range. The channel leads northwestward to the Fairfield Municipal Marina. Gasoline, water, and ice are available. In April 1986, depths of 10 feet were reported in the entrance channel, with 4 feet reported alongside the boat slips. A 5 mph **speed limit** is enforced in the creek.

(74) **Penfield Reef**, on which there are rocks bare at low water, is about 1.4 miles south of Black Rock Harbor and 1.3 miles eastward of **Shoal Point**, to which it is joined by a bar that bares at low water. **Black Rock**, marked by a daybeacon, is the outermost danger of this reef. A dangerous submerged rock, reported covered 1 foot, is about 40 yards southward of the daybeacon. **The Little Cows**, about 0.2 mile northward of Black Rock, consist of rocks awash.

(75) **Penfield Reef Light** (41°07.0′ N., 73°13.3′W.), 51 feet above the water, is shown from a white tower on a granite dwelling on a pier, on the south side of the reef, south of the entrance to Black Rock Harbor. A fog signal is sounded at the light.

(76) A reef, partly bare at low water and with little depth over any part of it, extends over 0.5 mile southward from **Pine Creek Point**, 1.1 miles southwest of Shoal Point. A lighted bell buoy is off the south end of the shoal.

(77) **Southport Harbor**, about 1 mile westward of Pine Creek Point, comprises the lower portion of Mill River and is used primarily for recreational boating. A breakwater, marked at its end by a light, is off the east side of the entrance to the harbor. The harbor is entered through a dredged channel that leads from Long Island Sound to a harbor basin and anchorage, about 1.1 miles above the channel entrance. In January-February 1996, the midchannel controlling depth was 6½ feet to Buoy 9, thence 3½ feet in the right half of the channel to Light 12, thence 7 feet in the left side of the channel through the entrance to the harbor basin. Depths of 3 to 6 feet were available in the basin, and in November 1984 depths of 3½ to 6 feet were available in the anchorage just northward of the basin. The channel is marked on its west side by a light, and by buoys up to the breakwater. Caution is advised to avoid oyster stakes in the area southeastward of the harbor entrance. The mean range of **tide** is about 7 feet. A 5 mph **speed limit** is enforced in the harbor.

(78) **Southport** is a village on the west side of the harbor. A yacht club landing and the town dock are on the west side of the harbor; depths of about 6 feet are alongside the town dock, and about 6 to 8 feet alongside the yacht club landing. Gasoline, diesel fuel, ice, water, and some marine supplies can be obtained. Minor

engine repairs can be made. The **harbormaster** can be contacted through the Fairfield Police Department.

(79) **Frost Point**, 1 mile westward of Southport entrance, is marked by many residences and several private piers in disrepair on its southeast side. A reef partly bare at low water extends about 0.4 mile southward from the point.

(80) **Sherwood Point**, a mile westward of Frost Point, is marked by a bare boulder on the reef which extends about 250 yards off the point. A rocky patch, on which the least depth found is 11 feet, is about 0.8 mile southward of the point.

(81) **Charts 12368, 12364.–Saugatuck River,** 6 miles westward of Penfield Reef Light and northward of Cockenoe Island, has its entrance between **Cedar Point** on the east and **Bluff Point** on the west. The river is shallow, full of ledges and boulders, and is used chiefly for receipt of petroleum products, sand and gravel, and for recreational boating. The mean range of **tide** is 7 feet. Freshets do not appreciably affect the height of the water in the navigable part of the river. During the winter, ice usually covers the entire river to its mouth.

(82) Anchorage exposed to southeasterly winds can be had in the entrance to Saugatuck River in 12 to 22 feet, about 0.4 mile southward of **Cedar Point**.

(83) The channel in Saugatuck River is narrow and crooked; vessels should proceed with caution, preferably on a rising tide. In July 1981, it was reported that a depth of about 6 feet could be carried in the river from the entrance to about 0.7 mile above the Connecticut Turnpike Bridge at Saugatuck, thence 3 feet could be carried to Westport. In 1991, severe shoaling to 2 feet had reportedly extended into the channel between Buoy 9 and Buoy 11. The channel is buoyed to **Stony Point,** about 1.9 miles above the entrance. A 5 mph **speed limit** is enforced on the river.

(84) **Compo Yacht Basin** is in the bight about 0.3 mile northwestward of Cedar Point. In April 1995, the privately dredged channel that leads to the basin had a reported depth of 8 feet with 7 feet reported in the basin. The channel is marked by private buoys and a private lighted entrance range. A yacht club with landing and mooring facilities is in the basin. Gasoline, berths, electricity, and water are available at the landing.

(85) A yacht club in a privately dredged basin on the west side of Bluff Point has berths with electricity, gasoline, and ice. In 1982, depths of 7 feet were reported in the approach with 10 feet alongside the berths.

(86) **Duck Creek**, on the west side of the river about 0.6 mile above Bluff Point, is the site of a private yacht club. The reported controlling depth in the creek was about 7 feet in July 1981. The entrance and basin are privately marked.

(87) **Bermuda Lagoon**, southward of Duck Creek, is a large privately owned and maintained basin for the use of the residents in the immediate area.

(88) **Saugatuck**, a village in the town of Westport, is 2.5 miles above the entrance. Commercial traffic consists mostly of barges that call at a sand and gravel company at Saugatuck; depths at the wharf are about 5 feet.

(89) At Saugatuck the river is crossed by an Amtrak railroad bridge having a bascule span with a clearance of 13 feet. Overhead power cables at the bridge have a clearance of 192 feet. The Connecticut Turnpike Bridge, 0.1 mile above, has a fixed span with a clearance of 60 feet. About 0.1 mile farther up is a highway swing bridge with a clearance of 7 feet. (See **117.1 through 117.59 and 117.221**, chapter 2, for drawbridge regulations.)

(90) **Westport** is a town at the head of navigation on the Saugatuck River, about 1.4 miles above Saugatuck.

(91) There are several small-craft facilities on the river in the vicinity of the bridges. Gasoline, water, marine supplies, and a 3-ton lift are available; hull and engine repairs can be made. Depths of 6 feet are reported alongside the facilities.

(92) **Norwalk Islands**, privately owned with the exception of Shea and Grassy Islands, which are owned by the city of Norwalk, and Cockenoe Island, which is owned by the town of Westport, are 1 to nearly 2 miles off the north shore of Long Island Sound and extend from Georges Rock to Greens Ledge Light, a distance of 6 miles. **Cockenoe Harbor** and **Sheffield Island Harbor**, the two approaches to Norwalk River, are good anchorages for drafts of 9 to 12 feet and are easily made. The bottom is very irregular around the islands and rocks in the group; vessels should proceed with caution when crossing shoal areas and avoid all broken ground. In the vicinity are some oyster stakes and spars, which occasionally are towed under or broken off; caution is recommended, especially at night, for small craft.

(93) **Cockenoe Island**, at the eastern end of Norwalk Islands, is marked on its south side by two knolls; the remainder of the island is low and level. A bar, dry in places at low water but with general depths of 1 to 2 feet, connects the island with the mainland at **Seymour Point**.

(94) **Cockenoe Shoal** is an extensive and dangerous area which extends 1.3 miles eastward and east-southeastward from Cockenoe Island. The entire area is exceedingly broken and should be avoided by strangers, even in small craft. **Cockenoe Reef** extends about 0.5 mile eastward from the northern end of Cockenoe Island; rocks that uncover about 3 feet are near the outer end of the reef. **Georges Rock**, awash at lowest tides, is at the eastern end of the shoal; a lighted buoy is off the northeast side of the rock. A lighted bell buoy marks the southeast end of the shoal.

(95) **Channel Rock,** covered 1½ feet, is about 0.2 mile southwestward of Cockenoe Island and is marked by a buoy to the southward. **Peck Ledge**, on the western side of Cockenoe Harbor entrance, is marked by Peck Ledge Light and Norwalk East Approach Gong Buoy 5.

(96) **Cockenoe Harbor**, westward of Cockenoe Island, is marked by Peck Ledge Light. The best anchorage is in depths of 12 to 25 feet, northward and northwestward of the light.

(97) **Routes.**–To enter Cockenoe Harbor from the eastward, pass southward of Cockenoe Island Shoal Lighted Bell Buoy 24, steer **254°** until Peck Ledge Light bears northward of **285°**, then steer for the light until up with Norwalk East Approach Buoy 4 that marks Channel Rock, and then pass eastward and northward of the light at a distance of 200 to 300 yards.

(98) To enter Cockenoe Harbor from the westward, give the edge of the shoals southward of the Norwalk Islands a good berth until Peck Ledge Light bears westward of **348°**, and then steer **north** and pass 400 yards eastward of the light and midway between Norwalk East Approach Buoy 4 that marks Channel Rock and Norwalk East Approach Gong Buoy 5.

(99) The islands and rocks on the west side of Cockenoe Harbor include **Calf Pasture Island**, with several houses and a few trees; **Sheep Rocks**, which uncover 2 feet; **East White Rock**, high and white; and **Grassy Hammock Rocks**, which uncover and are marked by a light.

(100) The larger islands southwestward are in general hilly and partly settled. **Chimon Island** is marked by several houses; **Copps Island** by large boulders that extend east from it; and **Sheffield Island,** the westernmost of the group, by an abandoned lighthouse tower.

(101) Rocks that uncover extend nearly 0.3 mile southwestward of Sheffield Island.

(102) **Greens Ledge** is a rock and sand ridge that extends 1.1 miles southwestward from Sheffield Island. Depths of 10 to 15 feet extend about 400 yards westward and southwestward from Green Ledge Light. A rocky ledge, on which the least found depth is 21 feet, extends 0.8 mile west-southwestward from the light. Another rocky ledge, with a least depth of 20 feet, is about 0.4 mile south-southeastward from the light.

(103) **Greens Ledge Light** (41°02.5′N., 73°26.6′W.), 62 feet above the water, is shown from a conical tower, the upper half white and lower half brown, on a black cylindrical pier on the north side of the west end of the ledge. A fog signal is sounded at the light.

(104) **Cable and Anchor Reef** covers an area about 0.4 mile in diameter about 2 miles southeastward of Greens Ledge Light. The least found depth is 22 feet. A lighted bell buoy marks the southern side.

(105) **Sheffield Island Harbor**, entered between Greens Ledge and the mainland, is the main approach to Norwalk Harbor and Norwalk River. Anchorage in depths of 12 to 20 feet can be found northwestward of Sheffield Island. The shoal flats on the north side of the harbor have rocks and boulders in places.

(106) **Norwalk River** empties through **Norwalk Harbor** into the north side of Long Island Sound, northward of the Norwalk Islands and about 40 miles east of New York.

(107) **Channels.**–Norwalk Harbor and River are entered through a dredged channel that extends 3 miles northeasterly from Sheffield Island Harbor between **Manresa Island** on the west and **White Rock** and numerous islets and foul ground on the east, to the first highway bridge at South Norwalk, and thence northerly for another 1.3 miles to the basin at the head of navigation at Norwalk. The tall stack on Manresa Island, marked on top by red lights, is very prominent and can be seen for many miles from sea.

(108) A Federal project provides for a depth of 12 feet from Sheffield Island Harbor to the State Route 136 bridge, thence 10 feet to a 10-foot basin at the head of navigation at Norwalk; an anchorage basin opposite Fitch Point has a project depth of 10 feet. (See Notice to Mariners and latest editions of charts for controlling depths.) The channel is marked by buoys and lights to the South Anchorage Basin.

(109) **Caution.**–Chemically contaminated material has been buried in the navigation channel off Oyster Shell Point about 140 yards below Interstate Route 95 bridge. The material is covered with a layer of noncontaminated dredged material not less than 3 feet thick.

(110) **Bridges.**–Three bridges cross Norwalk River between South Norwalk and Norwalk. The first, State Route 136 highway bascule bridge at South Norwalk, has a clearance of 8 feet. The second, an Amtrak railroad swing bridge just above the highway bridge, has a clearance of 16 feet; an overhead power cable with a clearance of 203 feet crosses the river near the railroad bridge. The third, a turnpike highway fixed bridge, about 0.6 mile above the railroad bridge, has a clearance of 60 feet. (See **117.1 through 117.59 and 117.217**, chapter 2, for drawbridge regulations.) The bridgetenders at the State Route 136 bridge and the Amtrak railroad bridge monitor VHF-FM channel 13; call signs KXJ-707 and KU–6035, respectively.

(111) **Tavern Island**, with several houses and foul ground on all sides, is just northwestward of the dredged channel entrance to Norwalk Harbor.

(112) **Gregory Point**, marked by a clubhouse and wharf, is on the east side of Norwalk Harbor 1.9 miles above the channel entrance. The boat basin immediately eastward of Gregory Point, locally known as **Norwalk Cove**, is entered through a privately maintained channel. In March 1987, the controlling depth was 8 feet in the channel, thence in July 1981, 6 feet in the eastern part of the basin. A 220-yard-long detached timber breakwater is on the north side of channel entrance.

(113) **East Norwalk Harbor**, at the town of **East Norwalk**, is on the east side of the river about 2 miles above the main channel entrance. The harbor is entered through a dredged channel that leads westward of **Fitch Point** to the head and to North Anchorage Basin on the westerly side of the harbor. A Federal project provides for a depth of 6 feet from Fitch Point Light 1 to and in an anchorage basin at East Norwalk. (See Notice to Mariners and latest editions of charts for controlling depths.) The channel is marked to near the southern end of the basin.

(114) **South Norwalk** is an important commercial and manufacturing city on the west side of Norwalk River, about 3 miles above the channel entrance. The depths at the wharves below the bridges range from 5 to 10 feet. Commercial traffic is mainly in building materials, petroleum products, and shell fishing.

(115) **Norwalk**, 1.3 miles above South Norwalk, is a city on both sides of the river at the head of navigation. The wharves have depths of about 7 feet alongside. The channel from South Norwalk to Norwalk is winding, with extensive flats on both sides, and requires local knowledge to follow it even at high water.

(116) Local regulations provide penalties for exceeding the posted 5 mph **speed limit** or for dumping refuse in the harbor. These regulations are enforced by the Marine Division of the Norwalk Police Department. Police patrol boats operate the year round and are equipped to handle radio traffic on VHF-FM channel 16 (156.80 MHz). The **harbormaster** at Norwalk can be reached through the police department.

(117) **Tides.**–The mean range of **tide** is about 7 feet.

(118) **Currents.**–The tidal currents in Long Island Sound off Norwalk have a velocity of about 1 knot. In Norwalk River, off Gregory Point, the velocity of current is about 0.6 knot. The currents in the harbor follow the direction of the channel, the ebb current being somewhat stronger than the flood. (See the Tidal Current Tables for predictions.)

(119) **Ice.**–The channel up to South Norwalk is navigable throughout the year. The harbor and river above South Norwalk are covered with ice during a part of the winter. A channel is ordinarily kept open to the highway bridge, but the East Norwalk Channel and the channel in the river are usually closed for about 6 weeks each winter.

(120) **Pilotage, Norwalk.**–Pilots which service New London-Groton and/or New Haven service Norwalk. See Pilotage, New London-Groton (indexed as such), chapter 8; and/or Pilotage, New Haven (indexed as such), chapter 8.

(121) **Small-craft facilities.**–There are excellent small-craft facilities at South Norwalk, East Norwalk, and in Norwalk Cove. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(122) **Communications.**–Rail and bus lines serve the city and area.

(123) **Wilson Cove**, on the north side of Sheffield Island Harbor, is entered about 0.6 mile northwestward of the dredged channel entrance to Norwalk Harbor between **Wilson Point** on the north and Bell Island on the southwest. The ruins of a former oil-receiving pier are on the southwestern extremity of Wilson Point. A yacht club is on the east side of the cove, about 150 yards northward of the wharf ruins, and a marina is at the head of the cove. Gasoline, limited marine supplies, ice, an 18-ton crane, a 20-ton mobile hoist, and engine and hull repair facilities are available at the marina. In July 1984, the privately dredged channel leading to

the marina had a reported controlling depth of 4½ feet except for shoaling along the west side of the channel.

(124) **Noroton Point**, at the southern end of **Bell Island**, is marked by a flagpole and a prominent house with a cupola. Rocks, bare at low water, are about 300 yards northward of the point. **Pine Point**, just westward of Noroton Point, has a wharf in ruins at its southern end. A shoal with depths of 8 to 12 feet extends about 0.3 mile from the shore westward of Noroton Point. The bottom is broken with boulders in places, and small vessels crossing the shoal should proceed with caution. **Ballast Reef**, about 0.2 mile westward of Pine Point and off the southeast side of the entrance to Fivemile River, is almost bare at low water and extends 300 yards off **Roton Point**; a buoy marks the outer end of the reef.

(125) **Fivemile River**, a narrow inlet about 0.6 mile westward of Noroton Point and about 0.9 mile northward of Greens Ledge Light, is entered through a dredged channel that leads northward into the river for about 0.9 mile. The river is shallow except in the dredged channel and rocks exposed 2 feet at low water have been reported on the east side of the channel near the channel edge in about 41°03′37″N., 73°26′47″W. In February 1984, the controlling depth was 3½ feet (5 feet at midchannel) to a point about 0.7 mile above Butlers Island at the mouth of the river, thence 2 feet (3 feet at midchannel) to the head of the dredged channel. The channel is marked by buoys at the entrance and by a buoy on the east side about 0.3 mile above the entrance.

(126) In July 1981, depths of 2 to 5 feet were reported alongside the small-craft facility wharves on the east side of the river. The river is used chiefly by pleasure craft. The mean range of **tide** is about 7 feet.

(127) A **special anchorage** is in Fivemile River. (See **110.1 and 110.55a,** chapter 2, for limits and regulations.)

(128) **Rowayton** is a village at the head of Fivemile River. Several **small-craft facilities** are on the east side of the river. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(129) **Scott Cove**, about 0.8 mile westward of Fivemile River and about a mile northwest of Greens Ledge Light, is a rocky shelter with a channel good for about 6 feet to the shallow area northward. There are rocks and broken ground in the entrance. The channel into **Zieglers Cove**, just west of Scott Cove and south of **Great Island,** is good for about 9 feet. A rock, covered 5 feet, is reported to lie almost in midentrance to this cove. Local knowledge is required to navigate both coves.

(130) **Long Neck Point**, about 2 miles southwestward of Fivemile River, has many summer residences and boat landings on both of its sides. Shoals extend about 0.3 mile off the point. An unmarked sunken wreck is about 0.5 mile southeastward of Long Neck Point; depth over the wreck is unknown.

(131) From Long Neck Point to Shippan Point, about 2.6 miles to the southwestward, there are many reefs and boulders, and the bottom is very broken, necessitating caution. This area is the approach to several shallow coves, none of which is commercially important.

(132) **Goodwives (Darien) River** is a small and shallow stream on the west side of Long Neck Point. A private seasonal **342°** lighted range and buoys mark the best water to just below **Peartree Point**. Foul ground with rocks bare at low water extends nearly 200 yards off the west side of Long Neck Point, about 0.3 mile above the south end of the point. In July 1981, a reported depth of 6 feet could be carried in the river to the yacht club landing just north of **Pratt Island Two** and **Nash Island** (Pratt Island), thence 3 feet through **The Gut** to the boat club landing just above Peartree Point. Above The Gut, the river is practically dry at low water. Goodwives River and its entrance is a **special anchorage.** (See **110.1 and 110.56,** chapter 2, for limits and regulations.) A 5 mph **speed limit** is enforced on the river.

(133) **Smith Reef**, about 0.9 mile southwestward of Long Neck Point, consists of two rocks that uncover 2 feet. The south end of the reef is marked by a lighted buoy. **Bold Rock**, which uncovers 4 feet, is on the east edge of the rocky ridge extending northward from the reef. Many oyster stakes are on the ridge.

(134) **Cove Harbor**, northward of Smith Reef and about 1 mile westward of Long Neck Point, has depths of about 5 to 10 feet. Local knowledge is necessary to avoid several rocky areas in the approach to the harbor and to the basin at the northwestern end of the harbor at Cove Mills. A depth of about 1 foot can be carried across the bar at the entrance to the basin; private buoys, one of which is a seasonal speed limit buoy, mark the approach. A municipal marina is in the basin.

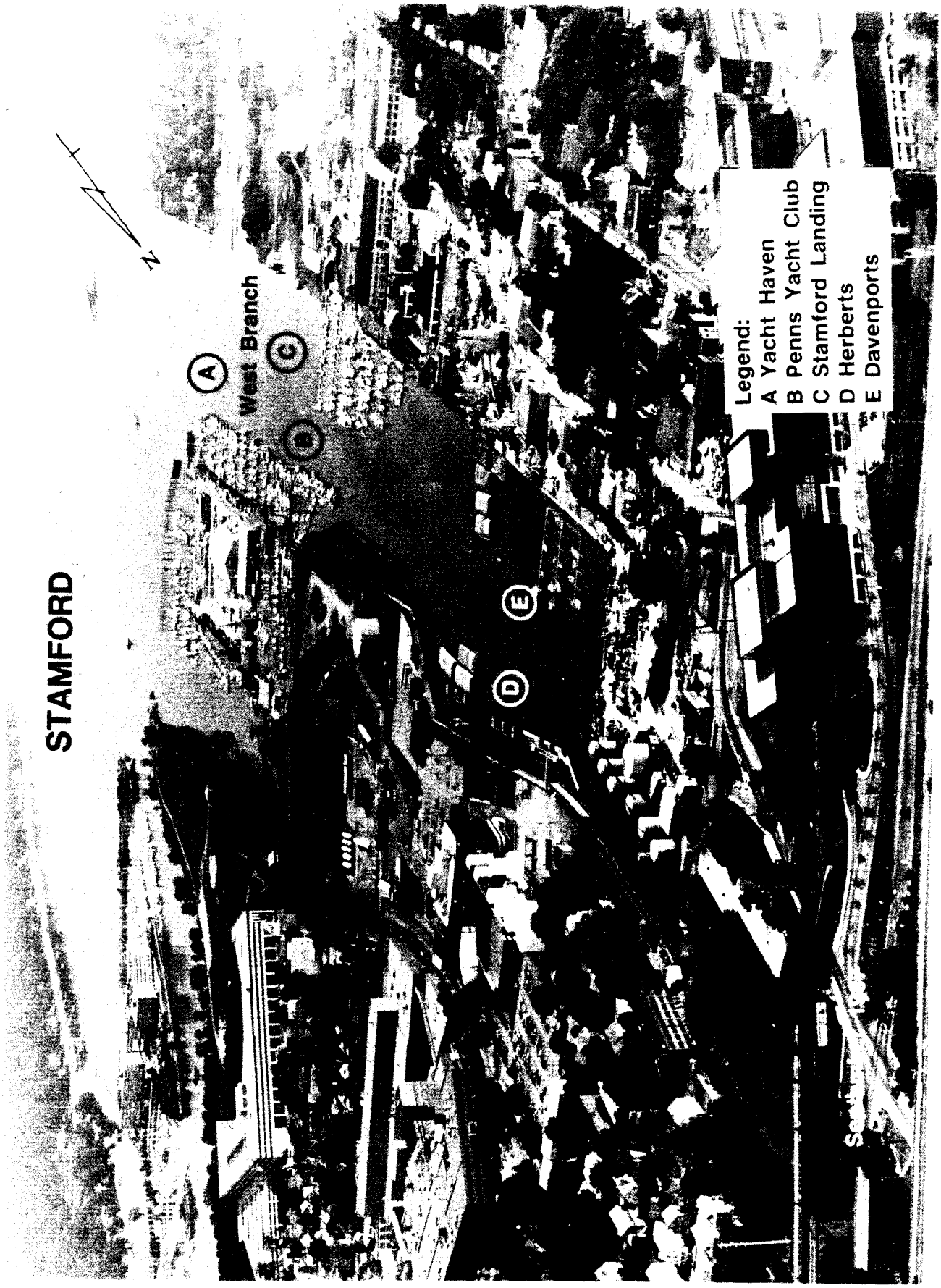
(135) **Westcott Cove**, just westward of Cove Harbor, has a dredged channel marked by buoys that leads along its westerly side to a basin 0.5 mile above the channel entrance, thence for 0.2 mile through the south arm of the basin. The east side of the entrance to the basin is protected by a jetty marked on the outer end by a private light. In June 1985, the channel had a midchannel controlling depth of 4 feet. A yacht club is in the northwesterly arm of the basin, and a municipal marina is in the southeasterly arm. Gasoline diesel fuel, and water are available at a marina on the west side of the south arm of the basin.

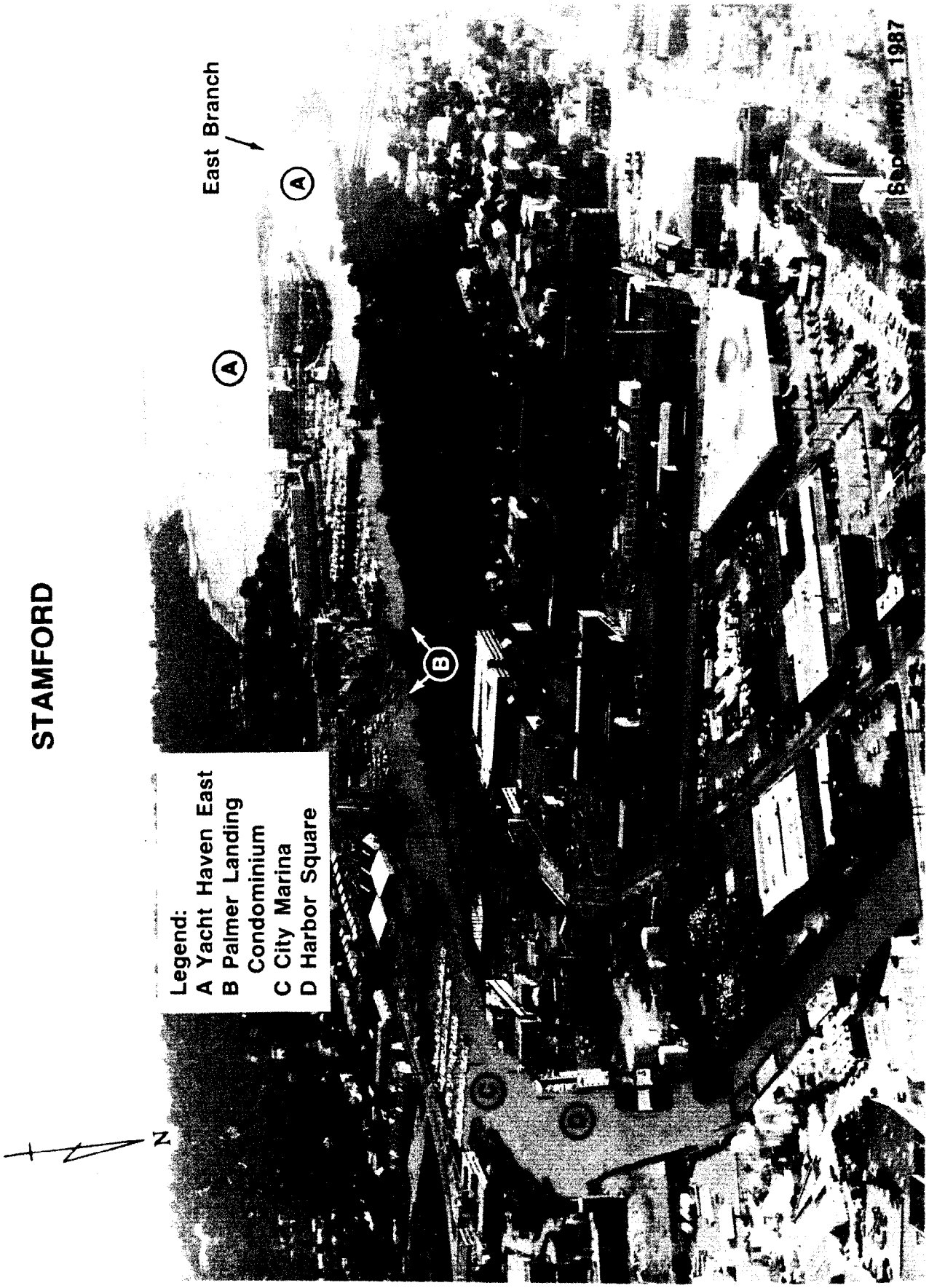
(136) **Stamford Harbor**, on the north side of Long Island Sound about 33 miles east of New York, comprises the bay north of a line from Shippan Point on the east through Stamford Harbor Ledge Obstruction Light to the west shore north of Greenwich Point. The harbor is shoal, and the approach is obstructed to a large extent by ledges and rocks. **Shippan Point**, the eastern point at the entrance, is surrounded by rocks which show at low water. Barges and small coastal tankers constitute the main waterborne traffic in the harbor. Petroleum products, scrap metal, sand and gravel, and crushed rock are the principal products handled in the harbor.

(137) **Stamford** is a manufacturing city on the peninsula at the head of the harbor.

(138) **Prominent features.–Stamford Harbor Ledge Obstruction Light** (41°00.8′N., 73°32.6′W.), 80 feet above the water, shown from a white conical tower on a red cylindrical pier, is a private light visible from a considerable distance offshore. Also prominent are a microwave tower westward of the city and the large brown office buildings locally known as Harbor Plaza on Ware Island. **Stamford Harbor West Breakwater Light 3** (41°00.9′N., 73°32.3′W.), 47 feet above the water, is shown from a tower with a square green daymark at the east end of the west breakwater. A fog signal is at the light. **Stamford Harbor West Breakwater Light** (41°00.9′N., 73°32.3′W.), 47 feet above the water, is shown from a black skeleton tower with a square green daymark on a small white house at the east end of the west breakwater. A fog signal is sounded at the light.

(139) **Channels.**–Stamford Harbor is entered through a dredged entrance channel that leads northward from Long Island Sound between two detached breakwaters to a point about 1 mile above the entrance to a junction with the dredged channels leading into **East Branch** and **West Branch**. A Federal project provides for depths of 18 feet to a point about 0.5 mile below the junction of the branches, thence 15 feet to the junction, thence in the West Branch 15 feet to and in the turning basin; thence in the East Branch, 15 feet to Light 1, thence 12 feet to the head of the project


STAMFORD
West Branch
A
B
C
D
E
N
Legend:
A Yacht Haven
B Penns Yacht Club
C Stamford Landing
D Herberts
E Davenports


STAMFORD
Legend:
A Yacht Haven East
B Palmer Landing Condominium
C City Marina
D Harbor Square
N
A
A
B
East Branch
September 1987

about 0.6 mile above the hurricane barrier. (See Notice to Mariners and latest edition of charts for controlling depths.) The 100-foot-wide channel in East Branch is constricted to 90 feet by a hurricane barrier that crosses the channel about 300 yards northward of **Ware Island**. The 90-foot gated opening in the barrier will be kept in the open position during fair weather, but will be closed on the approach of a storm or unusually high tides. A red light marks the channel end of each breakwater. A lighted sign on either side of the barrier is used to indicate whether the barrier is in the open or closed position. A flashing red light is shown from the control tower when the gate is about to be closed. The channels are well marked by navigational aids, and, in addition, the entrance channel is marked by a **358°** lighted range.

(140) **Anchorages.**–A dredged anchorage area with depths of 12 to 18 feet is north of the breakwaters and just westward of the line of the range lights, about 0.1 mile eastward of **Highwater Rock**. Small craft can anchor off the yacht club and southward or southeastward of **Rhode Island Rocks** in depths of 5 to 7 feet. All anchorages in the outer harbor are exposed to southerly and southwesterly winds.

(141) **Dangers.–The Cows** comprise a cluster of rocks, almost bare at low water, about 0.8 mile south-southeast of Shippan Point. Between them and the point is an area of foul ground and rocks bare and awash that extends 0.4 mile southward of Shippan Point. A lighted bell buoy is about 0.2 mile south of The Cows. **Harbor Ledge,** about 200 yards south of the west breakwater, consists of rocks and a ledge marked by a private light.

(142) **Tides.**–The range of **tide** is 7.2 feet.

(143) **Currents.**–The flood current at the entrance to the harbor has a velocity of 0.4 knot and sets 329°; the ebb has a velocity of 0.8 knot and sets 134°. Inside the harbor the currents have little velocity and usually set fair with the channel.

(144) **Ice.**–The channel in West Branch is usually navigable throughout the year, but in East Branch it is closed by ice for several weeks during severe winters. Ice forms in the harbor during most winters and usually extends to a point just northward of the breakwaters. The channels are kept open as far as practicable by passing traffic.

(145) Prevailing winds are from the south and southwest in the summer and from northeast during the winter season.

(146) No particular directions are required. The range favors the west side of the channel and does not show plainly until eastward of Stamford Harbor West Breakwater Light. In East Branch, caution is advised when making the turn abreast Ware Island to avoid a rock nearly awash at high water, eastward of the channel line.

(147) The **harbormaster** at Stamford can be contacted through the Stamford Police Department. A police boat makes routine patrols of the harbor during the boating season. A 6 mph **speed limit** is enforced in the harbor.

(148) **Wharves.**–The commercial wharves along East Branch and West Branch are of the bulkhead and apron type, all are privately owned, and some are open to the public. Spur tracks from the railroad serve the facilities in East Branch.

(149) **Supplies.**–Water is available at most of the commercial facilities, and diesel oil can be obtained at a fuel facility on the west side and nearthe head of West Branch. In July 1981, a depth of 12 feet was reported alongside the fuel facility.

(150) **Small-craft facilities.**–There are excellent facilities for small craft in both East and West Branches. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(151) **Charts 12367, 12364.–Captain Harbor,** on the north shore of Long Island Sound westward of Greenwich Point and northward of Great and Little Captain Islands, affords shelter from all winds for vessels drawing 12 feet or less. The depths at the anchorage in the deeper part of the harbor, about 0.5 mile northward of Great and Little Captain Islands, are 15 to 30 feet. Vessels of less than 7-foot draft anchor on the flats. The bottom is soft, but the entire harbor and entrances are characterized by boulders. Strangers should proceed with caution, especially on the flats and other shoal areas. The eastern entrance to Captain Harbor, between Flat Neck Point and Little Captain Island, is the clearer and better one for strangers. The western entrance, northwestward of Great Captain Island, is easy of access, but the broken ground there requires caution.

(152) **Greenwich Point**, 1.7 miles southwestward of Stamford Harbor West Breakwater Light, is characterized by a low grassy hill. Reefs extend 0.3 mile southeastward from Greenwich Point. **Woolsey Rock** near the easterly end of the reefs is bare at low water. A buoy marks these dangers.

(153) **Flat Neck Point**, the western end of Greenwich Point, is wooded. A reef with bare and submerged rocks extends nearly 0.3 mile southwestward and westward from Flat Neck Point. About 0.2 mile northwestward of the point, the boiler of a wreck, marked by a private seasonal buoy, shows above high water.

(154) **Greenwich Cove** opens into Captain Harbor from eastward, north of Flat Neck Point. The cove is used for mooring local craft. Depths decrease from 8 feet in the outer cove to less than 3 feet in the eastern part of the cove. **Old Greenwich** is on Greenwich Cove.

(155) **Cos Cob Harbor**, on the northeast side of Captain Harbor, has a dredged channel through it which extends 1.3 miles northward through the Mianus River to the head of navigation at Mianus. In September 1983, the controlling depth was 4½ feet at midchannel to the bascule railroad bridge, thence 3½ feet at midchannel to the fixed highway bridge, thence 3½ feet in the west half of the channel (shoaling to ½ foot in the east half) to the head of navigation at Mianus. Shoaling is reported to be abrupt along both edges of the channel. The channel is buoyed to the first bridge; above this point the channel may be followed by steering a midchannel course between the marsh banks. **Special anchorages** are in Cos Cob Harbor. (See **110.1 and 110.58,** chapter 2, for limits and regulations.)

(156) There are several dangers off the entrance of Cos Cob Harbor that must be avoided; most are buoyed. These include **Newfoundland Reef**, covered 4 feet, a mile northeastward of Little Captain Island; **Red Rock**, which uncovers 7 feet, 0.5 mile west of Newfoundland Reef; **Hitchcock Rock**, awash at low water, 0.3 mile northwestward of Newfoundland Reef; and **Pecks Rock**, bare at low water, 0.2 mile north of Hitchcock Rock.

(157) The Riverside Yacht Club, on the east side of Cos Cob Harbor and about 0.5 mile below the first bridge, is prominent. Also prominent are the stacks of a large powerplant on the west side of the harbor, just below the first bridge.

(158) **Mianus River** is crossed by an Amtrak railroad bascule bridge with a clearance of 20 feet, and by a highway fixed bridge with a clearance of 45 feet, about 0.4 mile to the northward. (See **117.1 through 117.59 and 117.209**, chapter 2, for drawbridge regulations.)

(159) Several marinas and boatyards are along the west side of the river from above the railroad bridge to the head of navigation. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(160) **Mianus**, at the head of navigation on the river, is the site of an abandoned sand and gravel wharf.

(161) **Indian Harbor** is a narrow inlet on the north side of Captain Harbor, about 1 mile west of Cos Cob Harbor. A channel with a depth of about 7 feet passes about 200 feet westward of Tweed Island and follows the west bank to the bulkhead on the west side of the cove 300 yards above the entrance. Small craft can anchor in the channel just above this point, favoring the bulkhead. A large prominent white residence with red roof and adjacent white clock tower is on the point separating **Smith Cove** and Indian Harbor. A 5 mph **speed limit** is enforced in the harbor.

(162) Depths of 6 feet or less extend 250 yards southward from the point separating Smith Cove and Greenwich Harbor. Bare ledges extend 200 feet southward of the point. The yacht club on the point usually maintains lights on a flagstaff during the summer. The depth is about 7 feet at the landing of the Indian Harbor Yacht Club.

(163) **Greenwich Harbor**, on the north side of Captain Harbor and northeastward of Field Point, is entered through a dredged channel that leads northward 1.2 miles to the head. The channel is buoyed for about 0.8 mile. In December 1981, the controlling depth was 8 feet. Two anchorage basins are off the west side of the channel. In December 1981, the northerly basin had depths of 2 to 4½ feet except for shoaling to bare along the northern edge, and the southerly basin had depths of 4 to 6 feet except for shoaling to bare along the west edge.

(164) A 5 mph **speed limit** is enforced in the harbor.

(165) **Greenwich** is a city on the railroad at the head of the harbor. The wharves are along the point on the east side of Greenwich Harbor. The **harbormaster** at Greenwich can be contacted through the Greenwich Police Department. A police boat patrols the harbor during the summer season.

(166) Several private yacht and boat clubs are in Greenwich Harbor. Gasoline and diesel fuel are available at a small-craft facility on the west side of the harbor at Grass Island. During the summer, a ferry operates from the town landing at the head of the harbor to Little Captain Island, Great Captain Island, and Calf Islands.

(167) **Byram Harbor**, a bight used by small craft, is at the northwest end of Captain Harbor, just northward of **Calf Islands**. **Wilson Head**, 2 feet high, on a reef that uncovers, is in the middle of the entrance of the bight and is marked by a buoy off the eastern end. The entrance to Byram Harbor from eastward lies between Otter Rocks and Bowers Island. **Otter Rocks**, which uncover 3 feet, are marked by a lighted buoy about 150 yards to the southward; a submerged rock is close northward of the buoy. **Bowers Island**, just eastward of Calf Islands, is marked by a clump of trees and surrounded by a drying reef; a buoy marks the north end of the reef. A rocky ledge makes out from the point 300 yards northwestward of Otter Rocks, and is marked by a buoy. Private small-craft facilities are on the west side of the harbor.

(168) The southeastward approach to Byram Harbor is buoyed. A narrow channel also leads to the harbor from southwestward, passing southward of Huckleberry Islands and between the northwest one of the Calf Islands and the two nearest rocks, which are sometimes marked by private daybeacons. The rocks 90 yards off the southwest end of Huckleberry Islands are bare at low water.

(169) **Grassy Rocks**, 0.3 mile westward of the southerly tip of Calf Islands, uncover 7 feet. The four large ledges northwestward and westward of Grassy Rocks generally show at low water.

(170) **Jones Rocks**, partly bare at high water, are at the southeast end of the foul ground that extends over 0.2 mile southeastward from the south end of Calf Islands. The rocks are marked by a light.

(171) **Cormorant Reef**, northward of Great Captain Island, partly bare at high water, has a rock 4 feet high on the eastern end. A buoy is off the southern end of the reef.

(172) **Great Captain Island**, 2.6 miles southwestward of Greenwich Point, is 0.4 mile long, fringed with reefs, and marked near its southeast end by a light. A municipal bathing beach and ferry landing are on the island. The landing has reported depths of about 3 feet. A buoy marks the reef making off 0.3 mile from the southwestern end. The passage between Great and Little Captain Islands is foul and not recommended.

(173) **Great Captain Island Light** (40°58.9′N., 73°37.4′W.), 62 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the southeast part of the island. A fog signal is sounded at the light.

(174) **Little Captain Island**, a summer resort about 0.6 mile northeast of Great Captain Island, has a municipal bathing beach and ferry landing. The landing has reported depths of about 8 feet. A reef extends about 250 yards northeasterly to **Wee Captain Island**. An area of boulders and broken ground extends 0.4 mile eastward and northeastward from the island and is marked by a lighted gong buoy. **Hen and Chickens**, a group of rocks and boulders about 0.4 mile northeastward of Little Captain Island, is marked by a buoy on the north side.

(175) **Tides.**–The mean range of **tide** is 7.3 feet.

(176) **Currents.**–The tidal current in the entrance between Little Captain Island and Flat Neck Point has a velocity of about 0.7 knot. Between Jones Rocks and Cormorant Reef the estimated velocity is 1 knot.

(177) **Ice** forms in the winter in all the coves and over the greater part of Captain Harbor. It sometimes extends out of the line of Little and Great Captain Islands.

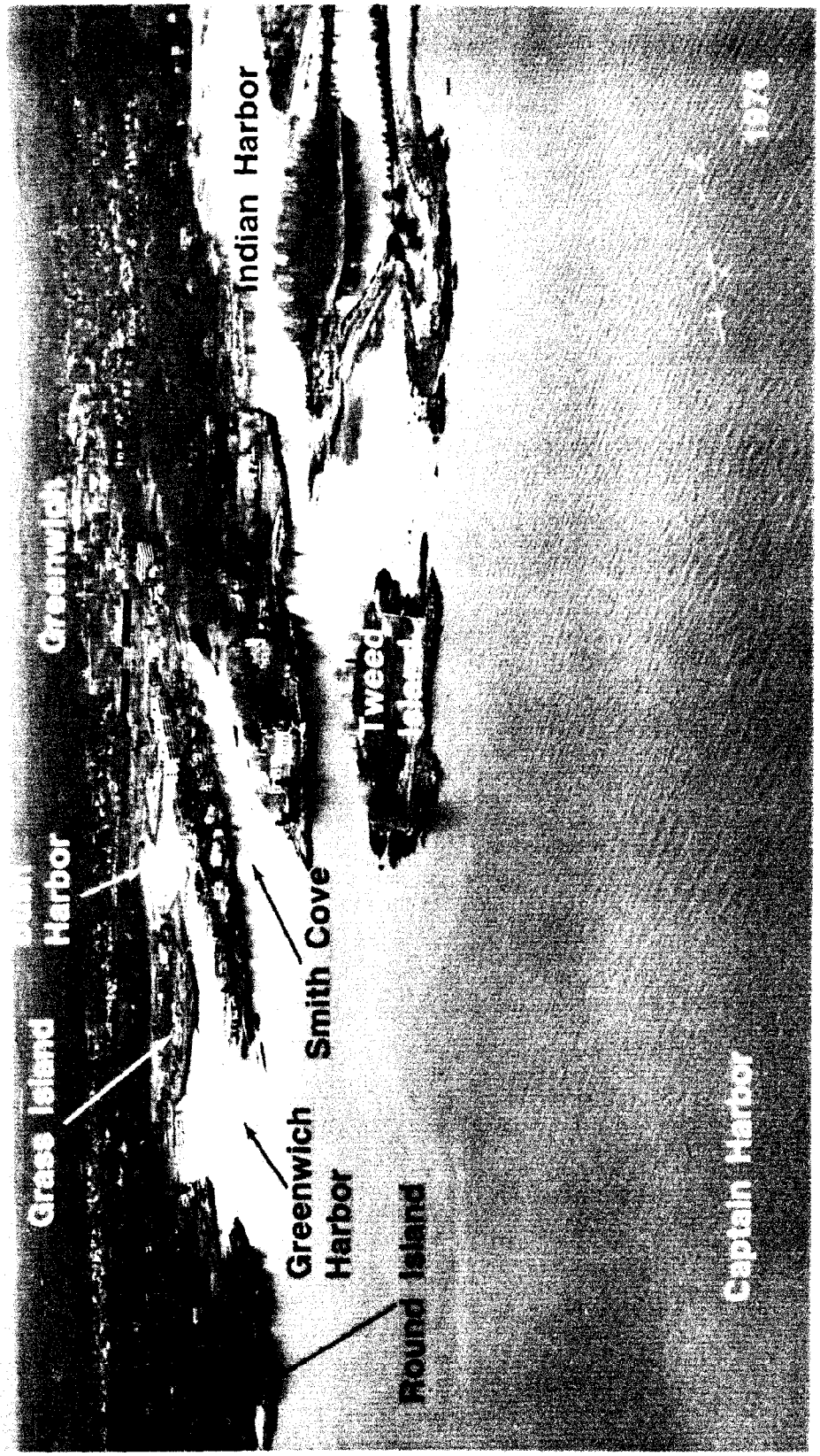
(178) **Routes.**–From eastward, a course of about **298°** midway between the buoys marking the shoals off Flat Neck Point on the east and Wee Captain Island on the west will bring a vessel to a point 0.2 mile north of Hen and Chickens Buoy 1A. From here a heading of **250°**, with the southerly tip of Calf Islands ahead, will lead to anchorage off the entrance of Greenwich Harbor.

(179) From westward, a course of **014°** for Jones Rocks Light 3 will lead into the Captain Harbor anchorage. Proceed with caution when crossing the broken rocky area on which the least found depth is 12 feet, extending 0.4 mile westward from the western end of Great Captain Island. Vessels should pass 100 yards southeastward of Jones Rocks Light, and over 100 yards northward of the buoy northwestward of Cormorant Reef, and steer **070°** in the harbor.

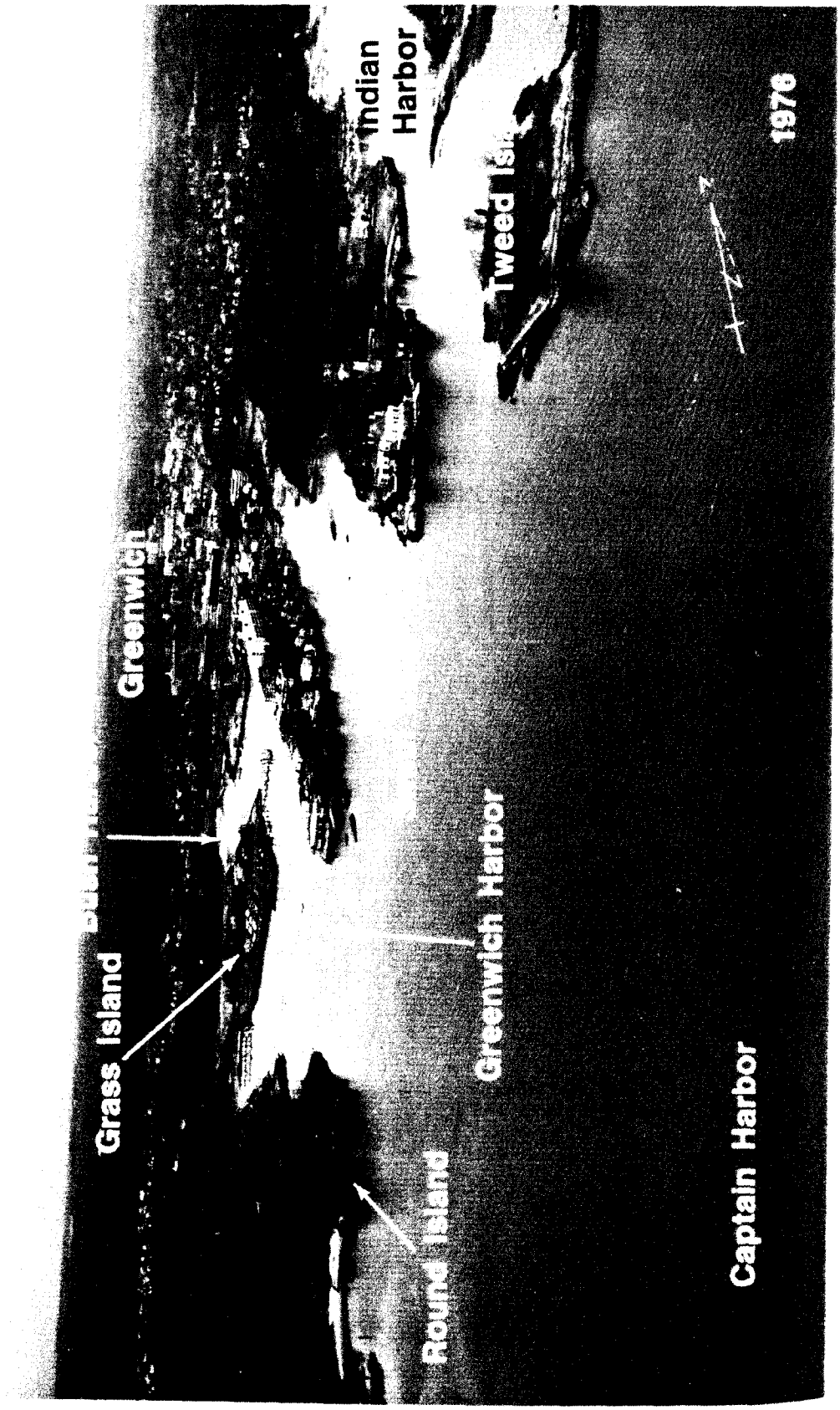
(180) **Port Chester Harbor**, about 1.2 miles westward of Great Captain Island, is the entrance to Byram River which leads to the city of **Port Chester** and the town of **Byram (East Port Chester)**. The harbor entrance is between the breakwater that extends southward from **Byram Point** on the north and **North Manursing Island** on the south; a light is on the outer end of the breakwater. The lower section of the river forms the boundary between New York and Connecticut.

(181) The harbor is entered from Long Island Sound through a dredged channel that leads northward for 1.2 miles to a turning basin in **Byram River**, and thence for another 0.15 mile to just below the Mill Street fixed bridge, the head of practical navigation on the river. In October 1993, the controlling depths were 11 feet to the Yacht Club about 0.4 mile above the entrance, thence 5½ feet (10 feet at midchannel) to the first fixed bridge about 0.8 mile above the entrance, thence 4½ feet in the west half and 9 feet in

GREENWICH HARBOR



GREENWICH HARBOR



the east half of the channel to the turning basin, thence 9½ feet in the basin, thence 1½ feet (3 feet at midchannel) to just below the head of navigation about 30 yards below the Mill Street fixed bridge. The channel is marked to a point about 0.3 mile above the entrance.

(182) The New England Thruway fixed bridge, with a clearance of 60 feet, crosses the river about 0.8 mile above the channel entrance.

(183) **Routes.**–The approach to Port Chester is obstructed by rocks, but is not difficult with the aid of the chart. From southward it is safer to pass eastward of **Bluefish Shoal**. **Fourfoot Rocks** may be passed on either side, remembering that the buoy is at the south end of the rocks. Entering the harbor, pass westward of Great Captain Rocks, eastward of **Manursing Island Reef**, and 150 feet southward of Port Chester Light 2A on the end of the breakwater. The channel in Byram River is fairly well defined at low water, but requires local knowledge for the best water; strangers should take it on a rising tide and proceed with caution.

(184) The mean range of **tide** is 7.2 feet.

(185) Principal commerce is in building materials, fuel oil, and petroleum products, carried in vessels drawing 5 to 14 feet. Barges discharge oil cargoes at a terminal with reported depths of 12 feet alongside.

(186) **Small-craft facilities.**–There are several small-craft facilities in Port Chester Harbor, and on the Byram River at Port Chester and Byram. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(187) The area from Great Captain Island southwestward is fringed with rocks, bare and submerged, and foul ground. **Great Captain Rocks**, part of a reef 0.3 mile southeastward of Port Chester Light, uncover 5 to 6 feet; a buoy marks the southern end of the reef. **Transport Rock**, about 0.3 mile south-southwestward of Manursing Island, is part of several ledges generally bare at high water which extend some 0.3 mile offshore. An opening suitable for small craft leads to Rye Beach; it is buoyed.

(188) **Playland**, a recreational center at **Rye Beach**, about 2.4 miles southwest of Great Captain Island, has prominent twin towers at the entrance which are conspicuous from a southeasterly direction. Westward and close to the north breakwater is a former ferry landing in disrepair. A breakwater extends eastward from the south end of Rye Beach. The area between the former ferry landing and the south breakwater is reserved for swimming.

(189) **Forbes Rocks**, about 0.4 mile south of the Rye Beach breakwater, are partly bare at low water, on a reef with depths of 4 to 11 feet that extends 250 yards to the southward and eastward. A buoy marks the east end of the reef. A channel good for a depth of 9 feet leads southward of buoyed **Forlies Rocks**to the ruins of a wharf at **Oakland Beach**. Another channel with a least depth of 8 feet leads southward from Oakland Beach to the sound.

(190) **Porgy Shoal**, about 0.8 mile south of the Rye Beach breakwater, has a least found depth of 5 feet; it is marked by a lighted buoy.

(191) **Scotch Caps** are three rocky islets 1.4 miles southwestward from Porgy Shoal and on the northwest side of the extensive reefs which make out 0.9 mile southwestward of **Milton Point**. The southerly end of the reefs is marked by a lighted bell buoy about 0.6 mile southward of Scotch Caps. The entire area of the reef northward and northeastward of the lighted bell buoy is very broken and should be avoided even by small craft in the absence of local knowledge. An obstruction covered 12 feet is about 300 yards southwestward of the lighted buoy.

(192) **West Rock**, just south of the south end of Scotch Caps, is marked by a buoy.

(193) **Milton Harbor**, between **Peningo Neck** and Hen Island, is used as a summer anchorage by small pleasure craft. It is protected from all but southwesterly winds. The harbor depths decrease from 8 feet between Scotch Caps and the southwest end of Hen Island to 6 feet abreast Milton Point.

(194) Foul ground is on the northwest side near **Hen Island**; otherwise the principal danger in the harbor is a rock bare at low water and marked by a buoy a little northward of midway between Milton Point and the northeast end of Hen Island. The best entrance is between the buoys 0.4 mile southwestward of Scotch Caps.

(195) A yacht club and landing are near the southwest end of Milton Point. Near the clubhouse is a prominent white flagstaff from which lights are exhibited from sunset to sunrise during the summer.

(196) A dredged channel, marked by buoys, leads through the harbor from about 400 yards northward of Milton Point to the city boat basin and marina below **Mill Pond.** In March-April 1993, the controlling depths were 5½ feet (6½ feet at midchannel) to the boat basin except for a bare spot in the west half of the channel above Buoy 13 in about 40°57′26″N., 73°41′32″W., thence 5 feet in the north basin channel except for shoaling to about 1 foot along the west channel edge, thence 3½ feet in the south basin channel; in 1980-1981, depths of 2 to 6 feet were available in the center of the basin. Two boatyards are in the harbor. The largest marine railway can handle craft up to 40 feet in length; gasoline, water, ice, marine supplies, and complete engine and hull repairs are available. The city **harbormaster** is at the boat basin.

(197) **Mamaroneck Harbor**, an open bight between Hen Island and **Delancey Point**, is exposed to southerly winds, but affords shelter against northerly weather. Depths in the outer harbor range from 7 to 12 feet. Important dangers are buoyed; these include **Outer Steamboat Rock**, near the dredged channel entrance, and **Ship Rock**, about 0.5 mile southeastward of Outer Steamboat Rock.

(198) About 1 mile northwest of Outer Steamboat Rock is the incinerator tower, a red brick building with a large glass tower, which is a prominent landmark.

(199) The harbor is entered through a dredged channel that leads about 0.5 mile west-northwestward to the intersection with two dredged branch channels leading to basins northward and westward of the junction. The entrance channel and the branch channel to the northern basin are marked by buoys.

(200) In May 1990, the controlling depths in the dredged channels in Mamaroneck Harbor were: 8 feet (9 feet at midchannel) in the entrance channel to the junction with the branch channels; thence in May 1990-November 1994, 7 feet (10 feet at midchannel) in the northern branch channel to the basin, thence 5½ to 10 feet in the smaller anchorage at the southwest side of the basin, with 2½ to 6 feet in the larger anchorage northeastward; thence in November 1980-November 1994, 5½ feet (6 feet at midchannel) from the junction to the western basin, with 6 feet in the basin. The basins are usually filled with moorings of local craft.

(201) **Caution.**–A pipeline covered about 6 feet crosses the western branch channel about 50 yards above the junction. Mariners are advised to exercise caution and reduce speed while transiting this area.

(202) **Tides.**–The mean range of tide is 7.3 feet.

(203) **The harbormaster** has an office on the south side of Harbor Island. The harbormaster controls all moorings and can be

contacted on VHF-FM channel 16; call sign WZX-8038. A **speed limit** of 5 mph is enforced in the harbor. A village police boat patrols the harbor during the summer season.

(204) The town of **Mamaroneck** extends from both sides of the harbor. Petroleum products, carried by barges, is the main commerce in the harbor.

(205) **Supplies and repairs.**–There are numerous boatyards and marinas in Mamaroneck Harbor. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(206) Foul ground extends southwesterly from eastward of Delancey Point to the Larchmont Harbor breakwater off **Edgewater Point**, on the east side of the harbor entrance; a light is on the end of the breakwater. **Hen and Chickens**, a reef bare at low water in places, lies off the harbor entrance; surrounding depths are 8 to 17 feet on the outer parts of the reef. About 0.3 mile westward of the breakwater light is **Dauntless Rock**, covered 8 feet, and surrounded by depths of 14 to 16 feet. These dangers are buoyed.

(207) **Larchmont Harbor** is between Edgewater Point and **Umbrella Point** and about 2.5 miles northward of Execution Rocks Light. The harbor is the headquarters of the Larchmont Yacht Club. Anchorage depths range from about 12 feet in the entrance to 5 feet near **Great Knob**, an islet in the north central part of the harbor. In summer the harbor is full of mooring buoys for small yachts. The rocks on the west side are marked, whereas unmarked shoals extend 200 yards from the eastern shore. The anchorage for larger vessels is westward of the breakwater.

(208) **Umbrella Rock**, marked by a buoy, is 250 yards eastward of Umbrella Point. A few rocks of a breakwater, which was started on Umbrella Rock, are awash at high water. **North Ledge**, bare at half tide, is near the western shore southeastward of the yacht club; it is marked by private daybeacons. The principal landing, with a reported depth of about 6 feet alongside, is on the southeast side of the yacht club and is lighted from sunset to sunrise.

(209) Larchmont Harbor may be entered on either side of Hen and Chickens. The easterly entrance, about 100 yards southwestward of the end of the breakwater, is about 300 yards wide and has a depth of about 15 feet.

(210) **Horseshoe Harbor** is a small cove just westward of Larchmont Harbor. A prominent gray building is at the head. The cove is used as a small-boat anchorage.

(211) **Echo Bay**, about 1 mile southwestward of Umbrella Point and 2 miles northwestward of Execution Rocks Light, is the principal approach to New Rochelle. The bay is entered between **Premium Point** on the northeast and **Davenport Neck** on the southwest. **Hicks Ledge**, about 0.5 mile off the entrance, is covered 6 feet and marked on the south side by a buoy.

(212) **Middle Ground**, an extensive shoal with a reef that uncovers 6 feet, lies about 0.5 mile south-southwestward of Hicks Ledge. **Emerald Rock**, covered 9 feet, is off the west side of the shoal and marked by a buoy. A buoy marks the north end of the shoal.

(213) **Bailey Rock**, which uncovers 4 feet, is near the end of a reef that extends about 200 yards off the point of Davenport Neck. The rock is marked by a lighted buoy.

(214) The bay is an anchorage for small craft and generally is fully occupied during the summer. Depths range from 4 to 15 feet. Small craft can anchor in the shallow cove on the northeast side of the harbor, entering between **Harrison Island** and the rocky, grassy islet off the northwest side of **Echo Island**. Vessels can anchor in the **general anchorages** on either side of the entrance, in depths of 20 to 24 feet. (See **110.1 and 110.155 (a) (2), (a) (3), and (1),** chapter 2, for limits and regulations.) Vessels should not anchor near the sewer outlet in the middle of the bay. A **special anchorage** is in Echo Bay. (See **110.1 and 110.60 (b-1),** chapter 2, for limits and regulations.)

(215) A 4 mph **speed limit** is enforced in Echo Bay.

(216) A dredged channel, on the northwest side of Echo Bay, leads to a municipal wharf and turning basin at Beaufort Point. The channel is marked by buoys to the turning basin. In October 1985, the controlling depth was 8½ feet at midchannel to the basin, with 6½ to 7 feet in the basin.

(217) The area northward of the turning basin, locally known as Ferris Creek, is shoal with extensive mud flats that bare at low water. Southwesterly of the turning basin, the depth varies from 9 feet to bare at the head of the harbor.

(218) **New Rochelle** is a city on the western shore of Echo Bay.

(219) The municipal wharf is on the northeast side of **Beaufort Point.** The city police patrol boats usually moor alongside the wharf. A small-craft facility and a municipal marina are in the northern part of Echo Bay. Berths, electricity, gasoline, diesel fuel, water, ice, and lifts to 20 tons are available; hull and engine repairs can be made. The municipal marina monitors VHF-FM channel 16.

(220) **Pine Island**, between Davenport Neck and Middle Ground, is rocky, covered with brush, and occupied by several cottages. A small private landing is on the west side of the island. Two bare rocks and a long bare ledge are southwestward of the island.

(221) **Charts 12366, 12364.–Davids Island,** southward of Davenport Neck, is the site of ruins of **Fort Slocum,** an inactive U.S. Government reservation now owned by the city of New Rochelle. The island is marked by a tank on its north end and a square chimney on its southeast end. A ferry landing on the west side of the island was in disrepair in 1987. Reefs partly bare at low water, marked by a lighted buoy, extend about 0.2 mile northward of Davids Island.

(222) Davids Island is surrounded on its east and south sides by a foul area of islands and rocks, the passages between which should not be used by strangers, even in small craft. **Huckleberry Island**, at the eastern end of the group, is wooded. **Pea Island**, about 0.3 mile southeastward of Davids Island, is grass covered, and rocks bare at low water are southeastward of it. **Columbia Island** has been improved by a seawall, making it about 150 feet square, with a pier 150 feet long on the west side.

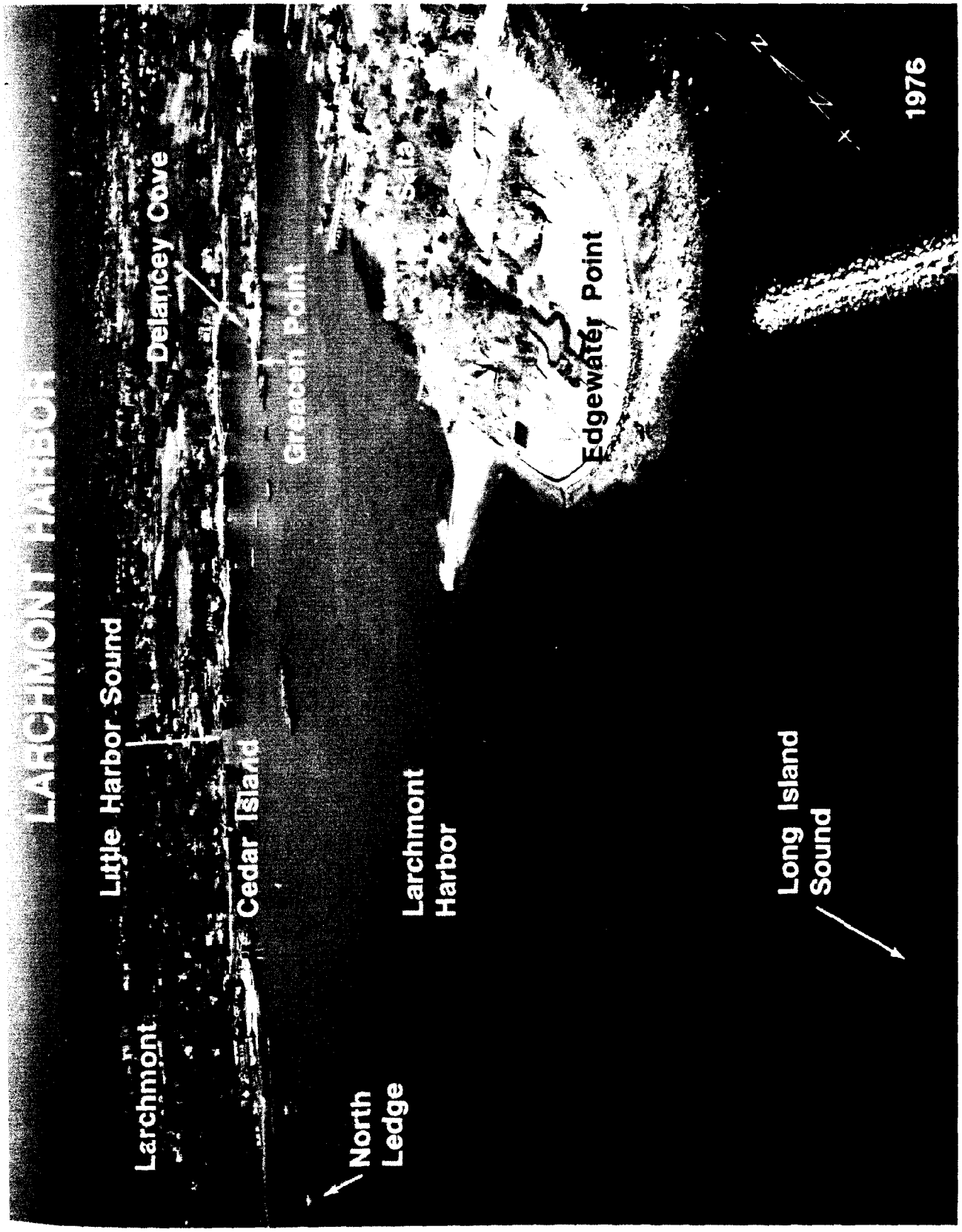
(223) An obstruction, covered 18 feet, has been reported in about 40°52.4′N., 073°45.4′W. about 0.3 mile south-southeastward of Pea Island. Mariners are advised to exercise caution while navigating in this area.

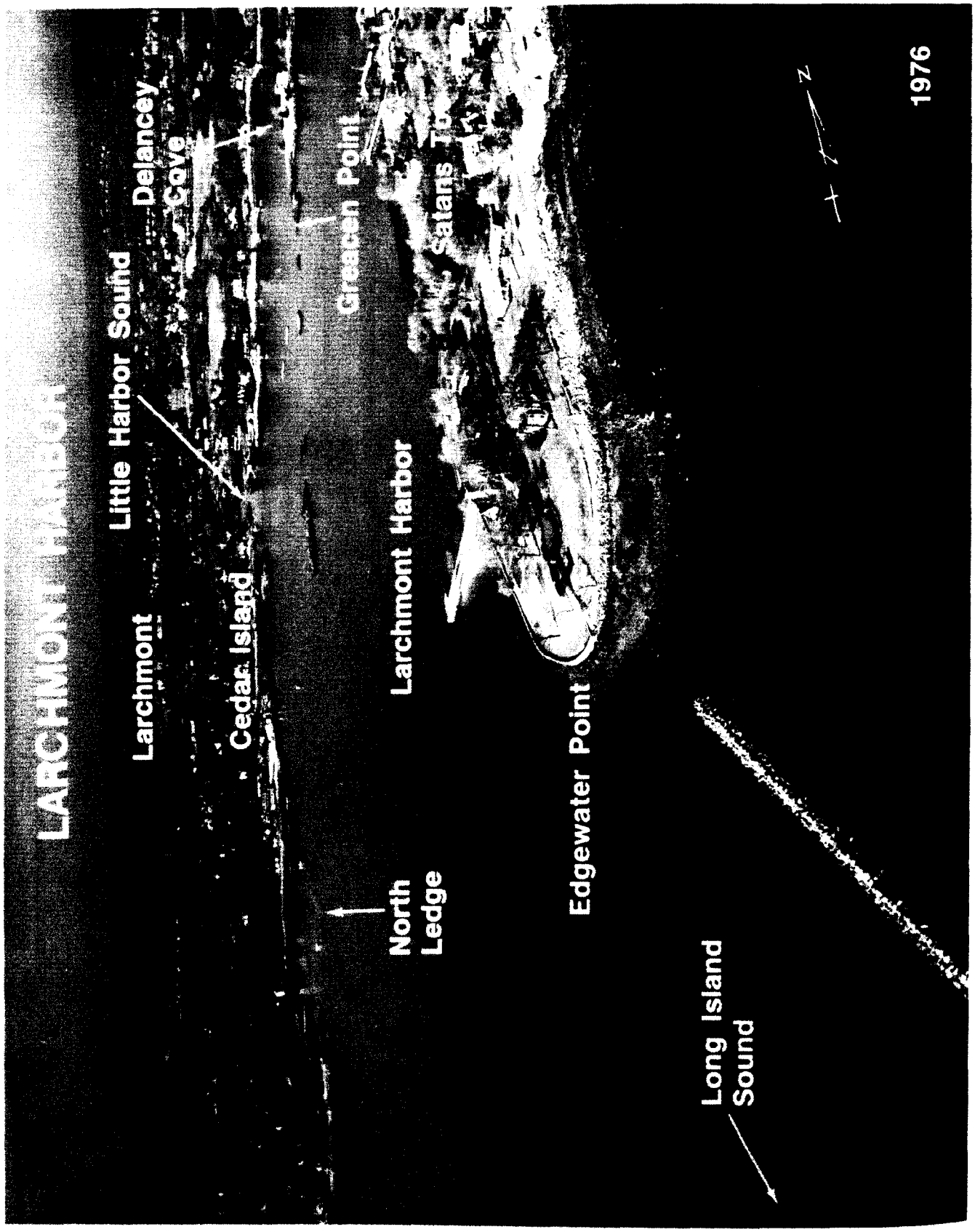
(224) **Execution Rocks,** about 1.4 miles eastward of Davids Island, consist of many boulders and shoals of considerable extent, marked by a light and buoys. Broken bottom, covered 5 to 19 feet, extends about 0.7 mile northward from the light.

(225) **Execution Rocks Light** (40°52.7′N., 73°44.3′W.), 62 feet above the water, is shown from a white stone tower with a brown band midway of its height, attached to a granite dwelling. A fog signal is at the light.

(226) **Middle Reef**, 0.5 mile southward of Davids Island, has some boulders which show at high water. **East Nonations** and **South Nonations** are rocks that uncover 4 feet between Middle Reef and Hart Island. South Nonations is marked on its south side by a lighted bell buoy.

(227) **Aunt Phebe Rock**, 300 yards west of Davids Island, is bare at half tide and marked by a light. In May 1976, an obstruction covered 4 feet was reported about 400 yards northwestward of


LARCHMONT HARBOR
Little Harbor Sound
Delancey Cove
Larchmont
Cedar Island
Greacen Point
Edgewater Point
Larchmont Harbor
North Ledge
Long Island Sound
N
1976


LARCHMONT HARBOR
Larchmont
Little Harbor Sound
Delancey Cove
Cedar Island
Greacen Point
Larchmont Harbor
Satans
North Ledge
Edgewater Point
Long Island Sound
N
1976

the light. Mariners are advised to exercise caution while navigating in this area.

(228) **Goose Island,** between Davids Island and Glen Island, is almost completely surrounded by a rock breakwater, and has several bare rocks to the westward and southward. A house on pilings is prominent on the island.

(229) **Glen Island,** 0.4 mile west of Davids Island, is a public park used as a pleasure resort. Special permits are required prior to using the launching ramp on the island. A light is on the north end of the island. A beach protected by two jetties is on the southeast end of the island. The channel on the northwest side of Glen Island is much used as an anchorage by small craft, particularly those bound to the club on Travers Island to the westward. The channel has a depth of about 7 feet. A **no wake** speed limit is enforced. Glen Island Channel, marked by buoys, is on the south-southwest side of the island.

(230) **New Rochelle Harbor** lies between the mainland, and westward of Davenport Neck, and Glen Island; it is off the southerly part of the city of New Rochelle. However, the main access of New Rochelle is through Echo Bay, previously discussed.

(231) New Rochelle Harbor is entered between Glen Island and Davenport Neck. An approach channel, with a depth of about 13 feet, leads from south-southwest of Davids Island northward to a point abreast the former ferry wharf on the island, thence through deeper natural water between Aunt Phoebe Rock and Corning Rock northward to the entrance to the harbor. A reef, bare at low water, makes off the west side of Davids Island opposite the buoy marking Corning Rock. Another approach channel, through deeper water, leads from the northeast between Davids Island and Davenport Neck to the entrance. Both channels are well marked. The narrow dredged channel in the harbor had a controlling depth of 5½ feet to within 100 yards of the dam at the head in October 1985.

(232) Anchorage is not recommended in the harbor because of its congestion. **General** and **special anchorages** are in adjacent waters southerly, extending as far as City Island and Locust Point. (See **110.1, 110.60 (b), (c), (c-1), and (d) through (f), and 110.155 (a) (1), (a) (4), and (1),** chapter 2, for limits and regulations.)

(233) Several yacht clubs, marinas, and boatyards are in New Rochelle Harbor. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(234) A bascule bridge connecting Glen Island with **Neptune Island** has a clearance of 13 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) Just south of the bridge is a yacht club on the east side of Neptune Island.

(235) **Orchard Beach**, about 1 mile southwestward of Davids Island, is a park developed by the State of New York on the filled-in area between Hunter Island, to the north, and Rodman Neck, to the south. The inshore water areas off the crescent beach are a swimming area and are closed to general navigation. The swimming area is marked by private buoys. A bathing pavilion and a flagstaff are prominent. **Chimney Sweeps**, two prominent bare rocks, are about 0.4 mile east of the beach.

(236) **Hart Island**, about 1.8 miles southwest of Execution Rocks Light, is the site of a New York Department of Correction facility. A stack on the southern part of the island and the buildings on the island are prominent. A reef extends about 200 yards southeastward from the south end of the island and is marked by a light. Caution is advised to avoid the 9-foot obstruction and the wreck with 13 feet over it which are 0.3 mile west of the light.

(237) **Rat Island** is a high bare rock about 0.4 mile west of Hart Island. **The Blauzes**, 13 feet high, are a part of the reef which extends 0.3 mile northwestward from the north end of Hart Island.

(238) The channel between City Island and Rodman Neck is used extensively as an anchorage by small pleasure craft during the summer. A **no wake** speed limit is enforced. Boat clubs and railways for small craft are on the northwest side of City Island. The shores are generally fringed with boulders and should be approached with caution. The north shores of High Island and City Island northeastward of the bridge are very foul, and boats should avoid the shoals with depths less than 12 feet on that side.

(239) City Island is connected with Rodman Neck by a highway swing bridge, kept in the closed position, with a clearance of 12 feet. (See **117.779,** chapter 2, for drawbridge regulations.) Currents at the bridge are variable and at times exceed 1.5 knots. (See the Tidal Current Tables.)

(240) **City Island Harbor**, also called **Hart Island Roads**, is between Hart Island and City Island. It is well sheltered from easterly and westerly winds and is an important anchorage for coasting vessels in the western end of Long Island Sound. Besides serving as a harbor of refuge, it is often used by vessels desiring pilots or towboats, or awaiting orders. A spire and cupola in the center of City Island and a steeple in the northerly part of the island are conspicuous objects.

(241) In September 1993, a submerged wreck was reported in about 40°50′36″N., 73°46′30″W.

(242) **City Island**, on the northeast side of Eastchester Bay, is narrow and over 1 mile in length. It is thickly settled and has a commercialized appearance. The west side is residential, and the east side is industrialized with several shipyards and other marine-related facilities.

(243) **Pilotage, City Island.**–A pilot boat of United New York New Jersey Sandy Hook Pilot Association moors at City Island. See Pilotage, New York Harbor from Long Island Sound (indexed as such), chapter 11.

(244) **High Island** is 200 yards northeastward of the north end of City Island to which it is connected by a fixed footbridge with a clearance of 11 feet. The ground under the bridge is reported to bare about 1 foot at low water. A 528-foot-high radio tower, marked on top by red lights, is prominent on High Island.

(245) **Anchorages.**–The usual anchorage for deep-draft vessels is southeastward of City Island, southward of a line joining the south ends of Hart and City Islands. When anchoring, avoid **Deep Reef**, a small rocky patch covered 25 feet. Other **general** and **special anchorages** are in the vicinity. (See **110.1, 110.60, and 110.155,** chapter 2, for limits and regulations.)

(246) A long pier in ruins and a wide stone pier, the top of which is used as a parking area, are at the south end of City Island at **Belden Point**. The western shore of Hart Island and the wharves on City Island should be given a berth of about 150 yards.

(247) **Tides.**–The mean range of tide is 7.2 feet.

(248) **Currents.**–The tidal current has a velocity of about 0.3 knot.

(249) **Ice** seldom interferes with navigation of powered vessels.

(250) **Supplies.**–Gasoline, diesel fuel, lubricants, and marine supplies of all kinds are available at City Island. Water is piped to some of the wharves; ice, electrical connections, guest moorings, and dry and wet storage are readily available.

(251) **Small-craft facilites.**–Many boatyards are on the east and northwest sides of City Island. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(252) **Communications.**–Buses serve the subway system of New York City.

(253) **Eastchester Bay**, between City Island and Throgs Neck, has general depths of 7 to 10 feet in the lower part and 3 to 5 feet in the upper part. The shores of the bay are fringed with boulders, and there are many shoals and several wrecks. Caution is essential, especially where the depths are not more than 3 feet greater than the drafts. **Hutchinson River** empties into the north end of the bay.

(254) A channel marked by buoys leads through Eastchester Bay from 1.1 miles west of Belden Point to the mouth of Hutchinson River. A dredged channel marked by buoys leads from the mouth for about 2.8 miles to the head of navigation at the city of Pelham.

(255) In August 1993, the controlling depth was 2 feet (6½ feet at midchannel) from Eastchester Bay Channel Lighted Buoy 7 to the junction with East Y and West Y at Pelham, thence 1½ to 5 feet in the East Y and shoaling to bare in the West Y.

(256) **Special anchorages** are in Eastchester Bay. (See **110.1** and **110.60 (d), (e), and (f)**, chapter 2, for limits and regulations.)

(257) The dangers in Eastchester Bay are few: **Big Tom**, on the east side near the entrance, is bare at low water, and other rocks around it show at extreme low tides; these are buoyed. **Cuban Ledge**, covered at half tide, is marked by a daybeacon and Cuban Ledge Lighted Buoy 2 close southwestward. A visible wreck is about 300 yards northwest of Lighted Buoy 2. Numerous rocks and shoals are on both sides of the channel near the entrance to Hutchinson River.

(258) Bridges and overhead cables crossing Hutchinson River are listed by type, distance above the dredged channel entrance, and clearance as follows: bascule, 0.35 mile, 13 feet; rolling lift, 0.5 mile, 8 feet; overhead power cable at bridge, 130 feet; bascule, 0.9 mile, 30 feet; fixed, 1.9 miles, 50 feet; fixed, 2.1 miles, 50 feet; overhead pipeline, 2.5 miles, 130 feet; bascule, 2.6 miles, 6 feet. (See **117.1 through 117.59 and 117.793**, chapter 2, for drawbridge regulations.)

(259) The Pelham Parkway bascule bridge, 0.35 mile above the entrance and the Amtrack lift bridge, 0.5 mile above the entrance, are equipped with radiotelephones. The bridgetenders monitor VHF-FM channel 13; call signs KU–9758, KU–6095, and KXS–298, respectively.

(260) **Eastchester**is a village on the west side of the Hutchinson River about 1.5 miles above Pelham Highway Bridge. Commerce on the river to Eastchester is in building materials, fuel oil, and petroleum products. **Pelham** is on the east side of the river above Eastchester.

(261) **Weir Creek** is a bight on the west side of the bay near the entrance.

(262) There are numerous **small-craft facilities** in Eastchester Bay. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(263) **Locust Point** is about 0.8 mile southeastward of Weir Creek. A cove just southwestward of the point provides small-boat shelter. Rocks, bare at low water, are on the north side of the approach. The entrance has a depth of about 5 feet. Inside the cove, depths range from 20 feet at the south end to about 4 feet at the north end. A yacht club and marina are in the cove. A marina at the head of the cove has a mobile hoist that can handle craft to 30 tons for engine and hull repairs. Gasoline, water, ice, and marine supplies are available at the marina; depths of about 7 to 10 feet are reported at the wharf.

(264) The northern approach viaduct of the Throgs Neck Bridge crosses the cove from Locust Point to Throgs Neck. The fixed spans of the viaduct have a minimum clearance of 30 feet.

(265) The mean range of tide is about 7 feet. Tidal currents have a velocity of 0.4 knot in the vicinity of Big Tom, and 0.8 knot at Pelham Bridge.

(266) **Charts 12363, 12364.–Old Field Point,** about 5 miles southward of Stratford Shoal (Middle Ground) Light, is a low bluff with a light and an abandoned tower on its summit. Boulders extend a short distance off the point, and the light should be given a berth of about 0.3 mile, even by small craft. A gong buoy is 0.6 mile northward of the point. Depths of 14 to 18 feet are found about 0.4 mile northward of the light.

(267) **Crane Neck Point**, 2 miles westward of Old Field Point, is a bare conspicuous bluff about 90 feet high and covered on top with brush.

(268) **Smithtown Bay**, a broad open bight on the south side of the sound, extends 7 miles westward from Crane Neck Point. Rocky shoals extend 1 mile in places from the shore, the water shoaling abruptly from 51 feet in places. A good summer anchorage in 30 to 50 feet sheltered from easterly winds is found about 1 mile southward of Crane Neck Point.

(269) **Stony Brook Harbor** is a narrow shallow bay in the southeastern part of Smithtown Bay. The approach to the harbor from the bay is over a bar which extends 0.8 mile off the entrance; the outer end of the bar is marked by a seasonal lighted buoy and the approach to the harbor is marked by private lighted buoys. In June 1981, 3½ feet was reported over the bar. A private seasonal daybeacon is on the east side of the entrance to the harbor. Two branch channels lead from the entrance into the harbor; one leads southwestward to a steel bulkheaded yacht club wharf and pavilion at the village of **Stony Brook**, 0.5 mile inside the entrance, and the other, **Porpoise Channel**, leads westward to a yacht club at the northwestern end of the harbor; gasoline is available at both clubs. In June 1981, depths of about 5 feet were reported in the southwesterly channel, and about 4 feet in Porpoise Channel. The channels are marked by private seasonal lighted and unlighted buoys and a private seasonal daybeacon. The buoys are periodically moved to mark the best water. A **speed limit** of 5 mph is enforced in Stony Brook Harbor and Porpoise Channel.

(270) **Small-craft facilities** are in the harbor. (See the small-craft facilites tabulation on chart 12364 for services and supplies available.)

(271) The railroad station is about 1 mile from the wharf at Stony Brook.

(272) A high bluff is between Stony Brook Harbor and Nissequogue River, another between Nissequogue River and **Sunken Meadow Creek**, and bluffs in places between Sunken Meadow Creek and Northport Bay.

(273) **Nissequogue River**, a shallow crooked stream about 4 miles westward of the entrance to Stony Brook Harbor, is entered through a privately dredged channel that leads southward from Smithtown Bay for about 1.4 miles into the river. In June 1981, the channel had a reported controlling depth of about 5 feet. Rocks and shoals, bare at low water, are on the bar outside the entrance. A seasonal lighted buoy marks the channel approach, and private seasonal lighted buoys mark the channel. Strong tidal currents are reported in the channel. A **speed limit** of 5 mph is enforced on the river. Guest moorings, gasoline, water, ice, and limited supplies are available at a pier on the west side of the river, about 0.9 mile above the channel entrance. In June 1981, depths of 6 to 8 feet were reported alongside the pier. A State hospital, a group of buildings with green roofs, and two large red brick chimneys are prominent about 0.5 mile southwestward of the river entrance.

Farther westward, a brick building and a stack are also prominent. The railroad station is at **Kings Park**.

(274) **Charts 12365, 12364.–Northport Basin,** about 10.5 miles westward of Old Field Point Light and 2.7 miles southeastward of Eatons Neck Point, is a small privately maintained basin with general depths of 7 to 20 feet, and formed by gravel dredges working into the high bank; greater depths are available. In 1977, the privately dredged entrance channel had a controlling depth of 12 feet. The channel is marked by a private lighted buoy and unlighted buoys; submerged jetties extend northward from the east and west sides of the entrance. A dangerous rock is close northward of the seaward end of the west jetty. The four stacks of a power and light company on the east side of the basin are prominent. A town launching ramp is in the basin.

(275) An aquaculture site, marked by a private buoy, is about 1.2 miles northwestward of the entrance to Northport Basin.

(276) **Offshore Terminal, Northport.**–An offshore platform for the receipt of oil, is off Northport. The terminal is owned and operated by Long Island Lighting Company (LILCO), Northport, NY. The platform, with off-lying mooring buoys, is about 1.6 miles northward of the entrance to Northport Basin and about 2.4 miles eastward of Eatons Neck Light. Submerged pipelines extend from the shore to the platform. The platform is marked at its eastern end by a private light, and at the western end by a private light and fog signal.

(277) Upon the scheduled approach of an incoming vessel, the platform, voice call "LILCO Northport Power Station" or "LILCO Dock at Northport", monitors VHF-FM channel 19.

(278) **Pilotage, Offshore Terminal, Northport.**–Pilotage is compulsary in Long Island Sound for foreign vessels and U.S. vessels under register. For these vessels, pilotage to this terminal is available from:

(279) Sound Pilots, Inc. (a division of Northeast Marine Pilots, Inc.).

(280) For U.S. enrolled vessels in the coastwise trade, pilotage to this terminal is available from

(281) Connecticut State Pilots (a division of Interport Pilots Agency, Inc.),

(282) Constitution State Pilots Association,

(283) Long Island Sound State Pilots Association, Inc., and

(284) Sound Pilots, Inc. (a division of Northeast Marine Pilots, Inc.).

(285) See Pilotage, Long Island Sound (indexed as such), early this chapter, and Pilotage, New York Harbor and Approaches (indexed as such), chapter 11.

(286) The pilot serves as docking master and remains on board on standby while the vessel is moored at the platform. Pilot services are arranged in advance through ships' agents or directly by shipping companies.

(287) **Tugs.**–Tug service is available from New Haven, Providence, Brooklyn, or Staten Island on advance notice.

(288) **Eatons Neck** is a prominent wooded headland with elevations of 100 feet or more, and marked at its north end by a light and tower of **Eatons Neck Coast Guard Station**.

(289) **Eatons Neck Light** (40°57.2′N., 73°23.7′W.), 144 feet above the water, is shown from a 73-foot white stone tower; a fog signal is at the light.

(290) The northwest end of the neck is a spit in the form of a hook which encloses **Eatons Neck Basin**. Eatons Neck Coast Guard Station, is at the head of the basin. The basin is entered through a privately dredged cut between two small riprap jetties about 0.5 mile southwestward of the light; the jetties are covered at half tide. The channel between the jetties is buoyed, and there are buoys farther inside the basin. The basin is subject to frequent changes and the buoys in the basin are not charted because they are frequently shifted in position. In March-April 1994, depths of 10 feet could be carried through the entrance. In July 1987, shoaling to an unknown depth was reported in the entrance channel.

(291) **Caution.**–Eatons Neck Basin Channel is maintained expressly to enhance the Eatons Neck Coast Guard Station's rescue response. Further, Eatons Neck Basin has become one of the most congested small-boat anchorages in the area in the summer. Mariners are cautioned that heavy wakes from rescue craft departing the station may be experienced by small craft anchoring in this area.

(292) Shoals with depths of 4 to 18 feet extend about 0.9 mile northward of Eatons Neck, and broken ridges extend northward for another 1.8 miles. The northern end of each area is marked by a buoy.

(293) **Huntington Bay**, just westward of Eatons Neck, is the approach to Northport Bay and Harbor, Centerport Harbor, Huntington Harbor, and Lloyd Harbor. The bay, protected against all but northerly winds, is an excellent anchorage for large vessels. Depths range from 36 to 25 feet, fairly close to its southern end, and anchorage can be selected according to draft and wind direction.

(294) An obstruction covered by 23 feet is about 0.8 mile southwestward of Eatons Neck Light.

(295) A **017**°56′–197°56′ measured half nautical mile is on the west side of Eatons Neck. Triangular orange shore ranges mark the ends of the course.

(296) Anchorage with shelter from northwesterly winds can be had for small vessels at the southwesterly end of Huntington Bay, 0.4 mile northeastward of Huntington Harbor Light, in 18 to 36 feet. The arms of the bay provide secure harbors; Northport Bay is used generally by the larger vessels.

(297) **Tides.**–the mean range of tide is 7.4 feet.

(298) **Currents.**–In Huntington Bay the velocity of the tidal current is 0.5 knot off East Fort Point and 0.4 knot in the entrance to Northport Bay. (See the Tidal Current Tables for predictions.)

(299) **Duck Island Harbor** is a shallow cove on the north side of Northport Bay westward of **Duck Island Bluff**. Depths range from 6 to 9 feet in the entrance. The south side of Duck Island Bluff and the southeast side of **Winkle Point** should be given berths of 300 and 400 yards, respectively, to avoid shoal water and inshore rocks.

(300) A 5 mph **speed limit** is enforced in Duck Island Harbor.

(301) **Northport Bay**, which opens off the southeast end of Huntington Bay, provides good anchorage in 20 to 50 feet in its western part, and in 8 to 11 feet in the eastern half. The entrance to the bay is marked by a lighted buoy, and the entrance channel, privately dredged to about 12 feet, is buoyed.

(302) An amber light, maintained at the public landing by the town of Northport, is a conspicuous mark at night for vessels making the wharves at Northport.

(303) A privately dredged channel at the eastern end of Northport Bay leads to a dredge basin formerly used by a sand and gravel company on the north side of **Bluff Point**. Several private landings and moorings are in the basin. In June 1981, the channel had a reported controlling depth of 10 feet.

(304) **Northport Harbor** is at the southeastern end of Northport Bay and is entered by a dredged channel that leads along the waterfront of Northport and an anchorage basin west of the village. The channel is marked by private seasonal buoys. In March 1990, the controlling depth was 5 feet in the channel and anchor-

age basin. A channel leads from the town landing to a boatyard and marina at the southeast end of the harbor and is marked by private seasonal buoys. In June 1981, reported depths of 5 feet were available in the channel. The boatyard channel is marked by buoys and by a lighted buoy at the entrance; these aids are seasonal and privately maintained. An alternate channel, marked by private buoys, with a reported controlling depth of 2 feet in September 1990, leads from opposite the public landing along the west side of the harbor to the head.

(305) **Bird Island**, a bird sanctuary in the southern part of the harbor, is a low, grass-covered, man-made island.

(306) Vessels select anchorage according to draft in the harbor; bottom is soft. During severe winters, **ice** may close the harbor for about 2 months. A 5 mph **speed limit** marker is in the entrance to the harbor.

(307) A **special anchorage** is in Northport Harbor. (See **110.1** and **110.60 (a-2)**, chapter 2, for limits and regulations.)

(308) **Northport** is a village with bus communications on the eastern shore of Northport Harbor. Depths at the principal wharves are about 6 to 8 feet. The greatest depth that can be taken to Northport is about 14 feet at high water.

(309) Several small-craft facilities are on the east side and the head of the harbor, and a yacht club is on the west side. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(310) **Centerport Harbor** is a shoal bight on the south shore of Northport Bay just eastward of the entrance. The harbor serves the small-boat interests of the village of Centerport. In June 1981, a reported depth of about 7 feet could be taken through the privately dredged channel to the spit extending southwesterly from Little Neck, thence about 3 feet to a boatyard on the west side of the harbor just below the bridge. The channel is marked by private seasonal buoys. Berths, moorings, electricity, water, storage, marine supplies, and a launching ramp are available. A flatbed trailer can haul out craft to 32 feet; hull and engine repairs can be made.

(311) A **special anchorage** is in Centerport Harbor. (See **110.1** and **110.60 (a-1)**, chapter 2, for limits and regulations.)

(312) **Huntington Harbor**, at the southwest end of Huntington Bay, is entered through a marked channel that leads to an anchorage off Huntington Town Dock, about 2 miles above the channel entrance. A depth of about 8 feet can be carried in the channel. **Huntington Harbor Light** (40°54.6′ N., 73°25.9′W.), 42 feet above the water and shown from a square concrete tower attached to a dwelling on a rectangular pier, is on the west side of the entrance to Huntington Harbor and on the south side of the entrance to Lloyd Harbor. A fog signal is at the light.

(313) The channel is marked by a light and by lighted, unlighted, and private unlighted buoys. Some of the private buoys are seasonal.

(314) The wharf just southward of Huntington Town Dock South is used by sand and gravel barges. The **bay constable** has an office at the head of the harbor immediately southward of Huntington Town Dock North.

(315) A boulder reef, on the west side of the entrance, extends out to Huntington Harbor Light. An obstruction, reported covered 4½ feet, is 0.35 mile eastward of the light.

(316) In March 1991, a dangerous wreck was reported between Buoys 9 and 11 in about 40°53′54.9″N., 73°25′46.1″W.

(317) The tidal currents in the entrance channel have an estimated velocity of 2 knots.

(318) A **special anchorage** is in Huntington Harbor. (See **110.1** and **110.60 (a)**, chapter 2, for limits and regulations.)

(319) A 5-mph **speed limit** is enforced in the harbor.

(320) **Huntington** and **Halesite** are villages at the head of the harbor. The yacht club landing on the east side of the harbor has a depth of about 10 feet alongside. Gasoline, diesel fuel, berths, electricity, water, and ice can be obtained here. Yachts may anchor off the landing, but must keep clear of the channel.

(321) Coindre Hall, a large brick building with a red roof and numerous chimneys at the entrance to the harbor, and Huntington Hospital, well lighted at night, at the head of the harbor are prominent.

(322) There are several marinas, boatyards, and private boat clubs in Huntington Harbor. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(323) **Lloyd Harbor** extends westward from Huntington Bay nearly to Oyster Bay, from which it is separated by a narrow strip of land. Vessels can anchor just inside the entrance, in depths of 7 to 11 feet. The entrance to the harbor is marked by buoys. A **speed limit** of 5 mph is enforced in the harbor.

(324) **Oyster Bay**, on the south side of Long Island Sound about 5 miles westward of Eatons Neck Light, lies between Lloyd Neck and Rocky Point and is the approach to Cold Spring Harbor and Oyster Bay Harbor. The harbor is marked by **Cold Spring Harbor Light** (40°54.8′N., 73°29.6′W.), 37 feet above the water, and shown from a skeleton tower on a caisson with a red triangular daymark. The entrance and harbor are characterized by extensive shoals, boulder reefs, and broken ground making off from the shores. Vessels should proceed with caution if obliged to approach or cross shoal areas. The bay south of Cold Spring Harbor Light is a secure harbor, available for vessels of less than 18-foot draft.

(325) **Lloyd Neck**, between Huntington and Oyster Bays, is high and wooded, and has a high, yellow bluff on its north side 0.8 miles eastward of Lloyd Point. Many patches of boulders having least depths of 2 to 8 feet extend 0.2 to 0.5 mile offshore from **East Fort Point** to Lloyd Point. Small craft skirting this shore should keep well outside the line of buoys.

(326) **Lloyd Point**, the north end of Lloyd Neck, is a low spit. A rocky shoal extends 0.5 mile north-northeastward from Lloyd Point. A seasonal lighted gong buoy about 1 mile northward of Lloyd Point marks the northern limit of the 30-foot curve in this vicinity.

(327) **Morris Rock**, about 0.5 mile eastward of Lloyd Point, is covered by a least depth of 2 feet. The rock is marked by a buoy.

(328) The long jetty, about 0.6 mile southwestward of Lloyd Point, forms the southern entrance point to **The Sand Hole**, a pond that has been dredged into the spit by a sand and gravel company. The pond is State controlled and may be entered by steering a midchannel course through the entrance. It is used considerably by local boats as an anchorage and harbor of refuge. The holding ground is good.

(329) In June 1981, reported depths of about 12 feet were in the entrance channel and about 4 to 22 feet in the basin.

(330) **Rocky Point**, the northern promontory of **Centre Island**, is a small bluff on whose summit is a large prominent house. An extensive foul area with depths of 2 to 17 feet extends about 1 mile northward of Rocky Point. A bell buoy marks the northern end of this foul area. This area is dangerous and should be avoided.

(331) A shoal area with depths of 4 to 11 feet extends eastward from Rocky Point nearly across Oyster Bay and is marked near its eastern end by Cold Spring Harbor Light. Small craft with local knowledge cross the shoal at a distance of about 0.4 mile westward of the light, but strangers should not attempt it.

(332) The mean range of **tide** is 7.4 feet.

(333) **Currents.**–About 0.4 mile northwest of Cold Spring Harbor Light the velocity is about 0.5 knot; about 0.2 mile north of Cove Point, 1.2 miles southwestward, it is about 0.8 knot. For predictions, the Tidal Current Tables should be consulted.

(334) **Ice.**–During severe winters ice has been known to extend the full length of the bay during part of January and February.

(335) **Plum Point**, the easternmost point of Centre Island, is marked at its south end by a small stone tower; boat landings are on the southwest side of the point. A yacht club with a prominent flagstaff is about 0.3 mile west of Plum Point. The yacht club landing has reported depths of about 9½ feet.

(336) **Cooper Bluff**, at the northeast end of Cove Neck is prominent. A boulder reef extends nearly 0.3 mile northward from **Cove Point** at the northwest end of **Cove Neck**, and is marked by a seasonal lighted buoy.

(337) **Cold Spring Harbor**, the southeasterly end of Oyster Bay, extends about 2.3 miles southward of Cooper Bluff. The tower on top of a dome of a seminary on the hill of **West Neck**, on the east side of the harbor, is prominent. A depth of about 14 feet can be carried to near the head of the harbor by giving the shores a berth of about 0.3 mile.

(338) The village of **Cold Spring Harbor** is on the eastern shore near the head of the harbor. An oil company pier at the village has a depth of about 13 feet alongside. A small-craft facility is on the east side of the cove at the head of Cold Spring Harbor. Gasoline, water, ice, limited marine supplies, and overnight moorings are available. In June 1981, a reported depth of about 3 feet was available alongside the facility. A town launching ramp is available in the harbor.

(339) A **speed limit** of 5 mph is enforced in the harbor.

(340) **Special anchorages** are in Cold Spring Harbor and Oyster Bay Harbor. (See **110.1 and 110.60 (t), (u), (u-2) and (u-3),** chapter 2, for limits and regulations.)

(341) **Oyster Bay Harbor**, a long, crooked arm in the western side of Oyster Bay, has a channel with a depth over 30 feet leading into the area westward of **Moses Point**. Good anchorage is available southward of Moses Point. West of this point, the channel is narrow and suitable only for vessels drawing less than 10 feet. Vessels of less than 7-foot draft can anchor in the bight between Cove Neck and the wharf at Oyster Bay, and also in **West Harbor**, the large bight on the northwest side of Centre Island. A **speed limit** of 5 m.p.h. is enforced in the harbor.

(342) The village of **Oyster Bay**, on the shore south of Oyster Bay Harbor, has rail communication. A privately dredged channel with a depth of about 9 feet leads to the oyster wharf. Reported depths of about 9 feet are on the west side of the wharf, about 8 feet at the face, and about 8 feet on the east side. Parallel to and about 200 feet off the west side of the wharf is a row of sunken barges.

(343) A dredged channel, with a reported depth of about 6 feet, leads from about 200 yards westward of the wharf to the town dock in **Roosevelt Memorial Basin**. The channel is marked by private seasonal buoys. An oil receiving wharf is about 150 yards southeastward of the oyster wharf.

(344) A small-craft facility is eastward of the entrance to Memorial Boat Basin. Gasoline, diesel fuel, moorings, berths, electricity, water, marine supplies, and storage are available. A 16-ton forklift and flatbed trailer can handle vessels to 36 feet for hull and engine repairs. A shipyard is westward of the Memorial Boat Basin. Marine railways to 200 feet and cranes to 20 tons are available; complete hull and engine repairs can be made. In June 1981, reported depths of 19 feet were available at the shipyard.

(345) **Brickyard Point**, about 0.5 mile westward of Moses Point, should be given a berth of at least 0.2 mile off its westerly side to avoid several dangerous rocks to the northwestward of the point. None of these rocks is marked. Extensive privately owned oyster beds, marked by stakes, are in this area.

(346) **Mill Neck Creek**, at the northwest end of Oyster Bay Harbor, is crossed by a highway bridge having a bascule span with a clearance of 9 feet. The area westward of the bridge has depths of 2 to 16 feet.

(347) **Oak Neck Creek**, northwest of Mill Neck Creek, is entered at high water as the creek is practically bare at low water.

(348) **Charts 12367, 12364.–Oak Neck Point** (40°54.9′N., 73°34.1′W.), 4 miles west-southwestward of Lloyd Point, is marked by many large residences. Several stone jetties extend a short distance from the shore just westward of the point. A shoal, strewn with boulders and marked by a buoy, extends 0.3 mile from the shore for part of the distance between Oak Neck Point and Matinecock Point to the westward.

(349) **Frost Creek**, locally known as Guthries Creek, 2 miles westward of Oak Neck Point, has a channel at the entrance which is well defined when the water is below half tide. The creek is protected by a stone jetty that extends a short distance from the shore about 50 yards eastward of the channel. The channel has a reported depth of about 1 foot near the entrance. The creek is not recommended without local knowledge.

(350) **Peacock Point** is just west of Frost Creek. A stone jetty to protect a private boat landing extends a short distance from the west side of the point.

(351) **Matinecock Point**, 1.1 miles westward of Frost Creek, is marked on its western side by a stone pier in ruins. A shoal extends about 600 yards off the point and is marked at its end by a lighted gong buoy which is removed if endangered by ice.

(352) **Charts 12366, 12364.–Hempstead Harbor**, 4 miles wide at the entrance between Matinecock Point and Prospect Point, is free from dangers if the shores are given a berth of 0.3 mile. It is much used by vessels seeking shelter in any but strong northerly winds and affords excellent anchorage with good holding ground. Vessels can anchor in any part of the harbor according to draft and direction of wind. A good anchorage for vessels drawing less than 20 feet is just inside a line from Mott Point to the breakwater at Glen Cove Landing. Small vessels can anchor behind the breakwater. Vessels should avoid anchoring in the pipeline area between Glenwood Landing and Bar Beach. On the western shore above and below Bar Beach are large sand and gravel plants. On the eastern shore are several villages. A 5 mph **speed limit** is enforced in the harbor.

(353) Waterborne commerce in the harbor is in sand, gravel, petroleum products, and building material. Vessels engaged in this commerce usually draw from 3 to 12 feet.

(354) A **special anchorage** is in Hempstead Harbor. (See **110.1 and 110.60 (u-1),** chapter 2, for limits and regulations.)

(355) **Weeks Point**, on the eastern side near the entrance, is marked by a breakwater which protects a private boat landing. Nearly 0.5 mile southward of Weeks Point is the entrance to a basin protecting a private wharf which has a reported depth of 8 feet at the end. The basin shoals to the head, and there are rocks bare at low water near the northern end.

(356) **Glen Cove** is a city with rail and bus communication on Glen Cove Creek, about 1 mile back from the eastern shore of the bay. The breakwater extends 500 yards west-southwestward from **Glen Cove Landing** and is marked at its end by a light. The

anchorage behind the breakwater is known as **Glen Cove Harbor**, the depths ranging from 18 to 22 feet behind its outer half and 7 to 9 feet near shore.

(357) **Glen Cove Creek**, 0.6 mile southward of the breakwater, has a dredged channel from **Mosquito Cove** to the head. In September 1990, the reported midchannel controlling depth was 6 feet for about 0.6 mile above the entrance. The remainder of the project is not being maintained. An overhead power cable near the head has a clearance of 65 feet. The entrance is buoyed.

(358) There are several small-craft facilities in Glen Cove Creek. (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(359) A dredged channel, entered between Bar Beach and Glenwood Landing, leads between extensive flats through the southern part of Hempstead Harbor to the Roslyn Old Town Wharf, just northward of the North Hempstead Turnpike Bridge, 1.5 miles above Bar Beach. In June 1981, the reported controlling depths were 3½ feet from Glenwood Landing to Old Town Wharf, thence in September 1990, shoaling to bare to the dam at Willow Avenue. The North Hempstead Turnpike Bridge has a fixed span with a clearance of 51 feet.

(360) **Sea Cliff** is a village on the steep hill on the south side of Glen Cove Creek. From Sea Cliff southerly to the northerly wharves at Glenwood Landing, a shoal extends 300 yards from the east side of the harbor and is marked by a buoy and light.

(361) **Glenwood Landing** is a village on the eastern shore abreast Bar Beach. The eight stacks at the powerplant are prominent. A private light is shown from the outer end of an unloading boom when the boom is in operation. An overhead power cable crossing from the powerplant to Bar Beach has a clearance of 90 feet. Depths of about 8 to 10 feet are available at the Glenwood Landing wharves.

(362) A boatyard, reached only at high water, is at South Glenwood Landing. Craft to 25 tons can be hauled out for minor hull repairs.

(363) **Roslyn** is a village on the railroad at the head of the harbor.

(364) The mean range of **tide** is 7.3 feet.

(365) **Currents.**–In the channel west of the breakwater the tidal currents are weak and variable. At Bar Beach the tidal currents have a velocity of about 0.8 knot through the narrow channel. (See the Tidal Current Tables for predictions.)

(366) In severe winters **ice** has been known to close navigation for about 6 weeks during January and February.

(367) The shore between Prospect Point and **Mott Point** (40°51.4′N., 73°40.6′ W.), to the southeastward, is marked by prominent bluffs. A shoal with boulders extends 0.2 mile from shore between the points and for a short distance south of Mott Point. Buoys mark the limits of the shoal eastward and northeastward of Mott Point. **Picket Rock**, with 2 feet over it, is 350 yards offshore northward of Mott Point. An obstruction covered 15 feet is about 0.7 mile north-northwestward of the point in 40°52′05.5″N., 73°40′59.1″W.

(368) **Prospect Point**, marked by prominent houses on the bluff, has a rocky shoal making out nearly 0.4 mile northward from it. The shoal rises abruptly from a depth of 60 feet. The north end of the shoal is marked by a lighted gong buoy that is 0.8 mile eastward of Execution Rocks Light. About 0.2 mile eastward of the buoy are rocky patches with depths of 17 to 18 feet. An obstruction with 23 feet over it is east-northeastward from the buoy.

(369) **Sands Point**, 0.7 mile west of Prospect Point, is marked by a daybeacon. A boulder reef extends about 0.3 mile off the point and is marked by a lighted buoy. The boulders show at low water for a distance of about 300 yards from shore. A stone tower is a prominent object on this point.

(370) **Barker Point**, about 1 mile south-southwest of Sands Point, is a high bluff on the northeast side of the entrance of Manhasset Bay. **Gangway Rock**, marked by a light and gong buoy, is at the northwesterly end of a broken line of rocks and shoal water which extends 0.6 mile northwestward from Barker Point. **Success Rock**, awash at low water and marked by a buoy, is about 0.2 mile southeastward of the light.

(371) **Manhasset Bay**, between Barker Point and Hewlett Point, affords excellent shelter for vessels of about 12 feet or less draft, and is much frequented by yachts in the summer. The depths in the outer part of the bay range from 12 to 17 feet, and 7 to 12 feet in the inner part inside Plum Point. The extreme south end of the bay is shallow with extensive mudflats. Depths of about 6 to 2 feet can be taken through a natural channel almost to the head of the bay. A 5 mph **speed limit** is enforced.

(372) Waterborne commerce is in petroleum products, carried in vessels drawing 6 to 10 feet.

(373) **General** and **special anchorages** are in Manhasset Bay. (See **110.1, 110.60 (g) through (j), and 110.155 (a) (6) and (l),** chapter 2, for limits and regulations.) The bottom is soft and affords good holding ground.

(374) A seaplane **restricted area** is off Manorhaven. (See **162.15,** chapter 2, for limits and regulations.)

(375) The mean range of **tide** is 7.3 feet.

(376) **Plum Point**, is a low spit extending southward from the eastern shore about 0.6 mile southward of Barker Point. An entrance buoy is about 150 yards southward of Plum Point. The bight eastward of Plum Point is shoal.

(377) **Port Washington** is a village with rail communication on the south side of a shoal bight about 1.2 miles southeastward of Plum Point. An apartment complex on **Tom Point**, 0.9 mile east of Plum Point, is prominent. Depths of about 8 feet can be carried in the buoyed approach from the lighted buoy off Plum Point to the docks at Port Washington, thence through the unmarked channel along the east side of the bight to its north end northeastward of Tom Point. A 6-foot spot is opposite the town dock in about 40°49′54″N., 73°36′20″W. In 1979, shoaling to 1½ feet was reported in the approach to the wharves east of Tom Point in about 40°50′04″N., 73°42′17″W. In June 1981, depths of 5 feet were reported on the north side of the town dock with 2 and 4 feet on the west and south sides, respectively. Depths at the other wharves are reported to range from 4 to 9 feet.

(378) There are extensive small-craft facilities at Port Washington and to the eastward and westward of Tom Point at **Manorhaven.** (See the small-craft facilities tabulation on chart 12364 for services and supplies available.)

(379) **Hewlett Point** (40°50.3′ N., 73°45.2′W.) is on the west side of the entrance to Manhasset Bay. A boulder reef, mostly bare at low water and marked by a lighted buoy at its northern end, extends about 0.2 mile northward from the point.

(380) **General** and **special anchorages** are between Hewlett Point and Elm Point, about 1.3 miles southeastward of Stepping Stones Light. (See **110.1, 110.60 (j)(1), and 110.155 (a)(6) and (l),** chapter 2, for limits and regulations.)

(381) **Stepping Stones Light** (40°49.5′N., 73°46.5′W.), 46 feet above the water, is shown from a red brick structure on a granite pier, with a white horizontal band on the southwest face, 1.3 miles southwest of Hewlett Point. The **Stepping Stones**, a dangerous boulder reef which dries in places, extend 0.8 mile southeastward from the light to the Long Island shore. In August 1976, a sub-

merged rock, covered 18 feet, was reported 100 yards west-northwestward of Stepping Stones Light.

(382) **Kings Point**, marked by a private light, is 1.6 miles south-southwestward of Hewlett Point and is the site of the **U.S. Merchant Marine Academy**. The 172-foot unguyed steel flagpole at the academy is said to be the country's tallest; the top of the pole is 216 feet above the water. A boat basin, partially enclosed by an L-shaped pier, is at the point. In June 1981, the basin had reported depths of 10 to 13 feet.

(383) **Little Neck Bay** is entered between Kings Point and Willets Point, 1.2 miles to the south-southwestward. Depths are 10 to 12 feet in the entrance, decreasing gradually to the head, about 2 miles inland, where the bay divides into two branches which almost dry; there are boulders in places close to the shores.

(384) The shores of Little Neck Bay are thickly settled, and there are many private boat landings. A much used anchorage, in depths of 2½ to 7 feet, is in the cove midway along the east side of the bay.

(385) A small-craft facility is on the west side of the bay. Gasoline, water, ice, and limited marine supplies are available. In June 1981, the facility had a reported depth of 4 feet alongside.

(386) **General** and **special anchorages** are in Little Neck Bay. (See **110.1, and 110.60 (k), and 110.155 (a)(7) and (l),** chapter 2, for limits and regulations.)

(387) **Charts 12366, 12339, 12335.–East River** is a 14-mile-long tidal strait that connects Long Island Sound with New York Upper Bay and separates the western end of Long Island from the New York mainland. The Sound entrance is between Throgs Neck and Willets Point; the Upper Bay entrance is between The Battery and Governors Island. Hell Gate, about halfway between Throgs Neck and The Battery, is noted for its strong tidal currents. Harlem River extends northward from Hell Gate to the Hudson River. Both sides of the East River, from The Battery to Port Morris, a distance of 9 miles, present an almost continuous line of wharves except where shoals or currents prevent access.

(388) **Channels.**–A Federal project provides for main-channel depths of 35 feet from Throgs Neck to the inactive New York Naval Shipyard, about 2 miles from the western entrance, and thence 40 feet to deep water in New York Upper Bay.

(389) **Caution.**–Mariners transiting East River in the vicinity of Rikers Island and/or South Brother Island Channel are advised of the following:

(390) East River Main Channel Lighted Buoy 3 has been established northeast of Rikers Island in 40°47′47″N., 73°51′59″W. to assure that no vessel penetration of air space exists over that portion of the East River which coincides with the glide path of the northeast-southwest runway of La Guardia Airport. Vessels with mast heights in excess of 125 feet shall pass 100 yards to the north of this buoy so as to avoid interference with the glide path.

(391) Vessels transiting South Brother Island Channel and using the turning basin at its southern terminus shall ballast prior to entry, and are cautioned that mast heights in excess of 125 feet may penetrate the glide path to the northwest-southeast runway to La Guardia Airport. If mast heights cannot be lowered below 125 feet, La Guardia Air Traffic Control Tower shall be notified by telephone (212-779-0242) prior to terminal departure or channel entry.

(392) Several **general** and **special anchorages** are in East River. (See **110.1, 110.60, and 110.155,** chapter 2, for limits and regulations.)

(393) **Tides.**–The mean range of tide in East River is 7.1 feet at Willets Point, 5.1 feet in Hell Gate, and 4.6 feet at The Battery. (See the Tide Tables for daily predictions for The Battery.)

(394) **Currents.**–In East River the flood current sets eastward and the ebb sets westward. **Note well** that this is the direct opposite of conditions in Long Island Sound where the flood is generally westward and the ebb eastward.

(395) The velocity of current is 0.7 knot at Throgs Neck, 1.6 knots at Port Morris, 4 knots in Hell Gate, 3 knots at Brooklyn Bridge, and 1.5 knots north of Governors Island. In Hell Gate (off Mill Rock) the velocity is 3.4 knots for the eastward current and 4.6 knots for the westward current.

(396) The direction and velocity of the currents are affected by strong winds which may increase or diminish the periods of flood or ebb. The currents generally set with the channel, but heavy swirls are found in Hell Gate.

(397) (See the Tidal Current Tables for the daily predictions of slack water and times and velocities of strengths of currents in Hell Gate and at other places on the East River.

(398) In October 1991, tidal currents in Hell Gate were reported to deviate significantly from official predictions published by the National Ocean Service. Mariners should exercise caution and discretion in the use of published tidal current predictions. Also, previously available Tidal Current Charts for New York Harbor have been withdrawn.

(399) **Pilotage, East River.**–See Pilotage, New York Harbor from Long Island Sound (indexed as such), chapter 11.

(400) **Towage.**–Vessels intending to employ a tug should arrange to do so before proceeding westward of Rikers Island.

(401) **Charts 12366, 12364.–Throgs Neck**, on the northwest side of the entrance to East River, is marked by a light, a stack, and a tall tank. **Throgs Neck Light** (40°48.3′N., 73°47.5′W.), 60 feet above the water, is shown from a skeleton tower with a black and white diamond-shaped daymark on the outer end of the neck. The shoal ground which extends 0.1 mile southward and eastward from the light is marked by a lighted bell buoy.

(402) **Fort Schuyler**, on the outer end of Throgs Neck, is used as a base for the **State University of New York Maritime College**. The 550-foot-long wharf, on the southwest side of the fort, is used to moor the school's training ship. Depths of about 25 feet are reported alongside the face.

(403) **Throgs Neck Bridge**, a highway suspension bridge with a channel clearance of 138 feet and 152 feet at the center, crosses East River from Throgs Neck to the Long Island Shore.

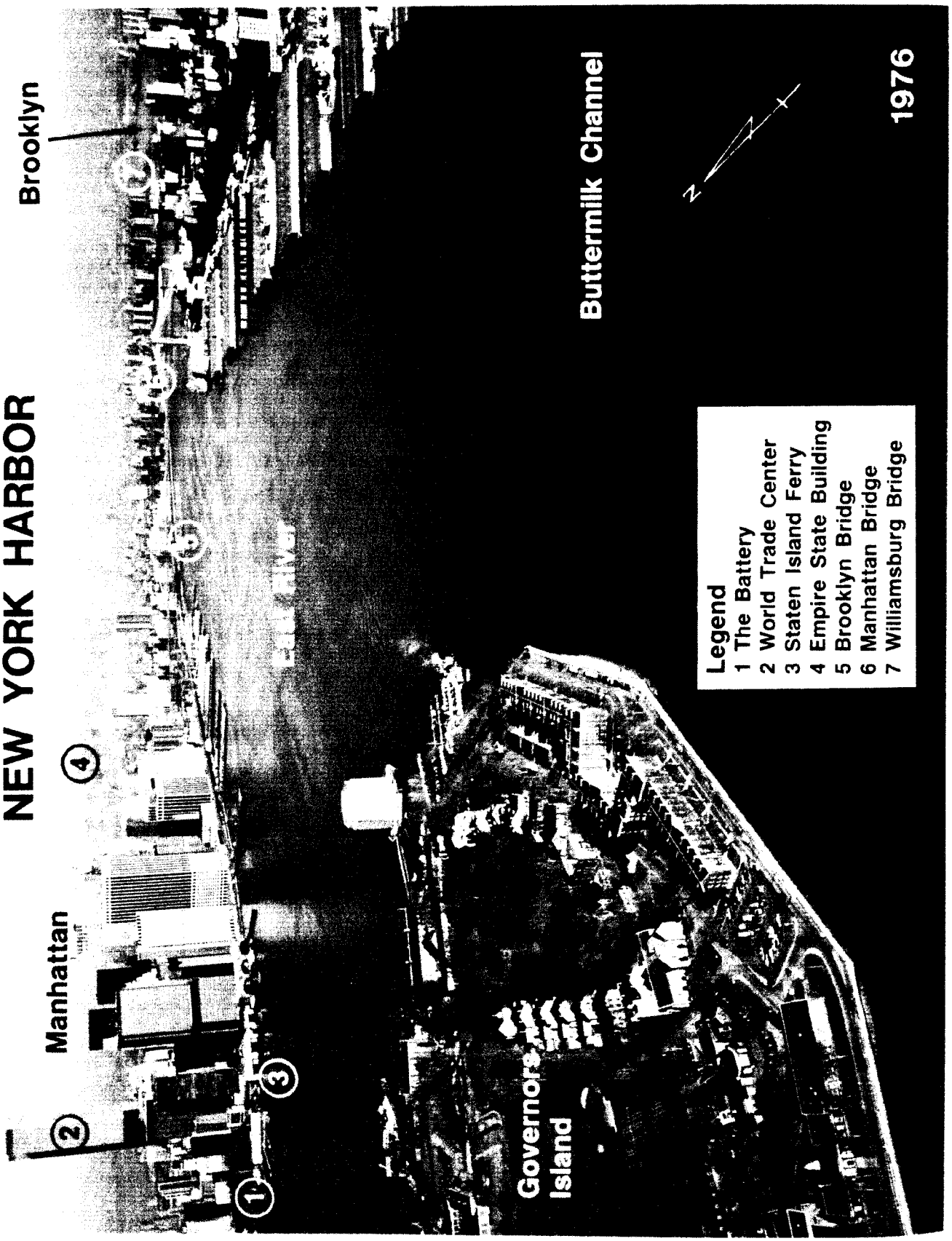
(404) **Willets Point**, 0.7 mile southeastward across the entrance to East River from Throgs Neck, is marked by **Fort Totten**, the granite walls of which are prominent. **Little Bay**, westward of Willets Point, has general depths of 6 to 10 feet and is used by local small craft. Depths of about 9 feet can be taken in the buoyed channel to the piers on the Little Bay side of Willets Point. **Fort Totten Coast Guard Station** is on the east side of Little Bay at Fort Totten.

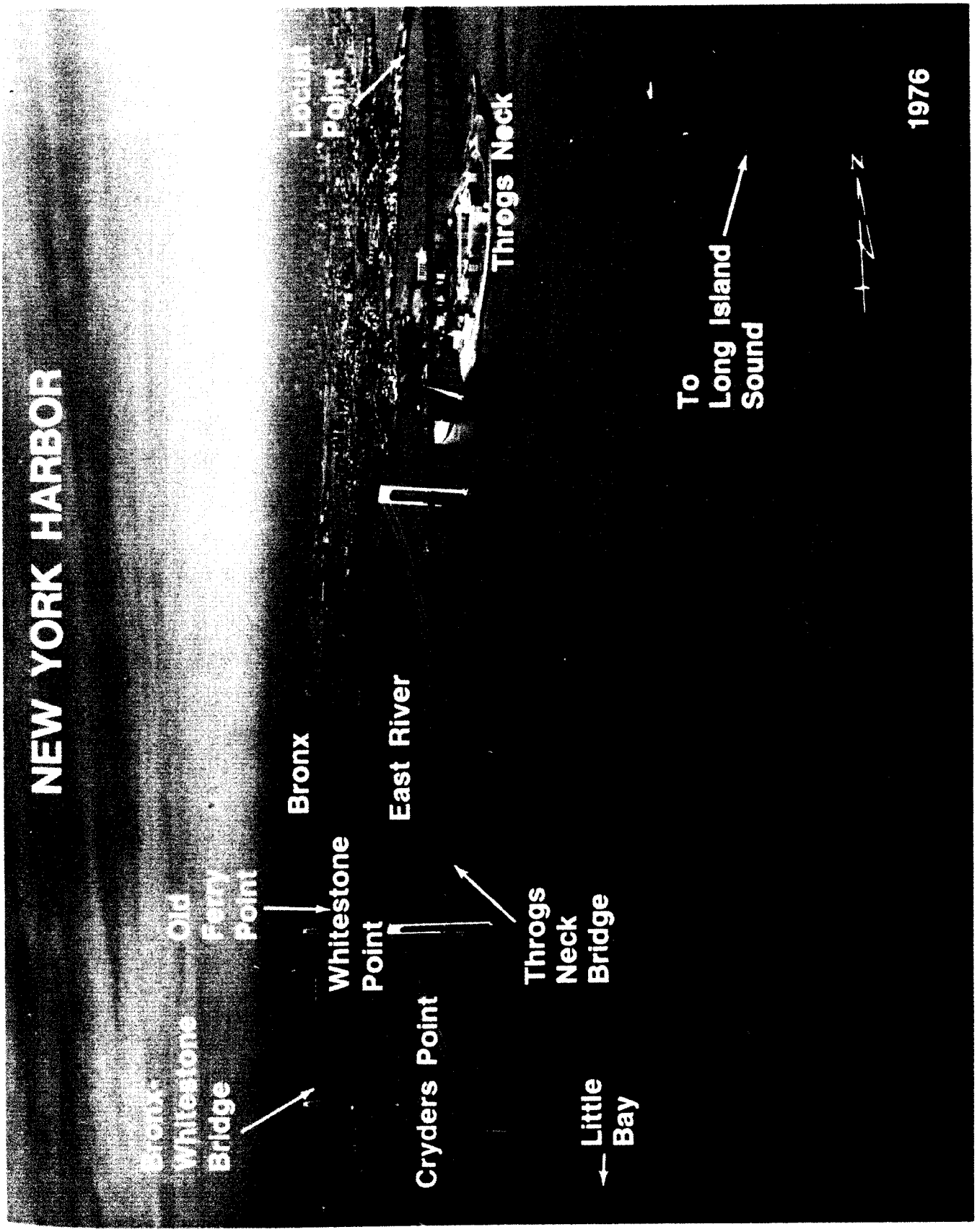
(405) A **general anchorage** is in Little Bay. (See **110.1 and 110.155 (b)(2) and (1),** chapter 2, for limits and regulations.)

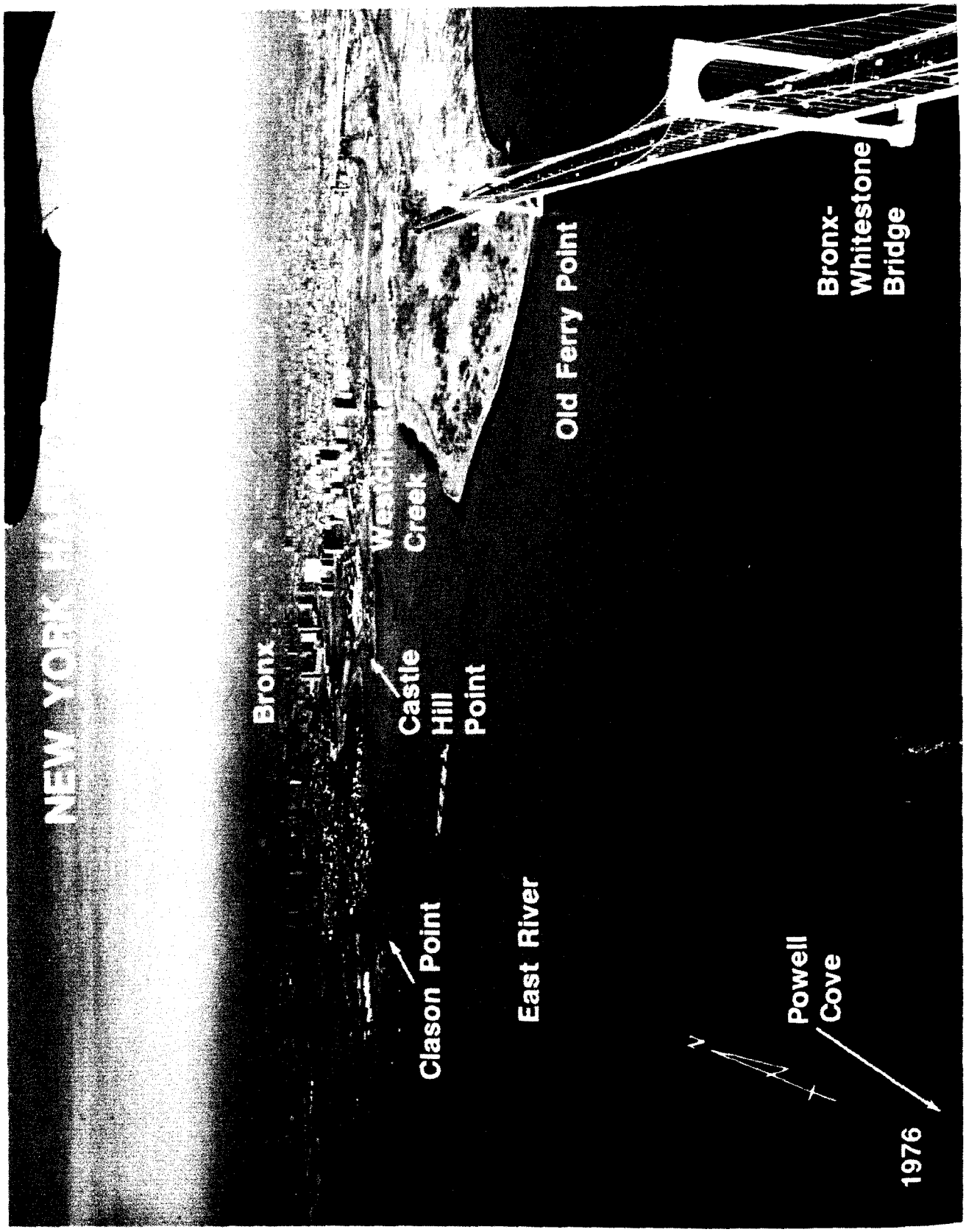
(406) The southern approach viaduct of the Throgs Neck Bridge crosses the west part of Little Bay. The fixed spans of the viaduct have a minimum clearance of 30 feet.

(407) In March 1996, a sunken wreck was west of Throgs Neck in 40°48′32″N., 73°48′40″W.

(408) **Whitestone Point**, 2 miles westward of Willets Point, is a small bluff marked by a light; a fog signal is sounded at the light. The town of **Whitestone** is between Little Bay and Whitestone


NEW YORK HARBOR
Brooklyn
Manhattan
Buttermilk Channel
Governors Island
1976
Legend
1 The Battery
2 World Trade Center
3 Staten Island Ferry
4 Empire State Building
5 Brooklyn Bridge
6 Manhattan Bridge
7 Williamsburg Bridge


NEW YORK HARBOR
Bronx-Whitestone Bridge
Old Ferry Point
Bronx
Whitestone Point
East River
Throgs Neck Bridge
Cryders Point
Little Bay
Throgs Neck
Locust Point
To Long Island Sound
N
1976


Bronx
Castle Hill Point
Clason Point
East River
Old Ferry Point
Bronx-Whitestone Bridge
Powell Cove
1976

Point. Several private boat clubs are at Whitestone. In June 1981, reported depths alongside the boat club docks ranged from ½ to 6 feet.

(409) The **Bronx-Whitestone Bridge** is a suspension structure that crosses East River from Old Ferry Point on the Bronx side to a Long Island landing 0.4 mile southwestward of Whitestone Point; the channel clearance is 135 feet.

(410) In March 1989, a submerged obstruction was reported in the East River just west of the Bronx-Whitestone Bridge in about 40°48.1′N., 73°50.1′W.

(411) **Powell Cove**, between the Long Island end of the Bronx-Whitestone Bridge and Tallman Island, 0.6 mile to the westward, has general depths of 2 to 5 feet. Pier ruins are on the east side of the cove entrance. **Tallman Island**, now joined to the Long Island shore, is marked by the prominent tanks of a sewage-disposal plant.

(412) **Old Ferry Point** is on the north side of East River 2 miles westward of Throgs Neck. The bight between Throgs Neck and Old Ferry Point affords anchorage, with good holding ground, in depths of 15 to 35 feet; the water shoals abruptly from 18 feet, 0.3 mile from shore, to depths of 4 to 5 feet. Several private landings are on the north side of this bight.

(413) **Westchester Creek**, on the north side of East River, is entered through a dredged channel that leads northward through a shallow bight between Old Ferry Point and Clason Point (chart 12339), 0.7 mile to the westward, to the head of navigation at **Westchester**, about 2.3 miles above the channel entrance. In December 1991, the controlling depths were 10 feet (11 feet at midchannel) from the entrance to the Bruckner Expressway bascule bridge, thence 5½ feet (11 feet at midchannel) through the bascule and fixed bridges, thence 9½ feet (11 feet at midchannel) to just below the head of the project. The channel is buoyed to a point about 1 mile above the entrance. Waterborne traffic on the creek consists chiefly of petroleum products, sand and gravel, and crushed rock.

(414) Several highway bridges, three fixed and one bascule, cross Westchester Creek at **Unionport,** 1.5 miles above the channel entrance. The Bruckner Expressway bascule bridge has a clearance of 14 feet, and the fixed bridges have a least clearance of 52 feet. (See **117.1 through 117.59 and 117.815**, chapter 2, for drawbridge regulations.) The bridgetender at the Bruckner Expressway bridge monitors VHF-FM channel 13; call sign KX-8289.

(415) There are small-craft facilities on the west side of the creek above Castle Hill Point and at Unionport. Water, limited marine supplies, and storage facilities are available; hull and engine repairs can be made.

(416) **Chart 12339.–Clason Point** (40°48.3′N., 73°50.9′W.) is on the north side of East River about 3 miles west of Throgs Neck. **Pugsley Creek**, which empties into Westchester Creek and East River along the east side of Clason Point, is very shallow and should not be entered without local knowledge. Small boats anchor on the flats west of Clason Point. A flagstaff at the yacht club on Clason Point is prominent.

(417) **College Point** is on the Long Island side of East River opposite Clason Point. **College Point Reef**, covered 6 feet and marked by a light, is 0.2 mile north-northeastward of the point.

(418) The town of **College Point** is south of the point and on the east side of the entrance to Flushing Bay. The wharves on the west side of the town have depths alongside ranging from ½ to 10 feet. The shallow bight north of the town has depths of 2 to 5 feet and is used as a small-boat anchorage. Several small-craft facilities are at College Point. Marine railways to 45 feet, mobile cranes to 35 tons, water, ice, marine supplies, storage, and hull and engine repairs are available. The mean range of **tide** at College Point is 6.5 feet.

(419) **Flushing Bay** extends southeast between the town of College Point and La Guardia Airport, 0.6 mile to the southwest. **Flushing Creek** flows into the east side of the head of the bay. A dredged channel, marked by buoys and lights, extends from East River through the bay to the mouth of the creek and thence upstream for about 0.8 mile to the I.R.T. (Roosevelt Ave.) railroad bridge. A turning basin is on the west side of the dredged channel west of the entrance to Flushing Creek. A small-craft anchorage area extends northwest from the turning basin and is protected by an earthen dike that extends from the west side of the bay. In May-June 1992, the controlling depths were 11 feet (14 feet at midchannel) through the bay channel to just below the Whitestone Expressway bridge, thence 11 feet at midchannel to the Northern Boulevard bridge, thence in March-April 1990, shoaling to less than 1 foot to the I.R.T. railroad bridge. In May-June 1992, the turning basin had depths of 11 to 14 feet except for shoaling to 4½ feet along the western edge, and the anchorage basin had depths of 3 to 4 feet. Flushing Bay is mostly shallow, with depths of less than 6 feet outside the channel.

(420) Depths of 8 to 14 feet are between the east side of the channel and the town of College Point. Small craft anchor south of College Point in depths of 4 to 8 feet.

(421) **General** and **special anchorages** are in Flushing Bay. (See **110.1, 110.60 (1) through (1–2), (m) through (m–2), and 110.155 (b–5),** chapter 2, for limits and regulations.)

(422) A **restricted area** is in a portion of the southern part of the channel through Flushing Bay. (See **162.20,** chapter 2, for limits and regulations.)

(423) A 0.6-mile-long dike, covered at high water and marked at either end by a light, runs close along the west side of the channel to within 0.3 mile of the head of the bay.

(424) The L-shaped pier at the head of Flushing Bay partially encloses a small-boat basin. In March-April 1990, depths of 6 to 10 feet, with shoaling to 2 feet near the western edge, were available in the turning basin just west of the small-boat basin. Inside the small-boat basin, depths of about 7 feet were reported in June 1981. The marina to the westward has a reported depth of about 5 feet inside. Gasoline, diesel fuel, berths, electricity, water, ice, storage, and a 30-ton hoist are available; limited electronic and engine repairs can be made.

(425) **Ice** generally obstructs navigation in Flushing Bay and Flushing Creek during a part of January and February.

(426) The twin fixed Whitestone Expressway highway bridges over Flushing Creek, 0.2 mile above the mouth, have a clearance of 34 feet. The Northern Boulevard Bridge, 0.4 mile above the mouth, has a bascule span with a clearance of 25 feet. In September 1979, the Northern Boulevard Bridge was being converted to a fixed bridge; when completed the bridge will have a clearance of 35 feet. (See **117.783,** chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 13; call sign KX–8192.

(427) **Flushing** is on the east side of Flushing Creek. Waterborne traffic consists chiefly of sand, gravel, crushed rock, and petroleum products. Drafts of inbound and outbound vessels seldom exceed 12 feet. Vessels must go directly to the marginal wharves because the creek has no room for anchorage.

(428) The east entrance to **Rikers Island Channel**, between Rikers Island and the mainland, is obstructed by a lighted runway

approach to **La Guardia Airport**. The approach to Bowery Bay is from westward of Rikers Island.

(429) **Bronx River**, on the north side of East River, is entered through a dredged channel that leads north-northwestward through a shallow bight between Clason Point and Hunts Point, 1.1 miles to the westward, to the head of river navigation at East 172d Street, about 2.3 miles above the channel entrance. The river is being filled in above 172d Street. In September-October 1991, the midchannel controlling depth was 9½ feet to Randall Avenue, thence a midchannel controlling depth of 8 feet to just below Westchester Avenue Bridge. The project above Westchester Avenue Bridge is no longer maintained. The channel is marked by buoys to a point about 0.6 mile above the entrance.

(430) Waterborne traffic on the Bronx River consists chiefly of sand, gravel, and crushed rock.

(431) The mean range of **tide** is 6.9 feet at Hunts Point and at Westchester Avenue Bridge.

(432) Bronx River is crossed by four bridges to East 172d Street. Bruckner Expressway Bridge, 1.7 miles above the entrance, has a bascule span with a clearance of 27 feet. (See **117.1 through 117.59 and 117.771**, chapter 2, for drawbridge regulations.) Westchester Avenue Bridge, 2 miles above the entrance, has a fixed span with a clearance of 18 feet. The elevated railway structure over Westchester Avenue Bridge has a fixed span with a clearance of 61 feet. The railroad bridge, 2.1 miles above the entrance, has a rolling-lift span with a clearance of 8 feet, but the draw is no longer opened. (See **117.771(b)**, chapter 2, for drawbridge regulations.) The Bruckner Expressway Bridge is equipped with radiotelephone. The bridgetender can be contacted on VHF-FM channel 13; call sign KX–8189.

(433) **Hunts Point** is on the north side of East River about 4 miles west of Throgs Neck. A marginal wharf extends 0.3 mile northeastward from the point; depths of 17 to 24 feet are reported alongside. Small craft anchor in depths of 9 to 17 feet on the flats east of the wharf.

(434) **Rikers Island**, in the middle of East River between Hunts Point and La Guardia Airport, is partly occupied by buildings of the Department of Correction of New York. The island is about a mile long, southeast to northwest, and 0.6 mile wide. The larger part of the island, southeast of the buildings, is used as a trash dump.

(435) **East River main channel**, project depth 35 feet, leads northward of Rikers Island. A much-used **general anchorage**, with depths of 21 to 30 feet, is between the south side of the channel and the flats off the north side of the island. (See **110.1 and 110.155 (b) (6) and (1)**, chapter 2, for limits and regulations.)

(436) **Caution.**–East River Main Channel Lighted Buoy 3 has been established northeast of Rikers Island in 40°47′47″ N., 73°51′59″W. to assure that no vessel penetration of air space exists over that portion of the East River which coincides with the glide path of the northeast-southwest runway of La Guardia Airport. Vessels with mast heights in excess of 125 feet shall pass 100 yards to the north of this buoy so as to avoid interference with the glide path.

(437) **North Brother Island**, 0.3 mile northwest of Rikers Island, is occupied by the ruins of former municipal buildings. East River main channel leads northward and westward of the island; a light marks the main channel side of the island.

(438) The buoyed channel between North Brother Island and **South Brother Island**, 0.1 mile to the southward, has a controlling depth of about 25 feet. Shoaling to 16 feet exists on the south side of the channel in about 40°47′54″N., 73°53′47″W. The channel is marked by a light off the north side of South Brother Island. The channel is narrow and subject to strong currents and should not be used by vessels of limited maneuverability.

(439) A ledge, partly bare at low water, extends 0.2 mile southward from South Brother Island; the outer part of the ledge is marked by a light.

(440) **Port Morris**, 0.2 mile westward across East River main channel from North Brother Island, has rail terminals to and from which car floats are taken through East River.

(441) **South Brother Island Channel**, marked by lighted and unlighted buoys, leads from deep water east of North Brother Island and along the west side of Rikers Island to a turning basin on the west side of Bowery Bay. In September 1993, the controlling depth was 29 feet in the entrance channel. Depths of about 31 feet may be carried by favoring the eastern 200 feet of the channel. The controlling depth in the turning basin was 35 feet except for lesser depths along the edges.

(442) **Caution.**–Vessels transiting South Brother Island Channel and using the turning basin at its southern terminus shall ballast prior to entry, and are cautioned that mast heights in excess of 125 feet may penetrate the glide path to the northwest-southeast runway to La Guardia Airport. If mast heights cannot be lowered below 125 feet, La Guardia Air Traffic Control Tower shall be notified by telephone (212-779-0242) prior to terminal departure or channel entry.

(443) **Bowery Bay**, across Rikers Island Channel from Rikers Island, has depths of about 10 feet. A **special anchorage** is in the west part of the bay. (See **110.1, 110.60 (n) and 110.155 (b) (5) and (1)**, chapter 2, for limits and regulations.) A pipeline area is in the southeast part of the anchorage area. A fixed highway bridge crosses Rikers Island Channel and Bowery Bay and connects Rikers Island with the Borough of Queens, New York; clearance over the channel is 52 feet for a width of 125 feet.

(444) Bowery Bay may be approached from the East River main channel from the northward through South Brother Island Channel and from the northwestward through a 100-yard-wide channel which leads between the ledges that make off from Lawrence Point on the southwest and South Brother Island on the northeast. The controlling depth in the 100-yard-wide channel is about 19 feet. Caution is advised in the northwestern approach as the channel is narrow, the bottom is rocky and uneven, and tidal currents are strong.

(445) **Lawrence Point**, on the southeast side of East River 0.7 mile westward of Rikers Island, is occupied by an extensive gas and electric plant. A light marks the outer part of the ledge, partly bare at low water, which extends 0.3 mile northeastward from the point.

(446) **Randalls Island** and Wards Island are on the northwestern side of East River between Port Morris and Hell Gate, separating that river from Harlem River, which is described later. The islands provide recreational facilities for the residents of the city of New York.

(447) **Bronx Kill**, which separates Randalls Island from Port Morris, is a narrow passage that extends westward from the East River for about 0.6 mile to a dam. A fixed railroad bridge with a clearance of 68 feet and a fixed highway bridge with a clearance of 51 feet cross the passage. Bronx Kill is navigable for about 0.2 mile from the Harlem River to the dam.

(448) **Sunken Meadow** is the reclaimed area now joined to the northeast end of Wards Island and southeast end of Randalls Island.

(449) **Little Hell Gate**, which formerly separated Wards Island from Randalls Island and formed a passage from East River to

Harlem River, has been mostly filled in and together with Sunken Meadow joins Wards Island with Randalls Island.

(450) **Hell Gate Bridge**, which crosses East River from Wards Island to Long Island 7.1 miles from The Battery, has a fixed railroad span with a clearance of 134 feet.

(451) **Negro Point** is the southernmost point of Wards Island. **Triborough Bridge**, which crosses East River from Negro Point to Long Island 6.8 miles from The Battery, has a highway suspension span with a clearance of 138 feet.

(452) **Holmes Rock** and **Hog Back** are two bare rocks, which are on the eastern and northern parts, respectively, of a reef in the bight on the south side of Wards Island westward of Negro Point. The western extremity of this reef is marked by a light.

(453) **Hallets Point**, on the Long Island side of East River about 0.3 mile southwestward of Negro Point, is marked by a light. There are main-channel depths close to the point.

(454) **Hell Gate** is the part of East River between Wards Island and Roosevelt Island, 0.7 mile to the southwest. The crooked channel, the strong tidal currents, and the heavy traffic in Hell Gate require extra caution on the part of the navigator to avoid accident or collision. Vessels navigating Hell Gate on a rising tide sometimes find it necessary to pass starboard-to-starboard because of the strong currents between Negro Point and Hallets Point. This situation may arise when one of the vessels does not maneuver readily or is handling a tow. Northeastward of Negro Point and southwestward of Hallets Point, the customary port passings are made.

(455) **Mill Rock**, on the northwestern side of the main channel through Hell Gate, is 0.2 mile southwest of Wards Island and the same distance northwest of Hallets Point. The islet is marked by lights on its north and south ends.

(456) **Charts 12339, 12342.–Harlem River**, which joins East River in Hell Gate between Wards Island and Manhattan Island, extends northward about 7 miles and connects with Hudson River through Spuyten Duyvil Creek. The channel through Harlem River is narrow, tortuous, and navigable only for powered vessels. By taking care to avoid several isolated 11- to 13-foot spots, a depth of about 14 feet can be carried to the Hudson River; the chart is the guide.

(457) Traffic is heavy in Harlem River. Vessels with heights too great to pass under the closed drawbridges should make the passage against the current.

(458) **Bridges.**–There are more than a dozen draw and fixed bridges over Harlem River. The minimum clearance under closed drawspans is 24 feet except at the railroad bridge over the entrance from Hudson River where it is only 5 feet. Clearance under raised vertical-lift spans exceed 100 feet. (See **117.1 through 117.59 and 117.789**, chapter 2, for drawbridge regulations.) Minimum clearances under fixed bridges exceeds 100 feet at the center of the spans.

(459) Four bridges over the Harlem River, the 103rd Street lift bridge, the Triborough lift bridge, the Park Avenue lift bridge, and the Conrail swing bridge at Spuyten Duyvil, at 0.1 mile, 1 mile, and 1.7 miles, and 6.7 miles, respectively, above the entrance, are equipped with radiotelephones. The bridgetenders monitor VHF-FM channel 13; call signs KIL-820, KGW-326, and KA-5059, and KU-9797, respectively. The Conrail bridge is maintained in the open position except for the passage of trains or for maintenance.

(460) **Tides.**–The mean range of tide in Harlem River is 5.1 feet in Hell Gate and 3.6 feet at the entrance from Hudson River.

(461) **Currents.**–The tidal currents in Harlem River run southward from Hudson River to East River while the east-going current is running in Hell Gate; and the reverse. The south-going current in Harlem River is considered the flood. The times of slack water are subject to variations depending upon freshet conditions in Hudson River. The velocity of the current is 2 knots or more in the narrower parts of the channel. (See the Tidal Current Tables for predictions.)

(462) **Chart 12339.–Roosevelt Island (Welfare Island),** 1.6 miles long and 0.1 mile wide, is in the middle of East River southwest of Hell Gate. A gray stone tower is on the north end of the island, and a fountain, illuminated at night during the summer, is on the south end of the island.

(463) **East River main channel**, with project depth of 35 feet, is on the west side of Roosevelt Island. The channel east of the island is narrower and has a controlling depth of about 23 feet.

(464) The currents in both channels off Roosevelt Island are strong, and caution is advised while navigating in these areas.

(465) The 36th Avenue highway bridge which crosses the eastern channel from Roosevelt Island to Long Island 5.6 miles from The Battery has a vertical-lift span with clearances of 40 feet down and 99 feet up. (See **117.1 through 117.59 and 117.781**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 13; call sign KX–8184.

(466) **Queensboro Bridge**, which crosses from Manhattan Island to Roosevelt Island and thence to Long Island 5.0 miles from The Battery, has fixed spans with clearances of 131 feet over the main channel and 133 feet over the eastern channel. In April 1981, the bridge clearances were reduced 3 feet by suspended repair scaffolds. An overhead cable car with overhead power cables crosses the main channel immediately north of the bridge. The low point of travel of the cabin is not less than 135 feet.

(467) **Chart 12335.–Roosevelt Island Reef (Welfare Island Reef),** with bare islets, rocks awash, and submerged rocks, extends 0.3 mile southwestward from the island. **Belmont Island**, near the southwest end of the reef, is marked by a light.

(468) **Chart 12338.–Newtown Creek** is entered on the eastern side of East River 3.6 miles from The Battery. The creek extends 3.3 miles eastward and southward and has several short tributaries or basins. Traffic is fairly heavy and consists chiefly of petroleum products, sand, gravel, and crushed rock; drafts of vessels navigating the creek seldom exceed 15 feet.

(469) Tributary basins are **Dutch Kills**, on the north side of Newtown Creek 0.8 mile from East River; **Whale Creek**, on the south side opposite Dutch Kills; **Maspeth Creek**, on the east side 2.2 miles from East River; **East Branch**, on the east side 2.5 miles from the river; and **English Kills**, which extends westward and southward from the East Branch entrance and forms the last 0.8 mile of Newtown Creek.

(470) **Channels.**–A Federal project provides for a 23-foot channel in Newtown Creek from the East River to and in a turning basin about 240 yards above the Kosciuszko Memorial Bridge, thence 20 feet in East Branch and in English Kills to the Metropolitan Avenue bridge, and thence 12 feet in English Kills to the head of the project at Montrose Avenue. (See Notice to Mariners and latest edition of chart for controlling depths.)

(471) The mean range of **tide** in Newtown Creek is 4.1 feet. The tidal current is weak and variable.

(472) Pulaski Bridge, which crosses Newtown Creek 0.5 mile above the mouth, has a bascule span with a clearance of 39 feet at the fenders and 46 feet at the center. The bridgetender monitors VHF-FM channel 13; call sign KX–8178.

(473) Dutch Kills, which is about 0.5 mile long, is crossed by the following drawbridges: Long Island Railroad bridge, Borden Avenue bridge, and Hunters Point Avenue bridge. Minimum clearance under the closed drawspans is 2 feet. (See **117.1 through 117.59 and 117.801**, chapter 2, for drawbridge regulations.) Clearance under the fixed bridge is 90 feet.

(474) Greenpoint Avenue Bridge, 1.1 miles above the mouth of Newtown Creek, has a bascule span with a clearance of 26 feet. In March 1985, a replacement bascule bridge with a design clearance of 24 feet was under construction close southward. Kosciusko Memorial Bridge, 1.8 miles from the mouth, has a fixed span with a clearance of 125 feet. Metropolitan Avenue Bridge, which crosses English Kills 3 miles from the mouth of Newtown Creek, has a bascule span with a clearance of 10 feet at the center. Montrose Avenue Bridge, at the head of English Kills, has a swing span with a clearance of 4 feet. The bridgetenders at the Greenpoint Avenue and Metropolitan Avenue bridges monitor channel 13; call signs KX–8182 and KX–8179, respectively. (See **§117.1 through §117.59 and §117.801**, chapter 2, for drawbridge regulations.)

(475) Grand Avenue Bridge, which crosses East Branch, has a swing span with a clearance of 8 feet. (See **117.1 through 117.59 and 117.801**, chapter 2, for drawbridge regulations.) The bridgetender can be contacted on VHF-FM channel 13; call sign KX–8187.

(476) **Chart 12335.**–From abreast the entrance to Newtown Creek, the 35-foot-project main channel of East River crosses from the west side of the river to the east side. Depths of 24 feet extend as much as 0.2 mile from the piers on the west side. **Poorhouse Flats Lighted Range** (Front Light; 40°43.5′N., 73°57.8′W.), bearing **161°**, is on the Brooklyn side of the river and marks the best water in the crossover.

(477) **Williamsburg Bridge**, which crosses East River 2 miles northeast of The Battery, has a suspension span with a clearance of 133 feet.

(478) The site of the inactive **New York Naval Shipyard** is in **Wallabout Bay**, on the Brooklyn side of East River 1.7 miles northeast of The Battery.

(479) **Manhattan Bridge,** which crosses East River 1 mile northeast of The Battery, has a suspension span with a clearance of 134 feet. The clearance under the maintenance platform installed at the west channel edge is 115 feet.

(480) **Brooklyn Bridge**, which crosses East River 0.7 mile northeast of The Battery, has a suspension span with a clearance of 127 feet.

(481) **East River Deepwater Lighted Range** (Front Light; 40°41.9′N., 74°00.1′W.), bearing **078°**, is on the Brooklyn side of the river and marks the best water in the 40-foot-project main channel which leads from deep water in New York Upper Bay to the East River. The range line passes about midway between The Battery and Governors Island, 0.5 mile to the southward.

(482) The channel between The Battery and Governors Island is very congested and subject to strong currents. Caution should be exercised while navigating in the area.

10. SOUTH COAST OF LONG ISLAND

(1) This chapter describes the south coast of Long Island from Shinnecock Inlet to and including East Rockaway Inlet; several other inlets making into the beach along this part of the coast; and the canals, bays, and tributaries inside the beach. Also described are the towns of Patchogue and Oceanside, including Oceanside oil terminals; Bay Shore, a large fishing center; and the many smaller communities which support a large small-craft activity.

(2) **Caution.**–Eelgrass is found in most of the waters described in this chapter. Eelgrass nets are often placed at the entrances to canals and are sometimes difficult to see.

(3) Fishtrap areas are in Moriches, Shinnecock, Tiana, Quantuck, and Great South Bays.

(4) **COLREGS Demarcation Lines.**–The lines established for this part of the coast are described in **80.160,** chapter 2.

(5) **Weather, South Coast of Long Island and vicinity.**–The south coast of Long Island is open to weather from the south and southeast, but somewhat sheltered to the west through north. Waves of 8 feet (>2.5 m) or more are most likely in winter when they may be encountered about 6 to 10 percent of the time near the coast. During this period gales are encountered less than 5 percent of the time but are more likely a few hundred miles out to sea. Fogs are more apt to occur in late spring and early summer with Ambrose Light recording a June maximum. Visibilities of less than 2 miles are observed about 5 to 10 percent of the time from May through July. These frequencies are higher at the eastern end in May and June and between Westhampton and Ambrose in July. Locally, Shinnecock Inlet is particularly rough when southerly winds climb to 15 knots or more during ebb tide; breakers fill the entrance.

(6) **Chart 12300.**–The south coast of Long Island has a general trend of 247° for 68 miles from Montauk Point to Fire Island Inlet, and thence trends 263° for 36 miles to the western end of Coney Island in the Lower Bay of New York Harbor. It is a clear shore and may be safely approached as close as 1 mile with not less than 30 feet anywhere between Montauk Point and Rockaway Inlet, except off Fire Island Inlet and the inlet's westward side where the shore should be given a berth of at least 1.5 miles. When viewed from seaward it presents only a few prominent features. It is composed of a series of sand dunes backed by low dark woods.

(7) Shinnecock, Moriches, Great South, and Hempstead Bays are inside the beach along the south coast of Long Island and form an **inside route** for boats of about 3-foot draft. The three main inlets from the sea to these bays are Fire Island Inlet, Jones Inlet, and East Rockaway Inlet. These inlets and all auxiliary channels within the south coast of Long Island have numerous wrecks, obstructions, frequent and extensive changes, and, although marked in many areas, should not be used without local knowledge.

(8) Two small inlets, Shinnecock Inlet and Moriches Inlet, which broke through in 1938 and 1931, respectively, are also used by small boats for entrance to these bays, but their use is not advisable without local knowledge.

(9) **Chart 12352.–Shinnecock Canal,** 31.5 miles southwestward of Montauk Point, is about 1 mile long and connects Great Peconic Bay with Shinnecock Bay. The canal is owned and maintained by Suffolk County of New York. It is a partly dredged cut and is protected at the north entrance by two jetties; the east jetty is marked by a light. In April 1985, the east timber jetty was reported to be deteriorating. Protruding timbers and floating debris may be encountered; caution is advised. A lock about midway in the canal is 250 feet long, 41 feet wide, with a depth of 12 feet over the sills. Tide gates are parallel to and westward of the lock. The lock gates and tide gates are constructed so that tidal action opens them to allow the current to set south through the canal and closes them to prevent water from Shinnecock Bay to flow back into Great Peconic Bay. The lock gates are tended 24 hours and are opened mechanically when the tidal current is flowing northward to allow the passage of boats. Red and green traffic lights are at each end of the lock. Vessels are allowed to enter the lock only on the green signal.

(10) The fixed bridges and overhead power cables across the canal have a least clearance of 22 feet. Mast-stepping cranes are available at both ends of the canal.

(11) **Currents.**–The maximum recorded current is 4.3 knots, southerly, through the lock and tide gates at peak flow when the gates are open. At the railroad bridge, the current has an average speed of 1.5 knots, but it has been reported that greater speeds may be experienced. (See Tidal Current Tables for predictions.) At times of high southerly current i.e., when the gates are open, there exists a dangerous eddy system extending from the south end of the lock southerly for approximately 200 yards. Tidal currents throughout the entire canal can be dangerous; caution is advised.

(12) A 5 mph **speed limit** is enforced in the canal.

(13) On the east side of Shinnecock Canal just south of the jetties is a boat basin in which the depth ranges from 7 to 10 feet. There are several small-craft facilities on both sides of the canal. (See the small-craft facilities tabulation on chart 12352 for services and supplies available.)

(14) **Hampton Bays**, a station on the Long Island Railroad just west of Shinnecock Canal, is the nearest post office. **Canoe Place**, the settlement at the canal, has gasoline and some supplies. Small craft and fishing vessels berth in the basins along both sides of the canal.

(15) **Long Island Intracoastal Waterway.**–A Federal project provides for a 6-foot channel from Shinnecock Canal to Great South Bay. The cuts provide an inland waterway along the south side of Long Island. This waterway, from the south end of Shinnecock Canal to a point in Great South Bay opposite Patchogue, a distance of about 29.2 miles, is subject to frequent shoaling; mariners are advised to obtain local knowledge.

(16) **Shinnecock Inlet**, 31 miles westward from Montauk Point along the south coast of Long Island, is the easternmost entrance from the Atlantic to **Shinnecock Bay** and the inland water route along the south shore of Long Island. The approach to the inlet is marked by a lighted whistle buoy. In June 1991, a dangerous wreck was reported about 1.0 mile west-southwestward of the lighted whistle buoy in about 40°48′42.4″N., 72°29′40.4″W. The inlet should not be attempted without local knowledge because of the frequent changes in channel depths. Tidal currents

through the inlet can be dangerous; caution is advised. In January 1988, an obstruction was reported about 175 yards east of Shinnecock Inlet West Breakwater Light 1.

(17) In February 1989, a sunken wreck was reported about 0.6 mile south of the entrance to the inlet in about 40°49.8′N., 72°28.8′W.

(18) **COLREGS Demarcation Lines.**–The lines established for Shinnecock Inlet are described in **80.160,** chapter 2.

(19) **Shinnecock Light** (40°50.5′N., 72°28.7′W.), 75 feet above the water, is shown from a red skeleton tower on the west side of the inlet. A fog signal is at the light. Private lights are on the jetties at the entrance to the inlet, and uncharted buoys mark the channel.

(20) The jetties extend about 120 yards beyond the lights marking them. There are small-craft facilities just westward of Shinnecock Light. Berths, gasoline, diesel fuel, water, ice, and some marine supplies are available.

(21) A fish haven and a U.S. Naval Oceanographic platform painted orange and white, are about 2.4 miles south and 3.4 miles south-southwestward, respectively, of Shinnecock Inlet entrance.

(22) **Ponquogue Point**, low and sandy, is 1.2 miles northwestward of Shinnecock Light. The west channel from inside Shinnecock Inlet enters the Long Island Intracoastal Waterway southeast of the point and has a depth of about 8 feet. The Ponquogue Bridge, a highway bridge crossing Shinnecock Bay at Ponquogue Point, has a fixed span with a clearance of 55 feet.

(23) **Shinnecock Coast Guard Station** is on Ponquogue Point. An antenna tower, 229 feet above the water and marked by red lights, is also on the point.

(24) Entrances to the small coves on the northeast side and the east end of Shinnecock Bay have depths of about 3 feet.

(25) There are numerous small-craft facilities along the shore and in the creeks making into the north shore of Shinnecock Bay from Ponquogue Point to West Point, the eastern entrance point to Tiana Bay. (See the small-craft facilities tabulation on chart 12352 for services and supplies available.)

(26) **Pine Neck**, 2.3 miles westward of Ponquogue Point and on the west side of Tiana Bay, is low, flat, and sandy. A shoal extends southward from **Pine Neck Point** and is marked on the south end by a lighted buoy. About 0.5 mile east of Pine Neck, a privately dredged channel marked by private buoys leads to a basin at **Tiana Beach,** a small summer resort on the south side of Shinnecock Bay. In July 1981, depths of about 2 feet were reported in the channel and basin.

(27) **Weesuck Creek**, on the north side near the western end of Shinnecock Bay, is entered through a privately dredged channel that leads to the head of the cove at **East Quogue**. In June 1981, the channel, marked by private seasonal buoys, had a reported controlling depth of about 5 feet. There are two boatyards on the west side near the head of the creek. Berths, electricity, water, marine supplies, storage facilities, and lifts to 30 tons are available. The largest marine railway can handle craft up to 65 feet in length; hull and engine repairs can be made.

(28) **Quogue Canal** connects Shinnecock Bay with Quantuck Bay. The canal is crossed by a highway bascule bridge with a clearance of 15 feet and by overhead power and TV cables with clearances of 75 feet. (See **117.1 through 117.59 and 117.799 (a) through (d),** chapter 2, for drawbridge regulations.) A 5 mph **speed limit** is enforced in the canal.

(29) **Quantuck Bay** joins Quogue Canal with Quantuck Canal. **Quantuck Creek**, at the head of the bay, is crossed by a fixed bridge, which is the head of navigation except for small pulling boats.

(30) **Quantuck Canal** connects Quantuck Bay and Moriches Bay. The canal is crossed by two highway bascule bridges with a least clearance of 10 feet. (See **117.1 through 117.59 and 117.799 (a) through (d)**, chapter 2, for drawbridge regulations). The overhead power cable at **Potunk Point** has a clearance of 77 feet. A 5 mph **speed limit** is enforced in the canal.

(31) About 300 yards northeastward of the bridge at Potunk Point, a privately dredged channel leads to a yacht basin at **Westhampton Beach**. The channel is along the west bank in the bight and is marked by private seasonal lights and buoys. A dredged cut leads up to Main Street in Westhampton Beach. A reported depth of about 4 feet can be carried to the yacht basin just before reaching the Stevens Lane Bridge, which has a fixed span with a clearance of about 7 feet. Berths, electricity, and a launching ramp are at the yacht basin. Gasoline, ice, and marine supplies are available at a marina on the east bank of the bight; engine and hull repairs can be made. A forklift can handle craft to 6 tons. In June 1981, a reported depth of 2 feet was available at the marina.

(32) **Moriches Bay** extends for about 8 miles from Quantuck Canal to Narrow Bay and provides an inside passage for small boats. The general depths in the bay range from 5 to 7 feet, but the southern part is shoal.

(33) When navigating the Long Island Intracoastal Waterway through Moriches Bay northeast of Moriches Inlet, extreme care must be taken due to changing shoaling conditions.

(34) **Speonk Point**, near the eastern end of Moriches Bay on the north shore, is marked by several bulkheaded jetties and a prominent flagstaff.

(35) **Seatuck Cove**, on the north side of Moriches Bay, about 1 mile westward of Speonk Point, is entered through a privately dredged channel that leads northward for about 1.1 miles and then forks into three branch channels: **East Branch**, the easterly branch; **Seatuck Creek**, the northerly branch; and **Little Seatuck Creek**, the westerly branch. In June 1981, the controlling depth in the entrance channel and in the three branches was 7 feet. Private seasonal buoys mark the entrance channel to the fork and the channel in East Branch to the small-craft facilities just inside the entrance.

(36) A landing at **Eastport** is on the point just above the fork between East Branch and Seatuck Creek. In June 1981, depths of 2 to 3 feet were reported at the landing. Gasoline, berths, electricity, water, ice, and storage are available at the small-craft facilities on East Branch. Lifts to 15 tons can handle craft for engine and hull repairs. Depths of 3 feet are reported alongside. A water tank close northwestward at the head of Seatuck Creek is prominent.

(37) **Hart Cove**, westward of Seatuck Cove, is entered through a privately dredged channel, marked by private seasonal buoys, that leads to the head of the cove. In June 1981, the channel had a reported controlling depth of 4 feet. Small-craft facilities are near the head on the west side of the cove. Gasoline, water, ice, storage, marine supplies, a launching ramp, and a 30-ton mobile hoist are available; hull and engine repairs can be made.

(38) **Tuthill Cove**, locally known as **West Cove**, on the north side of Moriches Bay, 1.5 miles westward of Seatuck Cove, is entered through a privately dredged and partially marked channel that leads to the head of the cove; in June 1981, the channel had a reported controlling depth of 4 feet. Several privately dredged channels lead from the main channel to small-craft facilities on the east side of the cove. (See the small-craft facilities tabulation on chart 12352 for services and supplies available.) A Coast Guard Station is on the east side of the entrance to Tuthill Cove. **East Moriches** is on the north side of the cove.

(39) **Tuthill Point** is on the west side of the entrance to Tuthill Cove.

(40) **Moriches Inlet**, 44 miles westward of Montauk Point, is a shallow entrance from seaward to the deeper water in Moriches Bay. The jettied entrance is subject to frequent change. Mariners are advised not to attempt to navigate this inlet at any time without local knowledge. Both east and west jetties are marked by a light.

(41) A fish haven, marked by a buoy, is about 2.5 miles south-southwestward of Moriches Inlet East Breakwater Light.

(42) **COLREGS Demarcation Lines.**–The lines established for Moriches Inlet are described in **80.160,** chapter 2.

(43) **Fire Island** extends west from Moriches Inlet for about 28 miles along the south shore of Long Island to Fire Island Inlet. With the exception of the State park occupying its westernmost 4.6 miles, all of Fire Island is part of the **Fire Island National Seashore.**

(44) **Orchard Neck Creek**, 1.7 miles west of Tuthill Point, is extensively used by local small craft as a mooring basin. A reported depth of about 3 feet is available to the head of navigation. A private seasonal lighted buoy marks the entrance. A small-craft facility is on the west side of the creek near its head. Gasoline, water, marine supplies, and a 12-ton lift are available; hull and engine repairs can be made. In June 1981, a depth of about 2 feet was reported alongside the facility.

(45) **Areskonk Creek**, immediately westward of Orchard Neck Creek, is used as a harbor by yachtsmen. A privately dredged channel, marked by private seasonal buoys, leads to the head of the creek. In June 1981, the channel had a reported controlling depth of 8 feet.

(46) **Senix Creek**, 0.6 mile westward of Orchard Neck Creek, has a narrow entrance. With local knowledge, a reported depth of about 4 feet can be carried in the channel to about 0.5 mile above the entrance. A private lighted buoy marks the entrance. Small-craft facilities near the head of the creek have berths, electricity, storage, and a 6-ton lift; hull and engine repairs can be made. A marine railway can haul out vessels up to 32 feet in length.

(47) **Mud (West Senix) Creek**, to westward of Senix Creek, had a reported controlling depth of about 5 feet in June 1981. The creek is used mostly by local residents. A marina on the east side of the creek near the head has berthage, electricity, gasoline, water, and a 15-ton lift; hull and engine repairs can be made.

(48) **Forge River**, at the northwest end of Moriches Bay about 0.5 mile westward of the common entrance to Senix and Mud Creeks, is entered through a privately dredged channel that leads to the town dock and turning basin at **Mastic**, about 1.5 miles above the entrance, thence for about 0.2 mile to the head of navigation. In June 1981, the reported controlling depths were 4 feet from the entrance to opposite Old Neck Creek, thence about 6 feet to and in the basin, thence 6 feet to the head of navigation. Favor the east side of the channel at the entrance. The channel is marked to the turning basin by private seasonal lighted and unlighted buoys. The town dock is available only to the local residents, however, overnight transient berths are available.

(49) **Old Neck Creek** empties into the easterly side of Forge River about 0.5 mile above the entrance. A privately dredged channel leads from the river to the head of the creek. In June 1981, the channel had a reported controlling depth of 7 feet. A marina, just inside the easterly entrance to the creek, has berths, gasoline, water, ice, marine supplies, a small-craft launching ramp, and a 15-ton mobile hoist; hull, engine, and electrical repairs can be made.

(50) **Narrow Bay** extends for about 3 miles from Moriches Bay to Bellport Bay, and provides a continuation of the inside passage for small boats. The bridge across the bay eastward of **Smith Point** has a bascule span with a clearance of 18 feet. (See **117.1 through 117.59 and 117.799 (a) through (d)**, chapter 2, for drawbridge regulations.) Caution is recommended when in the vicinity of the bridge because of the piling near the channel. The bridge is an excellent radar target from 5 to 10 miles.

(51) **Bellport Bay** extends for about 3 miles from Narrow Bay to Great South Bay and provides a continuation of the inside passage for small boats. The bay is shoal in its southern part, but has depths of 5 to 7 feet in the northern part.

(52) **Carmans River**, on the northeast side of Bellport Bay, has a depth of about 2 feet through the entrance. Sometimes bush stakes are placed on each of the shoals making off from the points at the entrance. Enter in midriver between these stakes, favor the east side for a distance of 0.5 mile, and then follow midriver; caution is advised. The river, marked at the entrance by private seasonal lighted buoys, is entered between **Long Point** on the west and Sandy Point on the east. Some of the land areas on both sides of the river just above the entrance are part of the **Werthein National Wildlife Refuge;** landing is not permitted. A 5 mph **speed limit** is enforced on the river. A small-craft facility is on the west side of the river about 0.6 mile above the entrance. Berths, electricity, gasoline, water, some marine supplies, a 35-foot marine railway, a 5-ton lift, and a launching ramp are available; hull and engine repairs can be made.

(53) **Beaverdam Creek**, on the north side of Bellport Bay about 1.5 miles westward of Carmans River, is entered through a privately dredged approach channel marked by private seasonal buoys. In June 1981, the channel had a reported controlling depth of 4 feet. A small-craft facility is at the head of the creek. Berths, electricity, water, ice, storage, supplies, and a 15-ton lift are available; hull and engine repairs can be made.

(54) The wharf of a yacht club is on the northwest side of Bellport Bay at the town of **Bellport**, about 0.5 mile westward of the entrance to Beaverdam Creek. In June 1981, depths of 6 to 8 feet were reported in the basin behind the wharf with about 2½ to 3 feet alongside. Water and a launching ramp are available. A seasonal passenger ferry operates between the yacht club and **Bellport Beach** on Fire Island.

(55) A **dockmaster** manages the village dock adjacent to the yacht club.

(56) **Great South Bay**, on the south shore of Long Island, extends from Bellport Bay on the east to South Oyster Bay on the west. It is about 20 miles long and about 4 miles across its widest part. It can be entered through Fire Island Inlet, from Great Peconic Bay via the inside route, and from westward through Hempstead Bay. The southeast and southwest portions of the bay are shoal. The central portion has, for the most part, depths ranging from 6½ to 10 feet. In March 1979, severe shoaling to a least depth of ½ foot was reported in many of the channels in Great South Bay. Lights, daybeacons, and lighted and unlighted buoys mark the channels.

(57) **Abets Creek** and **Mud Creek**, on the northeast side of Great South Bay, had reported depths of 4 and 5 feet in June 1981, respectively. The entrance to each creek is marked by a private seasonal lighted buoy and stakes. A 5-mph **speed limit** is enforced in Abets Creek. Small-craft facilities in the creeks can provide berths, gasoline, water, storage, and hull and engine repairs. A 7-ton marine railway is available in Abets Creek, and mobile lifts up to 30 tons are available in Mud Creek. Diesel fuel, ice, and a pumpout station are available in Mud Creek.

(58) **Swan River**, about 0.4 mile westward of Mud Creek, is entered through a privately dredged channel that leads to the head

of navigation about 1 mile above the mouth. In 1981, the channel had a reported controlling depth of 4 feet. In September 1985, a shoal was reported to be encroaching from the west side of the channel at the mouth of the river. A private seasonal lighted buoy marks the entrance, and poles mark the channel above the entrance. Several **small-craft facilities** are on Swan River. (See the small-craft facilities tabulation on chart 12352 for services and supplies available.)

(59) **Patchogue River**, on the north side of Great South Bay, 3.7 miles west of Bellport and 0.9 mile westward of Swan River, is entered through a dredged channel that leads from Great South Bay, thence through **Patchogue Bay**, and thence to the head of river navigation about 1 mile above the mouth. In November 1997, the midchannel controlling depth was 3½ feet to the head of navigation. The channel is marked by a lighted and unlighted buoys from the bay to the jettied entrance. The west side of the entrance is protected by a breakwater with a private light on the outer end, and the east side by a bulkhead and short jetty extending southward from it; a private light is near the end of the jetty.

(60) In August 1991, a visible wreck was reported near the entrance channel, just above Buoy 4, in about 40°44′36″N., 73°01′00″W.

(61) **Patchogue**, on Patchogue River, is the principal town on Great South Bay. Depths at the wharves and piers at Patchogue range from 3 to 9 feet.

(62) Passenger ferry service, summer only, is maintained from Patchogue to **Davis Park** and Watch Hill on Fire Island.

(63) **Small-craft facilities.**–Several marinas and boatyards are on both sides of the river at Patchogue. (See the small-craft facilities tabulation on chart 12352 for services and supplies available.)

(64) **Corey Creek**, 0.6 mile westward of Patchogue River, is entered between two jetties each marked by a private seasonal light. In June 1981, depths of 3 feet were available in the creek. A marina, on the east side of the creek just inside the entrance, has berths, electricity, gasoline, marine supplies, water, ice, storage, and a 16-ton lift; hull, engine, and electronic repairs can be made. Depths of 5 feet were reported at the marina in September 1985.

(65) **Brown Creek,** locally known as Browns River, 3 miles westward of Patchogue, is entered between two short jetties extending out to a depth of about 4 feet. The jetties are marked by lights. In March 1995, the midchannel controlling depth in the dredged channel was 3½ feet from Great South Bay to the upstream limit of the project; thence in October 1993, 2 feet at midchannel to a point about 0.3 mile south of the Sayville Highway Bridge; thence in 1971, with local knowledge, about 2 feet in a natural channel to the head of navigation at the bridge. In 1976, a large rock, covered 6½ feet, was reported at the entrance to the dredged channel. In June 1981, local interests advised that mariners steer a centerline course from a point about 0.75 mile south of the jetty light through the entrance channel.

(66) There are several small-craft facilities on the creek. Berths, electricity, gasoline, diesel fuel, water, marine supplies, mobile hoists to 60 tons, a launching ramp, and hull and engine repairs are available. A marine railway can handle vessels to 40 feet long.

(67) Passanger ferry service, summer only, is available from Sayville to Fire Island Pines, Sailors Haven, Cherry Grove, and Barrett Beach on Fire Island.

(68) **Green Creek**, about 1 mile west of Brown Creek, is used by many clam boats. Depths of about 5 feet were reported available in the creek in 1981. Mariners are advised to use care when entering the creek, especially during strong southwest winds. Inside the creek, gasoline, water, marine supplies, storage, a 30-ton lift, and complete hull, engine, and electronic repairs are available. A 4-mph **speed limit** is enforced in the creek.

(69) **Green Harbor** is a privately maintained two-part harbor just westward of the entrance to Green Creek. The entrance to the outer basin and the connecting channel between the outer and inner basins are very narrow. In September 1985, depths were reported to be about 6 feet. Limited berthing is available in the outer basin. A boatyard is in the inner basin.

(70) **Connetquot River,** locally known as Great River, is 3 miles westward of Brown Creek. In June 1981, a reported depth of 5 feet (with local knowledge) could be carried from **Nicoll Bay** to the boatyards on the east side of the river, thence about 2 feet to the head of navigation at the railroad; favor the east bank of the river above the boatyards. A shoal with depths of 2 feet extends northeast from **Nicoll Island** on the southwest side of the river entrance. A private light marks the entrance to the river. A prominent mansion with a tower, now part of a private school, is on the north shore of the entrance.

(71) There are several small-craft facilities on the east side of the river. (See the small-craft facilities tabulation on chart 12352 for services and supplies available.) **Great River** is a village on the west side of the river.

(72) **Watch Hill**, part of Fire Island National Seashore, is across Great South Bay from Patchogue. A privately dredged channel with a reported depth of 4 feet in June 1981 leads from Great South Bay to a seasonally operated marina. The channel is marked by private seasonal lighted buoys and a lighted range. Berths, electricity, water, ice, some supplies, and a pumpout station are available. A passenger ferry operates between Watch Hill and Patchogue.

(73) **Cherry Grove**, a summer resort across Great South Bay from Connetquot River, has a boat landing extending out to a depth of 5 feet. Seasonal ferry service is maintained with Sayville.

(74) **Point o' Woods**, **Ocean Beach, Fair Harbor,** and **Saltaire** are summer resorts on Great South Bay westward of Cherry Grove. Provisions are available at most of these resorts. Year-round ferry service is maintained between Ocean Beach, Saltaire, and Bay Shore, a town northwestward on the north shore of Great South Bay, while there is seasonal service between the rest of these settlements and Bay Shore. A privately dredged channel with a reported depth of 9 feet in 1981 leads southward to Fair Harbor. A private light marks the channel.

(75) On the north shore of Great South Bay, in the vicinity of **Nicoll Point**, is **Heckscher State Park**. A boat basin and a small-craft launching ramp are at the park in a cove about 1.6 miles west of Nicoll Point. The park is open during daylight hours only. A 5 mph **speed limit** is enforced.

(76) **Sailors Haven**, across Great South Bay from Nicoll Point, is part of the Fire Island National Seashore. A privately dredged and marked channel with a depth of about 4 feet leads from Great South Bay to a seasonally operated marina at which berthing, water, ice, and some supplies are available. A seasonal passenger ferry operates between Sailors Haven and Sayville.

(77) **Weather, Great South Bay and vicinity.**–**Islip** is on the south side of Long Island just inland from Great South Bay and opposite the Fire Island National Seashore, about halfway between New York city and Montauk Point.

(78) At Islip the average annual temperature is 53°F (11.7°C). The average high is 61°F (16.1°C) and the average low is 44°F (6.7°C). July is the warmest month with an average high of 82°F (27.8°C) and an average low of 67°F (19.4°C). January is the coolest month with an average high of 39°F (3.9°C) and an average low of 24°F (-4.4°C). The warmest temperature on record for

Islip is 101°F (38.3°C) recorded in July 1991 and the coldest temperature on record is -7°F (-21.7°C) recorded in January 1984. On average, seven days each year record high temperatures in excess of 90°F (32.2°C) and 98 days record minimum temperatures below 32°F (0°C). An average of only two days each year has an extreme minimum below 5°F (-15°C).

(79) Precipitation is both moderate and distributed evenly throughout the year. August is the wettest month with an average precipitation total of five inches (127 mm) and February the driest with just over three inches (76 mm). Average annual precipitation is about 45 inches (1143 mm). Most of the rainfall from June through September comes from thunderstorms, therefore, is usually of brief duration, but relatively intense. Thunderstorm days average 25 each year. From October to April, however, precipitation is generally associated with widespread storm areas, so that day-long rain or snow is common.

(80) Snow falls an average 30 days each year and averages 21 inches (533 mm) in any given year. The snowiest month is February with an average of six inches (152 mm). Snow has fallen in each month, November through April. The greatest 24-hour total snowfall was eight inches (203 mm) which fell in March 1993.

(81) Tropical storms have influenced the area fourteen times since 1871. Most recently, Hurricane Gloria passed within 10 miles west of Islip in September 1985. Gloria made landfall about halfway between Kennedy and Islip and provided sustained winds of 75 knots at time of landfall for the Islip area. Only two days earlier, Gloria was a more respectable 125-knot hurricane.

(82) **Great Cove**, on the north side of Great South Bay about 4 miles westward of Nicoll Point, has depths of 4 to 8 feet. A line of private orange and white spar buoys across the mouth of Great Cove marks a shellfish closure area.

(83) **Orowoc Creek**, which enters the northeast part of the cove, leads to the boat basin and wharves at the town of **Islip**. The channel in the cove is sometimes marked by stakes, and had a reported depth of about 6 feet in June 1981. A private light marks the westerly edge of the 3-foot shoal on the east side of the channel near the entrance to the creek. Small-craft facilities on the creek can provide gasoline, water, ice, storage, marine supplies, and complete engine and hull repairs. A 55-foot marine railway and a 25-ton mobile hoist are available. Several fish packing plants are on the creek.

(84) **Penataquit Creek** and **Watchogue Creek**, locally known as **West Creek**, about 0.5 mile westward of Orowoc Creek, empty into the northwest end of Great Cove through a common entrance. **Bay Shore** is a large fishing center on the northwest shore of Great Cove at the head of the creeks. The common entrance is protected on its westerly side by a bulkheaded sandspit, which forms a well-protected boat basin. The entrance channel leads between the northeast end of the sandspit and the point to the east. A private light marks the entrance to the creeks. The channel had a reported depth of 6 feet in June 1981. A 4 mph **speed limit** is enforced on the creeks.

(85) The ferry landing near the entrance of Penataquit Creek had a reported depth of about 5 feet at its end in June 1981. From the landing, ferries connect with Ocean Beach and Saltaire year round and with Point o' Woods, Kismet, Fair Harbor, Dunewood, Atlantique, Sea View and Ocean Bay Park during the summer.

(86) There are several small-craft facilities in Penataquit and Watchogue Creeks. (See the small-craft facilities tabulation on chart 12352 for services and supplies available.)

(87) There are several creeks and a dredged boat basin between Watchogue Creek and Conklin Point to the southwestward. These waterways are for the most part privately maintained and for the exclusive use of the local property owners.

(88) **Fire Island Inlet**, about 28 miles westward along the south coast of Long Island from Moriches Inlet, is the only direct entrance from the Atlantic to Great South Bay. The inlet is subject to frequent changes and has been moving westward for many years. Mariners are warned to beware of extreme tidal turbulence especially during times of tidal change and should seek local knowledge of the latest conditions before entering. Navigation of the inlet is difficult even with relatively calm seas, and for small craft it can be extremely dangerous. During heavy weather, the entrance usually is obstructed by breakers.

(89) **COLREGS Demarcation Lines.**–The lines established for Fire Island Inlet are described in **80.160**, chapter 2.

(90) **Fire Island Light** (40°37.9′N., 73°13.1′W.), 167 feet above the water, is shown from a black and white horizontally banded tower about 4 miles east-northeastward of **Democrat Point**. **Fire Island Coast Guard Station** is about 1.9 miles west-southwestward of the light. A water tower, about 208 feet high, marked by floodlights and visible for 16 miles, is about 0.1 mile southwest of the Fire Island Coast Guard Station.

(91) The **Robert Moses Causeway Bridge** over Fire Island Inlet, 2.1 miles inside the entrance, has a clearance of 65 feet at the 464-foot center span. The bridge is an excellent radar target at a range of more than 12 miles.

(92) Two boat basins at the **Robert Moses (Fire Island) State Park** are entered just westward of the southern end of the bridge. Berths and water are available in the basins between sunrise and sunset. In June 1981, depths of 7 feet and 6 feet were reported available in the east and west basins, respectively.

(93) The **currents** in Fire Island Inlet, after crossing the bar, have a velocity of about 2.4 knots at full strength and are influenced greatly by the force and direction of the wind. (Consult the Tidal Current Tables for predictions.) In the bay, currents have little velocity except in the narrow channels between the shoals and within a radius of 3 miles from Fire Island Coast Guard Station where their estimated velocity is 1 to 1.5 knots.

(94) Fire Island Inlet remains open throughout the year, but **ice** does become a problem in the inland channels through Great South Bay from early January through about mid-March.

(95) The area between Fire Island Inlet and Jones Inlet is characterized by low, sandy beaches and numerous islands fringed by vast stretches of marshy ground. Many shallow areas, irregular in outline, are a serious menace to the navigation of light-draft vessels. An extensive network of bays, creeks, coves, channels, and inlets covers the entire area.

(96) The channel connecting Great South Bay with Jones Inlet, East Bay, and South Oyster Bay is narrow, treacherous, and has numerous short bends. Caution should be exercised when navigating in these areas in small boats.

(97) Several channels lead from Fire Island Inlet to places in Great South Bay and connecting inside waterways. **East Channel** follows the buoyed channel along the north side of **Great South Beach** and joins with the inside passage south of **Nicoll Bay**. It has a depth of about 8 feet. **Range Channel**, just westward of East Channel, has a depth of about 6 feet. **West Channel**, just westward of **Fire Islands**, has a depth of about 7 feet. **Dickerson Channel**, northeastward of Captree Island, had a reported depth of 4 feet in June 1981. These channels are marked with buoys that are shifted in position with changing conditions.

(98) From Fire Island Inlet the **State Boat Channel** leads westward through Great South Bay and South Oyster Bay to Zacks

Bay at Jones Beach State Park, thence westward in Hempstead Bay through winding channels, well marked by lights, buoys, and daybeacons to Reynolds Channel at Point Lookout, just west of Jones Inlet. Two buoys mark submerged obstructions on the south side of the entrance to the channel.

(99) The **speed** of vessels is limited to 10.4 knots (12 mph) in the channel and 3.5 knots (4 mph) in the areas designated as basin or anchorage.

(100) A marina on the south side of the channel at the eastern end of **Captree Island** has berthage, gasoline, diesel fuel, water, and ice.

(101) The Robert Moses Causeway Bridge over the State Boat Channel, connecting Oak Beach with Captree Island, has twin bascule spans with a clearance of 29 feet at the center. (See **117.1 through 117.59 and 117.799 (a) through (c) and (i)**, chapter 2, for drawbridge regulations.) The twin fixed spans of this bridge and causeway over the inside passage in Great South Bay between Captree Island and **Conklin Point** have a clearance of 60 feet for a middle width of 460 feet.

(102) A shellfish closure area, marked by private yellow buoys, extends from the Robert Moses Causeway at Conklin Point westward for about 6.8 miles to Narraskatuck Creek.

(103) **Oak Island Channel,** locally known as Babylon Cut, extends northwestward from the State Boat Channel from a point opposite the northeastern end of **Oak Island** to Great South Bay and **Babylon Cove.** In June 1981, the privately marked channel had a reported controlling depth of 6 feet except for shoaling to an unknown extent in the channel opposite **Grass Island.** From a point about 1.7 miles above the State Boat Channel, Oak Island Channel connects with a privately dredged and marked channel, locally known as **East West Channel**, that leads westward and parallels the northern shore of Great South Bay for about 6 miles to South Oyster Bay. In June 1981, East West Channel had a reported controlling depth of about 4 feet. Several channels, some leading northward into the waterways on the north side of Great South Bay and some leading southward to the State Boat Channel, connect with East West Channel. These connecting channels are discussed later in this chapter.

(104) **Babylon** is a town on the north shore of Great South Bay. A flag pole and a church spire are prominent. The public landing, about 0.3 mile northward of Sampawams Point and at the mouth of Sampawams Creek, had a reported depth of 5 feet at the end in June 1981. Approaching around **Sampawams Point,** give the point a berth of 0.3 mile when southeastward of it and head northwestward to the wharf.

(105) **Sampawams Creek**, just northward of the wharf, has been dredged to reclaim adjacent lands and is bulkheaded on the west side. The entrance is marked by private seasonal buoys and a private light. It is used as an anchorage by small craft and has a depth of about 5 feet through the entrance and greater depths inside. Boats also anchor between the public landing and Sampawams Point. This anchorage becomes choppy during easterly or southeasterly winds.

(106) There are several small-craft facilities on the creek. (See the small-craft facilities tabulation on chart 12352 for services and supplies available.)

(107) In August 1992, an obstruction was reported between Sampawams Creek and Carlls River in about 40°40′15″N., 73°19′03″N.

(108) **Carlls River**, westward of Sampawams Point, in June 1981, had a reported controlling depth of 5 feet in the privately dredged entrance channel leading northward from East West Channel. In June 1982, shoaling to an unknown extent was reported in the channel. In June 1993, a submerged object covered 5 feet was reported in the entrance channel in about 40°40′48″N., 73°19′39″W. A marina on the river has berthage, gasoline, water, ice, marine supplies, and a 15-ton mobile hoist; hull and engine repairs can be made. In June 1981, depths of 7 feet were reported alongside at the marina.

(109) **West Babylon Creek**, locally known as **Mud Creek**, about 1 mile westward of Sampawams Point. In June 1981, the privately dredged and marked entrance channel leading northward from East West Channel had a reported controlling depth of 4 feet. Several **small-craft facilities** are on the creek. (See the small-craft facilities tabulation on chart 12352 for services and supplies available.) Several creeks to the westward have been improved in a similar manner.

(110) In July 1980, a submerged obstruction was reported about 0.55 mile southwest of the mouth of West Babylon Creek in about 40°40′00″N., 73°20′38″W.

(111) **Oak Beach** is primarily a summer resort and fishing village on the north side of Fire Island Inlet. The channel to the village pier, passing eastward of Oak Island, has a depth of about 9 feet. A tall lighted mast on the south side of Oak Beach is prominent.

(112) **Cedar Island Beach** and **Gilgo Beach**, westward of Oak Beach, are maintained and operated by the County and Township authorities and are not part of the Long Island State Park System.

(113) **Neguntatogue Creek**, on the north side of Great South Bay at the town of **Lindenhurst**, has several small-craft facilities. In June 1981, the reported controlling depth in the entrance to the creek was 4 feet. Berths, electricity, gasoline, diesel fuel, water, ice, storage, and marine supplies are available; hull and engine repairs can be made.

(114) **Fox Creek Channel,** privately dredged and marked by private seasonal aids, leads from the mouth of Neguntatogue Creek across Great South Bay to a junction with the State Boat Channel just eastward of Cedar Island. In June 1982, the reported controlling depth was 3 feet.

(115) **Strongs Creek**, westward of Neguntatogue Creek, in June 1981, had a controlling depth of 7 feet in the privately dredged entrance channel leading northward from East West Channel. Small-craft facilities in the creek have storage and a 12-ton mobile hoist; hull and engine repairs can be made.

(116) **Great Neck Creek**, westward of **Strongs Point**, has a depth of about 7 feet in the privately dredged entrance channel leading northward from East West Channel; greater depths are inside. Small-craft facilities in the creek can provide berths, electricity, gasoline, water, and marine supplies; hull and engine repairs can be made. The largest mobile hoist can handle craft up to 12 tons.

(117) **Amityville Creek**, on the north side of the western extremity of Great South Bay, had a reported controlling depth of about 3 feet in June 1981. The entrance to the creek is marked on the west side by a private light. Several boatyards on the creek have marine railways, the largest of which can handle craft up to 50 feet in length; gasoline, water, ice, storage, marine supplies, and complete engine and hull repairs are available.

(118) **Amityville** is a small town on the north shore of Great South Bay at its western extremity. **Amityville Cut**, with a reported controlling depth of 3 feet in June 1981 and privately maintained and marked, extends southward from Amityville Creek and joins the State Boat Channel near Gilgo Beach. The village wharf bares at low water at its face.

(119) **Narraskatuck Creek**, 0.5 miles westward of Amityville Creek had a reported depth of about 3 feet in June 1981. The

small-craft facilities on the creek have gasoline, berths, electricity, water, ice, storage, and marine supplies. Mobile hoists can handle craft up to 20 tons; hull, engine, and electrical repairs can be made.

(120) **Carman Creek**, about 0.8 mile westward of Amityville Creek, is used by boats drawing 4 to 5 feet.

(121) **South Oyster Bay**, lying between Great South Bay and Hempstead Bay, is shoal over its greater part. A channel marked by buoys and daybeacons, good for a draft of 4 feet at high water, extends through the bay. Through traffic uses the State Boat Channel and connecting lanes on the south side of the Bay.

(122) **Gilgo Heading**, a channel and basin between the State Boat Channel and Gilgo Beach, has a depth of about 7 feet.

(123) **Chart 12352.–Hempstead Bay** is on the south side of Long Island inside the beach extending from the west end of Great South Bay to Far Rockaway. The bay has many sloughs that are subject to change in the vicinity of the inlets and where dredging is done to reclaim land. Navigational aids marking the main channels of the bay are maintained by the town of Hempstead. Many shoal spots, some to a foot or less, have been reported at several areas of the rivers and channels.

(124) **Chart 12352.–Jones Beach State Park,** on the south coast of Long Island, comprises about 2,500 acres and is under the jurisdiction of the Long Island State Park and Recreation Commission. A prominent red brick water tower, 204 feet high, with a pyramid top, 3.5 miles eastward of Jones Inlet, is the center of Central Mall. The tower, flood- lighted at night, is visible 16 miles. **Zachs Bay**, a dredged basin above Jones Beach State Park, has depths of 4 to 29 feet. The eastern part of Zachs Bay is used as an anchorage; a swimming area marked by private buoys is in the western part of the bay.

(125) **Stone Creek,** privately marked and with a reported depth of about 2 feet in June 1981, leads northward from Sloop Channel and eastward of **Green Island** to the village of **Seaford** at the head of **Seaford Creek**. In August 1992, severe shoaling to an unknown depth was reported north of Great Island Channel Lighted Buoy Z2. There are many small-craft facilities at Seaford and in the vicinity. Berthage, electricity, gasoline, water, ice, storage, marine supplies, and small-craft launching ramps are available. The largest mobile hoist is 30 tons; hull, engine and electrical repairs can be made.

(126) The Jones Beach Causeway Bridge has the following clearances: 14 feet for the 29-foot fixed span across Sloop Channel from Jones Beach State Park to Green Island; 16 feet for the bascule span over **Goose Creek** between Green Island and Great Island; and 11 feet for the 26-foot fixed span across Island Creek. (See **117.1 through 117.59 and 117.799 (a) through (c) and (i)**, chapter 2, for drawbridge regulations.)

(127) **Caution.**–The current is reported to be swift during periods of maximum flood and ebb at the bridge crossing the Sloop Channel from Green Island to Jones Beach State Park, and has a tendency to set boats into the bridge abutments. Mariners are advised to avoid this part of the channel during these periods and to use the secondary route in Goose Creek, north of Green Island.

(128) A privately marked channel, locally known as **Racehorse Channel**, with a depth of about 6 feet, leads northward from Sloop Channel and westward of Green Island to the western entrance of **Island Creek**. Two spur channels, marked by private buoys and daybeacons, lead westward from near the north end of Racehorse Channel to **East Bay.** In June 1981, shoaling to 3 feet was reported in the southerly channel; caution is advised.

(129) A fish haven, marked by a private buoy, is near the middle of East Bay.

(130) On the north side of East Bay, there are several **small-craft facilities** at the head of **Bellmore Creek** and on the west side of **Nicks Point.** (See the small-craft facilities tabulation on 12352 for services and supplies available.)

(131) **Sloop Channel,** the main channel leading east from Jones Inlet, extends along the north side of **Short Beach** and Jones Beach State Park. The channel is marked by buoys and daybeacons. In June 1981, shoaling to 3 feet was reported on the south side of Sloop Channel from about 0.3 mile southwest of Meadowbrook State Parkway Bridge to about 0.45 mile northeast of the bridge.

(132) A channel with reported depths of 3 to 4 feet in June 1981 leads between **Snipe Island** and **Egg Island** into **Haunts Creek** on the western side of **Deep Creek Meadow** and joins **Sloop Channel** northwestward of Jones Beach State Park.

(133) The channel joining Haunts Creek east of **East Crow Island** and leading northward through **Broad Creek Channel** to East Bay, and thence to **Merrick Creek,** has a depth of about 1 foot. The channel joining Sloop Channel just west of the Meadowbrook State Parkway Bridge leads north through **Swifts Creek** and **Neds Creek** to East Bay; the channel bares at low water about 0.7 mile north-northeastward of the bridge between West Crow Island and Pettit Marsh. The channel between **False Channel Meadow** and Pettit Marsh has a depth of about 5 feet and leads to Freeport Creek, discussed later in this chapter.

(134) The Meadowbrook State Parkway Bridge has the following clearances: 21 feet for the bascule span across Sloop Channel between Jones Beach State Park and **Jones Island**, 14 feet for the 29-foot fixed span between **West Crow Island** and **Pettit Marsh,** and 12 feet for the 29-foot fixed span between Pettit Marsh and **Fighting Island.** (See **117.1 through 117.59 and 117.799 (a) through (c) and (h)**, chapter 2, for drawbridge regulations.)

(135) The Loop Parkway Bridge has the following clearances: 21 feet for the 30-foot fixed span over Swift Creek between West Crow Island and **Meadow Island,** 21 feet for the bascule span between Meadow Island and **Alder Island,** and 20 feet for the 29-foot fixed span over Reynolds Channel between Alder Island and Point Lookout. (See **117.1 through 117.59 and 117.799 (a) through (c) and (f)**, chapter 2, for drawbridge regulations.)

(136) **Jones Inlet**, about 12 miles westward along the south coast of Long Island from Fire Island Inlet, is the principal entrance from the Atlantic to the inside passages and towns in Hempstead Bay. The inlet, which is used mostly by pleasure craft and fishermen, should not be attempted without local knowledge because the channel and depths are constantly changing.

(137) The approach is marked by a lighted whistle buoy.

(138) A light is at the outer end of the jetty on the east side of the entrance to Jones Inlet. A small-craft basin is inside the inlet on the north side of Jones Beach; berths, electricity, water, and pump-out station are available. **Jones Beach Coast Guard Station** is in the small-craft basin.

(139) In 1983-September 1985, the controlling depth was 8 feet (12 feet at midchannel) in the channel from Point Lookout (40°35.6′N., 73°34.6′W.) to the Loop Parkway Bridge over Long Creek. The buoys and soundings in Jones Inlet are not charted because of continual changes; caution and local knowledge are advised.

(140) A wreck, reported covered 8 feet in June 1981 and unmarked, is about 320 yards westward of the jetty light. In September 1987, a sunken wreck was reported about 0.5 mile westward of the jetty light in about 40°34′30″N., 73°35′12″W.

(141) The **tidal current** in the inlet has a velocity of about 3 knots. (See Tidal Current Tables for predictions.) The mean range of **tide** is 3.6 feet.

(142) **COLREGS Demarcation Lines.**–The lines established for Jones Inlet are described in **80.160,** chapter 2.

(143) **Point Lookout** is a village on the east end of the barrier beach on the west side of Jones Inlet. A large lighted tank in the western part of the town is prominent. Small-craft facilities are on either side of the bridge. (See the small-craft facilities tabulation on chart 12352 for services and supplies available.)

(144) **Long Creek**, marked by private lighted and unlighted buoys, leads northward from Jones Inlet between Alder Island and Meadow Island, and between **Smith Meadow** and **Pine Marsh** to Freeport. The channel below the Loop Parkway Bridge has been improved by dredging as previously mentioned. The channel above the bridge at the intersection with **Sea Dog Creek** is subject to frequent change; local information should be obtained before using these waters. The channel above the intersection with Sea Dog Creek had a reported depth of about 12 feet in June 1981. A channel between Pine Marsh and Pettit Marsh, with a reported depth of about 12 feet in June 1981, joins with **The Narrows** and Long Creek about 1 mile northward of the **Bay of Fundy**.

(145) **Freeport Creek**, leading northward from The Narrows, had a controlling depth of 3½ feet in January 1980. In July 1993, a visible wreck was reported near the mouth of the creek, just east of Buoy Q9, in about 40°37′53″N., 73°33′55″W. **Great Sand Creek**, between Pettit Marsh and False Channel Meadow, had a reported depth of about 5 feet in June 1981. Several boatyards and marinas are along Freeport Creek where gasoline, diesel fuel, water, and marine supplies may be obtained; complete engine and hull repairs can be made.

(146) **Hudson Channel**, extending northward to the piers at Freeport, had a reported depth of about 4 feet in June 1981. **Woodcleft Canal,** westward of Hudson Channel, had a depth of about 13 feet.

(147) **Freeport** is a city on the north shore of **Baldwin Bay** with rail and bus communications to New York City and other points on Long Island. Many small-craft facilities are at Freeport. (See the small-craft facilities tabulation on chart 12352 for services and supplies available.)

(148) A **general anchorage** is in **Randall Bay** at the northeast end of **Baldwin Bay**. (See **110.1 and 110.156,** chapter 2, for limits and regulations.)

(149) A channel with a reported depth of about 7 feet in June 1981, passes through **Scow Creek** to **Baldwin Harbor.** A channel connecting Baldwin Harbor with Randall Bay had a reported depth of about 5 feet in June 1981.

(150) **Milburn Creek**, a dredged channel extending northward to **Baldwin** from Baldwin Bay, had reported depths of about 5 feet in June 1981. The entrance to the channel is marked by private seasonal barrel buoys. A dredged channel with a reported depth of about 8 feet in June 1981 in the northern part of **Middle Bay** leads to **Parsonage Cove**.

(151) **Reynolds Channel** extends westward from Jones Inlet to East Rockaway Inlet and is the main thorofare of the route between the inlets. In 1975, a sunken wreck was reported in the channel in about 40°35′41″N., 73°34′57″W., about 0.3 mile westward of Point Lookout. The channel is crossed by several bridges. Strong currents exist in the western portion of Reynolds Channel, and caution must be exercised when approaching the drawbridges, particularly with a fair current; the signal to open the bridge should be given sufficiently in advance so the bridge can be cleared of traffic and the draw opened before the vessel arrives there. The currents of the two inlets meet at the entrance of the channel leading west from Cinder Creek.

(152) A 5 mph **speed limit** is enforced in the channel between Middle Island and Point Lookout.

(153) A secondary channel extending northwestward through **Cinder Creek** and westward of **Parsonage Island** to middle Bay had a reported depth of about 3 feet in June 1981. The channel is not marked.

(154) **Garrett Lead,** the primary channel extending northeastward from Reynolds Channel to Middle Bay, is marked by a lighted buoy, a light, buoys, and daybeacons. In June 1981, the channel had a reported controlling depth of 5 feet.

(155) **Chart 12352.–Long Beach** is a seaside resort on the outer beach about 4 miles west of Point Lookout. The waterfront on the bayside is bulkheaded.

(156) The highway bridges crossing Reynolds Channel between Long Beach and **Island Park** have bascule spans with clearances of 20 feet. The railroad bridge about 0.2 mile westward of the highway bridges has a swing span with a clearance of 3 feet. In July 1987, a bascule bridge with a design clearance of 11 feet was under construction close west of the railroad bridge; upon completion, it will replace the railroad bridge. (See **117.1 through 117.59 and 117.799 (a) through (c) and (g)**, chapter 2, for drawbridge regulations.)

(157) A dock of the Long Beach Hospital is on the south side of Reynolds Channel about 0.3 mile eastward of the highway bridge; medical aid to boatmen is available here. The dock is marked by a square white sign with a large red cross.

(158) Just westward of the railroad bridge, a dredged channel passes through Island Park. In June 1981, the channel had a reported controlling depth of about 6 feet. The fixed footbridge and highway bridge crossing the channel have a least clearance of 7 feet. Several wharves are available at Island Park.

(159) **Hog Island Channel**, the main route to the towns of **Oceanside** and **East Rockaway**, joins Reynolds Channel southwestward of Island Park and leads westward of Island Park, then eastward of West, East, and North Meadows. **East Rockaway Channel**, privately marked and an alternate and shallower route to the towns, joins Hog Island Channel about 0.8 mile and 2.4 miles above Reynolds Channel. Oceanside and East Rockaway are along the east and west sides, respectively, of the northern part of East Rockaway Channel.

(160) In June 1981, the reported controlling depth in Hog Island Channel was 10 feet to the oil dock at a powerplant about 1.75 miles above the junction with Reynolds Channel, thence about 8 feet to the northern junction with East Rockaway Channel. In June 1981, East Rockaway Channel had a reported controlling depth of 6 feet to its head.

(161) Mariners of vessels transiting Hog Island Channel in the vicinity of the public beach at the village of Island Park are requested to proceed at a **speed** that will create minimum wave wash and wake, and avoid damage to the beach facilities.

(162) There are numerous marginal-type petroleum wharves along the eastern side of Hog Island Channel between 1.75 and 2.25 miles above the junction with Reynolds Channel. In June 1981, depths of 6 to 10 feet were reported alongside the wharves; oil barges and coastal tankers berth at or near high tide and ground out at low tide when alongside.

(163) **Small-craft facilities.**–There are extensive small-craft facilities along the south and southeast sides of Island Park, and also on East Rockaway Channel at Oceanside and East Rockaway.

(See the small-craft facilities tabulation on chart 12352 for services and supplies available.)

(164) **Broad Channel**, which joins Reynolds Channel eastward of **Hicks Beach** and leads to **Hewlett Bay** and Macy Channel, had a reported depth of about 3 feet in June 1981.

(165) **Woodsburgh Channel**, which joins Broad Channel about 0.5 mile northward of Hicks Beach and leads northwestward to **Woodsburgh,** had a reported controlling depth of 3 feet in June 1981. The two fixed bridges over **Woodmere Channel** northwestward of **Brosewere Bay** have a least clearance of 11 feet.

(166) **Atlantic Beach** is an oceanfront and bayside community on the east side of East Rockaway Inlet. Facilities for mooring are eastward and westward of the highway bridge. Gasoline, diesel fuel, water, provisions, and other supplies are available.

(167) **Bannister Creek**, just east of the Atlantic Beach Bridge, has depths of 7 to 12 feet. **Bridge Creek** extends west just above the mouth of Bannister Creek. A small boatyard on the creek can haul out craft up to 4 tons in weight for hull and engine repairs; water and some marine supplies are available.

(168) The highway bridge crossing Reynolds Channel to Atlantic Beach just inside East Rockaway Inlet has a bascule span with a clearance of 25 feet. (See **117.1 through 117.59 and 117.799 (a) through (c) and (e)**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 13; call sign KFL–348.

(169) **East Rockaway Inlet**, about 8 miles westward along the south coast of Long Island from Jones Inlet, is the westernmost entrance from the Atlantic to Hempstead Bay and the inland water route along the south shore of Long Island. The inlet is subject to frequent changes, but is reported to be usually safer to navigate than Jones or Fire Island Inlets. The aids marking the inlet are periodically moved to mark the best water; local knowledge is advised.

(170) Two large identical apartment buildings are prominent about 0.8 mile north-northeastward of the jetty light.

(171) The **tidal current** in the inlet has a velocity of about 2.3 knots. (See the Tidal Current Tables for predictions.) Caution should be exercised when passing through the inlet and bridge at times of maximum current. The mean range of **tide** is 4.1 feet in East Rockaway Inlet and from about 2 to 4 feet in Hempstead Bay.

11. NEW YORK HARBOR AND APPROACHES

(1) This chapter describes New York Harbor and its approaches and the areas adjacent to it bounded by and including Jamaica Bay to the eastward and Sandy Hook Bay to southward. Included in the text in addition to the facilities at New York City and Staten Island are the New Jersey ports of Perth Amboy, Port Elizabeth, Port Newark, Bayonne, and others which are accessible through tributaries that empty into New York Harbor such as Arthur Kill, Kill Van Kull, Passaic River, and Hackensack River. The Hudson River above New York City is discussed in chapter 12, and the East River, the approach to New York Harbor from Long Island Sound, is discussed in chapter 9.

(2) **COLREGS Demarcation Lines.**–The lines established for New York Harbor are described in **80.165**, chapter 2.

(3) **Charts 12326, 12327, 12401.**–The approach to **New York Harbor** from seaward is generally along the south coast of Long Island or the east coast of New Jersey, although the harbor is easily approached from any direction between east and south. During the approach, the south shore of Long Island will be seen to northward and the low sandy beaches of the New Jersey shore will be observed to westward. The Long Island shore is readily identified by sand hillocks and thickly settled beach communities, whereas the New Jersey shore is characterized by long sandy stretches and many summer resort settlements.

(4) **Prominent features.**–The five most prominent landmarks, which can be seen for a long distance at sea, are the twin towers of the World Trade Center, Fire Island Light and a tower at Jones Beach on the Long Island shore, and the Highlands of Navesink and the microwave tower at Atlantic Highlands on the north end of the New Jersey coast. When nearing the Lower Bay of New York Harbor, Ambrose Light will be seen; it marks the entrance to Ambrose Channel which is the principal deepwater passage through the Lower Bay.

(5) The south coast of Long Island from Fire Island Inlet to Rockaway Inlet has a general 263° trend for 30 miles. It is a clean shore and may be approached as close as 1 mile, with not less than 5 fathoms except off the inlets where the shore should be given a berth of at least 1.5 miles. This coast is characterized by sandy beaches and summer resorts at the eastern end, and amusement parks and densely settled communities at the western end.

(6) The shoreline is broken by three prominent and navigable inlets which lead to the inland waterway along the south shore of Long Island. Fire Island Inlet is at the eastern extremity, and its entrance is marked by lights and buoys. Jones Inlet is about 12 miles to the west of Fire Island Inlet. The entrance is prominently indicated by the 202-foot lighted tower at Jones Beach on the eastern side and by an elevated tank at Point Lookout on the west side of the inlet. Jones Beach State Park is on the east side of the inlet; a lighted tower in the park is a conspicuous landmark.

(7) East Rockaway Inlet, about 8 miles westward of Jones Inlet, is the extreme western entrance to the inland waterway. The inlet entrance is marked by a breakwater with a light on its seaward end. The shoreline between the two inlets is closely built up with large communities. Elevated tanks, towers, and other tall structures are prominent in this area.

(8) A fish haven is about 2 miles offshore midway between East Rockaway Inlet and Rockaway Point.

(9) **Rockaway Point**, 17 miles westward of Jones Inlet, is the southwestern extremity of Long Island and the eastern entrance to New York Lower Bay. A breakwater, marked at its seaward end by a light, extends southward from the point. Rockaway Inlet forms a large deep entrance to Jamaica Bay.

(10) **Ambrose Light** (40°27.6′N., 73°49.9′W.), 136 feet above the water and off the entrance to New York Harbor, is shown from a red tower on a square white deckhouse on four steel pilings with the name AMBROSE in white letters on all four sides; a fog signal and a radar beacon (Racon) are at the light.

(11) **Sandy Hook**, the southern entrance point to New York Harbor, is low and sandy. A Coast Guard station, a radar tower, and a radio tower are near the northern extremity of Sandy Hook. The towers and a large green standpipe to the southeast are the most prominent objects on the northern end of Sandy Hook. Southward of the standpipe are several houses and **Sandy Hook Light** (40°27.7′N., 74°00.1′ W.), 88 feet above the water and shown from a white stone tower, 85 feet high. This light, established in 1764, is the oldest in continuous use in the United States.

(12) The most prominent landmark southward of the entrance to New York Harbor is the high wooded ridge forming the **Highlands of Navesink**. A tall condominium on the ridge and a microwave tower at Atlantic Highlands to the west are also prominent. The brownstone towers of the abandoned Navesink Lighthouse on the easternmost spur of the highlands are 73 feet above the ground and about 246 feet above the water. The northerly tower is octagonal, and the southerly tower is square. A private seasonal light is shown from the northerly tower.

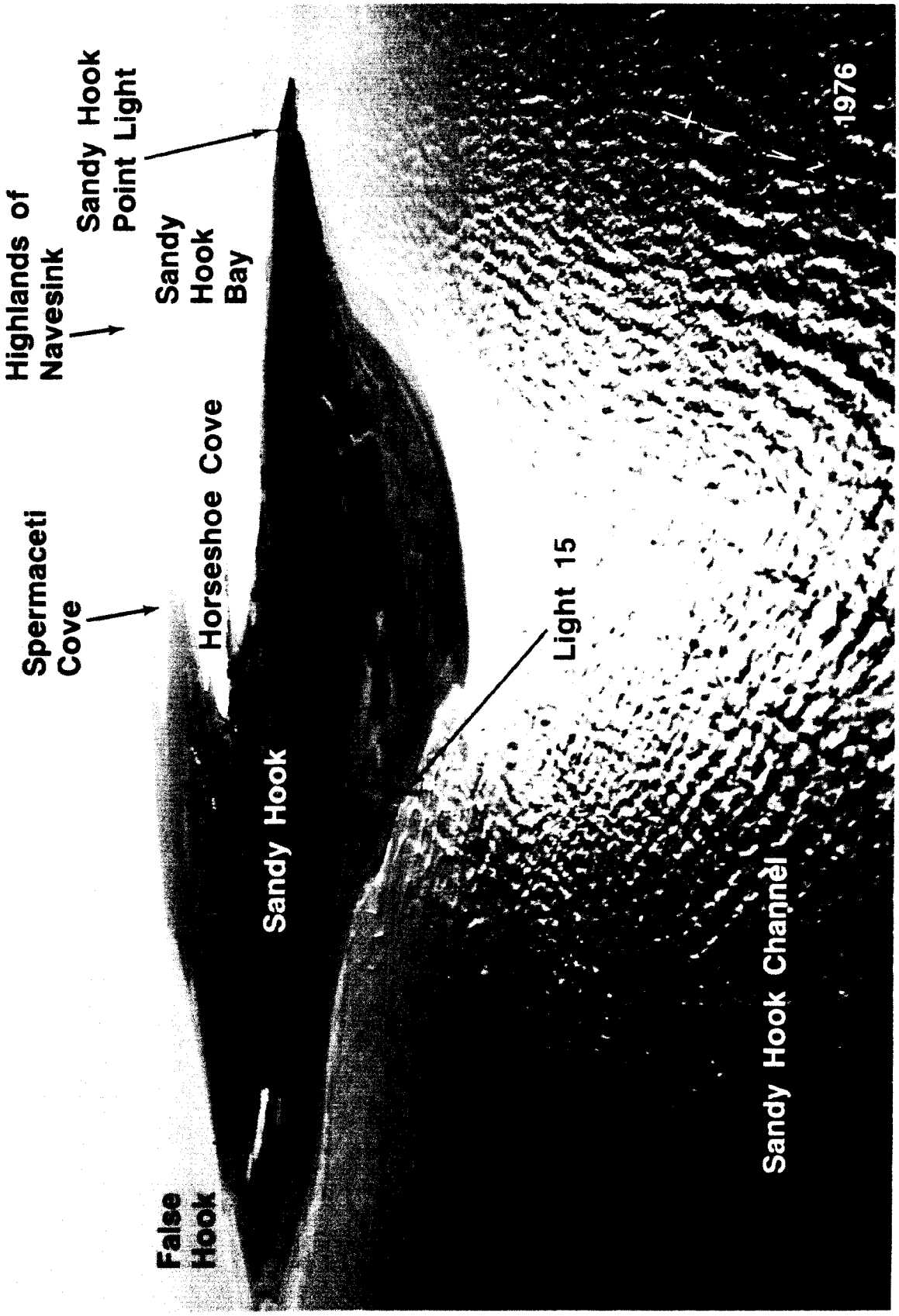
(13) **COLREGS Demarcation Lines.**–The lines established for New York Harbor are described in **80.165,** chapter 2.

(14) **Soundings** will be found most useful to warn vessels of too close an approach to the shore in approaching New York Harbor. Many vessels have been wrecked on the coast of New Jersey and Long Island through failure to take frequent soundings when the position was uncertain. Depth is a better indication of position off this part of the coast than the character of the bottom, as the same characteristics may be found in widely different positions. A frequent use of soundings and close study of the charts will always give sufficient warning of danger. If a vessel is not certain of her position, the depth should not be shoaled to less than 15 fathoms on the south coast of Long Island eastward of Fire Island Light, or 11 fathoms between Fire Island Light and Barnegat Lighted Horn Buoy B, or 9 fathoms southward of Barnegat Lighted Horn Buoy B.

(15) From the position of the two shores relative to each other and to the entrance to New York Harbor it follows that a course of 215° will deepen the water if the vessel is on the Long Island side of the approach and will shoal if she is off the New Jersey coast. A course of 035° will deepen the water if the vessel is off the New Jersey side of the approach and will shoal if she is off the Long Island coast.

(16) Eastward of Fire Island Light the water shoals quite rapidly toward the Long Island shore, but inside a line drawn from Nantucket Traffic Lane Lighted Horn Buoy NA to Barnegat Lighted Horn Buoy B, there is no marked difference in the soundings as either shore is approached except in Mud Gorge.

SANDY HOOK


Highlands of Navesink
Sandy Hook Point Light
Sandy Hook Bay
Spermaceti Cove
Horseshoe Cove
Light 15
Sandy Hook
False Hook
Sandy Hook Channel
1976

(17) Modern surveys show the existence of a canyon, evidently cut by the Hudson River in prehistoric days, across the Continental Shelf, extending about 120 miles southeastward from off Sandy Hook. The inshore section is called the **Mud Gorge** and the offshore section the **Hudson Canyon**. In some sections of this cut the depths are considerably greater than those adjacent to it and the walls are very steep. The use of soundings permits a very accurate determination of a ship's position by the comparison of the soundings with the depth curves on the charts. The bottom of the Mud Gorge is usually of mud; on both sides of it sand predominates.

(18) **Cholera Bank**, about 10 miles southeastward of Ambrose Light, is about 2 miles long in an east-west direction and has a least depth of 10 fathoms. The bank is raised very little above the general level of the bottom, however, because the bottom is rocky in character, soundings will give useful indications in thick or foggy weather. During the summer numerous vessels may be seen on this bank.

(19) **Caution.**–Telegraphic companies report serious interruptions of international telegraphic communications resulting from repeated breaking of their cables by vessels anchoring southeastward and eastward of Ambrose Light. The companies state that they will be glad to compensate any vessel, which, having fouled the cable, cuts away its anchor and chain in order to save the cable from interruption. Vessels making New York in thick weather and finding it necessary to anchor before entering Ambrose Channel should anchor in the area southward of Scotland Lighted Horn Buoy S (40°26.0′N., 73°55.0′W.) and westward of the meridian passing through Ambrose Light.

(20) **Tides.**–The mean range of tide at Sandy Hook is 4.7 feet. (See the Tide Tables for daily tide predictions.)

(21) **Currents.**–The important currents affecting navigation in the approach to New York Harbor are those due to winds. The largest velocity likely to occur under storm conditions is about 1.5 knots. A sudden reversal in the direction of the wind produces a corresponding change in the current, either diminishing or augmenting the velocity. Sustained winds do not maintain the currents at the maximum velocities. The velocity is about 0.2 knots at Ambrose Light. The largest velocity likely to occur is 2 knots.

(22) Between Nantucket and Cape May away from the immediate vicinity of the shore, the tidal currents are generally rotary. They shift direction, usually clockwise, at an average rate of about 30° an hour, and have velocities generally less than 0.3 knot except in the vicinities of the entrances to the larger inland waterways where the velocities increase as the entrances are approached. For a considerable distance from the inlets, strengths of flood and ebb set respectively toward and away from those entrances, and minimums of velocity, corresponding to the slacks of reversing currents, set at right angles to the direction of flood and ebb strengths.

(23) Offshore and away from the influence of the tidal flow into and out of the larger bays, the tidal current maintains an approximately uniform velocity. Shifting its direction continuously to the right, it sets all directions of the compass during each tidal cycle of 12.4 hours. (See the Tidal Current Tables for the predicted times and velocities of the tidal currents at a number of locations in the coastal waters.)

(24) Between Nantucket Island and Sandy Hook there is a general drift of the sea south-southwestward. The average velocity of this movement is about 0.1 knot.

(25) Approaching New York Harbor from the vicinity of Nantucket Shoals Lighted Horn Buoy N, a slight allowance should be made for a southwesterly set of the current. With an easterly wind it is customary to allow, in order to make the course good, a set of the current with it of at least 0.5 knot.

(26) The effect of the wind on the current should always be considered. The largest velocities likely to occur during storms are 2.5 knots about 3 miles northward of Nantucket Shoals Lighted Horn Buoy N and 1.5 knots 3 miles north of Nantucket Traffic Lane Lighted Horn Buoy NA and off Five Fathom Bank.

(27) Between Gay Head and Montauk Point the tidal currents set northward on the flood and southward on the ebb. The estimated velocity at strength where the depth is about 25 fathoms is 0.5 knot; closer inshore and near the entrance this velocity increases.

(28) Three miles north of Nantucket Traffic Lane Lighted Horn Buoy NA the tidal currents have a mean velocity at strength of about 0.2 knot in a westward direction on the flood and an eastward direction on the ebb.

(29) **Weather, New York Harbor and approaches.**–Winds play an important role by affecting currents in the harbor. During the winter west and northwest winds prevail with northerlies and southwesterlies in secondary roles. The strongest winds are out of the west through northwest at 13 to 15 knots, from January through April. The sheltering effect of the land is apparent when looking at frequencies of winds of 28 knots or more. They blow at Ambrose Light about 8 to 9 percent of the time compared to 1 percent at Kennedy Airport and Floyd Bennett Field. Summer winds are often out of the south and southwest with a 10 to 12 knot afternoon peak. Fog in the harbor area is more closely related to land type fogs. In winter it is common on clear, calm mornings and more frequent than at Ambrose Light. Southerlies can also bring winter fogs of the advection type. During the spring and early summer the harbor as well as its approaches are susceptible to advection fog, riding in on east through south winds. A morning peak still exists in the harbor, while Ambrose Light exhibits an afternoon maximum.

(30) **Information about the coast south of Sandy Hook is contained in United States Coast Pilot 3, Atlantic Coast, Sandy Hook to Cape Henry.**

(31) **Charts 12326, 12327, 12401, 12402.–New York Harbor** is the principal entrance by water to New York City and the surrounding ports. The harbor is divided by The Narrows into Lower Bay and Upper Bay. **The Battery,** the southern tip of Manhattan, is at the junction of East River and Hudson River. The main channel from the sea to the deepwater terminals in Hudson River has a project depth of 45 feet.

(32) **Traffic Separation Scheme Off New York** has been established in the approaches to New York Harbor from sea. (See charts 12300 and 12326.) (See also **167.1 through 167.155**, chapter 2, for limits and regulations.)

(33) (See Traffic Separation Schemes, chapter 1, for additional information, and chapter 3 for a discussion of North Atlantic Lane Routes.)

(34) **Pilot Boat Cruising Area, New York Harbor.**–The pilot boat maintains station in the triangle-shaped cruising area west of Ambrose Light. See Pilotage, New York Harbor and Approaches (indexed as such), this chapter.

(35) **Caution.**–Numerous fishing floats have been reported in the approach to New York Harbor in the Traffic Separation Scheme precautionary area.

(36) **Shipping safety fairways** have been established connecting the eastern approach off Ambrose of Traffic Separation

NEW YORK HARBOR

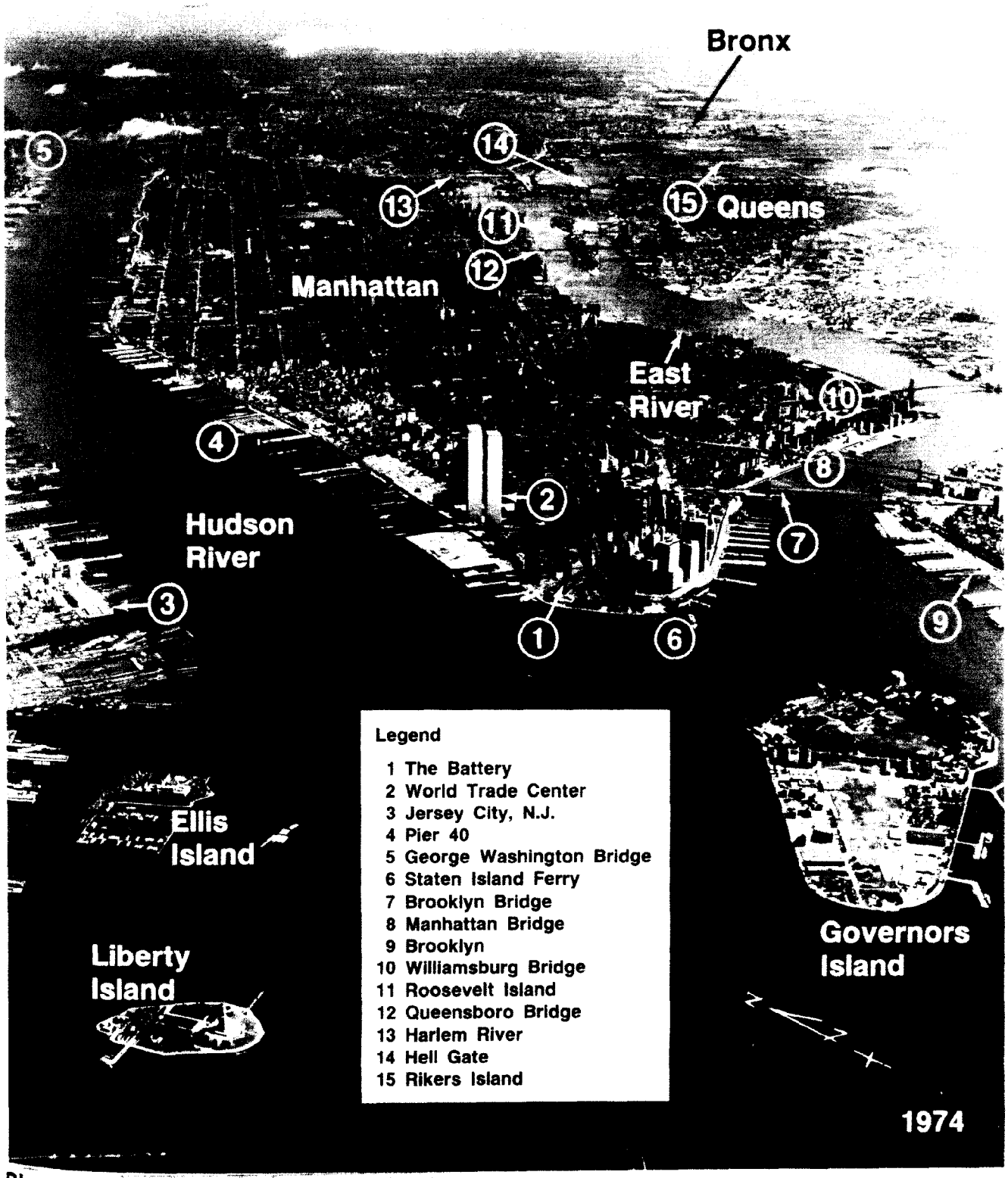


Photo: The Port Authority of NY & NJ

Scheme Off New York and the eastern approach off Nantucket of Traffic Separation Scheme Off New York. (See **166.100 through 166.500**, chapter 2, for limits and regulations.)

(37) **Vessel Traffic Service, New York.**–New York Harbor has a **Vessel Traffic Service.** (See **§161 through §161.25**, chapter 2, for regulations.)

(38) **Recommended minimum under-keel clearance for selected areas of the Harbor Safety, Navigation and Operations Committee of the Port of New York and New Jersey.**–In order to prevent groundings and to promote the safety and environmental security of the waterway resources of the Port of New York and New Jersey, the **Harbor Operations Committee of the Port of New York and New Jersey** recommends that all entities responsible for the safe movement of vessels in and through the waters of the Port of New York and New Jersey operate vessels in such a manner as to maintain a minimum clearance of two feet between the deepest draft of their vessel and channel bottom in the following named channels:

(39) ***Lower Bay:***

(40) 1) Ambrose Channel (3 ft minimum under-keel clearance due to wave and sea action)

(41) 2) Sandy Hook Channel

(42) 3) Chapel Hill Channel

(43) ***Upper Bay:***

(44) 1) Anchorage Channel (The Narrows to The Battery)

(45) 2) Bay Ridge Channel

(46) 3) Red Hook Channel

(47) 4) Buttermilk Channel

(48) ***North River:***

(49) 1) The Battery to 79th Street

(50) ***East River:***

(51) 1) The Battery to Throgs Neck Bridge

(52) ***Kill Van Kull:***

(53) 1) Constable Hook Reach

(54) 2) Bergen Point Reach

(55) 3) North of Shooters Island Reach

(56) 4) Elizabethport Reach

(57) ***Newark Bay:***

(58) 1) Newark Bay Reach - Bergen Point to Droyers Point

(59) ***Hackensack River:***

(60) 1) Droyers Point to the turning basin at Marion

(61) ***Passaic River:***

(62) 1) Kearney Point

(63) ***Arthur Kill:***

(64) 1) Gulfport Reach

(65) 2) Pralls Island Reach

(66) 3) Tremley Point Reach

(67) 4) Fresh Kills Reach

(68) 5) Port Reading Reach

(69) 6) Port Socony Reach

(70) 7) Outer Bridge Reach

(71) ***Raritan Bay:***

(72) 1) Raritan Bay West Reach

(73) 2) Raritan Bay East Reach

(74) 3) Seguine Point Bend

(75) 4) Red Bank Reach

(76) 5) Ward Point Reach

(77) A recommended standard of "always afloat" will apply to all other areas, including berths, in the Port District that abut the above listed channels. Ship related factors such as squat, turning heel and other dynamic motions should be considered and, if expected, added to this figure to insure a minimum clearance of two feet will be maintained throughout a given transit.

(78) **Conformance.**–The owner, master, or person in charge of each vessel has the ultimate responsibility for maintaining this minimum recommended under-keel clearance. Additionally, persons directing the movement of vessels share this responsibility and are expected to advise owners, operators and persons in charge of vessels if, in their judgement, a vessel is not in conformance with these standards.

(79) In order to assist the owner, master or person in charge in evaluating under-keel clearance at the berth the **Harbor Safety, Navigation and Operations Committee of the Port of New York and New Jersey** has compiled information including available depths and survey dates for all Terminals in the Port District. This booklet (to be updated annually) is available through the Maritime Association of the Port of New York and New Jersey via telephone (212) 425-5704.

(80) If at any time a vessel's under-keel clearance is not in conformance with this recommendation and owners, masters, or other in charge of the vessel desire to proceed against the pilots recommendation, pilots are urged to report this to the USCG Captain of the Port via VTS New York. Through VTS New York, the COTP will foster communications between the concerned parties in effort to arrive at agreed upon conditions for safe vessel passage.

(81) It should be recognized that there may be instances when the master, pilot and COTP evaluate a situation and agree that a vessel movement can be made safely even though inconsistent with this recommendation. Such movements may be allowed and should be coordinated through VTS NY so as to insure the transit of the vessel in question can be assisted as appropriate.

(82) If at any time VTS NY believes a proposed vessel transit may not conform, to this recommendation, they will request an assessment be conducted prior to granting a vessel permission to transit within the VTS NY Area. This assessment process will include a review of real-time water level information from the **P.O.R.T.S.**.

(83) **Physical Oceanographic Real-time System (P.O.R.T.S.)** is an information acquisition and dissemination technology developed by National Ocean Service, NOAA. The Port of New York and New Jersey Physical Oceanographic Real-Time System can be contacted via telephone (718) 815-9668/9684 or the Internet at: **http://www.olld.nos.noaa.gov.**

(84) Also to be considered are the vessel's intended track including particular areas of inadequate water depth with the pilots plan for their avoidance, any other local conditions which might further restrict vessel movement, as well as special traffic routing measures that might be required. If VTS NY deems this assessment to be necessary, the VTS Watch Officer will request on VHF-FM that the pilot contact VTS via land-line or cellular telephone. Discussion on under-keel clearance plans shall not be conducted on VHF-FM. It is in the best interest of all parties to insure situations of marginal under-keel clearance are identified and thoroughly discussed well prior to a vessel's underway time. These guidelines were adopted by the Harbor Operations Committee on 20 September 1995 and became effective 1 January 1996.

(85) **Traffic in New York Harbor.**–In the East River between the Brooklyn Bridge and Poorhouse Flats Range, shallow-draft vessels customarily keep to the west (Manhattan) side of the channel whether northbound or southbound, thereby reserving the east (Brooklyn) side of the channel for deep-draft vessels. Vessels transiting East River should be aware of this practice and anticipate northbound shallow-draft vessels crossing from east to west in the vicinity of **Corlears Hook**, and from west to east in the vicinity of Newtown Creek.

(86) The New York City Bureau of Marine and Aviation ferries generally follow a prescribed route between The Battery and **St. George** on Staten Island, placing them to the extreme right-hand side of the channel. All mariners are strongly encouraged not to transit close aboard of the ferry slips at The Battery and St. George due to ferries maneuvering.

(87) **Channels.–Ambrose Channel**, the principal entrance, extends from the sea to deep water in Lower Bay. Thence, **Anchorage Channel**, an extension of Ambrose Channel leads through Upper Bay to The Battery. **Hudson River Channel** continues northward from The Battery for about 5 miles to West 59th Street, Manhattan. Project depth for these channels is 45 feet.

(88) In addition to the usual aids, Ambrose Channel in its outer portion is also marked by **West Bank Light**, shown from a brown conical tower on a black cylindrical pier, in range with **Staten Island Light**, which is shown from a light-colored octagonal brick tower on a gray limestone base on the high ground of Staten Island at Richmond.

(89) **Lower Bay** is that part of New York Harbor extending from Sandy Hook westward to Raritan River and northward to The Narrows.

(90) **Local magnetic disturbance.**–Differences of as much as 5° from the normal variation have been reported in Lower Bay in the vicinity of 40°29.6′N., 74°04.2′W.

(91) **Sandy Hook Channel**, project depth 35 feet, provides a secondary route from the sea to deep water in Lower Bay; it connects with **Raritan Bay Channel** to the westward, **Chapel Hill Channel** to the north, and **Terminal Channel** to the south. Chapel Hill Channel has a project depth of 30 feet. The entrance to Sandy Hook Channel is marked by Scotland Lighted Horn Buoy S, equipped with a radar beacon (Racon). The channels are well marked with navigational aids. (See Notice to Mariners and the latest editions of charts for controlling depths.)

(92) **Swash Channel**, a natural buoyed passage between Ambrose Channel and Sandy Hook Channel, has a controlling depth of 18 feet, but care is necessary to avoid spots with a least depth of 13 feet near the sides of the channel and a spot cleared to a depth of 14 feet in about the middle of the channel. A lighted range, the rear marker of which is Staten Island Light, leads on a bearing of **305**° to the junction with Chapel Hill Channel.

(93) **False Hook Channel**, along and close to the eastern shore of Sandy Hook, joins Sandy Hook Channel eastward of the north end of Sandy Hook. The channel has depths of 9 to over 20 feet. Strangers should not use the channel.

(94) **Fourteen Foot Channel** enters Lower Bay just north of Ambrose Channel. The channel has a depth of about 13 feet and is unmarked.

(95) **Anchorages.**–General, explosives, naval, and special anchorages have been prescribed for the Port of New York by Federal Regulations. (See **110.1, 110.60,** and **110.155,** chapter 2, for limits and regulations.)

(96) Vessels are especially cautioned against anchoring in the vicinity of the pipeline and cable areas as shown on the charts. The pipeline area across The Narrows supplies the water for Staten Island. Extensive cable areas are in the vicinity of Governors Island, The Battery, and Ellis Island. (See also chart 12334.)

(97) **Dangers.**–There are five shoal areas in the entrance to New York Harbor which are subject to change in depths and should be avoided by strangers. **False Hook**, off the northeastern side of Sandy Hook, has depths of 4 to 18 feet. **Flynns Knoll**, between Swash, Sandy Hook, and Chapel Hill Channels, has depths of 9 to 18 feet. **Romer Shoal**, between Ambrose and Swash Channels, has depths of 4 to 15 feet and is marked by Romer Shoal Light; a fog signal is sounded from the light station. **East Bank**, northward and eastward of Ambrose Channel, has depths of 5 to 15 feet. **West Bank**, westward of Ambrose Channel between West Bank (Range Front) Light and Fort Wadsworth, has depths from bare to 20 feet. Buoys mark the eastern extremity of West Bank.

(98) The tip of Sandy Hook is changeable, and the area around it is subject to severe shoaling; caution should be exercised in the area.

(99) Mariners are cautioned to maintain a sharp lookout for floating debris in the harbor and channels.

(100) **Tides.**–The mean range of tide in New York Harbor is 4.7 feet at Sandy Hook and 4.6 feet at The Battery. Daily predictions for both places are given in the Tide Tables.

(101) **Currents.**–The flood current entering Lower Bay from the sea attains a velocity of about 2 knots in Ambrose Channel entrance, near the outer extremities of Sandy Hook, Coney Island, and The Narrows. It sets generally parallel to the lower straight section of Ambrose Channel and tends to continue to that direction where the channel bends toward The Narrows, setting more or less diagonally across the upper straight section of Ambrose Channel. At the beginning of the flood, the current sets in at the bottom and near the shores while it is still ebbing at the surface in Ambrose Channel.

(102) The ebb in Lower Bay is generally stronger than the flood by 10 percent or more. At its strength it sets from The Narrows approximately parallel to the upper straight end of the lower straight section.

(103) In the channel northward of Governors Island, cross currents may be encountered. During the first 2 hours of flood in this channel (eastward), the current in Hudson River is still ebbing (southward). In the first 1.5 hours of ebb (westward) in the channel north of Governors Island, the current in Hudson River is still flooding (northward). At such times large vessels must take special care in navigating the channel. It is reported that the most dangerous time is about 2 hours after high water at The Battery. At this time the current is setting north in the Hudson River and westward from the East River. The effect on a large vessel coming from southward and turning into the East River is to throw her stern to port and her bow to starboard, thus causing a sheer to starboard toward the shoals off the north end of Governors Island. When coming from northward in the Hudson River the same effect tends to prevent the vessel from turning and to cause her to overrun her course. These cross currents are known locally as **The Spider** .

(104) At the seaward end of Ambrose Channel the velocity of the flood current is 1.7 knots and of the ebb current 2.3 knots.

(105) When the ebb is strong the currents in both Ambrose and Swash Channels tend to set toward Romer Shoal. Caution should be maintained to prevent being set onto Romer Shoal when using either channel. On the flood and especially with a westerly wind, caution should be exercised to prevent being set onto Romer Shoal when using Swash Channel.

(106) In The Narrows the velocity of the flood current is about 1.7 knots and of the ebb current 2 knots. (See Tidal Current Tables for the daily predictions of slack water and strength of current.)

(107) In the entrance to Hudson River the velocity of the flood and ebb currents is 1.4 knots. Off Grants Tomb, the flood and ebb strengths are 1.6 and 1.9 knots, respectively.

(108) In October 1991, tidal currents in The Narrows, Arthur Kill, Kill Van Kull, and Hell Gate were reported to deviate significantly from official predictions published by the National Ocean Service. Mariners should exercise caution and discretion in the

use of published tidal current predictions for these locations. Also, previously available Tidal Current Charts for New York Harbor have been withdrawn.

(109) **Ice.**–Navigation of the channels in the Port of New York and New Jersey is not restricted by ice. The main channels do not freeze over, and any ice in the smaller waterways is well broken up by tugs and general traffic. Freshwater ice is brought down the Hudson River in large floes during periods of thaws or winter freshets. Occasionally there are large accumulations of ice at Spuyten Duyvil where Harlem River joins the Hudson, and at such times it is difficult for low-powered vessels or tows to make much headway. Under conditions of strong winds the slips on the exposed side of the channel become packed with drift ice, causing difficulty when maneuvering in the slip or when berthing. During extremely severe winters navigation is interfered with seriously for only short periods of time.

(110) **Weather, New York and vicinity.**–New York City, an area exceeding 300 square statute miles (777 square km), is located on the Atlantic coastal plain at the mouth of the Hudson River. The terrain is flat and diversified by numerous waterways; all but one of the city's five boroughs are situated on islands. Elevations range from less than 50 feet (15.2 m) over most of Manhattan, Brooklyn, and Queens to almost 300 feet (91.4 m) in the northern part of Manhattan and the Bronx, and over 400 feet (122 m) in Richmond (Staten Island).

(111) Despite its nearness to the ocean and the numerous bays and rivers nearby, New York City has a climate which more closely resembles the continental type of climate than it does the maritime type. Its modified continental climate follows from the fact that weather conditions affecting the city usually approach from a westerly direction and not from the ocean on the east. Some important exceptions to this must be noted, since the oceanic influence is by no means entirely absent. During the summer, local "sea breezes," winds blowing onshore from the cool water surface often moderate the afternoon heat; and most often in winter, coastal storms, accompanied by easterly winds, produce, on occasion, considerable amounts of precipitation.

(112) From November through April the prevailing winds are from the northwest; for the remainder of the year the prevailing winds are southwesterly. Gales with velocities of 35 knots or more are predominately from the northwest.

(113) At New York/Kennedy the average annual temperature is 54°F (12.2°C). The average high is 61°F (16.1°C) and the average low is 47°F (8.3°C). July is the warmest month with an average high of 83°F (28°C) and an average low of 69°F (20.6°C). January is the coolest month with an average high of 39°F (3.9°C) and an average low of 26°F (-3.3°C). The warmest temperature on record for New York/Kennedy is 104°F (40°C) recorded in July 1966 and the coldest temperature on record is -2°F (-18.9°C) recorded in January 1985. On average, ten days each year record high temperatures in excess of 90°F (32.2°C) and 78 days record minimum temperatures below 32°F (0°C). An average of only one day each year has an extreme minimum below 5°F (-15°C).

(114) Precipitation is both moderate and distributed evenly throughout the year with a spread of only 1.06 inches (28 mm) between the wettest and driest months.. May is the wettest month with an average precipitation total of 3.92 inches (991 mm) and February the driest with 2.86 inches (74 mm). Average annual precipitation is about 41 inches (1041 mm). Most of the rainfall from June through September comes from thunderstorms, therefore, is usually of brief duration, but relatively intense. Thunderstorm days average 24 each year. From October to April, however, precipitation is generally associated with widespread storm areas, so that day-long rain or snow is common.

(115) Snow falls an average 30 days each year and averages 22 inches (559 mm) in any given year. The snowiest month is February with an average of eight inches (203 mm). Snow has fallen in each month, October through April. The greatest 24-hour total snowfall was 20 inches (508 mm) which fell in February 1969.

(116) Tropical storms have influenced the area fourteen times since 1871. Most recently, Hurricane Gloria passed within 20 nautical miles east of the Kennedy airport in September 1985. Gloria had winds approaching 75 knots at time of landfall, about halfway between Kennedy airport and Islip. Only two days earlier, Gloria was a more respectable 125-knot hurricane.

(117) The National Weather Service maintains several offices in New York where **barometers** can be compared. (See appendix for addresses.)

(118) (See page T-7 for **New York City climatological table.**)

(119) **Pilotage, New York Harbor and Approaches.**–Foreign vessels and U.S. vessels under register entering or departing from the Port of New York and New Jersey must employ a pilot licensed by the State of New York or New Jersey. Enrolled vessels must have on board or employ a pilot licensed by the Federal Government.

(120) Pilotage service for vessels entering the Port of New York and New Jersey through Lower Bay and intra-harbor movements is available from the United New York New Jersey Sandy Hook Pilot Association, 201 Edgewater Street, Staten Island, NY 10305, telephone (718) 448-3900, FAX (718) 447-1582, cable HOOKPILOTSNEWYORK.

(121) The pilot boat maintains station in the triangular-shaped cruising area west of Ambrose Light. All traffic passes through a precautionary area transiting to the pilot station and most vessels choose to approach the pilot station triangle by passing to the south of Ambrose Light. Traffic within the precautionary area may consist of vessels making the transition between operating in Ambrose or Sandy Hook Channel and one of the traffic lanes. Mariners are advised to exercise extreme care in navigating within this area. The pilot boats have a black hull and white superstructure, with the name PILOT NO. 1 or PILOT NO. 2 in yellow on each side; and fly a blue flag. A pilot boat is always on station; boarding is made from a smaller boat. The pilot boat monitors VHF-FM channels 16, 13, and 73; works on 73.

(122) Pilot services are arranged in advance through ships' agents. A 24-hour advance notice of ETA, with a 3-hour update is requested. Vessel arrival is reported to the Maritime Exchange in New York by the pilots.

(123) **Pilotage, New York Harbor from Long Island Sound.**–Foreign vessels and U.S. vessels under register entering or departing from the Port of New York and New Jersey from Long Island Sound must employ a pilot licensed by the State of New York. Enrolled vessels must have on board or employ a pilot licensed by the Federal Government. Pilotage service for vessels entering the Port of New York and New Jersey from Long Island Sound is available from the United New York New Jersey Sandy Hook Pilot Association (see above). The pilot boat boarding area is off Execution Rocks. The pilot boat ties up at a pier on the east side of City Island about 0.4 mile northward of Belden Point. The pilot station, on the pier, monitors VHF-FM channels 16 and 13; works on channel 13. The 48-foot pilot boat has a black hull and white superstructure, with the word PILOT in international orange on each side of the house. The pilot boat monitors channel 13 and works on channel 13. Arrangements for pilots are made in

advance through ships' agents. A 24-hour and a 6-hour ETA is requested; 24-hour service is available upon request.

(124) Masters of vessels entering the Port of New York and New Jersey are requested at the time of boarding to proceed at a speed not exceeding 3 to 4 knots, make a lee for the pilot boat, and have a pilot ladder over the side about 3 to 4 feet above the water.

(125) Pilotage for U.S. enrolled vessels in the coastwise trade is available from the United New York New Jersey Sandy Hook Pilot Association (see above) and Interport Pilots Agency, Inc., P.O. Box 236, Port Monmouth, NJ 07758; telephone 800-346-4877, FAX 908-787-5538, Cable PORTPILOTS. One pilot boat is the INTERPORT, 45-foot, with blue hull and white superstructure, with PILOT in blue letters on the forward side of the house. KEN JOHNSON is 45-foot in length, same colors. The pilot boat monitors channels 13 and 65A; works channel 65A. Pilot boarding area is about 1.5 miles southeast of Scotland Lighted Horn Buoy S.

(126) **Pilotage, Hudson River.**–See Pilotage, Hudson River (indexed as such), chapter 12.

(127) **Towage.**–The Port of New York and New Jersey has several towing companies with radio-equipped tugs with over 4,000 hp. Arrangements for tugs are usually made in advance by ships' agents. Fireboats are stationed throughout the harbor.

(128) New York is a **customs port of entry** and the headquarters of the **Regional Commissioner.**

(129) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(130) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) The quarantine headquarters and boarding station are about 0.55 mile above Fort Wadsworth at Rosebank, Staten Island. The quarantine anchorage is off the station. Vessels not granted pratique are usually inspected at the anchorage, whereas those granted pratique are inspected at their berths.

(131) **Coast Guard.**–A Coast Guard station and a **Captain of the Port** office are at the Coast Guard Support Center on Governors Island. A **Marine Inspection Office** and a **vessel documentation** office are in New York City. (See appendix for addresses.)

(132) **Harbor regulations.**–The administration of the Port of New York and New Jersey and the enforcement of its laws are vested in no single body, but are divided among various departments of the Federal, State, and Municipal Governments.

(133) **Speed.**–The Coast Guard desires to warn masters and pilots of all types of vessels that possible action may result against their licenses and criminal procedures may be exercised, when the wash of a vessel proceeding at excessive speed in confined waters endangers life, limb, or property. Damage to vessels moored at docks and terminals has been reported. The parting of a mooring line may cause a serious oil fire or damage to pipelines or barges which are being loaded or discharged at chemical and petroleum company terminals. Damage caused by excessive speed may also lead to a possible suit by the injured party against owners, masters, or pilots for monetary recovery.

(134) The **New York City Department of Ports and Terminals** administers the piers along the New York waterfront within the city limits. The office is at The Battery Maritime Building.

(135) The **Port Authority of New York and New Jersey** is an executive body appointed by the Governors of New York and New Jersey. The Authority's Port Department serves as a bistate port development, operations, maintenance, and promotion organization. The Port Authority administers piers in Manhattan, Brooklyn, Hoboken, Port Newark, and Port Elizabeth. The office of the Authority is at the World Trade Center, New York City.

(136) **Wharves.**–The Port of New York and New Jersey has over 1,100 waterfront facilities. Most of these facilities are privately owned and operated, and the rest are owned or operated by either the railroads serving the port, the Port Authority of New York and New Jersey, the City of New York, the States of New York and New Jersey, the Federal Government, or other municipalities.

(137) The major steamship passenger terminal, the New York City Passenger Ship Terminal, is along the east side of the Hudson River (North River) above The Battery. Containership terminals are throughout the port, but principally at Elizabeth, Newark, Jersey City, and Weehawken, N.J. Other containership facilities are at Howland Hook, Staten Island, and Brooklyn. Break-bulk general cargo terminals are throughout the port but principally along the east side of Upper New York Bay, on the East River, and at Port Newark. Petroleum and other liquid cargo facilities are along Arthur Kill, on the Passaic and Hackensack Rivers, and along Newtown Creek, Brooklyn.

(138) General cargo in the port is usually handled to and from vessels by ship's tackle. Heavy lifts up to 500 tons, floating cranes up to 500 tons, and derricks are available in port. Most of the waterfront facilities throughout the port have highway and railroad connections.

(139) The wharves and piers of New York City along the waterfronts of the Hudson and East Rivers are numbered beginning at The Battery and follow in sequence eastward along the East River and northward along the Hudson River. For a complete description of the waterfront facilities throughout the Port of New York and New Jersey refer to Port Series No. 5, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

(140) **Supplies.**–Provisions and supplies of all kinds are available in the Port of New York and New Jersey. All grades of heavy marine bunker fuel, lubricants, and diesel fuel can be obtained. Large vessels are usually bunkered at their berths by tank barges or self-propelled tankers. Water is available at most of the piers and wharves.

(141) **Repairs.**–The Port of New York and New Jersey has extensive facilities for making all types of repairs to vessels of all sizes. The shipyards at Brooklyn, Hoboken, Staten Island, Queens, and Perth Amboy can drydock some of the largest ocean-going vessels, and can make major repairs to hull, electronic equipment, machinery, and propulsion plants. Also within the port area, a number of firms without waterfront facilities are engaged in various types of marine repair work. These firms maintain ships and portable equipment for making above-waterline repairs and for installation of equipment, gear, and machinery on all types of craft at berth. Several salvage companies also perform all types of salvage work.

(142) The largest floating drydock, on the west side of the Hudson River at Hoboken, N.J., has a lifting capacity of 26,000 tons, an overall length of 685 feet, a maximum clear inside width of 110 feet, and a depth of 29 feet over the keel blocks; cranes up to 45 tons are available. The largest graving dock is in Wallabout Bay at the site of the former New York Naval Shipyard. The dock has a clear length of 1,092 feet, clear gate width of 143 feet, top and bottom inside widths of 150 feet, and 34 feet over the keel blocks; cranes to 250 tons are available. The largest marine railway, on the east side of East Mill Basin in Jamaica Bay, can handle vessels up to 300 tons or 120 feet long; an 8-ton hoist is available.

(143) **Communications.**–The Port of New York and New Jersey is served by three trunkline and one short-line railroads, numerous trucking firms engaged in long- and short-haul freight service, and

several bus companies. Over 100 steamship companies connect the port with the principal U.S. and foreign ports.

(144) Three major airports, John F. Kennedy (New York) International, La Guardia, and Newark, provide frequent scheduled service between New York and domestic and overseas points.

(145) **Chart 12350.–Rockaway Inlet** the entrance to Jamaica Bay, is between **Rockaway Point** on the southeast side and **Manhattan Beach** and **Barren Island** on the north side. The inlet is obstructed by a shifting sandbar. A jetty, marked near the outer end by a light, extends south from Rockaway Point. The entrance channel extends westward of the jetty and is marked by lighted and unlighted buoys. The channel has depths of about 19 feet or more at midchannel. A shoal with depths of less than 1 foot and marked by breakers is west of the entrance channel. Obstructions at the entrance to the inlet are: covered 20 feet about 0.6 mile south-southwest of the jetty light in about 40°31′55″N., 73°56′56″W.; reported covered 20 feet in 1980, about 0.6 mile south-southeast of the jetty light in about 40°31′52″N., 73°56′11″W.; covered 19 feet about 0.6 mile south-southeast of the jetty light in about 40°31′55″N., 73°56′00″W.; and covered 16 feet about 0.3 mile southwest of the jetty light in about 40°32′16″N., 73°56′48″W.

(146) There are two sunken wrecks farther inside the inlet; the first in 40°34′09″N., 73°53′56″W., about 0.6 mile westward of the Gil Hodges Memorial Bridge, has 15- and 9-foot depths immediately westward and southward, respectively, from it; the second is in 40°34′30″N., 73°52′30″W., about 0.4 mile eastward of the bridge.

(147) In July 1980, shoaling to about 3 feet was reported in the inlet about 1.75 miles west of the Gil Hodges Memorial Bridge in about 40°34′21″N., 73°55′29.5″W.

(148) **Gil Hodges Memorial (Marine Parkway) Bridge,** crossing Rockaway Inlet between Rockaway Point and Barren Island, has a vertical lift span with a clearance of 55 feet down and 152 feet up. The bridgetender monitors VHF-FM channel 13 (156.65 MHz); call sign, KIL–819. (See **117.1 through 117.59 and 117.795**, chapter 2, for drawbridge regulations.) **Rockaway Coast Guard Station** is just west of the bridge on Rockaway Point.

(149) The mean range of **tide** at Rockaway Inlet is about 5 feet. In the entrance channel near Rockaway Point the **tidal current** has a velocity of about 2.2 knots. The ebb attains a greater velocity than the flood and probably exceeds 3 knots at times. In August 1975, a strong east-to-west current, believed to have been the result of tidal flow, was observed at the entrance to Rockaway Inlet near the seaward end of the jetty. This current is of sufficient strength to cause a vessel to veer suddenly off course when entering or exiting the channel. South of Barren Island the velocity is about 2 knots; east of Barren Island it is about 1.5 knots. (See Tidal Current Tables for predictions.)

(150) **Jamaica Bay** is on the south shore of Long Island about 15 miles southeastward of The Battery, New York City. The bay is characterized by numerous meadows, hassocks, and marshes. The north and east shores are bordered by marshlands which extend inland for a short distance. Several small tidal creeks enter the bay from the north. Channels and basins have been dredged to depths of 12 to 20 feet for use of craft operating in the bay. Rockaway Beach forms the south shore. The bay is about 7 miles long and 3.5 miles wide, and covers an area of about 22.5 square miles. The greater portion of the bay is in the Boroughs of Brooklyn and Queens, New York City, and a small section of the eastern extremity, consisting of parts of Motts Basin and Head of Bay, is in Nassau County.

(151) **Special anchorages** are in Jamaica Bay. (See **110.1, and 110.60 (s) and (s–1),** chapter 2, for limits and regulations.)

(152) The commercial vessel traffic in Jamaica Bay consists of motor tankers, barges, and tugs. The bay is used extensively by pleasure craft.

(153) Jamaica Bay has excellent transportation facilities. Highways connect with all of Long Island and New York City, and a branch of the New York City subway system crosses the central part of the bay and extends eastward and westward along the Rockaway peninsula with stations at Far Rockaway and Inwood serving the Motts Basin area.

(154) **Ice** is a problem in Jamaica Bay, mainly in the tributaries and basins, from early January to about mid-March.

(155) **Sheepshead Bay**, on the northern side of the eastern extremity of Coney Island and northward of **Manhattan Beach**, is well protected and is used by numerous pleasure and party fishing craft. The entrance channel is marked by buoys and has a depth of about 14 feet except for shoaling to 12 feet along the east edge of the channel north of Lighted Buoy 6 in March 1983. In April 1985, depths of 6 to 10 feet were available inside the bay to the bridge near the head of navigation except for some shoaling to 2 feet along the edges. A private light marks the outer limit of an sewer outfall that extends southward from the bay.

(156) **Special anchorages** are in Sheepshead Bay. (See **110.1 and 110.60(x),** chapter 2, for limits and regulations.)

(157) A small-craft facility in the bay can handle craft to 1½ tons. Berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, storage, and engine repairs are available.

(158) **Plumb Beach Channel**, northward of Rockaway Inlet, is the common approach to **Gerritsen Inlet**, **Shell Bank Creek**, Gerritsen Creek, and Mill Creek. A fixed highway bridge with a clearance of 35 feet crosses the inlet. The channel through the inlet is marked by buoys. In May 1981, it was reported that with local knowledge a depth of 12 feet could be carried in midchannel through the inlet to the head of Shell Bank Creek by avoiding a 5-foot spot close eastward of Plumb Beach Channel Buoy 7. Mariners are advised to follow the buoys through the inlet closely, as a reported shoal area with a least depth of 2½ feet is about 0.1 mile southeastward of Plumb Beach Channel Buoy 7 and a reported obstruction is 0.3 mile eastward of the buoy.

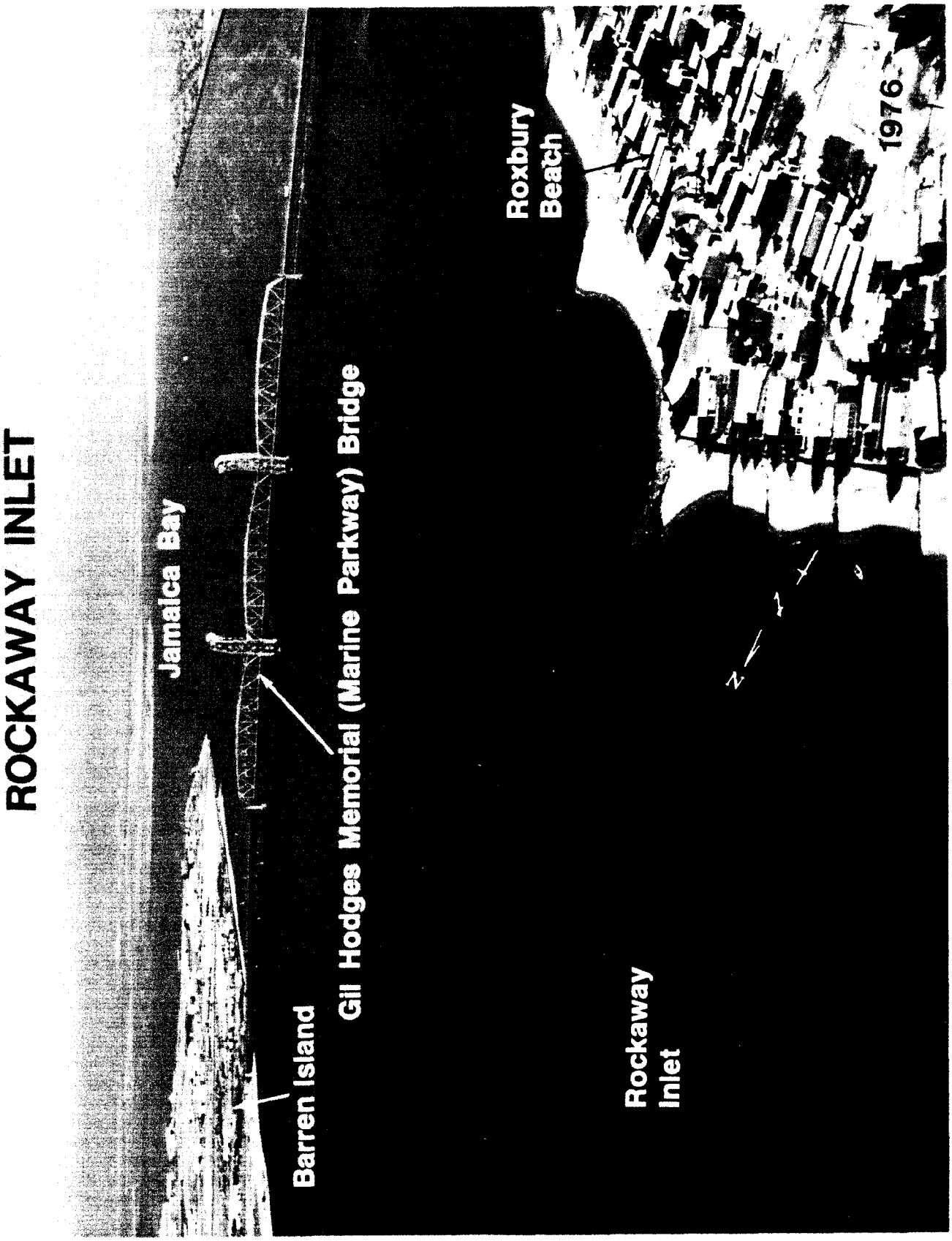
(159) From the highway bridge over Gerritsen Inlet, Shell Bank Creek leads westerly and **Gerritsen Creek** and **Mill Creek** lead northwesterly. There are dangerous pilings and remains of old barges along the south side of Shell Bank Creek, and several submerged wrecks in Gerritsen and Mill Creeks. The fixed highway bridge over Mill Creek is in ruins; mariners are advised to exercise caution in this area as some parts of the bridge structure have fallen into the water and are an obstruction to navigation.

(160) Small-craft facilities on Shell Bank Creek can provide berths with electricity, gasoline, diesel fuel, water, ice, marine supplies, lifts to 60 tons, and a 90-foot marine railway; complete hull and engine repairs are available.

(161) **Dead Horse Bay** makes into the southwest side of Barren Island eastward of the highway bridge across Gerritsen Inlet. A marina, on the north side of the bay, has berths and moorings.

(162) **Island Channel** leads northerly from just eastward of Barren Island to Bergen Beach, thence northeasterly in **North Channel** to Howard Beach. Depths of about 16 feet can be carried to Howard Beach and the channels are marked by a **347°** lighted range and lighted and unlighted buoys.

(163) **Big Fishkill Channel** and **Pumpkin Patch Channel** lead in a northeasterly direction from Runway Channel just west of


ROCKAWAY INLET
Jamaica Bay
Gil Hodges Memorial (Marine Parkway) Bridge
Barren Island
Roxbury Beach
Rockaway Inlet
1976

Ruffle Bar and joins North Channel 0.3 mile west of the North Channel Bridge at Howard Beach.

(164) **Floyd Bennett Field**, on Barren Island, is the site of a Coast Guard air station. A 2,000-foot-long marginal wharf with a depth of about 24 feet alongside is at the southeastern extremity of the island.

(165) **Mill Basin** is northward of Barren Island on the west side of Jamaica Bay. Commercial traffic in the basin consists of occasional barge shipments of petroleum. In May 1981, a reported depth of 13 feet could be taken to the north end of the basin. Small-craft facilities in the basin can provide berths with electricity, gasoline, water, ice, marine supplies, and complete hull and engine repairs; a 50-ton marine railway and lifts to 20 tons are available.

(166) The Shore Parkway bascule highway bridge with a clearance of 34 feet crosses Mill Basin between Barren Island and Brooklyn. (See **117.1 through 117.59 and 117.795**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 13; call sign KX–8185. Mariners are requested to avoid causing bridge openings during peak commuter hours of 0700 to 0900 and 1600 to 1800 Monday through Friday.

(167) **East Mill Basin** is about 0.4 mile northeastward of Mill Basin. In May 1981, a reported midchannel depth of 13 feet could be taken to the head of the basin. Small-craft facilities in the basin can provide berths with electricity, water, marine supplies, a 15-ton forklift, and marine railways to 300 tons; complete hull and engine repairs are available.

(168) **Bergen Beach** is a community about 2 miles north of Barren Island. **Paerdegat Basin**, just north of Bergen Beach, has a midchannel depth of about 11 feet. A fixed highway bridge across the basin near the mouth has a clearance of 29 feet. A marina at the head of the basin can haul out craft up to 15 tons. Gasoline, marine supplies, water, and engine and hull repairs are available. In May 1981, a reported depth of 8 feet could be taken to the marina. Several yacht clubs are also in the basin.

(169) **Canarsie**, a town on the northwestern shore of Jamaica Bay, is a part of New York City. Canarsie Pier, on the northwest shore of Jamaica Bay between Paerdegat Basin and Fresh Creek, has two prominent flagpoles near its center. The pier is structurally unsafe, and landing is not permitted. The pier is a part of Gateway National Recreation Area.

(170) **Fresh Creek**, 0.6 mile northeastward of the pier at Canarsie, has a midchannel depth of about 8 feet. A highway bridge across the creek near the entrance has a 43-foot fixed span with a clearance of 21 feet. **Hendrix Creek**, 0.4 mile northeastward of Fresh Creek, is the site of a sewage treatment plant. **Old Mill Creek**, 1.1 miles northeastward of Fresh Creek, bares at low water just above the entrance. Fresh, Hendrix, and Old Mill Creeks were little used in 1971.

(171) **Howard Beach**, about 2.5 miles eastward of Canarsie, on the north side of Jamaica Bay, has several basins for boats. North Channel Bridge, just south of Howard Beach, has a bascule span with a clearance of 20 feet that remains in the permanently closed position. (See **117.795**, chapter 2, for drawbridge regulations.) In November 1992, a replacement fixed highway bridge with a design clearance of 26 feet was under construction.

(172) **Shellbank Basin**, extending northward about 1 mile from North Channel and just west of Howard Beach, had a reported controlling depth of 5 feet in May 1981. The basin has numerous small piers, float landings, and other **small-craft facilities** along the west side. Berths with electricity, water, a 15-ton lift, and complete hull and engine repairs are available. The bascule span of a former highway bridge across the basin has been permanently removed leaving a channel width of 40 feet.

(173) **Hawtree Basin**, about 0.2 mile eastward of Shellbank Basin, has a depth of about 11 feet. A fixed pedestrian bridge, about 0.3 mile above the mouth, has a clearance of 17 feet.

(174) A railroad bridge across North Channel, at **Hamilton Beach**, 0.5 mile east of the North Channel Bridge, has a swing span with a clearance of 26 feet that remains in the permanently closed position. (See **117.795**, chapter 2, for drawbridge regulations.)

(175) **Rockaway Beach** is a popular summer resort on the barrier beach forming the southern extremity of Jamaica Bay. Train and bus transportation is available to New York City. Excursion boats operate between New York and Rockaway Beach during the summer only. Berths, electricity, gasoline, water, ice, limited supplies, storage, a 100-foot marine railway, and a 12-ton lift are available at Rockaway Beach in **Vernam Basin**, about 0.7 mile northeastward of Cross Bay Memorial Bridge. Hull and engine repair facilities are also available.

(176) **Beach Channel** is on the north side of Rockaway Beach. A Federal project provides for a channel 18 feet deep from Rockaway Inlet to about 700 yards above Gil Hodges Memorial Bridge, thence 15 feet deep to the junction with Grass Hassock Channel. In March-April 1986, the controlling depth was 13 feet (15 feet at midchannel) to Grass Hassock Channel. The north draw of the railroad swing bridge about 3.8 miles above Gil Hodges Memorial Bridge had 15 feet and the south draw 13 feet.

(177) A **056°–236°** measured nautical mile is along the south shore of Jamaica Bay parallel with the concrete and wood flood barrier of Beach Channel Drive southward of **Nova Scotia Bar**. The structures are maintained by the Brooklyn Power Squadron; the front markers are black and yellow chevrons, and the rear markers are orange squares.

(178) Cross Bay Memorial Bridge, crossing Beach Channel at Rockaway Beach, has a fixed span with a clearance of 52 feet. The railroad bridge over Beach Channel, 0.5 mile eastward, has a swing span with a clearance of 26 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) **East Broad Channel** is blocked off by the railroad trestle of this bridge.

(179) **Winhole Channel**, a natural channel marked by buoys, seasonal lights, and a daybeacon, extends 1 mile northward to Grassy Bay from the junction of Beach Channel with Grass Hassock Channel. Winhole Channel has a least depth of about 11 feet, except for reported shoaling to 4 feet extending into the channel northeast from Winhole Channel Light 3 in about 40°36.8′N., 73°48.4′W. Winhole Channel Shoal Daybeacon marks the center of a shoal near the north end of the channel. The daybeacon should not be passed close aboard. A lighted buoy marks the junction of Beach, Grass Hassock, and Winhole Channels.

(180) **Grass Hassock Channel** joins Beach Channel off **Brant Point** and continues in a northeasterly direction to Head of Bay. In March-April 1986, the controlling depth was 6½ feet (13 feet at midchannel). The shallowest water is abeam Brant Point between Buoy 14 and Buoy 16 and at the junction with Negro Bar Channel in the vicinity of Lighted Buoy 23.

(181) **Sommerville Basin**, about 1.2 miles eastward of the railroad bridge at Rockaway Beach, has depths of 27 to 40 feet inside. In May 1981, depths of about 15 feet were reported in the approach. Several charted sunken wrecks are in the basin. A boatyard at the head of the basin has berths, electricity, gasoline, water, ice, limited marine supplies, storage facilities, a launching ramp, a 45-foot marine railway, and a 7-ton mobile hoist; engine and hull repairs can be made.

(182) **Motts Basin**, a tidal inlet in the eastern part of Jamaica Bay, entered through **Negro Bar Channel**, partially separates the communities of **Inwood** and **Far Rockaway**. Two branch channels lead from inside the entrance to the northeasterly and southeasterly ends of the basin. In March-April 1986-July 1992, the controlling depth was 10 feet (15 feet at midchannel) in the entrance channel, thence in March-April 1986, 11 feet (14 feet at midchannel) in both the southeasterly and northeasterly branches to just below the head of each channel. **Ice** may obstruct vessel movement in the basin during severe winters.

(183) Overhead power cables across Motts Basin have the following clearances: one over the northerly arm, 70 feet; two over the southerly arm, least clearance 92 feet; and one over the cut on the south side of the southerly arm, 60 feet. A retractable boom is on the south shore of the basin about 90 yards northwest of the overhead cable tower. A light is shown from the boom when it is extended into the water.

(184) Depths alongside the wharves in Motts Basin range from 1 to 14 feet. Waterborne commerce in the basin is chiefly in petroleum products.

(185) **Head of Bay** joins Grass Hassock Channel near **Northwest Point** and extends in a northeasterly direction on the south side of **John F. Kennedy (New York) International Airport.** Depths of about 15 feet are in the entrance channel and channel in the bay; aids mark the channels. In May 1981, it was reported that a draft of 15 feet could be taken to the oil piers at **Uncle Daniels Point** at high water. Several small marinas in the bay can provide berths, electricity, water, ice, marine supplies, storage facilities, and a launching ramp; minor engine and hull repairs can be made.

(186) **Thurston Basin,** at the northeastern extremity of Head of Bay, has reported depths of 10 feet at the entrance decreasing to 2 feet at the head.

(187) **Grassy Bay**, along the southwestern side of John F. Kennedy (New York) International Airport in the northeastern part of Jamaica Bay, is blocked at the southeastern end by an airport runway. The runway continues into the marshlands on the southerly side of the bay.

(188) **Bergen Basin**, at the northern extremity of Grassy Bay, has depths of about 15 feet with lesser depths in the eastern arm of the basin. The entrance is marked by buoys. Conspicuous are a yellow brick circular tank about 40 feet high on the southwestern side of the entrance and the numerous oil storage tanks at the head of the basin on the eastern shore. Coastal tankers and sand-and-gravel barge tows account for most of the commerce in the basin. In January 1988, a sunken wreck was reported in the eastern arm of the basin in about 40°39.7′N., 73°49.1′W.

(189) **Chart 12402.–Coney Island**, on the northern side of the entrance to New York Harbor, is a large summer amusement resort. Numerous stacks, towers, and amusement rides, including a red steel parachute tower 303 feet high, are prominent on the island. **Coney Island Light** (40°34.6′N., 74°00.7′W.), 75 feet above the water, is shown from a white square skeleton tower on **Norton Point**, the westernmost extremity of the island.

(190) **Coney Island Channel**, a buoyed passage along the south side of Coney Island, has a controlling depth of about 11 feet to Rockaway Inlet. It is used principally by vessels going to Jamaica Bay and Coney Island.

(191) **Gravesend Bay**, northward of Coney Island, affords good anchorage in depths of 11 to 50 feet. A **general anchorage** is in the bay. (See **110.1 and 110.155(e)**, chapter 2, for limits and regulations.) The southeasterly part of the bay is shoal with depths of 1 to 6 feet.

(192) **Coney Island Creek** is at the southeastern end of Gravesend Bay and on the north side of Coney Island. Commercial traffic on the creek consists mainly of occasional barge shipments of sand and gravel. The area northward of the entrance to the creek is being filled, and piling is along the northern side of the creek at the filling site. Numerous obstructions and wrecks are in the creek. In February 1991, depths of about 9 feet were available to just below the Cropsey Avenue bridge, about 1 mile above the entrance, but local knowledge is required to carry the best water, thence shoaling to bare to a point about 0.2 mile above the Cropsey Avenue bridge. The creek is crossed by fixed and bascule bridges having a least clearance of 2 feet. The bascule bridges are kept in the closed position. (See **117.775**, chapter 2, for drawbridge regulations.) A boatyard about 0.8 mile above the creek entrance provides berths, electricity, gasoline, water, ice, storage, marine supplies, and hull and engine repairs. Lifts to 14 tons are available. In May 1981, a reported depth of 4 feet could be carried to the boatyard.

(193) A buoyed channel with a least depth of 10 feet leads from deep water northward of Coney Island to off the docks in the eastern part of Gravesend Bay. A small-craft facility on Gravesend Bay can provide berths, electricity, gasoline, diesel fuel, water, ice, storage, marine supplies, and hull and engine repairs. Lifts up to 30 tons are available. In May 1981, a reported depth of 15 feet could be carried to the marina.

(194) **Charts 12334, 12402, 12327.–The Narrows,** connecting Lower Bay and Upper Bay of New York Harbor, has a clear width of over 0.6 mile at its narrowest point between Fort Wadsworth and Fort Hamilton. The **Verrazano Narrows Bridge**, a fixed suspension span, crosses The Narrows at these two points linking Staten Island with Brooklyn. The bridge has a vertical clearance of 217 feet for a midchannel width of 2,000 feet. **Note:** A traveling maintenance platform, when in operation, reduces the vertical clearances by 15 feet. A fog signal is sounded from the eastern end of the bridge.

(195) In October 1986, a submerged obstruction was reported about 1.2 miles north-northwestward of the bridge in about 40° 37′24.0″N., 74°03′37.0″W.

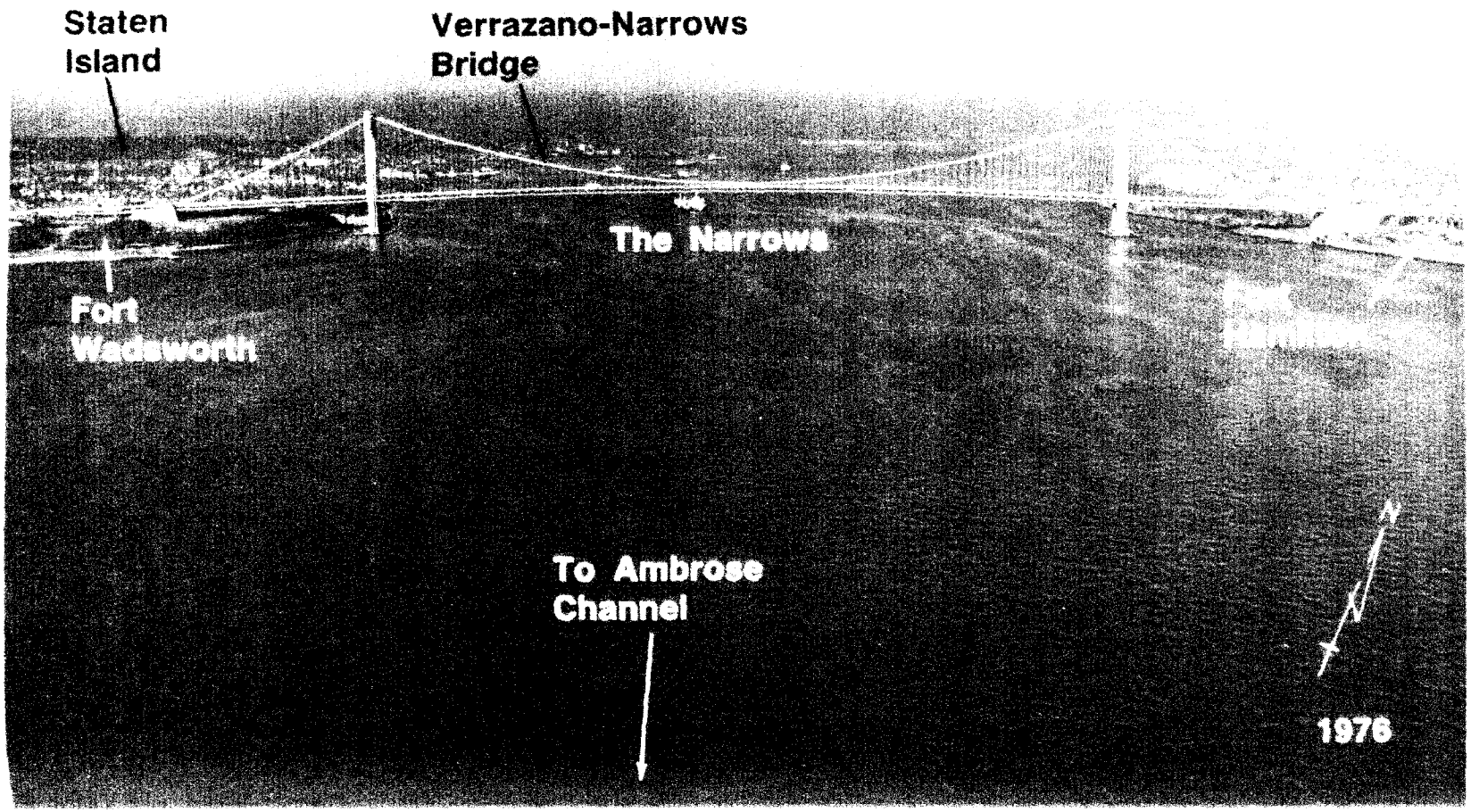
(196) The Quarantine Station, numerous deep-draft piers, and ferry terminals are on the east side of Staten Island between Fort Wadsworth and St. George.

(197) **Upper Bay** is that portion of New York Harbor between The Narrows and The Battery. **Anchorage Channel**, marked by lighted buoys, is the main passage through the middle of the bay. **Bay Ridge Flats** is a shoal area with depths of 5 to 20 feet east of Anchorage Channel. **Gowanus Flats** is at the north end of Bay Ridge Flats. **Jersey Flats**, the area on the New Jersey side west of Anchorage Channel, is much shoaler with depths up to 6 feet. Channels have been dredged through these shoal areas to provide access to the piers on both sides of the bay.

(198) **Channels.–Bay Ridge Channel, Red Hook Channel**, and **Buttermilk Channel** follow the Brooklyn piers from The Narrows to East River. Depths in these channels are 30 to 40 feet, except in June 1981, shoaling to 19 feet existed at the junction of Bay Ridge Channel and Red Hook Channel. An obstruction covered 28 feet is at the junction of Red Hook and Buttermilk Channels in 40°40′44.3″N., 74°01′16.0″W. Caution should be exercised when docking and undocking vessels along the southeasterly side of Bay Ridge Channel because the current may flow in a direction opposite to the normal channel flow, especially between the piers.

(199) **Gowanus Bay**, at the junction of Bay Ridge and Red Hook Channels, is a bight in the Brooklyn shore at the mouth of

NEW YORK HARBOR-THE NARROWS



Gowanus Canal. A dredged channel leads from Gowanus Bay to the Hamilton Avenue Bridge, about 1 mile above the mouth of the bay. In April 1990, the controlling depths were 21 feet (25 feet at midchannel) to Sigourney Street, about 0.15 mile below the head of the project, thence 22 feet to the Hamilton Avenue Bridge. The Gowanus Bay area has several shipyards. The largest floating drydock is on the north side of Gowanus Bay; it has a lifting capacity of 7,500 tons, length of 455 feet, a depth of 21 feet over the keel blocks, and clear inside width of 71 feet.

(200) The improved section of Gowanus Canal above Hamilton Avenue has depths of about 8 to 12 feet. The Third Street, Carroll Street, and Union Street bridges across the canal have the following minimum clearances: drawbridges, 3 feet; fixed bridges, 90 feet. The fixed bridge across that part of the canal which extends southward along Fifth Street has a clearance of 20 feet. (See **117.1 through 117.59 and 117.787**, chapter 2, for drawbridge regulations.)

(201) The Hamilton Avenue and Ninth Street drawbridges, 1 and 1.2 miles above the entrance of Gowanus Bay, respectively, are equipped with radiotelephones. The bridgetenders monitor VHF-FM channel 13; call signs KX–8183 and KX–8186, respectively.

(202) **Erie Basin**, just north of Gowanus Bay, is entered from the Red Hook Channel. The basin has drydock and repair facilities for vessels. A graving dock here can handle vessels up to 716 feet in length and 25 feet in draft; cranes to 50 tons are available. A floating drydock in the basin has a lifting capacity of 23,000 tons, length of 700 feet, a clear inside width of 99 feet, and a depth of 25 feet over the blocks. The entrance is marked by a light and the basin is marked by private lighted and unlighted buoys.

(203) **East River** is a 14-mile-long tidal strait that connects Upper Bay with Long Island Sound. For description of East River and the route to New York Harbor from Long Island Sound, see East River (indexed as such), chapter 9.

(204) **Governors Island** is at the Upper Bay entrance to East River. Formerly a U.S. Army installation, it is now a **U.S. Coast Guard** support center. **Fort Columbus** is on the northeast part of the island, and **Castle William** is at its northwest end. The main channel is westward of the island. Several lights and fog signals are on the island, and a hexagonal shaped structure is prominent on the northeast side.

(205) **Liberty Island**, on the eastern part of Jersey Flats across the main channel from Governors Island, is marked by the **Statue of Liberty**, a colossal structure more than 305 feet high; the figure faces southeastward. In 1973, the channel leading to the pier on the west side of the island had a controlling depth of 15 feet except for shoaling to 11 feet along the east edge.

(206) **Robbins Reef Light** (40°39.4′N., 74°04.0′W.), 56 feet above the water, is shown from a conical tower, with the lower half brown and the upper half white, on the southeastern part of Jersey Flats.

(207) **Pierhead Channel**, leading from the main channel about 0.7 mile southward of Liberty Island, thence along the New Jersey pierhead line to Kill Van Kull, has a controlling depth of about 16 feet, with shoaling to 11 feet about 125 yards east of Buoy 6 in 1976. In February 1982, a submerged obstruction was reported in the channel about 400 yards 282° from Robbins Reef Light in about 40°39′29″N., 74°04′12″W. A wreck covered 19 feet is about 0.5 mile southwest of the light in 40°39′19″N., 74°04′36″W. The channel, through connecting branch channels, leads to the **Caven Point Pier**, Claremont Terminal, the ConRail car float facility, and Global Terminal Wharf. The Military Ocean Terminal, to the southward of Global Terminal Wharf, can also be reached through a channel northward of Robbins Reef Light. The channels are well marked with navigational aids. Note that the buoyage system changes southward of Military Ocean Terminal. In January 1982, an obstruction covered about 16 feet was reported in Claremont Terminal Channel in about 40°41′06″N., 74°04′33″W. In April 1982, an obstruction covered about 8 feet was reported off the southern ConRail wharf in about 40°40′31.5″N., 74°04′39.5″W.

(208) **Charts 12327, 12401.–Sandy Hook Bay** is the southern part of Lower Bay, westward of Sandy Hook and eastward of Point Comfort. The bay is an excellent anchorage, the depths of water ranging from 30 feet just inside Sandy Hook to 15 feet near its southern part; the shoaling is gradual and the bottom is good holding ground. In 1983, shoaling to depths of 14 to 17 feet was reported on a line from Sandy Hook Point Obstruction Buoy 1 to the mouth of Shrewsbury River. The best anchorage during easterly and southeasterly winds is in the eastern part of the bay. Vessels of more than 24-foot draft will not find good anchorage out of the channel until above Fort Wadsworth. Extensive shoals make off northward and eastward from Point Comfort, but as the depths of water decrease gradually, soundings will give sufficient warning of too close an approach to the shore. Shallow-draft vessels can reportedly find satisfactory anchorage in **Horseshoe Cove**, on the east side of the bay. In October 1991, the spit of land that forms Horseshoe Cove was reported visible only at extreme low water. Mariners are cautioned not to navigate over this finger of land. Heavy fish traps extend out to a depth of 20 feet in places on the shoals on the southwest side of Sandy Hook Bay between Atlantic Highlands and Point Comfort.

(209) A **110**°-290° measured nautical mile is on the south side of Sandy Hook Bay off the Municipal Yacht Basin. The private range markers are reported to be difficult to identify.

(210) **Sandy Hook**, the southern point at the entrance to New York Harbor and the northern point of the New Jersey coast, is low and sandy. The hook, including Plum Island at the mouth of the Shrewsbury River, is part of Gateway National Recreation Area. Large areas of the park are bird nesting areas, and landing is not permitted. A light, **Sandy Hook Coast Guard Station**, a standpipe, a radar tower, and a radio tower on the north end of Sandy Hook are prominent. The area around Sandy Hook is changeable and subject to severe shoaling; extreme caution is advised.

(211) **Chart 12324.–Shrewsbury River** and **Navesink River** empty through a common entrance into the southern extremity of Sandy Hook Bay eastward of the Highlands of Navesink.

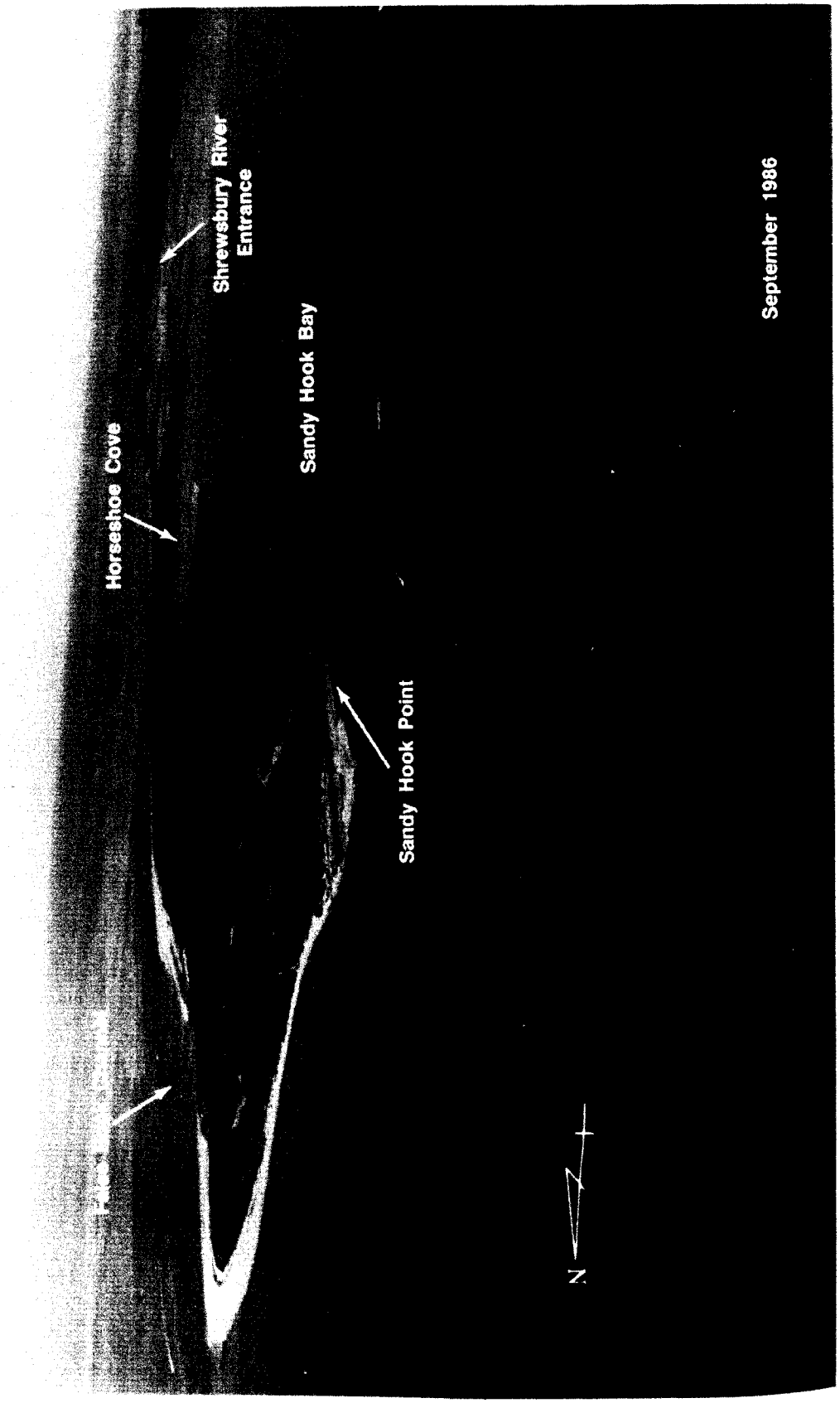
(212) A Federal project provides depths of 12 feet from Sandy Hook Bay to a point just above the bascule bridge at Highlands, thence 9 feet in Shrewsbury River to the Branchport Avenue Bridge at Long Branch, about 7.4 miles above the mouth. The Navesink River has a project depth of 6 feet from where it connects with the Shrewsbury River to the head of the project at Red Bank, about 4.9 miles above the mouth. (See Notice to Mariners and the latest editions of charts for controlling depths.)

(213) In December 1992, shoaling to bare was reported in the vicinity of Oceanic Bridge in the Navesink River.

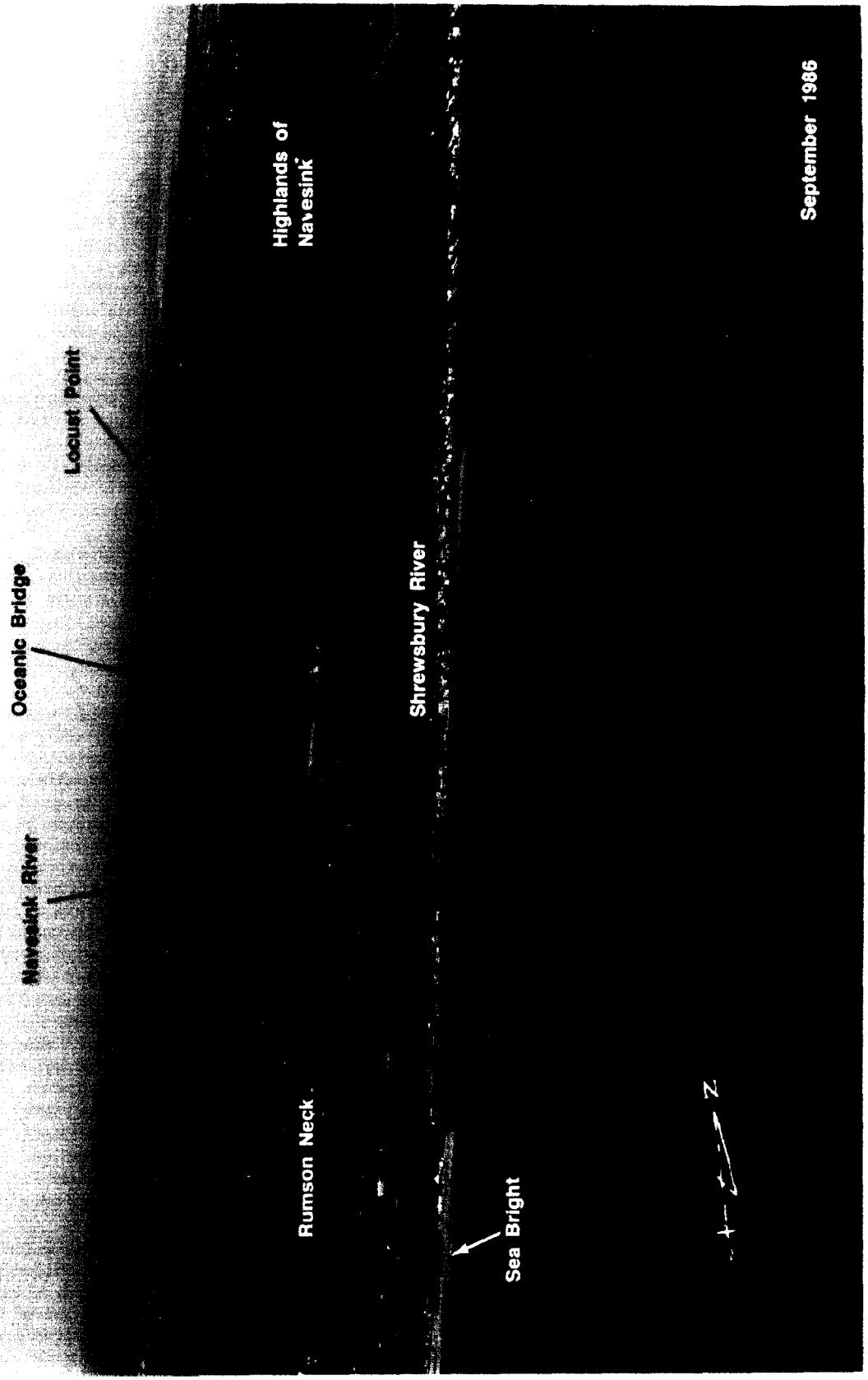
(214) **Caution.**–All cables within the area in about 40°24.2′N., 73°59.0′W., in Shrewsbury River have been abandoned. Mariners are cautioned that the cables remain in place.

(215) **Tides.**–The mean range of tide is as follows: Highlands, 3.8 feet; Red Bank, 3 feet; Sea Bright, 1.7 feet; Branchport, 1.7 feet. Strong southerly and westerly winds lower the water surface, and northerly and easterly winds raise it.

SANDY HOOK


Shrewsbury River Entrance
Horseshoe Cove
Sandy Hook Bay
Sandy Hook Point
N
September 1986

NAVESINK RIVER



(216) **Currents.**–At Highlands bridge, the currents have a velocity of about 2.6 knots. At Sea Bright bridge the velocity is about 1.6 knots.

(217) **Ice.**–Navigation in Shrewsbury and Navesink Rivers is generally suspended because of ice from December to March, inclusive.

(218) **Supplies.**–Gasoline, lubricants, marine supplies, and provisions can be obtained at most of the towns along the shores of the Shrewsbury and Navesink Rivers.

(219) **Communications.**–Railroad, ferry, or bus connects with New York to points on the New Jersey coast.

(220) **Highlands** is a summer resort on the west side of Shrewsbury River 1.5 miles inside the entrance. There are good small-craft facilities here. (See the small-craft facilities tabulation on chart 12324 for services and supplies available.)

(221) The railroad bridge across Shrewsbury River at Highlands is in ruins; caution is advised. The State Route 36 highway bridge 100 yards above the railroad bridge has a bascule span with a clearance of 35 feet. (See **117.1 through 117.59 and 117.755**, chapter 2, for drawbridge regulations.) The fender system from the center pier of the railroad bridge to the east side of the highway bascule opening is continuous. The east side of the river northward of the bridge and the west side 0.3 mile southward of the bridges are used as anchorages for small craft.

(222) Caution should be exercised at the junction of the Shrewsbury and Navesink Rivers, about 0.6 mile southward of the State Route 36 highway bridge at Highlands, to avoid the submerged stone jetty. Craft entering Navesink River should pass westward of the lighted junction buoy. The submerged jetty is marked by three seasonal buoys.

(223) The State Route 520 highway bridge over Shrewsbury River between **Rumson** and **Sea Bright** has a bascule span with a clearance of 15 feet at the abutment. (See **117.1 through 117.59 and 117.755**, chapter 2, for drawbridge regulations.)

(224) There are numerous **small-craft facilities** at Sea Bright. (See the small-craft facilities tabulation on chart 12324 for services and supplies available.)

(225) **Pleasure Bay**, at the southeast end of Shrewsbury River, is crossed by a fixed highway bridge with a clearance of 25 feet. **Branchport** is a small town on the east side of Pleasure Bay at the head of navigation.

(226) There are numerous **small-craft facilities** in Pleasure Bay. (See the small-craft facilities tabulation on chart 12324 for services and supplies available.)

(227) The privately dredged and marked channels in **Little Silver Creek, Town Creek, Oceanport Creek, Parker Creek**, and **Blackberry Creek** had controlling depths of about 5 feet in 1965-67.

(228) A fixed highway bridge with a clearance of 24 feet crosses the westerly part of Shrewsbury River, just eastward of its junction with Parker and Oceanport Creeks.

(229) The tributaries that empty into the southeasterly and southwesterly sides of Shrewsbury River are crossed by bridges with the following clearances: **Manhassett Creek**, fixed highway, 6 feet; **Troutmans Creek**, fixed highway, 6 feet; Oceanport Creek, Conrail railroad with swing span, 4 feet; and Parker Creek, fixed railroad, 4 feet. (See **117.1 through 117.59 and 117.736**, chapter 2, for drawbridge regulations.)

(230) The channel in Navesink River is crooked but well marked by seasonal buoys. The Oceanic highway bridge across the river between Rumson and **Locust Point** has a bascule span with a clearance of 22 feet. (See **117.1 through 117.59 and 117.734** for drawbridge regulations.)

(231) **Rumson** is a town on the south side about 1.7 miles above the entrance to Navesink River. Small-craft facilities just west of the bridge at Rumson can provide berths, electricity, gasoline, water, ice, and storage. Hull and engine repairs can be made, and a 7-ton mobile hoist is available. In May 1981, a reported depth of 5 feet could be carried to the boatyards.

(232) **Fair Haven** is on the south side of Navesink River about 1 mile above the bridge at Rumson. A boatyard and two yacht clubs are at Fair Haven. The boatyard can provide berths, electricity, gasoline, water, ice, storage, marine supplies, and hull, engine, and radio repairs; lifts to 15 tons are available. In June-September 1987, a reported depth of about 7 feet could be taken to the boatyard.

(233) **Red Bank**, a town near the head of navigation on the Navesink River, has several **small-craft facilities.** (See the small-craft facilities tabulation on chart 12324 for services and supplies available.) The town has railroad connections with New York.

(234) The dredged channel that extends for 1.5 miles above the landings at Red Bank had a reported midchannel controlling depth of 2 feet to the second highway bridge, and thence less than 1 foot for the rest of the dredged section in 1985. The channel is privately marked by buoys and stakes. The fixed bridges crossing this channel have a least channel width of 36 feet and a clearance of 9 feet.

(235) **Charts 12327, 12401, 12402.–Atlantic Highlands** is a town on the south side of Sandy Hook Bay about 2 miles west of Sandy Hook. A breakwater, marked by a light at its eastern end, forms an anchorage basin. In March 1981, depths of ½ foot to 6 feet were available in the basin. The entrance to the basin is marked by a private **270°** lighted range. Small-craft facilities in the basin can provide berths, electricity, gasoline, diesel fuel, water, ice, storage, marine supplies, launching ramps, and hull and engine repair; mobile lifts up to 40 tons are available. The basin is used by numerous pleasure and party fishing craft. Numerous piles and ruins of former wharves are westward of the basin.

(236) **Terminal Channel**, entered from Sandy Hook Channel about 1 mile west-southwestward of Sandy Hook, leads south-southwestward to a turning basin and to two deepwater ammunition handling piers of the U.S. Naval Ammunition Depot at **Leonardo**, N.J., a town on the south side of Sandy Hook Bay. Federal project depth is 35 feet in the channel and turning basin. (See Notice to Mariners and latest editions of the charts for controlling depths.) The channel is marked by a private **207°30′** lighted range and by lighted and unlighted buoys. A dredged and marked side channel leads southward from the southeastern end of the turning basin to an ammunition barge-loading pier; depths of about 11 feet can be carried to and alongside the pier. The deepwater piers and barge pier are connected to the shore by a trestle that extends 1.6 miles across the flats from Leonardo. The waters adjacent to the piers and trestle are **prohibited** to navigation. (See **110.155 (f) (1)**, chapter 2, for rules and regulations.)

(237) **Security zones** have been established in the vicinity of the U.S. Naval Ammunition Depot and Terminal Channel. (See **165.1 through 165.7, 165.30, 165.33, and 165.130**, chapter 2, for limits and regulations.)

(238) A dredged channel, about 0.4 mile eastward of the trestle at Leonardo, leads southward from Sandy Hook Bay to the basin of a State marina. In April 1983, the reported controlling depth was 6 feet in the entrance channel and basin. In June 1988, the dredge entrance channel was reported to have shoaled to about 1 foot. The channel is marked by private buoys and seasonal lights.

(239) Berths, electricity, gasoline, diesel fuel, and water are available in the basin. A boatyard with a 45-foot marine railway is about 0.5 mile eastward of the boat basin; complete hull and engine repairs can be made.

(240) **Compton Creek**, 4 miles westward of Sandy Hook, is used extensively as a harbor of refuge by small fishing craft. The creek is entered through a dredged channel that leads from Sandy Hook Bay, thence through **Belford (Shoal) Harbor,** and thence to about 0.4 mile above the mouth. In August 1993, the controlling depth was 8 feet (10 feet at midchannel) to the turn at about 40°26′02″N., 74°04′47″W.; thence in June 1988, 5 feet at midchannel to about 0.4 mile above the mouth of the creek. The entrance channel is marked by a private **199°** lighted range, a lighted buoy, and unlighted buoys. The creek is navigable by small boats for 1 mile to a railroad bridge. Several fixed bridges over the creek have a minimum clearance of 2 feet. A seasonal auxiliary marine police station is on the east side of the creek.

(241) A boatyard is on the south side of Compton Creek about 0.45 mile above the mouth. Marine supplies, hull and engine repair facilities, and a 90-foot marine railway are available. A town dock, supervised by a dockmaster, is just downriver of the boatyard.

(242) **Port Monmouth**, a village at the head of Compton Creek, is a shipping point for fresh fish, shellfish, and inedible animal products. Several private landings and a town landing are available.

(243) **Pews Creek,** about 1 mile northwest of Compton Creek, is marked at the entrance by a private light. In May 1981, it was reported that 3½ feet could be carried to a marina in the creek. Berths, electricity, marine supplies, storage, a 20-ton mobile hoist, and hull and engine repairs are available.

(244) **Staten Island** forms the northwest side of Lower Bay. The high wooded ridge of the island has elevations of 100 to over 400 feet. **South Beach** and **Midland Beach** are summer resorts and amusement areas on the southeast side of the island.

(245) **Staten Island Flats** are extensive shoals making off from the southeast side of Staten Island. Parts of these flats are **Old Orchard Shoal** and **West Bank,** which border on the main channel up the bay. **Hoffman Island** and **Swinburne Island** (see also chart 12349), artificial islands on West Bank, are part of Gateway National Recreation Area; landing is not permitted. A channel, used by local vessels of less than 8-foot draft, leads westward of West Bank. From the gong buoy 0.6 mile southward of Fort Wadsworth, steer southwestward through the dredged channel and then steer a course for Old Orchard Shoal Light.

(246) **Charts 12331, 12327.–Raritan Bay** is that part of Lower Bay lying westward of Point Comfort and southward of Staten Island. The bay is full of shoals with depths of 7 to 18 feet.

(247) **Channels.**–A Federal project provides for a 35-foot channel extending through Lower Bay, the northern part of Raritan Bay, to the junction with Arthur Kill. (See Notice to Mariners and latest editions of the charts for controlling depths.)

(248) **Anchorages.**–General anchorages are in Raritan Bay. (See**110.1 and 110.155 (j)** chapter 2, for limits and regulations.)

(249) **Tides.**–The mean range of tide in Raritan Bay is about 5 feet.

(250) **Ice.**–In ordinary winters ice does not seriously interfere with navigation in Raritan River or Arthur Kill, but in severe winters the ice sometimes prevents the movements of vessels for periods of 2 weeks at a time. In easterly winds the drift ice in Lower Bay collects in Raritan Bay and obstructs navigation, but usually only for a short time, as the prevailing westerly winds drive the ice out of the bay.

(251) **Pilotage, Raritan River and Arthur Kill.**–Pilotage for ports in the States of New York and New Jersey is compulsary for foreign vessels and U.S. vessels under register. Pilotage for vessels bound for Perth Amboy, South Amboy, or up the Raritan River and Arthur Kill is available from the United New York New Jersey Sandy Hook Pilot Association. See Pilotage, New York Harbor and Approaches (indexed as such), early this chapter.

(252) **Towage.**–Tugs are used by the larger vessels and are available in New York. (See Towage, New York Harbor, discussed earlier in this chapter.)

(253) **Customs, quarantine, immigration, and agricultural quarantine** inspections are discussed earlier in this chapter under New York Harbor.

(254) **Supplies.**–Water can be had at most of the wharves in Perth Amboy and South Amboy. Provisions and marine supplies can be had at Perth Amboy, Tottenville, New Brunswick, and South Amboy.

(255) **Chart 12331.–Great Kills Harbor**, a shallow bight on the south side of Staten Island northwestward of Old Orchard Shoal Light, is used as an anchorage by small craft. The harbor is entered through a dredged channel that leads from deep water in Lower New York Bay along the southwesterly side of **Crookes Point,** thence along the westerly side of the harbor to the head. In March-September 1978, the channel has a midchannel controlling depth of 9 feet, except for a 3-foot spot on the northeast side of the channel in about 40°31′54″N., 74°08′25″W. In December 1987, an obstruction was reported in the vicinity of Great Kills Harbor Channel Buoy 18. The channel is marked by buoys and a light. **Great Kills Light** (40°31.3′N., 74°07.9′W.), 35 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a red concrete base east of the channel entrance.

(256) A **special anchorage** is in Great Kills Harbor. (See **110.1** and **110.60 (r-1),** chapter 2, for limits and regulations.)

(257) **Great Kills**, on the west side of Great Kills Harbor, has several small-craft facilities with berths, electricity, gasoline, diesel fuel, water, ice, storage, and marine supplies. A public launching ramp is located in the northeast corner of the harbor.

(258) **Lemon Creek**, 0.2 mile westward of Seguine Point, is a narrow shallow stream used only by local boats which enter at high water. The midchannel controlling depth over the bar is about 2 feet with deeper water inside. The abutment of a former bridge is on the south side of the creek just inside the mouth. Overhead power cables crossing the creek at the bridge abutment have a clearance of 47 feet.

(259) A small marina on the creek can haul out craft up to 8 tons for minor engine and hull repairs; berths, electricity, water, ice, and outside storage are available.

(260) A prominent tower of a former lighthouse with a statue on top is on the south side of Staten Island, 0.8 mile westward of Seguine Point. Prominent buildings are near the point at **Red Bank**, 0.3 mile southwestward of the tower.

(261) **Keansburg**, on **Point Comfort** on the south side of Raritan Bay, is a summer resort. The wharves on the west side of Point Comfort are in ruins and no longer used.

(262) A **special anchorage** is adjacent to the amusement pier. (See **110.1 and 110.6 (z)**, for limits and regulations.)

(263) **Waackaack Creek** and **Thorns Creek,** about 0.6 mile southwest of Point Comfort, have a common entrance protected by floodgates. The gates are lowered, thereby closing the harbor,

when tides above 4½ feet are sustained for a period of time. An overhead power cable with a clearance of 32 feet crosses the creek entrance at the floodgates. Small-craft facilities on Thorns Creek provide berths, electricity, ice, water, gasoline, marine supplies, and a 20-ton forklift and a 12-ton mobile hoist for hull and engine repairs. In May 1982, the channels into the creeks were reported dredged to 7 feet.

(264) **Keyport Harbor**, 3 miles westward of Point Comfort, is a shallow harbor on the south side of Raritan Bay between **Conaskonk Point** and **Matawan Point**. A buoyed approach channel leads southward from the bay to a dredged marked channel that leads through the harbor to the mouth of Matawan Creek. In September 1993, the dredged channel had a controlling depth of 7 feet.

(265) **Matawan Creek**, entered at the head of Keyport Harbor, is used mostly by local craft. In September-October 1993, the controlling depth was 4 feet, except for depths to 3½ feet along the edges, to the first highway bridge, thence in 1981, 2 feet to shoaling to bare was reported to the railroad bridge about 1.5 miles above the mouth. Greater depths are available with local knowledge. (See chart 12327.) Three fixed bridges, one railroad and two highway, cross the creek; least clearances are 49 feet horizontal and 6 feet vertical. Least clearance of overhead power cables crossing the creek is 54 feet.

(266) **Keyport** is a town on the east side of the entrance to Matawan Creek. There are several small-craft facilities on Matawan Creek and on the southeast side of Keyport Harbor at Keyport. Berths with electricity, gasoline, diesel fuel, water, ice, marine supplies, sewage pump-out, cranes to 25 tons, marine railways to 40 feet, and complete hull and engine repairs are available. Vessels proceed to the small-craft facilities at Keyport at high water. The mean range of **tide** is about 5 feet.

(267) A privately dredged channel, about 25 feet wide in places, leads about 0.3 mile southwesterly from the mouth of Matawan Creek to a marina basin at the entrance to **Luppatatong Creek.** In May 1981, a reported depth of 4 feet was available to the marina.

(268) **Cheesequake Creek** and **Stump Creek**, sharing a common entrance and leading southwesterly and southeasterly, respectively, are on the south side of Raritan Bay 6 miles westward of Point Comfort. The entrance is between two stone jetties. The east jetty is awash at high water. The outer ends are marked by a daybeacon on the east jetty and a light on the west jetty. A private light marks a sewer outfall about 100 yards northward of the jetty light. A dredged channel leads between the jetties to the Conrail railroad bridge about 0.3 mile above the jetties. In February 1991, the controlling depth was 4½ feet except for severe shoaling that extends about 80 feet into the channel from the south jetty. In October 1987, the reported controlling depth was 3½ feet in Stump Creek. The mean range of **tide** is about 5 feet.

(269) Local boats from Lower Bay usually head for a point about 1.6 miles east-northeastward of the jetties, and then shape a course to enter between the jetties at the entrance to Cheesequake and Stump Creeks. Caution should be exercised to avoid the sunken wrecks, 0.2 mile eastward of the east jetty.

(270) The State Route 35 highway bridge, 0.2 mile inside the jetties, has a bascule span with a clearance of 25 feet. The overhead power cable just north of the bridge has a clearance of 89 feet. The Conrail bridge, 0.3 mile inside the jetties, has a bascule span with a clearance of 3 feet. The bridgetender monitors VHF-FM channel 13; call sign KT-3859. (See **117.1 through 117.59 and 117.709**, chapter 2, for drawbridge regulations.) The twin fixed highway bridges over Cheesequake Creek, 1.1 miles inside the jetties, have clearances of 16 feet.

(271) **Laurence Harbor** is a summer resort on the east side of Stump Creek, and **Morgan** is a settlement on the west side of Cheesequake Creek. There are small-craft facilities that can provide berths with electricity, gasoline, diesel fuel, water, ice, marine supplies, lifts to 25 tons, and a 50-foot marine railway; complete hull and engine repairs are available.

(272) **Chart 12332.–Raritan River** empties into the western end of Raritan Bay between Perth Amboy and South Amboy. The channel from South Amboy to **New Brunswick** is 11 miles long and very crooked, but is well marked with navigational aids. Waterborne commerce on the river is in coal, ore, and petroleum products.

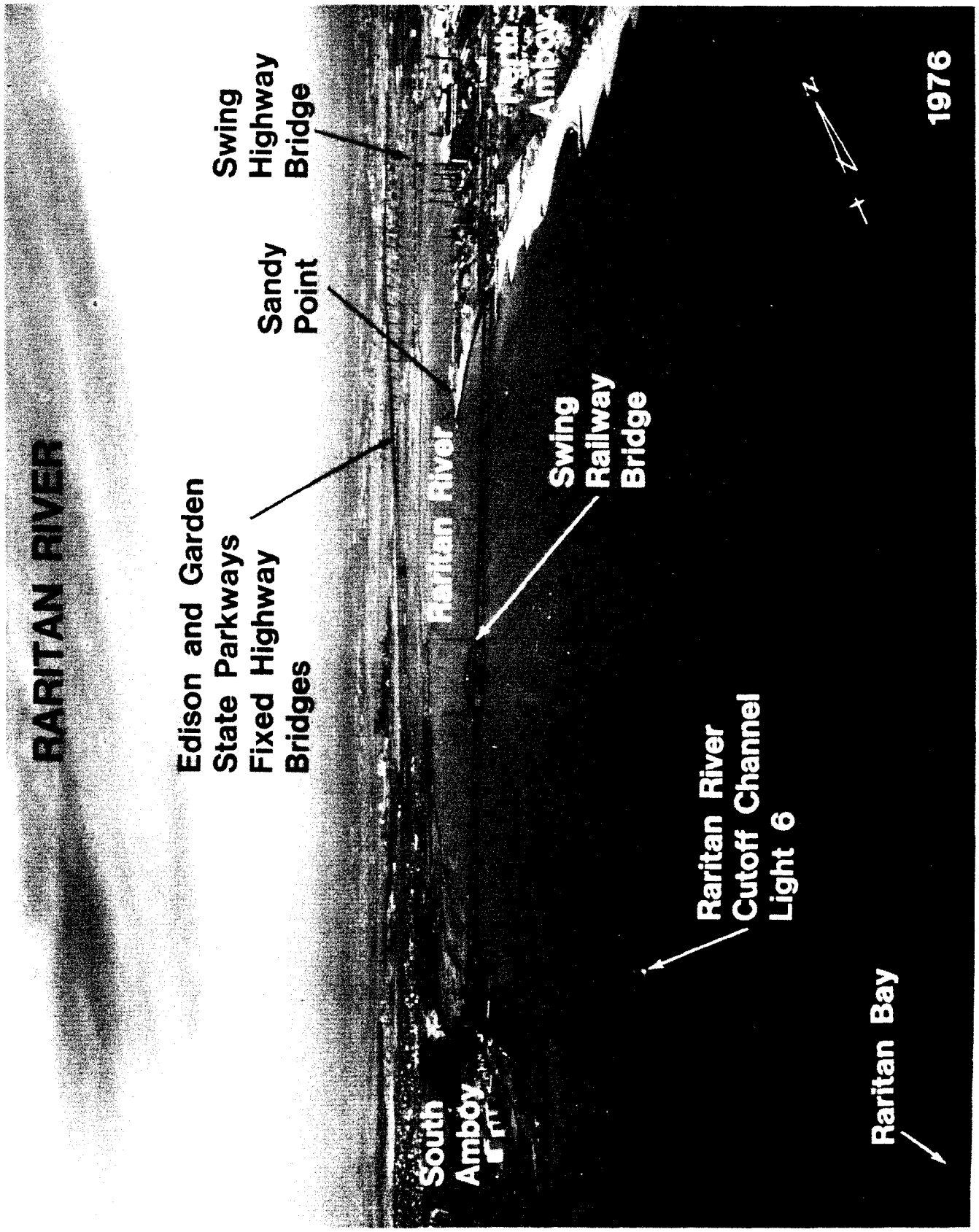
(273) **Channels.**–Vessels enter Raritan River from the east by way of Great Beds Reach and from the north by way of Arthur Kill via Raritan River Cutoff Channel. A Federal project provides for a 20-foot channel in Raritan River Cutoff, a 25-foot channel from Great Beds Reach in Raritan Bay to the head of Red Root Reach about 1.9 miles above Garden State Parkway bridge, and thence a 15-foot channel to the junction with Washington Canal. (See Notice to Mariners and latest editions of the charts for controlling depths.) Above Washington Canal, the controlling depth in Raritan River was about 9 feet at midchannel to New Brunswick in 1962.

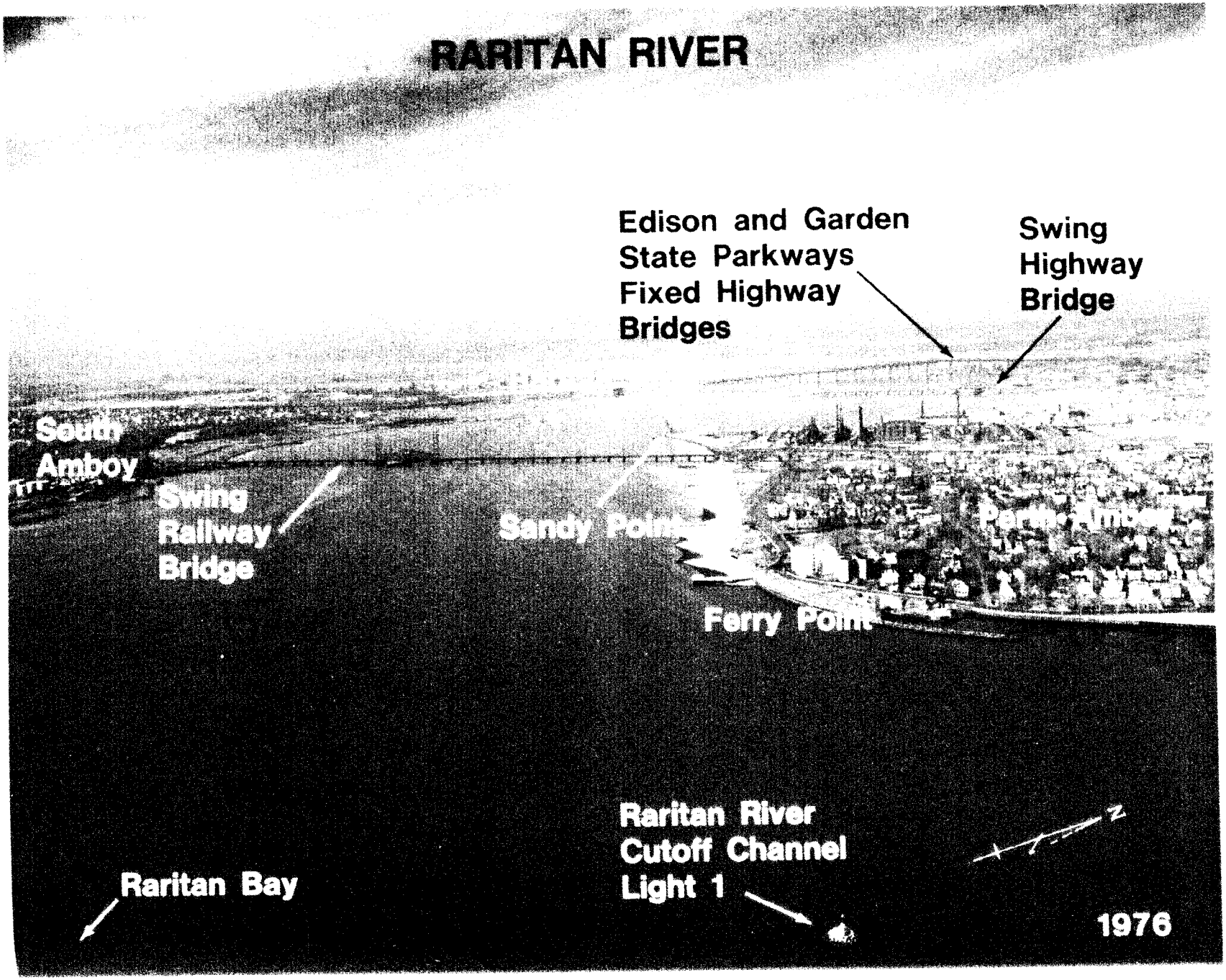
(274) A dredged channel in Titanium Reach and South Channel branches south from Raritan River about 0.6 mile above Garden State Parkway bridge. The Federal project depths are 25 feet in Titanium Reach and 15 to 10 feet in South Channel to Crossman Dock. (See Notice to Mariners and latest editions of the charts for controlling depths.) In 1991, the channels were not being maintained near project depth and the project above Crossman Dock was not being maintained.

(275) A dredged channel in **Washington Canal** branches south from Raritan River about 4.3 miles above Garden State Parkway bridge and connects with **South River**. A dredged channel leads south for about 3.4 miles in South River. In 1961, the midchannel controlling depths were 12 feet in Washington Canal, thence 10 feet in South River to the first highway bridge, thence 8 feet for about 1 mile, thence ½ foot to a point 800 yards north of the highway bridge at **Old Bridge**.

(276) A sunken drydock, marked by a light, is on the east side of the river, 1.5 miles above the Garden State Parkway fixed bridge. The wreck extends 60 feet into the channel and is visible at all stages of the tide.

(277) **Bridges.**–Several drawbridges and fixed bridges cross Raritan River and South River. The distances above the mouth of the Raritan River and clearances follow: ConRail bridge with center-pier swing span, 0.4 mile, 8 feet, overhead power cable at the bridge has a clearance of 140 feet; Victory Highway Bridge with center-pier swing span, 1.4 miles, 28 feet, the northern span only should be used; Thomas Edison Memorial Bridge with high-level fixed span, 1.9 miles, 135 feet; Garden State Parkway with fixed span, 2 miles, 135 feet; overhead power cable near Crab Island, 5.2 miles, 128 feet; New Jersey Turnpike with fixed span, 8.7 miles, 45 feet; overhead power cables, 8.9 miles, 114 feet; and U.S. Highway No. 1 Bridge with two fixed spans, 9.6 miles, 90 feet. The highway bridge over South River at the town of South River has a fixed span with a clearance of 25 feet. The railroad bridge, 0.4 mile upstream, has a swing span with a clearance of 4 feet. (See **117.1 throuth 117.59, 117.747, and 117.756**, chapter 2, for drawbridge regulations.) In January 1987, the fender system of


RARITAN RIVER
Edison and Garden State Parkways Fixed Highway Bridges
Sandy Point
Swing Highway Bridge
Raritan River
Swing Railway Bridge
Raritan River Cutoff Channel Light 6
South Amboy
Raritan Bay
N
1976


RARITAN RIVER
Edison and Garden State Parkways Fixed Highway Bridges
Swing Highway Bridge
South Amboy
Swing Railway Bridge
Sandy Point
Ferry Point
Raritan Bay
Raritan River Cutoff Channel Light 1
N
1976

the south draw of the ConRail swing bridge sustained significant damage and may be protruding into the channel. Mariners are advised to exercise caution and navigate the north draw only. Mariners are requested to avoid bridge openings of this bridge during peak commuter hours of 0700 to 0815 and 1700 to 1815, Monday through Friday. The bridgetender monitors VHF-FM channel 13; call sign KT-4204.

(278) **Tides and currents.**–The mean range of tide is about 5 feet at South Amboy, 5.8 feet at New Brunswick, and 5.5 feet at the highway bridge on South River at the town of South River. (For predictions, consult the Tide Tables.) The tidal current has a velocity of about 1.5 knots at the Victory Highway Bridge at Perth Amboy.

(279) **South Amboy** is a city on the south side of the entrance to Raritan River. Waterborne commerce at the port is in fuel oils, coal, sand, and gravel. Depths alongside the wharves and piers range from about 6 to 30 feet. Water, provisions, and marine supplies can be obtained here, and berths with electricity, water, ice, and winter dry storage are available at a boat club.

(280) **Sayreville** is 6 miles above South Amboy on the south bank of the Raritan River. Most of the wharves are privately owned.

(281) **South River** is a town on the west side of South River 7.5 miles above South Amboy. A marina about 200 yards north of the highway bridge at Old Bridge provides berths, water, marine supplies, a 2-ton lift, and engine repairs. In May 1981, a reported depth of about 1 foot could be carried to the marina.

(282) The **Delaware and Raritan Canal**, closed to navigation since 1933, had its entrance to the Raritan River at New Brunswick.

(283) A marina is at **Highland Park** across the Raritan River from New Brunswick. In May 1981, a reported depth of about 3½ feet was available from the head of the Federal project to the marina, the practical head of navigation. Berths, gasoline, water, electricity, and winter storage are available. A mobile hoist can handle boats to 12 tons, and boats to 60 feet can be hauled out on a flatbed truck and ramp; hull and engine repairs are available.

(284) **Charts 12333, 12331.–Arthur Kill** is the narrow body of water separating Staten Island from New Jersey. The cities of Perth Amboy, Tottenville, Elizabeth, many large factories, and oil refineries and storage facilities are on its shores. Northern Arthur Kill and Kill Van Kull are the major channels for bulk, containerized, and petroleum cargo in New York Harbor.

(285) **Channels.**–Federal project depth in Arthur Kill is 35 feet. (See Notice to Mariners and latest editions of charts for controlling depths.)

(286) **Caution.**–Numerous sunken and visible wrecks are adjacent to both sidesof the channel in Arthur Kill; caution is advised.

(287) A liquefied petroleum gas (LPG) facility is on the west side of Arthur Kill immediately south of **Morses Creek**. A moving **safety zone** has been established around loaded LPG vessels transiting between Scotland Lighted Horn Buoy S at the entrance to Sandy Hook Channel and the LPG facility. (See **165.1 through 165.7, 165.20 through 165.25, and 165.160**, chapter 2, for limits and regulations.)

(288) **Anchorages.**–General anchorages are in Arthur Kill. (See **110.1 and 110.155 (i)**, chapter 2, for limits and regulations.)

(289) **Tides and currents.**–The mean range of tide in Arthur Kill is about 5 feet. Throughout Arthur Kill the flood sets from Raritan Bay to Newark Bay and the ebb in reverse direction. Velocities of current vary with the location from about 1 to 1.5 knots.

(290) In October 1991, tidal currents in Arthur Kill were reported to deviate significantly from official predictions published by the National Ocean Service. Mariners should exercise caution and discretion in the use of published tidal current predictions.

(291) **Chart 12331.–Perth Amboy** is on the point at the junction of Raritan River and Arthur Kill at the western end of Raritan Bay. The principal wharves are along the west bank of Arthur Kill. The greatest draft entering is about 30 feet. The wharves have depths of 14 to 30 feet alongside. Good anchorage is found abreast some wharves in 30 feet. A **special anchorage** is south of Perth Amboy. (See **110.1 and 110.60 (aa)**, chapter 2, for limits and regulations.)

(292) Perth Amboy is a **customs port of entry.**

(293) **Repairs.**–Several ship and boat repair yards are in Perth Amboy. Drydocks are available; the largest floating drydock can handle vessels to 5,000 tons, 330 feet long, 68 feet wide, and 18 feet in draft. Small-craft engine and hull repairs can be made.

(294) **Supplies.**–Diesel oil, diesel fuel, gasoline, water, lubricants, and marine supplies are available at Perth Amboy.

(295) **Outerbridge Crossing Bridge,** 1.7 miles above Ward Point, has a fixed span with a clearance of 143 feet across Arthur Kill between Perth Amboy and **Tottenville**. A private fog signal is at the bridge. A marina at Tottenville provides berths, electricity, water, storage facilities, and a 15-ton mobile hoist for do-it-yourself repairs. In May 1981, a reported depth of about 5 feet could be carried to the facility.

(296) **Woodbridge Creek** enters Arthur Kill from westward about 2.8 miles above **Ward Point.** In May 1981, the reported controlling depth was 6 feet to the railroad bridge, thence in 1949-1952, the controlling depth was about 1 foot to the Town Dock, 1.6 miles above the mouth. Commerce on the creek is in petroleum products. A highway (State Street) bridge, 0.5 mile above the mouth, has a bascule span with a clearance of 7 feet. The Conrail bridge, 100 yards upstream, has a bascule span with a clearance of 5 feet. (See **117.1 through 117.59 and 117.761**, chapter 2, for drawbridge regulations.) The overhead power cables near the bridges have a minimum clearance of 40 feet.

(297) **Port Socony**, on the east side of Arthur Kill 2.9 miles above Ward Point, is a bulk oil storage terminal. A privately maintained dredged channel leads from the main channel in Arthur Kill to the oil company dock. In 1973, a depth of about 35 feet was available to the dock. Depths of 15 to 35 feet were reported alongside the dock in 1977.

(298) **Smith Creek** enters Arthur Kill from northward about 3.3 miles above Ward Point. The entrance channel is privately marked by stakes. In May 1981, a reported depth of 3 feet was available to just above the first bend in the channel. The creek is used principally by small craft.

(299) Several **small-craft facilities** are along Smith Creek. Berths with electricity, gasoline, water, ice, marine railways to 40 feet, and partial hull and engine repairs are available.

(300) **Port Reading**, 4.5 miles above Ward Point on the north side of Arthur Kill, has several oil storage facilities. Depths of 18 to 36 feet are reported alongside. The large freight terminal northeastward of the oil facilities is used for the shipment of coal by barges. Depths alongside the coal pier are reported as 17 feet on the south side and 10 feet to bare on the north side.

(301) **Fresh Kills** enters Arthur Kills from eastward about 6 miles above Ward Point. Fresh Kills is used as a New York City garbage landfill and is closed to all navigation except garbage scows.

(302) **Chart 12333.–Rahway River** enters Arthur Kill from westward, about 7.2 miles above Ward Point, and extends westward for about 4.5 miles to the town of **Rahway**. It is used only by small craft. In May 1981, a reported depth of 5 feet could be taken to Lamberts Wharf about 2.1 miles above the mouth and about 0.5 mile above the New Jersey Turnpike bridge.

(303) Name or location, type of span, distance above mouth, and clearances of the bridges over Rahway River are as follows: East Rahway, bascule, 1.7 miles, 6 feet; Linden and Carteret, fixed, 1.8 miles, 36 feet; Lawrence Street, fixed, 3.8 miles, 6 feet; U.S. Route 1/9, fixed, 3.9 miles, 23 feet; Milton Avenue, fixed 42-foot span, 4.2 miles, 4 feet; Monroe Avenue, fixed 30-foot span, 4.4 miles, 7 feet. (See **117.1 through 117.59 and 117.743**, chapter 2, for drawbridge regulations.)

(304) An overhead power cable with a clearance of 165 feet crosses Arthur Kill about 1.7 miles north of the Rahway River entrance.

(305) The **Goethals Bridge**, 10 miles above Ward Point, has a fixed span with a clearance of 137 feet over Arthur Kill just southward of Elizabethport. The railroad bridge, 200 yards above Goethals Bridge, has a vertical lift span with a clearance of 31 feet down and 135 feet up. The bridgetender at the railroad bridge monitors VHF-FM channel 13; call sign KXS-237.

(306) **Elizabethport**, about 11 miles above Ward Point, is the eastern part of the city of **Elizabeth**. It is at the northern end of Arthur Kill at its junction with Newark Bay.

(307) Most of the wharves along the Elizabeth waterfront are of the bulkhead-marginal type. Depths alongside range from 3 to 32 feet. Waterborne commerce at these wharves is in petroleum, sand and gravel, chemicals and petrochemicals, and vegetable and animal oils.

(308) **Elizabeth River** enters Arthur Kill from westward at Elizabethport. The overhead power cable just above the entrance has a clearance of 59 feet. South Front Street Bridge, just above the mouth of the river, has a bascule span with a clearance of 3 feet; South First Street Bridge, 0.5 mile above the mouth has a bascule span with a clearance of 5 feet; and Elizabethport railroad bridge, 0.8 mile above the mouth, has a bascule span with a clearance of 14 feet. (See **117.1 through 117.59 and 117.719**, chapter 2, for drawbridge regulations.) The bridges above the railroad bridge have a least clearance of 3 feet.

(309) **Kill Van Kull** separates the southern shore of the city of Bayonne from Staten Island and connects the Upper Bay of New York Harbor with Newark Bay and Arthur Kill. Kill Van Kull is a major channel for petroleum and bulk cargo in New York Harbor, and has extensive through traffic and large factories on its shores.

(310) **Channels.**–A Federal project provides for a 35-foot dredged channel leading through Kill Van Kull and north of **Shooters Island** to Arthur Kill. The dredged channel south of Shooters Island has a project depth of 30 feet. (See Notice to Mariners and latest editions of charts for controlling depths.)

(311) Shoals, obstructions, and numerous wrecks are along both sides of the dredged channel in Kill Van Kull. Numerous sunken and visible wrecks are in the channel southward of Shooters Island; caution is advised.

(312) **Bayonne Bridge**, a fixed span with a minimum clearance of 138 feet over the channel (151 feet centerline), crosses Kill Van Kull from just east of **Bergen Point**, the southwestern end of the city of Bayonne, and connects with Staten Island.

(313) **Tides and currents.**–The mean range of tide in Kill Van Kull is about 4.5 feet. The flood current sets westward and the ebb eastward. In the bight on the south side of the channel between West New Brighton and Port Richmond there is more or less of an eddy when the current is at strength.

(314) In October 1991, tidal currents in Kill Van Kull were reported to deviate significantly from official predictions published by the National Ocean Service. Mariners should exercise caution and discretion in the use of published tidal current predictions.

(315) **Constable Hook** and **Port Johnson**, on the north shore of Kill Van Kull, are parts of the city of **Bayonne**. They are commercially important for the shipment of petroleum and other products. A dredged channel 23 feet deep, marked by buoys, leads from the easterly end of Kill Van Kull to the wharf on the north side of Constable Hook.

(316) A shipyard at Military Ocean Terminal at Bayonne has a graving dock with a clear length of 1,092 feet, width of 140 feet, and depth of 38 feet over the blocks. The yard has cranes to 200 tons.

(317) Several private yacht and boat clubs, and a public marina are on the southwestern shore of Bayonne above Bergen Point. A 90-ton crane at the marina can haul out craft for engine and hull repairs; berths, electricity, gasoline, water, ice, and marine supplies are available.

(318) **New Brighton**, **Port Richmond**, and **Mariners Harbor** are on the south shore of Kill Van Kull. The largest of several shipyards and floating drydocks on the south shore can handle vessels up to 10,000 tons, 550 feet long, 87 feet wide, and 22 feet in draft. All kinds of repairs can be made.

(319) **Charts 12333, 12337.–Newark Bay** has a length of about 4 miles from Kill Van Kull to the junction of the two channels leading to Passaic and Hackensack Rivers. The greater part of the bay is very shoal, but a dredged channel leads through the bay to the rivers. The channel is well marked by lights and buoys. Strangers in small vessels should have no difficulty when using the chart as a guide. Deep-draft vessels should employ a pilot.

(320) **Channels.**–Federal project depth in the main channel leading to the branch channels to the Port Elizabeth Marine Terminal and Port Newark Terminal, and thence to the junction of Passaic and Hackensack Rivers is 35 feet. (See Notice to Mariners and latest editions of charts for controlling depths.)

(321) **Anchorages.**–General and special anchorages are in Newark Bay. (See **110.1, 110.60 (q), (r), and 110.155 (h)**, chapter 2, for limits and regulations.)

(322) The mean range of **tide** in Newark Bay is about 5 feet.

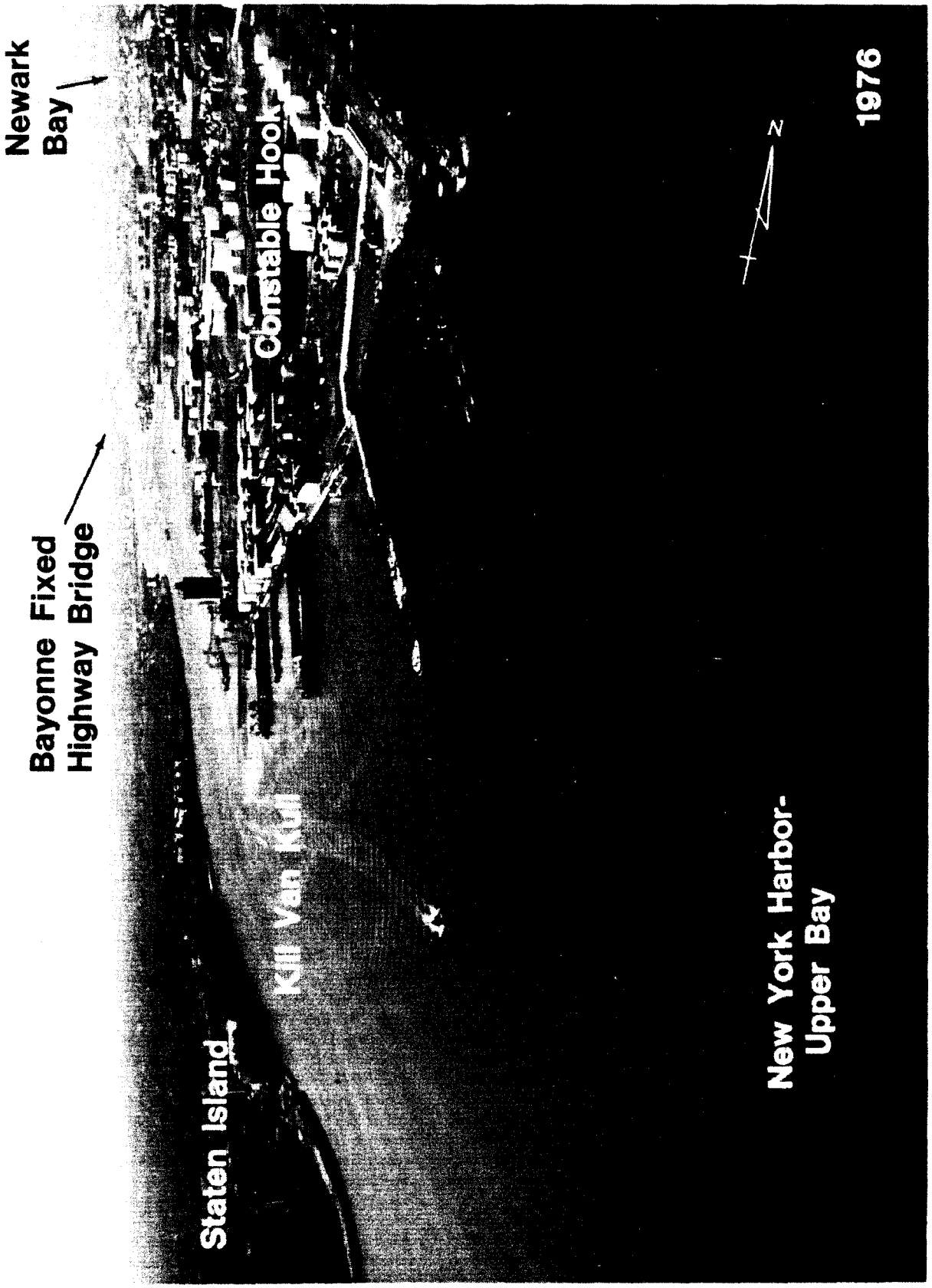
(323) **Ice** sometimes closes navigation during a part of January and February.

(324) A dredged channel marked by a private unlighted range and a buoy leads from the main channel about 0.35 mile above the south entrance to Newark Bay along the south edge of South Elizabeth Channel to a 300-foot pier of the Allied Chemical and Dye Corporation. A turning basin is at the inner end of the channel, and a causeway connects the pier to the shore. In 1977, the controlling depth along the range was about 9 feet, with greater depths north of the range.

(325) The **Port Elizabeth Marine Terminal** operated by the Port Authority of New York and New Jersey, is on Newark Bay in Elizabeth, N.J., on the south side of Elizabeth Channel south of Port Newark. The facility is about 8 miles from The Narrows via Kill Van Kull. It is adjacent to the New Jersey Turnpike and Newark Airport in the heart of the New Jersey industrial area, about 25 minutes by highway from Manhattan.

(326) The terminal has 26 deep-draft berths with depths of 35 to 40 feet reported alongside, and deck heights of 12 feet. In 1996, a

KILL VAN KULL



rock with 36 feet of water over it was reported in about 40°40′26.6″N., 74°7′57.1″W., about 200 yards NNE of Buoy 14.

(327) A large container-handling complex with extensive lift-on/lift-off and roll-on/roll-off systems is at the terminal. Included in this complex are cranes up to 40 tons capable of handling containers up to 45 feet long, mobile straddle carriers with 32-ton capacities, cargo-handling buildings with more than 1-million square feet of storage space, and a large area for open storage. ConRail provides the terminal with direct rail services. Excellent cargo handling and storage facilities are available.

(328) **Channels.**–Federal project depth in Elizabeth Channel and Elizabeth Pierhead Channel, leading to the terminal from the main channel in Newark Bay, is 35 feet. (See Notice to Mariners and latest editions of charts for controlling depths.)

(329) **Port Newark Terminal**, operated by the Port Authority of New York and New Jersey, is on the western side of Newark Bay 2.7 miles above the south entrance, northward of the Port Elizabeth Marine Terminal. It is in the heart of the New Jersey industrial area, adjacent to the New Jersey Turnpike and Newark Airport. There are 37 deep-draft berths; reported depths alongside, 32 to 35 feet; deck heights, 11 to 12 feet; many transit and storage areas and excellent cargo handling facilities, used for the receipt and shipment of general cargo, metals, vegetable oils, petroleum, automobiles and machinery, and for the receipt of bananas, rubber products, lumber and pulpwood, and chemicals. ConRail provides the terminal with direct rail service.

(330) **Channels.**–Federal project depth in Port Newark Channel and Port Newark Pierhead Channel, leading to the terminal from the main channel in Newark Bay, is 35 feet. (See Notice to Mariners and latest editions of charts for controlling depths.)

(331) The New Jersey Turnpike (Interstate 78) bridge, 0.7 mile above the entrance to Port Newark Terminal, has a fixed span with a clearance of 135 feet. The railroad bridge, 0.2 mile above the New Jersey Turnpike bridge, has a vertical-lift span with a clearance of 35 feet down and 135 feet up. (See **117.1 through 117.59 and 117.735**, chapter 2, for drawbridge regulations.) The bridgetender at the railroad bridge monitors VHF-FM channel 13; call sign KS–9968.

(332) A marina on the east side of Newark Bay about 0.9 mile above the New Jersey Turnpike bridge provides berths, gasoline, diesel fuel, water, electricity, ice, storage, marine supplies, and a 25-ton lift; hull and engine repairs can be made.

(333) **Chart 12337.–Passaic River,** which flows into the northwest end of Newark Bay, is used by vessels to **Passaic**, a manufacturing city at the head of navigation 13 miles above the mouth. Above the Wall Street bridge at Passaic the river is obstructed by boulders partly showing above the water for 1.5 miles to the **Dundee Dam.** The city of **Newark** extends along the river for a distance of nearly 5 miles above the mouth. The towns of **Belleville, Arlington, Rutherford, and Nutley,** and several villages are on the river between Newark and Passaic. The channel entrance is well marked. Waterborne commerce on the river consists of barge shipments of sand, gravel, and petroleum products.

(334) **Channels.**–A Federal project provides for a 30-foot channel from Newark Bay to a point about 0.5 mile above the Lincoln Highway Bridge; thence 20 feet to the Jackson Street bridge; thence 16 feet to the ConRail bridge at Arlington; thence 10 feet to the Eighth Street Bridge at Passaic. (See Notice to Mariners and latest editions of charts for controlling depths.)

(335) **Bridges.**–More than 20 draw and fixed bridges cross the Passaic River between the mouth and Passaic. The minimum clearance of the bridges with fixed spans is 100 feet at the New Jersey Turnpike Bridge, 2.4 miles above the mouth. In October 1980, the draws of the railroad bridge at Arlington, 7.2 miles above the mouth, were so restricted that mariners were advised to utilize the west fixed span, clearance 35 feet. The minimum clearance of the bridges with drawspans is 7 feet. (See **117.1 through 117.59 and 117.739**, chapter 2, for drawbridge regulations.) The bridgetenders at the railroad drawbridges 2.3, 4.3, 5.0, 7.0, and 10.2 miles above the entrance monitor VHF-FM channel 13. The call signs for the railroad bridges at mile 2.3 and mile 4.3 are KR-6938 and WRY-593, respectively. The Second Street and Eighth Street bascule span highway bridges and the Gregory Avenue swing span highway bridge at Passaic remain in the closed position with a clearance of 5 feet for the bascule spans and 12 feet for the swing span. The fixed highway bridge between Passaic and Garfield has a clearance of 5 feet. The minimum clearance of the cables over Passaic River is 135 feet.

(336) In 1973, the unused ConRail swing bridge at Newark was being kept in the open position. The fender system of the bridge was in an advanced state of deterioration. In December 1986, an obstruction covered 15 feet was reported in the east channel of the swing bridge. Mariners should use extreme caution while passing through the bridge, avoiding contact with any part of the bridge structure. In 1981, the unused railroad swing bridge at Harrison was reportedly being maintained in the open position.

(337) **Tides.**–The mean range of tide in Passaic River from the mouth to Passaic is about 5 feet.

(338) **Freshets** overcome the flood current down as far as Newark and sometimes to the mouth of the river. Ordinary freshets usually of a few hours duration cause a rise of about 2 feet and a current velocity of about 3 knots at Newark. Destructive freshets occasionally occur at intervals of years, generally in the spring and fall.

(339) **Small-craft facilities.**–There are several boatyards along the Passaic River between the entrance and Passaic. A marine railway at Arlington can handle vessels to 40 feet long for complete engine and hull repairs. Berths, electricity, gasoline, water, ice, storage, and marine supplies are available along the river below Kearny.

(340) **Hackensack River** flows into the northeast end of Newark Bay and is navigable for about 17.8 miles to the dams at **New Milford**.

(341) **Channels.**–A Federal project provides for a 30-foot channel from Newark Bay to a 25-foot turning basin about 0.3 mile above the ConRail bridge at **Marion**. (See Notice to Mariners and latest editions of charts for controlling depths.) Above this point in 1948-February 1971, depths of 11 feet were available for varying widths with local knowledge to the N.Y.S. & W.R.R. bridge at Hackensack, 14.2 miles above the mouth. The channel is well marked with aids.

(342) **Bridges.**–More than 15 draw and fixed bridges cross the Hackensack River between the mouth and Hackensack. The minimum clearance of the bridges with fixed spans is 35 feet at the State Route 46 bridge at Little Ferry about 11.5 miles above the mouth. The minimum clearance of the bridges with drawspans is 2 feet at Hackensack, 14.2 miles above the mouth. (See **117.1 through 117.59 and 117.723**, chapter 2, for drawbridge regulations.) The fixed bridges above Hackensack have a minimum clearance of 2 feet. The minimum clearance of the cables over Hackensack River to Hackensack is 89 feet; thence 26 feet to the dams at New Milford.

(343) In September 1980, the fender system of the Court Street swing bridge 14.1 miles above the mouth was reported to be in

poor condition. Mariners should exercise caution when transiting the bridge. Only one barge at a time should transit the bridge.

(344) The railroad drawbridges over the Hackensack River are equipped with radiotelephones. The bridgetenders monitor VHF-FM channel 13. The call signs of the railroad bridges, identified by mileage above the mouth, follow: mile 2.6, KQ-7198; mile 2.9, KR-6939; mile 4.4, KMC-297; mile 4.7, KR-6972; mile 6.0, KR-7035; and mile 6.7, KR-7034. To expedite opening of the ConRail bridge 2.6 miles above the entrance, mariners are requested to give 1 hour advance notice by calling 201-963-2552.

(345) **Tides.**–The mean range of tide is about 5 feet at the mouth of Hackensack River, 5.3 feet at Little Ferry, and 5.3 feet at Hackensack. (See the Tide Tables for predictions.) The river has little freshet flow, and the tidal currents are rarely affected by it.

(346) **Small-craft facilities.**–There are several boatyards and marinas on the Hackensack River at **Little Ferry** and at **Carlstadt,** opposite **Secaucus.** A mobile hoist at Carlstadt can handle boats to 50 tons, and a marine railway can handle craft to 32 feet long for complete engine and hull repairs. Berths, electricity, gasoline, water, ice, storage, and marine supplies are available.

(347) **Berrys Creek Canal** flows into the Hackensack River from westward 6.8 miles above the mouth. A midchannel depth of about 11 feet is available to the bridge about 1 mile above the entrance. Two fixed highway bridges with a least clearance of 35 feet cross the creek just above the entrance. The bridge about 1 mile above the entrance has a clearance of 40 feet, and the overhead power cable close southward of the bridge has a clearance of 45 feet. The overhead power cable 0.8 mile upstream from the bridge has a clearance of 54 feet.

(348) **Overpeck Creek** flows into the Hackensack River from eastward 11.1 miles above the mouth. The bridges at the entrance have bascule and swing spans with a minimum clearance of 3 feet. (See **117.1 through 117.59 and 117.738**, chapter 2, for drawbridge regulations.) A dam, about 0.8 mile above the mouth, forms the head of navigation on the creek.

12. HUDSON RIVER

(1) This chapter describes the Hudson River from New York City to Troy, N.Y., and includes the principal cities of Yonkers, Newburgh, Poughkeepsie, Kingston, and Albany.

(2) **Mileages** shown in this chapter for the Hudson River as Mile 0.9E, Mile 12W, etc., are the nautical miles above The Battery; the letters N, S, E, and W denote by compass points the side of the river where each feature is located. Mile 0.0 is a point at the mouth of the Hudson River in 40°42.1′N., 74°01.5′W.

(3) It is to be understood that the mileages given are approximations. The values are not intended to be finite. The intended degree of accuracy is only supposed to be enough to put the user of the chart into the general vicinity of the cited object, for the purpose of him locating the object.

(4) **Charts 12335, 12341, 12345-12346, 12343, 12347-12348.–Hudson River**, sometimes called **North River** in New York City, has its source in the Adirondack Mountains, about 275 miles along its course from a junction with East River at The Battery, N.Y., and flows in a general southerly direction into New York Upper Bay. Troy Lock and Dam, 134 miles above The Battery, permits vessels to pass from tidewater to the upper river and the New York State Barge Canal System. The river water is usually fresh as far south as Poughkeepsie, halfway from Troy Lock and Dam to The Battery.

(5) New York City extends along the eastern bank of Hudson River for a distance of about 14 miles above The Battery. For about 5 miles northward from The Battery, the New York waterfront is an almost continuous line of wharves and piers, some of which can accommodate the largest transatlantic liners.

(6) On the opposite side of Hudson River from New York City are Jersey City, Hoboken, Weehawken, Guttenberg, Hudson Heights, Edgewater, and Fort Lee; this entire stretch of about 9 miles is lined with piers.

(7) **Channels.**–The lower Hudson River has depths of 43 feet or more in midchannel from deep water in Upper New York Bay off Ellis Island to the upper limit of New York City's major wharves at 59th Street, about 5.3 miles above the entrance. Above this point, the Federal project depth is 32 feet to Albany, except for that section of the channel along the New Jersey Weehawken-Edgewater waterfront between 85th Street and 156th Street, Manhattan, where the project depth is 30 feet. (See Notice to Mariners and latest editions of charts for controlling depths.)

(8) **Seasonal buoyage.**–The lighted buoys marking the Hudson River channel are replaced during the winter by smaller lighted ice buoys or unlighted buoys.

(9) **Bridges.**–The bridges over Hudson River from New York to Albany have either fixed or suspension spans.

(10) The limiting bridge clearance over the lower Hudson River is 139 feet, at the Tappan Zee Bridge (IS 87/287). The middle Hudson River has a limiting bridge clearance of 137 feet at the Mid-Hudson Bridge (US Route 44) at Poughkeepsie. The upper Hudson River has a limiting bridge clearance of 135 feet at the Castleton-on-Hudson Bridge (New York State Thruway/IS 90 E-W). The least clearance of the overhead cables is 145 feet.

(11) **Anchorages.**–General anchorages begin 5 miles above The Battery and extend upriver for about 10 miles. (See **110.1 and 110.155,** chapter 2, for limits and regulations.)

(12) Vessels proceeding from New York to Albany occasionally anchor overnight in the vicinity of Kingston, 79 miles above The Battery and 47 miles below Albany, to await daylight hours for passing through the constricted part of the river.

(13) A buoyed anchorage, 400 feet wide and 2,400 feet long, with depths of 32 feet is on the east side of the channel just above Stuyvesant, 111 miles above The Battery and 15 miles below Albany.

(14) **Dangers.**–Numerous fishtraps are planted each spring, usually from about mid-March to mid-May, during the seasonal run of shad to the spawning grounds in the upper Hudson. The charts show the fishtrap areas in the 30-mile stretch beginning about 5 miles above The Battery and extending upriver to Stony Point; Corps of Engineers permits are required for the placing of shad nets and poles in the charted areas. Outer limits of the nets usually are marked by flags during the day and by lights during the night. Caution is advised when navigating a fishtrap area because broken-off poles from previous traps may remain under the surface.

(15) Navigation of the river is easy as far north as Kingston, but above Kingston it is more difficult because of the numerous steep-to shoals and middle grounds. In general tows are apt to follow the shoreline which is most favorable as regards wind and current; with a strong northwest wind, tows will follow the west shore regardless of the direction in which they are traveling.

(16) **Tides.**–The tides in Hudson River are affected by freshets, winds, and droughts. Because of these variables the predictions given in the Tide Tables for points above George Washington Bridge are based upon averages for the 6-month period, May to October, when the freshwater discharge is at a minimum.

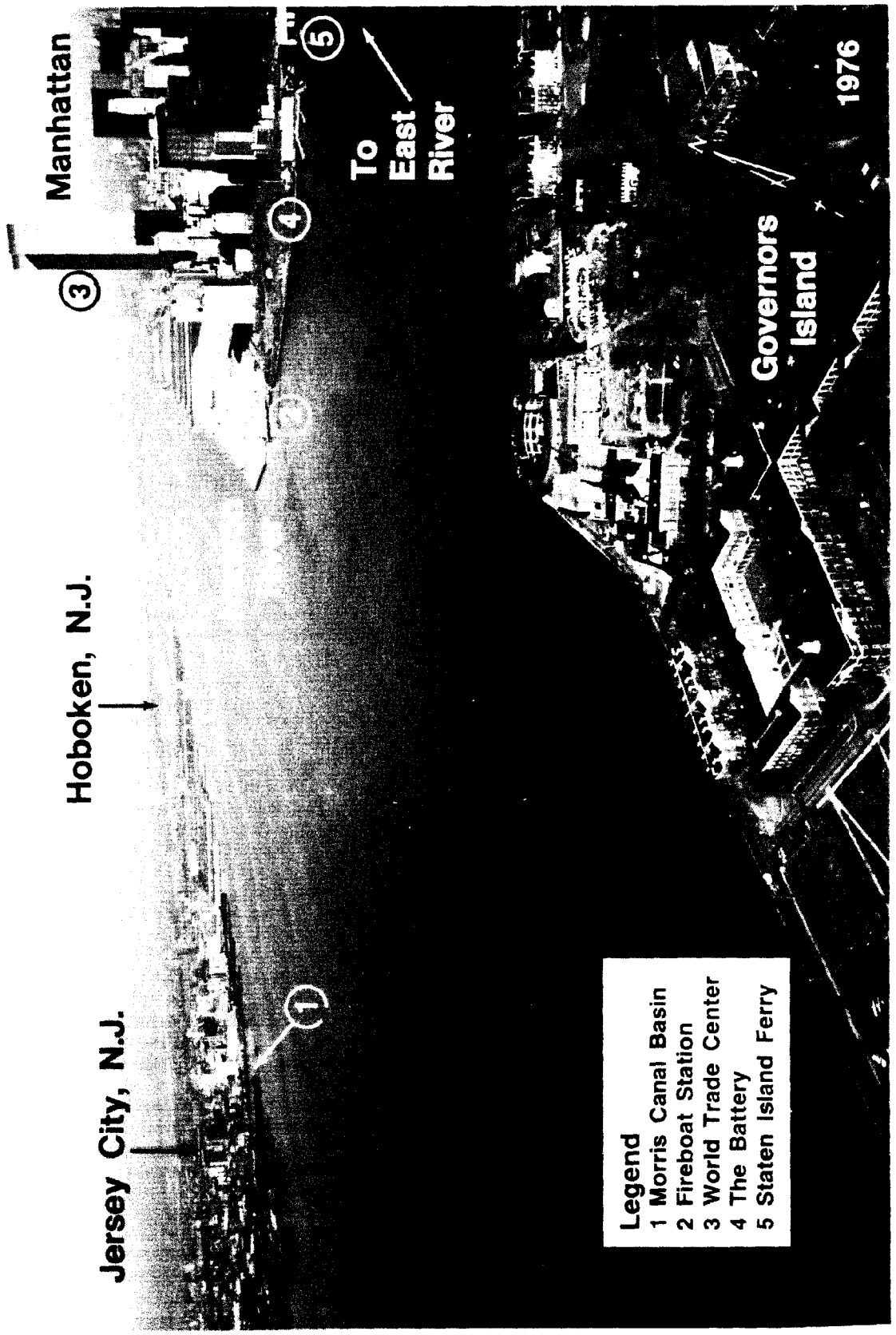
(17) The mean range of tide is 4.5 feet at The Battery, 3.7 feet at Yonkers, 2.8 feet at Newburgh, 3.1 feet at Poughkeepsie, 3.7 feet at Kingston, 4.6 feet at Albany, and 4.7 feet at Troy. (Daily predictions for The Battery and Albany are given in the Tide Tables.)

(18) **Currents.**–The currents in Hudson River are influenced by the same variables that affect the tides. The times of slack water and the velocities and durations of flood and ebb are subject to extensive changes; the times of strengths are less likely to be affected. The currents usually set fair with the channels except in the vicinities of bends and wharves.

(19) Velocities of currents are 1.4 knots flood and 1.4 knots ebb northwest of The Battery, 1.6 and 2.2 knots at George Washington Bridge, 0.9 and 1.1 knots at Newburgh, 1.1 and 1.2 knots at Poughkeepsie, 1.3 and 1.6 knots at Kingston, and 0.3 knot flood and 0.8 knot ebb at Albany. Near Troy Lock and Dam, the current does not flood and the ebb has a velocity of 0.7 knot. These values are for the summer when the freshwater discharge is at a minimum.

(20) Daily current predictions for The Narrows, New York Harbor, are given in the Tidal Current Tables. Predictions for places along Hudson River may be obtained by applying the differences and ratios listed for these places in the tables. The directions and velocities of the currents throughout New York Harbor for every hour of the tidal cycle are shown on the Tidal Current Charts, New York Harbor.

NEW YORK HARBOR



(21) In October 1991, tidal currents in The Narrows and New York Harbor were reported to deviate significantly from official predictions published by the National Ocean Service. Mariners should exercise caution and discretion in the use of published tidal current predictions.

(22) **Ice.**–In even extremely severe winters, Coast Guard icebreakers and continuous river traffic maintain an open channel to Albany. The ice season usually starts in early January and ends in mid-March. Normally shipping is affected most seriously in the Hudson River between Tappan Zee and Albany. Modern vessels experience little difficulty maneuvering through the ice, but may be slowed by other river traffic. In addition to the problem of getting through the ice, aids to navigation are covered or dragged off station by moving ice.

(23) **Freshets.**–During March, April, and May, freshets have reached heights above normal high water of as much as 18 feet at Albany and 25 feet at Troy Lock and Dam. At the time of the larger freshets the tide may be completely masked, the water continuing to rise and fall for a period of several days without any tidal oscillation. At the time of smaller freshets the range of tide is greatly diminished and the times of high and low waters are somewhat delayed.

(24) During the smaller freshets, the flood current disappears and the ebb current has a velocity of about 1.5 knots. The larger freshets produce an ebb current that varies from 1.5 to nearly 5 knots depending on the size of the freshet and the stage of the tide.

(25) **Pilotage, Hudson River.**–Pilotage is compulsory on the Hudson River for foreign vessels and U.S. vessels under register. Pilotage north of Yonkers is available from Hudson River Pilots Association, 75 Alexander Street, Yonkers, NY 10701, telephone 518-432-7126, FAX 518-449-4762, cable address HUDPILOTS. Pilot boat, JOHN E. FLYNN, is 40-foot, with black hull, white superstructure, and the word PILOT in red letters, each side. The boat berths at Yonkers, and when underway monitors VHF-FM channel 13, works channels 13 or 18A. The pilot boat meets vessels in midriver (40°56′21″N., 73°54′41″W.) off Yonkers. Arrangements for pilot services are made in advance through ships' agents; at least 24-hour advance notice is requested.

(26) Vessels transiting between Ambrose Light and Yonkers or between Long Island Sound and Yonkers are serviced by United New York New Jersey Sandy Hook Pilot Association.

(27) On the Hudson River, pilots maintain bridge-to-bridge communication on channel 13.

(28) **Towage.**–Tugs are available in New York Harbor and at Albany. (See chapter 11, and Albany later in this chapter.)

(29) **Quarantine, customs, and immigration.**—Matters pertaining to these services for places along Hudson River are handled at the Port of New York or at Albany. (See chapter 11, New York Harbor, and Albany later in this chapter.)

(30) **Chart 12335.**–Hudson River averages about 0.6 mile in width along this 5-mile stretch above The Battery. The chart covers most of the principal wharves on the New York City side and those of **Jersey City, Hoboken**, and **Weehawken** on the west, or New Jersey, side.

(31) **Chart 12341.**–On the New Jersey side of the river are the piers of **Guttenberg**, mile 5.5W; **Hudson Heights**, Mile 6.5W; **Edgewater**, Mile 7.5W; and **Fort Lee**, Mile 9.5W. Small-craft facilities at Edgewater can provide berths, electricity, gasoline, diesel fuel, water, ice, limited marine supplies, storage, and hull and engine repairs. The largest mobile hoist can handle craft to 25 tons. In May 1981, depths of 5 to 7 feet were reported in the basins at the facilities.

(32) The New York side of the river is mostly parkway for the length of the chart. A marina, at Mile 5.5E, opposite Guttenberg, can provide berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, and minor engine repairs. In May 1981, depths at the marina were reported to range from 12 feet to bare. In May 1987, a sunken wreck was reported just northwest of the entrance to the marina in about 40°47.2′N., 73°59.2′W.

(33) **Sailors and Soldiers Monument**, Mile 6.2E, is a prominent landmark at 89th Street and Riverside Drive, Manhattan.

(34) **General Grants Tomb**, Mile 7.7E, is prominent at 123rd Street and Riverside Drive, Manhattan.

(35) **George Washington Bridge**, Mile 10, crosses Hudson River from Fort Lee, N.J., to **Fort Washington Point**, New York City. The suspension span is nearly 0.6 mile long from shore to shore, and the tops of the towers are about 600 feet above the water. The clearance at midriver is more than 200 feet.

(36) A **special anchorage** is on the N side of the George Washington Bridge at North Manhattan. (See **110.1 and 110.60 (o-3)**, chapter 2, for limits and regulations.)

(37) **Chart 12345.**–From Fort Lee, N.J., the rocky cliffs of **Palisades State Park** and adjoining **Tallman Mountain State Park** extend up the west side of the river for about 12 miles to Piermont, N.Y. The Palisades are 300 to 500 feet high and in places are thickly wooded with scrub.

(38) **Tubby Hook**, Mile 11E, has several small-boat landings.

(39) **Spuyten Duyvil Creek**, entered at Mile 12E, is marked by the railroad swing bridge over the mouth. The creek is the Hudson River entrance to Harlem River, which is described in chapter 9. Currents are swift and erratic around the mouth of the creek.

(40) **Englewood Boat Basin**, on the New Jersey side opposite Spuyten Duyvil Creek, has depths of 3 to 5 feet and can accommodate craft to 50 feet long; berths, gasoline, diesel fuel, and water are available.

(41) **Yonkers**, Mile 16E, adjoins the north side of New York City. Waterborne commerce is in petroleum products, sugar and syrup products, cement, sand, and other building materials.

(42) A sugar refining plant (40°55′45″ N., 73°54′21″W.) has a 400-foot marginal wharf with depths of 30 to 28 feet alongside and a deck height of 10 feet. The plant has 45,000 square feet of covered storage and is served by a conveyor system with two 20-ton hoppers for the receipt of raw sugar. Vessels berth outboard of two floating cranes moored at the face of the wharf.

(43) Several other private facilities at Yonkers, used mainly by barges, have reported depths of 12 to 30 feet alongside.

(44) The U.S. Volunteer Life Saving Corporation maintains small craft at Yonkers for search and rescue work. They can be contacted through the Coast Guard in New York.

(45) **Chart 12346.–Alpine** is a prominent landing at Mile 16W. A boat basin here, operated by the Palisades Interstate Park Commission, affords shelter for numerous small craft; berths, gasoline, electricity, and water are available. In May 1981, 4 feet was reported in the basin.

(46) A **special anchorage** adjoins a yacht club on the Yonkers side of the Hudson River, 17 miles above The Battery; another **special anchorage** is about 0.5 mile to the northward. (See **110.1 and 110.60 (o) and (o-1)**, chapter 2, for limits and regulations.)

(47) Several private boat clubs are at **Greystone Station**, just north of Yonkers; guest moorings are available.

(48) **Hastings-on-Hudson**, Mile 19E, has several prominent stacks and tanks along its waterfront which are floodlighted at night. The 45-foot T-head pier of the Tappan Tanker Terminal, near the southern end of the waterfront, has depths of 35 feet alongside, deck height of 7 feet, and can provide 200 feet of berthing space with dolphins.

(49) A private boat club is immediately southward of the tanker terminal; guest moorings are available. A yacht club, northward of the marina, is adjoined by a **special anchorage.** (See **110.1 and 110.60 (p)**, chapter 2, for limits and regulations.) Limited guest berths and gasoline are available. In May 1981, a reported depth of 4 feet could be carried to the fuel dock.

(50) The **boundary line** between the States of New Jersey and New York extends northwestward from a point on the west side of Hudson River at Mile 19. The river is 0.8 mile wide at this point.

(51) **Dobbs Ferry** is a town at Mile 20.5E. A stack on the waterfront and several cupolas are prominent.

(52) **Irvington**, Mile 22E, has a large lumber terminal at the southern end of the waterfront, and a small private wharf at the northern end. In May 1981, alongside depths of 7 to 10 feet were reported at the lumber wharf. A private boat club is just north of the terminal wharves; guest moorings are available.

(53) At **Piermont**, Mile 22W, an earthen embankment extends 0.8 mile channelward from the shore to **Piermont Pier.** ConRail has a terminus at the inner end of the embankment; several buildings in Piermont are prominent. A T-head pier, used by Columbia University to moor its geological research vessels, extends from the outer end of Piermont Pier; depths of about 16 feet are reported alongside the face. The ruins of a former ferry slip and other piers and several visible wrecks are on the south side of Piermont Pier.

(54) **Chart 12343.**–A foul area, marked at its northeastern end by a seasonal lighted buoy, extends about 300 yards northward from the outer end of Piermont Pier. A sunken wreck is just southward of the buoy; caution is advised.

(55) In May 1981, shoaling to an unknown extent was reported in the area from the outer end of Piermont Pier north to **Lower Nyack Landing,** Mile 24.6W; caution is advised.

(56) Several small-craft facilities are just northward of Piermont Pier. Berths, electricity, water, ice, storage, marine supplies, mobile hoists up to 10 tons, and hull and engine repairs are available. In May 1981, reported depths of 4 feet could be carried to the facilities. A scuba diving team of the Piermont Volunteer Fire Department is available for underwater search and rescue work. They can be contacted through the Piermont Police Department; telephone (914-359-0240).

(57) **Tappan Zee** is the 2-mile-wide part of Hudson River between Piermont and Croton Point, 8 miles to the northward.

(58) **Tappan Zee Bridge IS 87/287,** Mile 23.5, crosses Tappan Zee from Nyack to Tarrytown. The fixed span over the main channel has a clearance of 139 feet. The 500-foot east and west spans, on either side of the main span, have clearances of 123 feet. Three auxiliary openings for small boats have clearances of 11 feet.

(59) **Tarrytown**, Mile 24E, has about 1 mile of developed waterfront, part of which has been improved by dredging.

(60) An abandoned lighthouse and the large buildings of an automobile assembly plant are prominent at Tarrytown. In October 1992, the controlling depths in the dredged channel in Tarrytown Harbor were 10 feet (11 feet at midchannel) in the southwest connecting channel, thence 11 feet (12 feet at midchannel) in the northwest connecting channel, and 8½ feet (11 feet at midchannel) in the waterfront channel. An obstruction, consisting of rocks, is on the east edge of the waterfront channel in about 41°04.8′N., 73°52.2′W.

(61) Both access channels are buoyed. A lighted **048**°30′ range marks the southwest channel.

(62) Tarrytown Harbor usually is open to navigation throughout the year, but in severe winters ice floes from the upper river may temporarily block the channels.

(63) A **special anchorage** is at Tarrytown. (See **110.1 and 110.60 (p-1)**, chapter 2, for limits and regulations.)

(64) Several waterfront terminals, with depths of 10 feet alongside, are available at Tarrytown, and there are rail connections nearby. The wharves are used mostly for the receipt of petroleum products, sand, gravel, and crushed rock.

(65) A marina is southward of the principal wharves; berths, gasoline, diesel fuel, electricity, water, ice, marine supplies, and a 15-ton mobile hoist are available. Two private boat clubs are southward of the marina; a launching ramp is available.

(66) **Nyack** is on the west side of Tappan Zee at Mile 25W. Small-craft facilities at Nyack include a boatyard with a marine railway that can handle craft to 40 feet long for complete engine and hull repairs; the railway, just south of Lower Nyack Landing, can only be used at high tide. Storage facilities and marine supplies are available. A boat club on the north side of the waterfront can provide guest moorings. In May 1981, it was reported that 4½ feet could be carried to the gasoline dock.

(67) In May 1981, shoaling to an unknown extent was reported in the area from Lower Nyack Landing south to the outer end of Piermont Pier, Mile 22W.

(68) A **special anchorage** is at Nyack. (See **110.1 and 110.60 (o-2)**, chapter 2, for limits and regulations.)

(69) **Upper Nyack**, about 0.6 mile north of Nyack, has a boatyard with a 50-ton mobile hoist and a 20-ton fixed crane. The boatyard wharf has depths of about 5 feet at the face. Berths, electricity, gasoline, water, diesel fuel, ice, marine supplies, and complete engine and hull repairs are available.

(70) **Hook Mountain**, 730 feet high, is on the west side of Tappan Zee at Mile 27W. The summit is only 0.3 mile inland and is very prominent from the river.

(71) **Ossining** is on the east side of Tappan Zee at Mile 29E. In May 1981, depths of 5 to 6 feet were reported on the flats off the oil storage receiving facility piers at Ossining. **Sing Sing Prison**, a State penitentiary, is on the low flat shore on the south side of Ossining. Two water towers near the prison are prominent. A marina at the north end of town can handle craft to 15 tons for hull and engine repairs; marine supplies are available. There are also two boat clubs and a yacht club at Ossining; gasoline, water, ice, and guest berths are available. In May 1981, a reported depth of 4 feet could be carried to the yacht club gasoline dock.

(72) From Hook Mountain, Mile 27W, northward to Haverstraw, Mile 33W, the west bank of the Hudson River rises precipitously to heights of more than 800 feet.

(73) **Croton Point**, Mile 30E, is a long peninsula that extends 1.5 miles channelward from the main shore. Croton Point Park is on the southwest part of the peninsula. There are several prominent brick buildings at **Harmon,** near the inner end of Croton Point.

(74) **Haverstraw Bay** is the wide stretch of Hudson River between Croton Point and Stony Point, 5 miles to the northward; the greatest width is about 2.5 miles. The extensive flats in the eastern half of the bay have depths of 5 to 9 feet. The dredged channel through Haverstraw Bay is marked by seasonal lighted buoys and two lighted ranges.

(75) **Croton-on-Hudson,** on the east side of Haverstraw Bay at Mile 31.5E, has a yacht club.

(76) **High Tor**, 820 feet high, is on the west side of Haverstraw Bay at Mile 32W.

(77) **Haverstraw**, on the west side of Haverstraw Bay at Mile 33W., has several abandoned brickyards along its waterfront. Prominent on Bowline Point (41°12.2'N., 73°57.6'W.) are the cement stacks and large red rectangular buildings of a powerplant. A T-shaped pier, operated by the powerplant and marked by private lights, extends off Bowline Point.

(78) Two marginal wharves, used by barges and operated by sand, stone, and gravel companies, are about 0.7 mile southward of Bowline Point. In May 1981, depths of 7½ feet were reported alongside the wharves. A small private boat club is in the cove immediately northward of the more northerly wharf.

(79) **Grassy Point** is on the west side of Haverstraw Bay at Mile 34W. A gypsum pier, marked on its outer end by a private light, is on the south side of the point; depths of about 30 feet are reported alongside. Numerous small-craft facilities are north and south of Grassy Point. Berths, electricity, gasoline, diesel fuel, water, ice, storage, marine supplies, lifts to 40 tons, and engine and hull repairs are available. In May 1981, depths of 13 to 22 feet were reported in the cove south of the point.

(80) **Stony Point**, Mile 35W, is marked at the outer end by a light.

(81) **Verplanck Point**, Mile 35.5E, is marked on its northwestern side by prominent gray eroded banks of tailings from a trap-rock plant. Two oil receiving facilities at Verplanck Point have depths of 8 to 12 feet reported alongside. Small-craft facilities on the point can provide berths, electricity, gasoline, diesel fuel, water, ice, storage, and limited marine supplies; lifts to 30 tons are available for hull and engine repairs. In May 1981, reported depths of 4 feet could be carried to the facilities.

(82) **Indian Point**, on the east side of Hudson River, 1.7 miles northward of Verplanck Point, is the site of a nuclear powerplant. A tall red and white banded stack, lighted on top, and two large domes are conspicuous on the point.

(83) **Tomkins Cove**, a town at Mile 36W, has a large stone quarry, a rock crusher, and a trap-rock plant. The offshore pier connected to the shore by a conveyor system has 700 feet of berthing space with dolphins; depths of 15 to 25 feet are reported alongside. Crushed rock is shipped by barge. Numerous beached barges south of the pier are prominent. A powerplant pier, just northward of the wharf, consists of four cement steel-filled cells, the center two of which are connected to each other and the shore by a steel catwalk. Depths of about 40 feet were reported alongside.

(84) An overhead power cable with a clearance of 160 feet crosses the Hudson River north of Tompkins Cove.

(85) **Peekskill** is at the head of a shallow bight at Mile 38E. A dredged U-shaped channel extends northeastward from deep water in Hudson River to the wharf area and thence northwestward back to deep water. The southern channel is marked by buoys and a light. In October 1979, the controlling depths were 4½ feet in the south channel, 2½ feet in the north channel, and 1 foot in the channel west of the wharves.

(86) A yacht club at Peekskill has guest berths, gasoline, electricity, water, ice, and engine repairs.

(87) **Caution.**–In August 1985, it was reported that the channel on the north side of Peekskill Bay was obstructed by a sewer outfall extending across from the entrance to Annsville Creek; caution is advised.

(88) **Annsville Creek** is a very shallow creek on the north side of Peekskill. The railroad bridge over the entrance has a bascule span with a clearance of 3 feet. The bridge is maintained in the closed position. (See **117.805,** chapter 2, for drawbridge regulations.) The highway bridge about 0.2 mile above the railroad bridge has a fixed span with a clearance of 19 feet.

(89) An oil receiving pier at **Roa Hook**, on the north side of Peekskill, has a reported depth of about 13 feet alongside.

(90) **Dunderberg Mountain,** 1,110 feet high, is a densely wooded mountain at Mile 38W. The mountain slopes eastward to **Jones Point**, which is low and flat.

(91) The river becomes much narrower at Jones Point and has an average width of 0.3 mile for the next 8 miles between the bases of the highlands on both sides. When approaching the sharp turns in this reach, caution should be exercised and a warning signal should be given.

(92) **Iona Island**, formerly a naval depot at Mile 40W, is controlled by the Palisades Interstate Park Commission. A light, shown from a skeleton tower on the north side of the island, is conspicuous.

(93) A rock, with a depth of 10 feet over it and marked by a buoy, is 0.2 mile north-northwestward of the northernmost point of Iona Island. When descending the river, particularly with a strong fair current, a careful watch should be maintained to avoid being set on this rock.

(94) **Bear Mountain State Route 6**, Mile 40.3W, is 1,305 feet high and has its summit about 1 mile inland. There are wharves at **Day Line Park**, on the riverbank at the foot of the mountain.

(95) **Anthonys Nose**, 900 feet high, is a steep, thickly wooded hill at Mile 40.5E.

(96) **Bear Mountain Bridge**, Mile 40.6 crosses the Hudson River from Bear Mountain to Anthonys Nose. The suspension span has a clearance of 155 feet.

(97) **Con Hook**, a small island at Mile 43W, is marked on its channel side by a light. A rock, with a depth of 7 feet over it and marked by a seasonal lighted buoy, is about 0.3 mile southward of Con Hook. When descending the river, particularly with a fair current, there is a tendency to set toward the rock; caution is advised.

(98) A tower at **Highland Falls**, Mile 44W, is prominent. Highland Falls has a small marina with transient berths for small craft up to 35 feet. The reported depth alongside the dock is 30 feet; electricity and water is available. A launching ramp is at the marina.

(99) A yacht club at **Garrison**, Mile 45E, has depths of about 20 feet alongside its fuel dock. Craft up to 60 feet in length can be accommodated at the slips; gasoline, water, electricity, and some marine supplies are available.

(100) **West Point**, Mile 45W, is the site of the **U.S. Military Academy**. The academy is easily recognized from the prominence of the buildings and the road leading up the hillside from the railroad station and wharfs on the riverbank.

(101) A **special anchorage** is at West Point. (See **110.1 and 110.60 (p-2)**, chapter 2, for limits and regulations.)

(102) The northeastern extremity of West Point descends to **Gees Point**, a rocky feature which is marked by a light with a fog signal. About 0.2 mile south of Gees Point, another light marks the outer edge of a rocky shallow area along the west bank.

(103) **Worlds End**, a sharp bend in the Hudson River at Mile 46, has depths of more than 100 feet. Extreme caution should be exercised when passing through Worlds End; the view is obstructed and vessels should reduce speed and sound a warning signal.

(104) **Constitution Island** is on the upper side of Worlds End at Mile 46.5E. **Magazine Point**, on the channel side of the island, is marked by a light.

(105) **Crows Nest,** Mile 47W, is 1,403 feet high and prominent. A boat club is at **Cold Spring**, Mile 47.3E.

(106) **Little Stony Point**, Mile 48E, is the site of a rock quarry.

(107) **Storm King Mountain**, 1,355 feet high, is prominent at Mile 49W.

(108) **Breakneck Point**, on the opposite side of Hudson River from Storm King Mountain, is marked by one highway tunnel and two railroad tunnels; the lights are prominent at night. Behind Breakneck Point is **Breakneck Ridge**, 1,196 feet high.

(109) **Cornwall-on-Hudson** is at Mile 50W. The wharf at Cornwall is in ruins. A boat club and a yacht club, about 0.6 mile southeastward of the wharf in ruins, can provide gasoline, water, and ice; guest moorings and a launching ramp are available. In May 1981, the reported depths were 10 feet at the gasoline dock and 3 feet in the basin.

(110) **Pollepel Island**, Mile 50E, is a private estate with buildings that resemble a medieval castle. A light is shown from a skeleton tower 0.1 mile off the west side of the island.

(111) **Newburgh**, Mile 53W, is a major petroleum distribution center. Most of the piers of the major oil companies are at **New Windsor**, the southern end of the 2-mile waterfront at Newburgh. Depths at the piers are reported to range from about 14 feet at the northern end to 35 feet at the southern end of the waterfront.

(112) The yacht club landing near the north end of the Newburgh waterfront has reported depths of about 10 feet alongside. The marine railways here can handle craft up to 46 feet for minor engine and hull repairs; berths, electricity, gasoline, diesel fuel, water, ice, launching ramps, and marine supplies are available. A shipbuilding company at Newburgh can make emergency repairs to commercial vessels. A marine railway at the yard can handle vessels to 140 feet, and cranes to 150 tons are available.

(113) **Beacon**, on the east bank of the Hudson River opposite Newburgh, has some manufacturing facilities. An oil pier at the southern end of the waterfront has a reported depth of 5 feet alongside. The **Newburg-Beacon Bridge (IS 84)**, two spanned fixed highway bridges, with a clearance of 147 feet for a middle 760-foot width and 172 feet at the center, crosses the river between Beacon and Newburgh. A private fog signal is at the bridge.

(114) Two submerged obstructions are reported about 150 yards south of seasonal Lower Hudson River Lighted Buoy 40, Mile 55. A submerged obstruction, covered ½ foot, is reported about 700 yards west of Buoy 40.

(115) **Chelsea,** Mile 56.5E, has a boatyard and yacht club; berths, electricity, gasoline, water, ice, marine supplies, and complete hull and engine repairs are available. A 12-ton mobile crane is available for do-it-yourself repairs.

(116) **Danskammer Point**, Mile 58W, is marked by a conspicuous powerplant with two large buildings, four stacks, a radio tower, and an oil receiving pier. There are numerous brickyards on both sides of the river between Newburgh and Danskammer Point, but most of them have been abandoned.

(117) **Chart 12347.–Wappinger Creek** is entered at Mile 58.5E through a channel that leads to just below **Wappingers Falls,** 1.6 miles above the entrance. In 1977, it was reported that the creek had silted in and was no longer navigable.

(118) The railroad bridge across the mouth of Wappinger Creek has a bascule span with a clearance of 1 foot. (See **117.813**, chapter 2, for drawbridge regulations.) The nearby overhead cables have a clearance of 43 feet over the creek. The fixed highway bridge about 300 yards above the railroad bridge has a clearance of 12 feet. An overhead power cable at the bridge has a clearance of 47 feet. An overhead power cable with a clearance of 31 feet crosses the creek about 1.5 miles above the mouth.

(119) **Diamond Reef**, with a depth of 5 feet over it and marked by a seasonal lighted buoy, lies in about the middle of Hudson River 0.2 mile above the entrance to Wappinger Creek. Between Diamond Reef and Poughkeepsie the west side of the river should be favored to avoid two 18-foot spots which are buoyed.

(120) A marina at **New Hamburg**, just north of the entrance to Wappinger Creek, has berths, electricity, gasoline, water, ice, a 12-ton lift, and marine supplies; hull and engine repairs can be made. In June 1981, depths of 20 feet were reported alongside the gasoline dock and 3 feet alongside the berths.

(121) A boat club at **Marlboro,** Mile 59.7W, can provide gasoline and water.

(122) **Poughkeepsie**, Mile 66E, is an important industrial center specializing in manufactured goods, oil, and lumber.

(123) **Mid Hudson Bridge (U.S. 44)**, a suspension span with a clearance of 137 feet, and a fixed railroad bridge with a clearance of 167 feet, 0.5 mile northward, cross the river at Poughkeepsie; both bridges are well lighted at night and are equipped with private fog signals. Submerged pilings, covered 2 feet, are reported to exist on the westerly side of the Hudson River between the second and third abutments of the railroad bridge.

(124) Several bulk oil receiving wharves with reported depths of 13 to 20 feet alongside are on the east shore about 1 mile south of the Mid Hudson Highway Bridge. A town park and a small-craft launching ramp are about 0.2 mile north of the highway bridge.

(125) A marina, near Mile 68E, has berths, electricity, gasoline, diesel fuel, water, ice, a launching ramp, a 10-ton crane, and marine supplies; minor engine repairs can be made. In June 1981, 15 feet was reported available alongside the fuel dock. Electronic repairs can be made in Poughkeepsie.

(126) **Hyde Park**, Mile 71E, is the birthplace of Franklin Delano Roosevelt, the 32d President of the United States. The residence and library are about 0.4 mile inland.

(127) A **special anchorage** is at Mile 72.7E. (See **110.1 and 110.60 (p-3)**, chapter 2, for limits and regulations.) The Poughkeepsie Yacht Club, just southward of the anchorage area, has berths, electricity, gasoline, diesel fuel, water, a 15-ton mobile hoist, ice, and a sewage pump-out facility. In June 1981, 8 feet was reported available alongside the gasoline dock.

(128) **Esopus Island**, Mile 73, is marked by a light on the south end. A ledge, partly bare at low water and extending about 300 yards from the north end, is marked by a buoy. The better channel is westward of the island. A prominent large graystone building is on the west side of the river above **Esopus**, about 1 mile north of Esopus Island.

(129) **Indian Kill** flows into the Hudson River at Mile 73.8E. At the entrance to Indian Kill is a small-boat basin operated by the State of New York as part of Taconic State Park. Private seasonal lights and buoys mark the entrance to the boat basin. In June 1981, the reported controlling depth was 7½ feet in the entrance channel with 5½ feet available in the basin. Gasoline, diesel fuel, water, ice, a sewage pump-out facility, and a 20-foot concrete launching ramp are available in the basin. Supplies can be obtained nearby.

(130) A shoal about 0.6 mile long and 150 yards wide with a least depth of about 16 feet is just west of the center of the channel, about 1.1 miles above Indian Kill entrance. The shoal is marked by a seasonal lighted buoy about midway along the east edge.

(131) **Middle Hudson River Light 11**, Mile 75.8, 21 feet above the water, is shown from a pole with a square green daymark on the northeast corner of the old lighthouse on the west side of the main channel. Shoals with depths less than 3 feet extend as much as 0.4 mile from either shore from about 1 mile below the light to Rondout Creek at Kingston. The shoal area on the east side of the river is marked by buoys.

(132) **Rondout Creek** is entered from the Hudson River at Mile 79W through a dredged channel that leads between two long, submerged jetties to **Eddyville**, about 3 miles above the channel entrance. The jetties are marked by lights at the outer ends and by daybeacons. In 1982, the controlling depth was 13 feet from the entrance to the highway bridge about 1.1 miles above the mouth, thence 10 feet to the southwest end of Gumaer Island, thence 7 feet to the head of the dredged channel at Eddyville. The channel is partially marked by lights and buoys. The head of practical navigation is at the lock of the abandoned **Delaware and Hudson Canal**, 3.3 miles above the entrance. The lower 2-mile portion of Rondout Creek serves as a harbor for Kingston.

(133) **Kingston** is partly on the lowlands adjacent to the north bank of Rondout Creek and partly on the elevated plateau to the north and westward of it. Waterborne traffic consists chiefly of sand, gravel, crushed rock, brick, and petroleum products.

(134) **Bridges.**–Rondout Creek is crossed by a fixed highway bridge with a clearance of 56 feet, about 1 mile above the entrance, a highway suspension bridge with a clearance of 86 feet, about 0.1 mile above the fixed bridge, and the Conrail fixed railroad bridge with a clearance of 144 feet, about 2 miles above the entrance. An overhead power cable with a clearance of 75 feet crosses the creek about 0.45 mile above the railroad bridge.

(135) **Tides.**–The mean range of tide at the entrance to Rondout Creek is about 3.7 feet.

(136) **Small-craft facilities.**–There are several small-craft facilities on Rondout Creek. Berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, launching ramps, a sewage pump-out facility, and wet and dry storage are available as far upstream as Eddyville. Lifts to 25 tons and a 75-foot marine railway can handle craft for hull and engine repairs.

(137) **Charts 12347, 12348.**–In the Hudson River above Kingston many shoals with depths less than 3 feet are in midriver or extend from the shore on either side. The bottom is rocky at many of the bar crossings. Most of the channels through the critical areas are marked with lights and buoys, but strangers in all except small boats are advised to take a pilot. Pilots are engaged at New York.

(138) **Chart 12347.–Kingston Point**, Mile 80W, is an oil terminal. Tugs and barges drawing 15 to 20 feet transport petroleum products both up and down the river from this terminal.

(139) **Kingston-Rhinecliff Bridge State Route 199** crosses the Hudson River at Mile 82.7. The fixed channel spans have a clearance of 135 feet. A private fog signal is at the bridge.

(140) **Esopus Creek** is entered at Mile 88.5W. The entrance is between two dikes; both are marked by lights. **Saugerties** is on the north bank of the creek about 1 mile above the entrance. In July-August 1983, the controlling depth was 7½ feet (11 feet at midchannel) to the steamboat wharf about 0.7 mile above the entrance. The mean range of **tide** is about 4 feet. Above the steamboat wharf several shoals bare at low water and there are many large boulders. Small craft, with local knowledge, use this area as an anchorage, but it should be avoided by strangers. A dam crosses the creek about 1.3 miles above the entrance. Small-craft facilities below the steamboat wharf can provide berths, electricity, gasoline, diesel fuel, water, ice, outside storage, and some marine supplies. A forklift can handle craft to 2 tons for engine and hull repairs; launching ramps are also available. In June 1981, depths of 15 to 20 feet were reported alongside the fuel dock.

(141) A rescue vessel of the Ulster County Sheriff's Department is at Saugerties. The Sheriff's office can be contacted through the Coast Guard on VHF-FM channel 16 or directly by telephone (914-338-3640).

(142) **The Maelstrom** is a dangerous whirlpool on the east side of the main channel about 2 miles north of Esopus Creek.

(143) Several large cement manufacturing plants that have prominent buildings and elevators are near **Cementon**, Mile 92.5W. Another cement factory is at **Dewitt Point**, 2 miles above Cementon. A wharf just below the point has a reported depth of 30 feet at the face. The landing for **North Germantown** is across the river opposite this wharf.

(144) **Catskill Creek**, marked at the entrance by buoys, is entered at Mile 97.5W. **Catskill** is about 1 mile above the mouth. A controlling depth of 6½ feet is available to about 100 yards above the highway bridge, 0.9 mile above the mouth. The bridge, which remains in a closed position, has a bascule span with a clearance of 14 feet. An overhead power cable about 200 yards above the bridge has a clearance of 60 feet. The north edge of the channel leads close to the end of the wharf at the entrance, then passes 75 feet off the first small pier, lying 200 yards inside the end of the wharf, and then passes close to the next small pier on the north side. The best water is then in midcreek when approaching the first sharp bend to avoid a rock with 4 feet over it about 50 feet off the western end of the wharf. The channel then favors the south bank until about 350 yards from the highway bridge, then follows the north bank to the highway bridge.

(145) A long wharf extends along the north side of Catskill Creek from the entrance to Catskill. Several small-craft facilities are on the creek. Berths, electricity, gasoline, diesel fuel, storage facilities, water, ice, marine supplies, a sewage pump-out facility, and lifts to 20 tons are available; hull and engine repairs can be made.

(146) **Rip Van Winkle Bridge State Route 23** crosses the Hudson River at Mile 98.7. The fixed span over the channel has a clearance of 142 feet. A private fog signal is at the bridge. High-voltage power cables with a clearance of 145 feet cross the river about 2.4 miles above the bridge. Red lights are atop the suspension towers on both sides of the river.

(147) **Hudson**, Mile 102E, is on a slope that rises from the east bank of the Hudson River. Waterborne commerce is in petroleum products. The bulk petroleum pier has reported depths of about 10 feet alongside. Gasoline, berths, electricity, water, and a launching ramp are available at a boat club at Hudson. In June 1981, depths of 20 feet were reported alongside the gasoline dock.

(148) **Athens** is on the west side of the Hudson River opposite Hudson. An asphalt receiving facility and a bulk petroleum storage facility are at Athens. Barges call at these facilities, which have reported depths of about 7 to 15 feet alongside. In June 1981, shoaling to an unknown extent was reported north of **Middle Ground Flats;** barges approach Athens through the channel south of the flats only. In October 1990, shoaling to an unknown extent was reported in the area between Athens and Middle Ground Flats. A small-craft facility at the north end of town has berths, electricity, gasoline, water, ice, and limited marine supplies, and can make minor engine repairs.

(149) **Chart 12348.–Coxsackie** is at Mile 108W. Berths, gasoline, electricity, water, and ice are available at a yacht club at the north end of town. A State-owned 20-foot concrete launching ramp is also available at Coxsackie.

(150) Cement and coal are shipped and gypsum is received at facilities about 1 mile above Coeymans; the marginal wharf has 666 feet of berthing space with dolphins and 32 feet reported alongside.

(151) A 32-foot buoyed **anchorage** basin is on the east bank of the river north of **Stuyvesant** about 3.1 miles above Coxsackie.

(152) A boatyard at **New Baltimore,** Mile 113.5W, can provide berths, electricity, gasoline, diesel fuel, water, storage, and marine supplies. A launching ramp and a 20-ton mobile hoist are available; hull and engine repairs can be made. In June 1981, a reported depth of 20 feet was available at the fuel dock with 6 feet at the berths.

(153) **Coeymans**, Mile 115W, has a boatyard that can provide berths, electricity, gasoline, diesel fuel, water, ice, and a 12-ton lift; hull and engine repairs can be made.

(154) A submerged jetty, marked by daybeacons, is just E of Coeymans.

(155) A **special anchorage** is at Coeymans. (See **110.1 and 110.60 (v),** chapter 2, for limits and regulations.)

(156) The Conrail fixed railroad bridge with a clearance of 139 feet crosses the Hudson River at Mile 117.8. An overhead power cable just southward of the bridge has a clearance of 185 feet. The **Castleton-on-Hudson Bridge (New York State Thruway, IS 90 E-W)**, a fixed highway bridge, about 150 yards above the railroad bridge has a clearance of 135 feet.

(157) **Castleton-on-Hudson**, Mile 119E, has a boat club that can provide berths, electricity, gasoline, diesel fuel, water, ice, and a launching ramp. Gin poles are available at the boat club for stepping masts. In June 1982, depths of 9 feet were reported alongside the docks.

(158) The Castleton Fire Department maintains a rescue vessel at the boat club for emergency medical assistance, firefighting, lifesaving, and damage control. The rescue vessel can be contacted through the Coast Guard on VHF-FM channel 16, or by telephone (518-272-5501).

(159) A **special anchorage** is at Mile 120W, just below **Cedar Hill.** (See **110.1 and 110.60 (w),** chapter 2, for limits and regulations.)

(160) Overhead power cables crossing the river at Mile 122.9 and Mile 123.1 have clearance of 169 and 194 feet, respectively.

(161) **Albany**, Mile 126W, is the capital of New York State and the principal port on the river above New York City. The port of Albany is the terminus for deep-draft vessels on the Hudson River and serves as a transshipping point for the immediate vicinity, large areas of New England, and most of the areas accessible by waterways.

(162) Waterborne commerce at the port is mostly in petroleum products, but grain, automobiles, coal, molasses, scrap iron, aggregates, lumber, wood byproducts, bananas, steel, chemicals, and general cargo are also handled.

(163) The Albany Port District includes the lower harbor between points about 0.2 mile below and 1.9 miles above the entrance to Island Creek (42°36′26″N., 73°45′50″W.), and the upper harbor extending northward of this point to the northern limits of Albany on the west side and **Rensselaer** on the east side.

(164) **Channels.**–The Federal project depth is 32 feet from New York Harbor to Albany. Above the Port of Albany, the project depth is 14 feet to the Troy Lock and Dam. (See Notice to Mariners and latest editions of the charts for controlling depths.)

(165) **Anchorages.**–The restricted width of the river at Albany is not sufficient to permit vessels to swing at anchor without interfering with passing craft. However, in an emergency, vessels sometimes anchor in midstream to wait for berthing space.

(166) **Bridges.**–The Dunn Memorial fixed highway bridge with a clearance of 60 feet crosses Hudson River at Albany at Mile 126.4. The Conrail/Amtrak railroad bridge has a swing span with a clearance of 25 feet. (See **117.1 through 117.59 and 117.791**, chapter 2, for drawbridge regulations.) An overhead power cable at the railroad bridge has a clearance of 135 feet.

(167) **Tides.**–The mean range of tide at Albany is 4.6 feet. (For daily predictions see Tide Tables.) **Tidal currents** for Hudson River are described at the beginning of this chapter.

(168) **Weather, Albany and vicinity.**–The climate at Albany is primarily continental in character, but is subject to some modification from the maritime climate which prevails in the extreme southeastern portion of New York State. The moderating effect on temperatures is more pronounced during the warmer months than in the cold winter season when outbursts of cold air sweep down from Canada with greater vigor than at other times of the year. In the warmer portion of the year temperatures rise rapidly during the daytime to moderate levels. As a rule, temperatures fall rapidly after sunset so that the nights are relatively cool. Very occasionally, the area experiences extended periods of oppressive heat up to a week or more in duration.

(169) The highest temperature of record is 100°F (37.8°C) recorded both in July and September 1953. The extreme minimum temperature at Albany is -28°F (-33.3°C) recorded in January 1971. The average temperature for Albany is 48°F (8.9°C). The average high is 58°F (14.4°C) and the average low is 37°F (2.8°C). July is the warmest month with an average high of 83°F (28.3°C) and an average low of 60°F (15.6°C). January is the coldest month with an average high of 31°F (-0.6°C) and an average low of 13°F (-10.6°C). An average of 11 days each year records maximum temperatures in excess of 90°F (32.2°C) and an average of 147 days records extreme minimums below 32°F (0°C). An average of 22 days each year will have an extreme minimum below 5°F (-15°C).

(170) Precipitation is sufficient to serve the economy of the region in most years, and only occasionally do periods of drought become a threat. A considerable portion of the rainfall in the warmer months is from showers associated with thunderstorms, but hail is not usually of any consequence. Average annual precipitation totals nearly 36 inches (914 mm) and is evenly distributed throughout the year. The difference between the driest month, February, and the wettest month, June, averages exactly one inch (25.4 mm). Precipitation falls an average 205 days each year with the early winter season being the most likely time. Thunderstorms occur on average 24 days each year with June, July, and August being the most favored period.

(171) Winters are usually cold and occasionally fairly severe. Maximum temperatures during the colder winter months often are below freezing, and nighttime low temperatures frequently drop to 10°F (-12.2°C) or lower. Sub-zero temperatures (<-17.8°C) occur rather infrequently, about a dozen times a year. Snowfall in the area is quite variable and over some of the higher nearby areas ranges up to 75 inches (1905 mm) or more for a season. Snow flurries are quite frequent during the cold months. The average annual snowfall is 63 inches (1600 mm) and snow can be expected each month, October through May. January is the snowiest month

averaging over 16 inches (406 mm). The 24-hour snowfall record is 22 inches (559 mm), and occurred in March 1993.

(172) On the whole, wind velocities are moderate. The north-south Hudson River Valley has had a marked effect on the lighter winds and the warm months usually average out as a south wind. Destructive winds occur infrequently.

(173) The area enjoys one of the highest percentages of sunshine that can be found in the State. This is true of the Hudson Valley area from Albany southward to the coast with slightly more sunshine progressively southward. Seldom does the area experience extended periods of cloudy days or extended periods of smog. Occasionally during the warm months, there are short periods when high humidity associated with temperatures above 85 F (29.4°C) is rather uncomfortable.

(174) Tornadoes are rather rare in the Albany area; six have been reported since 1826. Since 1871, eight tropical storms have approached within 25 miles of Albany. All have approached from the southwest, therefore have been greatly modified by the time traveled over land. The last storm to directly influence the Albany area was the remnants of Hurricane Gracie in September 1959. By the time Gracie reached Albany, it had completed the extra tropical transition and highest sustained winds were only 30 knots.

(175) (See page T-8 for **Albany climatological table.**)

(176) **Pilotage, Albany.**–See Pilotage, Hudson River (indexed as such), earlier this chapter.

(177) **Towage.**–Tugs up to 6,800 hp, based at New York City, and tugs up to 1,800 hp, based at Rensselaer, are available at Albany. Arrangements for tugs are usually made in advance by ships' agents.

(178) Albany is a **customs port of entry.**

(179) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(180) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(181) Albany has several hospitals.

(182) **Harbor regulations.**–Local rules and regulations for the port are handled by the Albany Port District Commission.

(183) **Wharves.**–There are about 30 waterfront facilities at Albany and Rensselaer; most are located on the west side of the Hudson River at Albany. All have highway connections and, with the exception of the petroleum berths, railroad connections. Cargo is generally handled by ships' tackle. Crawler and truck cranes up to 140 tons can be rented. The alongside depths given for each facility are reported; for information on the latest depths, contact the operator. Only the major facilities are described. For a complete description of the port facilities refer to Port Series No. 6, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

(184) **West side of Hudson River below Island Creek** (42°36′26″N., 73°45′50″W.):

(185) Sears Oil Co. Tanker Wharf: about 1.2 miles southward of Island Creek; offshore wharf, 191 feet with dolphins; 31 feet alongside; deck height, 10 feet; pipelines extend from wharf to storage tanks, total capacity of 2 million barrels; receipt of petroleum products; owned and operated by Sears Oil Co., Inc.

(186) Texaco North Wharf: about 0.85 mile southward of Island Creek; offshore wharf, 230 feet with dolphins; 32 feet alongside; deck height, 14 feet; pipelines extend from wharf to storage tanks, total capacity of 838,000 barrels; receipt and shipment of petroleum products; owned and operated by Texaco Inc.

(187) **West side of Hudson River above Island Creek:**

(188) Agway Petroleum Wharf: about 0.1 mile northward of Island Creek; offshore wharf, 260 feet with dolphins; 30 feet alongside; deck height, 11 feet; pipelines extend from wharf to storage tanks, total capacity of 334,000 barrels; receipt and shipment of petroleum products; owned and operated by Agway Petroleum, Inc.

(189) Cibro Petroleum Ship Dock: about 0.5 mile northward of Island Creek; bulkhead wharf, 1000 feet; 28 to 32 feet alongside; deck height, 16½ feet; pipelines extend from wharf to storage tanks, total capacity of about 193,000 barrels of asphalt, 955,000 barrels of fuel oil, and 450,000 barrels of crude oil; receipt of crude oil and petroleum products; receipt and shipment of asphalt; owned by Albany Port District Commission and operated by Cibro Petroleum Products, Inc.

(190) **Albany Port District Commission Berths 1 through 9:** provide 3,770 feet of continuous berthing; depths of 32 feet alongside; deck heights, 16½ feet; water and electrical shore power connections; owned by Albany Port District Commission.

(191) Berths 7, 8, and 9: about 0.8 mile northward of Island Creek; 1,270-foot marginal wharf; 10½-million-bushel grain elevator; special grain-handling equipment; conveyor-belt loading system, rate 1,340 long tons per hour; pipelines extend from wharf to molasses storage tanks; total capacity of 4½ million gallons; shipment of grain; receipt and shipment of molasses; operated by Albany Port District Commission, National Molasses Co., and Cargill, Inc.

(192) Berths 5 and 6: immediately northward of Berth 7; 750-foot marginal wharf; 60,000 square feet covered storage; 35 acres open storage; pipelines extend from wharf to storage tanks, total capacity of 7½ million gallons of molasses and 1 million gallons of liquid fertilizer; receipt and shipment of general cargo and liquid fertilizer; receipt of molasses; operated by Albany Port District Commission, Pacific Molasses Co., and Allied Chemical Corp.

(193) Berth 4: immediately northward of Berth 5; 425-foot marginal wharf; 26,000 square feet of covered storage; 28 acres open storage; receipt and shipment of general cargo; receipt of automobiles; operated by Albany Port District Commission.

(194) Berth 3: immediately northward of Berth 4; 425–foot marginal wharf; 72,000 square feet of covered storage; receipt of bananas; operated by Albany Port District Commission and United Brands, Inc.

(195) Berth 2: immediately northward of Berth 3; 300-foot marginal wharf; 28 acres open storage; receipt and shipment of general cargo; receipt of automobiles; operated by Albany Port District Commission.

(196) Berth 1: immediately northward of Berth 2; 600–foot marginal wharf; 45,000 square feet of covered storage; receipt and shipment of general cargo; receipt of automobiles; operated by Albany Port District Commission.

(197) Mobil Oil Corp. Ship Dock: about 200 yards northward of Berth 1; offshore wharf, 200 feet with dolphins; 29 feet alongside; deck height, 16 feet; freshwater connections; pipelines extend from wharf to storage tanks, storage tanks have a total capacity of 2¼ million barrels; receipt of petroleum products; owned and operated by Mobil Oil Corp.

(198) **East Side of Hudson River:**

(199) Amerada Hess Corp. Wharf: about 0.3 mile northward of Island Creek; offshore wharf, 290 feet with dolphins; 30 feet alongside; deck height, 8 feet; pipelines extend from wharf to storage tanks, total capacity of 1 million barrels; receipt of petroleum products; owned by Amerada Hess Corp., operated by Amerada Hess Corp. and Sun Refining and Marketing Co.

(200) Ultramar Petroleum Wharf: about 0.5 mile northward of Island Creek; offshore wharf; 180 feet with dolphins; 12 feet alongside; deck height, 11 feet; pipelines extend from wharf to storage tanks, total capacity of 1 million barrels; receipt and shipment of petroleum products; owned and operated by Ultramar Petroleum, Inc.

(201) Atlantic-Richfield Co. Rensselaer Wharf: about 0.65 mile northward of Island Creek; offshore wharf, 295 feet with dolphins; 33 feet alongside; deck height, 11 feet; water connections; pipelines extend from wharf to storage tanks, total capacity 1½ million barrels; receipt of petroleum products; owned by Atlantic-Richfield Co., operated by Atlantic-Richfield Co., Gulf Oil Products Co. and Amoco Oil Co.

(202) Petroleum Fuel and Terminal Co. Rensselaer Marine Terminal: about 0.75 mile northward of Island Creek; offshore wharf, 375 feet with dolphins; 32 feet alongside; deck height, 14 feet; pipelines extend from wharf to storage tanks, total capacity of 668,000 barrels; receipt and shipment of petroleum products; owned and operated by Petroleum Fuel and Terminal Co.

(203) Bray Terminals: about 0.8 mile northward of Island Creek; offshore wharf, 250 feet with dolphins; 23 feet alongside; deck height, 12 feet; water and electrical shore power connections; receipt and shipment of petroleum products; pipelines extend from wharf to storage tanks, total capacity of 646,000 barrels; owned by Bray Terminals, Inc., operated by Bray Terminals, Inc., and Getty Refining and Marketing Co.

(204) Port of Albany Rensselaer Wharf: about 1.25 miles above Island Creek; marginal wharf, 1,205 feet; 32 feet alongside; deck height, 16½ feet; pipeline extends from wharf to storage tank, total capacity 500,000 gallons; 20 acres open storage; 43,000 square feet covered storage; receipt of caustic soda, shipment of scrap metal; owned by Albany Port District Commission, operated by Albany Port District Commission and Ashland Chemical Co.

(205) **Supplies.**–Bunkering services for deep-draft vessels are not available at Albany; this service is obtained in New York. Diesel fuel, through metered pumps, is available for small vessels; water, marine supplies, and provisions are available.

(206) **Repairs.**–There are no drydocks or marine railway facilities for ocean-going vessels at the port of Albany. All types of repairs not requiring hauling out are available for steel and wooden hulls; machinery and boiler repairs and machine shop work are available.

(207) A marine repair facility at **Cohoes**, on the west side of the river 8 miles above Albany and 1.5 miles above the Troy Lock and Dam, is equipped to make all types of above-the-waterline repairs to tugs, barges, and other small vessels. The State of New York operates a drydock adjacent to Lock 3 of the Erie Canal at **Waterford,** just north of Cohoes. The graving dock is 450 feet long, 42 feet wide at the entrance, and has a depth of 14 feet over the keel blocks.

(208) **Small-craft facilities.**–A yacht club is on the east side of the Hudson River at Rensselaer at Mile 126.4, about 0.2 mile south of the fixed highway bridge; berths, electricity, gasoline, diesel fuel, and water are available. In June 1981, reported depths of 15 feet were available on the west side of the yacht club dock with 8 feet on the east side. A municipal launching ramp is at Mile 127.2W.

(209) **Communications.**–Albany is served by air and rail communications. The Delaware and Hudson Railroad serves facilities on the west side of the river while ConRail serves facilities on both sides of the river. The Albany Port Railroad Corporation, a terminal switching line, serves the waterfront facilities and property owned by the Albany Port District Commission and connects with the main line railroads.

(210) The **Patroon Island Bridge (IS 90)**, a fixed highway bridge, with a clearance of 60 feet crosses the Hudson River just above Albany at Mile 127.8.

(211) The **Troy-Menands Bridge (State Route 378)**, a vertical lift highway bridge, crossing the Hudson River at South Troy, Mile 130.5, is maintained in the closed position and has a clearance of 61 feet. (See **117.1 through 117.59 and 117.791**, chapter 2, for drawbridge regulations.) The overhead power cables between Albany and Troy have a least clearance of 87 feet. Red lights are shown from the suspension towers on both sides of the river.

(212) **Troy**, Mile 132E, is a manufacturing center. **Watervliet**, on the west side of the river opposite Troy, is the site of the United States Arsenal with a 755-foot stone bulkhead. The harbor extends from the southern limits of the city of Troy to the Troy Lock and Dam. Vessels usually berth on arrival, because the narrow width of the river and character of the bottom are not suitable for anchorage.

(213) The **Congress Street Bridge (State Route 2)** connecting Watervliet and Troy, at Mile 132.2, has a fixed span with a clearance of 55 feet. The highway-railroad bridge 0.5 mile upstream has a lift span with a clearance of 24 feet down and 129 feet up. (See **117.1 through 117.59 and 117.791**, chapter 2, for drawbridge regulations.) The bridge collapsed in 1977 and was being removed in 1978. In 1979, a vertical lift highway bridge with a design clearance of 29 feet down and 60 feet up was under construction on the alinement of the destroyed bridge. In 1978, the **Green Island Bridge (State Route 7)**, a fixed highway bridge, with a design clearance of 60 feet was under construction at Mile 132.9. A rock ledge is on the east side of the river at the highway-railroad bridge in about 42°44′07″N., 73°41′22″W.

(214) Well-equipped wharves at Troy have berthing space of about 2,400 feet and depths of 9 to 14 feet alongside. A mile-long concrete bulkhead extends along the waterfront. The only public docking facility is at the State barge canal terminal. The oil storage terminals on the island under the railroad bridge have depths up to 14 feet alongside. Facilities for repairs to hulls, machinery, and boiler equipment are available for vessels not requiring hauling out.

(215) The **Troy Lock and Dam** is about 8 miles above Albany. The lock dimensions are: length 492.5 feet; width 44.4 feet; depth over upper miter sill 16.3 feet at normal pool level; and depth over lower miter sill 13 feet at lowest low water. The lift at the lowest stages is 17.3 feet. The mean range of **tide** is about 4.7 feet below the lock. (See **207.50 and 207.60,** chapter 2, for navigation regulations for the lock and operating regulations for the dam.)

(216) **Caution.**–The area within about 500 feet below the Troy Dam is extremely dangerous because of the turbulence caused by water discharge from the dam. The danger area is marked by buoys.

(217) The Hudson River above the Troy Lock and Dam joins with the New York State Barge Canal System to form a connecting waterway westward to Lake Erie and Lake Ontario, and northward to Lake Champlain.

(218) The **New York State Barge Canal System**, comprising Erie Canal, Oswego Canal, Cayuga and Seneca Canal, and Champlain Canal, is under the jurisdiction of the State of New York. Navigation on the State canals is free except for mooring, dockage, wharfage, storage, or use of canal equipment or facilities for which a permit is required. Detailed data regarding movement through the New York State Barge Canal System may be obtained

from the New York State Canal Corporation, Office of Canals, 200 Southern Boulevard, P.O. Box 189, Albany, NY 12201-0189; telephone (518-471-5011).

(219) A toll free telephone number (1-800-422-1825) to receive prerecorded messages and for publicizing events and attractions along the canal system is available to mariners within the state of New York.

(220) **Controlling dimensions of channels, locks, and bridges.**–The **Great Lakes-Hudson River Waterway Improvement** is that part of the barge canal system including the Erie Canal from Waterford west to Three Rivers and thence the Oswego Canal to Lake Ontario. This section of the system, funded by the U.S. Government and maintained by the State of New York, has a project depth of 14 feet at normal pool level between locks and 13 feet at normal pool level through all locks and guard gates. These channels have widths of 104 feet in earth cuts, 120 feet in rock cuts, and 200 feet in river and lake sections.

(221) Elsewhere in the New York State Barge Canal System, the project depth is 12 feet in all channels and through all locks and guard gates. These channels have widths of 75 feet in earth cuts, 94 feet in rock cuts, and generally 200 feet in canalized rivers.

(222) Usable dimensions of the locks in the New York State Barge Canal System are 300 feet in length and 43½ feet in width. The locks and guard gates have depths of 12 feet over the sills at normal pool level, except 13 feet over the sills in the Great Lakes-Hudson River Waterway Improvement.

(223) The least clearance of bridges and cables over the Great Lakes-Hudson River Waterway Improvement is 20 feet. The least clearance of bridges and cables over the other waterways of the New York State Barge Canal System is 15 feet.

(224) The navigation season is normally from the first part of May to the latter part of November.

(225) **Erie Canal**, a 294-mile waterway, extends from the pool of the Troy dam in the Hudson River at Waterford westerly through the Mohawk River and landcuts to Oneida Lake, thence through Oneida, Seneca, and Clyde Rivers, landcuts, an artificial channel, and Tonawanda Creek to Niagara River at Tonawanda. The Niagara River connects the Erie Canal with Lake Erie at Buffalo.

(226) **Oswego Canal**, a 21-mile waterway, extends northward from the Erie Canal, 141 miles westward of the Troy dam, to Oswego where it joins Lake Ontario. For the most part the canal follows the Oswego River from its confluence with the Oneida and Seneca Rivers.

(227) **Cayuga and Seneca Canal** extends southward from the Erie Canal 177 miles west to the Troy dam. The canal follows the improved Seneca River to Cayuga Lake and extends through the lake to Ithaca at the south end. From the north end of Cayuga Lake, the canal follows Seneca River west to Seneca Lake and extends through the lake to Watkins Glen at the south end. A 2.2-mile canal extends south from Watkins Glen to Montour Falls. These lakes are two of the so-called Finger Lakes of central New York and are each about 30 miles in length.

(228) **Champlain Canal**, a 52-mile waterway, follows the Hudson River northward from Waterford for about 32 miles to Fort Edward, thence through a landcut and Wood Creek to Whitehall at the entrance to Lake Champlain.

(229) **Lake Champlain**, about 97 miles long from Whitehall to the Canadian border and up to 10 miles wide at its widest part, has considerable water commerce between the ports along its shores. The controlling depth is about 12 feet at low lake level through the main channel to the Canadian border and to the principal ports. The least overhead clearance is 92 feet at a fixed bridge at Crown Point, about 32 miles above Whitehall.

(230) An international waterway for commerce is available between the United States and Canada by the use of Champlain Canal, Lake Champlain, and the **Riviere Richelieu** and **Canal de Chambly,** which extend from the northerly end of Lake Champlain for about 70 miles in Canadian waters to the St. Lawrence River, 40 miles below Montreal. The size of vessels that can navigate this route is controlled by the least dimensions of the Canal de Chambly locks which are: usable length, 111 feet, 5 inches; width, 23 feet; depth over sills, 6½ feet. Bridges over the waterway are provided with draws; the least overhead clearance of cables is 120 feet. The least clearance for bridges across Canal de Chambly in the vicinity of the city of St. Jean, Quebec, is 29 feet. The navigation season is from about the middle of April to the middle of November.

(231) Permit requirements and toll charge information for Canal de Chambly and St. Ours Lock may be obtained from the Superintendent, Quebec Canals (see appendix for address).

(232) **Charts and Coast Pilot Information.**–The National Ocean Service's nautical chart coverage of the New York State Barge Canal System is as follows: chart 14786, all the canals from the Hudson River at Troy, N.Y., westward to Lyons, N.Y., and to Lake Ontario at Oswego; chart 14788, Oneida Lake; and chart 14791, Cayuga and Seneca Lakes. Charts of Lake Champlain are published by NOS.

(233) Coast Pilot information for the above waterways is contained in United States Coast Pilot 6 (formerly known as the Great Lakes Pilot), also published by NOS.

(234) Coverage of the canal system from Syracuse, west to the Niagara River at Tonawanda, NY, is contained in New York State Canal Guide, available from Mid-Lakes Navigation Company, Ltd., Box 61, Skaneateles, NY 13152, 1-800-545-4318; 315-685-8500.

(235) Charts and pilot information for the Riviere Richelieu, Canal de Chambly and other Canadian waters are available from the Canadian Hydrographic Chart Distribution Office (see appendix for address).

APPENDIX

(1) **Sales Information.**–National Ocean Service (NOS) and unclassified National Imagery and Mapping Agency (NIMA) publications and nautical charts are sold by NOS and its authorized sales agents in many U.S. ports and in some foreign ports. Mail orders should be addressed to:

(2) National Ocean Service,

(3) Distribution Division (N/ACC3),

(4) 6501 Lafayette Avenue,

(5) Riverdale, MD 20737-1199.

(6) Telephone orders may be placed (Visa or Mastercard accepted) by calling 1-800-826-0342 or 301-436-6990. Mail orders must be accompanied by a check or money order (payable in U.S. funds) payable to NOS, Department of Commerce. 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. The National Ocean Service maintains over-the-counter cash sales offices at Distribution Branch, Riverdale (see address above), and at 701 C Street, Box 38, Anchorage, AK 99513.

(7) **National Ocean Service Offices**

(8) **Washington, DC** (Headquarters): Assistant Administrator, National Ocean Service, NOAA, Herbert C. Hoover Bldg., 14th Street and Constitution Avenue, NW., Room 5805, Washington, DC 20230-0001.

(9) **Silver Spring:** Director, Coast and Geodetic 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) Atlantic Coast, North America.

(37) Pacific Coast, North America and Asia.

(38) **Tidal Current Charts/Atlas**

(39) Boston Harbor.

(40) Narragansett Bay to Nantucket Sound.

(41) Narragansett Bay.

(42) Long Island Sound and Block Island Sound.

(43) Delaware Bay and River Atlas.

(44) Upper Chesapeake Bay.

(45) Charleston Harbor, S.C.

(46) Tampa Bay.

(47) Puget Sound, Northern Part.

(48) Puget Sound, Southern Part.

(49) **Regional Tide and Tidal Current Table.**

(50) New York to Chesapeake Bay.

(51) **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 NOS Distribution Division (see address above).

(52) **Charts and Publications-Other U.S. Government Agencies**

(53) 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.

(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. Inquiries 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 and charts produced by the National Imagery and Mapping Agency (NIMA) are available from National Ocean Service Distribution Division (see Sales Information, at the beginning of this Appendix). Classified NIMA publications and charts are available to authorized users from the Defense Supply Center Richmond Attn: JNAA, 8000 Jefferson Davis Highway, Richmond, VA 23297-5336. Defense Supply

Center Richmond, Customer Assistance Office may be contacted at 1-800-826-0342.

(56) **Nautical Charts**

(57) U.S. Waters:

(58) 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, Ala. 36628-0001.

(59) 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, Miss. 39180-0060.

(60) 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.

(61) 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, Ill. 61201-2004.

(62) Foreign Waters: Published by National Imagery and Mapping Agency (see National Imagery and Mapping Agency Procurement Information above).

(63) **Marine Weather Service Charts**: Published by the National Weather Service; for sale by NOS Distribution Branch (see Sales Information above).

(64) **Publications**

(65) **Notices to Mariners**:

(66) 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) **Selected Worldwide Marine Weather Broadcasts**: Published by National Weather Service; for sale by the Government Printing Office. (See Government Printing Office, early this appendix.)

(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, Port Facilities Branch, Casey Building, Fort Belvoir, VA 22060-5586.

(79) **Maritime Radio User 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) ipss@ceob-g30.nos.noaa.gov (e-mail)

(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) ipss@ceob-g30.nos.noaa.gov (e-mail)

(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) ipss@ceob-g30.nos.noaa.gov (e-mail)

(108) **Publishers of Tide Tables and Tidal Current Tables:**

(109) **ProStar Publications**

(110) 13486 Beach Avenue

(111) Marina Del Rey, CA 90292

(112) TEL 1-800-481-6277

(113) FAX 1-310-577-9272 (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) **Corps of Engineers Offices**
(124) **New England Division Office:** 424 Trapelo Road, Waltham, MA 02254-9149.
(125) The New England Division, an operating division with both district and division functions, covers all of New England except western Vermont and small portions of Massachusetts and Connecticut along their western boundaries, and includes small portions of southeastern New York, all embraced in the drainage basins tributary to Long Island Sound and the Atlantic Ocean east of the New York-Connecticut State line. It also includes Fishers Island, N.Y.
(126) **New York District Office:** 26 Federal Plaza, New York, NY 10278-0090.
(127) The New York District includes western Vermont, small portions of western Massachusetts and Connecticut, eastern and south-central New York, including Long Island, and northeastern New Jersey embraced in the drainage basins tributary to Lake Champlain and the St. Lawrence River system east thereof and to the Atlantic Ocean from New York-Connecticut State line to, but not including, Manasquan Inlet, N.J.
(128) It exercises jurisdiction, however, over all matters pertaining to the improvement of the Great Lakes to Hudson River waterway. Under the direction of the Secretary of the Army, the district engineer, as Supervisor of New York Harbor, also exercises jurisdiction under the laws enacted for the preservation of the tidal waters of New York Harbor, its adjacent or tributary waters, and the waters of Long Island Sound.

(129) **Environmental Protection Agency (EPA) Offices.**–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, Mass. 02203.
(131) **Region II** (New Jersey, New York, Puerto Rico, Virgin Islands): 26 Federal Plaza, New York, N.Y. 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, N.E., Atlanta, Ga. 30365.
(134) **Region V** (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin): 230 South Dearborn Street, Chicago, Ill. 60604.
(135) **Region VI** (Louisiana, Texas): First International Bldg., 1201 Elm Street, Dallas, Tex. 75270.
(136) **Region IX** (California, Hawaii, Guam): 215 Fremont Street, San Francisco, Calif. 94105.
(137) **Region X** (Alaska, Oregon, Washington): 1200 Sixth Avenue, Seattle, Wash. 98101.

(138) **Coast Guard District Offices**
(139) Commander, First Coast Guard District, 408 Atlantic Avenue, Boston, MA 02210-3350. Maine; New Hampshire; Vermont; Massachusetts; Rhode Island; Connecticut; New York except that part north of latitude 42°N. and west of longitude 74°39′W; that part of New Jersey north of 39°57′N. (about the mouth of Toms River), east of 74°27′W. and northeast of a line from 39°57′N. 74°27′W. north west to the New York, New Jersey, and Pennsylvania boundaries at Tristate.
(140) **Note:** A Marine Safety Office combines the functions of the Captain of the Port and Marine Inspection Office.
(141) The symbol (D) preceding an office indicates that a Documentation Office is at the same address.
(142) **Coast Guard Marine Safety Offices**
(143) (D) Boston, MA: 447 Commercial Street 02109-1045.
(144) Portland ME: 312 Fore Street 04112-0108.
(145) Providence, RI: John O. Pastore Federal Building 02903-1790.
(146) **Coast Guard Captains of the Port**
(147) Long Island Sound Captain of the Port, 120 Woodward Avenue, New Haven, CT 06512-3698.
(148) New York Captain of the Port, Governors Island, New York, NY 10004-5098.
(149) **Coast Guard Marine Inspection Offices**
(150) (D) New York, N.Y.: Battery Park Bldg. 10004-1466.
(151) **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 22. If channel 22 is not available to the mariner, communications may be made on channel 12. Selected stations guard the International Radiotelephone Distress, Safety and Calling Frequencies.
(152) **Massachusetts:**
(153) Cape Cod Canal (41°46.4′N., 70°30.0′W.). East entrance to the canal, near Sandwich, Mass.
(154) Cape Cod Coast Guard Air Station (41°37.5′N., 70°31.5′W.). On Cape Cod at Otis Air Force Base.
(155) Provincetown (42°02.7′N., 70°11.6′W.). On southwest side of harbor, about 0.4 mile southwest of town pier.
(156) Chatham (41°40.3′N., 69°57.0′W.). Southeastern Cape Cod, near Chatham Light.
(157) Woods Hole (41°31.2′N., 70°40.0′W.). On west side of Little Harbor, about 450 yards northward of Juniper Point.
(158) Brant Point (41°17.4′N., 70°05.5′W.). On west side of entrance to Nantucket Harbor, near Brant Point Light.
(159) Menemsha (41°21.0′N., 70°45.9′W.). West end of Martha's Vineyard, near Menemsha Light.
(160) **Rhode Island:**
(161) Castle Hill (41°27.7′N., 71°21.5′W.). On west shore of Newport Neck, near Castle Hill Light.
(162) Point Judith (41°21.7′N., 71°28.9′W.). On Point Judith, near Point Judith Light, 0.5 mile east of Point Judith Harbor of Refuge.
(163) **Connecticut:**
(164) New London (41°20.7′N., 72°05.7′W.). At Fort Trumbull, on west side of main channel northward of Greens Harbor.
(165) New Haven (41°16.4′N., 72°54.2′W.). On the north side of the jutting point, about 1.5 miles northward of Lighthouse Point.
(166) **New York:**
(167) Fishers Island (41°15.4′N., 72°01.9′W.). In Silver Eel Pond, on west end of island (manned during summer months only).
(168) Eatons Neck (40°57.3′N., 73°23.9′ W.). Near Eatons Neck Light, north shore of Long Island, east side of entrance to Huntington Bay.
(169) Montauk Point (41°04.3′N., 71°56.1′ W.). In Montauk Harbor, Long Island.

(170) Shinnecock (40°51.0′N., 72°30.3′ W.). East side of Ponquogue Point, 1.3 miles northwest of Shinnecock Inlet.

(171) Moriches (40°47.3′N., 72°45.0′W.). On the east side of the entrance to Tuthill Cove.

(172) Fire Island (40°37.5′N., 73°15.6′W.). Near west end of island, 0.2 mile northeast of Fire Island Light.

(173) Jones Beach (40°35.4′N., 73°33.4′W.). Near west end of Jones Beach.

(174) Rockaway (40°34.1′N., 73°53.1′ W.). On Rockaway Beach, 2.5 miles east of Rockaway Point.

(175) Coast Guard Air Station Brooklyn, Floyd Bennett Field (40°35.3′N., 73°53.5′W.). On Barren Island.

(176) Fort Totten (40°47.6′N., 73°46.9′W.). On the east side of Little Bay.

(177) New York (40°41.5′N., 74°01.0′W.). On Governors Island.

(178) **New Jersey:**

(179) Sandy Hook (40°28.2′N., 74°00.8′ W.). On the Bay side, 0.5 mile south of the northern extremity of Sandy Hook.

(180) **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 U.S. Virgin Islands. Transmissions are as follows:

(181) **By radiotelephone:** (a) upon receipt; (b) repeated 15 minutes later, (for urgent messages only); (c) text only on the first scheduled broadcast unless cancelled; (d) additional broadcasts at the discretion of the originator.

(182) **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.

(183) **Safety broadcasts** are preceded by the 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.

(184) **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 (VHF-FM channel 22A control stations are given, followed by remote antenna sites.):

(185) **NMF**, Boston, 2670 kHz, 1140 and 2340 e.s.t.

(186) **NMF-7**, Boston, channel 22a 0535 and 1735 e.s.t., antennas: Boston Bank Building, Boston (42°21.5′N., 71°03.5′W.), Eastern Point, Gloucester (42°34.8′N., 70°39.9′W.).

(187) **NMF-2**, Woods Hold, MA, channel 22A, 0505 and 1705 e.s.t., antennas: Pilgrim Monument, Provincetown (42°03′N., 70°11′W.), Nobska Point, Woods Hole (41°31′N., 70°39.5′W.), Brant Point, Nantucket Harbor (41°17.5′N., 70°06′W.).

(188) **NMY-41**, East Moriches, Long Island, 2670 kHz, 0710 and 1910 e.s.t., antenna: 1.5 miles north of Moriches Inlet (40°47.3′N., 72°44.9′W.).

(189) Channel 22A, 0710 and 1910 e.s.t., antennas: atop Montauk Point Light, 1.2 miles northwest of Shinnecock Inlet (40°50.9′N., 72°30.2′W.), and Fire Island CG Station (40°37.3′N., 73°15.7′W.).

(190) **NMK**, Cape May, 2670 kHz, 0603 and 1803 e.s.t., antenna: Cape May.

(191) Channel 22A, 0603 and 1803 e.s.t., antennas: Atlantic City, Cape May, Fortescue, and Indian River.

(192) **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 and message content follow:

(193) **Boston (NMF)(Station F)**

(194) First Coast Guard District Broadcast Notices to Mariners.

(195) Distress Urgent, and Safety messages.

(196) International Ice Patrol Reports (in season).

(197) Gale, storm, and hurricane warnings.

(198) Offshore marine weather forecasts for:

(199) New England continental shelf to 1000 fathoms;

(200) Gulf of Maine;

(201) Georges Bank;

(202) South of New England;

(203) South of Nova Scotia.

(204) Broadcast times: 0045, 0445, 0845, 1245, 1645, 2045 GMT.

(205) **Portsmouth (NMN)(Station N)**

(206) Fifth Coast Guard District Broadcast Notices to Mariners.

(207) Distress, Urgent, and Safety messages.

(208) Gale, storm, and hurricane warnings.

(209) 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.

(210) Broadcast times: 0130, 0530, 0930, 1330, 1730, 2130 GMT.

(211) **Miami (NMA)(Station A)**

(212) Seventh Coast Guard District Broadcast Notices to Mariners.

(213) Distress, Urgent, and Safety messages.

(214) Gale, storm, and hurricane warnings.

(215) Offshore marine weather forecasts for the southwest North Atlantic south of 32°N and west of 65°W.

(216) Broadcast times: 0000, 0400, 0800, 1200, 1600, 2000 GMT.

(217) **San Juan (NMR) (Station R)**

(218) Greater Antilles Section Broadcast Notices to Mariners.

(219) Distress, Urgent, and Safety messages.

(220) Gale, storm, and hurricane warnings.

(221) Offshore marine weather forecasts for:

(222) Puerto Rico and Virgin Islands water out 20 NM;

(223) Eastern Caribbean Sea east of 75°W.

(224) Broadcast times: 0200, 0600, 1000, 1400, 1800, 2200 GMT.

(225) **New Orleans (NMG)(Station G)**

(226) Eighth Coast Guard District Broadcast Notices to Mariners.

(227) Distress, Urgent, and Safety messages.

(228) Gale, storm, and hurricane warnings.

(229) Offshore marine weather forecasts for the Gulf of Mexico.

(230) Broadcast times: 0300, 0900, 1500, 2100 GMT.

(231) **Customs Ports of Entry and Stations**

(232) 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.

(233) **Northeast Region**

(234) Boston District:

(235) Ports of Entry: New Bedford and Fall River, Mass.; New London, Hartford, New Haven, and Bridgeport, Conn.

(236) Customs Station: Provincetown, Mass. (supervised by Plymouth port of entry).

(237) Providence District:

(238) Ports of Entry: Newport and Providence, R.I.

(239) **New York Region**

(240) New York District:

(241) Ports of Entry: Albany and New York, N.Y.; Perth Amboy, N. J.

(242) **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: refer to the local telephone directory for numbers:

(243) Bridgeport, CT: Sikorsky Memorial Airport, Stratford, CT 06497;

(244) Hartford, CT: Bradley International Airport, Windsor Locks, CT 06096.

(245) Newark, NJ: Newark International Airport, Building 51, Room 421, 07114.

(246) New York, NY: 30 Rockefeller Plaza, Mezzanine Floor, Room 9, 10112.

(247) Providence, RI: T.F. Green Airport, 562 Airport Road, Warwick, RI 02886.

(248) **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 area covered by this Coast Pilot. The Coast Guard broadcast coastal and offshore marine weather forecasts of the times and frequencies indicated:

(249) **NMN,** Portsmouth, Va.:

(250) 4426.0 kHz, 0030, 0500, and 2300 e.s.t.

(251) 6501.0 kHz, 0030, 0500, 0630, 1100, 1700, 1830, and 2300 e.s.t.

(252) 8764.0 kHz, 0030, 0500, 0630, 1100, 1230, 1700, 1830, and 2300 e.s.t.

(253) 13089.0 kHz, 0630, 1100, 1230, 1700, and 1830 e.s.t.

(254) 17314.0 kHz, 1230 e.s.t.

(255) Marine Weather Services Charts are available for the following areas covered by this Coast Pilot:

(256) Eastport, ME to Montauk Point, NY.

(257) Montauk Point, NY to Manasquan, NJ.

(258) 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.

(259) **NOAA Weather Radio.**–National Weather Service VHF-FM radio stations provide mariners with continuous FM broadcasts of weather warnings, forecasts, radar reports, and surface weather observations. These stations usually transmit on 162.55, 162.475, or 162.40 MHz. Reception range is up to 40 miles from the antenna site, depending on the terrain, type of receiver, and antenna used. The following VHF-FM radio stations with location of antenna are in or near the area covered by this Coast Pilot:

(260) KHB-35, Boston, Mass. (42°12′N., 71°06′W.), 162.475 MHz.

(261) KEC-73, Hyannis, Mass. (41°41′N., 70°20′W.), 162.55 MHz.

(262) WXJ-39, Providence, R.I. (41°48′N., 71°28′W.), 162.40 MHz.

(263) WXJ-42, Meriden, Conn. (41°33′N., 72°50′W.), 162.40 MHz.

(264) KHB-47, New London, Conn. (41°26′N., 72°08′W.), 162.55 MHz.

(265) WXM-80, Riverhead, NY (40°53′N., 72°43′W.), 162.475 MHz.

(266) KWO-35, New York, N. Y. (40°45′N., 73°58′W.), 162.55 MHz.

(267) 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 UTC time. For further information contact the National Weather Service, National Meteorological Center at (301) 763-8442, or fax (301) 899-8903.

(268) **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 WSFO's and their specific areas of broadcast coverage are as follows:

(269) Boston, MA: From New Hampshire-Massachusetts border to Watch Hill, RI, out 25 miles.

(270) New York, N.Y.: (1) From Watch Hill to Montauk Point, to and including Manasquan, N.J., out 20 miles; (2) Long Island Sound; (3) New York Harbor.

(271) **National Weather Service Port Meteorological Officers (PMOs).**–Port Meteorological Officers provide assistance on matters of weather chart interpretation, instruments, marine weather communication, 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:

(272) New York, N.Y.: 30 Rockefeller Plaza 10112.

(273) Newark, N.J.: Newark International Airport, Bldg. 51, 07114.

(274) **Public Health Service Quarantine Stations.**–Stations where quarantine examinations are performed:

(275) Boston: U.S. Quarantine Station. Logan International Airport, East Boston, Mass. 02128.

(276) New York: U.S. Quarantine Station, International Arrivals Bldg., J.F. Kennedy International Airport, Jamaica, NY 11430-1081.

(277) 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.

(278) **Food and Drug Administration (FDA) Regional Offices**

(279) **Northeast Region** (New York, Maine, Connecticut, New Hampshire, Vermont, Rhode Island): 830 Third Avenue, Brooklyn, NY 11232.

(280) **Mid-atlantic Region** (Delaware, Pennsylvania, Virginia, Maryland, Ohio, New Jersey): U.S. Customhouse, 2nd and Chestnut Streets, Philadelphia, PA 19106.

(281) **Southeast Region** (South Carolina, North Carolina, Georgia, Alabama, Louisiana, Mississippi, Florida, Puerto Rico): 60 Eighth Street, N.E., Atlanta, GA 30309.

(282) **Midwest Region** (Illinois, Indiana, Michigan, Wisconsin): 20 N. Michigan Avenue, Chicago, IL 60602.

(283) **Southwest Region** (Texas): 3032 Bryan Street, Dallas, TX 75204.

(284) **Pacific Region** (California, Hawaii, Alaska, Washington, Oregon): 50 U.N. Plaza, San Francisco, CA 94102

(285) **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.

(286) 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.

(287) **Connecticut:**

(288) Wallingford: Federal Bldg., P.O. Box 631, 06492.

(289) **Massachusetts:**

(290) Boston: U.S. Custom House 02109; Logan International Airport, East Boston 02128.

(291) **New Jersey:**

(292) Hoboken: 209 River Street 07030.

(293) **New York:**

(294) Albany: 80 Wolf Road, Suite 503, 12205.

(295) New York: 26 Federal Plaza 10007.

(296) New York: John F. Kennedy International Airport, International Arrivals Bldg., Jamaica 11430.

(297) **Rhode Island:**

(298) Warwick: 48 Quaker Lane, West Warwick 02893.

(299) **Animal Import Centers:**

(300) Honolulu, Hawaii: P.O. Box 50001, 96850.

(301) Miami, Fla.: 8120 NW 53rd Street 33166.

(302) Rock Tavern, N.Y.: New York Animal Import Center, Stewart Airport Rural Route 1, Box 74, 12575.

(303) **Immigration and Naturalization Service Offices**

(304) **Connecticut:**

(305) Hartford: Ribicoff Federal Bldg., 450 Main Street 06103-3060.

(306) **Massachusetts:**

(307) Boston: John F. Kennedy Federal Bldg., Government Center 02203.

(308) **New Jersey:**

(309) Newark: Federal Bldg., 970 Broad Street 07102.

(310) **New York:**

(311) Albany: U.S. Post Office and Courthouse, 445 Broadway 12207.

(312) Flushing: Flushing Federal Savings Bldg., 136–21 Roosevelt Avenue 11354.

(313) New York: 26 Federal Plaza 10278.

(314) **Rhode Island:**

(315) Providence: John O. Pastore Federal Bldg.-U.S. Post Office, Exchange Terrace 02903.

(316) **Federal Communications Commission Offices**

(317) **District field offices:**

(318) Boston, Massachusetts: U.S. Customhouse, 165 State Street 02109.

(319) New York, N.Y., 201 Varick Street 10014.

(320) **Canadian Government Agencies**

(321) Director General, Canadian Hydrographic Service, Department of Fisheries and Oceans, Ottawa, Ontario, K1A OE6, Canada.

(322) Hydrographic Chart Distribution Office, Department of Fisheries and Oceans, P.O. Box 8080, 1675 Russell Road, Ottawa, Ontario, K1G 3H6, Canada.

(323) Canadian Coast Guard, Department of Fisheries and Oceans, 340 Slater Street, Ottawa, Ontario K1A ON7, Canada.

(324) Canadian Communications Group, 45 Sacre-Coeur Boulevard, Hull, Quebec K1A OS9, Canada.

(325) **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.)

(326) NMF, Sandwich, Cape Cod, MA, U.S. Coast Guard on HF single-sideband radiotelephone channels 424 (4134 kHz), 601 (6200 kHz), 816 (8240 kHz), or 1205 (12242 kHz).

(327) WCC, Chatham, Cape Cod, MA, RCA Global Communications, Inc. maintains a continuous guard on 500 kHz.

(328) **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.

(329) Beach Channel, along south shore of Jamaica Bay 12350.

(330) Captain Harbor, on south side of Great Captain Island 12367.

(331) Eatons Neck, on west side of Eatons Neck 12365.

(332) Port Jefferson, off Port Jefferson Harbor 12362.

(333) Sandy Hook Bay, on south side of Sandy Hook Bay off Municipal Yacht Basin 12327.

(334) 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 TABLE

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.

NANTUCKET, MA (41°15'N, 070°04'W) Elevation 43 feet (13.1 m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1016.0	1015.6	1014.0	1014.6	1015.6	1014.7	1015.6	1015.9	1018.1	1017.7	1016.4	1017.1	1016.0	29
TEMPERATURE (DEGREES F)														
Mean	31.5	31.6	36.8	44.5	52.8	61.8	68.5	68.5	62.7	54.3	45.9	36.4	49.6	34
Mean Daily Maximum	38.0	37.9	42.9	51.0	59.7	68.5	75.1	74.9	69.4	61.0	52.2	42.9	56.1	34
Mean Daily Minimum	24.5	24.7	30.2	37.4	45.4	54.5	61.4	61.6	55.5	47.0	39.1	29.4	42.6	34
Extreme Highest	63	58	62	77	84	90	92	100	86	82	74	60	100	34
Extreme Lowest	1	0	7	20	28	35	47	39	34	22	18	3	3	34
RELATIVE HUMIDITY														
Average Percentage	35.5	30.7	15.1	21.4	31.2	22.2	30.9	34.5	56.1	51.7	38.7	45.8	34.5	29
CLOUD COVER														
Percent of time Clear	20.6	21.7	22.7	21.9	20.4	17.7	16.3	20.9	25.0	26.4	18.3	18.7	20.9	29
Percent of time Scattered	14.3	16.1	16.0	15.8	16.8	20.1	20.5	20.9	19.6	20.0	18.4	18.7	18.1	29
Percent of time Broken	12.8	13.7	13.5	14.0	16.2	19.3	20.1	19.3	17.2	16.8	16.8	14.8	16.2	29
Percent of time Overcast	52.3	48.6	47.9	48.3	46.5	42.9	43.0	39.0	38.2	36.8	46.4	47.9	44.8	29
PRECIPITATION														
Mean Amount (inches)	4.04	3.60	3.79	3.50	3.28	2.20	2.52	3.24	3.40	3.40	4.10	4.35	41.42	34
Greatest Amount (inches)	8.24	7.96	8.88	8.41	10.38	6.83	7.45	6.74	9.49	7.45	7.83	9.74	60.39	34
Least Amount (inches)	1.19	0.75	0.67	1.35	0.59	0.01	0.07	0.00	0.07	0.88	1.20	1.31	25.31	34
Maximum in 24 hrs. (inches)	2.70	2.21	2.38	3.17	6.48	2.68	4.37	3.37	4.98	3.05	4.93	4.25	6.48	34
Mean Number of Days with Precipitation	19	16	18	15	15	12	12	13	12	13	16	19	180	28
Mean Snowfall Amount (inches)	7.7	8.7	6.3	0.8	0.0	0.0	0.0	0.0	0.0	T	0.2	5.9	29.6	28
Greatest Snowfall Amount (inches)	38.9	35.1	40.2	9.5	0.0	0.0	0.0	0.0	0.0	T	2.7	24.7	73.4	28
Least Snowfall Amount (inches)	T	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	T	28
Maximum Snowfall in 24 hrs. (inches)	12.8	14.9	13.6	7.3	0.0	0.0	0.0	0.0	0.0	T	2.2	15.5	14.9	28
Mean Number of Days with Snow	11	10	8	2	0	0	0	0	0	Miss	2	9	42	28
WIND														
Percent of Observations with Gales (>34kts)	0.22	0.42	0.41	0.34	0.03	0.00	0.00	0.04	0.17	0.14	0.28	0.27	0.38	29
Mean Wind Speed (Knots)	12.4	12.8	12.9	12.4	11.1	10.2	9.4	9.3	10.0	11.0	11.4	12.0	11.3	29
Direction (percentage of Obs.)														
North	8.1	7.8	7.3	6.8	5.1	3.5	3.6	4.9	6.0	7.1	7.6	7.6	6.3	29
North Northeast	3.6	4.1	5.0	7.0	5.2	4.7	3.2	5.4	8.1	7.4	5.8	3.8	5.3	29
Northeast	2.9	4.4	4.4	4.7	5.1	4.9	3.5	5.3	8.1	7.9	4.6	3.4	4.9	29
East Northeast	3.0	3.7	4.4	4.1	5.1	3.7	2.6	3.3	6.1	5.9	4.1	3.7	4.1	29
East	2.7	3.6	4.6	3.8	3.9	3.1	2.9	3.4	4.9	5.0	3.7	3.8	3.8	29
East Southeast	2.6	3.5	4.0	3.3	4.0	3.1	2.9	3.5	3.5	4.2	3.5	2.8	3.4	29
Southeast	2.9	3.0	3.6	3.9	5.2	4.1	3.8	3.8	3.4	3.5	3.9	2.8	3.7	29
South Southeast	3.2	3.5	3.4	4.3	5.0	5.0	5.3	5.2	5.0	4.2	4.2	3.6	4.3	29
South	4.0	4.0	4.9	6.1	6.9	8.5	9.3	8.8	7.1	5.4	5.6	5.0	6.3	29
South Southwest	4.6	3.9	4.6	6.7	9.9	12.9	13.1	11.8	7.4	5.3	4.6	3.7	7.4	29
Southwest	4.6	5.6	6.5	10.4	13.9	18.6	18.8	15.0	11.0	8.6	6.4	4.4	10.3	29
West Southwest	6.2	6.9	7.8	12.0	12.5	13.1	14.6	12.7	9.7	9.0	6.5	6.3	9.8	29
West	7.9	8.4	8.0	7.7	5.5	5.8	6.7	6.4	6.1	6.4	7.1	7.0	6.9	29
West Northwest	14.3	13.4	10.5	6.3	3.7	3.3	3.3	3.8	4.1	6.7	11.5	13.6	7.9	29
Northwest	16.3	13.6	11.1	6.2	3.5	2.2	2.4	2.6	3.5	6.0	11.6	16.3	8.0	29
North Northwest	11.4	8.8	8.9	6.0	4.2	2.4	2.5	3.1	4.5	5.5	7.6	10.5	6.3	29
Calm	2.1	1.6	1.2	1.1	1.4	1.3	1.7	1.7	1.8	2.0	1.7	2.0	1.6	29
Direction (Mean Speed, knots)														
North	11.9	12.4	12.9	13.2	11.2	10.1	9.8	9.8	11.2	11.8	11.6	11.8	11.7	29
North Northeast	13.3	14.1	15.1	15.0	13.0	12.1	11.0	11.5	11.9	12.5	11.7	11.8	12.8	29
Northeast	13.9	13.4	13.9	13.0	12.9	11.8	10.0	10.5	10.3	12.3	10.2	11.0	11.9	29
East Northeast	12.9	12.6	13.5	12.7	11.7	10.4	9.1	9.4	10.3	10.8	11.0	11.5	11.4	29
East	12.3	12.8	13.1	12.2	10.4	9.3	7.9	8.4	9.0	9.6	10.6	11.3	10.6	29
East Southeast	11.7	13.7	14.0	12.3	11.0	9.8	8.6	9.2	10.3	11.5	12.0	13.0	11.5	29
Southeast	12.8	13.4	12.9	12.4	10.9	9.5	8.6	8.5	9.6	10.6	11.5	13.3	11.0	29
South Southeast	12.8	13.4	12.7	12.2	10.4	9.6	8.5	9.0	10.0	9.6	10.9	12.8	10.7	29
South	11.4	12.1	12.1	11.8	9.8	9.4	9.2	8.8	9.5	9.5	11.6	11.3	10.3	29
South Southwest	12.7	12.7	13.0	12.4	11.1	10.2	10.1	9.6	10.6	10.7	11.7	12.1	11.0	29
Southwest	12.3	12.0	11.5	11.9	11.3	10.4	10.1	9.5	9.8	11.3	11.7	12.0	10.8	29
West Southwest	12.6	12.7	13.0	12.8	12.1	10.9	10.0	9.9	10.5	11.7	12.5	13.5	11.6	29
West	12.4	13.6	12.9	12.0	10.4	10.1	9.2	8.8	8.8	10.6	11.3	12.2	11.2	29
West Northwest	13.0	13.8	13.1	11.8	9.9	9.9	8.7	7.9	9.0	10.6	11.9	12.2	11.9	29
Northwest	12.8	13.0	13.4	12.2	10.5	9.9	8.5	8.2	9.4	11.9	11.6	12.4	12.1	29
North Northwest	13.1	12.5	13.2	12.1	11.4	10.1	9.6	10.5	11.4	12.2	12.4	12.6	12.2	29
VISIBILITY														
Mean Number of Days with Fog	14	12	15	16	19	21	23	22	17	14	14	13	200	28
Percent Obs with Visibility <= 1/2 mile	4.09	4.90	4.70	5.36	7.65	10.93	13.12	8.70	6.20	3.80	3.54	3.06	6.33	29

CLIMATOLOGICAL TABLE

NEWPORT, RI (41°32'N,071°21'W) Elevation 10 feet (3 m)

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	1018.2	1017.3	1017.8	1017.8	1015.7	1016.2	1017.7	1019.8	1018.7	1017.0	1018.3	1017.9	2
TEMPERATURE (DEGREES F)														
Mean	30.8	31.6	38.2	47.0	56.2	65.0	71.1	70.9	64.6	55.2	45.9	35.3	51.1	34
Mean Daily Maximum	38.1	38.9	45.6	55.1	64.4	72.9	78.6	78.1	72.1	62.8	53.0	42.4	58.6	34
Mean Daily Minimum	23.0	23.8	30.3	38.4	47.4	56.6	63.1	63.2	56.6	47.1	38.3	27.6	43.1	34
Extreme Highest	65	65	74	86	89	93	96	98	93	81	75	65	98	34
Extreme Lowest	9	3	3	10	25	37	41	41	35	26	11	5	9	34
CLOUD COVER														
Percent of time Clear	11.7	10.6	6.6	10.2	10.1	10.3	18.6	13.9	15.7	15.6	12.4	11.3	12.3	3
Percent of time Scattered	26.0	29.0	27.5	26.1	29.5	22.4	15.0	17.5	19.1	19.9	22.2	31.9	23.7	3
Percent of time Broken	24.0	21.2	22.4	19.9	26.7	26.9	29.4	26.6	23.6	26.2	29.7	17.1	24.5	3
Percent of time Overcast	38.3	39.2	43.5	43.8	33.8	40.4	37.0	42.0	41.6	38.3	35.7	39.7	39.5	3
PRECIPITATION														
Mean Amount (inches)	3.82	3.69	4.40	4.28	3.59	3.04	2.94	3.29	3.69	3.30	4.57	4.38	45.01	35
Greatest Amount (inches)	11.81	6.53	10.63	10.54	8.99	9.26	6.47	12.91	10.60	6.46	9.85	8.98	63.46	35
Least Amount (inches)	0.90	0.86	1.17	1.19	0.87	0.63	0.89	0.44	0.25	1.51	0.89	0.91	27.65	35
Maximum in 24 hrs. (inches)	2.71	2.66	4.42	3.78	4.87	3.05	3.21	4.43	7.81	2.77	3.96	3.13	7.81	35
Mean Number of Days with Precipitation	16	15	16	16	16	14	14	14	13	12	15	17	178	14
Mean Snowfall Amount (inches)	7.2	6.6	2.5	0.2	0.0	0.0	0.0	0.0	0.0	T	0.5	3.4	20.3	32
Greatest Snowfall Amount (inches)	30.5	28.0	15.0	5.0	0.0	0.0	0.0	0.0	0.0	T	6.0	13.6	44.5	32
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	1.5	32
Maximum Snowfall in 24 hrs. (inches)	10.0	20.0	6.5	5.0	0.0	0.0	0.0	0.0	0.0	T	6.0	11.0	20.0	32
Mean Number of Days with Snow	7	8	4	1	0	0	0	0	0	Miss	1	5	26	14
WIND														
Percent of Observations with Gales (>34kts)	0.47	0.00	0.16	0.00	0.00	0.00	0.00	0.15	0.00	0.17	0.00	0.19	0.10	2
Mean Wind Speed (Knots)	8.9	9.4	8.7	8.4	7.1	6.1	5.1	5.6	6.2	7.3	9.2	9.0	7.5	2
Direction (percentage of Obs.)														
North	10.4	12.9	9.9	7.7	7.6	3.0	6.4	7.5	10.1	8.2	8.8	13.7	8.8	2
North Northeast	4.9	6.4	8.4	6.5	8.3	6.3	4.6	4.9	8.4	6.0	7.8	7.8	6.6	2
Northeast	8.0	10.1	8.7	13.7	12.0	6.4	8.0	8.5	9.9	10.8	6.3	5.5	9.0	2
East Northeast	1.9	3.3	2.3	1.7	1.2	0.5	1.6	2.1	2.6	2.2	1.3	0.6	1.8	2
East	2.8	3.3	5.4	2.9	4.9	3.4	3.6	2.4	1.8	1.8	1.5	1.3	3.0	2
East Southeast	0.8	0.8	1.9	2.6	2.3	1.4	1.0	1.9	1.9	2.0	1.0	1.5	1.6	2
Southeast	2.7	1.3	5.4	7.2	6.3	5.5	6.2	4.3	4.7	6.8	2.9	2.8	4.7	2
South Southeast	0.6	1.5	2.0	3.1	2.5	1.1	3.3	1.9	3.7	2.0	1.9	0.8	2.0	2
South	3.9	3.1	6.2	6.5	6.3	8.8	10.7	9.3	10.2	7.0	3.1	2.1	6.6	2
South Southwest	5.4	4.3	6.8	10.2	11.4	14.6	12.7	13.0	9.4	8.0	4.8	3.6	8.8	2
Southwest	15.7	20.6	12.2	20.5	20.6	28.9	21.2	21.1	18.5	21.3	20.3	13.3	19.6	2
West Southwest	7.4	5.1	4.2	3.2	4.8	6.7	4.6	6.7	3.7	6.7	10.9	10.8	6.1	2
West	14.3	7.8	8.7	4.1	3.5	2.7	3.4	3.3	4.7	5.2	8.4	12.0	6.4	2
West Northwest	3.9	3.8	4.8	2.4	2.1	3.9	3.1	1.9	2.3	2.3	6.1	6.8	3.5	2
Northwest	15.3	11.2	10.9	4.4	4.0	5.1	5.9	8.1	6.0	6.8	12.2	14.0	8.6	2
North Northwest	1.9	4.5	2.0	2.7	2.1	1.3	3.3	2.8	1.5	2.8	2.7	3.2	2.6	2
Calm	0.0	63.7	0.2	0.7	57.9	0.3	0.7	0.1	0.5	56.8	80.7	0.2	20.3	2
Direction (Mean Speed, Knots)														
North	8.2	9.3	8.8	7.4	6.2	5.7	5.5	4.7	6.9	6.9	6.7	9.7	7.5	2
North Northeast	9.6	8.7	10.5	7.4	6.5	4.6	5.3	5.1	6.2	11.7	11.3	8.5	8.0	2
Northeast	8.5	8.4	8.0	9.6	6.8	5.3	5.0	5.2	5.2	7.1	7.3	7.0	7.1	2
East Northeast	6.7	10.1	8.5	7.4	6.7	6.0	4.9	6.1	3.6	4.3	4.5	5.7	6.5	2
East	7.5	6.6	7.2	6.5	6.4	5.4	5.1	5.1	4.8	4.4	5.4	4.3	6.0	2
East Southeast	4.6	7.6	6.7	8.7	6.2	4.9	6.0	5.8	4.2	3.8	9.0	9.9	6.3	2
Southeast	8.0	7.6	6.3	8.2	6.8	5.7	4.9	5.7	3.9	5.8	9.4	9.5	6.4	2
South Southeast	4.0	10.8	8.9	6.9	7.0	4.3	4.6	5.7	5.1	6.2	9.8	5.2	6.5	2
South	8.7	7.5	8.5	7.0	7.0	5.5	5.1	5.4	7.7	7.0	8.7	8.8	6.8	2
South Southwest	8.2	7.5	9.2	9.3	7.0	5.7	5.2	6.1	6.9	7.6	9.7	10.3	7.2	2
Southwest	10.2	11.4	11.2	9.5	8.2	6.6	5.7	6.2	7.1	7.9	10.5	9.3	8.4	2
West Southwest	9.9	10.0	9.1	10.1	6.9	6.7	4.9	5.7	5.7	7.1	9.4	10.1	8.1	2
West	9.2	9.7	7.4	7.9	7.2	7.4	5.3	5.0	5.2	7.7	10.8	9.3	8.2	2
West Northwest	7.3	7.8	9.0	8.7	7.9	6.9	3.6	4.5	4.0	5.4	8.2	9.1	7.3	2
Northwest	9.3	9.2	7.7	6.4	7.4	7.6	4.6	5.1	6.4	8.0	8.4	8.8	7.8	2
North Northwest	7.1	9.6	8.7	7.9	7.6	6.9	4.6	5.3	7.8	7.4	8.7	7.4	7.4	2
VISIBILITY														
Mean Number of Days with Fog	3	4	5	6	9	10	12	9	7	6	4	2	77	14
Percent Obs with Visibility <= 1/2 mile	0.00	0.00	0.84	0.00	0.00	2.70	0.26	0.00	1.16	0.00	0.00	0.00	0.42	2

CLIMATOLOGICAL TABLE

PROVIDENCE, RI (41°44'N,071°26'W) Elevation 56 feet (17.1 m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1016.8	1016.8	1015.2	1014.7	1015.4	1014.5	1015.3	1016.3	1018.4	1018.7	1017.3	1017.9	1016.4	48
TEMPERATURE (DEGREES F)														
Mean	28.8	30.3	38.0	48.4	58.1	67.4	73.1	71.6	63.7	53.7	44.1	33.2	51.0	48
Mean Daily Maximum	36.8	38.4	46.1	57.7	67.8	77.0	82.2	80.6	73.2	63.5	52.5	41.0	59.8	48
Mean Daily Minimum	20.3	21.6	29.3	38.7	47.9	57.3	63.6	62.1	53.8	43.4	35.2	24.8	41.6	48
Extreme Highest	69	72	80	98	94	97	102	104	100	88	81	70	104	48
Extreme Lowest	13	7	1	14	29	41	48	40	32	20	6	10	13	48
RELATIVE HUMIDITY														
Average Percentage	43.1	43.0	26.8	21.8	29.1	20.3	28.3	38.0	58.6	61.6	47.5	53.7	39.3	48
CLOUD COVER														
Percent of time Clear	27.2	28.4	24.8	21.3	19.0	18.5	17.2	21.4	25.3	30.6	24.3	27.0	23.7	48
Percent of time Scattered	13.4	13.0	14.3	13.8	15.9	19.5	20.8	20.3	18.5	16.7	15.7	13.4	16.3	48
Percent of time Broken	11.5	11.4	11.6	14.7	16.1	18.4	20.6	19.4	14.8	13.6	12.4	11.0	14.7	48
Percent of time Overcast	44.2	43.9	45.1	45.0	43.4	37.5	35.0	33.3	36.2	35.2	43.3	45.1	40.6	48
PRECIPITATION														
Mean Amount (inches)	3.93	3.55	4.28	4.09	3.59	2.89	3.07	3.92	3.49	3.57	4.48	4.25	45.12	48
Greatest Amount (inches)	11.66	7.19	8.84	12.74	10.58	11.08	8.08	11.12	7.92	11.89	11.01	10.75	67.52	48
Least Amount (inches)	0.50	0.39	0.56	1.48	0.71	0.05	0.32	0.71	0.77	0.40	0.81	0.58	25.44	48
Maximum in 24 hrs. (inches)	2.90	2.59	3.15	4.30	5.15	2.97	4.78	6.31	4.71	5.39	3.52	3.47	6.31	48
Mean Number of Days with Precipitation	16	15	16	16	16	14	14	14	13	12	15	17	178	48
Mean Snowfall Amount (inches)	9.8	10.1	7.1	0.7	0.0	0.0	0.0	0.0	0.0	0.1	1.0	6.5	35.2	48
Greatest Snowfall Amount (inches)	31.7	30.9	31.6	7.6	0.3	0.0	0.0	0.0	0.0	2.5	8.0	19.8	70.7	48
Least Snowfall Amount (inches)	0.2	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	48
Maximum Snowfall in 24 hrs. (inches)	10.4	18.3	14.7	7.3	0.3	0.0	0.0	0.0	0.0	2.5	8.0	10.6	18.3	48
Mean Number of Days with Snow	12	10	8	2	Miss	0	0	0	0	Miss	3	10	45	48
WIND														
Percent of Observations with Gales (>34kts)	0.05	0.01	0.07	0.01	0.00	0.01	0.00	0.03	0.03	0.02	0.05	0.08	0.03	48
Mean Wind Speed (Knots)	9.5	9.8	10.3	10.2	9.1	8.5	8.0	7.8	8.0	8.2	8.9	9.3	9.0	48
Direction (percentage of Obs.)														
North	9.6	9.8	10.0	7.1	6.6	5.1	4.8	5.9	8.3	8.6	8.7	9.7	7.8	48
North Northeast	5.5	6.3	6.9	6.9	6.3	4.7	3.1	4.6	5.9	5.8	5.6	5.4	5.7	48
Northeast	3.1	4.3	5.7	6.2	6.5	4.2	3.0	4.2	5.7	5.0	4.1	3.4	4.6	48
East Northeast	1.8	2.4	3.0	3.1	3.5	2.6	1.7	2.6	3.0	2.4	2.5	1.9	2.6	48
East	0.9	1.4	1.8	2.0	2.0	1.7	1.4	1.7	1.7	1.5	1.5	1.2	1.6	48
East Southeast	0.9	1.2	1.4	1.8	1.6	1.3	1.3	1.3	1.3	1.3	1.3	1.1	1.3	48
Southeast	1.6	2.2	3.6	4.2	6.0	4.1	4.2	3.4	3.1	2.7	2.3	1.7	3.3	48
South Southeast	2.5	3.5	5.5	7.7	10.2	9.1	7.9	6.5	5.6	4.7	4.0	2.2	5.8	48
South	4.7	5.1	6.6	8.6	10.9	12.6	11.5	10.4	8.5	7.3	6.6	4.7	8.1	48
South Southwest	5.1	4.3	4.9	6.3	7.3	9.6	11.4	10.1	8.2	6.4	5.8	5.3	7.1	48
Southwest	6.2	6.1	4.9	6.3	7.5	10.6	13.0	11.1	8.9	8.4	7.8	7.1	8.2	48
West Southwest	7.9	6.9	5.2	5.6	6.0	7.9	8.7	8.1	7.0	7.6	8.0	8.5	7.3	48
West	8.5	7.0	5.9	6.3	5.0	6.2	6.5	7.1	6.5	7.3	8.1	8.2	6.9	48
West Northwest	13.4	12.7	11.4	8.9	6.2	6.6	7.3	7.3	6.9	8.4	10.0	12.2	9.3	48
Northwest	13.9	13.0	11.5	9.2	5.8	5.9	6.2	6.2	7.9	8.0	10.2	12.7	9.2	48
North Northwest	9.9	9.6	8.9	7.1	5.1	4.3	4.8	5.5	6.8	7.8	8.5	10.2	7.3	48
Calm	4.9	4.3	3.0	2.7	3.4	3.1	3.3	4.1	4.7	6.1	5.1	4.9	4.1	48
Direction (Mean Speed, knots)														
North	9.9	10.2	10.5	10.0	9.2	8.3	7.8	7.9	8.3	8.6	9.1	9.3	9.2	48
North Northeast	10.3	11.0	11.3	11.3	10.0	9.8	8.5	8.8	9.7	10.3	9.6	9.8	10.2	48
Northeast	9.6	10.1	10.9	11.0	10.2	9.6	8.4	9.0	9.2	10.0	9.3	10.0	9.9	48
East Northeast	7.7	8.6	9.1	9.5	8.7	8.2	7.1	7.6	8.0	9.0	8.7	8.3	8.4	48
East	6.0	6.7	7.5	7.6	7.2	6.7	6.0	6.4	6.0	6.2	6.7	7.4	6.8	48
East Southeast	7.2	8.1	9.0	8.2	7.4	7.3	6.8	7.7	6.8	8.6	9.0	8.1	7.9	48
Southeast	8.4	8.9	9.3	10.0	9.1	8.8	8.8	8.5	8.7	8.5	8.8	9.5	9.0	48
South Southeast	8.1	9.0	9.7	10.4	9.6	8.9	9.0	8.8	8.5	8.6	8.7	8.7	9.1	48
South	8.1	8.2	8.8	9.3	8.7	8.2	8.1	8.0	8.1	7.9	8.6	8.0	8.3	48
South Southwest	10.2	9.5	10.5	10.6	10.0	8.8	8.8	8.5	9.0	9.0	10.0	10.0	9.4	48
Southwest	9.6	10.3	10.8	11.1	10.4	9.3	8.8	8.4	8.8	9.1	9.7	9.3	9.4	48
West Southwest	9.2	9.8	10.3	10.3	9.3	8.8	8.0	8.0	8.1	8.1	9.2	8.9	8.9	48
West	9.5	9.8	10.2	9.2	8.4	8.3	7.4	7.5	7.2	7.8	8.6	9.1	8.6	48
West Northwest	11.1	11.7	11.6	11.7	10.1	9.2	8.3	8.0	8.0	8.9	10.1	10.8	10.2	48
Northwest	11.0	11.3	11.5	11.5	10.4	9.3	8.6	8.1	8.3	9.2	10.1	10.9	10.3	48
North Northwest	10.7	10.6	11.5	11.1	9.8	8.9	8.1	8.4	8.2	8.7	9.9	10.4	9.9	48
VISIBILITY														
Mean Number of Days with Fog	11	10	13	13	15	16	17	17	15	14	13	12	166	48
Percent Obs with Visibility <= 1/2 mile	1.44	1.55	1.31	0.82	1.25	1.01	0.61	0.56	0.69	1.47	1.19	1.19	1.09	48

T-4

CLIMATOLOGICAL TABLE

BLOCK ISLAND, RI (41°10'N,071°35'W) Elevation 108 feet (32.9 m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
TEMPERATURE (DEGREES F)														
Mean	32.0	32.0	37.6	45.9	54.6	63.9	70.3	70.1	64.0	55.2	46.6	36.7	50.9	47
Mean Daily Maximum	37.9	37.9	43.3	52.1	61.0	70.3	76.5	76.0	69.9	61.0	52.2	42.6	56.9	47
Mean Daily Minimum	25.5	25.7	31.4	39.2	47.8	57.0	63.7	63.7	57.6	48.9	40.6	30.2	44.4	47
Extreme Highest	62	62	74	92	85	90	92	95	89	80	72	64	95	47
Extreme Lowest	7	10	7	18	34	41	51	45	39	30	16	4	10	47
PRECIPITATION														
Mean Amount (inches)	3.44	3.26	3.89	3.60	3.26	2.46	2.71	3.63	3.13	2.97	4.08	3.93	40.35	47
Greatest Amount (inches)	8.83	6.88	8.52	9.21	6.09	8.66	7.09	9.73	11.51	8.74	9.11	8.12	59.55	47
Least Amount (inches)	0.25	0.52	0.77	0.83	0.72	T	0.31	0.16	0.21	0.81	0.89	0.83	24.08	47
Maximum in 24 hrs. (inches)	3.39	2.86	2.70	2.69	3.67	4.30	3.39	4.26	6.55	6.51	3.42	4.33	6.55	47
Mean Number of Days with Precipitation	16	15	16	16	16	14	14	14	13	12	15	17	178	18
Mean Snowfall Amount (inches)	6.1	6.2	5.4	0.4	0.0	0.0	0.0	0.0	0.0	T	0.2	2.8	21.0	35
Greatest Snowfall Amount (inches)	44.1	16.9	24.1	3.9	0.0	0.0	0.0	0.0	0.0	T	2.5	10.4	65.0	35
Least 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	5.0	35
Maximum Snowfall in 24 hrs. (inches)	21.2	16.7	11.0	3.6	0.0	0.0	0.0	0.0	0.0	T	2.1	4.8	21.2	35
Mean Number of Days with Snow	11	11	9	2	0	0	0	0	0	Miss	1	8	42	18
VISIBILITY														
Mean Number of Days with Fog	2	1	2	1	1	3	3	3	2	1	1	2	22	18

CLIMATOLOGICAL TABLE

HARTFORD, CT (41°56'N 072°41'W) Elevation 200 feet (61 m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1017.3	1016.8	1015.3	1014.4	1015.3	1014.3	1015.2	1016.2	1018.3	1018.9	1017.3	1018.1	1016.5	47
TEMPERATURE (DEGREES F)														
Mean	25.8	28.3	37.1	49.0	59.6	68.6	73.7	71.6	63.2	52.7	42.0	30.1	50.3	47
Mean Daily Maximum	34.1	37.0	46.1	59.9	71.4	80.0	84.8	82.4	74.3	63.9	50.9	38.1	60.4	47
Mean Daily Minimum	17.0	19.1	27.7	37.6	47.4	56.7	62.2	60.2	51.6	41.0	32.6	21.5	39.7	47
Extreme Highest	66	73	87	96	97	101	102	101	101	91	83	74	102	47
Extreme Lowest	26	21	8	9	28	37	44	36	27	17	1	14	26	47
RELATIVE HUMIDITY														
Average Percentage	48.2	43.4	28.2	18.5	28.0	17.5	27.0	36.9	57.9	64.1	47.8	56.4	39.7	47
CLOUD COVER														
Percent of time Clear	20.6	22.9	20.9	17.6	16.4	15.5	15.1	18.1	22.2	26.7	18.6	19.7	19.5	47
Percent of time Scattered	16.2	16.0	15.5	15.2	16.3	19.6	21.5	22.3	18.7	17.6	16.8	15.9	17.6	47
Percent of time Broken	14.9	14.2	14.6	17.1	19.5	22.8	24.1	21.6	17.7	15.9	15.8	13.4	17.6	47
Percent of time Overcast	44.4	43.5	44.9	45.1	41.9	36.1	33.3	32.4	36.3	34.9	44.5	47.2	40.3	47
PRECIPITATION														
Mean Amount (inches)	3.44	3.13	3.86	3.88	3.72	3.54	3.28	4.02	3.75	3.65	4.07	3.86	44.20	47
Greatest Amount (inches)	9.61	7.27	9.46	9.90	12.00	13.60	8.43	21.87	9.02	11.61	8.53	8.36	64.55	47
Least Amount (inches)	0.38	0.45	0.27	1.38	0.73	0.28	1.07	0.54	0.84	0.35	0.51	0.78	29.04	47
Maximum in 24 hrs. (inches)	2.20	2.16	2.52	2.98	4.81	5.88	2.96	7.70	5.10	4.31	3.33	2.96	7.70	47
Mean Number of Days with Precipitation	17	15	17	16	16	14	13	13	13	12	15	17	178	46
Mean Snowfall Amount (inches)	12.4	11.5	9.1	1.4	0.0	0.0	0.0	0.0	0.0	0.0	2.0	9.7	46.1	47
Greatest Snowfall Amount (inches)	37.0	32.2	43.3	14.3	1.3	0.0	0.0	0.0	0.0	1.7	8.7	35.4	88.2	47
Least Snowfall Amount (inches)	0.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	17.0	47
Maximum Snowfall in 24 hrs. (inches)	14.1	14.3	14.0	14.1	1.3	0.0	0.0	0.0	0.0	1.7	7.6	13.5	14.3	47
Mean Number of Days with Snow	14	11	10	3	Miss	0	0	0	0	Miss	4	12	54	46
WIND														
Percent of Observations with Gales (>34kts)	0.01	0.01	0.03	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.01	0.04	47
Mean Wind Speed (Knots)	7.7	8.2	8.6	8.5	7.5	6.9	6.3	6.1	6.3	6.8	7.3	7.5	7.3	47
Direction (percentage of Obs.)														
North	13.3	13.5	12.2	10.2	9.6	8.0	8.2	11.0	12.7	12.2	12.7	13.9	11.5	47
North Northeast	6.8	7.3	8.1	7.3	7.0	5.2	4.2	5.8	6.9	6.9	6.3	6.7	6.5	47
Northeast	2.7	3.6	4.7	4.9	5.1	3.8	3.0	3.6	4.1	4.0	3.1	2.7	3.8	47
East Northeast	0.7	1.3	1.6	2.1	2.3	1.7	1.3	1.7	1.8	1.5	1.3	0.8	1.5	47
East	0.6	0.9	1.4	1.7	1.7	1.4	1.2	1.2	1.3	1.5	1.1	0.7	1.2	47
East Southeast	0.7	0.9	1.3	1.5	1.8	1.3	1.2	1.2	1.3	1.0	1.0	0.9	1.2	47
Southeast	1.9	2.0	2.1	2.4	3.4	3.1	2.9	2.5	2.6	2.2	1.9	1.9	2.4	47
South Southeast	3.6	3.7	4.5	5.9	7.7	8.3	7.2	6.5	6.2	5.5	4.2	3.3	5.6	47
South	8.7	8.9	9.6	13.3	16.6	18.1	16.9	14.9	12.8	12.6	10.8	9.0	12.7	47
South Southwest	5.1	4.9	4.3	6.0	7.7	9.6	9.3	8.8	7.6	6.9	6.3	5.9	6.9	47
Southwest	4.8	3.9	2.9	3.6	4.3	6.1	7.5	6.5	5.3	4.7	5.5	5.9	5.1	47
West Southwest	4.5	4.1	3.6	3.9	3.6	4.2	5.0	4.5	3.7	4.2	5.0	4.7	4.3	47
West	5.5	5.5	5.1	5.1	4.1	5.0	5.7	5.3	4.9	5.1	5.8	5.0	5.2	47
West Northwest	10.5	10.2	10.6	8.7	6.0	6.0	6.1	5.8	6.2	7.2	9.2	9.6	8.0	47
Northwest	14.9	14.4	14.3	11.7	8.1	7.9	7.5	7.9	8.2	9.9	11.4	13.9	10.8	47
North Northwest	10.1	10.4	10.3	8.3	6.6	5.8	6.9	6.9	8.3	8.0	9.1	9.8	8.4	47
Calm	5.6	4.6	3.6	3.4	4.2	4.4	6.2	6.2	6.3	6.1	5.6	5.6	5.2	47
Direction (Mean Speed, knots)														
North	7.4	7.7	8.0	7.9	7.0	6.3	5.7	5.9	6.3	6.6	7.0	7.3	7.0	47
North Northeast	7.4	7.8	8.6	8.5	7.6	6.5	5.8	6.0	6.4	7.1	6.7	7.3	7.2	47
Northeast	5.8	7.2	8.3	8.5	7.0	7.2	5.8	6.5	6.1	7.2	6.3	5.9	7.0	47
East Northeast	4.4	5.4	6.2	7.4	6.8	6.0	5.1	5.4	5.5	6.1	5.5	5.0	5.9	47
East	3.2	4.2	5.8	5.8	5.7	5.3	4.5	4.9	4.4	5.5	4.8	3.5	5.0	47
East Southeast	4.2	4.9	5.9	7.1	6.1	5.4	5.1	5.6	5.2	5.0	5.5	4.8	5.5	47
Southeast	4.8	5.3	6.6	7.3	6.3	5.7	5.4	5.6	5.5	5.3	5.6	5.0	5.8	47
South Southeast	6.1	7.0	7.5	7.8	7.2	7.1	6.5	6.2	6.2	6.4	6.3	6.2	6.8	47
South	7.2	7.6	8.1	8.7	8.3	7.6	7.2	6.8	7.1	7.2	7.4	6.9	7.5	47
South Southwest	7.7	7.9	8.5	8.8	8.6	8.0	7.5	7.2	8.0	7.9	7.8	7.8	7.9	47
Southwest	8.6	8.5	8.6	8.6	8.5	7.8	7.6	7.4	7.7	7.7	8.6	7.9	8.0	47
West Southwest	7.7	7.6	8.7	8.1	7.6	7.2	6.9	6.5	6.5	6.8	7.5	7.2	7.3	47
West	8.1	8.8	8.8	8.4	7.4	7.0	6.7	6.1	6.3	6.7	7.3	7.9	7.5	47
West Northwest	10.2	10.9	11.3	10.6	9.3	8.3	7.3	6.8	7.6	8.4	9.5	10.3	9.5	47
Northwest	10.4	11.0	10.8	10.7	9.7	8.2	7.3	7.1	7.8	8.8	9.8	10.2	9.6	47
North Northwest	8.4	8.8	9.1	8.8	7.8	7.0	6.3	6.0	6.5	7.1	7.9	8.0	7.8	47
VISIBILITY														
Mean Number of Days with Fog	12	10	12	12	13	15	16	17	16	14	13	12	162	46
Percent Obs with Visibility <= 1/2 mile	1.99	1.95	1.33	0.61	0.46	0.74	0.71	0.79	1.11	1.53	1.13	2.19	1.21	47

CLIMATOLOGICAL TABLE

NEW HAVEN, CT (41°16'N,072°53'W) Elevation 23 feet (7 m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
TEMPERATURE (DEGREES F)														
Mean	29.4	31.3	38.0	48.2	57.5	67.2	72.7	71.6	64.7	54.8	44.4	33.2	51.7	28
Mean Daily Maximum	36.6	38.7	45.4	56.9	66.5	75.8	80.8	79.8	73.3	63.8	52.0	40.3	59.7	28
Mean Daily Minimum	21.7	23.5	30.1	39.1	48.0	58.1	64.1	62.9	55.6	45.4	36.2	25.6	43.1	28
Extreme Highest	65	67	73	87	92	96	100	100	91	84	76	65	100	28
Extreme Lowest	7	5	5	17	32	40	51	43	34	24	14	3	7	28
PRECIPITATION														
Mean Amount (inches)	3.25	3.31	3.86	3.71	3.49	2.93	3.01	3.49	3.37	3.49	3.99	4.24	42.14	29
Greatest Amount (inches)	8.35	4.75	10.78	6.53	6.49	12.67	8.73	10.95	7.98	10.06	8.58	7.88	57.22	29
Least Amount (inches)	0.25	1.05	1.55	1.56	0.77	0.12	0.81	0.93	0.64	0.26	0.37	0.98	27.68	29
Maximum in 24 hrs. (inches)	2.60	2.76	3.76	2.36	2.35	5.24	4.59	3.67	5.07	3.85	4.33	2.93	5.24	29
Mean Number of Days with Precipitation	17	16	17	17	17	15	14	14	13	13	16	17	186	14
Mean Snowfall Amount (inches)	8.6	9.4	6.7	1.3	T	0.0	0.0	0.0	0.0	0.1	0.8	6.9	33.8	29
Greatest Snowfall Amount (inches)	21.9	25.3	26.9	19.3	T	0.0	0.0	0.0	0.0	1.3	5.0	18.8	63.9	29
Least Snowfall Amount (inches)	1.4	0.6	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	11.8	29
Maximum Snowfall in 24 hrs. (inches)	13.9	16.1	13.0	17.1	T	0.0	0.0	0.0	0.0	1.3	5.0	14.2	17.1	29
Mean Number of Days with Snow	19	18	15	4	Miss	0	0	0	0	1	5	15	77	14
VISIBILITY														
Mean Number of Days with Fog	Miss	0	Miss	Miss	0	0	0	Miss	0	0	0	Miss	1	14

CLIMATOLOGICAL TABLE

BRIDGEPORT, CT (41° 10'N,073° 08'W) Elevation 26 feet (7.9 m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1018.0	1017.5	1016.0	1014.9	1016.0	1015.1	1015.8	1016.9	1018.9	1019.5	1018.1	1018.7	1017.1	40
TEMPERATURE (DEGREES F)														
Mean	30.1	31.3	38.7	48.9	58.8	68.2	74.2	73.0	65.9	55.7	45.6	34.6	52.2	47
Mean Daily Maximum	36.8	38.3	46.0	57.1	67.3	76.7	82.2	80.9	74.0	64.0	52.9	41.3	59.9	47
Mean Daily Minimum	22.8	23.8	30.8	40.1	49.9	59.3	65.7	64.7	57.2	46.9	37.8	27.4	44.0	47
Extreme Highest	65	67	84	91	92	96	103	100	99	85	78	65	103	47
Extreme Lowest	7	5	4	18	31	41	49	44	36	26	16	4	7	47
RELATIVE HUMIDITY														
Average Percentage	55.3	50.0	34.5	24.4	35.2	26.4	33.4	43.8	63.5	69.9	55.8	62.4	46.5	47
CLOUD COVER														
Percent of time Clear	24.5	25.2	23.5	20.9	17.8	18.6	16.6	19.4	23.5	28.8	22.8	24.2	22.2	32
Percent of time Scattered	14.8	15.5	15.2	15.5	17.3	20.6	22.7	23.9	20.2	19.2	17.3	15.3	18.1	32
Percent of time Broken	13.4	13.0	14.3	16.3	17.8	19.8	22.5	20.6	17.2	15.8	14.3	12.8	16.5	32
Percent of time Overcast	43.2	42.0	42.9	41.7	41.2	34.7	31.8	29.8	33.4	31.4	40.7	43.6	38.0	32
PRECIPITATION														
Mean Amount (inches)	3.18	2.92	3.81	3.66	3.65	3.01	3.53	3.75	3.14	3.24	3.75	3.51	41.14	47
Greatest Amount (inches)	11.20	6.65	9.40	10.72	9.53	17.70	12.84	13.29	7.42	10.72	10.22	7.87	73.93	47
Least Amount (inches)	0.40	0.43	0.69	0.69	0.41	0.07	0.47	0.72	0.43	0.33	0.36	0.33	23.01	47
Maximum in 24 hrs. (inches)	4.30	2.30	4.20	3.15	3.21	6.18	5.95	4.66	4.46	4.76	3.12	3.69	6.18	47
Mean Number of Days with Precipitation	17	16	17	17	17	15	14	14	13	13	16	17	186	39
Mean Snowfall Amount (inches)	7.4	7.7	4.8	0.4	T	0.0	0.0	0.0	0.0	0.0	0.6	4.9	25.9	47
Greatest Snowfall Amount (inches)	26.2	27.9	21.8	6.0	T	0.0	0.0	0.0	0.0	0.5	6.6	20.8	59.8	47
Least Snowfall Amount (inches)	0.5	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	6.8	47
Maximum Snowfall in 24 hrs. (inches)	15.7	15.9	11.1	6.0	T	0.0	0.0	0.0	0.0	0.5	6.2	15.0	15.9	47
Mean Number of Days with Snow	11	10	8	2	Miss	0	0	0	0	Miss	2	9	42	39
WIND														
Percent of Observations with Gales (>34kts)	0.21	0.21	0.15	0.09	0.02	0.02	0.00	0.04	0.06	0.12	0.16	0.13	0.15	40
Mean Wind Speed (Knots)	11.0	11.4	11.4	11.0	9.9	9.1	8.6	8.6	9.5	10.1	10.7	10.9	10.2	40
Direction (percentage of Obs.)														
North	7.7	7.7	7.9	6.1	4.9	4.4	4.7	5.9	7.8	8.5	7.7	8.4	6.8	40
North Northeast	5.1	5.2	4.7	4.0	3.6	3.3	3.3	5.0	7.0	6.6	5.9	5.6	4.9	40
Northeast	7.9	7.0	6.3	5.2	5.3	4.0	3.6	5.4	8.2	8.9	8.3	8.7	6.6	40
East Northeast	5.6	6.4	6.9	6.5	6.8	4.3	3.3	3.7	4.7	4.7	4.5	5.3	5.2	40
East	2.9	4.5	6.8	7.1	9.0	6.6	4.6	4.3	4.3	4.0	3.2	2.4	4.9	40
East Southeast	1.4	2.1	3.6	4.4	5.4	5.0	4.3	3.7	3.7	2.9	2.1	1.5	3.3	40
Southeast	0.9	1.5	2.1	2.8	3.4	3.9	3.4	3.4	3.1	2.4	1.8	1.2	2.5	40
South Southeast	0.8	1.0	1.6	2.6	3.3	3.5	4.2	3.8	3.4	2.5	1.7	1.3	2.5	40
South	1.5	2.1	3.0	4.8	5.6	6.4	7.3	7.1	5.3	3.9	2.9	1.7	4.3	40
South Southwest	2.0	2.4	3.9	5.6	7.5	8.8	10.6	9.1	6.6	4.2	3.3	2.0	5.5	40
Southwest	4.7	5.8	7.0	9.2	10.7	15.0	15.3	14.1	10.8	8.4	6.4	4.4	9.3	40
West Southwest	8.4	8.3	6.6	8.6	10.4	13.4	13.6	11.1	8.2	8.6	8.7	7.7	9.5	40
West	12.3	9.3	6.8	6.6	5.6	6.3	6.6	6.2	5.9	8.7	10.8	11.9	8.1	40
West Northwest	13.4	11.1	9.1	7.6	4.6	4.0	4.3	4.3	5.6	8.2	11.6	13.4	8.2	40
Northwest	13.4	12.9	11.4	8.6	5.9	4.7	4.6	5.1	6.4	7.9	10.2	11.5	8.6	40
North Northwest	9.3	10.0	9.9	8.0	5.6	4.5	4.6	5.3	6.4	7.6	8.3	9.6	7.4	40
Calm	3.0	3.1	2.5	2.4	2.4	2.2	2.1	2.8	2.6	2.4	2.6	3.5	2.6	40
Direction (Mean Speed, knots)														
North	9.9	10.5	11.2	10.8	9.7	9.1	7.7	7.5	8.4	9.2	8.8	9.5	9.4	40
North Northeast	10.0	10.9	10.7	10.2	10.2	9.0	7.7	8.2	9.1	9.2	9.2	9.5	9.5	40
Northeast	10.8	11.3	11.1	11.1	10.2	9.5	8.1	8.7	9.9	10.4	10.3	10.9	10.3	40
East Northeast	10.6	12.2	12.3	12.4	10.5	10.3	9.1	9.5	11.0	11.4	11.1	10.8	11.1	40
East	9.6	10.8	12.0	11.5	10.4	9.1	8.3	9.2	10.3	10.7	11.4	9.7	10.4	40
East Southeast	8.9	9.7	9.9	10.6	9.1	9.1	8.5	9.4	10.1	10.6	11.1	11.2	9.7	40
Southeast	8.6	9.1	9.0	8.7	8.8	8.0	8.0	8.1	9.4	9.5	10.9	9.4	8.8	40
South Southeast	8.2	9.8	9.4	8.9	8.3	7.7	7.7	7.8	8.9	9.1	10.1	10.3	8.6	40
South	8.5	8.9	9.0	9.3	9.2	8.6	8.4	8.0	8.8	8.7	9.3	9.2	8.7	40
South Southwest	10.8	9.1	10.8	11.1	10.6	9.7	9.6	9.4	10.3	10.8	12.4	11.0	10.2	40
Southwest	10.7	10.6	10.5	10.8	10.2	9.4	9.3	9.4	10.6	11.3	11.9	11.8	10.3	40
West Southwest	11.6	10.9	10.4	10.1	9.6	8.9	8.8	9.4	10.4	11.4	11.4	11.8	10.2	40
West	12.2	11.6	11.5	10.1	9.0	8.3	7.8	8.1	9.4	10.6	11.6	11.9	10.5	40
West Northwest	12.6	13.6	14.0	13.4	11.4	10.4	9.2	8.9	9.6	10.8	12.0	12.5	12.0	40
Northwest	12.6	13.7	13.9	14.0	12.5	11.3	9.5	9.5	9.7	10.8	11.6	12.2	12.2	40
North Northwest	11.6	12.4	12.7	12.5	11.2	10.5	9.3	8.8	9.3	10.1	10.8	11.4	11.1	40
VISIBILITY														
Mean Number of Days with Fog	12	12	14	14	16	16	16	17	15	14	13	13	172	39
Percent Obs with Visibility <= 1/2 mile	2.16	2.55	2.30	1.81	2.66	1.88	0.86	0.35	0.38	0.86	0.93	1.87	1.54	40

CLIMATOLOGICAL TABLE

ISLIP, NY (40°47'N,073°60'W) Elevation 85 feet (25.9 m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1018.5	1018.1	1017.4	1015.6	1016.0	1015.0	1016.1	1017.4	1019.3	1019.5	1019.8	1019.4	1017.6	12
TEMPERATURE (DEGREES F)														
Mean	31.7	32.8	39.8	49.4	59.4	68.6	74.4	72.8	65.1	54.9	45.7	36.0	52.7	12
Mean Daily Maximum	39.0	40.1	47.6	57.3	68.2	76.9	81.7	80.4	72.9	63.7	53.8	43.5	60.6	12
Mean Daily Minimum	23.9	25.0	31.5	41.0	50.[illegible]	59.8	66.7	64.9	56.7	45.6	37.1	28.0	44.4	12
Extreme Highest	67	67	82	86	95	95	101	94	91	85	78	66	101	12
Extreme Lowest	7	2	8	24	34	46	50	45	38	28	11	7	7	12
RELATIVE HUMIDITY														
Average Percentage	60.4	55.7	49.1	30.6	34.8	25.2	36.0	49.0	67.9	70.2	72.7	68.7	51.4	12
CLOUD COVER														
Percent of time Clear	23.8	27.0	25.5	20.7	20.2	17.2	14.1	18.1	23.4	31.3	22.7	23.2	22.2	12
Percent of time Scattered	16.0	16.0	16.6	17.4	20.2	24.4	23.8	24.7	22.1	19.4	20.2	17.4	19.9	12
Percent of time Broken	17.5	16.2	17.3	19.4	21.4	25.9	27.6	28.5	21.1	18.6	20.8	17.0	21.0	12
Percent of time Overcast	39.7	37.4	36.8	38.9	34.7	28.9	30.0	24.3	29.2	27.0	33.3	38.1	33.1	12
PRECIPITATION														
Mean Amount (inches)	3.42	3.12	3.85	3.08	4.25	3.63	3.63	4.99	3.36	3.55	4.14	3.60	44.62	12
Greatest Amount (inches)	6.28	5.55	5.53	5.06	10.14	7.86	8.36	13.78	5.06	8.71	8.02	6.06	65.32	12
Least Amount (inches)	1.34	1.11	1.32	1.29	0.73	0.58	1.21	0.47	0.81	0.31	1.27	0.90	34.41	12
Maximum in 24 hrs. (inches)	1.62	2.33	2.52	1.80	4.01	3.52	2.69	6.74	2.23	3.90	2.63	2.65	6.74	12
Mean Number of Days with Precipitation	15	13	15	16	15	12	13	12	13	11	14	15	164	12
Mean Snowfall Amount (inches)	5.9	6.0	4.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.8	3.3	20.7	12
Greatest Snowfall Amount (inches)	13.5	20.0	13.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	10.4	33.8	12
Least Snowfall Amount (inches)	T	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	11.8	12
Maximum Snowfall in 24 hrs. (inches)	5.7	7.0	8.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	9.2	8.0	12
Mean Number of Days with Snow	8	8	6	1	0	0	0	0	0	0	1	6	30	12
WIND														
Percent of Observations with Gales (>34kts)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.53	12
Mean Wind Speed (Knots)	8.3	8.6	8.9	8.4	7.6	7.5	6.5	6.3	6.6	7.0	8.2	8.2	7.7	12
Direction (percentage of Obs.)														
North	5.8	7.3	8.3	5.3	5.3	5.2	4.7	5.6	8.5	8.3	7.0	6.8	6.5	12
North Northeast	4.3	6.2	5.8	5.5	4.4	3.3	3.1	4.1	4.9	6.8	5.1	5.5	4.9	12
Northeast	5.5	4.0	3.7	4.9	4.5	2.5	3.2	4.3	4.9	3.7	4.4	4.5	4.2	12
East Northeast	3.1	3.1	3.0	4.4	4.2	3.2	2.2	4.3	4.2	2.6	3.1	3.5	3.4	12
East	1.7	3.8	3.4	3.7	3.2	3.0	3.1	2.9	3.8	2.5	2.2	2.4	3.0	12
East Southeast	1.6	1.6	2.5	4.6	3.8	2.7	2.8	2.2	2.0	2.5	2.2	1.5	2.5	12
Southeast	1.4	1.5	3.4	4.4	4.6	2.4	2.9	1.7	2.5	2.8	2.4	1.2	2.6	12
South Southeast	1.1	1.4	3.1	4.2	4.2	3.2	4.2	3.0	2.7	3.0	1.9	1.3	2.8	12
South	2.8	2.7	4.9	6.0	7.1	8.0	9.4	8.5	6.2	4.3	3.7	2.3	5.6	12
South Southwest	3.9	5.1	6.5	6.8	8.9	12.4	12.2	9.6	8.1	5.5	5.6	3.5	7.4	12
Southwest	7.7	7.7	6.8	8.7	11.1	14.8	14.3	14.1	9.8	9.5	10.1	7.3	10.2	12
West Southwest	8.0	6.1	4.0	4.9	5.4	7.6	7.2	6.9	6.2	6.2	9.1	9.0	6.7	12
West	9.5	7.4	4.6	5.0	4.0	3.4	3.6	2.8	4.0	5.9	8.0	9.7	5.6	12
West Northwest	12.6	11.2	7.6	6.5	4.8	4.8	3.1	3.7	3.4	6.3	7.5	11.3	6.8	12
Northwest	11.0	11.5	11.4	8.3	6.1	6.0	4.3	4.0	5.0	6.0	8.1	9.5	7.6	12
North Northwest	7.3	10.4	10.7	7.9	6.0	7.7	5.4	6.3	7.0	6.3	7.7	8.2	7.5	12
Calm	12.6	9.8	10.3	9.0	12.3	10.3	14.8	16.4	16.7	18.0	12.2	12.9	13.0	12
Direction (Mean Speed, knots)														
North	8.3	9.4	9.3	8.1	7.8	7.7	6.9	6.6	7.5	7.8	7.8	8.7	8.1	12
North Northeast	9.3	8.4	9.7	9.6	9.0	8.3	6.8	7.6	7.6	8.8	8.9	9.2	8.7	12
Northeast	9.1	9.2	11.2	10.6	9.5	8.3	7.3	8.2	8.5	9.7	9.5	9.7	9.3	12
East Northeast	8.8	9.2	10.9	9.3	8.5	6.7	6.7	7.8	7.6	8.3	9.0	8.8	8.5	12
East	7.4	8.2	8.7	8.3	7.8	7.3	5.6	6.3	7.0	6.9	7.6	9.4	7.5	12
East Southeast	8.1	9.7	9.2	9.0	8.1	7.9	7.2	7.2	8.3	8.0	9.8	10.2	8.4	12
Southeast	9.2	9.8	9.7	9.3	9.3	8.4	8.3	8.8	8.4	9.6	11.0	8.5	9.2	12
South Southeast	9.0	9.7	9.6	8.3	8.2	8.0	7.2	7.6	8.1	8.6	11.2	8.8	8.4	12
South	7.6	7.4	7.9	7.7	7.8	7.5	7.1	7.3	6.9	7.6	8.8	7.0	7.5	12
South Southwest	9.6	9.4	10.2	10.0	9.1	9.5	8.8	8.2	8.7	9.2	9.4	9.4	9.2	12
Southwest	9.3	9.0	9.7	9.4	9.4	9.0	8.7	8.0	9.1	9.1	9.4	9.1	9.0	12
West Southwest	8.8	8.2	8.3	7.6	7.5	7.3	6.8	6.8	6.8	7.8	7.7	8.0	7.6	12
West	9.2	8.3	9.1	7.8	7.4	7.0	6.0	5.6	6.2	6.9	8.4	8.8	7.9	12
West Northwest	10.9	10.3	11.3	10.2	8.7	8.2	8.2	7.3	7.8	9.2	10.6	10.4	9.9	12
Northwest	11.0	11.2	11.3	10.6	9.8	9.4	8.1	8.7	9.4	9.7	11.9	11.7	10.5	12
North Northwest	9.6	10.8	10.5	10.1	8.8	8.7	8.2	7.7	8.3	8.8	9.6	9.8	9.4	12
VISIBILITY														
Mean Number of Days with Fog	15	14	16	16	18	16	22	19	17	15	14	14	196	12
Percent Obs with Visibility <= 1/2 mile	1.81	2.40	1.61	2.81	2.12	1.74	0.81	0.50	0.66	2.29	1.36	1.94	1.67	12

CLIMATOLOGICAL TABLE

NEW YORK (MANHATTAN), NY (40°47'N,073°58')
Elevation 131 feet (40 m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1017.5	1016.8	1015.6	1015.2	1015.3	1015.4	1015.8	1016.8	1018.0	1018.7	1017.2	1017.3	1016.6	18
TEMPERATURE (DEGREES F)														
Mean	32.2	33.8	42.6	52.9	63.2	72.0	77.3	75.9	68.2	57.6	47.8	37.1	55.1	33
Mean Daily Maximum	38.1	40.4	49.9	61.5	72.0	80.4	85.5	83.9	76.1	65.2	54.1	42.7	62.5	33
Mean Daily Minimum	25.7	26.7	34.7	43.9	53.8	63.0	68.6	67.4	59.9	49.6	41.0	30.8	47.2	33
Extreme Highest	68	75	85	96	97	101	104	99	99	88	81	72	104	33
Extreme Lowest	2	2	8	21	36	46	53	50	40	29	17	1	2	33
RELATIVE HUMIDITY														
Average Percentage	61.2	60.3	58.5	55.3	62.7	65.2	64.2	66.0	67.8	65.6	65.4	64.2	63.0	18
CLOUD COVER														
Percent of time Clear	22.7	25.0	26.8	19.2	20.3	24.4	26.4	18.1	15.0	39.3	25.3	18.8	23.5	2
Percent of time Scattered	22.3	19.6	26.2	21.2	30.0	35.0	36.7	35.6	28.5	26.6	18.7	26.4	27.1	2
Percent of time Broken	16.6	15.2	13.3	18.8	19.1	20.2	20.6	23.3	21.5	12.7	15.7	18.8	17.9	2
Percent of time Overcast	38.5	40.2	33.8	40.8	30.6	20.4	16.3	22.9	35.0	21.4	40.3	36.1	31.4	2
PRECIPITATION														
Mean Amount (inches)	3.54	3.14	4.05	3.80	4.37	3.65	4.42	4.10	4.04	3.43	4.44	3.76	46.73	32
Greatest Amount (inches)	10.52	6.04	10.41	8.26	10.24	9.30	11.77	12.36	9.32	7.82	12.41	9.98	67.03	32
Least Amount (inches)	0.58	0.53	0.94	1.27	0.57	1.17	1.25	0.18	1.33	0.14	0.34	0.58	26.09	32
Maximum in 24 hrs. (inches)	3.45	2.98	3.44	3.42	3.99	3.07	3.47	4.64	5.54	4.09	7.40	2.49	7.40	32
Mean Number of Days with Precipitation	15	13	15	15	15	14	13	13	12	11	14	16	165	28
Mean Snowfall Amount (inches)	7.1	8.6	3.8	0.4	T	0.0	0.0	0.0	0.0	T	0.4	3.3	23.6	33
Greatest Snowfall Amount (inches)	20.3	26.4	17.4	9.6	T	0.0	0.0	0.0	0.0	T	4.7	11.5	52.8	33
Least Snowfall Amount (inches)	0.2	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	5.6	33
Maximum Snowfall in 24 hrs. (inches)	11.5	15.5	10.2	9.6	T	0.0	0.0	0.0	0.0	T	4.4	6.7	15.5	33
Mean Number of Days with Snow	9	8	6	1	*	0	0	0	0	*	2	7	33	28
WIND														
Percent of Observations with Gales (>34kts)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.05	0.01	18
Mean Wind Speed (Knots)	9.1	9.2	9.3	8.5	7.3	6.8	6.6	6.6	7.2	7.7	8.3	9.1	8.0	18
Direction (percentage of Obs.)														
North	9.9	9.9	9.8	9.3	7.4	6.6	6.3	8.7	10.2	8.2	8.3	8.2	8.6	18
North Northeast	2.0	2.3	1.4	1.6	1.5	1.3	1.4	1.7	2.0	2.3	2.2	1.9	1.7	18
Northeast	9.0	11.8	13.9	12.3	14.2	9.7	9.4	10.8	14.0	12.8	11.1	11.5	11.6	18
East Northeast	1.1	1.9	1.8	1.8	1.7	2.0	1.2	1.9	2.3	1.1	1.9	1.6	1.7	18
East	2.5	2.5	4.6	5.1	4.9	4.9	3.9	3.7	6.7	6.2	4.4	3.8	4.3	18
East Southeast	0.5	0.4	0.7	0.8	1.0	0.8	0.8	0.7	0.9	.9	.5	0.3	0.7	18
Southeast	2.6	3.3	6.1	7.8	10.6	9.0	8.8	7.1	7.4	5.1	4.0	3.4	6.6	18
South Southeast	0.4	1.0	1.5	1.6	2.7	3.0	2.0	1.6	2.0	1.4	1.4	0.7	1.6	18
South	3.3	4.1	5.2	5.6	8.2	11.1	10.6	10.1	6.9	6.3	5.0	3.6	6.9	18
South Southwest	0.9	1.0	1.4	1.0	1.7	2.0	2.3	2.0	1.8	1.4	1.8	1.5	1.6	18
Southwest	13.3	12.7	8.3	13.0	13.9	19.0	19.4	19.7	14.3	14.8	14.1	12.3	14.6	18
West Southwest	2.7	2.2	1.7	2.5	2.3	2.5	2.9	2.0	1.8	3.4	5.2	3.3	2.4	18
West	20.6	16.4	13.7	11.4	10.7	11.0	13.1	14.3	12.4	15.5	16.3	17.3	14.1	18
West Northwest	5.7	5.1	4.9	4.1	2.4	2.7	2.8	2.1	2.5	3.5	3.9	5.4	3.8	18
Northwest	21.0	20.0	19.2	18.2	11.2	10.2	10.4	9.5	10.9	12.1	15.0	20.8	15.1	18
North Northwest	3.1	4.4	5.2	2.1	2.6	1.4	2.4	2.2	2.4	2.8	2.6	3.2	2.9	18
Calm	1.4	1.1	0.7	1.8	3.0	2.8	2.2	2.2	1.5	2.1	2.3	1.6	1.8	18
Direction (Mean Speed, knots)														
North	7.9	8.1	8.7	7.8	6.7	6.5	5.8	6.1	6.1	6.5	7.2	7.8	7.2	18
North Northeast	8.6	7.5	8.7	7.3	6.8	6.1	6.6	7.1	8.2	7.5	9.0	8.3	7.7	18
Northeast	9.9	10.2	9.4	9.7	8.7	7.5	6.8	7.5	8.7	8.5	9.0	9.9	8.8	18
East Northeast	9.1	9.4	10.3	9.1	7.6	7.6	7.1	7.4	8.3	7.6	9.8	10.5	8.7	18
East	7.1	7.6	7.3	7.2	6.2	5.9	5.8	5.8	6.6	6.4	7.1	7.9	6.7	18
East Southeast	9.2	6.6	7.8	8.4	6.4	6.6	6.4	5.3	7.2	6.7	7.6	7.3	7.0	18
Southeast	7.9	8.2	8.2	8.2	7.4	6.8	7.0	6.7	6.9	6.9	7.7	7.7	7.4	18
South Southeast	9.7	8.8	9.3	7.4	7.6	7.4	7.0	7.2	8.1	8.5	7.3	8.3	7.8	18
South	8.1	9.2	8.9	7.7	7.5	7.2	7.4	7.2	7.3	7.7	7.6	7.9	7.6	18
South Southwest	9.7	9.6	8.8	8.8	7.6	7.8	8.1	8.4	8.8	8.4	8.7	8.5	8.5	18
Southwest	8.3	8.5	8.2	8.0	7.5	7.2	7.0	7.1	7.1	7.7	8.0	8.2	7.6	18
West Southwest	9.6	8.7	8.4	8.1	7.4	7.0	6.9	7.8	8.5	9.0	8.6	8.9	8.3	18
West	9.2	9.0	9.3	8.0	6.8	6.2	6.0	5.8	6.2	7.5	8.3	9.0	7.8	18
West Northwest	12.1	11.4	11.4	10.4	8.1	7.2	7.2	6.9	9.7	10.4	10.8	11.0	10.2	18
Northwest	10.0	10.4	10.5	9.9	8.1	7.6	6.6	6.6	7.0	8.9	9.6	10.4	9.2	18
North Northwest	10.0	9.9	10.6	8.9	7.7	7.2	6.9	6.1	7.4	8.1	8.5	9.9	8.8	18
VISIBILITY														
Mean Number of Days with Fog	0	0	0	0	0	0	0	0	0	0	1	Miss	1	28
Percent Obs with Visibility <= 1/2 mile														

CLIMATOLOGICAL TABLE

NEW YORK (KENNEDY AIRPORT), NY (40°39'N,073°47'W)
Elevation 13 feet (4 m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1018.0	1017.4	1015.9	1015.1	1015.8	1014.9	1015.7	1016.6	1018.5	1018.9	1017.9	1018.5	1016.9	48
TEMPERATURE (DEGREES F)														
Mean	32.5	33.5	41.2	50.8	60.6	70.0	76.0	75.0	67.8	57.2	47.5	37.5	54.2	34
Mean Daily Maximum	38.6	39.9	48.1	58.3	68.1	77.4	83.1	82.1	75.0	64.5	54.0	43.5	61.1	34
Mean Daily Minimum	26.0	26.6	33.8	42.8	52.5	62.1	68.5	67.5	60.1	49.5	40.6	31.1	46.8	34
Extreme Highest	69	68	85	90	99	99	104	101	98	85	77	70	104	34
Extreme Lowest	2	0	7	20	34	45	55	46	41	30	19	2	2	34
RELATIVE HUMIDITY														
Average Percentage	54.7	48.7	33.8	26.1	32.5	23.9	31.7	41.0	59.6	63.5	54.0	60.4	44.2	47
CLOUD COVER														
Percent of time Clear	23.6	24.7	23.7	22.3	18.4	18.2	17.5	19.2	24.4	29.3	22.8	22.9	22.2	48
Percent of time Scattered	16.1	16.6	16.3	16.7	18.8	21.7	25.0	24.7	21.2	19.9	17.9	17.3	19.3	48
Percent of time Broken	14.2	14.5	16.0	17.5	20.0	22.3	23.8	22.7	20.1	17.1	16.7	14.7	18.3	48
Percent of time Overcast	42.0	40.5	40.2	38.9	37.7	32.3	27.9	28.1	29.6	29.1	37.9	41.2	35.5	48
PRECIPITATION														
Mean Amount (inches)	3.25	2.86	3.55	3.68	3.92	3.09	3.74	3.56	3.30	2.88	3.42	3.59	40.84	34
Greatest Amount (inches)	8.33	4.89	8.17	9.51	10.71	8.07	8.48	8.30	9.65	6.58	9.51	6.73	59.12	34
Least Amount (inches)	0.49	1.01	0.95	1.37	0.62	T	0.54	0.22	0.96	0.93	0.32	0.61	25.38	34
Maximum in 24 hrs. (inches)	2.59	2.46	2.40	3.15	2.88	2.85	3.21	3.77	4.49	3.21	3.92	2.55	4.49	34
Mean Number of Days with Precipitation	15	13	16	16	15	14	13	13	12	11	14	16	168	34
Mean Snowfall Amount (inches)	6.7	8.0	3.4	0.5	0.0	0.0	0.0	0.0	0.0	T	0.4	3.4	22.4	34
Greatest Snowfall Amount (inches)	20.1	24.7	15.5	8.2	0.0	0.0	0.0	0.0	0.0	T	3.7	22.4	48.9	34
Least Snowfall Amount (inches)	T	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	1.3	34
Maximum Snowfall in 24 hrs. (inches)	13.0	19.9	9.0	8.0	0.0	0.0	0.0	0.0	0.0	T	3.2	18.0	19.9	34
Mean Number of Days with Snow	8	8	5	1	0	0	0	0	0	Miss	2	6	30	34
WIND														
Percent of Observations with Gales (>34kts)	0.06	0.11	0.05	0.08	0.01	0.03	0.00	0.02	0.04	0.02	0.10	0.10	0.18	48
Mean Wind Speed (Knots)	11.4	11.5	11.8	11.2	9.9	9.4	8.9	8.7	9.0	9.5	10.6	11.0	10.2	48
Direction (percentage of Obs.)														
North	7.3	7.6	7.3	6.3	5.4	4.9	5.0	5.9	6.7	7.2	6.2	7.1	6.4	48
North Northeast	5.3	6.6	6.0	5.2	4.8	4.3	4.1	5.9	6.9	7.6	5.9	6.2	5.7	48
Northeast	5.4	5.6	5.5	4.7	5.3	3.9	4.0	5.3	7.3	7.2	5.4	6.3	5.5	48
East Northeast	4.2	4.9	5.4	4.6	4.7	3.6	3.2	4.3	6.5	5.3	4.9	4.7	4.7	48
East	2.8	3.7	4.1	4.7	4.8	3.9	2.9	2.9	4.0	3.6	3.2	2.6	3.6	48
East Southeast	1.4	1.9	3.2	4.1	4.9	3.8	3.1	2.7	3.1	2.4	2.2	1.1	2.8	48
Southeast	1.1	1.7	2.5	3.7	4.6	4.0	3.2	3.0	2.7	2.4	2.0	1.3	2.7	48
South Southeast	1.3	2.4	3.7	5.2	6.6	5.9	6.2	5.2	4.9	3.1	2.5	1.5	4.1	48
South	4.5	5.4	8.5	12.4	14.8	17.6	16.7	14.3	10.4	7.9	6.7	4.0	10.3	48
South Southwest	5.0	5.3	5.9	7.6	9.8	13.5	14.4	12.8	9.5	7.7	6.0	4.7	8.5	48
Southwest	5.9	5.5	4.1	5.2	6.3	8.0	10.0	10.3	7.9	7.9	7.2	6.7	7.1	48
West Southwest	9.7	7.9	5.6	5.9	6.1	7.2	8.7	8.5	7.3	8.4	10.0	10.6	8.0	48
West	10.8	8.3	6.1	5.4	4.4	4.4	4.8	5.1	5.2	6.6	9.1	10.5	6.7	48
West Northwest	12.5	10.2	9.1	6.7	4.1	3.9	3.8	3.6	4.4	6.8	9.8	11.6	7.2	48
Northwest	13.3	12.6	12.7	9.5	5.8	4.9	4.1	4.3	5.4	7.6	10.1	12.2	8.5	48
North Northwest	8.4	9.4	8.9	7.2	5.8	4.9	4.5	4.3	6.1	6.6	7.6	8.3	6.8	48
Calm	1.3	0.9	1.1	1.3	1.8	1.2	1.5	1.7	1.4	1.7	1.3	1.0	1.4	48
Direction (Mean Speed, knots)														
North	10.4	10.9	11.2	10.9	10.0	9.4	8.4	8.6	9.3	9.3	9.4	10.3	9.9	48
North Northeast	10.3	10.2	11.5	11.2	10.0	9.6	8.4	8.9	9.2	9.3	9.6	9.9	9.8	48
Northeast	10.0	10.6	11.2	11.0	9.8	9.0	7.7	8.2	8.4	9.3	9.3	9.6	9.5	48
East Northeast	8.6	9.6	10.8	10.0	8.9	7.7	6.9	7.0	8.0	8.4	8.5	8.4	8.6	48
East	7.8	8.9	10.0	9.3	8.4	7.4	6.5	7.1	7.3	8.0	8.6	8.1	8.2	48
East Southeast	7.8	8.6	9.6	9.7	8.5	8.2	7.1	7.7	8.0	8.6	9.4	10.0	8.6	48
Southeast	9.3	9.7	10.2	9.7	9.2	9.3	9.2	8.8	9.1	9.3	10.5	9.9	9.4	48
South Southeast	10.7	10.2	10.5	10.7	10.1	9.5	9.7	9.4	9.7	9.3	10.2	11.6	10.0	48
South	9.7	9.2	10.9	11.3	10.9	10.4	10.2	9.9	10.0	9.2	10.3	9.7	10.3	48
South Southwest	10.0	9.8	9.9	10.6	9.9	9.6	9.7	9.4	9.4	9.3	9.5	9.8	9.7	48
Southwest	9.5	9.6	10.0	9.4	9.3	8.6	8.4	8.2	8.9	9.0	9.5	9.7	9.1	48
West Southwest	10.4	10.6	11.5	10.7	9.3	8.7	8.2	8.4	8.4	9.2	10.3	10.0	9.6	48
West	13.1	13.0	13.1	12.6	10.2	8.7	8.3	8.3	9.1	10.1	11.7	11.8	11.2	48
West Northwest	14.0	14.4	15.1	13.9	12.3	11.2	10.3	9.4	10.2	11.6	13.0	13.6	13.0	48
Northwest	14.3	14.8	14.6	14.1	12.7	11.9	10.4	10.3	11.0	12.1	13.2	13.6	13.3	48
North Northwest	12.1	13.0	12.8	12.5	11.5	11.3	9.7	9.8	10.5	10.7	11.7	11.9	11.7	48
VISIBILITY														
Mean Number of Days with Fog	10	9	11	11	13	12	13	12	11	10	11	10	133	34
Percent Obs with Visibility <= 1/2 mile	2.00	1.80	1.68	1.64	1.90	1.55	0.62	0.41	0.42	1.10	1.26	1.41	1.31	48

CLIMATOLOGICAL TABLE

NEWARK, NJ (40°42'N,074°10'W) Elevation 26 feet (7.9 m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1018.3	1017.9	1016.1	1015.1	1015.6	1015.0	1015.5	1016.5	1018.5	1019.1	1018.0	1018.9	1017.0	48
TEMPERATURE (DEGREES F)														
Mean	31.6	33.3	41.6	52.2	62.8	72.0	77.2	75.6	68.0	57.3	46.7	35.7	54.7	61
Mean Daily Maximum	38.5	40.7	49.7	61.3	72.1	81.1	86.0	84.1	76.7	66.2	54.3	42.5	63.0	61
Mean Daily Minimum	24.2	25.4	33.1	42.7	52.9	62.3	68.0	66.5	58.8	47.9	38.6	28.4	45.9	61
Extreme Highest	74	76	89	94	98	102	105	103	105	93	85	72	105	61
Extreme Lowest	8	7	6	16	33	41	52	45	35	25	15	1	8	61
RELATIVE HUMIDITY														
Average Percentage	57.8	54.0	35.9	26.2	31.0	24.8	30.0	39.7	59.8	65.7	54.9	64.5	45.2	48
CLOUD COVER														
Percent of time Clear	24.1	24.2	23.8	21.3	18.3	16.5	18.5	20.1	23.5	29.8	24.1	22.9	22.4	48
Percent of time Scattered	16.5	17.5	18.1	18.9	21.2	25.5	25.9	26.8	23.3	21.2	18.5	17.3	20.9	48
Percent of time Broken	14.6	14.5	15.5	18.4	20.1	22.0	24.4	22.7	20.1	17.2	16.9	14.8	18.5	48
Percent of time Overcast	44.8	43.7	42.7	41.4	40.3	33.9	31.2	30.4	33.1	31.8	40.5	45.1	38.2	48
PRECIPITATION														
Mean Amount (inches)	3.41	2.97	4.02	3.69	3.89	3.29	4.23	4.14	3.62	3.05	3.75	3.42	43.48	61
Greatest Amount (inches)	10.10	5.88	11.14	11.14	10.22	6.40	9.98	11.84	10.28	8.20	11.53	9.47	65.50	61
Least Amount (inches)	0.45	0.76	1.10	0.90	0.52	0.07	0.89	0.36	0.14	0.21	0.51	0.27	26.09	61
Maximum in 24 hrs. (inches)	2.95	2.36	2.71	2.82	3.98	2.97	3.50	5.93	4.71	3.96	6.73	2.77	6.73	61
Mean Number of Days with Precipitation	16	14	16	16	16	15	14	13	12	12	14	16	174	61
Mean Snowfall Amount (inches)	8.9	9.2	3.7	0.7	T	0.0	0.0	0.0	0.0	T	0.6	3.9	27.0	61
Greatest Snowfall Amount (inches)	31.6	33.4	26.0	13.8	T	0.0	0.0	0.0	0.0	0.3	5.7	29.1	33.4	61
Least Snowfall Amount (inches)	0.1	T	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	1.9	61
Maximum Snowfall in 24 hrs. (inches)	27.4	20.0	17.6	12.8	T	0.0	0.0	0.0	0.0	0.3	5.7	25.9	27.4	61
Mean Number of Days with Snow	11	9	7	1	Miss	0	0	0	0	Miss	2	7	37	61
WIND														
Percent of Observations with Gales (>34kts)	0.01	0.02	0.01	0.03	0.01	0.01	0.03	0.01	0.03	0.03	0.04	0.03	0.02	48
Mean Wind Speed (Knots)	9.7	9.9	10.3	9.7	8.8	8.3	7.8	7.6	7.9	8.3	8.9	9.4	8.9	48
Direction (percentage of Obs.)														
North	5.8	6.4	6.5	5.5	5.0	4.4	5.0	5.4	7.1	6.2	5.8	6.0	5.8	48
North Northeast	9.3	8.8	8.4	6.5	6.4	5.8	5.6	7.6	10.1	10.6	9.1	9.9	8.2	48
Northeast	5.6	6.7	6.1	5.4	6.1	4.4	4.0	5.0	5.9	6.2	4.6	5.3	5.4	48
East Northeast	2.5	3.3	4.5	4.1	3.9	2.6	2.5	2.5	3.4	3.5	2.7	2.3	3.2	48
East	1.7	2.4	3.4	4.1	4.4	3.4	2.3	2.5	2.9	2.5	2.5	1.6	2.8	48
East Southeast	1.3	2.2	3.9	5.7	6.6	5.3	3.3	3.1	3.6	3.0	2.5	1.2	3.5	48
Southeast	1.1	1.8	3.7	5.5	6.9	6.4	5.5	4.9	4.3	3.5	2.5	1.3	4.0	48
South Southeast	1.7	2.2	3.5	4.5	5.8	6.2	6.8	5.8	4.7	3.5	2.5	2.0	4.1	48
South	3.3	3.9	4.1	4.8	5.6	6.8	7.9	7.7	5.9	4.6	4.6	3.6	5.2	48
South Southwest	5.7	5.3	4.8	6.3	7.7	8.9	9.3	9.0	8.2	8.5	7.4	6.1	7.3	48
Southwest	9.8	7.7	6.1	8.3	10.3	13.1	13.0	13.6	12.1	11.8	11.8	10.7	10.7	48
West Southwest	11.5	9.1	7.0	7.1	7.5	8.9	10.3	9.3	7.7	9.0	9.6	10.5	9.0	48
West	9.7	8.1	6.6	5.9	4.7	5.8	6.6	6.2	6.1	6.7	8.6	9.7	7.0	48
West Northwest	11.5	10.6	10.5	8.6	5.7	6.0	6.4	5.8	5.6	6.3	9.1	11.2	8.1	48
Northwest	11.1	12.5	12.2	9.7	6.7	6.1	6.0	5.2	6.1	6.7	9.2	10.4	8.5	48
North Northwest	6.7	7.3	8.0	6.7	5.3	4.6	4.2	4.7	4.9	5.7	5.5	6.5	5.8	48
Calm	1.9	1.9	1.1	1.2	1.5	1.4	1.7	1.7	1.7	2.0	2.2	1.8	1.7	48
Direction (Mean Speed, knots)														
North	9.2	10.1	10.5	9.9	8.8	8.6	7.7	7.8	8.4	8.5	8.5	9.2	9.0	48
North Northeast	9.5	9.6	9.7	9.6	9.4	8.9	7.7	8.3	8.6	8.9	8.8	9.2	9.0	48
Northeast	9.3	9.3	9.8	9.9	9.1	8.4	7.6	8.0	8.6	8.6	8.4	8.9	8.9	48
East Northeast	7.8	8.4	9.1	9.0	8.1	7.9	6.9	7.0	7.8	8.5	7.9	8.2	8.2	48
East	5.4	6.2	7.3	6.9	6.3	6.3	5.7	5.9	6.2	6.8	6.9	5.7	6.4	48
East Southeast	6.3	6.8	8.1	8.2	7.4	7.1	6.8	6.7	7.4	7.6	7.9	7.6	7.4	48
Southeast	6.9	7.1	8.1	8.4	8.0	7.9	7.7	7.7	7.8	7.5	7.6	6.9	7.8	48
South Southeast	6.4	7.3	7.7	7.7	7.7	7.5	7.6	7.8	7.6	6.9	7.1	7.4	7.5	48
South	5.9	6.3	6.9	7.1	7.2	7.1	7.1	7.1	6.9	6.4	6.7	6.0	6.8	48
South Southwest	7.3	7.7	8.1	8.6	8.1	7.9	7.6	7.4	7.3	7.1	7.4	7.5	7.6	48
Southwest	8.3	8.7	9.6	9.2	8.7	8.4	7.8	7.5	7.4	7.7	8.0	8.0	8.2	48
West Southwest	9.7	9.6	10.3	9.9	9.5	8.6	8.1	7.7	7.7	8.2	9.1	8.8	8.9	48
West	10.1	10.3	10.9	10.3	9.3	8.3	7.8	6.9	7.6	8.2	9.4	9.7	9.2	48
West Northwest	12.2	12.5	13.0	12.3	10.7	9.6	9.1	8.7	8.8	10.1	11.6	12.0	11.2	48
Northwest	13.0	13.5	13.8	13.5	11.9	11.1	9.9	9.6	10.2	11.1	12.4	12.9	12.3	48
North Northwest	12.0	12.3	12.1	12.2	11.1	10.6	9.5	9.2	9.9	10.7	11.1	11.5	11.2	48
VISIBILITY														
Mean Number of Days with Fog	9	9	10	9	11	10	9	10	11	11	9	10	118	61
Percent Obs with Visibility <= 1/2 mile	1.23	0.94	0.57	0.47	0.53	0.31	0.10	0.11	0.16	0.69	0.54	1.01	0.55	48

CLIMATOLOGICAL TABLE

ALBANY, NY (42° 45'N,073° 48'W) Elevation 292 feet (89 m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1018.2	1017.4	1015.8	1014.9	1015.1	1014.3	1015.3	1016.3	1018.6	1019.0	1017.4	1018.4	1016.8	51
TEMPERATURE (DEGREES F)														
Mean	22.1	24.1	34.3	46.9	57.9	66.8	71.8	69.6	61.3	50.8	39.8	27.2	47.8	50
Mean Daily Maximum	30.8	33.2	43.4	57.6	69.5	78.2	83.2	80.7	72.5	61.7	48.1	35.0	58.0	50
Mean Daily Minimum	12.9	14.4	24.6	35.7	45.8	54.9	59.9	57.9	49.7	39.4	30.9	18.8	37.2	50
Extreme Highest	65	67	86	92	94	99	100	99	100	89	82	71	100	50
Extreme Lowest	28	21	21	10	26	36	40	34	24	16	5	22	28	50
RELATIVE HUMIDITY														
Average Percentage	57.4	49.4	32.5	24.4	26.2	18.0	28.1	38.0	60.8	65.4	49.4	58.9	42.5	51
CLOUD COVER														
Percent of time Clear	16.4	18.0	16.7	15.7	14.1	12.7	13.4	16.0	19.4	22.4	12.0	14.0	15.9	51
Percent of time Scattered	13.7	14.4	14.4	14.8	15.8	20.3	22.9	22.0	19.8	17.0	13.9	12.5	16.8	51
Percent of time Broken	14.4	14.9	16.4	18.0	19.9	25.0	27.1	24.7	20.2	18.2	16.5	14.5	19.1	51
Percent of time Overcast	51.3	48.6	47.9	46.6	43.8	35.5	29.7	31.0	34.6	36.7	52.3	54.6	42.8	51
PRECIPITATION														
Mean Amount (inches)	2.37	2.28	2.86	3.01	3.47	3.28	3.15	3.31	3.02	2.96	3.11	2.91	35.73	50
Greatest Amount (inches)	6.44	5.02	5.90	7.95	8.96	7.36	6.96	7.33	7.89	8.83	8.07	6.73	47.18	50
Least Amount (inches)	0.42	0.24	0.26	1.14	1.05	0.65	0.49	0.73	0.40	0.20	0.59	0.64	21.55	50
Maximum in 24 hrs. (inches)	1.78	1.60	2.00	2.01	2.17	3.47	2.70	4.08	3.46	2.82	2.21	3.16	4.08	50
Mean Number of Days with Precipitation	22	18	19	17	18	15	15	14	14	14	18	21	205	50
Mean Snowfall Amount (inches)	16.2	14.4	10.9	2.5	0.1	0.0	0.0	0.0	0.0	0.2	4.1	14.2	62.5	50
Greatest Snowfall Amount (inches)	47.8	34.5	34.7	17.7	1.6	0.0	0.0	0.0	0.0	6.5	24.6	57.5	106.7	50
Least Snowfall Amount (inches)	0.6	1.8	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.1	50
Maximum Snowfall in 24 hrs. (inches)	13.4	17.3	22.0	17.3	1.6	0.0	0.0	0.0	0.0	6.5	21.8	13.9	22.0	50
Mean Number of Days with Snow	19	16	13	4	Miss	0	0	0	0	1	7	17	77	50
WIND														
Percent of Observations with Gales (>34kts)	0.01	0.04	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.12	51
Mean Wind Speed (Knots)	8.5	8.8	9.1	9.1	7.8	7.2	6.5	6.0	6.4	6.9	7.9	8.2	7.7	51
Direction (percentage of Obs.)														
North	9.7	10.1	9.8	8.8	7.9	6.6	6.0	7.7	7.9	8.1	7.5	8.9	8.2	51
North Northeast	4.3	5.0	5.4	4.6	4.5	3.5	2.8	3.7	3.7	3.5	3.9	4.2	4.1	51
Northeast	2.2	2.3	2.6	2.4	2.5	2.1	1.6	2.0	2.0	1.9	1.8	1.9	2.1	51
East Northeast	1.4	1.2	1.3	1.2	1.4	1.0	0.9	1.2	1.0	0.9	1.1	1.0	1.1	51
East	0.9	1.1	1.1	1.3	1.4	1.2	1.1	1.4	1.3	1.1	0.9	1.1	1.2	51
East Southeast	0.6	0.8	0.7	1.0	1.1	1.2	1.3	1.3	1.3	1.1	0.9	0.7	1.0	51
Southeast	1.9	2.2	2.8	3.2	3.7	4.1	4.0	3.9	4.0	3.3	2.8	2.5	3.2	51
South Southeast	9.7	9.3	10.0	12.4	12.9	13.7	13.5	12.2	13.2	12.1	12.9	10.6	11.9	51
South	12.3	10.9	9.6	11.6	15.2	18.1	18.0	16.1	16.2	15.4	13.9	13.9	14.3	51
South Southwest	2.5	2.5	2.3	3.0	3.9	4.9	5.2	4.8	4.4	4.3	3.3	3.1	3.7	51
Southwest	1.8	1.6	1.5	2.0	2.4	2.9	3.2	2.6	2.4	1.9	2.2	1.9	2.2	51
West Southwest	3.2	3.0	3.0	3.3	3.3	3.6	3.7	3.6	2.6	3.1	3.5	3.2	3.2	51
West	9.8	9.9	10.1	10.5	8.9	9.0	8.7	7.6	7.3	7.6	9.2	9.0	9.0	51
West Northwest	17.2	18.1	18.5	16.2	11.0	9.7	9.5	8.1	9.0	11.0	14.5	16.5	13.2	51
Northwest	8.1	7.8	8.4	7.2	6.0	5.2	5.4	5.2	5.1	5.8	7.3	7.6	6.6	51
North Northwest	5.3	5.1	5.2	4.5	4.3	3.5	3.5	4.3	4.0	4.3	4.0	4.4	4.4	51
Calm	9.2	9.2	7.9	6.7	9.3	9.6	11.8	14.2	14.5	14.5	10.1	9.7	10.6	51
Direction (Mean Speed, knots)														
North	7.2	7.5	7.7	7.7	7.2	6.7	6.1	6.5	6.7	6.9	6.7	6.8	7.0	51
North Northeast	7.7	8.4	8.7	9.0	8.6	7.6	7.2	7.1	7.6	8.1	7.4	7.3	8.0	51
Northeast	5.5	6.8	6.8	8.3	7.3	6.8	6.1	5.9	6.0	5.9	6.2	5.7	6.5	51
East Northeast	4.7	4.8	5.9	6.5	5.9	5.6	4.6	4.7	4.8	5.5	4.9	5.0	5.3	51
East	3.5	3.7	4.3	4.8	4.4	4.4	3.8	3.5	3.4	4.0	4.2	3.3	4.0	51
East Southeast	4.3	5.8	6.5	6.5	6.1	5.4	5.1	5.1	5.1	5.6	5.5	5.4	5.5	51
Southeast	7.5	7.9	9.1	8.6	7.7	7.3	6.9	6.8	7.3	7.2	7.9	7.3	7.6	51
South Southeast	9.5	9.6	10.3	10.6	9.3	8.6	8.1	7.7	8.5	8.8	9.5	9.2	9.1	51
South	8.6	8.5	8.9	9.1	8.5	7.8	7.3	7.1	7.5	7.7	8.3	8.4	8.1	51
South Southwest	6.9	6.6	7.5	7.7	6.6	6.1	5.8	5.8	6.0	6.4	6.7	6.5	6.4	51
Southwest	6.8	6.7	7.2	6.7	6.1	5.9	5.4	5.0	5.5	5.7	6.5	6.4	6.0	51
West Southwest	9.5	9.8	9.2	9.0	8.6	7.7	7.0	6.7	7.1	8.2	8.5	9.0	8.3	51
West	11.7	11.8	11.8	11.5	9.9	9.0	8.3	8.2	8.4	9.2	10.3	11.2	10.2	51
West Northwest	12.8	13.3	13.0	12.6	11.3	10.4	9.6	9.0	9.8	10.5	11.6	12.4	11.7	51
Northwest	10.3	10.5	10.3	10.2	9.0	8.6	8.1	7.8	7.8	9.0	9.6	10.0	9.4	51
North Northwest	6.9	7.0	7.2	7.4	7.4	7.2	6.6	6.1	6.4	6.6	7.2	6.8	6.9	51
VISIBILITY														
Mean Number of Days with Fog	10	9	11	9	12	13	14	17	17	15	13	12	152	50
Percent Obs with Visibility <= 1/2 mile	0.83	0.73	0.76	0.32	0.31	0.34	0.36	0.65	1.45	1.85	0.88	1.14	0.80	51

METEOROLOGICAL TABLE FOR COASTAL AREA OFF CHATHAM

Boundaries: Between 41°N TO 42°N FROM 066°W TO 070°W

Weather Elements	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
Wind > 33 Knots (1)	7.5	7.2	5.3	2.6	0.8	0 3	0.1	0.2	0.7	1.6	4.1	7.1	2.5
Wave Height > 9 ft (1)	11.8	11.7	9.6	6.5	2.7	0.9	0.3	1.1	2.6	5.6	10.1	11.1	5.0
Visibility < 2 nmi (1)	6.8	9.0	10.5	13.8	24.8	36.0	41.3	30.4	14.9	7.0	5.4	4.2	18.9
Precipitation (1)	17.7	17.4	10.9	9.3	6.9	4.5	3.9	4.2	5.3	6.6	9.6	14.3	7.8
Temperature > 69 F (1)	0.0	0.1	0.0	0.0	0.2	0.8	6.2	9.7	4.0	0.6	0.0	0.1	2.5
Mean Temperature (F)	38.1	37.9	39.5	43.4	49.3	56.0	62.5	64.6	61.5	55.9	49.4	42.1	52.8
Temperature < 33 F (1)	22.2	24.7	10.2	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.4	9.8	3.9
Mean RH (%)	83	82	82	84	88	89	90	89	84	81	80	80	85
Overcast or Obscured (1)	48.7	47.6	42.7	40.9	43.4	43.6	43.8	36.8	29.9	27.0	37.9	46.3	39.0
Mean Cloud Cover (8ths)	6.2	6.0	5.4	5.0	5.2	5.4	5.4	5.0	4.4	4.4	5.4	6.1	5.2
Mean SLP (mbs)	1015	1014	1014	1015	1015	1016	1016	1017	1019	1018	1017	1016	1016
Ext. Max. SLP (mbs)	1043	1048	1055	1056	1051	1039	1042	1043	1048	1047	1042	1047	1056
Ext. Min. SLP (mbs)	962	957	964	964	973	981	990	988	985	970	975	964	957
Prevailing Wind Direction	NW	NW	NW	SW	SW	SW	SW	SW	SW	W	W	NW	SW
Thunder and Lightning (1)	0.3	0.3	0.4	0.3	0.3	0.5	0.7	0.6	0.3	0.4	0.3	0.1	0.4

METEOROLOGICAL TABLE FOR COASTAL AREA SOUTHEAST of NANTUCKET

Boundaries: Between 40°N TO 41°N FROM 066°W TO 070°W

Weather Elements	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
Wind > 33 Knots (1)	8.1	7.2	5.7	2.8	0.6	0.3	0.2	0.4	1.2	2.9	4.9	7.4	3.2
Wave Height > 9 ft (1)	14.5	13.5	10.6	7.7	3.2	1.4	0.6	1.1	2.5	5.2	8.8	11.5	6.3
Visibility < 2 nmi (1)	6.6	8.8	9.9	13.6	23.5	27.5	27.8	17.2	8.9	5.0	4.7	4.2	14.3
Precipitation (1)	15.6	13.9	9.8	9.1	6.3	4.7	4.3	4.9	5.4	7.0	9.7	13.4	8.3
Temperature > 69 F (1)	0.1	0.0	0.1	0.1	0.6	5.9	27.3	39.5	19.3	3.9	0.4	0.1	8.3
Mean Temperature (F)	39.9	39.8	41.1	45.1	51.6	59.9	66.9	68.7	65.3	58.8	51.8	44.1	53.1
Temperature < 33 F (1)	17.2	19.2	7.8	1.2	0.2	0.0	0.1	0.1	0.0	0.0	0.3	6.3	4.0
Mean RH (%)	83	83	83	85	87	88	89	87	84	81	81	82	85
Overcast or Obscured (1)	45.5	42.4	37.8	35.7	38.6	36.9	34.9	27.6	25.8	26.1	35.2	42.2	35.6
Mean Cloud Cover (8ths)	6.0	5.7	5.2	4.7	5.0	4.9	4.9	4.5	4.3	4.5	5.4	5.9	5.1
Mean SLP (mbs)	1015	1015	1015	1015	1016	1016	1016	1017	1018	1018	1016	1016	1016
Ext. Max. SLP (mbs)	1044	1049	1054	1049	1047	1040	1037	1040	1050	1051	1047	1056	1056
Ext. Min. SLP (mbs)	962	965	967	961	976	983	987	987	986	972	972	963	961
Prevailing Wind Direction	NW	NW	NW	W	SW	SW	SW	SW	NE	W	NW	NW	W
Thunder and Lightning (1)	0.5	0.4	0.3	0.3	0.5	0.6	0.7	0.9	0.8	0.6	0.5	0.3	0.5

(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 SOUTH of MARTHA'S VINEYARD

Boundaries: Between 40°N TO 42°N FROM 070°W TO 072°W

Weather Elements	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
Wind > 33 Knots (1)	5.9	5.0	3.8	1.9	0.9	0.3	0.1	0.3	1.2	2.3	4.0	5.8	2.4
Wave Height > 9 ft (1)	10.8	12.4	8.5	5.6	2.1	1.0	0.5	0.8	2.6	3.3	5.4	6.6	4.9
Visibility < 2 nmi (1)	6.6	7.2	9.9	11.6	17.2	19.0	19.6	10.9	7.5	4.6	4.2	4.9	10.7
Precipitation (1)	12.4	12.2	9.4	8.6	7.2	4.5	4.0	4.8	6.2	5.8	9.3	12.3	7.8
Temperature > 69 F (1)	0.1	0.1	0.0	0.0	0.4	6.3	42.6	51.6	18.5	1.8	0.2	0.2	11.1
Mean Temperature (F)	37.5	36.3	40.0	45.2	52.5	62.1	69.5	70.5	65.6	58.1	49.6	41.9	53.3
Temperature < 33 F (1)	27.0	29.8	11.1	0.6	0.1	0.0	0.0	0.0	0.0	0.1	1.7	12.5	6.1
Mean RH (%)	80	80	81	82	84	86	85	84	82	78	78	77	82
Overcast or Obscured (1)	40.1	37.9	36.0	35.4	34.9	31.2	31.6	25.9	27.8	24.4	32.1	37.3	32.7
Mean Cloud Cover (8ths)	5.4	5.2	4.8	4.6	4.8	4.6	4.8	4.3	4.4	4.2	5.0	5.4	4.8
Mean SLP (mbs)	1016	1017	1016	1016	1016	1015	1016	1017	1018	1018	1017	1018	1016
Ext. Max. SLP (mbs)	1050	1049	1050	1040	1040	1038	1042	1046	1046	1044	1046	1050	1050
Ext. Min. SLP (mbs)	962	958	975	975	976	985	987	987	982	982	973	981	958
Prevailing Wind Direction	NW	NW	W	W	SW	SW	SW	SW	SW	W	W	NW	SW
Thunder and Lightning (1)	0.2	0.2	0.2	0.3	0.5	0.6	1.1	0.8	0.4	0.4	0.2	0.2	0.5

METEOROLOGICAL TABLE FOR COASTAL AREA AROUND LONG ISLAND

Boundaries: Between 40°N TO 42°N FROM 072°W TO 075°W

Weather Elements	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
Wind > 33 Knots (1)	4.0	3.4	2.9	1.5	0.7	0.2	0.1	0.3	0.5	1.8	2.7	4.5	1.8
Wave Height > 9 ft (1)	4.1	5.2	3.8	2.7	0.7	0.5	0.2	0.5	1.0	2.0	2.7	3.5	2.2
Visibility < 2 nmi (1)	7.1	7.7	10.2	9.3	15.4	12.3	9.8	5.9	5.1	5.5	4.6	5.3	8.2
Precipitation (1)	11.3	11.5	9.4	8.7	8.0	4.9	5.6	4.9	6.1	6.1	9.1	10.6	8.0
Temperature > 69 F (1)	0.1	0.1	0.0	0.2	2.0	16.8	63.1	67.9	28.6	2.4	0.1	0.1	15.6
Mean Temperature (F)	36.2	35.6	40.5	46.9	55.5	65.1	72.0	72.2	67.3	58.5	49.5	40.4	53.7
Temperature < 33 F (1)	31.6	32.3	10.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	2.1	17.4	7.5
Mean RH (%)	82	82	80	79	84	83	83	80	80	79	77	79	81
Overcast or Obscured (1)	33.4	32.7	32.5	31.4	32.2	27.9	26.4	23.7	24.6	22.4	27.9	31.1	28.8
Mean Cloud Cover (8ths)	4.9	4.7	4.6	4.6	4.7	4.6	4.5	4.2	4.2	4.0	4.6	4.8	4.5
Mean SLP (mbs)	1017	1017	1015	1015	1016	1015	1016	1016	1018	1018	1017	1018	1016
Ext. Max. SLP (mbs)	1050	1050	1050	1045	1042	1040	1040	1037	1037	1044	1045	1046	1050
Ext. Min. SLP (mbs)	959	961	961	977	989	981	988	986	978	970	966	981	959
Prevailing Wind Direction	NW	NW	NW	W	SW	SW	SW	SW	SW	W	NW	NW	SW
Thunder and Lightning (1)	0.2	0.1	0.1	0.3	0.8	1.0	1.3	0.9	0.9	0.3	0.6	0.1	0.5

(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		June		July		Aug		Sept		Oct		Nov		Dec		Mean	
		(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}	(T) °C	(D) σ_{15}
Cape Cod Canal (E. ent.), Mass. (41°46'N., 70°30'W.)	16	1.1	23.5	0.4	23.5	1.8	23.4	5.3	23.3	9.4	23.1	12.8	23.2	14.7	23.4	16.2	23.4	15.9	23.4	13.3	23.5	9.4	23.4	4.7	23.5	8.8	23.4
Cape Cod Canal (W. ent.), Mass. (41°44'N., 70°37'W.)	15	0.8	23.2	0.4	23.2	2.2	23.1	6.1	22.9	10.4	22.9	15.0	23.0	17.6	23.2	18.7	23.3	17.4	23.3	13.9	23.3	9.6	23.2	4.3	23.2	9.7	23.2
Woods Hole, Mass. (41°31'N., 70°40'W.)	27	1.2	23.2	0.5	23.2	2.4	23.1	6.6	23.2	11.8	23.3	17.0	23.5	20.9	23.6	21.6	23.5	19.7	23.6	15.6	23.6	10.5	23.5	4.9	23.3	11.1	23.4
Newport, R.I. (41°30'N., 71°20'W.)	16	2.3	22.7	1.6	22.5	3.1	22.5	6.3	22.3	10.9	22.6	16.3	23.1	19.8	23.5	20.6	23.4	18.6	23.5	15.3	23.4	11.3	23.1	5.8	22.9	11.0	23.0
New London, Conn. (41°22'N., 70°08'W.)	24	2.6	13.6	2.4	12.4	4.3	10.1	9.3	9.2	14.3	10.4	19.2	13.9	22.1	17.4	22.5	18.7	20.3	19.2	16.2	18.7	10.9	16.2	5.5	14.1	12.5	14.5
Bridgeport, Conn. (41°10'N., 73°11'W.)	7	3.9	19.5	3.6	18.4	5.6	18.1	10.1	17.7	15.7	17.6	21.7	18.0	24.8	19.1	26.3	19.8	24.4	19.9	19.6	20.1	13.9	20.0	8.0	19.7	14.8	19.0
Plum Island (L.I. Sound), N.Y. (41°10'N., 72°12'W.)	10	2.9	21.6	1.3	21.6	2.4	21.4	5.6	20.9	9.7	20.8	14.6	21.3	18.8	21.8	20.3	22.2	19.3	24.7	15.8	22.4	11.5	22.0	6.4	21.8	10.7	21.9
Montauk (Fort Pond Bay), N.Y. (41°09'N., 71°58'W.)	29	2.2	22.5	1.5	22.4	3.1	22.3	6.6	21.7	10.8	21.6	16.1	22.2	20.1	22.6	21.1	22.6	19.6	23.1	15.9	23.1	11.0	22.9	5.7	22.6	11.1	22.5
Willets Point (E. River), N.Y. (40°48'N., 73°47'W.)	39	1.9	18.8	1.0	18.5	2.8	18.3	7.0	17.7	12.2	17.7	17.1	18.1	20.3	18.6	22.1	19.1	21.2	19.2	16.8	19.0	11.1	19.0	5.1	18.8	11.6	18.6
New York (The Battery), N.Y. (40°42'N., 74°01'W.)	44	2.6	15.5	2.0	15.4	3.7	13.6	7.6	12.1	12.9	13.7	18.3	15.7	21.9	17.0	22.9	17.5	21.4	17.5	16.8	17.3	11.4	16.2	6.0	15.3	12.3	15.6
Bear Mountain (Hudson R.), N.Y. (41°19'N., 73°59'W.)	5	0.7	−0.6	0.4	−0.8	1.8	−0.7	7.6	−0.8	14.1	−0.9	20.6	−0.8	24.2	−0.4	25.2	−0.2	23.8	0.2	17.8	0.0	10.8	−0.5	3.8	−0.5	12.6	−0.5
New York (Fort Hamilton), N.Y. (40°37'N., 74°02'W.)	12	2.1	18.6	1.2	17.3	2.4	14.8	6.5	12.5	11.8	15.2	17.0	17.0	20.8	18.1	21.8	19.0	19.8	18.7	15.3	17.9	9.8	16.8	4.9	16.5	11.1	16.7
Sandy Hook, N.J. (40°28'N., 74°01'W.)	33	1.4	17.0	1.4	16.9	4.1	15.9	9.1	14.9	14.6	16.2	20.2	17.7	23.4	19.0	23.5	19.1	20.8	19.2	15.1	19.1	9.4	18.4	3.8	17.5	12.2	17.6

F (Fahrenheit) = 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). These figures representing density at 15°C (ρ_{15}) are expressed in terms of sigma-t (σ_t) where t = 15°C and $\sigma_{15} = (\rho_{15} - 1)\ 1000$. Thus, for $\rho_{15} = 1.0238$, $\sigma_{15} = 23.8$.

DETERMINATION OF WIND SPEED BY SEA CONDITION

Miles per hour	Knots	Descriptive	Sea Conditions	Wind force (Beaufort)	Probable wave height (in 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	1/4
4-7	4-6	Light breeze	Small, short wavelets; crests have a glassy appearance and do not break.	2	1/2
8-12	7-10	Gentle breeze	Large wavelets; some crests begin to break; foam of 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 begins 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 shocklike. 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 or more	64 or more	Hurricane	The air is filled with foam and spray. Sea completely white with driving spray; visibility very much reduced.	12	45

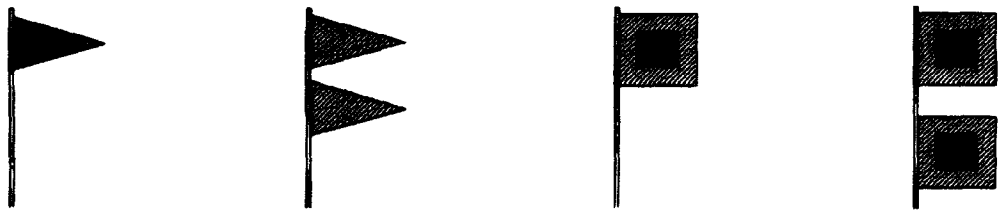
ATMOSPHERIC PRESSURE CONVERSION TABLE

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

COASTAL WARNING DISPLAYS

DAYTIME SIGNALS

SMALL CRAFT ADVISORY | GALE WARNING | STORM WARNING | HURRICANE WARNING



NIGHT (LIGHT) SIGNALS

SMALL CRAFT ADVISORY | GALE WARNING | STORM WARNING | HURRICANE WARNING

EXPLANATION OF DISPLAYS

Small Craft Advisory: One RED pennant displayed by day and a RED light ABOVE a WHITE light at night, to alert mariners to sustained (more than two hours) weather or sea conditions, either present or forecast, that might be hazardous to small boats. Mariners learning of a Small Craft Advisory are urged to determine immediately the reason by tuning their radios to the latest marine broadcasts. Decision as to the degree of hazard will be left up to the boatman, based on his experience and size and type of boat. The threshold conditions for the Small Craft Advisory are usually 18 knots of wind (less than 18 knots in some dangerous waters) or hazardous wave conditions.

Gale Warning: Two RED pennants displayed by day and a WHITE light ABOVE a RED light at night to indicate that winds within the range 34 to 47 knots are forecast for the area.

Storm Warning: A single square RED flag with a BLACK center displayed during daytime and two RED lights at night to indicate that winds 48 knots and above, no matter how high the speed, are forecast for the area. However, if the winds are associated with a tropical cyclone (hurricane) the STORM WARNING display indicates that winds within the range 48 to 63 knots are forecast.

Hurricane Warning: Displayed only in connection with a tropical cyclone (hurricane). Two square RED flags with BLACK centers displayed by day and a WHITE light between two RED lights at night to indicate that winds 64 knots and above are forecast for the area.

Note: A "HURRICANE WATCH" is an announcement issued by the National Weather Service via press and radio and television broadcasts whenever a tropical storm or hurricane becomes a threat to a coastal area. The "Hurricane Watch" announcement is not a warning, rather it indicates that the hurricane is near enough that everyone in the area covered by the "Watch" should listen to their radios for subsequent advisories and be ready to take precautionary action in case hurricane warnings are issued.

Note: As of 1 February 1989 the National Weather Service discontinued its operation of the above visual system. Some local organizations, however, continued this program using information from a NOAA Weather Radio or some similar source for activating or ending their display, A SPECIAL MARINE WARNING BULLETIN is issued whenever a severe local storm or strong wind of brief duration is imminent and is not covered by existing warnings or advisories. Boaters will be able to receive these special warnings by keeping tuned to a NOAA VHF-FM radio station or to Coast Guard and commercial radio stations that transmit marine weather information.

ATLANTIC OCEAN DISTANCES

(Nautical Miles)

	01 Montreal	02 Cabot Strait	03 Gut of Canso	04 Portland	05 Boston	06 Nantucket Shoals	07 NY NY	08 Philadelphia	09 Baltimore	10 Chesapeake Bay	11 Norfolk	12 Diamond Shoals	13 Wilmington	14 Charleston	15 Savannah	16 Jacksonville	17 Key West	18 Straits of FL	19 Tampa	20 Pensacola	21 Mobile	22 New Orleans	23 Port Arthur	24 Galveston	25 Corpus Christi	26 San Juan	27 Yukatan	28 Pan Can Atlantic	29 Pan Can Pacific
29 Panama Canal (Pac. Ent.) 08° 53.0N, 79° 31.0'W	3249	2566	2465	2235	2195	2032	2018	2001	1950	1800	1827	1683	1655	1609	1610	1559	1106	1047	1259	1388	1417	1442	1533	1539	1595	1036	855	46	
28 Panama Canal (Atl. Ent.) 09°23.5'N, 79°55.3'W	3203	2522	2419	2189	2149	1986	1972	1955	1904	1754	1781	1637	1609	1563	1564	1513	1060	1001	1213	1342	1371	1396	1487	1493	1549	990	809		
27 Yucatan Channel 21°50.0N, 85°03.0'W	2730	2049	1937	1629	1589	1426	1346	1323	1268	1118	1145	1001	904	809	780	699	251	192	404	533	562	587	691	696	769	1111			
26 San Juan PR 18°27.6N, 66°06.7'W	2445	1764	1669	1531	1486	1334	1399	1395	1375	1225	1252	1114	1153	1138	1156	1121	966	1017	1249	1448	1448	1557	1717	1719	1824				
25 Corpus Christi TX 27°48.6N, 97°24.0'W	3347	2666	2558	2255	2215	2052	1977	1954	1899	1749	1776	1632	1535	1440	1411	1330	880	807	810	618	605	555	249	207					
24 Galveston TX 29°19.0'N, 94°47.0'W	3242	2561	2453	2150	2110	1947	1872	1849	1794	1644	1671	1527	1430	1335	1306	1225	775	702	703	509	496	446	89						
23 Port Arthur TX 29°49.5N, 93°57.6'W	3240	2559	2451	2148	2108	1945	1870	1847	1792	1642	1669	1525	1428	1333	1304	1223	773	700	697	504	491	441							
22 New Orleans (via SW Pass) 29°57.0'N, 90°03.7'W	3080	2399	2291	1966	1948	1785	1710	1687	1632	1482	1509	1635	1268	1173	1144	1063	613	540	502	288	269								
21 Mobile AL 30°42.5'N, 88°02.5'W	3011	2330	2222	1919	1879	1716	1641	1618	1563	1413	1440	1296	1199	1104	1075	994	544	471	389	89									
20 Pensacola FL 30°24.0'N, 87°13.0'W	2977	2296	2188	1685	1845	1682	1607	1584	1529	1379	1406	1262	1165	1070	1041	960	510	437	347										
19 Tampa FL 27°56.5'N, 82°26.7'W	2772	2091	1983	1680	1640	1477	1402	1379	1324	1174	1201	1057	960	865	836	755	305	232											
18 Straits of Florida 24°25.0'N, 83°00.0'W	2540	1859	1751	1448	1408	1245	1170	1147	1092	942	969	825	728	633	604	523	73												
17 Key West FL 24°33.7'N, 81°48.5'W	2479	1796	1690	1387	1347	1184	1109	1086	1031	881	906	764	667	572	543	462													
16 Jacksonville FL 32°05.0N, 81°05.7'W	2172	1491	1379	1071	1031	868	788	765	710	560	587	443	315	197	145														
15 Savannah GA 32°05.0'N, 81°05.7'W	2088	1407	1295	967	947	784	704	681	626	476	503	359	227	102															
14 Charleston SC 32°47.2'N, 79°55.2'W	2014	1333	1221	913	873	710	630	607	552	402	429	285	151																
13 Wilmington NC 34°14.0'N, 77°57.0'W	1948	1267	1155	847	807	644	564	541	486	336	363	219																	
12 Diamond Shoals 35°08.0'N, 75°15.0'W	1729	1048	936	626	588	425	345	322	267	117	144																		
11 Norfolk VA 36°50.9'N, 76°17.9'W	1716	1035	923	611	571	406	294	269	173	27																			
10 Chesapeake Bay Ent. 36°56.3'N, 75°58.6W	1689	1006	896	584	544	381	267	242	150																				
09 Baltimore MD 39°16.0N, 76°34.5'W	1638	1157	1046	734	694	531	417	392																					
08 Philadelphia PA 39°56.8'N, 75°08.3'W	1682	1001	890	575	535	372	240																						
07 New York NY 40°42.0W, 74°01.0'W	1534	1534	742	426	366	223																							
06 Nantucket Shoals 40°30.0'N, 69°25.0'W	1311	630	519	203	163																								
05 Boston MA 42°22.0'N, 71°03.0'W	1318	637	526	100																									
04 Portland, ME 43°39.4'N, 70°14.7'W	1276	595	484																										
03 Gut of Canso (Lock) 45°39.0'N, 61°25.0'W	717	120																											
02 Cabot Strait 47°07.0N, 60°17.0'W	681																												
01 Montreal * (St. Lambert Lock)																													

All distances are by outside routes which can be used by the deepest-draft vessel that the above ports can accomodate Lighter-draft vessels can save considerable mileage by transiting Canso Lock (Canada), the Cape Cod Canal (Massachusetts), and the Chesapeake & Delaware Canal

* Quebec, Canada - SUBTRACT 139 miles

COASTWISE DISTANCES
CAPE COD, MASS., TO NEW YORK, N.Y.
(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: New Bedford, Mass., is 74 nautical miles from New London, Conn.

	CAPE COD CANAL E ENT. 41°46. 8'N., 70°29. 0'W.	NANTUCKET SHOALS 40°30. 0'N. 69°25. 0'W.	Nantucket, Mass. 41°17. 2'N., 70°05. 7'W.	Vineyard Haven, Mass 41°27. 3'N., 70°35. 8'W.	Woods Hole, Mass 41°31. 4'N., 70°40. 4'W.	New Bedford, Mass 41°38. 1'N., 70°55. 1'W.	Newport, R. I. 41°29. 8'N., 71°19. 8'W.	Fall River, Mass 41°42. 4'N., 71°09. 8'W.	Providence, R. I 41°48. 5'N., 71°24. 0'W.	Great Salt Pond, R. I. 41°11. 1'N., 71°34. 9'W.	Stonington, Conn 41°19. 9'N., 71°54. 6'W.	New London, Conn 41°21. 4'N., 72°05. 4'W.	Hartford, Conn 41°45. 0'N., 72°39. 0'W.	New Haven, Conn 41°17. 4'N., 72°54. 5'W.	Stratford, Conn 41°11. 3'N., 73°07. 3'W.	Bridgeport, Conn 41°10. 3'N., 73°10. 8'W.	South Norwalk, Conn 41°05. 7'N., 73°24. 7'W.	Stamford, Conn. 41°01. 8'N., 73°32. 3'W.	Montauk, N. Y 41°02. 8'N., 71°57. 5'W.	Sag Harbor, N. Y 41°00. 2'N., 72°17. 7'W.	Greenport, N. Y 41°06. 0'N., 72°21. 5'W.	Port Jefferson, N. Y 40°57. 0'N., 73°04. 5'W.	MONTAUK POINT, N. Y 41°01. 7'N., 71°47. 3'W.	NEW YORK, N. Y 40°42. 0'N., 74°01. 0'W.	Perth Amboy, N. J 40°30. 3'N., 74°15. 7'W.	Elizabethport, N. J 40°38. 8'N., 74°11. 2'W.	Port Newark, N. J 40°41. 8'N., 74°09. 0'W.
CAPE COD CANAL E ENT.																											
NANTUCKET SHOALS	144																										
Nantucket, Mass.	69	85																									
Vineyard Haven, Mass	43	88	29																								
Woods Hole, Mass	22	92	33	7																							
New Bedford, Mass	31	111	53	28	15																						
Newport, R. I.	54	111	71	45	38	38																					
Fall River, Mass	69	126	77	51	44	54	16																				
Providence, R. I	74	131	91	65	57	58	21	21																			
Great Salt Pond, R. I.	66	114	80	54	50	48	23	38	43																		
Stonington, Conn	77	126	92	67	61	58	34	49	55	19																	
New London, Conn	89	136	103	77	72	74	48	63	68	29	12																
Hartford, Conn	140	187	155	129	125	124	98	113	118	80	66	62															
New Haven, Conn	127	171	140	114	109	111	84	100	105	65	52	49	74														
Stratford, Conn	132	176	147	121	117	113	90	105	110	72	59	54	81	15													
Bridgeport, Conn	138	182	153	127	123	122	95	110	115	78	64	60	86	25	10												
South Norwalk, Conn	151	195	166	140	135	135	108	124	129	91	77	73	101	36	26	21											
Stamford, Conn.	152	196	167	141	136	136	109	125	130	92	79	74	102	37	27	22	11										
Montauk, N. Y	85	127	99	74	69	66	42	58	63	23	18	20	66	51	56	62	75	76									
Sag Harbor, N. Y	100	143	114	88	83	81	57	72	77	39	29	27	64	49	54	60	73	74	21								
Greenport, N. Y	99	142	113	87	82	80	56	71	76	37	28	25	62	47	52	58	71	72	22	11							
Port Jefferson, N. Y	134	178	149	123	118	118	91	107	112	74	61	56	84	23	15	15	23	24	58	56	54						
MONTAUK POINT, N. Y	76	113	89	63	59	60	35	51	56	15	19	28	75	62	65	74	84	85	16	32	30	68					
NEW YORK, N. Y	182	223	196	171	166	166	139	154	159	121	109	104	131	68	57	52	40	33	105	103	102	52	122				
Perth Amboy, N. J	202	223	216	191	186	186	159	174	179	141	129	124	151	88	77	72	60	53	125	123	122	72	123	20			
Elizabethport, N. J	191	225	206	181	176	176	149	164	169	131	119	114	141	78	67	62	50	43	115	113	112	62	124	10	10		
Port Newark, N. J	193	227	208	183	178	178	151	166	171	133	121	116	143	80	69	64	52	45	117	115	114	64	126	12	15	5	

Ambrose Light (40°27. 5'N., 73°49. 9'W.) to New York (The Battery), 20.7 miles.

INSIDE-ROUTE DISTANCES

SOUTH SIDE OF LONG ISLAND
GREENPORT, N.Y., TO EAST ROCKAWAY INLET, N.Y.
(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: Freeport is 61 nautical miles from Shinnecock Canal North End.

	Greenport 41°08. 0'N., 72°21. 5'W.	Sag Harbor 41°00. 2'N., 72°17. 7'W.	Riverside 40°55. 0'N., 72°39. 4'W.	Shinnecock Canal, N. End 40°53. 9'N., 72°30. 3'W.	Shinnecock Inlet 40°50. 3'N., 72°28. 6'W.	Westhampton Beach 40°48. 2'N., 72°38. 4'W.	Moriches Inlet 40°45. 8'N., 72°45. 3'W.	Bellport 40°45. 1'N., 72°56. 0'W.	Patchogue 40°45. 5'N., 73°01. 2'W.	Bay Shore 40°42. 8'N., 73°14. 2'W.	Fire Island Inlet 40°37. 8'N., 73°18. 6'W.	Babylon 40°41. 2'N., 73°18. 9'W.	Amityville 40°39. 6'N., 73°24. 8'W.	Jones Beach 40°36. 2'N., 73°30. 8'W.	Jones Inlet 40°34. 4'N., 73°34. 9'W.	Freeport 40°37. 6'N., 73°34. 9'W.	Long Beach 40°35. 7'N., 73°39. 4'W.	East Rockaway Inlet 40°34. 9'N., 73°45. 4'W.	Rockaway Point * 40°32. 4'N., 73°56. 5'W.	NEW YORK (The Battery) * 40°42. 0'N., 74°01. 0'W.	Manasquan Inlet, N. J. * 40°06. 1'N., 74°01. 9'W.
Sag Harbor	11																				
Riverside	21	22																			
Shinnecock Canal, N. End	16	17	8																		
Shinnecock Inlet	21	22	13	5																	
Westhampton Beach	28	29	20	12	9																
Moriches Inlet	34	35	26	18	15	7															
Bellport	42	43	34	26	23	15	11														
Patchogue	48	49	40	32	29	21	17	6													
Bay Shore	57	58	49	41	39	30	27	16	13												
Fire Island Inlet	62	63	54	46	44	35	32	21	18	9											
Babylon	61	62	53	45	42	34	30	19	17	5	8										
Amityville	66	67	58	50	47	39	35	24	22	10	12	6									
Jones Beach	72	73	64	56	54	45	42	31	28	17	16	13	7								
Jones Inlet	76	77	68	60	58	49	45	35	32	21	20	17	11	4							
Freeport	77	78	69	61	58	49	46	35	32	21	21	18	12	4	4						
Long Beach	80	81	72	64	61	53	49	38	36	24	24	21	15	8	5	6					
East Rockaway Inlet	85	86	77	69	66	58	54	44	41	29	29	26	20	13	10	11	5				
Rockaway Point *	94	95	86	78	75	67	63	53	50	38	38	35	29	22	19	20	14	9			
NEW YORK (The Battery) *	107	108	99	91	88	80	76	66	63	51	51	48	42	35	32	33	27	22	13		
Manasquan Inlet, N. J. *	116	117	108	100	97	89	85	75	72	60	60	57	51	44	41	42	36	31	27	40	

* Outside distances westward of East Rockaway Inlet.

DISTANCES ON HUDSON RIVER

NEW YORK, N.Y, TO TROY LOCK, N.Y.

(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: Poughkeepsie, N.Y., is 60 nautical miles from Albany, N.Y.

	NEW YORK (The Battery) 40°42. 0'N., 74°01. 0'W.	Yonkers 40°56. 1'N., 73°54. 3'W.	Tarrytown 41°04. 7'N., 73°52. 2'W.	Nyack 41°05. 4'N., 73°54. 9'W.	Ossining 41°09. 6'N., 73°52. 3'W.	Haverstraw 41°11. 8'N., 73°57. 5'W.	Peekskill 41°17. 3'N., 73°56. 0'W.	West Point 41°23. 1'N., 73°57. 3'W.	Newburgh 41°30. 1'N., 74°00. 3'W.	Poughkeepsie 41°42. 3'N., 73°56. 5'W.	Hyde Park 41°47. 3'N. 73°56. 9'W.	Kingston 41°55. 1'N., 73°59. 0'W.	Saugerties 42°04. 4'N., 73°56. 7'W.	Catskill 42°13. 0'N., 73°52. 1'W.	Hudson 42°15. 3'N., 73°48. 1'W.	Athens 42°15. 6'N., 73°48. 5'W.	Coxsackie 42°21. 0'N., 73°47. 6'W.	Cosymans 42°28. 5'N., 73°47. 4'W.	Albany 42°37. 9'N., 73°45. 3'W.	Rensselaer 42°37. 9'N., 73°45. 1'W.	Troy 42°43. 7'N., 73°41. 8'W.	Watervliet 42°43. 7'N., 73°41. 9'W.	Troy Lock 41°45. 1'N., 73°41. 1'W.
16																							
24	9																						
25	10	2																					
29	14	6	6																				
33	18	9	10	5																			
38	23	15	15	11	6																		
45	29	21	22	17	13	8																	
53	37	29	29	25	21	15	8																
66	50	42	43	38	34	29	21	13															
71	55	47	48	43	39	34	26	18	5														
80	64	56	57	52	48	43	35	27	14	9													
89	74	66	66	62	58	52	45	37	24	19	12												
99	83	75	75	71	67	61	54	46	33	28	21	11											
102	86	78	78	74	70	64	57	49	36	31	24	14	5										
102	86	78	78	74	70	64	57	49	36	31	24	14	5	1									
108	93	85	85	80	76	71	63	55	42	37	30	21	11	7	6								
115	100	92	92	88	84	78	70	62	49	44	38	28	19	14	14	7							
126	110	102	102	98	94	88	81	73	60	55	48	38	29	24	24	18	10						
126	110	102	102	98	94	88	81	73	60	55	48	38	29	24	24	18	10	0					
132	116	108	108	104	100	94	87	79	66	61	54	44	35	30	30	24	16	6	6				
132	116	108	108	104	100	94	87	79	66	61	54	44	35	30	30	24	16	6	6	0			
134	118	110	110	106	102	96	89	81	68	63	56	46	37	32	32	26	18	8	8	2	2		

Radio Bearing Conversion Table

Table of corrections, in minutes

[DIFFERENCE OF LONGITUDE IN DEGREES]

Mid. L.	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	198	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 located in latitude 40°37′. N., longitude 69°37′ W.

Radiobeacon station	Latitude	40°37′ N.
Dead-reckoning position of ship	Latitude	39°51′
Middle latitude		40°14′
Radiobeacon station	Longitude	69°37′ W.
Dead-reckoning position of ship	Longitude	67°35′
Longitude difference		2°02′

Entering the table with difference of longitude equal 2°, which is the nearest tabulated value and opposite 40° middle latitude, the correction of 39′ is read.

As the ship is east of the radiobeacon, a minus correction is applied. The Mercator bearing then will be 299° − 000°39′ = 298°21′. To facilitate plotting, subtract 180° and plot from the position of the radiobeacon the bearing 298°21′ − 180°, or 118°21′ (Mercator bearing reckoned clockwise from true north).

Distance of Visibility of Objects at Sea

This table gives the approximate geographic range of visibility for an object which may be seen by an observer at sea level. 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.

Distances of visibility for objects of various elevations above sea level.

Height Feet	Nautical miles	Statute miles	Height *meters*	Height Feet	Nautical miles	Statute miles	Height *meters*
1	1.2	1.3	0.30	120	12.8	14.7	36.58
2	1.7	1.9	0.61	125	13.1	15.1	38.10
3	2.0	2.3	0.91	130	13.3	15.4	39.62
4	2.3	2.7	1.22	135	13.6	15.6	41.15
5	2.6	3.0	1.52	140	13.8	15.9	42.67
6	2.9	3.3	1.83	145	14.1	16.2	44.20
7	3.1	3.6	2.13	150	14.3	16.5	45.72
8	3.3	3.8	2.44	160	14.8	17.0	48.77
9	3.5	4.0	2.74	170	15.3	17.6	51.82
10	3.7	4.3	3.05	180	15.7	18.1	54.86
11	3.9	4.5	3.35	190	16.1	18.6	57.91
12	4.1	4.7	3.66	200	16.5	19.0	60.96
13	4.2	4.9	3.96	210	17.0	19.5	64.01
14	4.4	5.0	4.27	220	17.4	20.0	67.06
15	4.5	5.2	4.57	230	17.7	20.4	70.10
16	4.7	5.4	4.88	240	18.1	20.9	73.15
17	4.8	5.6	5.18	250	18.5	21.3	76.20
18	5.0	5.7	5.49	260	18.9	21.7	79.25
19	5.1	5.9	5.79	270	19.2	22.1	82.30
20	5.2	6.0	6.10	280	19.6	22.5	85.34
21	5.4	6.2	6.40	290	19.9	22.9	88.39
22	5.5	6.3	6.71	300	20.3	23.3	91.44
23	5.6	6.5	7.01	310	20.6	23.7	94.49
24	5.7	6.6	7.32	320	20.9	24.1	97.54
25	5.9	6.7	7.62	330	21.3	24.5	100.58
26	6.0	6.9	7.92	340	21.6	24.8	103.63
27	6.1	7.0	8.23	350	21.9	25.2	106.68
28	6.2	7.1	8.53	360	22.2	25.5	109.73
29	6.3	7.3	8.84	370	22.5	25.9	112.78
30	6.4	7.4	9.14	380	22.8	26.2	115.82
31	6.5	7.5	9.45	390	23.1	26.6	118.87
32	6.6	7.6	9.75	400	23.4	26.9	121.92
33	6.7	7.7	10.06	410	23.7	27.3	124.97
34	6.8	7.9	10.36	420	24.0	27.6	128.02
35	6.9	8.0	10.67	430	24.3	27.9	131.06
36	7.0	8.1	10.97	440	24.5	28.2	134.11
37	7.1	8.2	11.28	450	24.8	28.6	137.16
38	7.2	8.3	11.58	460	25.1	28.9	140.21
39	7.3	8.4	11.89	470	25.4	29.2	143.26
40	7.4	8.5	12.19	480	25.6	29.5	146.30
41	7.5	8.6	12.50	490	25.9	29.8	149.35
42	7.6	8.7	12.80	500	26.2	30.1	152.40
43	7.7	8.8	13.11	510	26.4	30.4	155.45
44	7.8	8.9	13.41	520	26.7	30.7	158.50
45	7.8	9.0	13.72	530	26.9	31.0	161.54
46	7.9	9.1	14.02	540	27.2	31.3	164.59
47	8.0	9.2	14.33	550	27.4	31.6	167.64
48	8.1	9.3	14.63	560	27.7	31.9	170.69
49	8.2	9.4	14.94	570	27.9	32.1	173.74
50	8.3	9.5	15.24	580	28.2	32.4	176.78
55	8.7	10.0	16.76	590	28.4	32.7	179.83
60	9.1	10.4	18.29	600	28.7	33.0	182.88
65	9.4	10.9	19.81	620	29.1	33.5	188.98
70	9.8	11.3	21.34	640	29.5	34.1	195.07
75	10.1	11.7	22.86	660	30.1	34.6	201.17
80	10.5	12.0	24.38	680	30.5	35.1	207.26
85	10.8	12.4	25.91	700	31.0	35.6	213.36
90	11.1	12.8	27.43	720	31.4	36.1	219.46
95	11.4	13.1	28.96	740	31.8	36.6	225.55
100	11.7	13.5	30.48	760	32.3	37.1	231.65
105	12.0	13.8	32.00	780	32.7	37.6	237.74
110	12.3	14.1	33.53	800	33.1	38.1	243.84
115	12.5	14.4	35.05	820	33.5	38.6	249.94

Example: Determine the geographic visibility of an object, with a height above water of 65 feet, for an observer with a height of eye of 35 feet. Enter above table;

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 Vice Versa

°	′	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 S
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 N
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

Distance	Speed in knots																		
	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	0-3	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	18-12	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

Characteristic	*Abbrev*
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
Characteristic	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 beacon	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(#)
Corps of Engineers	COE
Defense Mapping Agency Hydrographic/ Topographic Center	DMAHTC
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

[1] Color refers to light characteristics of aids to navigation only.
[2] M/V includes: Steam Ship, Container Vessel, Cargo Vessel, etc.

STANDARD ABBREVIATIONS for BROADCASTS

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
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 (temp; geo pos)	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, 1972	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; geo pos)	MIN
Moderate	MOD
Mountain, Mount	MT
Nautical Mile(s)	NM
Notice to Mariners	NTM
Obstruction	OBSTR
Occasion/Occasionally	OCCASION
Operating Area	OPAREA
Pacific	PAC
Points(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; geo pos)	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

STANDARD ABBREVIATIONS for BROADCASTS

Various (cont.)

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	AD
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
Hawaii	HI
Idaho	ID
Illinois	IL
Indiana	IN
Iowa	IA
Kansas	KS
Kentucky	KY
Louisiana	LA
Maine	ME
Maryland	MD
Massachusetts	MA
Mexico	MX
Michigan	MI
Minnesota	MN
Mississippi	MS
Missouri	MO
Montana	MT
Nebraska	NE
New Hampshire	NH
Nevada	NV
New Jersey	NJ
New Mexico	NM
New York	NY
North Carolina	NC
North Dakota	ND
Northern Marianas	CM
Ohio	OH
Oklahoma	OK
Oregon	OR
Pennsylvania	PA
Puerto Rico	PR
Rhode Island	RI
South Carolina	SC
South Dakota	SD
Tennessee	TN
Texas	TX
United States	US
Utah	UT
Vermont	VT
Virgin Islands	VI
Virginia	VA
Washington	WA
West Virginia	WV
Wisconsin	WI
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 (United States)
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)	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	1.6 093	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	acres	
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

CONVERSION FACTORS

Symbol	When you know	Multiply by	To find	Symbol
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	fps
cm/sec	centimeters per second	0.01 944	knots	kt
cm/sec	centimeters per second	0.02 237	miles per hour	mph
cm/sec	centimeters per second	0.032 808	feet per second	fps
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
	short tons	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	metric tons	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)).

Pluralization 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.

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.

METRIC STYLE GUIDE (cont.)

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-milimeter film, NOT 35-mm film.

In names or symbols for units having prefixes, there is not 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.

	Page
Abets Creek 12352	239
Abiels Ledge 13236	145
Acabonack Harbor 13209	171
Academy, Massachusetts Maritime 13236	144
Academy, U.S. Coast Guard 13213	184
Academy, U.S. Merchant Marine 12366	229
Academy, U.S. Military 12343	276
Acapesket 13229	130
Acoaxet 13228	150
Acushnet River 13229	147
Adams Fall 12371	197
Agriculture, Department of	2, 287
Aids to navigation	19, 106
Air Almanac	284
Aircraft procedures for directing surface craft to scene of distress incident	10
Albany 12348	279
Alder Island 12352	243
Alleghany Rock 13238	135
Allen Harbor 13223	163
Allen Harbor 13229	126
Allyn Point 12372	184
Almy Point 13221	153
Almy Rock 13221	153
Alpine 12346	274
Ambrose Channel 12327	251
Ambrose Light 12326	246
America Ledge 13223	162
Amityville 12352	242
Amityville Creek 12352	242
Amityville Cut 12352	242
AMVER	5
AMVER Reporting Required	5
Anchorage Channel 12327	251
Anchorage Channel 12334	257
Anchorage Regulations	37
Anchorages	107
Angelica Point 13229	146
Animal and Plant Health Inspection Service	2
Animal and Plant Health Inspection Service (APHIS)	287
Annsville Creek 12343	276
Anthonys Nose 12343	276
Apponagansett Bay 13229	149
Apponaug Cove 13224	163
Area to be avoided 13200	109
Areskonk Creek 12352	239
Areys Pond 13248	123
Arlington 12337	270
Arnold Point 13223	156
Arthur Kill 12333, 12331	267
Articulated lights	20
Ash Creek 12369	209
Asia Rip 13204	110
Astronomical Almanac	284
Athens 12347	278
Atlantic Beach 12352	245
Atlantic Highlands 12401, 12327	262
Atlantis Canyon 12300	111
Aucoot Cove 13236	146
Aunt Lydias Cove 13248	122
Aunt Phebe Rock 12366	220
auroral borealis	118
Automated Mutual-assistance Vessel Rescue System (AMVER)	5
Avery Point 13213	179
Babylon 12352	242
Babylon Cove 12352	242
Back River 13236	143
Bailey Rock 12367	220
Baldwin 12352	244
Baldwin Bay 12352	244
Baldwin Harbor 12352	244
Ballast Reef 12368	212
Bannister Creek 12352	245
Bar, The 12370	199
Barcelona Point 12358	173
Barge Canal System, New York State	281
Barker Point 12366	228
Barlows Landing 13236	142
Barneys Joy Point 13228	149
Barren Island 12350	254
Barrington 13224	158
Barrington River 13224	158
Barstow Rock 13229	146
Bartlett 12372	184
Bartlett Reef 13211, 13212	184
Bass Rip 13237	110
Bass River 13229	126
Bassetts Island 13236	142
Bassing Harbor 13248	122
Battery, The 12327	248
Baxter Neck 13229	129
Bay of Fundy 12352	244
Bay Ridge Channel 12334	257
Bay Ridge Flats 12334	257
Bay Shore 12352	241
Bayonne 12333	268
Bayonne Bridge 12333	268
Bayview 13229	149
Beach Channel 12350	256
Beacon 12343	277
Bear Mountain Bridge 12343	276
Bear Mountain State Route 6 12343	276
Bearings	1
Bearse Rock 13229	128
Bearse Shoal 13244	123
Beaufort Point 12367	220
Beaverdam Creek 12352	239
Beaverhead 13223	162
Beavertail Light 13223	154
Beavertail Point 13223	154
Bedford Reef 13212	169
Belamose 12377	190
Belden Point 12366	223
Belford (Shoal) Harbor 12401, 12327	263
Bell Island 12368	212
Belleville 12337	270
Bellmore Creek 12352	243
Bellport 12352	239
Bellport Bay 12352	239
Bellport Beach 12352	239
Belmont Island 12335	235
Bennets Neck 13236	143
Bergen Basin 12350	257
Bergen Beach 12350	256
Bergen Point 12333	268
Bermuda Lagoon 12368	210
Berrys Creek Canal 12337	271
Big Fishkill Channel 12350	254

	Page
Big Mermaid 12373	194
Big Tom 12366	224
Bird Island 12365	226
Bird Island 13236	146
Bird Island Reef 13236	146
Bird Rock 12373	194
Bishop and Clerks 13229	127
Bishop Rock Shoal 13223	155
Black Ledge 13213	183
Black Point 13211	185
Black Point 13218	164
Black Point 13221	153
Black Rock 12369	209
Black Rock 12371	196
Black Rock Harbor 12369	209
Blackberry Creek 12324	262
Blackboys 13211	185
Blackstone Rocks 12373	193
Blankinship Cove 13236	146
Blauzes, The 12366	223
Block Canyon 12300	111
Block Island 13217	166
Block Island North Light 13217	166
Block Island North Reef 13215	165
Block Island Sound 13205, 13215	165
Block Island Southeast Light 13217	166
Bluefish Shoal 12367	219
Bluff Point 12365	225
Bluff Point 12368	210
Bluff Point 13229	129
Blyn Rock 12373	194
Bodkin Rock 12377	190
Bold Rock 12368	212
Bonnet Point 13223	161
Bonnet Shores Beach 13223	161
Bonnet, The 13223	162
Borden Flats 13227	156
Bostwick Bay 13209	170
Bournes Pond 13229	129
Bow Bells, The 13236	146
Bowditch	284
Bowers Island 12367	216
Bowery Bay 12339	234
Branch 13235, 13229	138
Branchport 12324	262
Branford Harbor 12373	194
Branford Point 12373	194
Branford Reef 12373	193
Branford River 12373	194
Brant Point 12350	256
Brant Point Light 13242	130
Brayton Point 13227	156
Breachway, The 13219	167
Breakneck Point 12343	277
Breakneck Ridge 12343	277
Breakwater Point 13221	153
Brenton Cove 13223	154
Brenton Point 13223	154
Brenton Reef 13223	154
Brickyard Point 12365	227
Bridge and cable clearances	18
Bridge Creek 12352	245
Bridge lights and clearance gages	20
Bridgeport 12369	204
Bridgeport Harbor 12369	204
Bridges	1
Bridge-to-bridge Radiotelephone Communication	31
Brig Ledge 13223	163
Briggs Point 13228	150
Bristol 13224	158
Bristol Harbor 13224	158
Bristol Neck 13224	158
Bristol Point 13221	156
Broad Channel 12352	245
Broad Creek Channel 12352	243
Broadwater Cove 12358	174
Broadway 13235, 13229	138
Broken Ground 13229	127
Broken Part of Pollock Rip 13244	123
Bronx Kill 12339	234
Bronx River 12339	234
Bronx-Whitestone Bridge 12366	233
Brooklyn Bridge 12335	236
Brosewere Bay 12352	245
Browing Ledge 13228	149
Brown Creek 12352	240
Brown Point 12373	193
Browns Reef 12373	193
Brush Neck Cove 13224	163
Bull Point 13223	154
Bullhead Bay 12358	174
Bullock Cove 13224	159
Bullock Point 13224	159
Buoys	21
Burns Point 12370	199
Burr Creek 12369	209
Butler Cove 13236	145
Butler Flats Light 13229	147
Butler Hole 13244	124
Butler Point 13236	146
Butter Ball Rock 13223	154
Buttermilk Bay 13236	145
Buttermilk Channel 12334	257
Buzzards Bay 13218	140
Byram (East Port Chester) 12367	216
Byram Harbor 12367	216
Byram Point 12367	216
Byram River 12367	216
Cable and Anchor Reef 12368	211
Cable clearances	18
Cable ferries	1
Cables	1
Calf Islands 12367	216
Calf Pasture Island 12368	210
Calf Pasture Point 13223	163
Calves Island 12375	189
Canadian Government Agencies	288
Canal Breakwater Light 6 13236	143
Canal de Chambly	282
Canal System, New York State Barge	281
Canal, Cayuga and Seneca	282
Canal, Champlain	282
Canal, Delaware and Raritan 12332	267
Canal, Erie	282
Canal, Oswego	282
Canapitsit Channel 13229, 13230	140
Canarsie 12350	256
Canoe Place 12352	237
Cape Cod 13246	121
Cape Cod Canal 13236	143
Cape Higgon 13233	137
Cape Poge 13238	132
Cape Poge Bay 13238	132
Cape Poge Flats 13238	132
Captain Harbor 12367	215
Captree Island 12352	242
Cargo Care	118
Carlis River 12352	242
Carlstadt 12337	271
Carman Creek 12352	243
Carmans River 12352	239
Cartwright Island 13209	170
Castle Hill 13223	154
Castle William 12334	259
Castleton-on-Hudson 12348	279
Castleton-on-Hudson Bridge (New York State Thruway, IS 90 E-W) 12348	279
Cat Island 12373	193
Cataumet 13236	142

	Page
Cataumet Rock 13236	142
Catskill 12347	278
Catskill Creek 12347	278
Catumb Passage 13214	168
Catumb Rocks 13214	168
Caven Point 12334	259
Cayuga and Seneca Canal	282
Cedar Creek 12369	209
Cedar Hill 12348	279
Cedar Island 12374	192
Cedar Island 13236	146
Cedar Island Beach 12352	242
Cedar Island Creek 13236	146
Cedar Island Point 13236	145
Cedar Point 12358	173
Cedar Point 12368	210
Cementon 12347	278
Centerboard Shoal 13236	146
Centerport Harbor 12365	226
Centerville 13229	128
Centerville Harbor 13229	128
Centerville River 13229	128
Centre Island 12365	226
Cerberus Shoal 13209	169
Champlain Canal	282
Channel markers, caution	21
Channel Rock 12368	210
Channel Rock 13229	128
Chapel Hill Channel 12401, 12327	251
Chappaquiddick Island 13238	132
Chappaquoit Point 13229	142
Charles Island 12370	199
Charles Reef 12374	192
Charles Rock 13223	163
Charlestown 13215	168
Charlestown Breachway 13215	168
Charlestown Pond 13215	168
Chart Datum	15
Chart Numbering System	17
Chart symbols and abbreviations	15
Charts and Publications-National Ocean Service	283
Charts and Publications-Other U.S. Government Agencies	283
Chatham 13229, 13248	125
Chatham 13248	122
Chatham Harbor 13248	122
Chatham Light 13248	122
Chatham Port 13246	122
Chatham Roads 13229	125
Cheesequake Creek 12331	264
Chelsea 12343	277
Chepiwanoxet Island 13224	164
Cherry Grove 12352	240
Cherry Harbor 13209	170
Cherry Hill Point 13209	170
Chester Creek 12377	189
Chester Creek Bar 12377	189
Childs River 13229	129
Chilmark 13233	132
Chimney Corner Reef 12373	192
Chimney Sweeps 12366	223
Chimon Island 12368	210
Chocomount 13214	168
Chocomount Cove 13214	175
Cholera Bank 12326	248
Church Point 13221	153
Cinder Creek 12352	244
Citing Rock 13223	155
City Island 12366	223
City Island Harbor 12366	223
City Point 12371	196
Clam Island 12373	193
Clarks Cove 13229	149
Clarks Point 13229	147
Clason Point 12339	233
Clay Head 13217	166
Cleaves Point 12358	172
Cleveland East Ledge Light 13236	143
Clinton 12374	191
Clinton Harbor 12374	191
Coast Guard	5
Coast Guard Academy, U.S. 13213	184
Coast Guard District Offices	285
Coast Guard droppable, floatable pumps	12
Coast Guard Marine Inspection Offices	285
Coast Guard Radio Broadcasts	286
Coast Guard radio stations	12
Coast Guard Station, Jones Beach	243
Coast Guard Stations	285
Coast Guard vessels, warning signals	27
Coast Pilot	1, 283
Coasters Harbor Island 13223	155
Coatue Point 13242	130
Cobalt 12377	189
Cockenoe Harbor 12368	210
Cockenoe Island 12368	210
Cockenoe Reef 12368	210
Cockenoe Shoal 12368	210
Cockle Cove 13229	126
COCO	25
Coddington Cove 13223	155
Coddington Point 13223	155
Code of signals, International	284
Coecles Harbor 12358	171
Coeymans 12348	279
Coffin Rock 13235, 13229	138
Coggeshall Point 13223	156
Cohasset Narrows 13236	145
Cohoes 14786	281
Cold Fronts	113
Cold Spring 12343	277
Cold Spring Harbor 12365	227
Cold Spring Point 13225, 13224	159
Cold Spring Pond 12358	174
Cole River 13221	156
College Point 12339	233
College Point Reef 12339	233
Collier Ledge 13229	128
Colonel Willie Cove 13214	176
COLREGS Demarcation Lines	37, 106
Columbia Island 12366	220
Common Fence Point 13221	156
Common Flat 13229	125
Compass roses on charts	19
Compo Yacht Basin 12368	210
Compton Creek 12401, 12327	263
Con Hook 12343	276
Conanicut Island 13221	151, 155
Conaskonk Point 12331	264
Coney Island 12402	257
Coney Island Channel 12402	257
Coney Island Creek 12402	257
Congress Street Bridge (State Route 2) 12348	281
Conimicut Light 13224	159
Conimicut Point 13224	158
Conklin Point 12352	242
Conkling Point 12358	172
Connecticut River 12375, 12377	187
Connetquot River 12352	240
Conscience Bay 12362	202
Constable Hook 12333	268
Constellation Rock 13212	169
Constitution Island 12343	277
Continental Shelf	111
Control of shipping in time of emergency or war	30
Converse Point 13236	146
Cooper Bluff 12365	227
Copicut Neck 13229, 13230	140
Copps Island 12368	210
Corey Creek 12352	240
Corey Creek 12358	173

	Page
Corlears Hook 12335	250
Cormorant Reef 12367	216
Cormorant Reef 13214	177
Cormorant Reef 13221	153
Cormorant Rock 13221	153
Cormorant Rock 13229	147
Cornfield Point 12375	190
Cornfield Point Shoal 12375	190
Cornwall-on-Hudson 12343	277
Corps of Engineers	6
Corps of Engineers Offices	285
Corsair Canyon 13200	111
Cos Cob Harbor 12367	215
COSPAS-SARSAT system	22
Cotuit 13229	129
Cotuit Anchorage 13229	128
Cotuit Bay 13229	129
Cotuit Highlands 13229	129
Courses	1
Cove Harbor 12368	212
Cove Neck 12365	227
Cove Point 12365	227
Cove, The 13221	153
Cow and Calf 12373	194
Cow Neck 12358	174
Cows, The 12368	215
Coxens Ledge 13228	141
Coxsackie 12348	279
Craigville Beach 13229	128
Crane Neck Point 12363	224
Crane Reef 12375	190
Crescent Beach 13211	185
Crimbo Point 12370	200
Cromeset Neck 13236	145
Cromeset Point 13236	145
Crookes Point 12331	263
Cross Rip Channel 13237	124
Cross Rip Shoal 13237	123
Croton Point 12343	275
Croton-on-Hudson 12343	276
Crow Head 13209	170
Crow Point 12377	190
Crow Shoal 13209	170
Crows Nest 12343	277
Crows Pond 13248	122
Cruising schedules	12
Cuban Ledge 12366	224
Cultivator Shoal 13204	109
Currents	1, 112
Customs Ports of Entry and Stations	286
Customs Service	2
Cutchogue Harbor 12358	174
Cutty Wow Rock 13228	150
Cuttyhunk 13229, 13230	140
Cuttyhunk Harbor 13229, 13230	139
Cuttyhunk Island 13229, 13230	139
Cuttyhunk Light 13229, 13230	140
Cuttyhunk Pond 13229, 13230	140
Dam, Troy 12348	281
Danger signal	30
Dangerous Rock 12358	173
Daniels Island 13229	129
Danskammer Point 12343	277
Darrow Rocks 12373	194
Dartmouth Rock 13229	149
Dates of Latest Editions	15
Datum, Horizontal	15
Dauntless Rock 12367	220
Davenport Neck 12367	220
Davids Island 12366	220
Davis Bank 13204	110
Davis Island 12373	193
Davis Park 12352	240
Davis South Shoal 13200	110
Davisville 13223	163
Davisville 13229	130
Day Line Park 12343	276
Daylight saving time	119
Dead Horse Bay 12350	254
Deck officers	30
Deep Creek Meadow 12352	243
Deep Reef 12366	223
Deep River 12377	189
Delancey Point 12367	219
Delaware and Hudson Canal 12347	278
Delaware and Raritan Canal 12332	267
Democrat Point 12352	241
Dennis Port 13229	126
Department of Agriculture, Animal and Plant Health Inspection Service (APHIS) Offices	287
Depths	1
Derby 12370	199
Dering Harbor 12358	172
Designated critical habitats	31
Despair Island 13223	163
Destructive waves	26
Devils Bridge 13233	137
Devon 12370	199
Dew Point	118
Dewitt Point 12347	278
DGPS	25
Diamond Reef 12347	277
Dickerson Channel 12352	241
Differential GPS (DGPS)	25
Dighton 13221	156
Disposal areas	18
Disposal Sites	19, 106
Distances	2
Distress Assistance and Coordination Procedures	9
Distress Signals and Communication Procedures	8
Doanes Creek 13229	126
Dobbs Ferry 12346	275
Documentation	6
Dogfish Bar 13229	127
Dogfish Island 12373	193
Drawbridge Operation Regulations	55
Drawbridges	111
Dry Ledge 13236	145
Duck Creek 12368	210
Duck Island 12374	191
Duck Island Bluff 12365	225
Duck Island Harbor 12365	225
Duck Island Roads 12374	191
Duck Pond Point 12354	200
Dumping Grounds	19, 106
Dumping of dredged material	6
Dumpling Rocks 13229	148
Dumplings, The	154
Dunbar Point 13243	128
Dundee Dam 12337	270
Dunderberg Mountain 12343	276
Dutch Island 13223	162
Dutch Island Harbor 13223	162
Dutch Kills 12338	235
Dyer Island 13223	156
East Bank 12402, 12327	251
East Bay 12352	243
East Bay 13229	128
East Branch 12338	235
East Branch 12352	238
East Branch 12368	212
East Branch 12369	209
East Broad Channel 12350	256
East Channel 12352	241
East Chop 13238	135
East Chop Flats 13238	135
East Clump 13214	175
East Creek 12358	174

	Page
East Crib 12373	193
East Crow Island 12352	243
East Fort Point 12365	226
East Greenwich 13224	164
East Haddam 12377	189
East Hampton 13209	171
East Harbor 13214	175
East Indies Rocks 12373	194
East Ledge 12374	191
East Mill Basin 12350	256
East Moriches 12352	238
East Nonations 12366	220
East Norwalk 12368	211
East Norwalk Harbor 12368	211
East Passage 13223	154
East Point 13214	168, 175
East Quogue 12352	238
East Reef 12373	193
East River 12366, 12339, 12335	229, 259
East River 12373	192
East River 13236	145
East River Deepwater Lighted Range 12335	236
East Rockaway 12352	244
East Rockaway Channel 12352	244
East Rockaway Inlet 12352	245
East West Channel 12352	242
East White Rock 12368	210
Eastchester 12366	224
Eastchester Bay 12366	224
Eastham 13246	122
Easton Point 13223	154
Eastport 12352	238
Eatons Neck 12365	225
Eatons Neck Basin 12365	225
Echo Bay 12367	220
Echo Island 12367	220
Echo soundings	19
Eddie Woods Rock 13229	128
Eddyville 12347	278
Edgartown 13238	132
Edgartown Harbor 13238	132
Edgartown Harbor Light 13238	132
Edgewater 12341	274
Edgewater Point 12367	220
Edwards Rock 13229, 13230	140
Edwards Shoal 13241	132
Eel Grass Ground 13214	177
Eel Pond 13229	129
Eel Pond 13235, 13229	138
EEZ	30
Egg Island 12352	243
Eightmile River 12375	189
Eldridge Shoal 13229	129
Elihu Island 13214	176
Elizabeth 12333	268
Elizabeth Islands 13230	137
Elizabeth River 12333	268
Elizabethport 12333	268
Ellis Reef 13214	177
Emerald Rock 12367	220
Endeavor Shoals 13209	169
Enders Island 13214	177
Englewood Boat Basin 12345	274
English Kills 12338	235
Environmental Protection Agency (EPA)	6
Environmental Protection Agency (EPA) Offices	285
EPIRBs	22
Erie Basin 12334	259
Erie Canal	282
Esopus 12347	277
Esopus Creek 12347	278
Esopus Island 12347	277
Essex 12375	189
Essex Cove 12375	189
Esther Island 13241	130
Eustasia Island 12377	189
Eustis Rock 13236	142
Exclusive Economic Zone	30
Execution Rocks 12366	220
Extratropical Cyclones	112
Fair Harbor 12352	240
Fair Haven 12324	262
Fair Haven 12371	196
Fairhaven 13229	147
Falkner Island 12373	192
Fall River 13227	156
Falmouth 13230, 13229	136
Falmouth Harbor 13230	136
Falmouth Heights 13230, 13229	136
Falmouth Inner Harbor 13230, 13229	136
False Channel Meadow 12352	243
False Hook 12401, 12327	251
False Hook Channel 12401, 12327	251
Fanning Point 12358	172
Far Rockaway 12350	257
Farm River 12373	194
Farm River Gut 12373	194
Fayerweather Island 12369	209
Federal Communications Commission	6
Federal Communications Commission Offices	288
Federal Requirements for Recreational Boats	284
Felix Ledge 13229, 13230	139
Ferry Point 12375	188
Fiddlers Cove 13236	142
Fields Point 13225	159
Fighting Island 12352	243
Fire Island 12352	239
Fire Island Inlet 12352	241
Fire Island Light 12352	241
Fire Island National Seashore 12352	239
Fire Islands 12352	241
Fish havens	6, 19
Fishers Island 13214	168
Fishers Island Sound 13214	175
Fishery Conservation Zone	31
Fishing Cove 13223	162
Fishing Rip 13204	110
Fishtrap areas	19
Fishtraps	6
Fishweirs	111
Fiske Rock 13223	156
Fitch Point 12368	211
Five Foot Rock 12373	194
Fivemile River 12368	212
Flanders 12358	175
Flanders Bay 12358	174
Flat Neck Point 12367	215
Flat Rock 13211, 13212	185
Flint Point 13221	153
Flint Point Ledge 13221	153
Floyd Bennett Field 12350	256
Flushing 12339	233
Flushing Bay 12339	233
Flushing Creek 12339	233
Flying Point 12373	193
Flynns Knoll 12401, 12327	251
Fog signal characteristics	2
Fog signals	20
Fogland Point 13221	153
Food and Drug Administration (FDA)	7
Food and Drug Administration (FDA) Regional Offices	287
Foot Rocks 12373	193
Forbes Rocks 12367	219
Forge River 12352	239
Forlies Rocks 12367	219
Fort Adams 13223	154
Fort Columbus 12334	259
Fort Hill 12377	189
Fort Lee 12341	274

	Page
Fort Phoenix 13229	147
Fort Point 12372	184
Fort Pond Bay 13209	170
Fort Schuyler 12366	229
Fort Slocum 12366	220
Fort Totten 12366	229
Fort Trumbull 13213	181
Fort Washington Point 12341	274
Fort Wetherill 13223	154
Fourfoot Rocks 12367	219
Fourteen Foot Channel 12402, 12327	251
Fox Creek Channel 12352	242
Fox Hill 13223	162
Fox Island 13223	162
Fox Point 13225	159
Freeport 12352	244
Freeport Creek 12352	244
Frequency units	12
Fresh Creek 12350	256
Fresh Kills 12331	267
Friars Head 12354	201
Frost Creek 12367	227
Frost Point 12369	210
Fuller Rock 13225	159
Gales Ferry 12372	184
Galilee 13219	167
Gallatin Rock 13229	128, 146
Gangway Rock 12366	228
Gangway Rock 13214	168
Gannet Ledge 13229	128
Gannet Rocks 13229	128
Gardiners Bay 13209	170
Gardiners Island 13209	170
Gardiners Point 13209	170
Gardners Neck 13221	156
Garrett Lead 12352	244
Garrison 12343	276
Gaspee Point 13224	158
Gay Head 13233	137
Gazelle Rock 13229	127
Gees Point 12343	276
General Grants Tomb 12341	274
General Rock 13223	162
Geodetic Reference System 1980 (GRS 80)	15
Geographic range	19
George Washington Bridge 12341	274
Georges Bank 13200, 13204	109
Georges Rock 12368	210
Georges Shoal 13204	109
Gerritsen Creek 12350	254
Gerritsen Inlet 12350	254
Giants Neck 13211	187
Gibbs Rock 13236	146
Gifford Ledge 13229	142
Gil Hodges Memorial (Marine Parkway) Bridge 12350	254
Gilbert Canyon 13200	111
Gildersleeve 12377	190
Gilgo Beach 12352	242
Gilgo Heading 12352	243
Glen Cove 12366	227
Glen Cove Creek 12367	228
Glen Cove Harbor 12366	228
Glen Cove Landing 12366	227
Glen Island 12366	223
Glenwood Landing 12366	228
Goat Island 13214	176
Goat Island 13223	154
Goethals Bridge 12333	268
Golden Spur (East Lyme) 13211	185
Goodwives (Darien) River 12368	212
Goose Creek 12358	172
Goose Island 12366	223
Goose Island 13214	175
Goose Islands 12373	192
Goose Rocks 12373	192
Goose Rocks Shoals 12373	192
Gooseberry Island 13223	154, 163
Gooseberry Neck 13228	149
Goshen Point 13212	181
Goshen Point 13212, 13211	185
Gould Island 13221	153
Gould Island 13223	156
Government Agencies	2
Government Printing Office	283
Governors Island 12334	259
Gowanus Bay 12334	257
Gowanus Canal 12334	259
Gowanus Flats 12334	257
GPS Navigation System	24
Grants Tomb 12341	274
Grass Hassock Channel 12350	256
Grass Island 12352	242
Grassy Bay 12350	257
Grassy Hammock Rocks 12368	210
Grassy Island 13235, 13229	138
Grassy Point 12343	276
Grassy Rocks 12367	216
Gravesend Bay 12402	257
Gray Gables 13236	143
Great Captain Island 12367	216
Great Captain Rocks 12367	219
Great Cove 12352	241
Great Eastern Rock 13209	169
Great Gull Island 13212	169
Great Harbor 13235, 13229	138
Great Hill 13236	145
Great Hill Point 13236	146
Great Hog Neck 12358	173
Great Island 12368	212
Great Kills 12331	263
Great Kills Harbor 12331	263
Great Knob 12367	220
Great Lakes-Hudson River Waterway Improvement	282
Great Ledge 13223	162
Great Ledge 13235, 13229	138
Great Neck Creek 12352	242
Great Peconic Bay 12358	174
Great Point 13241	130
Great Rip 13237	110
Great River 12352	240
Great River 13229	129
Great Rock 13229	127
Great Round Shoal 13244	123
Great Round Shoal Channel 13244	124
Great Salt Pond (New Harbor) 13217	166
Great Sand Creek 12352	244
Great Sippewisset Rock 13229	142
Great South Bay 12352	239
Great South Beach 12352	241
Great South Channel 13200, 13204	110
Green Creek 12352	240
Green Harbor 12352	240
Green Island 12352	243
Green Island 12373	193
Green Island Bridge (State Route 7) 12348	281
Green Jacket Shoal 13225	159
Green Pond 13229	130
Greenport 12358	172
Greenport Harbor 12358	172
Greens Harbor 13213	181
Greens Ledge 12368	211
Greenwich 12367	216
Greenwich Bay 13224	163
Greenwich Cove 12367	215
Greenwich Cove 13224	164
Greenwich Harbor 12367	216
Greenwich Point 12367	215
Gregory Point 12368	211
Greystone Station 12346	274

	Page
Griswold Island 13211	185
Groton 13213	181
Groton Long Point 13214	177
Guilford 12373	192
Guilford Harbor 12373, 12372	192
Guilford Point 12373	192
Gulf, The 12370	199
Gull Island 12358	173
Gull Island 13229, 13230	139
Gull Point 13224	158
Gull Pond 12358	172
Gull Rock 12374	192
Gull Rocks 12373	194
Gull Rocks 13223	155
Gut, The 12368	212
Guttenberg 12341	274
Hackensack River 12337	270
Haddam Island 12377	189
Hadley Harbor 13235, 13229	139
Hadley Rock 13235, 13229	138
Halesite 12365	226
Half Acre Rock 12373	192
Halfmile Rock 13228	150
Halfmoon Shoal 13237	123
Halftide Rock 12375	190
Halftide Rock 13236	142
Halfway Ledge 13223	162
Halfway Rock 13223	156
Halfway Rock 13228	150
Hallets Point 12339	235
Hallets Rock 13229	127
Hallock Bay 12358	172
Hamburg 12375	189
Hamburg Cove 12375	189
Hamilton Beach 12350	256
Hamlin Point 13229	142
Hammett Cove 13236	146
Hammock River 12374	192
Hammonasset Point 12374	192
Hammonasset River 12374	191
Hammonasset State Park 12374	192
Hampton Bays 12352	237
Handkerchief Shoal 13244	123
Handy Point 13236	143
Harbor Bluff 13229	128
Harbor entrances	106
Harbor Ledge 12368	215
Harbormasters	119
Harlem River 12339, 12342	235
Harmon 12343	275
Harrison Island 12367	220
Hart Cove 12352	238
Hart Island 12366	223
Hart Island Roads 12366	223
Hartford 12377	190
Harthaven 13238	133
Harwich Port 13229	126
Hashamomuck Pond 12358	172
Haskell Island 13236	146
Hastings-on-Hudson 12346	275
Hatchett Point 13211	187
Hatchett Reef 13211	187
Haunts Creek 12352	243
Haverstraw 12343	276
Haverstraw Bay 12343	275
Hawes Shoal 13241	132
Hawtree Basin 12350	256
Hay Beach Point 12358	171
Hay Harbor 13214	175
Haycock Ledge 13223	154
Haycock Point 12373	193
Haydens Point 12375	189
Haywater Cove 12358	174
Head of Bay 12350	257
Head of the Harbor 13241	131
Heckscher State Park 12352	240
Hedge Fence 13237	123
Heights	2
Helicopter evacuation	11
Hell Gate 12339	235
Hell Gate Bridge 12339	235
Hempstead Bay 12352	243
Hempstead Harbor 12366	227
Hen and Chickens 12367	216, 220
Hen and Chickens 12375	190
Hen and Chickens 13218	141
Hen Cove 13236	143
Hen Island 12367	219
Hendrix Creek 12350	256
Herring River 13229	126
Hewlett Bay 12352	245
Hewlett Point 12366	228
Hicks Beach 12352	245
Hicks Island 13209	170
Hicks Ledge 12367	220
Higganum Creek 12377	189
High Hill Point 13221	153
High Island 12366	223
High Island 12373	193
High Rock 13211, 13212	185
High Tor 12343	276
Highland Falls 12343	276
Highland Light 13246	121
Highland Park 12332	267
Highlands 12324	262
Highlands 13246	121
Highlands of Navesink 12326	246
Highwater Rock 12368	215
Hitchcock Rock 12367	215
Hither Creek 13241	130
Hoadley Point 12373	193
Hoboken 12335	274
Hodges Rock 13229	128
Hoffman Island 12402, 12327	263
Hog Back 12339	235
Hog Back 13213	183
Hog Creek Point 13209	171
Hog Island 13224	156, 158
Hog Island Channel 12352	244
Hog Neck 13236	145
Hog Neck Bay 12358	173
Holidays	119
Holmes Hill 12358	173
Holmes Rock 12339	235
Holyoke	190
Hook Mountain 12343	275
Hook of the Cape 13246	121
Hope Island 13223	163
Horizontal Datum	15
Horse in Bank 12354	201
Horse Neck 13224	163
Horseneck Beach 13228	149
Horseneck Point 13228	149
Horseshoe Cove 12327, 12401	259
Horseshoe Cove 12358	174
Horseshoe Harbor 12367	220
Horseshoe Reef 13213	179
Horseshoe Shoal 13237	123
Horton Point Light 12354	200
Hospital Cove 13236	142
Housatonic River 12370	199
Howard Beach 12350	256
Huckleberry Island 12366	220
Hudson 12347	278
Hudson Canyon 12300, 12326	111
Hudson Canyon 12326	248
Hudson Channel 12352	244
Hudson Heights 12341	274
Hudson River 12335, 12341, 12345-12346, 12343, 12347-12348	272

	Page
Hudson River Channel 12327	251
Hull Cove 13223	154
Huntington 12365	226
Huntington Bay 12365	225
Huntington Harbor 12365	226
Hunts Point 12339	234
Hunts Rock Breakwater 13229	149
Hurricane	113
Hurricane Havens	114
Hurricane Havens Handbook for the North Atlantic Ocean	114
Hurricane Warnings and Forecasts	114
Hutchinson River 12366	224
Hyannis 13229	128
Hyannis Harbor 13229	127
Hyannis Point 13229	128
Hyannis Port 13229	127
Hyde Park 12347	277
Hydrographer Canyon 13200	111
Hydrographic survey source diagrams	16
Ice	118
Ida Lewis Rock 13223	154
Immersion Hypothermia	116
Immigration and Naturalization Service	6
Immigration and Naturalization Service Offices	288
India Point 13225	159
Indian Harbor 12367	216
Indian Kill 12347	277
Indian Point 12343	276
Indian Reef 12373	192
Indian River 12374	192
Inland Waterways Navigation Regulations	80
International Code of Signals	284
International distress signals	8
International Ice Patrol (IIP)	118
Intrepid Rock 13214	177
Inwood 12350	257
Iona Island 12343	276
Irvington 12346	275
Island Channel 12350	254
Island Creek 12352	243
Island Park 12352	244
Islip 12352	240
Jacobs Point 12358	200
Jamaica Bay 12350	254
James Creek 12358	174
Jamestown 13223	155
Jamestown-North Kingstown Bridge 13223	162
Jeffrey Point 12373	193
Jeffrey Rock 12373	193
Jennings Point 12358	172
Jersey City 12335	274
Jersey Flats 12334	257
Jerusalem 13219	167
Jessup Neck 12358	173
Jobs Neck 13233	139
Jockey Creek 12358	172
Joe Burris Ledge 13228	150
John F. Kennedy (New York) International Airport 12350	257
Johns Rock 13211	185
Johnson Point 12373	194
Johnsons Creek 12369	204
Jones Beach Coast Guard Station	243
Jones Beach State Park 12352	243
Jones Inlet 12352	243
Jones Island 12352	243
Jones Point 12343	276
Jones Rocks 12367	216
Jordan Cove 13211, 13212	185
Joshua Cove 12373	193
Juniper Point 13235, 13229	138
Katama Bay 13238	132
Keansburg 12331	263

	Page
Kellys Bay	127
Kelsey Point 12374	191
Kelsey Point Breakwater 12374	191
Kettle Bottom Rock 13223	154
Keyport 12331	264
Keyport Harbor 12331	264
Kickamuit River 13221	156
Kill Pond Bar 13229	125
Kill Van Kull 12333	268
Kimberly Reef 12374	192
Kings Park 12363	225
Kings Point 12366	229
Kingston 12347	278
Kingston Point 12347	278
Kingston-Rhinecliff Bridge State Route 199 12347	278
Kitemaug 12372	184
Knob, The 13229	141
Knox Point 13229, 13230	139
Knubble, The 13228	149
L'Hommedieu Shoal 13237	123
La Guardia Airport 12339	234
Lackeys Bay 13233	139
Lagoon Pond 13238	136
Lake Champlain	282
Lake Montauk 13209	169
Lake Tashmoo 13233	137
Larchmont Harbor 12367	220
Latimer Reef 13214	177
Laurel 12377	187
Laurence Harbor 12331	264
Lawrence Point 12339	234
Lawtons 13223	156
Lee River 13221	156
Leetes Island Quarry 12373	193
Leetes Rocks 12373	193
Legal public holidays	119
Lemon Creek 12331	263
Leonardo 12327	262
Lewis Bay 13229	127
Lewis Pond 13229	127
Liberty Island 12334	259
Lieutenant River 12375	188
Light and fog signal characteristics	2
Light Lists	5, 284
Lighthouse Point 12371	197
Lights	19
Lindenhurst 12352	242
Lionhead Rock 13209	171
List of Lights	284
Little Bay 12366	229
Little Bay 13229	147
Little Bird Island 13236	145
Little Captain Island 12367	216
Little Compton 13221	153
Little Cows, The 12369	209
Little Ferry 12337	271
Little Gull Island 13212	169
Little Gull Reef 13212	169
Little Harbor 13235, 13229	139
Little Hell Gate 12339	234
Little Ida Lewis Rock 13223	154
Little Island 13229	129, 142
Little Island 13236	146
Little Mermaid 12373	194
Little Narragansett Bay 13214	176
Little Neck Bay 12366	229
Little Peconic Bay 12358	173
Little Pleasant Bay 13248	122
Little River 13229	129
Little Rock 13211	185
Little Round Shoal 13244	123
Little Seatuck Creek 12352	238
Little Silver Creek 12324	262
Little Southwest Rock 13228	149

	Page
Little Stony Point 12343	277
Little Whale 13223	161
Lloyd Harbor 12365	226
Lloyd Neck 12365	226
Lloyd Point 12365	226
Lobster pots	111
Local magnetic disturbances	19
Local Notice to Mariners	2
Lock and Dam, Troy 12348	281
Locust Point 12324	262
Locust Point 12366	224
Lone Rock 13229	128
Lone Rock 13233	137, 139
Lone Rock 13238	133
Long Beach 12352	244
Long Beach Point 12358	171
Long Beach Point 13236	145
Long Creek 12352	244
Long Island 13229	147
Long Island Intracoastal Waterway 12352	237
Long Island Sound 12354	180
Long Neck Point 12368	212
Long Point 12352	239
Long Point 13224	164
Long Sand Shoal 12354	190
Long Shoal 13241	132
Loran	106
LORAN-C	24
Loran-C information	25
Lord Cove 12375	189
Lords Passage 13214	168
Lovers Island 12373	194
Lower Bay 12327	251
Lower Nyack Landing 12343	275
Lucas Shoal 13233	137
Lumber Rock 13228	149
Luminous range	19
Luppatatong Creek 12331	264
Lydonia Canyon 13200	111
Mackerel Cove 13223	154
Madaket Harbor 13241	130
Madison 12374	192
Madison Reef 12374	192
Maelstrom, The 12347	278
Magazine Point 12343	277
magnetic disturbances, local	19
Maidstone Park 13209	171
Main Channel 13237	124
Maltby Cove 12373	193
Mamaroneck 12367	220
Mamaroneck Harbor 12367	219
Manhasset Bay 12366	228
Manhassett Creek 12324	262
Manhattan Beach 12350	254
Manhattan Bridge 12335	236
Manorhaven 12366	228
Manresa Island 12368	211
Mansfield Point 12373	194
Manursing Island Reef 12367	219
Marine Broadcast Notices to Mariners	2
MARINE POLLUTION	29
Marine Weather Service Charts	284
Mariners Harbor 12333	268
Marion 12337	270
Marion 13236	146
Maritime Academy, Massachusetts 13236	144
Maritime Radio User Handbook	284
Marks Cove 13236	145
Marlboro 12347	277
Marsh Island 13224	159
Martha's Vineyard 13233	132
Mashnee Island 13236	143
Mashomack Point 12358	173
Mashpee Neck 13229	129
Mason Island 13214	177
Mason Point 13214	177
Maspeth Creek 12338	235
Massachusetts Maritime Academy 13236	144
Mastic 12352	239
Matawan Creek 12331	264
Matawan Point 12331	264
Matinecock Point 12367	227
Mattapoisett 13229	146
Mattapoisett Harbor 13229	146
Mattapoisett Ledge 13229	146
Mattapoisett Neck 13229	146
Mattituck 12358	200
Mattituck Inlet 12358	200
Matunuck 13215	168
Matunuck Point 13215	168
McBlair Shoal 13237	110
McCorrie Point 13221	153
Meadow Island 12352	243
Meadow Island 13236	146
Mean Low Water	15
Mean Lower Low Water	15
Measured Courses	288
Medical advice and/or evacuation	11
Meeting House Pond 13248	123
Meetinghouse Creek 12358	174
Megansett 13236	142
Megansett Harbor 13236	142
Melton Ledge 13213	183
Melville 13223	156
Menauhant 13229	129
Mendells Rock 13236	146
Menemsha 13233	137
Menemsha Basin 13233	137
Menemsha Bight 13233	137
Menemsha Creek 13233	137
Menemsha Pond 13233	137
Menunketesuck Island 12374	191
Menunketesuck River 12374	191
Mercator projection	19
Merchant Marine Academy, U.S. 12366	229
Merrick Creek 12352	243
Miamogue Point 12358	174
Mianus 12367	216
Mianus River 12367	215
Mid Hudson Bridge (U.S. 44) 12347	277
Middle Bay 12352	244
Middle Beach 12374	192
Middle Cove 12375	189
Middle Ground 12367	220
Middle Ground 13214	176
Middle Ground 13229, 13230	140
Middle Ground 13233	137
Middle Ground 13238	133
Middle Ground Flats 12347	278
Middle Hudson River Light 11 12347	278
Middle Ledge 13229, 13230	140
Middle Ledge 13235	138
Middle Reef 12366	220
Middle Rip 13204	110
Middle Shoal Rock 13212	169
Middletown 12377	190
Midland Beach 12402, 12327	263
Midway Shoal 13209	171
Milburn Creek 12352	244
Milford Harbor 12370	199
Milford Point 12370	199
Military Academy, U.S. 12343	276
Mill Basin 12350	256
Mill Cove 13223	162
Mill Creek 12350	254
Mill Creek 12358	172, 173
Mill Creek 13229	126
Mill Neck Creek 12365	227
Mill Pond 12367	219

	Page
Mill River 12371	196
Mill Rock 12339	235
Millstone Point 13211, 13212	185
Milton Harbor 12367	219
Milton Point 12367	219
MINECLEARING-CAUTION	27
minimum under-keel clearance	250
minimum under-keel clearance for selected areas of the Harbor Safety, Navigation and Operations Committee of the Port of New York and New Jersey	250
Mishaum Ledge 13228	141
Mishaum Point 13229	149
Mitchell River 13229	125
Mitchell Rock 13223	155
Mohegan Bluffs 13217	166
Money Island 12373	193
Monomoy Island 13237	125
Monomoy Point 13244	123
Monomoy Shoals 13244	123
Montauk 13209	170
Montauk Harbor 13209	169
Montauk Point 13209	169
Montauk Shoal 13209	169
Montville Station 12372	184
Monument Beach 13236	143
Monument, Sailors and Soldiers 12341	274
Morgan 12331	264
Morgan Point 13214	177
Moriches Bay 12352	238
Moriches Inlet 12352	239
Morris Cove 12371	196
Morris Island 13248	122
Morris Rock 12365	226
Morses Creek 12333	267
Moses Point 12365	227
Mosher Ledge 13229	147
Moshers Point 13229	149
Mosquito Cove 12366	228
Mott Point 12366	228
Motts Basin 12350	257
Mount Hope 13221	156
Mount Hope Bay 13221	156
Mount Hope Bridge 13221	156
Mount Misery 12362	201
Mount Misery Shoal 12362	202
Mount Prospect 13214	168
Mount Sinai Harbor 12362	201
Mouse Island 13214	177
Mud (West Senix) Creek 12352	239
Mud Creek 12352	239, 242
Mud Creek 12358	174
Mud Gorge 12300, 12326	111
Mud Gorge 12326	248
Mumford Cove 13213, 13212, 13214	179
Muskeget Channel 13233	132
Muskeget Island 13241	130
Musselbed Shoals 13224	156
Mutton Shoal 13233	132
Mystic 13214	179
Mystic Harbor 13214	177
Mystic River 13214	177
Mystic Seaport Museum 13214	179
Namequoit Point 13248	122
Namequoit River 13248	123
Nannaquaket Pond 13221	153
Nantucket (Great Point) Light 13241	130
Nantucket 13242	130
Nantucket Harbor 13242	130
Nantucket Island 13241	130
Nantucket Shoals 13204, 13200, 13237	109
Nantucket Shoals 13237	123
Nantucket Shoals Lighted Horn Buoy N 13204, 13200	110
Nantucket Sound 13237	123
Napatree Beach 13214	175
Napatree Point 13214	175
Napatree Point Ledge 13214	176
Napeague Bay 13209	170
Napeague Harbor 13209	170
Narragansett Bay 13221	151
Narragansett Pier 13223	161
Narraskatuck Creek 12352	242
Narrow Bay 12352	239
Narrow channels	30
Narrows 13214	179
Narrows, The 12334, 12402	257
Narrows, The 12352	244
Narrows, The 13248	122
Nash Island 12368	212
Nashawena Island 13229, 13230, 13233	139
Nasketucket Bay 13229	147
Nasketucket River 13229	147
Nassau Point 12358	174
National Data Buoy Center Meteorological Buoys	4
National Environmental Satellite, Data, and Information Service	8
National Hurricane Center/Tropical Prediction Center	114
National Imagery and Mapping Agency	2
National Imagery and Mapping Agency (NIMA)	6
National Imagery and Mapping Agency Procurement Information	283
National Institute of Standards and Technology (NIST)	13
National Ocean Service (NOS)	3
National Ocean Service Offices	283
National Seashore, Fire Island 12352	239
National Weather Service	7
National Weather Service Forecast Offices (WSFOs)	7, 287
National Weather Service Offices	7, 287
National Weather Service Port Meteorological Officers (PMOs)	8, 287
National Wildlife Refuge, Werthein 12352	239
Naugatuck River 12370	199
Nauset Bay 13246	122
Nauset Beach 13248	122
Nauset Beach Light 13246	122
Nauset Harbor 13246	122
Naushon Island 13233	139
Nautical Almanac	284
Nautical Charts	13
Nautical charts	3
Navesink River 12324	259
Navigation Guidelines, Narragansett Bay	151
Navigation Regulations	94
Navigation Rules	284
Navigation Safety Regulations	80
NAVTEX	13
Nayatt Point 13224	158
Nebraska Shoal 13215	168
Neck, The 13229	125
Ned Point 13229	146
Neds Creek 12352	243
Negro Bar Channel 12350	257
Negro Heads 12373	193
Negro Ledge 13229	147
Negro Point 12339	235
Neguntatogue Creek 12352	242
Neptune Island 12366	223
New Baltimore 12348	279
New Bedford 13229	147
New Bedford Harbor 13229	147
New Brighton 12333	268
New Brunswick 12332	264
New Hamburg 12347	277
New Haven 12371	194
New Haven Harbor 12371	194
New London 13213	181
New London Harbor 13213	181
New London Ledge 13213	183
New London Ledge Light 13213	181
New Milford 12337	270
New Rochelle 12367	220
New Rochelle Harbor 12366	223
New Suffolk 12358	174

	Page
New Windsor 12343	277
New York City Department of Ports and Terminals	253
New York Harbor 12327	246, 248
New York Maritime College 12366	229
New York Naval Shipyard 12335	236
New York State Barge Canal System	281
Newark 12337	270
Newark Bay 12333, 12337	268
Newburg-Beacon Bridge (IS 84) 12343	277
Newburgh 12343	277
Newfoundland Reef 12367	215
Newport 13223	154
Newport Harbor 13223	154
Newport Neck 13223	154
Newton Rock 13223	154
Newtown Creek 12338	235
Niantic 13211	185
Niantic Bay 13211	185
Niantic River 13211	185
Nickersons Neck 13248	122
Nicks Point 12352	243
Nicoll Bay 12352	240, 241
Nicoll Island 12352	240
Nicoll Point 12352	240
Nicoll Point 12358	173
Ninigret Pond 13215	168
Nissequogue River 12363	224
NIST Time and Frequency Dissemination Services, Special Publication 432	13
NOAA Weather Radio	7, 13, 287
Noank 13214	177
Nobska Point 13230, 13229	136
Nobska Point Ledges 13230, 13229	137
Nomans Land 13233	137
Nominal range	19
Nonamesset Island 13235, 13229	137
Nonamesset Shoal 13235, 13229	138
Nonquitt 13229	149
Noroton Point 12368	212
North American Datum of 1983	15
North Bay 13229	129
North Brother 13211	185
North Brother Island 12339	234
North Channel 12350	254
North Channel 13237	124
North Chatham 13246	122
North Cove 12375	188
North Dumpling 13214	175
North Falmouth 13236	142
North Germantown 12347	278
North Haven Peninsula 12358	173
North Ledge 12367	220
North Manursing Island 12367	216
North Point 13233	139
North Race 12358	174
North River 12335, 12341, 12345-12346, 12343, 12347-12348	272
North Sea Harbor 12358	173
Northern right whale	31
Northern right whales	107
Northern Right Whales 13200	110
Northport 12365	226
Northport Basin 12365	225
Northport Bay 12365	225
Northport Harbor 12365	225
Northwest Harbor 12358	173
Northwest Point 12350	257
Norton Point 12402	257
Norton Point 13233	137
Norton Shoal 13241	132
Norwalk 12368	211
Norwalk Cove 12368	211
Norwalk Harbor 12368	211
Norwalk Islands 12368	210
Norwalk River 12368	211
Norwich 12372	184
Notice to Mariners	2
Notices to Mariners	2, 284
Nova Scotia Bar 12350	256
Noyack (Noyac) Bay 12358	173
Noyes Rock 13214	177
Noyes Shoal 13214	177
Nutley 12337	270
Nyack 12343	275
Nye Ledge 13229	146
Nyes Neck 13236	142
Oak Beach 12352	242
Oak Bluffs 13238	133
Oak Bluffs Harbor 13238	133
Oak Island 12352	242
Oak Island Channel 12352	242
Oak Neck Creek 12365	227
Oak Neck Point 12367	227
Oakland Beach 12367	219
Oakland Beach 13224	163
Obstructions	2
Occupessatuxet Cove 13224	158
Ocean Beach 12352	240
Oceanographer Canyon 13200	111
Oceanport Creek 12324	262
Oceanside 12352	244
Offshore Terminal, Northport 12365	225
Offshore Terminal, Northville-Riverhead 12358	200
Ohio Ledge 13224	158
Oil Pollution	29
Old Bridge 12332	264
Old Bull 13221	153
Old Clump 12373	194
Old Cock 13228	141
Old Ferry Point 12366	233
Old Field Point 12363	224
Old Greenwich 12367	215
Old Harbor 13217	166
Old Lyme 12375	188
Old Man 13233	137
Old Man Shoal 13237	110
Old Mill Creek 12350	256
Old Mystic 13214	179
Old Neck Creek 12352	239
Old Orchard Shoal 12402, 12327	263
Old Reef 13215	168
Old Saybrook 12375	188
Old Sergeant 13223	162
Old Silas Rock 13212	169
Old South Shoal 13200	110
Onset 13236	145
Onset Bay 13236	145
Optical Phenomena	117
Orchard Beach 12366	223
Orchard Neck Creek 12352	239
Orient 12358	172
Orient Harbor 12358	172
Orient Point 13209	171
Orient Shoal 12354	200
Orion Shoal 13244	123
Orleans 13248	122
Orowoc Creek 12352	241
Ossining 12343	275
Osterville 13229	128
Osterville Grand Island 13229	129
Oswego Canal	282
Otter Rocks 12367	216
Outer Island 12373	193
Outer Steamboat Rock 12367	219
Outer White Top 12373	192
Overpeck Creek 12337	271
Oyster Bay 12365	226, 227
Oyster Bay Harbor 12365	227
Oyster Pond 13229	126
Oyster Pond Reef 13209	171
Oyster Pond River 13229	126

	Page
P.O.R.T.S.	250
Packaged Marine Pollutants	30
Padanaram Breakwater 13229	149
Paerdegat Basin 12350	256
Palisades State Park 12345	274
Palmer Island 13229	147
Paper Rock Shoal 12377	190
Paradise Point 12358	173
Parker Creek 12324	262
Parker Flats 13235, 13229	138
Parkers River 13229	127
Parsonage Cove 12352	244
Parsonage Island 12352	244
Passaic 12337	270
Passaic River 12337	270
Patchogue 12352	240
Patchogue Bay 12352	240
Patchogue River 12352	240
Patchogue River 12374	191
Patience Island 13224	163
Patroon Island Bridge (IS 90) 12348	281
Paw Wah Pond 13248	122
Pawcatuck Point 13214	176
Pawcatuck River 13214	176
Pawn Rock 13228	149
Pawtucket 13224	159
Pawtuxet 13224	159
Pawtuxet Cove 13224	158
Pea Island 12366	220
Peacock Point 12367	227
Peaked Hill Bar 13246	121
Peartree Point 12368	212
Pease Ledge 13229, 13230	140
Peck Ledge 12368	210
Pecks Mill 12370	199
Pecks Rock 12367	215
Peconic River 12358	174
Peekskill 12343	276
Pelham 12366	224
Penataquit Creek 12352	241
Penfield Reef 12369	209
Penfield Reef Light 12369	209
Penikese Island 13229, 13230	139
Peningo Neck 12367	219
Penzance 13235, 13229	138
Penzance Point 13235, 13229	138
Pequonnock River 12369	204
Pequotsepos Brook 13214	177
Perth Amboy 12331	267
Peters Point 13221	156
Pettit Marsh 12352	243
Pews Creek 12401, 12327	263
Phelps Bank 13204	110
Phelps Ledge 13209	169
Phillipsdale 13224	159
Phinneys Harbor 13236	143
Physical Oceanographic Real-time System (P.O.R.T.S.)	250
Picket Rock 12366	228
Pierhead Channel 12334	259
Piermont 12346	275
Piermont Pier 12346	275
Pilot Boat Cruising Area, New York Harbor 12326	248
Pilotage	119
Pilotage Pickup Locations Off Montauk Point	169
Pilotage, Albany	280
Pilotage, Block Island Sound and Long Island Sound	166
Pilotage, Cape Cod Canal	144
Pilotage, City Island	223
Pilotage, Connecticut River	188
Pilotage, East River	229
Pilotage, Fall River	157
Pilotage, Hudson River	253, 274
Pilotage, Long Island Sound	181
Pilotage, Narragansett Bay and Other Rhode Island Waters	152
Pilotage, New Bedford	148
Pilotage, New Haven	197
Pilotage, New London-Groton	183
Pilotage, New York Harbor and Approaches	252
Pilotage, New York Harbor from Long Island Sound	252
Pilotage, Newport	155
Pilotage, Norwalk	211
Pilotage, Offshore Terminal, Northport	225
Pilotage, Offshore Terminal, Northville-Riverhead	201
Pilotage, Port Jefferson	202
Pilotage, Providence	160
Pilotage, Raritan River and Arthur Kill	263
Pilotage, Thames River	184
Pine Creek Point 12369	209
Pine Grove 13211	185
Pine Island 12367	220
Pine Island 13213	179
Pine Island Channel 13213	181
Pine Marsh 12352	244
Pine Neck 12352	238
Pine Neck Point 12352	238
Pine Orchard 12373	193
Pine Point 12368	212
Pine Point 13209	171
Pinetree Ground 13228	150
Piney Point 13236	146
Pipelaying barges	107
Planting Island 13236	146
Planting Island Cove 13236	146
Playland 12367	219
Pleasure Bay 12324	262
Plum Gut 13209	171
Plum Gut Harbor 13209	170
Plum Island 13209	170
Plum Island Rock 13209	170
Plum Point 12365	227
Plum Point 12366	228
Plumb Beach Channel 12350	254
Pocasset Harbor 13236	142
Pocasset River 13236	143
Point Comfort 12331	263
Point Gammon 13229	127
Point Judith Harbor of Refuge 13219	167
Point Judith Light 13219	167
Point Judith Neck 13218	164
Point Judith Pond 13219	167
Point Lookout 12352	244
Point o' Woods 12352	240
Point Rip 13241	130
Pollepel Island 12343	277
Pollock Rip 13244	123
Pollock Rip Channel 13244	124
Pollution from Ships	29
Pollution-Ocean Dumping	30
Polpis Harbor 13241	131
Pomham Rocks 13225	159
Pond Point 12370	198
Ponquogue Point 12352	238
Poorhouse Flats Lighted Range 12335	236
Popasquash Neck 13224	158
Popes Island 13229	147
Poplar Point 13223	162
Popponesset Bay 13229	129
Popponesset Island 13229	129
Porgy Shoal 12367	219
Porpoise Channel 12363	224
Port Authority of New York and New Jersey	253
Port Chester 12367	216
Port Chester Harbor 12367	216
Port Elizabeth Marine Terminal 12333	268
Port Jefferson 12362	202
Port Jefferson Harbor 12362	202
Port Johnson 12333	268
Port Monmouth 12401, 12327	263
Port Morris 12339	234

	Page
Port Newark Terminal 12337	270
Port Reading 12331	267
Port Richmond 12333	268
Port Series of the United States	284
Port Socony 12331	267
Port Washington 12366	228
Portland 12377	190
Ports and Waterways Safety-General	67
Pot Island 12373	193
Potash Bar 12377	189
Potowomut Neck 13224	163
Potowomut River 13224	163
Potter Cove 13223	155
Potter Cove 13224	158
Potter Pond 13219	167
Potunk Point 12352	238
Poughkeepsie 12347	277
Powder Island 13213	183
Powell Cove 12366	233
Pratt Creek 12377	189
Pratt Island Two 12368	212
Premium Point 12367	220
Preparations for being towed by Coast Guard	12
Prince Cove 13229	129
Promised Land 13209	170
Promised Land Channel 13209	170
Prospect Hill 13209	169
Prospect Point 12366	228
Providence 13224, 13225	158
Providence Point 13224	164
Providence River 13224, 13225	158
Provincetown 13249	121
Provincetown Harbor 13249	121
Prudence Island 13221	151
Prudence Island 13224	158
Public Health Service	7
Public Health Service Quarantine Stations	287
Pugsley Creek 12339	233
Pumpkin Patch Channel 12350	254
Quahaug Bar 13236	145
Quantuck Bay 12352	238
Quantuck Canal 12352	238
Quantuck Creek 12352	238
Quarantine stations	287
Quarantine stations, human	287
Quarantine, animal	2, 287
Quarantine, human	7, 287
Quarantine, plant	2, 287
Queensboro Bridge 12339	235
Quicks Hole 13229, 13230	139
Quicksand Point 13228	150
Quinnipiac River 12371	196
Quissett 13229	142
Quissett Harbor 13229	141
Quixes Ledge 12371	197
Quogue Canal 12352	238
Quonochontaug 13215	168
Quonochontaug Breachway 13215	168
Quonochontaug Pond 13215	168
Quonset Point 13223	163
Race Point 13214, 13212	168
Race Point 13249	121
Race Point Ledge 13214, 13212	168
Race Rock 13214, 13212	168
Race, The 13209, 13212	169
Racehorse Channel 12352	243
Racons	24
Radar	30, 106
Radar beacons (Racons)	24
Radar reflectors on small craft	12
Radio aids to navigation	2
Radio bearings	21
Radio distress procedures	8
Radio navigation warnings and weather	12
Radio Navigational Aids	284
Radio shore stations providing medical advice	288
Radio Weather Broadcasts	287
Radiobeacons	21
RADIOMEDICAL	12, 288
RADIONAVIGATION USER INFORMATION	25
Radiotelephone channels	31
Rahway 12333	268
Rahway River 12333	268
Ram Head 12358	171
Ram Island 12358	174
Ram Island 13214	177
Ram Island 13229	147
Ram Island 13236	146
Ram Island Reef 13214	177
Ram Island Shoal 13214	177
Randall Bay 12352	244
Randalls Island 12339	234
Rands Harbor 13236	142
Range Channel 12352	241
Ranges	2
Rapid Rock 13213	183
Raritan Bay 12331	263
Raritan Bay Channel 12401, 12327	251
Raritan River 12332	264
Rat Island 12366	223
Red Bank 12324	262
Red Bank 12331	263
Red Brook Harbor 13236	143
Red Hook Channel 12334	257
Red Ledge 13235, 13229	138
Red Reef 13214	177
Red Rock 12367	215
Red Rock 13223	162
Reeves Bay 12358	175
Reeves Creek 12358	174
Regulated Navigation Areas and Limited Access Areas	89
Rensselaer 12348	279
Repairs-salvage-wrecking	119
Reported information	2
Reports from ships	13
Reynolds Channel 12352	244
Rhode Island 13221	151
Rhode Island Rock 13238	133
Rhode Island Rocks 12368	215
Rhode Island Sound 13218	140, 151
Ribbon Reef 13230	141
Richmond Creek 12358	173
Riding Rock 12373	192
Rikers Island 12339	234
Rikers Island Channel 12339	233
Rip Van Winkle Bridge State Route 23 12347	278
River Ledge 13223	161
River, The 13248	123
Riverhead 12358	174
Riviere Richelieu	282
Roa Hook 12343	276
Roanoke Point Shoal 12354	201
Robbins Reef Light 12334	259
Robbins Rock 13238	136
Robert Moses (Fire Island) State Park 12352	241
Robins Island 12358	174
Robins Island Rock 12358	174
Robinsons Hole 13229, 13230	139
Rock Island 13224	159
Rockaway Beach 12350	256
Rockaway Inlet 12350	254
Rockaway Point 12350	246, 254
Rocky Hill 12377	190
Rocky Point 12354	200
Rocky Point 12365	226
Rocky Point 13224	164
Rodgers Rock 12358	174
Rogers Island 12373	193

	Page
Rome Point 13223	162
Romer Shoal 12402, 12327	251
Rondout Creek 12347	278
Roosevelt Island (Welfare Island) 12339	235
Roosevelt Island Reef (Welfare Island Reef) 12335	235
Roosevelt Memorial Basin 12365	227
Rose and Crown 13237	110
Rose Island 13223	154
Roslyn 12366	228
Roton Point 12368	212
Round Cove 13248	122
Round Hill Point 13229	149
Round Rock 13223	163
Round Rock 13224	163
Routes	111
Rowayton 12368	212
Ruffle Bar 12350	256
Ruins 13209	170
Rumson 12324	262
Rumstick Ledge 13224	158
Rumstick Neck 13224	158
Rumstick Point 13224	158
Rumstick Rock 13224	158
Rumstick Shoal 13224	158
Rutherford 12337	270
Ryder Cove 13248	122
Rye Beach 12367	219
Sabin Point 13224	159
Sachem Head 12373	192
Sachem Head Harbor 12373	193
Sachuest Point 13221	153
Sag Harbor 12358	173
Sag Harbor Cove 12358	173
Sailing Directions	284
Sailors and Soldiers Monument 12341	274
Sailors Haven 12352	240
Sakonnet Harbor 13221	153
Sakonnet Point 13221	153
Sakonnet River 13221	153
Sales agents	3
Sales Information	283
Salmon Cove 12377	189
Salt Pond 13246	122
Salt Pond Bay 13246	122
Saltaire 12352	240
Salters Point 13229	149
Sampawams Creek 12352	242
Sampawams Point 12352	242
Sampsons Island 13229	129
Sand Hole, The 12365	226
Sand Spit 12358	173
Sands Point 12366	228
Sandy Hook 12327, 12401	246, 259
Sandy Hook Bay 12327, 12401	259
Sandy Hook Channel 12327	251
Sandy Point 12371	196
Sandy Point 13211	185
Sandy Point 13214	175, 176
Sandy Point 13215	165
Sandy Point 13221	153
Sandy Point 13224	164
Sankaty Head Light 13241	130
Saquatucket Harbor 13229	126
Sarah Ledge 13213	183
SARSAT	22
SATELLITE POSITION INDICATING RADIO BEACON (EPIRB)	22
Sauga Point 13223	162
Saugatuck 12368	210
Saugatuck River 12368	210
Saugerties 12347	278
Saunders Point 13211	185
Saunderstown 13223	162
Saybrook Outer Bar 12375	187
Sayreville 12332	267
Scarborough Beach 13218	164
School House Creek 12358	174
Schuyler Ledge 13221	153
Sconticut Neck 13229	147
Scotch Caps 12367	219
Scott Cove 12368	212
Scow Creek 12352	244
Scraggy Neck 13236	142
Scup Rock 13223	163
Sea Bright 12324	262
Sea Cliff 12366	228
Sea Dog Creek 12352	244
Seaflower Reef 13214	175
Seaford 12352	243
Seaford Creek 12352	243
Seal Ledge 13223	154
Seal Rock 13211	187
Seal Rock 13223	154, 162, 163
Seal Rocks 13214	175
Seal Rocks 13236	142, 146
Seapit River 13229	129
Seapuit River 13229	129
Search and Rescue	8
Searchlights	30
Sears Point 13229	126
Seaside 13211, 13212	185
Seatuck Cove 12352	238
Seatuck Creek 12352	238
Sebonac Creek 12358	174
Secaucus 12337	271
Security Broadcast System, Narragansett Bay	151
Seekonk River 13224, 13225	159
Seiche	26
Seine Pond 13229	127
Seismic sea waves	26
Selected Worldwide Marine Weather Broadcasts	7, 284
Senator Shoal 13229	127
Sengekontacket Pond 13238	133
Senix Creek 12352	239
Sesachacha Pond 13241	130
Setauket 12362	202
Setauket Harbor 12362	202
Seymour Point 12368	210
Shag Bank 12371	196
Shagwong Reef 13209	169
Shagwong Rock 13209	169
Shaw Cove 13213	181
Sheep Rocks 12368	210
Sheepshead Bay 12350	254
Sheffield Island 12368	210
Sheffield Island Harbor 12368	210, 211
Shell Bank Creek 12350	254
Shellbank Basin 12350	256
Shelter Island Heights 12358	172
Shelter Island Sound 12358	171
Shelton 12370	199
Sherwood Point 12369	210
Shetucket River 12372	184
Shinnecock Bay 12352	237
Shinnecock Canal 12352	237
Shinnecock Inlet 12352	237
Shinnecock Light 12352	238
Ship Rock 12367	219
Shippan Point 12368	212
Shoal Point 12369	209
Shooters Island 12333	268
Short Beach 12352	243
Short Beach 12373	194
Shovelful Shoal 13241	132
Shrewsbury River 12324	259
Sias Point 13236	145
Siasconset 13241	130
Silver Beach Harbor 13236	142
Silver Eel Cove (Silver Eel Pond) 13214	175
Sing Sing Prison 12343	275

	Page
Sippican Harbor 13236	146
Sippican Neck 13236	146
Sisters, The 13223	155
Sixmile Reef 12354	190
Slocums Ledge 13228	149
Slocums River 13228	149
Sloop Channel 12352	243
Sluice Creek 12373	192
Sluiceway, The 13212	169
Small-craft facilities	119
Smith Cove 12358	173
Smith Cove 12367	216
Smith Cove 13211	185
Smith Creek 12331	267
Smith Meadow 12352	244
Smith Neck 13229	149
Smith Point 12352	239
Smith Reef 12368	212
Smithtown Bay 12363	224
Snipe Island 12352	243
Snow Rock 13229	146
Snug Harbor 13219	167
Somerset 13221	156, 158
Sommerville Basin 12350	256
Source diagrams	16
South Amboy 12332	267
South Beach 12402, 12327	263
South Brother 13211	185
South Brother Island 12339	234
South Brother Island Channel 12339	234
South Dartmouth 13229	149
South Dennis 13229	126
South Ferry 12358	173
South Ferry 13223	162
South Jamesport 12358	174
South Nonations 12366	220
South Norwalk 12368	211
South Oyster Bay 12352	243
South Race 12358	174
South River 12332	264, 267
South Swansea 13221	156
South Wellfleet 13246	122
South Yarmouth 13229	126
Southold 12358	172
Southold Bay 12358	172
Southport 12369	209
Southport Harbor 12369	209
Southwest Ground 13229	128
Southwest Ledge 13215	165
Southwest Ledge 13236	142
Southwest Ledge Light 12371	196
Southwest Point 13223	154
Southwest Reef 12374	191
Southwest Rock 13229	128
Sow and Pigs Reef 13230	141
Spar Island 13221	156
Special Notice to Mariners	284
Special signals	27
Spectacle Island 12373	193
Speonk Point 12352	238
Spider, The 12327	251
Spindle Rock 13229	128
Spoil areas	19
Spuyten Duyvil Creek 12345	274
Squam Head 13241	130
Squash Meadow 13238	133
Squaw Island 13229	128
Squeteague Harbor 13236	142
Squibnocket Point 13233	137
St. Elmo's fire	118
St. George 12334	251
St. Helena Island 12373	193
St. Patrick Rock 13223	155
Stage Harbor 13229	125
Stage Island 13229	125
Stamford 12368	212
Stamford Harbor 12368	212
Standard Time	119
Star Island 13209	169
State Boat Channel 12352	241
State Park, Heckscher 12352	240
State Park, Robert Moses (Fire Island) 12352	241
Staten Island 12327	263
Staten Island Flats 12327	263
Staten Island Light 12402, 12327	251
Statue of Liberty 12334	259
Stepping Stones 12366	228
Stirling Basin 12358	172
Stone Creek 12352	243
Stone Horse Shoal 13244	123
Stone Island 12374	191
Stone Island Reef 12374	191
Stonington 13214	176
Stonington Harbor 13214	176
Stonington Point 13214	176
Stony Brook 12363	224
Stony Brook Harbor 12363	224
Stony Creek 12373	193
Stony Island 12373	192
Stony Islet 12371	196
Stony Point 12343	276
Stony Point 12368	210
Stony Point Dike 13236	145
Storm King Mountain 12343	277
Storm surge	26
Strait, The 13235, 13229	138
Stratford 12370	199
Stratford Point 12370	199
Stratford Shoal Middle Ground 12354	200
Strawberry Point 13229	146
Strongs Creek 12352	242
Strongs Point 12352	242
Stump Creek 12331	264
Sturgeon Flats 13238	133
Stuyvesant 12348	279
Submarine cables and submerged pipelines	18
Submarine canyons	111
Submarine Emergency Identification Signals and Hazard to Submarines	27
submerged pipelines	18
Success Rock 12366	228
Succonnesset Point 13229	129
Succonnesset Shoal 13229	129
Succotach Point 13219	167
Sugar Reef 13214	168
Sugar Reef Passage 13214	168
Sumac Island 12373	193
Sunken Ledge 13229	146
Sunken Meadow 12339	234
Sunken Meadow Creek 12363	224
Superstructure Icing	116
Supplies	119
Surface ship procedures for assisting aircraft in distress	10
Surface ship procedures for assisting distressed surface vessels	9
Swan Pond 13229	126
Swan Pond River 13229	126
Swan River 12352	239
Swash Channel 12327	251
Swifts Beach 13236	145
Swifts Creek 12352	243
Swinburne Island 12402, 12327	263
Tallman Island 12366	233
Tallman Mountain State Park 12345	274
Tappan Zee 12343	275
Tappan Zee Bridge IS 87/287 12343	275
Tarpaulin Cove 13233	139
Tarrytown 12343	275
Taunton 13221	156
Taunton River 13221	156
Taunton Rock 12373	194

	Page
Tavern Island 12368	211
Taylor Point 13223	155
Terminal Channel 12401, 12327	251, 262
Tern Island 13248	122
Terrys Creek 12358	174
Thames River 13213, 13212	181
Thamesville 12372	184
Thatch Island 13229	129
Thatchbed Island 12375	189
The Bar 12370	199
The Battery 12327	248
The Blauzes 12366	223
The Bonnet 13223	162
The Bow Bells 13236	146
The Breachway 13219	167
The Cove 13221	153
The Cows 12368	215
The Dumplings 13223	154
The Gulf 12370	199
The Gut 12368	212
The Knob 13229	141
The Knubble 13228	149
The Little Cows 12369	209
The Maelstrom 12347	278
The Narrows 12334, 12402	257
The Narrows 12352	244
The Narrows 13248	122
The Neck 13229	125
The Race 13209, 13212	169
The River 13248	123
The Sand Hole 12365	226
The Sisters 13223	155
The Sluiceway 13212	169
The Spider 12327	251
The Strait 13235, 13229	138
The Thimbles 12373	193
The Wildcat 13228	141
Thimble Island Harbor 12373	193
Thimbles, The 12373	193
Thompson Cove 13214	176
Thorns Creek 12331	263
Threemile Harbor 13209	171
Throgs Neck 12366	229
Throgs Neck Bridge 12366	229
Thurston Basin 12350	257
Tiana Beach 12352	238
Tidal Current Charts	3
Tidal Current Charts/Atlas	283
Tidal Current Tables	3, 283
TIDAL PREDICTIONS AND DATA FROM THE NATIONAL OCEAN SERVICE	3
Tide Tables	3, 283
Time	2
Time Signals, NIST	13
Time Signals, USNO	26
Time, Standard Time	119
Tiverton 13221	153
Tobys Island 13236	143
Tom Point 12366	228
Tomb, General Grant 12341	274
Tomkins Cove 12343	276
Toms Point 13228	150
Tongue Point 12369	204
Tottenville 12331	267
Towage	119
Town Cove 13246	122
Town Creek 12324	262
Town Creek 12358	172
Townshend Ledge 12371	196
Tracey Ledge 13223	155
Traffic Separation Scheme (Buzzards Bay)	140
Traffic Separation Scheme Narragansett Bay	151
Traffic Separation Scheme Off New York	248
Traffic Separation Schemes (Traffic Lanes)	28, 107
Transport Rock 12367	219
Triborough Bridge 12339	235
Trim Pond 13217	167
Tropical Cyclone climatology	113
Tropical Cyclones	113
Tropical Depression	113
Tropical Storm	113
Tropical Wave	113
Troutmans Creek 12324	262
Troy 12348	281
Troy Lock and Dam 12348	281
Troy-Menands Bridge (State Route 378) 12348	281
Truro 13246	122
Tsunamis	26
Tubby Hook 12345	274
Tuckernuck Island 13241	130
Tuckernuck Shoal 13241	132
Tuthill Cove 12352	238
Tuthill Point 12352	239
Tuttles White Bank 12354	201
Tuxis Island 12374	192
Twomile Ledge 13228	150
Twomile Rock 13228	150
Twotree Island 13211, 13212	185
Twotree Island Channel 13211, 13212	185
Tylerville 12377	189
U.S. Coast Guard Academy 13213	184
U.S. Fishery Conservation Zone	31
U.S. Merchant Marine Academy 12366	229
U.S. Military Academy 12343	276
U.S. Nautical Chart Numbering System	17
U.S. Naval Observatory	26
U.S. Naval Submarine Base 13213	184
Umbrella Point 12367	220
Umbrella Rock 12367	220
Uncas Point 12373	193
Uncle Daniels Point 12350	257
Under-keel clearances	1, 250
Uniform State Waterway Marking System	26
Unionport 12366	233
Upper Bay 12334	257
Upper Nyack 12343	275
Usher Rocks 13224	158
USNO	26
Valiant Rock 13212	169
Veatch Canyon 13200	111
Venetian Harbor 13214	179
Vernam Basin 12350	256
Verplanck Point 12343	276
Verrazano Narrows Bridge 12327, 12402, 12334	257
Vessel Arrival Inspections	119
Vessel Bridge-to-Bridge Radiotelephone Regulations	33
Vessel Movement Reporting System	75
Vessel Traffic Service, New York	107, 181, 203, 250
Vessel Watering Points	7
VHF-FM Radiotelephone	31
Vineyard Haven 13238	135
Vineyard Haven Harbor 13238	135
Vineyard Point 12373	192
Vineyard Sound 13218	135
Visibilities	116
Vixen Ledge 13213	179
Waackaack Creek 12331	263
Wading River 12354	201
Wakefield 13219	167
Wallabout Bay 12335	236
Wamphassuc Point 13214	177
Wappinger Creek 12347	277
Wappingers Falls 12347	277
Waquoit Bay 13229	129
Ward Point 12331	267
Ware Island 12368	215

	Page
Wareham 13236	145
Wareham River 13236	145
Warren 13224	158
Warren River 13224	158
Warwick Cove 13224	163
Warwick Neck 13224	163
Warwick Point 13224	163
Washington Canal 12332	264
Washington Shoal 13209	169
Wasque Point 13233	132
Wasque Shoal 13233	132
Watch Hill 12352	240
Watch Hill 13214	168
Watch Hill Cove 13214	176
Watch Hill Passage 13214	168
Watch Hill Point 13214	168
Watch Hill Reef 13214	168
Watchogue Creek 12352	241
Waterford 13211	185
Waterford 14786	281
Watervliet 12348	281
Wauwinet 13241	131
Waves	115
Wayland Island 12373	193
Weather, Block Island and vicinity	166
Weather, Block Island Sound and vicinity	166
Weather, Bridgeport and vicinity	204
Weather, Buzzards Bay and vicinity	144
Weather, Cape Cod to Sandy Hook	112
Weather, Great South Bay and vicinity	240
Weather, Hartford and vicinity	188
Weather, Long Island Sound and vicinity	180
Weather, Nantucket and vicinity	131
Weather, Nantucket Sound and Vicinity	125
Weather, Narragansett Bay and vicinity	152, 157
Weather, New Bedford Harbor and vicinity	148
Weather, New Haven and vicinity	197
Weather, New York and vicinity	252
Weather, New York Harbor and approaches	248
Weather, Providence and vicinity	160
Weather, South Coast of Long Island and vicinity	237
Weather, Vineyard Sound, Buzzards Bay and vicinity	135
Weather, Western Long Island Sound and vicinity	203
Wee Captain Island 12367	216
Weehawken 12335	274
Weekapaug Breachway 13215	168
Weekapaug Point 13215	168
Weeks Point 12366	227
Weepecket Islands 13233	139
Weepecket Rock 13230	139
Weesuck Creek 12352	238
Weir Creek 12366	224
Welches Point 12370	199
Welker Canyon 13200	111
Wepawaug River 12370	199
Wequetequock Cove 13214	176
Werthein National Wildlife Refuge 12352	239
West Babylon Creek 12352	242
West Bank 12402, 12327	251, 263
West Bank Light 12402, 12327	251
West Bay 13229	128
West Branch 12368	212
West Branch 12369	209
West Channel 12352	241
West Chop 13238	135
West Cove 12352	238
West Cove 13214	177
West Creek 12352	241
West Crib 12373	193
West Crow Island 12352	243
West Dennis 13229	126
West Falmouth 13229	142
West Falmouth Harbor 13229	142
West Harbor 12352	227
West Harbor 13214	175
West Island 13229	147
West Neck 12358	174
West Neck 12365	227
West Neck Bay 12358	173
West Neck Harbor 12358	173
West Passage 13223	161
West Point 12343	276
West River 12371	196
West River 12373	192
West Rock 12367	219
West Rock 12374	192
West Southwest Ledge 13229	127
Westbrook 12374	190
Westbrook Harbor 12374	190
Westchester 12366	233
Westchester Creek 12366	233
Westcott Cove 12368	212
Westend Pond 13229, 13230	140
Westerly 13214	176
Westhampton Beach 12352	238
Westport 12368	210
Westport Harbor 13228	150
Westport Point 13228	150
Westport River 13228	149
Wethersfield Cove 12377	190
Weweantic River 13236	146
Whale Creek 12338	235
Whale Rock 13214	177
Whale Rock 13223	161
Whale Rock 13229	147
Whale Rock 13229, 13230	140
Whaleback Rock 13214	177
Wheeler Rock 12374	191
White Rock 12368	211
White Rock 13211	185
White Rock 13213	183
White Rock 13214	177
Whitestone 12366	229
Whitestone Point 12366	229
Wickets Island 13236	145
Wickford 13223	162
Wickford Cove 13223	162
Wickford Harbor 13223	162
Wickham Creek 12358	174
Wicopesset Island 13214	168
Wicopesset Passage 13214	168
Wicopesset Rock 13214	168
Wilbur Point 13229	147
Wild Goose Point 13223	162
Wild Harbor 13236	142
Wildcat, The 13228	141
Wildlife Refuge, Werthein National 12352	239
Wilkes Ledge 13229	148
Willets Point 12366	229
Williamsburg Bridge 12335	236
Willow Point 13214	177
Wilson Cove 12368	211
Wilson Head 12367	216
Wilson Point 12368	211
Wind Chill and Frostbite	117
Winds	2, 116
Wings Cove 13236	146
Wings Neck 13236	143
Winhole Channel 12350	256
Winkle Point 12365	225
Winnapaug Pond 13215	168
Winthrop Cove 13213	181
Wood End 13249	121
Woodbridge Creek 12331	267
Woodcleft Canal 12352	244
Woodmere Channel 12352	245
Woodmont 12371	196
Woods Hole 13229	137
Woods Hole 13235, 13229	137
Woods Hole Passage 13235, 13229	138

	Page
Woodsburgh 12352	245
Woodsburgh Channel 12352	245
Wooley Pond 12358	174
Woolsey Rock 12367	215
World Geodetic System 1984 (WGS 84)	15
Worlds End 12343	276
Wreck Shoal 13229	129
Wrecks	111
WWV and WWVH broadcasts	26
Wychmere Harbor 13229	126

	Page
Yantic River 12372	184
Yellow Mill Channel 12369	204
Yonkers 12345	274
Youngs Point 12358	172
Youngs Rock 13214	175
Zachs Bay 12352	243
Zieglers Cove 12368	212

OMF Approval No. 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 7350
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 will 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)

_____
_____
_____
_____
_____
_____

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.

_____
_____
_____
_____
_____
_____
_____

(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

We are particularly interested in information about unusually strong currents; 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.

(Continue on plain paper)

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 of information is estimated to average 30 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/CS26), 1315 East-West Highway, Silver Spring, MD 20910-3282. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

OMF Approval No. 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 7350
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 will 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)

_____

_____

_____

_____

_____

_____

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.

_____

_____

_____

_____

_____

_____

_____

(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

We are particularly interested in information about unusually strong currents; 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.

(Continue on plain paper)

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 of information is estimated to average 30 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/CS26), 1315 East-West Highway, Silver Spring, MD 20910-3282. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.