VK
943
.N3
20th ed
(1993)

United States Coast Pilot 8

Pacific Coast Alaska: Dixon Entrance to Cape Spencer

1993 (20th) Edition

The last published amendment to the previous edition (19th/1990) was amendment 21. Amendment 18 was published in Defense Mapping Agency Notice to Mariners 01 dated 1/2/93. Amendment 19 was published in Commander Seventeenth Coast Guard District Local Notice to Mariners 52 dated 12/23/92. Amendments 1 through 21 to the previous edition have been entered into this 1993 edition.

LIBRARY

FEB 17 1994

N.O.A.A.
U.S. Dept. of Commerce

COAST AND GEODETIC SURVEY

U.S. DEPARTMENT OF COMMERCE
Ronald H. Brown, Secretary

National Oceanic and Atmospheric Administration (NOAA)
Dr. John A. Knauss, Under Secretary of Commerce for Oceans and Atmosphere, and Administrator, NOAA

National Ocean Service
W. Stanley Wilson, Assistant Administrator for Ocean Services and Coastal Zone Management

Washington, DC 1993
For sale by the National Ocean Service and its sales agents.

National Oceanic and Atmospheric Administration

Climate Data 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 Data 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 Contractor
12200 Kiln Court
Beltsville, MD 20704-1387
October 29, 2003

LIMITS OF UNITED STATES COAST PILOTS

Atlantic Coast

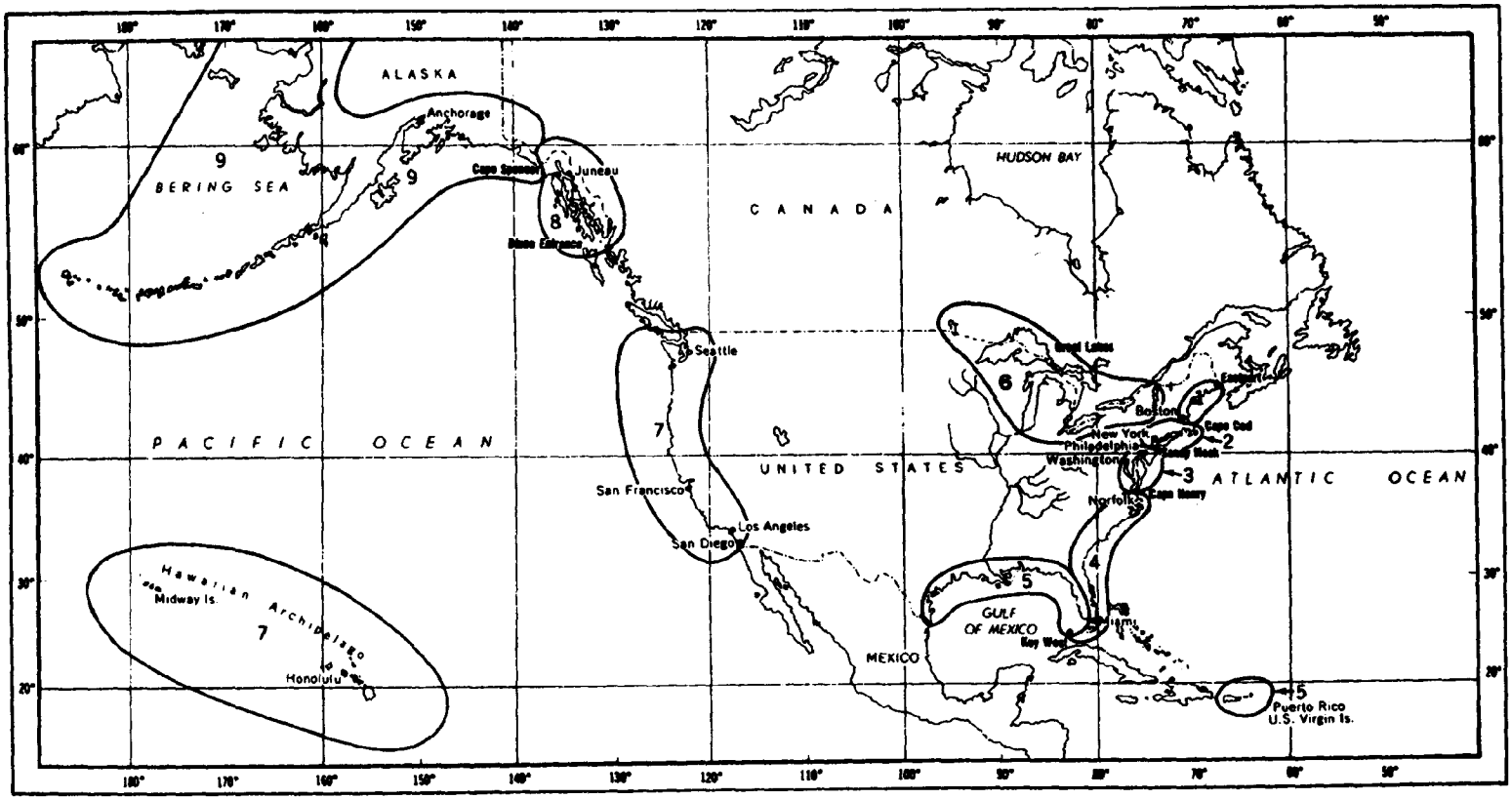
1 Eastport to Cape Cod
2 Cape Cod to Sandy Hook
3 Sandy Hook to Cape Henry
4 Cape Henry to Key West
5 Gulf of Mexico, Puerto Rico, and Virgin Islands

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).

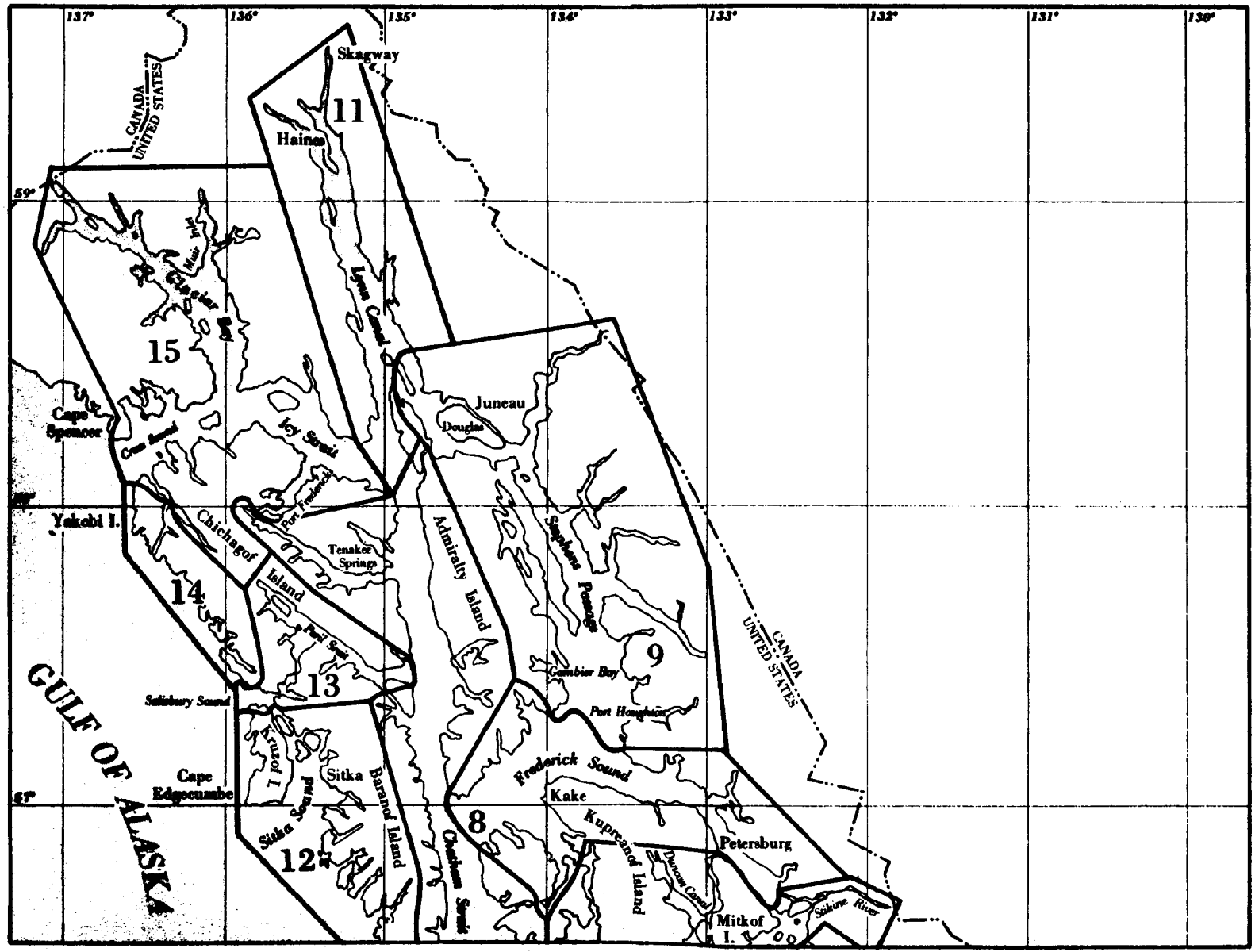
The Coast Pilot supplements the navigational information shown on the nautical charts. The sources for updating the Coast Pilot include but are not limited to field inspections conducted by NOAA, information published in Notices to Mariners, reports from NOAA Hydrographic vessels and field parties, information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

This volume of Coast Pilot 8, Pacific Coast Alaska, Dixon Entrance to Cape Spencer, cancels the 1990 (19th) Edition.

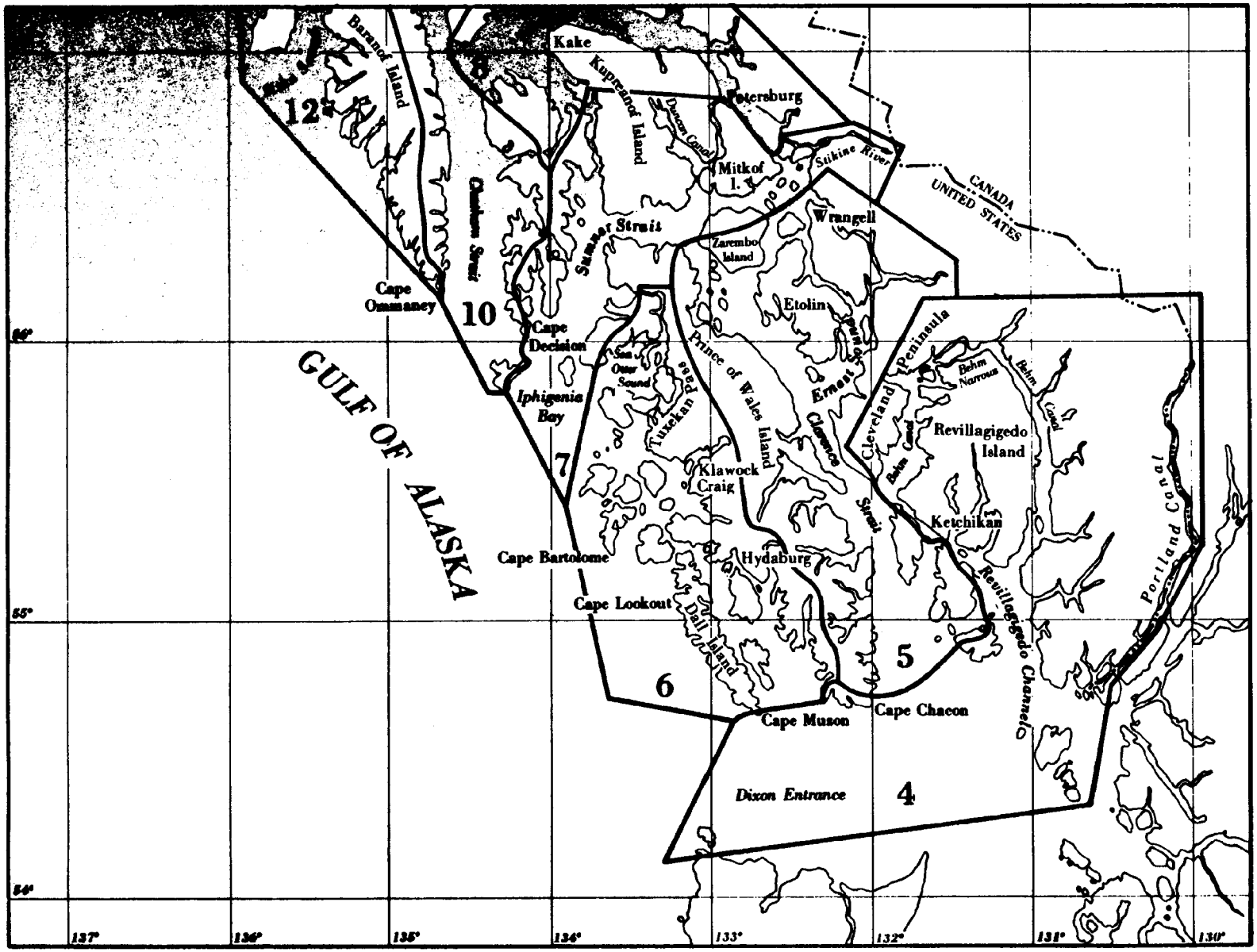
Notice.–Amendments are issued to this publication through U.S. Coast Guard Local Notices to Mariners. A subscription to the Local Notice to Mariners is available upon application to the appropriate Coast Guard District Commander (Aids to Navigation Branch). Consult appendix for address. All amendments are also issued in Defense 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 Defense Mapping Agency Hydrographic/Topographic Center Notice to Mariners for your convenience. These reports and/or suggestions for increasing the usefulness of the Coast Pilot should be sent to:

Director
Charting and Geodetic Services (N/CG2211)
National Ocean Service, NOAA
Rockville, MD 20852-3806



Coast Pilot 8—Graphic Chapter Index



Coast Pilot 8--Graphic Chapter Index

RECORD OF CHANGES

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

Contents

		Page
Preface		III
Chapter 1.	General Information.	1
Chapter 2.	Navigation Regulations.	27
Chapter 3.	Alaska-Dixon Entrance to Cape Spencer	54
Chapter 4.	Dixon Entrance to Ketchikan	62
Chapter 5.	Clarence Strait, Dixon Entrance to Wrangell	81
Chapter 6.	West Coast of Prince of Wales Island	107
Chapter 7.	Sumner Strait	133
Chapter 8.	Frederick Sound	148
Chapter 9.	Stephens Passage	155
Chapter 10.	Chatham Strait	175
Chapter 11.	Lynn Canal	188
Chapter 12.	West Coast of Baranof Island	197
Chapter 13.	Salisbury Sound and Peril Strait	209
Chapter 14.	West Coast of Chichagof and Yakobi Islands	215
Chapter 15.	Cross Sound and Icy Strait	222
Appendix		236
Tables		(Follow Appendix)
Climatological		T-1
Meteorological		T-5
Mean Surface Water Temperatures and Densities		T-6
Determination of Wind Speed by Sea Condition		T-7
Coastal Warning Displays		T-8
Distances		T-9
Radio Bearing Conversion Table		T-12
Distance of Visibility of Objects at Sea		T-13
Conversion, Degrees to Points and Vice Versa		T-14
Estimating Time of Transit		T-15
Standard Abbreviations for Broadcasts		T-16
Conversion, Nautical to Statute Miles and Feet to Meters		T-17
Index		(Follows Tables)
Coast Pilot Report form		(Follows Index)

1. GENERAL INFORMATION

(1) **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 Defense Mapping Agency Notices to Mariners.**

(3) **Bearings.**–These are true and are expressed in degrees from 000° (north) to 359°, measured clockwise. General bearings are expressed by initial letters of the points of the compass (e.g., **N, NNE, NE,** etc.). Adjective and adverb endings, except in chapter 2, Navigation Regulations, have been discarded. Wherever precise bearings are intended degrees are used. Light-sector bearings are toward the light.

(4) **Bridges and cables.** –Vertical clearances of bridges and overhead cables are in feet 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.) 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 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 correction, which is the amount by which recorded depths therefore exceed true depths, increases with decreasing depths to a maximum equal to half the distance apart of the transducers; at this maximum the transducers are aground. Ships whose transducers are more than 6 feet 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 by 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 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 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 Hydrographic/Topographic Center Radio Navigational Aids Pub. 117.)

(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 Defense Mapping Agency Hydrographic/Topographic Center, 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 of oceangoing vessels, without cost, by making application to **Defense Mapping Agency** (see Defense Mapping Agency Procurement Information in appendix).

(28) 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.

(29) **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.)

(30) 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. Information for oceangoing vessels can be obtained from the Notice to Mariners published by the Defense Mapping Agency Hydrographic/Topographic Center.

(31) Notices to Mariners may be consulted at Coast Guard district offices, NOS field offices, Defense Mapping Agency Hydrographic/Topographic Center offices and depots, most local marine facilities, and sales agents handling charts and related publications.

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 Rockville, Md.; in Norfolk, Va. (Atlantic Marine Center); and in Seattle, Wash. (Pacific Marine Center). NOAA ships are based at the marine centers. These offices maintain files of charts and other publications which are available for the use of the mariners, who are invited to avail themselves of the facilities afforded. (See appendix for addresses.)

(37) **Sales agents** for Charts, the Coast Pilot, Tide Tables, Tidal Current Tables, Tidal Current Diagrams, and Tidal Current Charts 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 Branch (N/CG33). (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 issued 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) **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.)

(41) **Tidal Current Tables** for the coasts of the United States are issued 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.

(42) **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.

(43) **Tidal Current Diagrams,** published annually by NOS, are a series of 12 monthly computer constructed diagrams used in conjunction with the Tidal Current Charts for a particular area. The diagrams present an alternate but more simplified method for calculating the speed and direction of the tidal currents in bays, estuaries, and harbors.

(44) **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.

(45) 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.

(46) 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 Commander, Atlantic Area (As), U.S. Coast Guard, AMVER Center, Governors Island, New York, NY 10004-5098. Although AMVER reports may be sent through nonparticipating stations, the Coast Guard cannot reimburse the sender for any charges applied.

(47) Information concerning the predicted location and SAR characteristics of each vessel known to be within an 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.

(48) 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.

(49) 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.

(50) Instructions guiding participation in the AMVER System are available in the following languages: Danish, Chinese, Dutch, English, French, German, Greek, Italian, Japanese, Korean, Polish, Norwegian, Portuguese, Russian, Spanish, and Swedish. The AMVER Users Manual is available from: Commander, Atlantic Area, U.S. Coast Guard, Governors Island, N.Y. 10004-5000; 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.

(51) 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.)

(52) **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.

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

(54) Search and Rescue Operations 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, DC 20593-0001. Other flag vessels may purchase MERSAR directly from IMO.

(55) 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.)

(56) **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.

(57) **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.)

(58) **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.

(59) 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.)

(60) **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.

(61) **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."

(62) **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.).

(63) 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.

(64) 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.)

(65) 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.)

(66) 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.

(67) 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.

(68) **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.

(69) **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.

(70) 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 non-resident 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.

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

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

(73) All vessels arriving in the United States are subject to public health inspection. Vessels subject to 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.

(74) 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.

(75) "Ill person" means person who:

(76) 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

(77) 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.

(78) 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.

(79) 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, Atlanta, Georgia 30333. (See appendix for addresses of U.S. Public Health Service Quarantine Stations.)

(80) **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.

(81) **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, DC 20204. Current status of watering points can be ascertained by contacting any FDA office. (See appendix for addresses.)

(82) **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.)

(83) 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 lakeshore warnings and statements are issued as necessary.

(84) The principal means of disseminating marine weather services and products in coastal areas is **NOAA Weather Radio.** This network of 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.)

(85) 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.

(86) NWS marine weather products are also disseminated to marine users through the broadcast facilities of the Coast Guard, Navy, National Bureau of Standards, certain Sea Grant Universities, 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, telephone numbers of recorded weather messages and NWS offices, and other useful marine weather information.

(87) 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.

(88) 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.)

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

DISTRESS SIGNALS AND COMMUNICATION PROCEDURES

(90) **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.

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

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

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

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

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

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

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

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

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

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

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

(102) (12) The radiotelegraph alarm signal.

(103) (13) The radiotelephone alarm signal.

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

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

(106) (16) A dye marker.

(107) **Radio distress procedures.**–Distress calls are made on 500 kHz (SOS) for radiotelegraphy and on 2182 kHz or channel 16 VHF-FM (MAYDAY) for radiotelephony. 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** (not carried in the Coast Pilot) or DMAHTC 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.

(108) 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.

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

(110) (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.

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

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

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

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

(115) the distress signal MAYDAY:

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

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

(118) the nature of the distress;

(119) the kind of assistance desired;

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

(121) present seaworthiness of vessel;

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

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

(124) your listening frequency and schedule;

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

(126) (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:

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

(128) the words THIS IS;

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

(130) The words RECEIVED MAYDAY.

(131) 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:

(132) the word MAYDAY;

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

(134) the words THIS IS;

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

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

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

(138) (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.

(139) (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:

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

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

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

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

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

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

(146) the words THIS IS;

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

(148) 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.

(149) (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:

(150) the distress signal MAYDAY;

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

(152) the words THIS IS;

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

(154) the time;

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

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

DISTRESS ASSISTANCE AND COORDINATION PROCEDURES

(157) **Rescue Coordination Centers.**–There are four Rescue Coordination Centers in Alaska. The centers depend upon information from many sources in order to perform effectively. Mariners are requested to report any information to the nearest center concerning fire, collision or other emergencies, foreign fishing vessels, oil spills, possible illegal entry, submarine sighting, icebergs, foreign naval vessels, or any other unusual sightings. (See the appendix for the location of the centers.)

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

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

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

(161) (b) Immediately try to take D/F bearings during the transmission of the distress message and maintain a D/F watch on 500 kHz and/or 2182 kHz;

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

(163) (i) identity;

(164) (ii) position;

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

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

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

(168) (i) 500 kHz (radiotelegraphy) and/or

(169) (ii) 2182 kHz (radiotelephony).

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

(171) (f) Operate radar continuously;

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

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

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

(175) (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.

(176) (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.

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

(178) (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;

(179) (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;

(180) (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;

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

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

(183) (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;

(184) (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.

(185) **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,

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

(187) (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.

(188) (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.

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

(190) (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.

(191) 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.

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

(193) 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.

(194) 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 frequencies of 500 kHz and 2182 kHz. Ships may, however, become aware of the casualty by receiving:

(195) (a) An SOS message from an aircraft in distress which is able to transmit on 500 kHz or a distress signal from an aircraft using radiotelephone on 2182 kHz.

(196) (b) A radiotelegraphy distress signal on 500 kHz from a hand-operated emergency transmitter carried by some aircraft.

(197) (c) A message from a SAR aircraft.

(198) 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.

(199) 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.

(200) 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.

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

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

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

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

(205) (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.

(206) 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:

(207) (a) Wind direction and force.

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

(209) (c) Other pertinent weather information.

(210) 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.

(211) 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.

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

(213) 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.

(214) 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.

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

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

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

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

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

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

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

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

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

(224) (j) What caused the emergency?

(225) **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 evacuation 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.

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

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

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

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

(230) (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.

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

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

(233) (2) Select and clear the most suitable hoist area, preferably aft on the vessel with a minimum of 50 feet 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.

(234) (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.

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

(236) (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.

(237) (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.

(238) **Hoist operations:**

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

(240) (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).

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

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

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

(244) (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.

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

(246) (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.

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

(248) (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.

(249) (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.

(250) (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.**

(251) (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.

(252) (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.

(253) **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:

(254) Vessel's name and call sign.

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

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

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

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

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

(260) Any known history of similar illness.

(261) Location and type of pain.
(262) Medical supplies carried on board vessel.
(263) Medication given to patient.
(264) Weather.
(265) Communication schedule and frequency.

(266) **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.

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

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

(269) (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.

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

(271) **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.

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

(273) **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 **DH MEDICO** 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

(274) 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 DMAHTC Pub. 117 and the joint National Weather Service/Navy publication Selected Worldwide Marine Weather Broadcasts.)

(275) **Frequency units.–Hertz (Hz),** 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.

(276) **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.

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

(278) 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.)

(279) 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.

(280) 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.

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

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

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

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

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

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

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

(288) **National Standard Abbreviations for Broadcasts.**-A listing of Standard Abbreviations for Textual Maritime Safety Broadcasts is contained in tables T-16 through T-18. These abbreviations were jointly approved by the U.S. Coast Guard, National Weather Service, Defense Mapping Agency, and the Radio Technical Commission for Maritime Services. In addition to appearing in radio broadcasts of the U.S. Coast Guard and National Weather Service, they appear in Notices to Mariners of the U.S. Coast Guard and Defense Mapping Agency, and in NAVTEX.

(289) **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.

(290) 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.

(291) **NAVTEX Marine Information Broadcasts.**–**NAVTEX** is an international system used in the United States to broadcast printed copies of Coast Guard district notices to mariners, distress notices, weather forecasts and warnings, ice warnings, and Gulf Stream location (where applicable), and radionavigation information to all types of ships. NAVTEX consists of a small, low-cost and self-contained "smart" printing radio receiver installed in the pilot house of a ship or boat. The receiver checks each incoming message to see if it has been received during an earlier transmission, or if it is of a category of no interest to the ship's master.

(292) If it is a new and wanted message, it is printed on a roll of adding-machine size paper; if not, the message is ignored. The ship's master can, at his convenience, read the latest notices he needs to know. A new ship coming into the area will receive many previously-broadcast messages for the first time; ships already in the area which had already received the message will not receive it again. NAVTEX can be received either by a dedicated receiver, or by any narrow-band direct printing (radio telex) receiver operating in the forward error correcting (FEC) mode, tuned to 518 kHz.

(293) The accompanying chart shows NAVTEX predicted coverage area for the U.S. east coast. The propagation predictions were based upon a 90% probability of reception during an average season and time of atmospheric radio noise, with a received character error rate of 1 in 1,000. The Coast Guard operates NAVTEX from stations in Boston (NMF), Portsmouth, VA (NMN), Miami (NMA), New Orleans (NMG), San Juan, PR (NMR), Long Beach, CA, San Francisco (NMC), Astoria, OR, Kodiak, AK (NOJ), Honolulu (NMO), and Guam (NRV). The Canadian Coast Guard also broadcasts NAVTEX information from Sydney, Nova Scotia.

(294) As of January 1988, 43 NAVTEX stations in 19 countries were in operation worldwide, and 7 other countries indicated they might soon begin operating NAVTEX.

(295) Broadcasts are planned internationally. Mandatory carriage of NAVTEX receivers is required for Safety of Life at Sea (SOLAS) Convention regulated vessels (merchant vessels greater than 300 gross tons and passenger vessels on international voyages) after 1993.

(296) Questions and comments concerning the NAVTEX service in the United States are solicited. Correspondence should be addressed to:

(297) Commandant (G-TTS-3/63)

(298) United States Coast Guard

(299) Washington, DC 20593-0001

(300) Telex: 89-2427 COMDT COGARD Washington, DC.

(301) **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.)

(302) **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 or from Selected Worldwide Marine Weather Broadcasts or from the series of Marine Weather Services Charts published by NWS.

(303) **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.

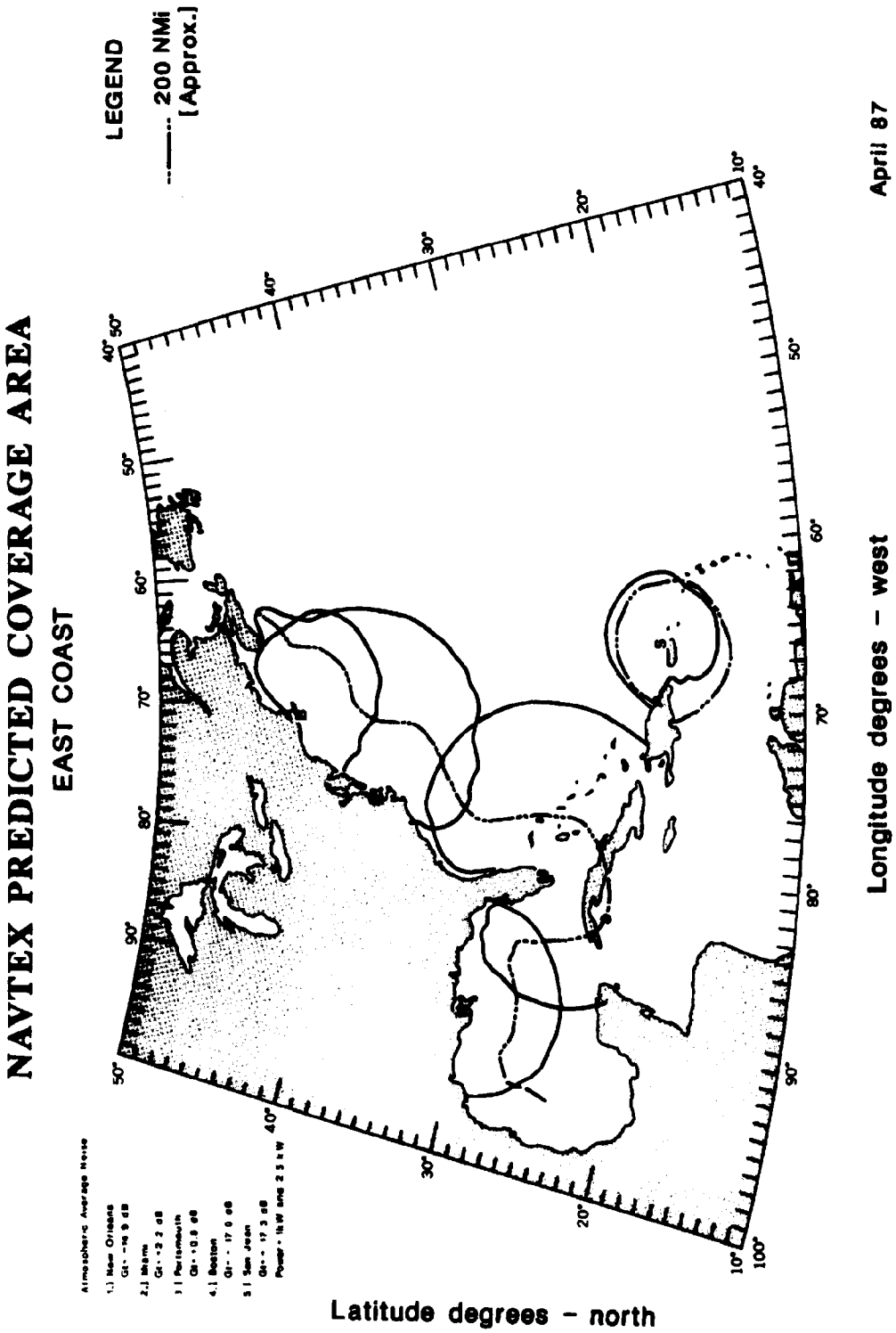
(304) **Reports from ships.**–The master of every U.S. ship equipped with radio transmitting apparatus, on meeting with a tropical cyclone, dangerous ice, subfreezing air temperatures with gale force winds causing severe ice accretion on superstructures, derelict, or any other direct danger to navigation,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

(305) 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.

(306) **Time Signals.**–The **National Institute of Standards and Technology** 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, Omega Navigation System status reports, geophysical alerts, BCD (binary coded decimal) time code, UT1 time corrections, and high seas storm information.

(307) 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.

(308) **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).


NAVTEX PREDICTED COVERAGE AREA
EAST COAST
LEGEND
200 NMi
[Approx.]
April 87
Latitude degrees – north
Longitude degrees – west

NAUTICAL CHARTS

(309) **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 Director, Coast and Geodetic Survey (N/CG22), National Ocean Service, NOAA, Rockville, MD 20852-3806.

(310) **Chart symbols and abbreviations.**–The standard symbols and abbreviations approved for use on all regular nautical charts published by the Defense Mapping Agency Hydrographic/Topographic Center and NOS are contained in **Chart No. 1,** United States of America **Nautical Chart Symbols and Abbreviations.** This publication is available from the Defense Mapping Agency Office of Distribution Services and NOS, and their sales agents.

(311) 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.

(312) 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.

(313) **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.

(314) 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.

(315) **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.

(316) 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 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.

(317) 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.

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

(319) 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. A quarterly list of the latest editions is distributed to sales agents; free copies may be obtained from the sales agents or by writing to Distribution Branch (N/CG33), National Ocean Service. (See appendix for address.)

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

(321) **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.

(322) **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.

(323) 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:

(324) **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.

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

(326) **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.

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

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

(329) **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.

(330) **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.

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

(332) **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.

(333) 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 Pilot.

(334) 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.

(335) 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.

(336) 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 pipeline.

(337) **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.

(338) **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.)

(339) **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.

(340) 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.**

(341) **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.

(342) **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; old automobile bodies are a commonly used material. The Corps of Engineers must issue a permit, specifying the location and depth over the reef, before such a reef may be built. However, the reefbuilders' adherence to permit specifications can be checked only with a wire drag. Fish havens are outlined and labeled on the charts and show the minimum authorized depth when known. Fish havens are tinted blue if they have a minimum authorized depth of 11 fathoms or less or if the minimum authorized depth is unknown and they are in depths greater than 11 fathoms but still considered a danger to navigation. Navigators should be cautious about passing over fish havens or anchoring in their vicinity.

(343) **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.

(344) **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.

(345) **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.

(346) 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.

(347) **Echo soundings.**–Ships' 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 correction has been set on the echo sounder.

(348) 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

(349) **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.

(350) 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. If the radio call sign of the nearest U.S. Government radio shore station is not known, radiotelegraph communication may be established by the use of the general call "NCG" on the frequency of 500 kHz. 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.

(351) **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:

(352) 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.

(353) 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.

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

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

(356) 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.

(357) 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.

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

(359) 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.

(360) 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.

(361) 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.

(362) 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.

(363) 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.

(364) 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.

(365) **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.

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

(367) **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.

(368) 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.

(369) 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.

(370) Bridges and their lighting, construction, maintenance, and operation are set forth in **33 CFR 114-118** (not carried in this Coast Pilot). Aircraft obstruction lights, prescribed by the Federal Aviation Administration, may operate at certain bridges. Drawbridge operation regulations are published in chapter 2 of the Coast Pilot.

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

(372) 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.

(373) 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.

(374) **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.

(375) 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, large navigational buoys (LNB), or a station on a submarine site, on radio bearings, the risk of collision will be avoided by ensuring that radio bearing does not remain constant.

(376) 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.

(377) **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.

(378) 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.

(379) 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.

(380) 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 vicinty of such buoys.

(381) **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.

(382) 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.

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

(384) **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.

(385) 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.

(386) **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.

(387) 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.

(388) **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.

(389) 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.

(390) 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.

(391) 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.

(392) 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.

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

(394) 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.

(395) **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 defintely 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.

(396) **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

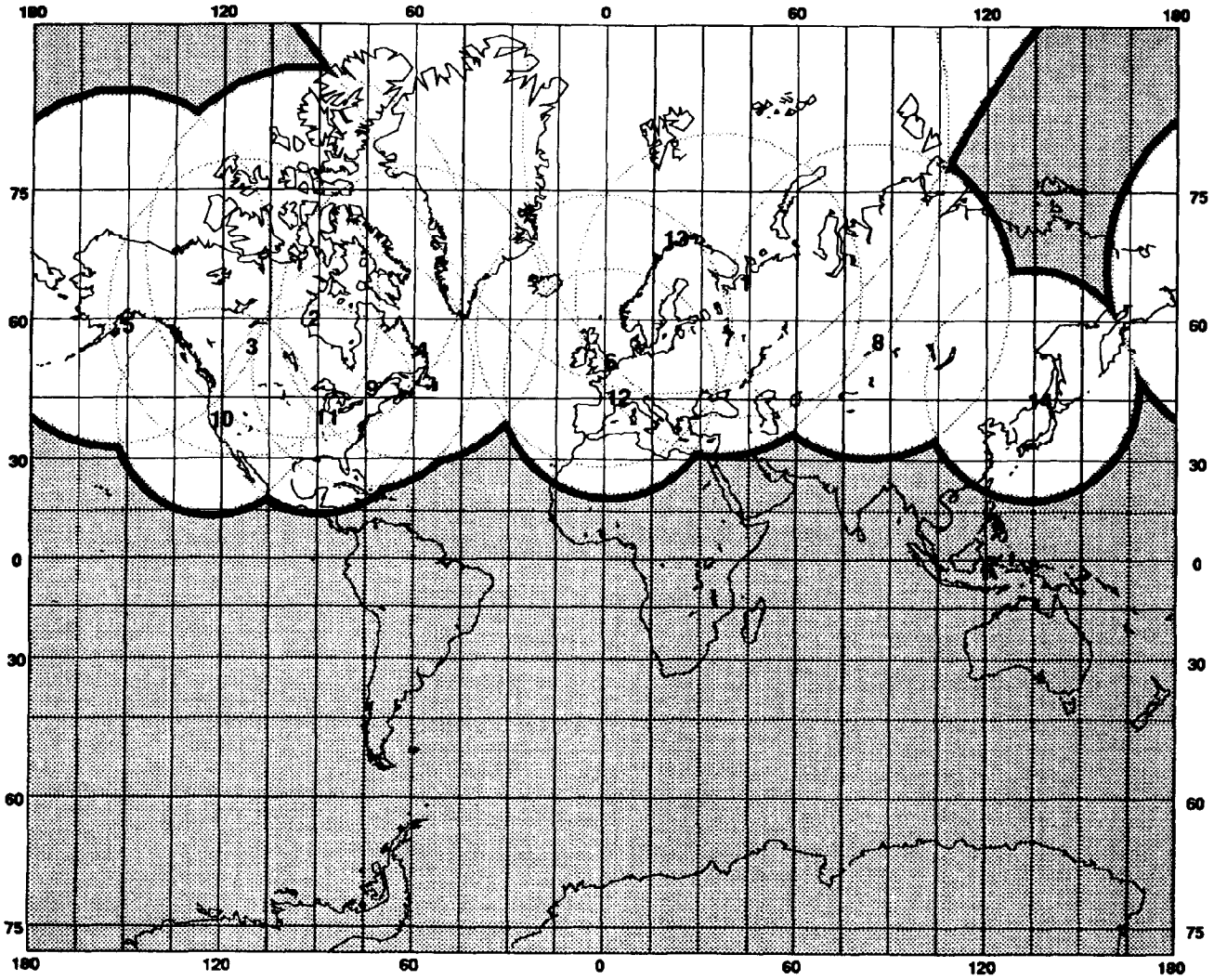
Type	Frequency	Description
Class A	121.5/243 MHz	Float-free, automatically-activating, detectable by aircraft and satellite. Coverage limited (see Chart).
Class B	121.5/243 MHz	Manually activated version of Class A.
Class C	VHF ch 15/16	Manually activated, operates on maritime channels only. Not detectable by satellite.
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.

(397) **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:

(398) (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),

(399) (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.

(400) (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.



Notes

LUTs

1 Archangelsk
2 Churchill
3 Edmonton
4 Goose Bay
5 Kodiak
6 Lasham
7 Moscow
8 Novosibirsk
9 Ottawa
10 Pt. Reyes
11 Scott AFB
12 Toulouse
13 Tromsø
14 Vladivostok

SARSAT satellite

Altitude	850 km
Elevation Angle	5 deg

1988 Satellite Visibility Area of SARSAT LUTs

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

(401) **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.

(402) **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.

(403) An automatically activated, float-free version of this EPIRB will be required on Safety of Life at Sea Convention vessels (passenger ships and ships over 300 tons, on international voyages) of any nationality by 1 August 1993. 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.

(404) 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., U.S.S.R., Canada and France to locate emergency radio beacons transmitting on the frequencies 121.5, 243 and 406 MHz. Since its inception only a few years ago, COSPAS-SARSAT has contributed to the saving of 1240 lives (as of June 6, 1989), 554 of these mariners. The Coast Guard operates two local user terminals, satellite earth stations designed to received EPIRB distress calls forwarded from COSPAS-SARSAT satellites, located in Kodiak, Alaska and Point Reyes, California. The Air Force operates a third terminal at Scott Air Force Base, IL.

(405) **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.

(406) **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 DMAHTC Pub. 117 for details.)

(407) **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.

(408) 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.

(409) 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).

(410) 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.

(411) 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.

(412) 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.

(413) **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.**

(414) There are two types of LORAN-C 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.

(415) The absolute 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.

(416) 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.

(417) 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.

(418) **LORAN-C Interference**

(419) Interference to LORAN-C may result from radio transmissions by public or private sources operating near the LORAN-C band of 90-110 kHz. Anyone using the LORAN-C system, who observes interference to LORAN-C, should promptly report it to one of the Coast Guard commands listed below. Include in such reports information regarding the date, time, identifying characteristics, strength of the interfering signals and your own vessel's position. These interference reports are very important and cooperation from users of LORAN-C will assist the Coast Guard in improving LORAN-C service.

(420) **Atlantic Ocean and Gulf of Mexico**
(421) Commander (Atl)
(422) Atlantic Area, U.S. Coast Guard
(423) Governors Island
(424) New York, NY 10004-5000
(425) **Pacific Ocean**
(426) Commander (Ptl)
(427) Pacific Area, U.S. Coast Guard
(428) Coast Guard Island
(429) Alameda, CA 94501-5100
(430) **All areas**
(431) Commandant (G-NRN)
(432) U.S. Coast Guard
(433) Washington, DC 20593-0001

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

(435) Navigational charts overprinted with LORAN-C lines of position are published by the National Ocean Service (NOS), and the Defense Mapping Agency (DMA), and may be purchased directly from NOS (see appendix for address) or DMA (see appendix for address), or through local chart sales agents.

(436) 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 U.S. Government Printing Office, Washington, DC (see Government Printing Office, Appendix).

(437) **Omega.**–Omega is a continuous radionavigation system which provides hyperbolic lines of position through phase comparisons of very low frequency (10-14 kHz range) continuous wave signals transmitted on a common frequency on a time shared basis. With eight transmitting stations located throughout the world, Omega provides worldwide, all-weather navigation coverage. Six stations make Omega available in nearly all parts of the globe, with the two other stations providing redundancy and coverage during off-air time for maintenance.

(438) Users are cautioned that the Omega system is in an implementation stage. System changes and station off-air periods are promulgated by Notice to Mariners and radio navigational warning messages. Current information on the status of individual Omega transmitting stations is broadcast on station WWV, 16 minutes after the hour, and on station WWVH, 47 minutes after the hour. Current status reports are available by telephone (202-245-0298).

(439) At the present time the worldwide accuracy and reliability of this system cannot be precisely determined. Therefore positioning information derived from Omega should not be totally relied upon without reference to other positioning methods.

(440) **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.

(441) 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.

(442) **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.

(443) **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.

(444) 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.

(445) 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. Only on certain types of shelving coasts do they build up into waves of disastrous proportions.

(446) 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.

(447) 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.

(448) **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.

(449) **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 water surface. 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 of the water, it is called **surge.**

(450) 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

(451) **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:

(452) (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;

(453) (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;

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

(455) (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.

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

(457) 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.

(458) **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.)

(459) **Minesweeper signals.**–U.S. vessels engaged in minesweeping operations or exercises are hampered to a considerable extent in their maneuvering powers. With a view to indicating the nature of the work on which they are engaged, these vessels will show the signals hereinafter mentioned. For the public safety, all other vessels, whether steamers or sailing craft, must endeavor to keep out of the way of vessels displaying these signals and not approach them inside the distances mentioned herein, especially remembering that it is dangerous to pass between the vessels of a pair or group sweeping together.

(460) All vessels towing sweeps are to show: **By day,** a black ball at the foremast head and a black ball at each end of the fore yard. **By night,** all around green lights instead of the black balls, and in a similar manner.

(461) Vessels or formations showing these signals indicate that it is dangerous for another vessel to approach within 1,000 meters (3,280 feet) of the mineclearance vessel. Under no circumstances is a vessel to pass through a formation of minesweepers. Minesweepers 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. In fog, mist, falling snow, heavy rainstorms, or any other condition similarily restricting visibility, whether by day or night, minesweepers while towing sweeps when in the vicinity of other vessels will sound whistle signals for a vessel towing (one prolonged blast followed by two short blasts).

(462) The United States is increasingly using helicopters to conduct minesweeping operations and exercises. When so engaged, helicopters, like vessels, are considerably hampered in their ability to maneuver. Helicopters may function at night as well as during the day and in varying types of weather. Accordingly, surface vessels approaching helicopters engaged in minesweeping operations should take precautions similar to those described above with regard to minesweeping vessels.

(463) Helicopters towing minesweeping gear, and surface escorts, if any, will use all practical means to warn approaching ships of the operations being conducted. Where practical, measures will be taken to mark or light the gear being towed. While towing, the helicopter's altitude varies from 49.2 to 311.6 feet (15 to 95 meters) above the water, and speeds vary from 0 to 30 knots.

(464) Minesweeping helicopters are equipped with a rotating beacon which has a selectable red and amber mode. The amber mode is used during towing operations to notify and warn other vessels that the helicopter is towing.

(465) **Submarine emergency identification signals.**–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. The smoke floats, which burn on

the surface, produce a dense colored smoke for a period of 15 to 45 seconds. The flares or stars are propelled to a height of 300 to 400 feet from which they descend by small parachute. The flares or stars burn for about 25 seconds. The color of the smoke or flare/star has the following meaning:

(466) **Green or black** is used under training exercise conditions only to indicate that a torpedo has been fired or that the firing of a torpedo has been simulated.

(467) **Yellow** indicates the submarine is about to rise to periscope depth. Surface craft terminate antisubmarine counterattack and clear vicinity of submarine. Do not stop propellers.

(468) **Red** indicates an emergency inside the submarine; she will try to surface immediately, if possible. Surface ships clear the area and stand by to assist. In case of repeated red signals, or if the submarine fails to surface in a reasonable time, she may be presumed disabled. Buoy the location, look for submarine buoy, and attempt to establish sonar communications. Advise U.S. Navy authorities immediately.

(469) Submarine marker buoys consist of two spheres 3 feet in diameter with connecting structure, painted international orange. The buoy has a wire cable to the submarine, to act 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 may release this buoy. If sighted, such a buoy should be investigated and reported immediately to U.S. Navy authorities.

(470) The submarine may transmit the International Distress Signal (SOS) on its sonar gear independently or in conjunction with the red signal. Submarines also may use these other means of attracting attention: release of dye marker or air bubble; ejection of oil; pounding on hull.

(471) **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-round red lights in a vertical line, or a cylinder.

NAVIGATION RESTRICTIONS AND REQUIREMENTS

(472) **Traffic Separation Schemes (Traffic Lanes).**–To increase the safety of navigation, particularly in converging areas of high traffic density, routes incorporating traffic separation have, with the approval of the International Maritime Organization (IMO), formerly the Inter-Governmental Maritime Consultative Organization (IMCO), been established 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.

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

(474) 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 collision 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.

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

(476) 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 seabed since the time of last survey, and the effects of meterological and tidal conditions on water depths.

(477) 4. A deepwater 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 deepwater routes. When using a deepwater route mariners should be aware of possible changes in the indicated depth of water due to meteorological or other effects.

(478) 5. Users of traffic separation schemes adopted by IMO will be guided by Rule 10 of the 1972 International Regulations for Preventing Collisions at Sea (72 COLREGS) as follows:

(479) (a) This Rule applies to traffic separation schemes adopted by the Organization.

(480) (b) A vessel using a traffic separation scheme shall:

(481) (i) proceed in the appropriate traffic lane in the general direction of traffic flow for that lane;

(482) (ii) so far as practicable keep clear of a traffic separation line or separation zone;

(483) (iii) normally join or leave a traffic separation lane at the termination of the lane, but when joining or leaving from either side shall do so at as small an angle to the general direction of traffic flow as practicable.

(484) (c) A vessel shall so far as practicable avoid crossing traffic lanes, but if obliged to do so, shall cross as nearly as practicable at right angles to the general direction of traffic flow.

(485) (d) Inshore traffic zones shall not normally be used by through traffic which can safely use the appropriate traffic lane within the adjacent traffic separation scheme. However, vessels of less than 20 meters in length and sailing vessels may under all circumstances use inshore traffic zones.

(486) (e) A vessel, other than a crossing vessel, or a vessel joining or leaving a lane shall not normally enter a separation zone or cross a separation line except:

(487) (i) in cases of emergency to avoid immediate danger;

(488) (ii) to engage in fishing within a separation zone.

(489) (f) A vessel navigating in areas near the terminations of traffic separation schemes shall do so with particular caution.

(490) (g) A vessel shall so far as practicable avoid anchoring in a traffic separation scheme or in areas near its terminations.

(491) (h) A vessel not using a traffic separation scheme shall avoid it by as wide a margin as is practicable.

(492) (i) A vessel engaged in fishing shall not impede the passage of any vessel following a traffic lane.

(493) (j) A vessel of less than 20 meters in length or a sailing vessel shall not impede the safe passage of a power-driven vessel following a traffic lane.

(494) (k) A vessel restricted in her ability to maneuver when engaged in an operation for the maintenance of safety of navigation in a traffic separation scheme is exempted from complying with Rule 10 to the extent necessary to carry out the operation.

(495) (l) A vessel restricted in her ability to maneuver when engaged in an operation for laying, servicing or picking up a submarine cable, within a traffic separation scheme, is exempted from complying with this Rule to the extent necessary to carry out the operation.

(496) 6. The arrows printed on charts merely indicate the general direction of traffic; ships need not set their courses strictly along the arrows.

(497) 7. 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.

(498) 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.

(499) **Oil Pollution**–The Federal Water Pollution Control Act, as amended, prohibits the discharge of a harmful quantity of oil or a hazardous substance into or upon the United States navigable waters or adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States including resources under the Fishery Conservation and Management Act of 1976. Discharges that do occur must be reported to the Coast Guard (National Response Center) by the most rapid available means. To assist in swift reporting of spills, a nationwide, 24-hour, toll-free telephone number has been established (1-800-424-8802).

(500) Hazardous quantities of oil have been defined by the Environmental Protection Agency as those which violate applicable water quality standards or cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines, or cause a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines. (For regulations pertaining to this Act see 40 CFR 110.3, not carried in this Pilot.)

(501) The Refuse Act of 1899 (33 U.S.C. 407) prohibits anyone from throwing, discharging or depositing any refuse matter of any kind in U.S. navigable waters or tributaries of navigable waters. The only exceptions to this prohibition are liquid sewage flowing from streets or sewers and discharges made from shore facilities under a permit granted by the U.S. Army Corps of Engineers.

(502) The Act to Prevent Pollution from Ships (33 U.S.C. 1901) is based on the International Convention for the Prevention of Pollution from Ships, as modified by the Protocol of 1978 (MARPOL 73/78). For tankers over 150 gross tons and all other ships over 400 gross tons, MARPOL 73/78 requires the installation of new equipment to control overboard discharges of oil and oily waste. This includes oily-water separating, monitoring and alarm systems for discharges from cargo areas, cargo pump rooms and machinery space bilges. New ships must have the equipment on board by October 2, 1983, while existing ships have until October 2, 1986 to comply.

(503) Ships are also required to have an International Oil Pollution Prevention Certificate verifying that the vessel is in compliance with MARPOL 73/78 and that any required equipment is on board and operational, and they must maintain a new Oil Record Book reporting all oil transfers and discharges. The Oil Record Book is available from the Government Printing Office (see appendix for address.)

(504) **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.

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

(506) **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.

(507) **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.

(508) 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.

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

(510) **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.

(511) **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 safely navigate only within a narrow channel or fairway.

(512) **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 signalled by a general emergency message. (See DMAHTC Pub. 117 for emergency procedures and communication instructions.)

(513) **Exclusive Economic Zone of the United States.**–Established by a Presidential Proclamation on March 10, 1983, the Exclusive Economic Zone (EEZ) of the United States is a zone contiguous to the territorial sea, including zones contiguous to the territorial sea of the United States, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands (to the extent consistent with the Covenant and the United Nations Trusteeship Agreement), and United States overseas territories and possessions. The EEZ extends to a distance of 200 nautical

miles from the baseline from which the breadth of the territorial sea is measured. In cases where the maritime boundary with a neighboring State remains to be determined, the boundary of the EEZ shall be determined by the United States and the other State concerned in accordance with equitable principles.

(514) 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.

(515) 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.

(516) 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.

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

(518) 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.

(519) **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.

(520) 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 owners or operators to administrative, civil and criminal penalties. (Further details concerning foreign fishing are given in **50 CFR 611** (not carried in this Coast Pilot.)

(521) 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.

(522) **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.

(523) 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, 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, the Bridge-to-Bridge Radiotelephone frequency, in addition to VHF-FM channel 16, 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.)

(524) 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.

(525) **VHF-FM Radiotelephone.**-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.

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

(527) 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
1A	156.050	156.050	Port operations and commercial
5A	156.250	156.250	Port operations
6	156.300	156.300	Intership safety
7A	156.350	156.350	Commercial
8	156.400	156.400	Commercial (ship-to-ship only)
9	156.450	156.450	Commercial and non-commercial
10	156.500	156.500	Commercial
11	156.550	156.550	Commercial
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	State or local government control
18A	156.900	156.900	Commercial
19A	156.950	156.950	Commercial
20	157.000	161.600	Port operations (traffic advisories)
22A	157.100	157.100	Coast Guard Liaison
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)
63A	156.175	156.175	VTS New Orleans
65A	156.275	156.275	Port operations (traffic advisories)
66A	156.325	156.325	Port operations (traffic advisories)
67	156.375	156.375	Commercial (ship-to-ship only) (used in New Orleans VTS for ship-to-ship navigational purposes)
68	156.425	156.425	Non-commercial
69	156.475	156.475	Non-commercial
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)
78A	156.925	156.925	Non-commercial
79A	156.975	156.975	Commercial
80A	157.025	157.025	Commercial
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	Public correspondence in Puget Sound and parts of Great Lakes
88A	157.425	157.425	Commercial, fishing (ship-to-ship) (except in parts of Great Lakes)

2. NAVIGATION REGULATIONS

(1) This chapter contains sections from the **Code of Federal Regulations (CFR)** that are of most importance in the areas covered by Coast Pilot 8. Included from **Title 33, Navigation and Navigable Waters (33 CFR),** are

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

(3) Part 67, Aids to Navigation on Artificial Islands and Fixed Structures (in part);

(4) Part 80, COLREGS Demarcation Lines;

(5) Part 110, Anchorage Regulations;

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

(7) Part 161, Vessel Traffic Management;

(8) Part 162, Inland Waterways Navigation Regulations;

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

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

(11) Part 334, Danger Zones and Restricted Area Regulations; and from

(12) **Title 36, Parks, Forests, and Public Property (36 CFR),**

(13) Part 13, National Park System Units in Alaska.

(14) **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, 160, 161, 162, 164, and 165); U.S. Army Corps of Engineers (33 CFR 334); National Park Service, Department of the Interior (36 CFR 13).

Part 26–Vessel Bridge-to-Bridge Radiotelephone Regulations

(15) **§26.01 Purpose.**

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

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

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

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

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

(21) **§26.02 Definitions.**

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

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

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

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

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

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

(28) **§26.03 Radiotelephone required.**

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

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

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

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

(33) (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.

(34) (b) Every vessel, dredge, or floating plant described in paragraph (a) of this section must have a radiotelephone on board capable of operation from its navigational bridge, or in the case of a dredge, from its main control station, and capable of transmitting and receiving on the frequency or frequencies within the 156-162 MHz band using the classes of emissions designated by the Federal Communications Commission for the exchange of navigational information.

(35) (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 inside the boundary lines set forth in 46 CFR part 7.

(36) (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).

(37) (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):

(38) (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;

(39) (2) The Mississippi River-Gulf Outlet from the territorial sea boundary, and within the Mississippi River-Gulf outlet Safety Fairway specified in 33 CFR 166.200, to that channel's junction with the Inner Harbor Navigation Canal; and

(40) (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.

(41) **§26.04 Use of the designated frequency.**

(42) (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.

(43) (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.

(44) (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.

(45) (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(d), channel 67 (156.375 MHz) is the designated frequency.

(46) **§26.05 Use of radiotelephone.**

(47) Section 5 of the Act states–

(48) (a) 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 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 contained herein shall be interpreted as precluding the use of portable radiotelephone equipment to satisfy the requirements of this Act.

(49) **§26.06 Maintenance of radiotelephone; failure of radiotelephone.**

(50) Section 6 of the Act states–

(51) (a) Whenever radiotelephone capability is required by this Act, a vessel's radiotelephone equipment shall be maintained in effective operating condition. If the radiotelephone equipment carried aboard a vessel ceases to operate, the master shall exercise due diligence to restore it or cause it to be restored to effective operating condition at the earliest practicable time. The failure of a vessel's radiotelephone equipment shall not, in itself, constitute a violation of this Act, nor shall it obligate the master of any vessel to moor or anchor his vessel; however, the loss of radiotelephone capability shall be given consideration in the navigation of the vessel.

(52) **§26.07 English language.**

(53) 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 he can speak the English language.

(54) **§26.08 Exemption procedures.**

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

(56) (b) Each petition must be submitted in writing to U.S. Coast Guard Office of Navigation Safety and Waterway Services, 2100 Second Street SW., Washington, DC 20593-0001 and must state–

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

(58) (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.

(59) **§26.09 List of exemptions.**

(60) (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.

(61) (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."

(62) **§26.10 Penalties.**

(63) Section 9 of the Act states–

(64) (a) Whoever, being the master or person in charge of a vessel subject to the Act, fails to enforce or comply with the Act or the regulations hereunder; or whoever, being designated by the master or person in charge of a vessel subject to the Act to pilot or direct the movement of a vessel fails to enforce or comply with the Act or the regulations hereunder-is liable to a civil penalty of not more than $500 to be assessed by the Secretary.

(65) (b) Every vessel navigated in violation of the Act, or the regulations hereunder is liable to a civil penalty of not more than $500 to be assessed by the Secretary, for which the vessel may be proceeded against in any District Court of the United States having jurisdiction.

(66) (c) Any penalty assessed under this section may be remitted or mitigated by the Secretary, upon such terms as he may deem proper.

(67) **PART 67 - AIDS TO NAVIGATION ON ARTIFICIAL ISLANDS AND FIXED STRUCTURES** (in part)

(68) **SUBPART 67.01 - GENERAL REQUIREMENTS**

(69) **§67.01 - 1 Scope.**

(70) (a) The regulations in this part prescribe the obstruction lights and fog signals to be operated as privately maintained maritime aids to navigation on the artificial islands and structures which are erected on or over the seabed and subsoil of the Outer Continental Shelf and in the waters under the jurisdiction of the United States, for the purpose of exploring for, developing, removing and transporting resources therefrom.

(71) (b) Subpart 66.01 in Part 66 of this subchapter shall be applicable to all private aids to navigation erected on or over the Outer Continental Shelf in the same manner and to the same extent as they are applicable to private aids to navigation established, erected, or maintained in the waters under the jurisdiction of the United States.

(72) **§67.01 - 5 Definitions.**

(73) (a) Structures. The term "structures" as used in this part shall include all fixed structures, temporary or permanent, for which a Corps of Engineers' permit is issued. It shall include, but is not necessarily limited to, all drilling platforms, production platforms, quarters platforms, pipe line riser platforms, manifold platforms, loading platforms, boat landings, caissons, well protective structures, tank battery barges submerged on station, drilling barges submerged on location, breakwater barges submerged on location, artificial islands and all other piles, pile clusters, pipes, or structures erected in the waters.

(74) (b) Class "A", "B", or "C" structures. The term "Class A, B, or C structures" refers to the classification assigned to structures erected in areas in which corresponding requirements for marking are prescribed.

(75) (c) Line of demarcation. The term "line of demarcation" means the dividing line used administratively to distinguish between the areas in which structures shall conform to Class "A" and Class "B" or "C" requirements.

(76) (d) Outer Continental Shelf. The term "Outer Continental Shelf" means all submerged lands lying seaward and outside the area of lands beneath navigable waters as defined in the Submerged Lands Act (sec. 2, 67 Stat. 29, 43 U. S. C. 1301), and of which the subsoil and seabed appertain to the United States and are subject to its jurisdiction and control.

(77) (e) Reliable operation. The term "reliable" as used in this part shall mean that dependability which will insure to

the highest degree reasonably possible the uninterrupted operation of lights and fog signals as private aids to navigation for safety of marine commerce.

(78) (f) Fog signal. The term "fog signal" as used in this part shall mean the audible sound signal, authorized as a private aid to navigation, to mark a structure for the safety of marine commerce whenever the visibility has been reduced by fog, mist, rain, falling snow, smoke, dust, or other phenomena.

(79) **§67.01 - 10 Authority to regulate and delegation of functions.**

(80) (a) Regulatory authority. By virtue of the Department of Transportation Act (Pub. L. 89-670, 80 Stat. 931-950, 49 U. S. C. 1651-1659), establishing the Department of Transportation, the U.S. Coast Guard together with its functions and duties under the Secretary of the Treasury was transferred to the new department. The Secretary of Transportation thereby became the "head of the Department in which the Coast Guard is operating," including the authority to promulgate and enforce regulations under the Outer Continental Shelf Lands Act (43 U.S.C. 1333). By a rule in 49 CFR 1.9 the Secretary continued in effect actions taken prior to April 1, 1967. By rules in 49 CFR 1.4 (a) (2) and (f) the Secretary of Transportation authorized the Commandant, U.S. Coast Guard, with respect to his own organization, to exercise the authority granted to the Secretary as Executive head of that department by any statute, Executive order or regulation. Section 1657 (e) of Title 49 U. S. C. provides for delegation and redelegation of powers and functions vested in the Secretary. By a rule in 49 CFR 1.4 (g) the Commandant is authorized to redelegate and authorize successive redelegations within the organization under his jurisdiction.

(81) (b) Delegation of functions. The Coast Guard District Commander is hereby delegated responsibility for performing, or having performed the inspections, enforcement, and administration of such regulations, which are or may be required. He may redelegate this authority as necessary to any person from the civilian or military branch of the Coast Guard.

(82) **§67.01 - 15 Classification of structures.**

(83) (a) The varied depths of water and marine commerce traffic routes which exist in the waters over the Outer Continental Shelf, and in other waters, permit the classification of structures according to their location in such waters. Those structures in the area seaward of the line of demarcation, prescribed by the regulations in this part, are designated as Class "A" structures. All structures shoreward of the line of demarcation, prescribed by the regulations in this part, are designated as either Class "B" or Class "C" structures.

(84) (b) In the event a line of demarcation is not prescribed, the District Commander shall designate a structure "A", "B", or "C" as he deems appropriate.

(85) **§67.01 - 20 Prescribing lines of demarcation.**

(86) In those areas where lines of demarcation are not prescribed, or where they have been prescribed and require modification, the District Commander shall submit his recommendations thereon to the Commandant for establishment or changes as required. When approved by the Commandant, and upon publication in the Federal Register, such additions or changes in lines of demarcation shall be effective for the purposes of this part.

(87) **§67.01 - 30 Equivalents.**

(88) The use of alternate equipment, apparatus, or installation arrangements specified in this part may be permitted by the District Commander to such extent and under such conditions as will result in achieving a degree of safety or compliance with these regulations equivalent to or above the minimum requirements set forth in this part.

(89) **SUBPART 67.05 - GENERAL REQUIREMENTS FOR LIGHTS**

(90) **§67.05 - 1 Arrangement of obstruction lights.**

(91) (a) Structures having a maximum horizontal dimension of 30 feet or less on any one side, or in diameter, shall be required to have one obstruction light visible for 360°.

(92) (b) Structures having a maximum horizontal dimension of over 30 feet, but not in excess of 50 feet, on any one side, or in diameter, shall be required to have two obstruction lights installed on diagonally opposite corners, 180° apart, or as prescribed by the District Commander, each light to have a 360° lens.

(93) (c) Structures having a horizontal dimension of over 50 feet on any one side, or in diameter, shall be required to have an obstruction light on each corner, or 90° apart in the case of circular structures, or as prescribed by the District Commander, each light to have a 360° lens.

(94) (d) Where the overall dimensions of a structure require the installation of two or more obstruction lights, the lights shall all be mounted on the same horizontal plane within the limitations of height specified in §67.20 - 5, §67.25 - 5, or §67.30 - 5, as applicable.

(95) (e) Lesser structures and piles, pile clusters or flare templates, etc., will not normally be required to be marked by obstruction lights, when they are located within 100 yards of a Class "A", "B" or "C" structure marked by established obstruction lights, but they shall be marked with red or white retro-reflective material, installed as prescribed by the District Commander.

(96) (f) All obstruction lights shall be installed in a manner which will permit at least one of them to be carried in sight of the mariner, regardless of the angle of approach, until he is within 50 feet of the structure, visibility permitting.

(97) **§67.05 - 5 Multiple obstruction lights.**

(98) When more than one obstruction light is required by this part to mark a structure, all such lights shall be operated to flash in unison.

(99) **§67.05 - 10 Characteristics of obstruction lights.**

(100) All obstruction lights required by this part shall be powered from a reliable power source, including auxiliary power sources as necessary. They shall display a quick-flash characteristic of approximately 60 flashes per minute, unless prescribed otherwise in the permit issued by the District Commander. Their color shall be white when marking Class "A" and "B" structures, and either white or red, as prescribed by the District Commander, when marking Class "C" structures. In determining whether white or red lights shall be authorized, the District Commander shall take into consideration matters concerning, but not necessarily limited to, the dimensions of the structure and the depth of water in which it is located; the proximity of the structure to vessel routes; the nature and amount of vessel traffic; and the effect of background lighting.

(101) **§67.05 - 15 Operating periods of obstruction lights.**

(102) Obstruction lights shall be displayed at all times between the hours of sunset and sunrise, local time, commencing at the time the construction of a structure is begun. During construction and until such time as a platform capable of supporting the obstruction lights is completed, the fixed lights on an attending vessel shall be used. In addition, when lights are in use for general illumination to facilitate the construction or operation of a structure, and can be seen from any angle of approach at a distance equal to that prescribed for the obstruction lights for the class of structure, the actual operation of obstruction lights also will not be required.

(103) **§67.05 - 20 Minimum lighting requirements.**

(104) The obstruction lighting requirements prescribed in this part are the minimum requirements only and shall not preclude the maintainer from making application for authorization to establish more lights, or lights of greater intensity than required to be visible at the distances prescribed: provided, that the prescribed characteristics of color and flash duration are adhered to.

(105) **§67.05 - 25 Special lighting requirements.**

(106) Whenever a structure is erected in a position on or adjacent to the edges of navigable channels and fairways, or lines of demarcation, the District Commander is authorized to require the structure to be marked by the lights which in his judgment are necessary for the safety of marine commerce, and without regard to the fact that the structure may be located in an area in which either Class "B" or Class "C" requirements are otherwise applicable. The requirements for the lights in any of these cases, shall not exceed those established for structures in the Class "A" areas.

(107) **SUBPART 67.10 - GENERAL REQUIREMENTS FOR FOG SIGNALS**

(108) **§67.10 - 1 Apparatus requirements.**

(109) The fog signal required by §§67.20 - 10, 67.25 - 10, and 67.30 - 10 must:

(110) (a) Have its maximum intensity at a frequency between 100 and 1,100 Hertz;

(111) (b) Sound a 2 - second blast every 20 seconds (2 seconds sound, 18 seconds silence) unless otherwise authorized by the District Commander;

(112) (c) Have the range required by §67.20 - 10, §67.25 - 10, or §67.30 - 10;

(113) (d) Have a height not exceeding 25 feet;

(114) (e) Have not more than eight sound sources;

(115) (f) Be approved by the Coast Guard under §67.10 - 15; and

(116) (g) Be permanently marked with:

(117) (1) The date of Coast Guard approval;

(118) (2) The manufacturer and date of manufacture;

(119) (3) A model designation;

(120) (4) The approved range; and

(121) (5) The power necessary to comply with the provisions of paragraph (c) of this section.

(122) **§67.10 - 5 Location requirements.**

(123) The fog signal required by §§67.20 - 10, 67.25 - 10, and 67.30 - 10 must:

(124) (a) Be located on the structure so that the sound signal produced is audible over 360° in a horizontal plane at all ranges up to and including the required range; and

(125) (b) Be located at least 10 feet but not more than 150 feet above mean high water.

(126) **§67.10 - 10 Operating requirements.**

(127) (a) Fog signals required by §§67.20 - 10, 67.25 - 10 and 67.30 - 10 must be operated continuously, regardless of visibility, unless the fog signal is controlled:

(128) (1) By an attendant on the structure;

(129) (2) Remotely by an attendant on a nearby structure; or

(130) (3) By a fog detection device capable of activating the fog signal when the visibility in any direction is reduced to the range at which fog signal operation is required by this part.

(131) (b) During construction and until such time as a fog signal is installed and operating on a platform, the whistle of an attending vessel moored alongside the platform may be used to sound the signal required for the structure by this part.

(132) **§67.10 - 15 Approval of fog signals.**

(133) (a) The Coast Guard approves a fog signal if:

(134) (1) It meets the requirements for fog signals in §67.10 - 1 (a), (b), (c), (d), and (e) when tested under §67.10 - 20; or

(135) (2) It is similar to a fog signal which was tested and approved under the provisions of this section and the Coast Guard has approved all variations in design, construction, production, and manufacture from the fog signal tested.

(136) (b) A fog signal that is an identical production model of a fog signal which has been approved under paragraph (a) of this section is a Coast Guard approved fog signal.

Part 80–COLREGS Demarcation Lines

(137) **§80.01 General basis and purpose of demarcation lines.**

(138) (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.

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

(140) (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.

(141) **§80.1705 Alaska.**

(142) The 72 COLREGS shall apply on all the sounds, bays, harbors, and inlets of Alaska.

Part 110–Anchorage Regulations

(143) **§110.1 General.**

(144) (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 June 7, 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.

(145) (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).

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

(147) (d) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

Subpart A–Special Anchorage Areas (None applicable to this Coast Pilot.)

Subpart B–Anchorage Grounds

(148) **§110.232 Southeast Alaska.**

(149) (a) The anchorage grounds–(1) Hassler Harbor–explosives anchorage. The waters of Hassler Harbor within a circular area with a radius of 1,500 yards, having its center at latitude 55°12′52″N., longitude 131°25′52″W.

(150) (b) The regulations. (1) Except in an emergency, only a vessel that is transporting, loading or discharging explosives may anchor, moor, or remain within the Hassler Harbor explosives anchorage.

(151) (2) A master or person in charge of a vessel shall obtain a written permit from the Captain of the Port, Southeast Alaska, to anchor, moor, or remain within the explosives anchorage. The vessel shall anchor in the position specified by the permit.

(152) (3) The net weight of the explosives laden aboard all vessels anchored, moored, or remaining within the anchorage shall not exceed 800,000 pounds.

(153) (4) The Captain of the Port, Southeast Alaska, may require a nonself-propelled vessel to be attended by a tug while moored, anchored, or remaining within the explosives anchorage.

(154) (5) A wooden vessel must–

(155) (i) Be fitted with a radar reflector screen of metal of sufficient size to permit target indication on the radar screen of commercial type radar; or

(156) (ii) Have steel bulwarks; or

(157) (iii) Have metallic cases or cargo aboard.

(158) (6) Each vessel moored, anchored, or remaining within the explosives anchorage and carrying, loading, or discharging explosives from sunrise to sunset shall display–

(159) (i) A red flag from the mast; or

(160) (ii) A sign posted on each side of the vessel reading "Explosives–Keep Clear–No Smoking or Open Flame" in letters that are 3 inches or larger and have sufficient contrast with the background to be seen from a distance of 200 feet.

(161) (7) Each vessel moored, anchored, or remaining within the anchorage during the night shall display–

(162) (i) Anchor lights; and

(163) (ii) A 32 point red light located from the mast or highest part of the vessel to be visible all around the horizon for a distance of 2 miles.

Part 160–Ports and Waterways Safety-General

Subpart A–General

(164) **§160.1 Purpose.**

(165) Part 160 contains regulations implementing the Ports and Waterways Safety Act (33 U.S.C. 1221) and related statutes.

(166) **§160.3 Definitions.**

(167) (a) For the purposes of this part:

(168) (1) "Commandant" means the Commandant of the United States Coast Guard.

(169) (2) "District Commander" means the officer of the Coast Guard designated by the Commandant to command a Coast Guard District described in 33 CFR 3.

(170) (3) "Captain of the Port" means the Coast Guard officer commanding a Captain of the Port zone described in 33 CFR 3.

(171) (4) "Person" means an individual, firm, corporation, association, partnership, or governmental entity.

(172) (5) "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.

(173) (6) "Vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water.

(174) (7) "Vehicle" means every type of conveyance capable of being used as a means of transportation on land.

(175) **§160.5 Delegations.**

(176) (a) District Commanders and Captains of the Ports are delegated the authority to establish safety zones.

(177) (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.

(178) (c) Under the provisions 33 CFR §1.05-1, District Commanders have been delegated authority to establish regulated navigation areas.

(179) (d) Under the direction of the Captain of the Port Honolulu, the Commander, Marianas Section, may exercise the authority of a Captain of the Port within the waters surrounding Guam, and the Commonwealth of Marianas, all of which are in the Honolulu Captain of the Port Zone.

(180) **§160.7 Appeals.**

(181) (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.

(182) (b) Any person directly affected by the establishment of a safety zone or by an order or direction issued by, or on behalf of, a Captain of the Port may appeal to the District Commander through the Captain of the Port. The appeal must be in writing, except as allowed under paragraph (d) of this section, and shall contain complete supporting documentation and evidence which the appellant wishes to have considered. Upon receipt of the appeal, the District Commander may direct a representative to gather and submit documentation or other evidence which would be necessary or helpful to a resolution of the appeal. A copy of this documentation and evidence is made available to the appellant. The appellant is afforded five working days from the date of receipt to submit rebuttal materials. Following submission of all materials, the District Commander issues a ruling, in writing, on the appeal. Prior to issuing the ruling, the District Commander may, as a matter of discretion, allow oral presentation on the issues.

(183) (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 Chief, 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 Chief, 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 Chief, Office of Marine Environment and Systems. The decision of

the Chief, Office of Marine Safety, Security and Environmental Protection is based upon the materials submitted, without oral argument or presentation. The decision of the Chief, Office of Marine Safety, Security and Environmental Protection is issued in writing and constitutes final agency action.

(184) (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

(185) **§160.101 Purpose.**

(186) 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.

(187) **§160.103 Applicability.**

(188) (a) This subpart applies to any–

(189) (1) Vessel on the navigable waters of the United States, except as provided in paragraphs (b) and (c) of this section;

(190) (2) Bridge or other structure on or in the navigable waters of the United States; and

(191) (3) Land structure or shore area immediately adjacent to the navigable waters of the United States.

(192) (b) This subpart does not apply to any vessel on the Saint Lawrence Seaway.

(193) (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–

(194) (1) Innocent passage through the territorial sea of the United States;

(195) (2) Transit through the navigable waters of the United States which form a part of an international strait.

(196) **§160.105 Compliance with orders.**

(197) Each person who has notice of the terms of an order issued under this subpart must comply with that order.

(198) **§160.107 Denial of entry.**

(199) 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.

(200) **§160.109 Waterfront facility safety.**

(201) (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–

(202) (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

(203) (2) Conduct examinations to assure compliance with the safety equipment requirements for structures.

(204) **§160.111 Special orders applying to vessel operations.**

(205) Each District Commander or Captain of the Port may order a vessel to operate or anchor in the manner directed when–

(206) (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;

(207) (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

(208) (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.

(209) **§160.113 Prohibition of vessel operation and cargo transfers.**

(210) (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.

(211) (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:

(212) (1) Fails to comply with any applicable regulation;

(213) (2) Discharges oil or hazardous material in violation of any law or treaty of the United States;

(214) (3) Does not comply with applicable vessel traffic service requirements;

(215) (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.

(216) (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.

(217) (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.

(218) **§160.115 Withholding of clearance.**

(219) (a) Each District Commander or Captain of the Port may request the Secretary of the Treasury, or the authorized representative thereof, to withhold or revoke the clearance required by 46 U.S.C. 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

(220) **§160.201 Applicability and exceptions to applicability.**

(221) (a) This subpart prescribes notification requirements for U.S. and foreign vessels bound for or departing from ports or places in the United States.

(222) (b) This subpart does not apply to boats under the Federal Boat Safety Act of 1971 (46 U.S.C. 1451, et seq.) and, except §160.215, does not apply to passenger and supply vessels when they are employed in the exploration for or in the exploitation of oil, gas, or mineral resources on the continental shelf.

(223) (c) Sections 160.207 and 160.209 do not apply to the following:

(224) (1) Each vessel of less than 1,600 gross tons.

(225) (2) Each vessel operating exclusively within a Captain of the Port zone.

(226) (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:

(227) (i) Name, country of registry, and call sign or official number of the vessel;

(228) (ii) Each port or place of destination; and

(229) (iii) Dates and times of arrivals and departures at those ports or places.

(230) (4) Each vessel arriving at a port or place under force majeure.

(231) (5) Each vessel entering a port of call in the United States in compliance with the Automated Mutual Assistance Vessel Rescue System (AMVER).

(232) (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).

(233) (7) Each barge.

(234) (8) Each public vessel.

(235) (9) United States or Canadian flag vessels, except tank vessels or vessels carrying certain dangerous cargo, which operate solely on the Great Lakes.

(236) (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.

(237) **(§) 160.203 Definitions.**

(238) As used in this subpart:

(239) "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.

(240) "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.

(241) "Certain dangerous cargo" includes any of the following:

(242) (a) Class A explosives, as defined in 46 CFR 146.20–7 and 49 CFR 173.53.

(243) (b) Oxidizing materials or blasting agents for which a permit is required under 49 CFR 176.415.

(244) (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).

(245) (d) Each cargo under Table 1 of 46 CFR Part 153 when carried in bulk.

(246) (e) Any of the following when carried in bulk:

(247) Acetaldehyde
(248) Ammonia, anhydrous
(249) Butadiene
(250) Butane
(251) Butene
(252) Butylene Oxide
(253) Chlorine
(254) Ethane
(255) Ethylene
(256) Ethylene Oxide
(257) Methane
(258) Methyl Acetylene, Propadiene Mixture, Stabilized
(259) Methyl Bromide
(260) Methyl Chloride
(261) Phosphorous, elemental
(262) Propane
(263) Propylene
(264) Sulfur Dioxide
(265) Vinyl Chloride

(266) "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.

(267) "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.

(268) "Port or place of departure" means any port or place in which a vessel is anchored or moored.

(269) "Port or place of destination" means any port or place to which a vessel is bound to anchor or moor.

(270) "Public vessel" means a vessel owned by and being used in the public service of the United States. This definition does not include a vessel owned by the United States and engaged in a trade or commercial service or a vessel under contract or charter to the United States.

(271) **§160.205 Waivers.**

(272) 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.

(273) **§160.207 Notice of arrival: Vessels bound for ports or places in the United States.**

(274) (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.

(275) (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.

(276) (c) The Captain of the Port of the port or place of destination in the United States must be notified of:

(277) (1) The name and country of registry of the vessel;

(278) (2) The name of the port or place of departure;

(279) (3) The name of the port or place of destination; and

(280) (4) The estimated time of arrival at the port or place.

(281) If the estimated time of arrival changes by more than six hours from the latest reported time, the Captain of the Port must be notified of the correction as soon as the change is known.

(282) **§160.209 Notice of arrival: Vessels bound from the high seas for ports or places on the Great Lakes.**

(283) 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:

(284) (a) The name and country of registry of the vessel; and

(285) (b) The estimated time of arrival at the Snell Locks, Massena, New York.

(286) **§160.211 Notice of arrival: Vessels carrying certain dangerous cargo.**

(287) (a) The owner, master, agent, or person in charge of a vessel, except a barge, bound for a port or place in the United States carrying a 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:

(288) (1) The name and country of registry of the vessel;

(289) (2) The location of the vessel at the time of the report;

(290) (3) The name of each certain dangerous cargo carried;

(291) (4) The amount of each certain dangerous cargo carried;

(292) (5) The stowage location of each certain dangerous cargo;

(293) (6) The operational condition of the equipment under 33 CFR 164.35;

(294) (7) The name of the port or place of destination; and

(295) (8) The estimated time of arrival at that port or place. If the estimated time of arrival changes by more than six hours from the latest reported time, the Captain of the Port must be notified of the correction as soon as the change is known.

(296) (b) The owner, master, agent, or person in charge of a barge bound for a port or place in the United States carrying a certain dangerous cargo shall report the information required in paragraph (a)(1) through (a)(8) 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.

(297) **§160.213 Notice of departure: Vessels carrying certain dangerous cargo.**

(298) (a) The owner, master, agent, 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 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:

(299) (1) The name and country of registry of the vessel;

(300) (2) The name of each certain dangerous cargo carried;

(301) (3) The amount of each certain dangerous cargo carried;

(302) (4) The stowage location of each certain dangerous cargo carried;

(303) (5) The operational condition of the equipment under 33 CFR 164.35;

(304) (6) The name of the port or place of departure; and

(305) (7) The estimated time of departure from the port or place.

(306) If the estimated time of departure changes by more than six hours from the latest reported time, the Captain of the Port must be notified of the correction as soon as the change is known.

(307) (b) The owner, master, agent, or person in charge of a barge departing from a port or place in the United States for any other port or place and carrying a certain dangerous cargo shall report the information required in paragraph (a)(1) through (a)(7) 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.

(308) **§160.215 Notice of hazardous conditions.**

(309) 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–(Reserved)

Subpart B–Vessel Traffic Services

(310) **Prince William Sound Vessel Traffic Service**

(311) **GENERAL RULES**

(312) **§161.301 Purpose and applicability.**

(313) (a) Sections 161.301 through 161.387 prescribe rules for vessel operation in the Prince William Sound Vessel Traffic Service Area (VTS Area) to prevent collisions and groundings and to protect the navigable waters of the VTS Area from environmental harm resulting from collisions and groundings.

(314) (b) The General Rules in §§161.301 through 161.311 excepting §161.306 and the Traffic Separation Scheme (TSS) Rules in §§161.350 through 161.354 and 161.356(b) and (c) apply to the operation of all vessels.

(315) (c) General Rule §161.306, the Communication Rules §§161.320 through 161.332, the Vessel Movement Reporting Rules in §§161.334 through 161.342, the TSS Rules in §§161.348 and 161.356(a), and the Valdez Narrows Rules in §§161.372 through 161.374 apply only to the operation of:

(316) (1) Each vessel of 300 or more gross tons that is propelled by machinery;

(317) (2) Each vessel of 100 or more gross tons that is carrying one or more passengers for hire;

(318) (3) Each commercial vessel of 26 feet (8 meters) or over in length engaged in towing another vessel astern, alongside, or by pushing ahead; and

(319) (4) Each dredge and floating plant.

(320) (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.

(321) **§161.303 Definitions.**

(322) As used in §§161.301 through 161.387:

(323) "ETA" means estimated time of arrival.

(324) "Person" includes an individual, firm, corporation, association, partnership, and governmental entity.

(325) "Separation zone" means an area of the TSS that is located between two traffic lanes to keep vessels proceeding in opposite directions a safe distance apart.

(326) "Traffic lane" means an area of the TSS in which all vessels ordinarily proceed in the same direction.

(327) "Traffic separation scheme" (TSS) means the network of traffic lanes and separation zones in the VTS Area.

(328) "Vessel Traffic Center" (VTC) means the shore based facility that operates the Prince William Sound Vessel Traffic Service.

(329) "Vessel Traffic Service Area" (VTS Area) means the area described in §161.380.

(330) "Tank Vessel" means any vessel specially constructed or converted to carry oil or other hazardous substances in bulk in the cargo spaces.

(331) "Laden Tank Vessel" means a tank vessel having cargo on board in excess of normal clingage or residual.

(332) **§161.304 Vessel operation in the VTS Area.**

(333) No person may cause or authorize the operation of a vessel in the VTS Area contrary to the rules in §§161.301 through 161.387.

(334) **§161.305 Laws and regulations not affected.**

(335) Nothing in §§161.301 through 161.387 is intended to relieve any person from complying with:

(336) (a) International Regulations for Preventing Collisions at Sea, 1972;

(337) (b) Vessel Bridge-to-Bridge Radiotelephone Regulations (33 CFR 26);

(338) (c) The Federal Boat Safety Act of 1971 (46 U.S.C. 1451 through 1489); and

(339) (d) Any other law or regulation.

(340) **§161.306 VTS Operating Manual.**

(341) The master of a vessel listed in §161.301(c) shall ensure that a copy of the current edition of the Prince William Sound Vessel Traffic Service Operating Manual is available on board the vessel when it is in the VTS Area.

(342) **Note.** The Prince William Sound VTS Operating Manual includes VTS regulations, navigation information, and guidelines for the efficient operation of the VTS system. The manual may be obtained in person or by writing: Prince William Sound Vessel Traffic Service, c/o USCG Marine Safety Office, P.O. Box 486, Valdez, Alaska 99686; or Commander, Seventeenth Coast Guard District, Federal Building, P.O. Box 3-5000, Juneau, Alaska 99802. Temporary changes to the operating manual are promulgated by the Commander, Seventeenth Coast Guard District, in local notices to mariners.

(343) **§161.307 VTC directions.**

(344) (a) During conditions of vessel congestion, adverse weather, reduced visibility, or other hazardous circumstances in the VTS Area, the VTC may issue directions specifying times when vessels may enter, move within or through, or depart from ports, harbors, or other waters in the VTS Area.

(345) (b) The master of a vessel in the VTS Area shall comply with each direction issued to the vessel under this section.

(346) **§161.309 Authorization to deviate from these rules.**

(347) (a) The Commander, Seventeenth Coast Guard District may, upon written request, issue an authorization to deviate from any rule in §§161.301 through 161.387 if he finds that the proposed operation under the authorization can be done safely. An application for an authorization must state the need for the authorization and describe the proposed operations.

(348) (b) The VTC may, upon request, issue an authorization to deviate from any rule in §§161.301 through 161.387 for a voyage or part of a voyage on which a vessel is embarked or about to embark.

(349) **§161.311 Emergencies.**

(350) In an emergency, any master may deviate from any rule in §§161.301 through 161.387 to the extent necessary to avoid endangering persons, property, or the environment.

(351) **COMMUNICATIONS RULES**

(352) **§161.320 Radio listening watch.**

(353) The master of a vessel in the VTS Area shall continuously monitor the radio frequency designated in the current edition of the Prince William Sound VTS Operating Manual for the sector of the VTS Area in which the vessel is operating, except when transmitting on that frequency.

(354) **§161.322 Radiotelephone equipment.**

(355) Each report required by the Prince William Sound VTS rules to be made by radiotelephone must be made using a radiotelephone that is capable of operating on the navigational bridge of the vessel, or in the case of a dredge, at its main control station.

(356) **§161.324 English language.**

(357) Each report required by the Prince William Sound VTS rules must be made in the English language.

(358) **§161.326 Time.**

(359) Each report required by the Prince William Sound VTS rules must specify time using:

(360) (a) The zone time in effect in the VTS Area; and

(361) (b) The 24-hour clock system.

(362) **§161.328 Radio failure.**

(363) Whenever a vessel's radiotelephone equipment fails:

(364) (a) Before entering or while underway in the VTS Area-

(365) (1) Compliance with §§161.320 and 161.338 is not required; and

(366) (2) Compliance with §§161.334, 161.336, and 161.342 is not required unless the reports can be made by other means;

(367) (b) Before getting underway in the VTS Area permission to get underway must be obtained from the VTC;

(368) (c) The master shall restore the radiotelephone to operating condition as soon as possible.

(369) **§161.330 Report of emergency or radio failure.**

(370) Whenever the master of a vessel deviates from any rule in §§161.301 to 161.387 because of an emergency or radio failure, he shall report the deviation to the VTC as soon as possible.

(371) **§161.332 Report of impairment to the operation of the vessel.**

(372) The master of a vessel in the VTS Area shall report to the VTC as soon as possible;

(373) (a) Any condition on the vessel that may impair its navigation, such as fire, defective steering equipment, or defective propulsion machinery; and

(374) (b) Any tow that the towing vessel is unable to control, or can control only with difficulty.

(375) **VESSEL MOVEMENT REPORTING RULES**

(376) **§161.334 Initial report.**

(377) Three hours before a vessel enters or begins to navigate in the VTS Area through Hinchinbrook Entrance or at least 30 minutes before a vessel enters or begins to navigate in the VTS Area from other points, the master of the vessel shall report to the VTC:

(378) (a) Name, type, and draft of the vessel;

(379) (b) Position of the vessel;

(380) (c) Estimated time and place of entering or beginning to navigate in the VTS Area;

(381) (d) Estimated vessel speed to transit the VTS Area;

(382) (e) ETA to the destination in the VTS Area and name of the destination;

(383) (f) If the vessel is a towing vessel, the overall length of the tow, including the towing vessel;

(384) (g) Whether or not any dangerous cargo listed in §161.3 of this chapter is on board the vessel or its tow;

(385) (h) Any impairment to the operation of the vessel as described in §161.332;

(386) (i) Alternate communications, if any;

(387) (j) Any other information requested by the VTC.

(388) **§161.336 Follow-up report.**

(389) At least 60 minutes before a vessel enters or begins to navigate in the VTS Area through Hinchinbrook Entrance the master of the vessel shall report the following information to the VTC:

(390) (a) Name of the vessel;

(391) (b) Position of the vessel;

(392) (c) Course and speed of the vessel;

(393) (d) ETA at Hinchinbrook Entrance;

(394) (e) ETA of the vessel at its destination if changed from the preliminary report.

(395) **§161.338 Movement reports.**

(396) (a) While navigating in the VTS Area the master of a vessel shall report the following information to the VTC by radiotelephone:

(397) (1) Any increase or decrease in speed of more than 1 knot.

(398) (2) The intent to cross through the TSS at least 10 minutes (for vessels with a tow at least 30 minutes) before beginning to cross the TSS.

(399) (3) When the vessel clears the TSS after crossing.

(400) (b) When the vessel passes a reporting point listed in §161.340, the master of a vessel shall report the following information to the VTC by radiotelephone:

(401) (1) The name of the vessel.

(402) (2) The reporting point.

(403) **§161.340 Reporting points.**

(404) The reporting points are:

(405) (a) When entering or departing the VTS Area at Hinchinbrook Entrance; and

(406) (b) When abeam of Naked Island.

(407) **§161.342 Final report.**

(408) Whenever a vessel anchors, moors in, or departs from the VTS Area, the master shall report the place and time of anchoring, mooring, or departing to the VTC, except:

(409) (a) When mooring or anchoring in Port Valdez, unless requested to do so by the VTC; or

(410) (b) When departing the VTS Area at Hinchinbrook Entrance and the movement report for the reporting point in §161.340(a) is made.

(411) **TRAFFIC SEPARATION SCHEME RULES**

(412) **§161.348 Vessels required to use the TSS.**

(413) All vessels described in §161.301(c) must use the TSS when en route to or from Valdez via Hinchinbrook Entrance or navigating any portion of that route.

(414) **§161.350 Vessel operation in the TSS.**

(415) (a) The master of a vessel shall operate the vessel in accordance with the TSS rules prescribed in §§161.352, 161.354 and 161.356(b) and (c).

(416) (b) The master of a vessel described in §161.301(c) shall, in addition to paragraph (a), operate the vessel in accordance with §161.356(a).

(417) **§161.352 Direction of traffic.**

(418) A vessel proceeding in a traffic lane must keep the separation zone to port.

(419) **§161.354 Anchoring in the TSS.**

(420) No vessel may anchor in the TSS.

(421) **§161.356 Joining, leaving, and crossing a traffic lane.**

(422) (a) A vessel described in §161.301(c) may join cross, or leave a traffic lane only after the VTC has been notified of the point at which the vessel will join, cross, or leave the traffic lane.

(423) (b) A vessel crossing a traffic lane shall, to the extent possible, maintain a course that is perpendicular to the direction of the flow of traffic in the traffic lane.

(424) (c) A vessel joining or leaving a traffic lane shall steer a course to converge on or diverge from the direction of traffic flow in the traffic lane at as small an angle as possible.

(425) (d) A vessel engaged in fishing shall not impede the passage of any vessel following a traffic lane.

(426) (e) A vessel of less than 65 feet (20 meters) in length or a sailing vessel shall not impede the safe passage of a power-driven vessel following a traffic lane.

(427) **VALDEZ NARROWS RULES**

(428) **§161.370 One-way traffic in Valdez Narrows.**

(429) (a) The area described in §161.387 is designated the Valdez Narrows One-way Traffic Area and is restricted to one-way traffic whenever a tank vessel of 20,000 deadweight tons (DWT) or more is navigating therein.

(430) (b) A tank vessel of 20,000 DWT or more may not enter Valdez Narrows One-Way Traffic Area unless:

(431) (1) It complies with §161.372; and

(432) (2) It complies with §161.376(a)(1), (3), and (4).

(433) **§161.372 Entering Valdez Narrows.**

(434) A vessel described in §161.301(c) may not enter the Valdez Narrows One-Way Traffic Area unless:

(435) (a) Permission to enter is obtained from the VTC;

(436) (b) Any directions from the VTC to remain separated from another vessel are complied with;

(437) (c) The radio equipment on the vessel that is used to transmit the reports required by the Prince William Sound VTS rules is in operation;

(438) (d) The radar on a vessel equipped with radar is in operation and manned; and

(439) (e) The vessel is free of any condition that may impair its navigation, such as fire, defective steering equipment, or defective propulsion machinery.

(440) **§161.374 Communications in Valdez Narrows.**

(441) Before a vessel meets, overtakes, or crosses ahead of any vessel in Valdez Narrows One-Way Traffic Area, the master or the person designated by the master to pilot or direct the movement of the vessel shall transmit the intentions of his vessel to the master or the person designated by the master to pilot or direct the movement of the other vessel on the frequency designated under the Bridge-to-Bridge Radiotelephone Act for the purpose of arranging safe passage.

(442) **SPECIAL REQUIREMENTS FOR TANK VESSELS**

(443) **§161.376 Tanks vessels in the VTS Area.**

(444) (a) Each tank vessel of 20,000 DWT or more operating in the VTS Area must–

(445) (1) Have two separate marine radar systems for surface navigation, one of which is operating and the other either operating or capable of immediate operation;
(446) (2) Have an operating Loran-C receiver;
(447) (3) Have an operating rate of turn indicator; and
(448) (4) Have at least two radiotelephones capable of operating on the designated VTS frequency, one of which is capable of battery operation.
(449) (b) No laden tank vessel of 20,000 DWT or more may transit that portion of Valdez Narrows between Middle Rock and Potato Point at a speed in excess of 6 knots.
(450) (c) No tank vessel of 20,000 DWT or more may transit the Valdez Narrows One-Way Traffic Area in excess of 12 knots.
(451) (d) While in the VTS Area, if a tank vessel of 20,000 DWT or more is unable to comply with paragraph (a) the master shall immediately notify the VTC.
(452) **§161.378 Tug Assistance for tank vessels.**
(453) (a) For the purposes of this section, tug assistance means the use of a sufficient number of tugs properly manned and positioned, with enough power and maneuverability to enable the vessel to accomplish the intended maneuvers safely. Factors to be considered in determining the amount of tug assistance needed are–
(454) (1) Existing and expected conditions of wind, tide, and current; and
(455) (2) Size, displacement, and maneuvering capability of the vessel.
(456) (b) No laden tank vessel of 20,000 DWT or more may transit the Valdez Narrows One-Way Traffic Area unless:
(457) (1) A sufficient number of tugs, as determined by the VTC, are standing by the northern entrance to Valdez Narrows: and
(458) (2) Tug assistance is utilized when directed by the VTC.
(459) (c) The master of any tank vessel required to use tug assistance shall ensure that there are sufficient persons positioned on the vessel to handle lines to tugs as needed.
(460) **DESCRIPTIONS AND GEOGRAPHIC COORDINATES**
(461) **§161.380 VTS Area.**
(462) The VTS Area consists of the navigable waters of the United States N of a line drawn from Cape Hinchinbrook Light to Schooner Rock Light, comprising that portion of Prince William Sound between longitudes 146°30'W. and 147°20'W.; and includes Valdez Arm, Valdez Narrows, and Port Valdez.
(463) **§161.383 Separation zone.**
(464) The separation zone is 2,000 yards (1,830 meters) wide from Hinchinbrook Entrance to Valdez Arm west to Bligh Reef and decreases in width from 2,000 yards (1,830 meters) to 1,000 yards (915 meters) from the entrance to Valdez Arm to where it terminates and is bounded by lines connecting the following latitudes and longitudes:
(465) (a) 60°58'43"N., 146°47'50"W.
(466) (b) 60°49'47"N., 147°02'06"W.
(467) (c) 60°34'43"N., 147°05'16"W.
(468) (d) 60°17'05"N., 146°49'18"W.
(469) (e) 60°16'20"N., 146°46'28"W.
(470) (f) 60°34'53"N., 147°03'14"W.
(471) (g) 60°49'23"N., 147°00'08"W.
(472) (h) 60°58'26"N., 146°47'02"W.
(473) **§161.385 Traffic lanes.**
(474) The traffic lanes are 1,500 yards (1,375 meters) wide from Hinchinbrook Entrance to Valdez Arm west of Bligh Reef, and decrease in width from 1,500 yards (1,375 meters) to 1,000 yards (915 meters) from the entrance to Valdez Arm to where they terminate. The traffic lanes are as follows:
(475) (a) The inward bound traffic lane is between the separation zone and a line connecting the following latitudes and longitudes:
(476) (1) 60°58'09"N., 146°46'16"W.
(477) (2) 60°49'07"N., 146°58'42"W.
(478) (3) 60°35'00"N., 147°01'42"W.
(479) (4) 60°15'45"N., 146°44'20"W.
(480) (b) The outward bound traffic lane is between the separation zone and a line connecting the following latitudes and longitudes:
(481) (1) 60°59'01"N., 146°48'37"W.
(482) (2) 60°50'04"N., 147°03'35"W.
(483) (3) 60°34'36"N., 147°06'48"W.
(484) (4) 60°17'38"N., 146°51'20"W.
(485) **§161.387 Valdez Narrows one-way traffic area.**
(486) Valdez Narrows One-Way Traffic Area consists of the navigable waters of the United States in Valdez Arm, Valdez Narrows, and Port Valdez northeast of a line bearing 307° true from Tongue Point at 61°02'06"N., 146°40'00"W., and southwest of a line bearing 307° true from Entrance Island Light at 61°05'06"N., 146°36'42"W.

Part 162–Inland Waterways Navigation Regulations

(487) **§162.1 General.**
(488) 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.
(489) **§162.240 Tongass Narrows, Alaska; navigation.**
(490) (a) Definitions. The term "Tongass Narrows" includes the body of water lying between Revillagigedo Channel and Guard Islands in Clarence Strait.
(491) (b) No vessel shall exceed a speed of seven knots between Idaho Rock and Charcoal Point.
(492) (c) No vessel shall while moored or at anchor, or by slow passage or otherwise while underway, unreasonably obstruct the free passage and progress of other vessels.
(493) (d) No vessel shall moor or anchor to any structure of the United States other than mooring piers, wharves, and floats without the consent of the Captain of the Port, Southeast Alaska. The office of the Captain of the Port, Southeast Alaska, is located in Juneau, Alaska.
(494) **§162.250 Port Alexander, Alaska; speed of vessels.**
(495) (a) Definition. The term "Port Alexander" includes the entire inlet from its head to its entrance from Chatham Strait.
(496) (b) Speed. The speed of all vessels of 5 tons or more gross, ships register, shall not exceed 3 miles per hour either in entering, leaving, or navigating within Port Alexander, Alaska.
(497) **§162.255 Wrangell Narrows, Alaska; use, administration, and navigation.**
(498) (a) Definitions. (1) The term "Wrangell Narrows" includes the entire body of water between Wrangell Narrows North Entrance Lighted Bell Buoy 63 and Midway Rock Light.
(499) (2) The term "raft section" refers to a standard raft of logs or piling securely fastened together for long towing in Alaska inland waters in the manner customary with the local logging interests, i.e. with booms, swifters, and tail

sticks. It normally contains 30,000 to 70,000 feet board measure of logs or piling and has a width of 45 to 60 feet and a length of 75 to 100 feet.

(500) (b) Speed restrictions. No vessel shall exceed a speed of seven (7) knots in the vicinity of Petersburg, between Wrangell Narrows Channel Light 58 and Wrangell Narrows Lighted Buoy 60.

(501) (c) Tow channel. The following route shall be taken by all tows passing through Wrangell Narrows when the towboat has a draft of 9 feet or less (northbound, read down; southbound, read up):

(502) East of Battery Islets:

(503) East of Tow Channel Buoy 1 TC.

(504) East of Tow Channel Buoy 3 TC.

(505) West of Tow Channel Buoy 4 TC,

(506) East of Colorado Reef:

(507) East of Wrangell Narrows Channel Light 21.

(508) West of Wrangell Narrows Channel Lighted Buoy 25.

(509) East of Tow Channel Buoy 5 TC.

(510) East of Tow Channel Buoy 7 TC.

(511) West of Petersburg:

(512) East of Wrangell Narrows Channel Light 54 FR.

(513) East of Wrangell Narrows Channel Light 56 Qk FR.

(514) East of Wrangell Narrows Channel Light 58 FR, thence proceeding to West side of channel and leaving Wrangell Narrows by making passage between Wrangell Narrows Channel Daybeacon 61 and Wrangell Narrows North Entrance Lighted Bell Buoy 63 F.

(515) (d) Size of tows. The maximum tows permitted shall be one pile driver, or three units of other towable equipment or seven raft sections.

(516) (e) Arrangement of tows. (1) No towline or aggregate of towlines between towboat and separated pieces shall exceed 150 feet in length.

(517) (2) Raft and barge tows of more than one unit shall not exceed 65 feet in width overall. Single barge tows shall not exceed 80 feet in width overall.

(518) (3) Tows other than rafts shall be taken alongside the towboat whenever possible.

(519) (f) Anchorage. Vessels may anchor in the anchorage basin in the vicinity of Anchor Point. No craft or tow shall be anchored in Wrangell Narrows in either the main ship channel or the towing channel, nor shall any craft or tow be anchored so that it can swing into either of these channels.

(520) (g) Disabled craft. Disabled craft in a condition of absolute necessity are exempt from the regulations in this section.

Part 164–Navigation Safety Regulations (in part). For a complete description of this part see 33 CFR 164.

(521) **§164.01 Applicability.**

(522) (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.

(523) **§164.02 Applicability exception for foreign vessels.**

(524) (a) This part (including §§ 164.38 and 164.39) does not apply to vessels that:

(525) (1) Are not destined for, or departing from, a port or place subject to the jurisdiction of the United States; and

(526) (2) Are in:

(527) (i) Innocent passage through the territorial sea of the United States; or

(528) (ii) Transit through navigable waters of the United States which form a part of an international strait.

(529) **§164.03 Incorporation by reference.**

(530) (a) Certain materials are incorporated by reference into this part with the approval of the Director of the Federal Register. The Office of the Federal Register publishes a table, "Material Approved for Incorporation by Reference," which appears in the Finding Aids section of this volume. In that table is found the date of the edition approved, citations to the particular sections of this part where the material is incorporated,addresses where the material is available, and the date of the approval by the Director of the Federal Register. To enforce any edition other than the one listed in the table, notice of the change must be published in the FEDERAL REGISTER and the material made available. All approved material is on file at the Office of the Federal Register, Washington, DC 20408 and at Room 4402, U.S. Coast Guard Headquarters, 2100 Second St. SW, Washington, DC.

(531) (b) The materials approved for incorporation by reference in this part are: Radio Technical Commission For Marine Services (RTCM) Paper 12-78/DO-100 dated 12/20/77.

(532) **§164.11 Navigation underway: General.**

(533) The owner, master, or person in charge of each vessel underway shall ensure that:

(534) (a) The wheelhouse is constantly manned by persons who–

(535) (1) Direct and control the movement of the vessel; and

(536) (2) Fix the vessel's position;

(537) (b) Each person performing a duty described in paragraph (a) of this section is competent to perform that duty;

(538) (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;

(539) (c) Electronic and other navigational equipment, external fixed aids to navigation, geographic reference points, and hydrographic contours are used when fixing the vessel's position;

(540) (e) Buoys alone are not used to fix the vessel's position;

(541) **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.

(542) (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;

(543) (g) Rudder orders are executed as given;

(544) (h) Engine speed and direction orders are executed as given;

(545) (i) Magnetic variation and deviation and gyrocompass errors are known and correctly applied by the person directing the movement of the vessel;

(546) (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. 672, which requires an able seaman at the wheel on U.S. vessels of 100 gross tons or more in narrow or crowded waters or during low visibility.);

(547) (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.

(548) (l) Current velocity and direction for the area to be transited are known by the person directing the movement of the vessel;
(549) (m) Predicted set and drift are known by the person directing movement of the vessel;
(550) (n) Tidal state for the area to be transited is known by the person directing movement of the vessel;
(551) (o) The vessel's anchors are ready for letting go;
(552) (p) The person directing the movement of the vessel sets the vessel's speed with consideration for–
(553) (1) The prevailing visibility and weather conditions;
(554) (2) The proximity of the vessel to fixed shore and marine structures;
(555) (3) The tendency of the vessel underway to squat and suffer impairment of maneuverability when there is small underkeel clearance;
(556) (4) The comparative proportions of the vessel and the channel;
(557) (5) The density of marine traffic;
(558) (6) The damage that might be caused by the vessel's wake;
(559) (7) The strength and direction of the current; and
(560) (8) Any local vessel speed limit;
(561) (q) The tests required by §164.25 are made and recorded in the vessel's log; and
(562) (r) The equipment required by this part is maintained in operable condition.
(563) (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.
(564) (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 operating on the Great Lakes and their connecting and tributary waters.

(565) **§164.15 Navigation bridge visibility.**

(566) (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:
(567) (1) From the conning position, the view of the sea surface must not be obscured by more than the lesser of two ship 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 obstruction must not exceed 5 degrees.
(568) (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.
(569) (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.
(570) (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.
(571) (b) A clear view must be provided through at least two front windows at all times regardless of weather condition.

(572) **§164.19 Requirements for vessels at anchor.**

(573) The master or person in charge of each vessel that is anchored shall ensure that–
(574) (a) A proper anchor watch is maintained;
(575) (b) Procedures are followed to detect a dragging anchor; and
(576) (c) Whenever weather, tide, or current conditions are likely to cause the vessel's anchor to drag, action is taken to ensure the safety of the vessel, structures, and other vessels, such as being ready to veer chain, let go a second anchor, or get underway using the vessel's own propulsion or tug assistance.

(577) **§164.25 Tests before entering or getting underway.**

(578) (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:
(579) (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:
(580) (i) Each remote steering gear control system.
(581) (ii) Each steering position located on the navigating bridge.
(582) (iii) The main steering gear from the alternative power supply, if installed.
(583) (iv) Each rudder angle indicator in relation to the actual position of the rudder.
(584) (v) Each remote steering gear control system power failure alarm.
(585) (vi) Each remote steering gear power unit failure alarm.
(586) (vii) The full movement of the rudder to the required capabilities of the steering gear.
(587) (2) All internal vessel control communications and vessel control alarms.
(588) (3) Standby or emergency generator, for as long as necessary to show proper functioning, including steady state temperature and pressure readings.
(589) (4) Storage batteries for emergency lighting and power systems in vessel control and propulsion machinery spaces.
(590) (5) Main propulsion machinery, ahead and astern.
(591) (5) 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.
(592) (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.
(593) (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:
(594) (1) Operation of the main steering gear from within the steering gear compartment.
(595) (2) Operation of the means of communications between the navigating bridge and the steering compartment.
(596) (3) Operation of the alternative power supply for the steering gear if the vessel is so equipped.

(597) **§164.30 Charts, publications, and equipment: General.**

(598) 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.

(599) **§164.33 Charts and publications.**

(600) (a) Each vessel must have the following:

(601) (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–

(602) (i) Are of a large enough scale and have enough detail to make safe navigation of the area possible; and

(603) (ii) Are currently corrected.

(604) (2) For the area to be transited, a currently corrected copy of, or applicable currently corrected extract from, each of the following publications:

(605) (i) U.S. Coast Pilot.

(606) (ii) Coast Guard Light List.

(607) (3) For the area to be transited, the current edition of, or applicable current extract from:

(608) (i) Tide tables published by the National Ocean Service.

(609) (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.

(610) (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.

(611) (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.

(612) **§164.35 Equipment: All vessels.**

(613) Each vessel must have the following:

(614) (a) A marine radar system for surface navigation.

(615) (b) An illuminated magnetic steering compass, mounted in a binnacle, that can be read at the vessel's main steering stand.

(616) (c) A current magnetic compass deviation table or graph or compass comparison record for the steering compass, in the wheelhouse.

(617) (d) A gyrocompass.

(618) (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.

(619) (f) An illuminated rudder angle indicator in the wheelhouse.

(620) (g) The following maneuvering information prominently displayed on a fact sheet in the wheelhouse:

(621) (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.

(622) (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.

(623) (3) For each vessel with a fixed propeller, a table of shaft revolutions per minute for a representative range of speeds.

(624) (4) For each vessel with a controllable pitch propeller, a table of control settings for a representative range of speeds.

(625) (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 vessl.

(626) (6) The maneuvering information for the normal load and normal ballast condition for–

(627) (i) Calm weather-wind 10 knots or less, calm sea;

(628) (ii) No current;

(629) (iii) Deep water conditions-water depth twice the vessel's draft or greater; and

(630) (iv) Clean hull.

(631) (7) At the bottom of the fact sheet, the following statement:

(632) **Warning.**

(633) 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:

(634) (1) Calm weather-wind 10 knots or less, calm sea;

(635) (2) No current;

(636) (3) Water depth twice the vessel's draft or greater;

(637) (4) Clean hull; and

(638) (5) Intermediate drafts or unusual trim.

(639) (h) An echo depth sounding device.

(640) (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.

(641) (j) Equipment on the bridge for plotting relative motion.

(642) (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.

(643) (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.

(644) (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.

(645) (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.

(646) **§164.37 Equipment: Vessels of 10,000 gross tons or more.**

(647) (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.

(648) **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.

(649) (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.

(650) **§164.38 Automatic radar plotting aids (ARPA).** (See 33 CFR 164.)

(651) **§164.39 Steering gear: Tankers.** (See 33 CFR 164.)

(652) **§164.40 Devices to indicate speed and distance.**

(653) (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:

(654) (1) Each tank vessel constructed before September 1, 1984, operating on the navigable waters of the United States-

(655) (i) If of 40,000 gross tons or more, by January 1, 1985;

(656) (ii) If of 10,000 gross tons or more but less than 40,000 gross tons, by January 1, 1986.

(657) (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-

(658) (i) If of 40,000 gross tons or more, by September 1, 1986;

(659) (ii) If of 20,000 gross tons or more, but less than 40,000 gross tons, by September 1, 1987;

(660) (iii) If of 15,000 gross tons or more, but less than 20,000 gross tons, by September 1, 1988.

(661) (b) The device must meet the following specifications:

(662) (1) The display must be easily readable on the bridge by day or night.

(663) (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.

(664) (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.

(665) **§164.41 Electronic position fixing devices.**

(666) (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:

(667) (1) A Type I or II LORAN C receiver as defined in Section 1.2(e), meeting Part 2 (Minimum Performance Standards) of the Radio Technical Commission for Marine Services (RTCM) Paper 12-78/DO-100 dated December 20, 1977, entitled "Minimum Performance Standards (MPS) Marine Loran-C Receiving Equipment". Each receiver installed 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.

(668) (2) A satellite navigation receiver with:

(669) (i) Automatic acquisition of satellite signals after initial operator settings have been entered; and

(670) (ii) Position updates derived from satellite information during each usable satellite pass.

(671) (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 Office of Navigation Safety and Waterway Services, 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.

(672) **Note.**–The Federal Radionavigation Plan is available from the National Technical Information Service, Springfield, Va. 22161, with the following Government Accession Numbers:

(673) Vol 1, ADA 116468

(674) Vol 2, ADA 116469

(675) Vol 3, ADA 116470

(676) Vol 4, ADA 116471

(677) (b) Each label required under paragraph (a)(1) of this section must show the following:

(678) (1) The name and address of the manufacturer.

(679) (2) The following statement by the manufacturer:

(680) This receiver was designed and manufactured to meet Part 2 (Minimum Performance Standards) of the RTCM MPS for Marine Loran-C Receiving Equipment.

(681) **§164.42 Rate of turn indicator.**

(682) 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.

(683) **§164.51 Deviations from rules: Emergency.**

(684) 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.

(685) **§164.53 Deviations from rules and reporting: Non-operating equipment.**

(686) (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.

(687) (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.

(688) **§164.55 Deviations from rules: Continuing operation or period of time.**

(689) 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.

(690) **§164.61 Marine casualty reporting and record retention.**

(691) 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–

(692) (a) Ensure compliance with 46 CFR 4.05, "Notice of Marine Casualty and Voyage Records," and

(693) (b) Ensure that the voyage records required by 46 CFR 4.05-15 are retained for–

(694) (1) 30 days after the casualty if the vessel remains in the navigable waters of the United States; or

(695) (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.

Part 165–Regulated Navigation Areas and Limited Access Areas

Subpart A–General

(696) **§165.1 Purpose of part.**

(697) The purpose of this part is to–

(698) (a) Prescribe proceduress for establishing different types of limited or controlled access areas and regulated navigation areas;

(699) (b) Prescribe general regulations for different types of limited or controlled access areas and regulated navigation areas;

(700) (c) Prescribe specific requirements for established areas; and

(701) (d) List specific areas and their boundaries.

(702) **§165.5 Establishment procedures.**

(703) (a) A safety zone, security zone, or regulated navigation area may be established on the initiative of any authorized Coast Guard official.

(704) (b) Any person may request that a safety zone, security zone, or regulated navigation area be established. Except as provided in paragraph (c) of this section, each request must be submitted in writing to either the Captain of the Port or District Commander having jurisdiction over the location as described in 33 CFR 3, and include the following:

(705) (1) The name of the person submitting the request;

(706) (2) The location and boundaries of the safety zone, security zone, or regulated navigation area;

(707) (3) The date, time, and duration that the safety zone, security zone, or regulated navigation area should be established;

(708) (4) A description of the activities planned for the safety zone, security zone, or regulated navigation area;

(709) (5) The nature of the restrictions or conditions desired; and

(710) (6) The reason why the safety zone, security zone, or regulated navigation area is necessary.

(711) (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.)

(712) (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.

(713) **§165.7 Notification.**

(714) (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.

(715) (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.

(716) (c) Notification of the termination of the rule is usually made in the same form as the notification of its establishment.

(717) **§165.8 Geographic coordinates.**

(718) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

Subpart B–Regulated Navigation Areas

(719) **§165.10 Regulated navigation area.**

(720) 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.

(721) **§165.11 Vessel operating requirements (regulations).**

(722) Each District Commander may control vessel traffic in an area which is determined to have hazardous conditions, by issuing regulations–

(723) (a) Specifying times of vessel entry, movement, or departure to, from, within, or through ports, harbors, or other waters;

(724) (b) Establishing vessel size, speed, draft limitations, and operating conditions; and

(725) (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.

(726) **§165.13 General regulations.**

(727) (a) The master of a vessel in a regulated navigation area shall operate the vessel in accordance with the regulations contained in Subpart F.

(728) (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

(729) **§165.20 Safety zones.**

(730) 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.

(731) **§165.23 General regulations.**

(732) Unless otherwise provided in this part–

(733) (a) No person may enter a safety zone unless authorized by the COTP or the District Commander;

(734) (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;

(735) (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

(736) (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

(737) **§165.30 Security zones.**

(738) (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.

(739) (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–

(740) (1) Vessels,

(741) (2) Harbors,

(742) (3) Ports and

(743) (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.

(744) **§165.33 General regulations.**

(745) Unless otherwise provided in the special regulations in Subpart F of this part–

(746) (a) No person or vessel may enter or remain in a security zone without the permission of the Captain of the Port;

(747) (b) Each person and vessel in a security zone shall obey any direction or order of the Captain of the Port;

(748) (c) The Captain of the Port may take possession and control of any vessel in the security zone;

(749) (d) The Captain of the Port may remove any person, vessel, article, or thing from a security zone;

(750) (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

(751) (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

(752) **§165.40 Restricted Waterfront Areas.**

(753) 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

(754) **§165.1702 Gastineau Channel, Juneau, Alaska-safety zone.**

(755) (a) The waters within the following boundaries are a safety zone: A line beginning at the Standard Oil Company Pier West Light, located at position 58°17.9′N., 134°24.8′W., in the direction of 140° True to Rock Dump Lighted Buoy 2A at position 58°17.2′N., 134°23.8′W.; thence in the direction of 003° True to a point at position 58°17.4′N., 134°23.7′W., on the north shore of Gastineau Channel; thence northwesterly along the north shore of Gastineau Channel to the point of origin.

(756) (b) Special Regulations:

(757) (1) All vessels may transit or navigate within the safety zone.

(758) (2) No vessels, other than a large passenger (including cruise ships and ferries) may anchor within the safety zone without the express consent from the Captain of the Port, Southeast Alaska.

(759) **§165.1705 Ketchikan Harbor, Ketchikan, Alaska-Safety Zone.**

(760) (a) That portion of Ketchikan Harbor, Ketchikan, Alaska enclosed by the following boundary lines is a Safety Zone: A line from Thomas Basin Entrance Light "2", latitude 55°20.3′N., longitude 131°38.5′W., to East Channel Lighted Buoy "4A",

(761) 55°20.4′N., 131°38.9′W., to Pennock Island Reef Lighted Buoy "PR",

(762) 55°20.3′N., 131°40′W., to Wreck Lighted Buoy "WR6",

(763) 55°20.7′N., 131°40.3′W., then following a line bearing 064 degrees true to shore. This zone is effective 24 hours per day from 1 May through 30 September, annually. Annual notices of these regulations will be issued in Local Notices to Mariners.

(764) (b) Special Regulations:

(765) (1) All vessels may transit or navigate within the safety zone.

(766) (2) No vessels, other than a large passenger vessel over 1600 gross tons (including ferries), may anchor within the Safety Zone without the express consent of the Captain of the Port, Southeast Alaska.

Part 334-Danger Zones and Restricted Area Regulations

(767) **§334.1275 West Arm Behm Canal, Ketchikan, Alaska, restricted areas.**

(768) (a) The areas-(1) Area No.1. The waters of Behm Canal bounded by a circle 2,000 yards in diameter, centered on 55°36′N., 131°49.2′W.

(769) (2) Area No. 2. The waters of Behm Canal bounded by a circle 2,000 yards in diameter, centered at 55°34′N.,131°48′W.

(770) (3) Area No. 3. The waters of Behm Canal excluding those areas designated as areas Nos. 1 and 2 above, bounded by an irregular polygon beginning at the shoreline on Back Island near

(771) 55°32.63′N., 131°45.18′W., thence bearing about 350° to

(772) 55°38.06′N., 131°46.75′W., thence bearing about 300° to

(773) 55°38.52′N., 131°48.15′W., thence bearing about 203° to

(774) 55°33.59′N., 131°51.54′W., thence bearing about 112° to the intersection of the shoreline at Back Island near 55°32.53′N., 131°45.77′W., thence NE along the shoreline to the point of beginning.

(775) (4) Area No. 4. The waters of Clover Passage bounded by an irregular polygon beginning at the shoreline on Back Island near

(776) 55°32.63′N., 131°45.18′W., thence bearing 150° to the intersection of the shoreline on Revillagigedo Island near

(777) 55°30.64′N., 131°43.64′W., thence SW along the shoreline to near

(778) 55°30.51′N, 131°43.88′W., thence bearing 330° to the intersection of the shoreline on Back Island near

(779) 55°32.16′N., 131°45.20′W., and from there NE along the shoreline to the point of beginning.

(780) (5) Area No. 5. The waters of Behm Canal bounded to the north by a line starting from Point Francis on the Cleveland Peninsula to Escape Point on Revillagigedo Island then S along the shoreline to Indian Point, thence S to the Grant Island Light at 55°33.4′N., 131°43.6′W., thence bearing 216° to the S end of Back Island and continuing to

the intersection of the shoreline on Betton Island at about 55°31.52'N., 131°45.98'W., thence N along the shoreline of Betton Island to the western side below Betton Head at about 55°30.83'N, 131°50'W., thence bearing 283° across Behm Canal to the intersection of shoreline near the point which forms the SE entrance of Bond Bay at about 55°31.60'N., 131°56.58'W., thence NE to Helm Point on the Cleveland Peninsula, thence NE along the shoreline to the point of beginning at Point Francis.

(781) (b) The regulations-(1) Area No. 1. Vessels are allowed to transit the area at any time. No vessel may anchor within the restricted area or tow a drag of any kind, deploy a net or dump any material within the area.

(782) (2) Area No. 2. Vessels are allowed to transit the area at any time. No vessel may anchor within the restricted area or tow a drag of any kind, deploy a net or dump any material within the area. Vessels are also prohibited from mooring or tying up to, loitering alongside or in the immediate vicinity of naval equipment and barges in the restricted area.

(783) (3) Area No. 3. Vessels are allowed to transit the area at any time. Due to the presence of underwater cables and instrumentation, anchoring is prohibited and the towing of a drag or any object within 100 feet of the bottom is also prohibited. Anchoring is allowed within 100 yards of the shore of Back Island except within 100 yards of each side of the area where electrical and other cables are brought ashore. The termination location of the cables on the land is marked with a warning sign that is visible from the water.

(784) (4) Area No. 4. Due to the presence of communication and power cables crossing from Revillagigedo Island to Back Island no anchoring or towing of a drag is allowed. Anchoring is allowed within 100 yards of the shore of Back Island except within 100 yards of each side of the area where the cables are brought ashore. The termination location of the cables on the land is marked with a warning sign that is visible from the water.

(785) (5) Area No. 5. (i) The area will be open unless the Navy is actually conducting operations. To ensure safe and timely passage through the restricted area vessel operators are required to notify the Range Operations Officer of their expected time of arrival, speed and intentions. For vessels not equipped with radio equipment, the Navy shall signal with flashing beacon lights whether passage is prohibited and when it is safe to pass through the area. A flashing green beacon indicates that vessels may proceed through the area. A flashing red beacon means that the area is closed to all vessels and to await a green clear signal. Each closure of the area by the Navy will normally not exceed 20 minutes.

(786) (ii) Small craft may operate within 500 yards of the shoreline at speeds no greater than 5 knots in accordance with the restrictions in effect in area No. 3.

(787) (iii) During the period May 1 through September 15 annually, the Navy will only conduct acoustic measurement tests which will result in transitory restrictions in Area #5 for a total of no more than 15 days.

(788) (iv) Transitory restrictions in Area #5 will not be enforced during daylight hours when Navy testing coincides with pre- scheduled special events in Behm Canal. Special events are defined as summer holidays or celebrations, competitions, or economic endeavors scheduled by an agency or organization, and typically occurring every year for the utilization of natural resources of Behm Canal. Special events include commercial emergency seine fishery openings from July 25 through September 15, historic salmon derbies lasting eight days or less, Memorial Day, Labor Day, Independence Day or any nationally recognized three day weekend to celebrate these holidays.

(789) (v) Public notification that the Navy will be conducting operations in Behm Canal will be given at least 72 hours in advance to the following Ketchikan contacts: U.S. Coast Guard, Ketchikan Gateway Borough Planning Department, Harbor Master, Alaska Department of Fish and Game, KRBD Radio, KTKN Radio, and the Ketchikan Daily News.

(790) (c) Vessels will be allowed to transit Restricted Area #5 within 20 minutes of marine radio or telephone notification to the Navy Range Operations Officer.

(791) (d) Enforcement. The regulations in this section shall be enforced by the Commander, David Taylor Research Center and such agencies he/she may designate.

(792) **§334.1310 Lutak Inlet, Alaska; restricted areas.**

(793) (a) The areas– (1) Army POL dock restricted area.

(794) (i) the waters of Lutak Inlet bounded as follows: Beginning at the water's edge 900 feet northwest of the centerline of the landward end of the POL dock; thence 800 feet, 50° true; thence, 1400 feet, 113° true; thence 450 feet, 211° true to the water's edge at a point approximately 720 feet from the most southwest corner of the seaward end of the POL dock; thence along the water's edge to the point of beginning.

(795) (ii) The area will be marked at points approximately 200 feet apart along the shore by white signs containing the word "Warning." The signs will not be lighted.

(796) (2) Dry Cargo dock mooring area. (i) The waters within 60 feet off the face of the dock.

(797) (b) The regulations. (1) No vessels or other craft shall enter or remain in the Army POL dock restricted area when tankers are engaged in discharging oil at the dock.

(798) (2) The dropping and dragging of anchors, weights, or other ground tackle within the Dry Cargo dock mooring area is prohibited.

(799) (3) The regulations in this section shall be enforced by the District Engineer, U.S. Army Engineer District, Anchorage, Alaska, and such agencies as he may designate.

(800) **Title 36–Parks, Forests, and Public Property**

Part 13–National Park System Units in Alaska

Subpart A–Public Use and Recreation

(801) §13.1 Definitions.

(802) The following definitions shall apply to all regulations contained in this part:

(803) (a) The term "adequate and feasible access" means a reasonable method and route of pedestrian or vehicular transportation which is economically practicable for achieving the use or development desired by the applicant on his/her non-federal land or occupancy interest, but does not necessarily mean the least costly alternative.

(804) (b) The term "aircraft" means a machine or device that is used or intended to be used to carry persons or objects in flight through the air, including, but not limited to airplanes, helicopters and gliders.

(805) (c) The term "ANILCA" means the Alaska National Interest Lands Conservation Act (94 Stat. 2371; Pub. L. 96-487 (December 2, 1980)).

(806) (d) The term "carry" means to wear, bear or carry on or about the person and additionally, in the case of firearms, within or upon a device or animal used for transportation.

(807) (e) The term "downed aircraft" means an aircraft that as a result of mechanical failure or accident cannot take off.

(808) (f) The term "firearm" means any loaded or unloaded pistol, revolver, rifle, shotgun or other weapon which

will or is designated to or may readily be converted to expel a projectile by the action of expanded gases, except that it does not include a pistol or rifle powered by compressed gas. The term "firearm" also includes irritant gas devises.

(809) (g) The term "fish and wildlife" means any member of the animal kingdom, including without limitation any mammal, fish, bird (including any migratory, nonmigratory or endangered bird for which protection is also afforded by treaty or other international agreement), amphibian, reptile, mollusk, crustacean, arthropod, or other invertebrate, and includes any part, produce, egg, or offspring thereof, or the dead body or part thereof.

(810) (h) The term "fossil" means any remains, impression, or trace of any animal or plant of past geological ages that has been preserved, by natural processes, in the earth's crust.

(811) (i) The term "gemstone" means a silica or igneous mineral including, but not limited to (1) geodes, (2) petrified wood, and (3) jade, agate, opal, garnet, or other mineral that when cut and polished is customarily used as jewelry or other ornament.

(812) (j) The term "National Preserve" shall include the following areas of the National Park System:

(813) Alagnak National Wild and Scenic River, Aniakchak National Preserve, Bering Land Bridge National Preserve, Denali National Preserve, Gates of the Arctic National Preserve, Glacier Bay National Preserve, Katmai National Preserve, Lake Clark National Preserve, Noatak National Preserve, Wrangell-St. Elias National Preserve, and Yukon-Charley National Preserve.

(814) (k) The term "net" means a seine, weir, net wire, fish trap, or other implement designed to entrap fish, except a landing net.

(815) (l) The term "off-road vehicle" means any motor vehicle designed for or capable of crosscountry travel on or immediately over land, water, sand, snow, ice, marsh, wetland or other natural terrain, except snowmachines or snowmobiles as defined in this chapter.

(816) (m) The term "park areas" means land and waters administered by the National Park Service within the State of Alaska.

(817) (n) The term "person" means any individual, firm, corporation, society, association, partnership, or any private or public body.

(818) (o) The term "possession" means exercising dominion or control, with or without ownership, over weapons, traps, nets or other property.

(819) (p) The term "public lands" means lands situated in Alaska which are federally owned lands, except–

(820) (1) land selections of the State of Alaska which have been tentatively approved or validly selected under the Alaska Statehood Act (72 Stat. 339) and lands which have been confirmed to, validly selected by, or granted to the Territory of Alaska or the State under any other provision of Federal law;

(821) (2) land selections of a Native Corporation made under the Alaska Native Claims Settlement Act (85 Stat. 688) which have not been conveyed to a Native Corporation, unless any such selection is determined to be invalid or is relinquished; and

(822) (3) lands referred to in section 19(b) of the Alaska Native Claims Settlement Act.

(823) (q) The term "snowmachine" or "snowmobile" means a self-propelled vehicle intended for off-road travel primarily on snow having a curb weight of not more than 1,000 pounds (450 kg), driven by a track or tracks in contact with the snow and steered by a ski or skis on contact with the snow.

(824) (r) The term "Superintendent" means any National Park Service official in change of a park area, the Alaska Regional Director of the National Park Service, or an authorized representative of either.

(825) (s) The term "take" or "taking" as used with respect to fish and wildlife, means to pursue, hunt, shoot, trap, net, capture, collect, kill, harm, or attempt to engage in any such conduct.

(826) (t) The term "temporary" means a continuous period of time not to exceed 12 months, except as specifically provided otherwise.

(827) (u) The term "trap" means a snare, trap, mesh, or other implement designed to entrap animals other than fish.

(828) (v) The term "unload" means there is no unexpended shell or cartridge in the chamber or magazine of a firearm; bows, crossbows and spearguns are stored in such a manner as to prevent their ready use; muzzle-loading weapons do not contain a powder charge; and any other implement capable of discharging a missile into the air or under the water does not contain a missile or similar device within the loading or discharging mechanism.

(829) (w) The term "weapon" means a firearm, compressed gas or spring powered pistol or rifle, bow and arrow, crossbow, blow gun, speargun, hand thrown spear, slingshot, explosive device, or any other implement designed to discharge missiles into the air or under the water.

(830) **§13.2 Applicability and scope.**

(831) (a) The regulations contained in this Part 13 are prescribed for the proper use and management of park areas in Alaska and supplement the general regulations of this chapter. The general regulations contained in this chapter are applicable except as modified by this Part 13.

(832) (b) Subpart A of this Part 13 contains regulations applicable to park areas. Such regulations amend in part the general regulations contained in this chapter. The regulations in Subpart A govern use and management, including subsistence activities, within the park areas, except as modified by Subparts B or C.

(833) (c) Subpart B of this Part 13 contains regulations applicable to subsistence activities. Such regulations apply to park areas except Kenai Fjords National Park, Katmai National Park, Glacier Bay National Park, Klondike Gold Rush National Historical Park, Sitka National Historical Park, and parts of Denali National Park. The regulations in Subpart B amend in part the general regulations contained in this chapter and the regulations contained in Subpart A of this Part 13.

(834) (d) Subpart C of this Part 13 contains special regulations for specific park areas. Such regulations amend in part the general regulations contained in this chapter and the regulations contained in Subparts A and B of this Part 13.

(835) (e) The regulations contained in this Part 13 are applicable only on federally owned lands within the boundaries of any park area. For purposes of this part, "federally owned lands" means land interests held or retained by the United States, but does not include those land interests; (1) Tentatively approved, legislatively conveyed, or patented to the State of Alaska; or (2) interim conveyed or patented to a Native Corporation or person.

(836) **secmk;13.3 (Reserved)**

(837) **§13.4 Information collection.**

(838) The information collection requirements contained in §§13.13, 13.14, 13.15, 13.16, 13.17, 13.31, 13.44, 13.45, 13.49, and 13.51 have been approved by the Office of Management and Budget under 44 U.S.C. 3507 and assigned clearance number 1024-0015. The information is being collected to solicit information necessary for the Superintendent to issue permits and other benefits. This information

will be used to grant statutory or administrative benefits. In all sections except 13.13, the obligation to respond is required to obtain a benefit. In §13.13, the obligation to respond is mandatory.

(839) **§13.10 (Reserved)**

(840) **§13.11 (Reserved)**

(841) **§13.15 (Reserved)**

(842) **§13.16 (Reserved)**

(843) **§13.17 Cabins and other structures.**

(844) (a) Purpose and policy. The policy of the National Park Service is to manage the use, occupancy and disposition of cabins and other structures in park areas in accordance with the language and intent of ANILCA, the National Park Service Organic Act (16 U.S.C. 1 et seq.) and other applicable law. Except as Congress has directly and specifically provided to the contrary, the use, occupancy and disposition of cabins and other structures in park areas shall be managed in a manner that is compatible with the values and purposes for which the National Park System and these park areas have been established. In accordance with this policy, this section governs the following authorized uses of cabins and other structures in park areas:

(845) (1) Use and/or occupancy pursuant to a valid existing lease or permit;

(846) (2) Use and occupancy of a cabin not under valid existing lease or permit;

(847) (3) Use for authorized commercial fishing activities;

(848) (4) Use of cabins for subsistence purposes;

(849) (5) General public use cabins;

(850) (6) Cabins in wilderness areas;

(851) (7) Use of temporary facilities related to the taking of fish and wildlife; and

(852) (8) New cabins and other structures otherwise authorized by law.

(853) (b) Applicability. Unless otherwise specified, this section applies to all park areas in Alaska except Klondike Gold Rush National Historical Park and Sitka National Historical Park.

(854) (c) Definitions. The following definitions apply to this section:

(855) "Cabin" means of a small, usually one-story dwelling of simple construction, completely enclosed, with a roof and walls which may have windows and door(s).

(856) "Claimant" means a person who has occupied and used a cabin or other structure as a primary, permanent residence for a substantial portion of the time, and who, when absent, has the intention of returning to it as his/her primary, permanent residence. Factors demonstrating a person's primary, permanent residence include, but are not limited to documentary evidence, e.g. the permanent address indicated on licenses issued by the State of Alaska and tax returns and the location where the person is registered to vote.

(857) "Immediate family member" means a claimant's spouse, or a grandparent, parent, brother, sister, child or adopted child of a claimant or of the claimant's spouse.

(858) "Possessory interest" means the partial or total ownership of a cabin or structure.

(859) "Right of occupancy" means a valid claim to use or reside in a cabin or other structure.

(860) "Shelter" means a structure designed to provide temporary relief from the elements and is characterized as a lean-to having one side open.

(861) "Substantial portion of the time" means at least 50 percent of the time since beginning occupancy and at least 4 (four) consecutive months of continuous occupancy in every calendar year after 1986.

(862) "Temporary campsite" means a natural, undeveloped area suitable for the purpose of overnight occupancy without modification.

(863) "Temporary facility" means a structure or other manmade improvement that can be readily and completely dismantled and/or removed from the site when the authorized use terminates. The term does not include a cabin.

(864) "Tent platform" means a structure, usually made of manufactured timber products, constructed to provide a solid, level floor for a tent, with or without partial walls not exceeding three feet in height above the floor, and having only the tent fabric, the ridge pole and its support poles extending higher than three feet above the floor.

(865) (d) Administration-(1) Permit application procedures. Except as otherwise specified in this section, the procedures set forth in §13.31(a) of this chapter govern application for any permit authorized pursuant to this section.

(866) (2) Notice and comment on proposed permit. Before a permit for the use and occupancy of a cabin or other structure is issued pursuant to this section, the Superintendent shall publish notice of the proposed issuance in the local media and provide a public comment period of at least sixty days, subject to the following exceptions: Prior notice and comment are not required for a permit authorizing use and occupancy for 14 days or less of a public use cabin or use and occupancy of a temporary facility for the taking of fish or wildlife for sport or subsistence purposes.

(867) (3) Permit revocation. (i) The superintendent may revoke a permit or lease issued pursuant to this section when the superintendent determines that the use under the permit or lease is causing or may cause significant detriment to the principal purposes for which the park area was established. Provided, however, that if a permittee submits a written request for a hearing concerning the revocation, based on the cause listed above, of a permit or lease issued pursuant to paragraph (e)(1), (e)(2), (e)(4) or (e)(8) of this section, the matter shall be assigned to an administrative law judge who, after notice and hearing and based on substantial evidence in the administrative record as a whole, shall render a recommended decision for the superintendent's review. The superintendent shall then accept, reject or modify the administrative law judge's recommended decision in whole or in part and issue a final decision in writing.

(868) (ii) The superintendent may revoke or modify any permit or lease issued pursuant to this section when the permittee violates a term of the permit or lease.

(869) (4) Appeal procedures. The procedures set forth in §13.31(b) of this chapter govern appeals of a permit denial, a denial of a permit renewal, a permit revocation and a superintendent's final decision on a permit revocation issued pursuant to paragraph (d)(3)(i) of this section.

(870) (5) Permittee's interest. (i) A permittee shall not accrue a compensable interest in a cabin or other structure in a park area unless specifically authorized by Federal statutory law.

(871) (ii) A cabin or other structure in a park area may not be sold, bartered, exchanged, assigned or included as a portion of any sale or exchange of other property by a permittee unless specifically authorized by Federal statutory law.

(872) (iii) The Superintendent shall determine the extent and nature of a permittee's possessory interest at the time a permit is issued or denied.

(873) (6) Cabin Site Compatibility. The Superintendent shall establish permit conditions that require a permittee-

(874) (i) When constructing, maintaining or repairing a cabin or other structure authorized under this section, to use materials and methods that blend with and are compatible with the immediate and surrounding landscape; and

(875) (ii) When terminating an activity that involves a structure authorized under this section, to dismantle and remove the structure and all personal property from the park area within a reasonable period of time and in a manner consistent with the protection of the park area.

(876) (7) Access. (i) A permittee under this section who holds a permit for use and occupancy of a cabin or other structure located on public lands in a park area, not under valid existing lease or permit in effect on December 2, 1980, does not have a "valid property or occupancy interest" purposes of ANILCA section 1110(b) and its implementing regulations.

(877) (ii) When issuing a permit under this section, the Superintendent shall provide for reasonable access which is appropriate and consistent with the values and purposes for which the park area was established.

(878) (iii) All impacts of the access to a cabin or other structure are deemed to be a part of, and shall be considered in any evaluation of, the effects of a use authorized by a permit issued under this section.

(879) (8) Abandonment. (i) An existing cabin or other structure not under valid lease or permit, and its contents, are abandoned:

(880) (A) When no permit application has been received for its use and occupancy before October 20, 1987, one year after the effective date of this section; or

(881) (B) One year after a permit application for its use and occupancy has been denied or a permit for its use and occupancy has been revoked, denied or has expired.

(882) (ii) A claimant or applicant whose application for a permit has been denied or whose permit has expired may remove all or a portion of a cabin or other structure and its contents from a park area, to the extent of his or her possessory interest and under conditions established by the Superintendent, until the date the cabin or structure is considered abandoned.

(883) (iii) The contents of a cabin or other structure are considered abandoned when the cabin or other structure is considered abandoned.

(884) (iv) A person whose permit for the use and occupancy of a cabin or other structure is revoked may remove his or her personal property from a park area under conditions established by the Superintendent until one year after the date of the permit's revocation.

(885) (v) The Superintendent shall dispose of abandoned property in accordance with §§2.22 and 13.22 of this chapter. No property shall be removed from a cabin until such property has been declared abandoned or determined to constitute a direct threat to the safety of park visitors or area resources.

(886) (9) Emergency use. During an emergency involving the safety of human life, a person may use any cabin designated by the Superintendent for official government business, general public use or shared subsistence use. The person shall report such use to the uperintendent as soon as is practicable.

(887) (e) Authorized cabin use and occupancy. Use or occupancy of a cabin or structure in a park area is prohibited, except pursuant to the terms of a permit issued by the uperintendent under this section or as otherwise authorized by provisions of this chapter.

(888) (1) Use and/or occupancy pursuant to a valid existing lease or permit. A person who holds a valid lease or permit in effect on December 2, 1980, for a cabin, homesite or similar structure not subject to the provisions of paragraph (e)(2) of this section, on Federal lands in a park area, may continue the use authorized by that lease or permit, subject to the following conditions:

(889) (i) Renewal. The uperintendent shall renew a valid lease or permit upon its expiration in accordance with the provisions of the original lease or permit, subject to any modifications or new conditions that the uperintendent finds necessary for the protection of the values and purposes of the park area.

(890) (ii) Denial of renewal. The uperintendent may deny the renewal or continuation of a valid lease or permit only after issuing specific findings, following notice and an opportunity for the leaseholder or permittee to respond, that renewal or continuation constitutes a direct threat to, or a significant impairment of, the purposes for which the park area was established.

(891) (iii) Transfer. Subject to any prohibitions or restrictions that apply to transfer in the existing lease or permit, the Superintendent may transfer a valid existing lease or permit to another person at the election or death of the original permittee or leaseholder, only if the Superintendent determines that:

(892) (A) The continued use is appropriate and compatible with the values and purposes of the park area;

(893) (B) The continued use is non-recreational in nature;

(894) (C) There is no demonstrated over-riding need for public use; and

(895) (D) The continued use and occupancy will not adversely impact soils, vegetation, water or wildlife resources.

(896) (2) Use and occupancy of a cabin not under valid existing lease or permit as of December 1, 1978. (i) A cabin or other residential structure in existence and occupied by a claimant, both prior to December 18, 1973, with the claimant's occupancy continuing for a substantial portion of the time, may continue to be used and occupied by the claimant pursuant to a renewable, nontransferable five-year permit. Upon the request of the claimant or a successor who is an immediate family member and residing in the cabin or structure, the Superintendent shall renew this permit every five years until the death of the last immediate family member of the claimant who was residing with the claimant in the structure under permit at the time of issuance of the original permit.

(897) (ii) A cabin or other residential structure in existence prior to December 1, 1978, with occupancy commenced by a claimant between December 18, 1973 and December 1, 1978, which a claimant has continued to occupy or use for a substantial portion of the time, may continue to be used and occupied by the claimant pursuant to a non-transferable permit. The Superintendent may issue and extend such permit for a term not to exceed December 1, 1999 for such reasons as are deemed by the Superintendent to be equitable and just. The Superintendent shall review the permit at least every two years and modify the permit as necessary to protect park resources and values.

(898) (iii) Permit application. In order to obtain, renew or extend a permit, a claimant shall submit a written application. In the case of an application to renew or extend a permit issued pursuant to this paragraph, if no circumstance relating to the permittee's occupancy and use of the cabin or structure has changed in the interim, applicable material submitted by the permittee to satisfy the original application requirements is considered sufficient and need not be resubmitted. The following information is required to be included in a permit application:

(899) (A) Reasonable proof of possessory interest or right of occupancy in the cabin or structure, demonstrated by affidavit, bill of sale, or other documentation. In order for a claimant to qualify for a permit described in paragraph (e)(2)(i) of this section, the claimant's possessory interest or

right of occupancy must have been acquired prior to December 18, 1973. In order for a claimant to qualify for a permit described in paragraph (e)(2)(ii) of this section, the claimant's possessory interest or right of occupancy must have been acquired prior to December 1, 1978;

(900) (B) A sketch or photograph that accurately depicts the cabin or structure;

(901) (C) A map that shows the geographic location of the cabin or structure;

(902) (D) The claimant's agreement to vacate and remove all personal property from the cabin or structure upon expiration of the permit;

(903) (E) The claimant's acknowledgement that he or she has no legal interest in the real property on which the cabin or structure is located;

(904) (F) Reasonable proof that the claimant has lived in the cabin or structure during a substantial portion of the time and continues to use the cabin or other structure as a primary, permanent residence; and

(905) (G) A list of all immediate family members residing with the claimant within the cabin or structure for which the application is being submitted. Such list need only include those immediate family members who will be eligible to continue to use and occupy the cabin or other structure upon the death or departure of the original claimant.

(906) (iv) Permit application deadline. The deadline for receipt of a permit application for the occupancy and use of an existing cabin or other structure of an existing cabin or other structure described in paragraph (e)(2)(i) or (ii) of this section is October 20, 1987, one year after the effective date of this section. The Superintendent may extend this deadline for a reasonable period of time only when a permit applicant demonstrates that extraordinary circumstance prevented timely application.

(907) (3) Use for authorized commercial fishing activities. The use of a campsite, cabin or other structure in conjunction with commercial fishing activities authorized by section 205 of ANILCA in Cape Krusenstern National Monument, the Malaspina Glacier Forelands area of Wrangell-Saint Elias National Preserve, and the Dry Bay area of Glacier Bay National Preserve is authorized pursuant to the provisions of §13.21(c) of this chapter and the terms of a permit issued by the Superintendent.

(908) (4) Use of cabins for subsistence purposes. (i) A local rural resident who is an eligible subsistence user may use an existing cabin or other structure or temporary facility or construct a new cabin or other structure, including temporary facilities, in a portion of a park area where subsistence use is allowed, pursuant to the applicable provisions of Subparts B and C of this Part and the terms of a permit issued by the Superintendent. However, the Superintendent may designate existing cabins or other structures that may be shared by local rural residents for authorized subsistence uses without a permit.

(909) (ii) For purposes of paragraph (e)(4) of this section, the term "local rural resident", with respect to national parks, monuments, and preserves is defined in §13.42 of this chapter.

(910) (iii) Permit application. In order to obtain or renew a permit, a person shall submit an application. In the case of an application to renew a permit issued pursuant to this paragraph, if no circumstance relating to the permittee's occupancy and use of the cabin or structure has changed in the interim, applicable material submitted by the permittee to satisfy the original application requirements is considered sufficient and need not be resubmitted. The following information is required to be included in a permit application:

(911) (A) An explanation of the applicant's need for the cabin or structure;

(912) (B) A description of an applicant's past, present and anticipated future subsistence uses relevant to his or her need for the cabin or structure;

(913) (C) A blueprint, sketch or photograph of the cabin or structure;

(914) (D) A map that shows the geographic location of this cabin or structure; and

(915) (E) A description of the types of occupancy and schedule for use of the cabin or structure.

(916) All information may be provided orally except the cabin blueprint, sketch or photograph and the map.

(917) (iv) Permit issuance. (A) In making a decision on a permit application, the Superintendent shall consider whether the use by local rural residents of a cabin or other structure for subsistence purposes is customary and traditional in that park area and shall determine whether the use and occupancy of a new or existing cabin or structure is "necessary to reasonably accommodate" the applicant's subsistence uses. In making this determination, the Superintendent shall examine the applicant's particular circumstances, including but not limited to his or her past patterns of subsistence uses and his or her future subsistence use plans, reasonable subsistence use alternatives, the specific nature of the subsistence uses to be accommodated by the cabin or structure, the impacts of the cabin or structure on other local rural resident who depend on subsistence uses and the impacts of the proposed structure and activities on the values and purposes for which the park area was established.

(918) (B) The Superintendent may permit the construction of a new cabin or other new structure for subsistence purposes only if a tent or other temporary facility would not adequately and reasonably accommodate the applicant's subsistence uses without significant's hardship and the use of no other type of cabin or other structure provided for in this section can adequately and reasonably accommodate the applicant's subsistence uses with a lesser impact on the values and purposes for which the park area was established.

(919) (v) Permit terms. The Superintendent shall, among other conditions, establish terms of a permit that:

(920) (A) Allow for use and occupancy during the harvest or gathering of subsistence resources, at such times as may be reasonably necessary to prepare for a harvest season (e.g., opening or closing a cabin or structure at the beginning or end of a period of use), and at other times reasonably necessary to accommodate the permittee's specified subsistence uses;

(921) (B) Prohibit residential use in conjunction with subsistence activities and

(922) (C) Limit the term of a permit to a period of five years or less.

(923) (vi) Temporary facilities. A temporary facility or structure directly and necessarily related to the taking of subsistence resources may be constructed and used by a qualified subsistence user without a permit so long as such use is for less than thirty days and the site is returned to a natural condition. The Superintendent may establish conditions and standards governing the use or construction of these temporary structures and facilities which shall be published annually in accordance with §1.7 of this chapter.

(924) (vii) Shared use. In any permit authorizing the construction of a cabin or other structure necessary to reasonably accommodate authorized subsistence uses, the Superintendent shall provide for shared use of the facility by the permittee and other local rural residents rather than for exclusive use by the permittee.

(925) (5) General public use cabins. (i) The Superintendent may designate a cabin or other structure located outside of designated wilderness areas and not otherwise under permit under this section (or under permit for only a portion of the year) as a public use cabin. Such designated public use cabins are intended for short term recreational use and occupancy only.

(926) (ii) The Superintendent may establish conditions and develop an allocation system in order to manage the use of designated public use cabins.

(927) (iii) The Superintendent shall mark all public use cabins with a sign and shall maintain a map showing their locations.

(928) (6) Cabins in wilderness areas. The use and occupancy of a cabin or other structure located in a designated wilderness area are subject to the other applicable provisions of this section, and the following conditions:

(929) (i) A previously existing public use cabin located within wilderness designated by ANILCA may be allowed to remain and may be maintained or replaced subject to such restrictions as the Superintendent finds necessary to preserve the wilderness character of the area. As used in this paragraph, the term "previously existing public use cabin" means a cabin or other structure which, on November 30, 1978, was recognized and managed by a Federal land managing agency as a structure available for general public use.

(930) (ii) Within a wilderness area designated by ANILCA, a new public use cabin or shelter may be constructed, maintained and used only if necessary for the protection of the public health and safety.

(931) (iii) A cabin or other structure located in a designated wilderness area may not be designated, assigned or used for commercial purposes, except that designated public use cabins may be used in conjunction with commercial guided visitor services, but not to the exclusion of the general public.

(932) (7) Use of temporary facilities related to the taking of fish and wildlife. (i) In a national preserve where the taking of fish and wildlife is permitted, the construction, maintenance or use of a temporary campsite, tent platform, shelter or other temporary facility or equipment directly and necessarily related to such activities is prohibited except pursuant to the terms of a permit issued by the Superintendent. This requirement applies only to a temporary facility that will remain in place for a period longer than 14 days.

(933) (ii) Permit application. In order to obtain or renew a permit, a person shall submit an application. In the case of an application to renew a permit issued pursuant to this paragraph, if no circumstance relating to the permittee's occupancy and use of the structure has changed in the interim, applicable material submitted by the permittee to satisfy the original application requirements is considered sufficient and need not be resubmitted. The following information is required to be included in a permit application:

(934) (A) An explanation of the applicant's need for the temporary facility, including a description of the applicant's hunting and fishing activities relevant to his or her need for the facility;

(935) (B) A diagram, sketch or photograph of the temporary facility;

(936) (C) A map that shows the geographic location of the temporary facility; and

(937) (D) A description of both the past use (if any) and the desired use of the temporary facility, including a schedule for its projected use and removal. All information may be provided orally except the diagram sketch or photograph of the facility and the map.

(938) (iii) Permit issuance. (A) In making a decision on a permit application, the Superintendent shall determine whether a temporary facility is "directly and necessarily related to" the applicant's legitimate hunting and fishing activities by examining the applicant's particular circumstances, including, but not limited to his or her reasonable need for a temporary facility and any reasonable alternatives available that are consistent with the applicant's needs. The Superintendent shall also consider whether the proposed use would constitute an expansion of existing facilities or use and would be detrimental to the purposes for which the national preserve was established. If the Superintendent finds that the proposed use would either constitute an expansion above existing levels or be detrimental to the purposes of the preserve, he/she shall deny the permit. The Superintendent may authorize the replacement or relocation within the national preserve of an existing temporary facility or structure.

(939) (B) The Superintendent shall deny an application for a proposed use that would exceed a ceiling or allocation established pursuant to the national preserve's General Management Plan.

(940) (iv) Permit terms. The Superintendent shall allow for use and occupancy of a temporary facility only to the extent that such facility is directly and necessarily related to the permittee's hunting and fishing activities, and shall provide that the temporary facility be used and maintained in a manner consistent with the protection of the values and purpose of the park area in which it is located. The Superintendent may also establishpermit terms that:

(941) (A) Limit use to a specified period, not to exceed the applicable hunting or fishing season and such additional brief periods necessary to maintain the facility before and after the season;

(942) (B) Require the permittee to remove a temporary facility and all associated personal property from the park area upon termination of the permittee's hunting and fishing activities and related use of the facility or on a specific date;

(943) (C) Require reasonable seasonal relocation of a temporary facility in order to protect the values and purposes for which the park area was established.

(944) (D) Require that a temporary facility be used on a shared basis and not exclusively by the permittee; and

(945) (E) Limit the overall term of a permit to a reasonable period of time, not to exceed one year.

(946) (8) New cabins and other structures otherwise authorized by law. The Superintendent may issue a permit for the construction, temporary use, occupancy, and maintenance of a cabin or other structure which is authorized by law but not governed by any other paragraph in this section.

(947) **§13.18 Camping and picnicking.**

(948) (a) Camping. Camping is permitted in the park areas except where such use is prohibited or otherwise restricted by the Superintendent in accordance with the provisions of §13.30, or asset forth for specific park areas in Subpart C of this part.

(949) (b) Picnicking. Picnicking is permitted in park areas except where such activity is prohibited by the posting of appropriate signs.

(950) **§13.19 Weapons, traps and nets.**

(951) (a) This section applies to all park areas in Alaska except Klondike Gold Rush National Historical Park, Sitka National Historical Park and the former Mt. McKinley National Park, Glacier Bay National Monument and Katmai National Monument.

(952) (b) Firearms may be carried within park areas in accordance with applicable Federal and State laws, except where such carrying is prohibited or otherwise restricted pursuant to §13.30.

(953) (c) Traps, bows and other implements authorized by State and Federal law for the taking of fish and wildlife may be carried within National Preserves only during those times when the taking of fish and wildlife is authorized by applicable laws or regulations.

(954) (d) In addition to the authorities provided in paragraphs (b) and (c) of this section, weapons (other than firearms) traps and nets may be possessed within park areas provided such weapons, traps or nets are within or upon a device or animal used for transportation and are unloaded and cased or otherwise packed in such a manner as to prevent their ready use while in a park area.

(955) (e) Notwithstanding the provisions of this section, local rural residents who are authorized to engage in subsistence uses, including the taking of wildlife pursuant to §13.48, may use, possess, or carry traps, nets and other weapons in accordance with applicable State and Federal laws.

(956) **§13.20 Preservation of natural features.**

(957) (a) This section applies to all park areas in Alaska except Klondike Gold Rush National Historical Park, Sitka National Historical Park, the former Mt. Mckinley National Park, Glacier Bay National Monument, and Katmai National Monument.

(958) (b) Renewable Resources. The gathering or collecting, by hand and for personal use only, of the following renewable resources is permitted:

(959) (1) Natural plant food items, including fruits, berries and mushrooms, but not including threatened or endangered species;

(960) (2) Driftwood and uninhabited sea-shells;

(961) (3) Such plant materials and minerals as are essential to the conduct of traditional ceremonies by Native Americans; and

(962) (4) Dead or downed wood for use in fires within park areas.

(963) (c) Rocks and Minerals. Surface collection, by hand (including hand-held gold pans) and for personal recreational use only, of rocks and minerals is permitted: Provided, however, That (1) collection of silver, platinum, gemstones and fossils is prohibited, and (2) collection methods which may result in disturbance of the ground surface, such as the use of shovels, pickaxes, sluice boxes, and dredges, are prohibited.

(964) (d) Closure and Notice. Under conditions where it is found that significant adverse impact on park resources, wildlife populations, subsistence uses, or visitor enjoyment of resources will result, the Superintendent shall prohibit the gathering or otherwise restrict the collecting of these items. Portions of a park area in which closures or restrictions apply shall be (1) published in at least one newspaper of general circulation in the State and designated on a map which shall be available for public inspection in the office of the Superintendent, or (2) designated by the posting of appropriate signs, or (3) both.

(965) (e) Subsistence. Nothing in this section shall apply to local rural residents authorized to take renewable resources.

(966) **§13.21 Taking of fish and wildlife.**

(967) (a) Subsistence. Nothing in this section shall apply to the taking of fish and wildlife for subsistence uses.

(968) (b) Fishing. Fishing is permitted in all park areas in accordance with applicable State and Federal law, and such laws are hereby adopted and made a part of these regulations to the extent they are not inconsistent with §2.3 of this chapter.

(969) (c) Commercial fishing. The exercise of valid commercial fishing rights or privileges obtained prior to December 2, 1980, pursuant to existing law in Cape Krusenstern National Monument, the Malaspina Glacier Forelands area of the Wrangell-St. Elias National Preserve, and the Dry Bay area of Glacier Bay National Preserve, including the use of these park areas for existing campsites, cabins and other structures, motorized vehicles, and aircraft landings on existing airstrips, may continue provided that all such use is directly incident to the exercise of those rights or privileges.

(970) (1) Restrictions. The Superintendent may restrict or revoke the exercise of a valid commercial fishing right or privilege based upon specific findings, following public notice and an opportunity for response, that continuation of such use of a park area constitutes a direct threat to or significant impairment of the values and purposes for which the park area was established.

(971) (2) Expansion of uses. (i) A person holding a valid commercial fishing right or privilege may expand his or her level of use of a park area beyond the level of such use in 1979 only pursuant to the terms of a permit issued by the Superintendent.

(972) (ii) The Superintendent may deny a permit or otherwise restrict the expanded use of a park area directly incident to the exercise of such rights or privileges, if the Superintendent determines, after conducting a public hearing in the affected locality, that the expanded use constitutes either:

(973) (A) A significant expansion of the use of a park area beyond the level of such use during 1979 (taking into consideration the relative levels of use in the general vicinity, as well as the applicant's levels of use); or

(974) (B) A direct threat to, or significant impairment of, the values and purposes for which the park area was established.

(975) (d) Hunting and Trapping. Hunting and trapping are permitted in all National Preserves in accordance with applicable State and Federal law, and such laws are hereby adopted and made a part of these regulations: Provided, however, That engaging in trapping activities, as the employee of another person is prohibited.

(976) (e) Closures and Restrictions. The Superintendent may prohibit or restrict the taking of fish or wildlife in accordance with the provisions of §13.30. Except in emergency conditions, such restrictions shall take effect only after consultation with the appropriate State agency having responsibility over fishing, hunting, or trapping and representatives of affected users.

(977) **§13.22 Unattended or abandoned property.**

(978) (a) This section applies to all park areas in Alaska except Klondike Gold Rush National Historical Park and Sitka National Historical Park, or as further restricted for specific park areas in Subpart C of this part.

(979) (b) Leaving any snowmachine, vessel, off-road vehicle or other personal property unattended for longer than 12 months without prior permission of the Superintendent is prohibited, and any property so left may be impounded by the Superintendent.

(980) (c) The Superintendent may (1) designate areas where personal property may not be left unattended for any time period, (2) establish limits on the amount, and type of personal property that may be left unattended, (3) prescribe the manner in which personal property may be left unattended, or (4) established limits on the length of time personal property may be left unattended. Such designations

and restrictions shall be (i) published in at least one newspaper of general circulation within the State, posted at community post offices within the vicinity affected, made available for broadcast on local radio stations in a manner reasonably calculated to inform residents in the affected community, and designated on a map which shall be available for public inspection at the office of the Superintendent, or (ii) designated by the posting of appropriate signs or (iii) both.

(981) (d) In the event unattended property interferes with the safe and orderly management of a park area or is causing damage to the resources of the area, it may be impounded by the Superintendent at any time.

(982) **§13.30 Closure procedures.**

(983) (a) Authority. The Superintendent may close an area or restrict an activity on an emergency, temporary, or permanent basis.

(984) (b) Criteria. In determining whether to close an area or restrict an activity on an emergency basis, the Superintendent shall be guided by factors such as public health and safety, resource protection, protection of cultural or scientific values, subsistence uses, endangered or threatened species conservation, and other management considerations necessary to ensure that the activity or area is being managed in a manner compatible with the purposes for which the park area was established.

(985) (c) Emergency closures. (1) Emergency closures or restrictions relating to the use of aircraft, snowmachines, motorboats, or nonmotorized surface transportation shall be made after notice and hearing; (2) emergency closures or restrictions relating to the taking of fish and wildlife shall be accompanied by notice and hearing; (3) other emergency closures shall become effective upon notice as prescribed in §13.30(f); and (4) no emergency closure or restriction shall extend for a period exceeding 30 days, nor may it be extended.

(986) (d) Temporary closures or restrictions. (1) Temporary closures or restrictions relating to the use of aircraft, snowmachines, motorboats, or nonmotorized surface transportation or to the taking of fish and wildlife, shall not be effective prior to notice and hearing in the vicinity of the area(s) directly affected by such closures or restrictions, and other locations as appropriate; (2) other temporary closures shall be effective upon notice as prescribed in §13.30(f); (3) temporary closures or restrictions shall not extend for a period exceeding 12 months and may not be extended.

(987) (e) Permanent closures or restrictions. Permanent closures or restrictions shall be published as rulemaking in the FEDERAL REGISTER with a minimum public comment period of 60 days and shall be accompanied by public hearings in the area affected and other locations as appropriate.

(988) (f) Notice. Emergency, temporary and permanent closures or restrictions shall be (1) published in at least one newspaper of general circulation in the State and in at least one local newspaper if available, posted at community post offices within the vicinity affected, made available for broadcast on local radio stations in a manner reasonably calculated to inform residents in the affected vicinity, and designated on a map which shall be available for public inspection at the office of the Superintendent and other places convenient to the public; or (2) designated by the posting of appropriate signs; or (3) both.

(989) (g) Openings. In determining whether to open an area to public use or activity otherwise prohibited, the Superintendent shall provide notice in the FEDERAL REGISTER and shall, upon request, hold a hearing in the affected vicinity and other locations as appropriate prior to making a final determination.

(990) (h) Except as otherwise specifically permitted under the provisions of this part, entry into closed areas or failure to abide by restrictions established under this section is prohibited.

(991) **§13.31 Permits.**

(992) (a) Application. (1) Application for a permit required by any section of this part shall be submitted to the Superintendent having jurisdiction over the affected park area, or in the absence of the Superintendent, the Regional Director. If the applicant is unable or does not wish to submit the application in written form, the Superintendent shall provide the applicant an opportunity to present the application orally and shall keep a record of such oral application.

(993) (2) The Superintendent shall grant or deny the application in writing within 45 days. If this deadline cannot be met for good cause, the Superintendent shall so notify the applicant in writing. If the permit application is denied, the Superintendent shall specify in writing the reasons for the denial.

(994) (b) Denial and appeal procedures. (1) An applicant whose application for a permit, required pursuant to this part, has been denied by the Superintendent has the right to have the application reconsidered by the Regional Director by contacting him/her within 180 days of the issuance of the denial. For purposes of reconsideration, the permit applicant shall present the following information:

(995) (i) Any statement or documentation, in addition to that included in the initial application, which demonstrates that the applicant satisfies the criteria set forth in the section under which the permit application is made.

(996) (ii) The basis for the permit applicant's disagreement with the Superintendent's findings and conclusions; and

(997) (iii) Whether or not the permit applicant requests an informal hearing before the Regional Director.

(998) (2) The Regional Director shall provide a hearing if requested by the applicant. After consideration of the written materials and oral hearing, if any, and within a reasonable period of time, the Regional Director shall affirm, reverse, or modify the denial of the Superintendent and shall set forth in writing the basis for the decision. A copy of the decision shall be forwarded promptly to the applicant and shall constitute final agency action.

Subpart C–Special Regulations–Specific Park Areas in Alaska

(999) **§13.65 Glacier Bay National Park and Preserve.**

(1000) (a) (Reserved)

(1001) (b) Whale Protection–(1) Definitions. As used in this section:

(1002) "Charter Vessel" means any motor vessel under 100 tons gross that is rated to carry up to 49 passengers for hire on an unscheduled basis.

(1003) "Commercial Fishing Vessel" means any motor vessel conducting fishing activities under the appropriate commercial fishing licenses as required and defined by the State of Alaska.

(1004) "Cruise Ship" means any motor vessel at or over 100 tons gross carrying passengers for hire.

(1005) "Entry" means each time a motor vessel passes the mouth of Glacier Bay on the way into the bay; each time a private motor vessel activates or extends a permit; each time

a vessel based at Bartlett Cove leaves the dock, except a private vessel based at Bartlett Cove that is gaining access or egress to or from outside the park; or the first time a local private motor vessel utilizes a day of the seven use day permit.

(1006) "Glacier Bay" means all marine waters within Glacier Bay National Park north of the mouth of Glacier Bay, defined as an imaginary line between Point Gustavus and Point Carolus.

(1007) "Motor Vessel" means any vessel other than a seaplane, propelled or capable of being propelled by machinery (including steam), whether or not such machinery is the principal source of power.

(1008) "Private Vessel" means any motor vessel used for recreation that is not engaged in commercial transport of passengers, commercial fishing, or official business.

(1009) "Pursue" means to alter a vessel's course or speed in a manner which results in retaining a vessel at a distance less than one-half nautical mile from a whale.

(1010) "Tour Vessel" means any motor vessel under 100 tons gross that is rated to carry more than 49 passengers for hire or any smaller motor vessel regularly scheduled for hire.

(1011) "Vessel" includes every type or description of craft used as a means of transportation on the water, including a buoyant device permitting or capable of free flotation and a seaplane while operating on the water.

(1012) "Vessel Use Day" means any continuous period of time that a vessel is in Glacier Bay between the hours of 12 midnight on one day to 12 midnight the next day.

(1013) "Whale" means any humpback whale (Megaptera novaeangliae).

(1014) "Whale Season" means the period from June 1 through and including August 31 of each year.

(1015) "Whale Waters" means any portion of Glacier Bay, designated by the Superintendent, having a high probability of whale occupancy, based upon recent sighting and/or past patterns of occurrence.

(1016) (2) Public Use Limits and Temporary Restrictions–(i) Authority. Consistent with the Biological Opinion issued on June 22, 1983, or as such may be modified or supplemented by the National Marine Fisheries Service the Superintendent may:

(1017) (A) Increase the vessel entry and use levels incrementally by up to 20% above the 1976 levels for any or all categories of vessels as listed in paragraph (b)(3)(ii) of this section.

(1018) (B) Designate whale waters and establish temporary vessel use restrictions upon a determination that such action is necessary to conserve the humpback whale and the supporting habitat.

(1019) (ii) An incremental increase authorized pursuant to paragraph (b)(2)(i)(A) of this section may be implemented only if the number of whales entering Glacier Bay remains equal to or is greater than the 1982 level and only following public notice and hearing in the vicinity and other areas as appropriate. An increase allocated to any class of vessels shall be followed by two years during which entry and use levels for the affected class of vessels remain at or below the increased allocation. The Superintendent shall lower entry and or use levels by any percentage necessary to achieve a level that whale research findings demonstrate will not be detrimental to the humpback whale.

(1020) (iii) The Superintendent shall base the establishment of public use limits, the designation of whale waters and the establishment of temporary vessel use restrictions on the following factors:

(1021) (A) Consultation with the National Marine Fisheries Service;

(1022) (B) Glacier Bay National Park and Preserve General Management Plan;

(1023) (C) Consultation with interested public agencies;

(1024) (D) Research and monitoring of whale activity in Glacier Bay;

(1025) (E) Public and vessel operator comments;

(1026) (F) Vessel traffic patterns; and

(1027) (G) Such other considerations as may be deemed appropriate.

(1028) (iv) Maps of designated whale waters and notices of applicable vessel use restrictions shall be made available to the public at park offices at Bartlett Cove and Juneau, Alaska, and shall be submitted to the U.S. Coast Guard for publication as a "Notice to Mariners".

(1029) (v) Failure to comply with public use limits, designated whale waters, or vessel use restrictions established pursuant to paragraph (b)(2)(i) of this section is prohibited.

(1030) (3) Permits. (i) The Superintendent shall develop, and implement a motor vessels permit system which details:

(1031) (A) How permits can be obtained;

(1032) (B) Whom the operator must contact when entering and leaving Glacier Bay;

(1033) (C) The maximum number of motor vessel entries to be allowed each day during the whale season;

(1034) (D) The maximum number of motor vessels to be allowed in Glacier Bay on any given day during the whale season;

(1035) (E) The maximum number of motor vessel use days for the whale season;

(1036) (F) The allocation of entry permits among commercial and private motor vessels, and

(1037) (G) The maximum length of stay in Glacier Bay for motor vessels.

(1038) (ii) The Superintendent shall base the permit system on the following base figures derived from 1976 motor vessel use:

(1039) (A) Cruise ships are limited to two vessels within Glacier Bay on any given day with a total of no more than 89 vessel use days during the whale season.

(1040) (B) Tour vessels are limited to three vessels within Glacier Bay on any given day with a total of no more than 230 vessel use days during the whale season.

(1041) (C) Charter vessels are limited to five vessels within Glacier Bay on a given day with a total of no more than 226 entries and 426 vessel use days during whale season.

(1042) (D) Private vessels are limited to 21 vessels within Glacier Bay per day with a total of no more than 339 entries and 1428 vessel use days during whale season.

(1043) (iii) Operating a motor vessel in Glacier Bay without a permit issued pursuant to this section is prohibited, except:

(1044) (A) A commercial fishing vessel engaged in commercial fishing within Glacier Bay, provided that commercial fishing vessel use levels remain at or below their 1976 use levels; or

(1045) (B) A motor vessel engaged in official business of the State or Federal government.

(1046) (4) Operating Restrictions. Except for a vessel being used in conjunction with official whale research or monitoring for the Federal government or a commercial fishing vessel actively trolling or being used to set or pull long lines, the following are prohibited:

(1047) (i) Operating a vessel within one-quarter nautical mile of a whale. The operator of any vessel accidentally positioned within one-quarter nautical mile of a whale shall slow the vessel to ten knots or less without shifting gears unless impact is likely. The operator shall then maintain the

vessel on as steady a course as possible away from the whale until one-quarter nautical mile of separation is established.

(1048) (ii) Pursuing or attempting to pursue a whale.

(1049) (5) Restricted Commercial Fishing Harvest. Fishing for, or retaining if accidentally caught, herring (Clupea), capeline (Mallotus), sandlance (Ammodytes), pollock (Theragra), euphausids (Thalasia), or shrimp (Pandalus and Pandalopsis) within Glacier Bay is prohibited.

(1050) (6) Trawling within Glacier Bay is prohibited.

(1051) (7) The information collection requirements contained in paragraph (b)(3) of this section have been approved by the Office of Management and Budget under 44 U.S.C. 3507 and assigned Clearance Number 1024-0016. The information is being collected to allow the Superintendent to issue permits to allow vessels into Glacier Bay during the whale season. This information will be used to grant administrative benefits.

3. ALASKA-DIXON ENTRANCE TO CAPE SPENCER

(1) **Alaska,** the largest of the United States, occupies the northwestern part of the North American continent. The State is bordered on the E and S by Canada and on the W and N by the Pacific and Arctic Oceans. The northernmost point of Alaska is Point Barrow (71°23'N., 156°28'W.); the westernmost point is Cape Wrangell (52°55'N., 172°26'E.) on Attu Island; and the southernmost point is Nitrof Point (51°13.0'N., 179°07.7'W.), on Amatignak Island. Cape Muzon (54°40'N., 132°41'W.) is on the historic parallel which is the coastal boundary between Alaska and Canada's British Columbia. Cape Muzon is on the N side of Dixon Entrance and is 480 miles NW of Cape Flattery, Washington; between the two United States capes is the coastal area of British Columbia.

(2) Alaska was purchased from Russia in 1867 and became an organized territory of the United States in 1912. By Presidential proclamation of January 3, 1959, Alaska officially became the 49th of the United States. The population of the State was 300,382 in 1970. Principal resources are oil, timber, fish, and coal. Alaska has a general ocean coastline of 5,770 nautical miles and a tidal shoreline of 29,462 miles. The State is so huge that its description requires two complete volumes of the National Ocean Service's nine-volume series of United States Coast Pilots.

(3) Coast Pilot 8 deals with the panhandle section of Alaska between the S boundary and Cape Spencer: general ocean coastline is only 250 nautical miles but tidal shoreline total 11,085 miles.

(4) Subject area, most of which is part of the **Tongass National Forest,** consists of a 30-mile-wide strip of mainland bordered by an 80-mile-wide compact chain of islands. About 50,000 people live here, but when compared to the population of the other 49 states, southeastern Alaska and the Tongass National Forest are underpopulated areas. This population is found in 16 organized communities that have been withdrawn from national forest land.

(5) Most of the islands are mountainous, rough, broken, and are covered with dense growths of spruce, hemlock, and cedar except on the higher summits. The mountains on the mainland are higher, less wooded, and usually snowcapped.

(6) In midsummer the snowline is at altitudes of 2,000 to 3,000 feet on the mainland mountains. Glaciers form in the narrow gorges of the coastal ranges and sometimes attain sufficient size to reach the water. On the islands the land usually does not reach sufficient altitude to retain snow throughout the year.

(7) Seabottom features are similar to those of the adjacent land. The steep inclines and narrow gorges of the land continue below sea level and form a system of narrow deepwater straits that extends from Puget Sound to Cape Spencer. The rugged ridges and peaks of the land area, and the absence of plains or extensive plateaus, are matched by the numerous rocks and reefs, surrounded by deep water, and the general absence of extensive shoals except at the mouths of glacier-fed streams or rivers.

(8) **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.)

(9) **Aids to navigation.**–Lights, daybeacons, and buoys mark the coast and inside passages of southeastern Alaska. The principal light stations are equipped with radiobeacons and fog signals. (See the Light List for a complete description of navigational aids.)

(10) **Electronic navigation.**–Radar, loran, omega, and the radio direction finder have given the navigator means of determining his position in any weather. The mariner should, however, appreciate the limitations and sources of error of the various systems. Radar should be properly calibrated and tuned. Radio direction finders must be calibrated and the operator should become experienced in the use of the equipment. Radar, radio direction finder, omega, and loran equipment are subject to malfunctions which may not be immediately apparent to the operator, and there are conditions when loran or radio signals may be subject to error when the shipboard receiver is operating properly. Soundings should always be taken in critical places, and the position should be checked by visual bearings when possible.

(11) Navigation by **radar** is facilitated along the coast of Alaska and in the inland passage by the generally high relief of the coastline. The rugged coast provides many points, headlands, small islands and islets, and large offshore rocks which give accurate radar ranges and bearings. In general mountain peaks give the best ranges along the waterways of and the approaches to southeastern Alaska; tangents of islands, points, and headlands are usually unreliable. Radar ranges are more accurate than radar bearings. When two or more suitable targets can be positively identified, a better fix is obtained by radar ranges alone than by radar ranges and bearings. When visibility permits, visual bearings should always be taken. When positioning by a bearing and a radar range of a single object, the identification of the target must be positive. Floating aids should be used with caution as targets, and only when no adequate fixed objects are available.

(12) Radio direction finder equipment is subject to several kinds of errors. Bearings obtained at twilight or at night, or bearings which are almost parallel to the coast should be accepted with reservations, due to "night effect" and to the distortion of the radio waves if traveling over land. Other sources of error in the system may be avoided by the proper calibration of the shipboard receiver.

(13) Loran coverage is good in the W approach to southeastern Alaska. However, loran coverage for coastwise navigation is somewhat unreliable because of the overland propagation of the signals.

(14) **COLREGS Demarcation Lines.**–The International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) apply on all the sounds, bays, harbors, and inlets of Alaska. (See **Part 80,** chapter 2.)

(15) **Ports and Waterways Safety.**–(See **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.)

(16) **Anchorages.**–The seabottom features in southeastern Alaska are similar to the adjacent land; steep inclines and narrow rocky gorges that are not suitable for anchorages. However, many places in the inside passages are suitable for temporary anchorage during the summer months. In fall and winter the navigator must be much more cautious in selecting shelter and good holding ground.

(17) A **special anchorage** for recreational and other small craft has been established in Favorite Channel between

Point Stephens and Point Louisa. (See **Part 110,** chapter 2, for limits and regulations.)

(18) **Dangers.**–Southeastern Alaska has many unmarked rocky ledges around its islands and in the approaches to inlets, straits, and sounds. Kelp grows on most rocky bottoms and will be seen on the surface of the water during the summer and autumn months, and should always be considered a sign of danger. Dead, detached kelp floats on the water in masses, while live kelp attached to rocks streams away level with the surface. A heavy surge will occasionally tear kelp away from rocks, and a moderate current will ride it under water where it will not be seen. **Live kelp is almost always an indication of depths less than 10 fathoms.**

(19) **Floating logs, deadheads, or sinkers** are present throughout the year in all the inland waters, channels, passes, and inlets in southeastern Alaska and are dangerous to navigation both day and night. Floating logs are especially prevalent at the entrance to inlets after high tides and storms.

(20) **Pipelaying barges.**–With the increased number of pipeline laying operations, operators of all types of vessels should be aware of the dangers of passing close aboard, close ahead, or close astern of a jetbarge or pipelaying barge. Pipelaying barges and jetbarges usually move at 0.5 knot or less and have anchors which extend out about 3,500 to 5,000 feet in all directions and which may be marked by lighted anchor buoys. The exposed pipeline behind the pipelaying barge and the area in the vicinity of anchors are hazardous to navigation and should be avoided. The pipeline and anchor cables also represent a submerged hazard to navigation. It is suggested, if safe navigation permits, for all types of vessels to pass well ahead of the pipelaying barge or well astern of the jetbarge. The pipelaying barge, jetbarge, and attending vessels may be contacted on VHF-FM channel 16 for passage instructions.

(21) A **restricted area** is in Lutak Inlet, off Lynn Canal. (See **334.1310,** chapter 2, for limits and regulations.)

(22) **Echoes.**–In foggy weather, the distance offshore frequently can be estimated by noting the elapsed time between a sounding of a ship's whistle or siren and the resultant echo from the sides of hills or mountains. The distance in nautical miles from hill or mountain is about one-tenth the number of seconds between sound and echo. In narrow channels with steep shores a vessel can be kept in midchannel by navigating so that echoes from both shores return at the same instant.

(23) **Tides.**–Throughout southeastern Alaska there are considerable inequalities in the heights of the two high waters and the two low waters of each day; these differences average about 2 feet between successive high waters and 3 feet between successive low waters. Because of such differences, the mean of the lower low waters (rather than the mean of all low waters) has been adopted as the plane of reference for NOS nautical charts of the area.

(24) The average daily (diurnal) range of tide is 10 to 17 feet in this part of Alaska; the greater ranges occur in the inside passages. (See the Tide Tables for more detailed information.)

(25) **Currents.**–The prevailing current that sets NW along the coasts of British Columbia and southeastern Alaska may reach velocities (estimated) of 1.5 knots; it is greatest with strong S winds but may be completely canceled by strong NW winds. The offshore extent of this current is not known but it is believed to be strongest between the 100-fathom curve and the coast; that it extends to the inside passages of southeastern Alaska is indicated by the results of current observations at several inside locations between Dixon Entrance and Cape Spencer.

(26) **Tidal currents.**–Velocities of 4 to 6 knots are not uncommon in some of the inside passages of southeastern Alaska. (See the Tidal Current Tables for more detailed information.)

(27) **Tsunamis (Seismic sea waves).**–Several large earthquakes have occurred in or near southeastern Alaska during the past 75 years. However, any tsunamis generated have been damaging only near the epicentral area. The 10-meter tsunami observed in 1899 from the Yakutat Bay earthquake was restricted to the area near the bay. Likewise, in 1958, although Lituya Bay experienced high waves, only waves of less than half a meter were reported at other points in southeastern Alaska. In 1949, a magnitude 8.1 earthquake near Queen Charlotte Islands generated a tsunami of .3 meter at Ketchikan.

(28) The tsunami generated by the Prince William Sound earthquake of March 28, 1964, caused great destruction in southern Alaska but little damage in southeastern Alaska. The Alaskan Regional Tsunami Warning System was established following this earthquake and became operational in September 1967. Its primary function is to detect and locate major earthquakes in the Aleutian-Alaskan region and in the event that tsunami generation is possible or probable, provide timely and effective tsunami information and warnings to those residents of Alaska and the Aleutian Islands likely to be affected. The center of the Warning System is at Palmer Observatory where telemetered data from a number of Alaskan seismograph stations and tide stations are received and analyzed. Subsidiary warning centers are in operation at Sitka and Adak Observatories. These observatories have a limited warning responsibility in nearby areas. Warnings are also broadcast by the National Weather Service on NOAA Weather Radio.

(29) **Local magnetic disturbance** is prevalent in southeastern Alaska, as shown by magnetic observations at a great many places. The magnetic variations shown on a chart are intended to represent average conditions. In regions where there is marked local disturbance, great care should be exercised, as there may be places where the variation differs several degrees from the average. Even if the local disturbance has been investigated in considerable detail by shore observations, the navigator should not rely entirely on his compass in such areas. Such investigations can give only values at specified points but do not give the extent over which each observed value applies.

(30) Significant local disturbance has been observed at East Island, Duke Island, Shakan Strait, Ernest Sound, Keku Strait, Gastineau Channel, Port Snettisham, Lynn Canal, Chilkoot Inlet, and in Peril Strait. It has been investigated in considerable detail by shore observations in the vicinity of Gastineau Channel, Port Snettisham, and Chilkoot Inlet. In the vicinity of Chilkoot Inlet, the variation observed at several points ranges from about 20° W of normal to 15° E of the normal variation.

(31) **Weather.**–This section is a general description of the climate and related features of southeastern Alaska. Details of navigational weather hazards may be found in the appropriate local chapters. Climatological tables are in the appendix.

(32) 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 Branch (N/CG33). (See appendix for address.)

(33) The following is a seasonal overview of climatic features that are of concern to mariners, along with a description of some weather-related problems. While weather along both outside routes and inside passages is described, details of local navigational weather hazards may be found in the appropriate chapters. Climatological tables for the important ports follow the appendix. Temperatures are in degrees Fahrenheit.

(34) Piloting this coast in winter is made perilous by the many, often intense, extratropical low pressure systems that find their way to the Gulf of Alaska. These storms, originating over central and W Pacific waters, converge in the Gulf which acts as a catch basin since it is rimmed by high coastal mountain ranges. They are accompanied by fronts, strong and shifting winds, frequent precipitation, and extensive cloudiness. While occurring year round, they are usually most numerous and intense from late fall through midwinter. They often arrive on a NE heading at speeds of 15 to 25 knots, but many slow or stall as they become trapped in the Gulf. Early winter storms are often younger and in a more vigorous stage of development than those later in the season. Some stall and beat themselves out against the mountains while others intensify and control the weather from Dixon Entrance to Cape Spencer for several days. Often the storms come in families of four or five that can dominate the weather pattern for 2 weeks or more.

(35) As a low approaches, winds back to the SE quadrant and strengthen. Following the passage of the low's center, winds generally shift to the NW, although they may blow out of the SW for a time. Waves generated by these nearby storms are known as sea and usually follow the wind direction. Swell, generated by distant storms, is mainly out of the W and NW. In the statistics when both are reported, the higher of the two is used. Swell will be mentioned specifically when it is operationally significant.

(36) Along the sea routes N of Dixon Entrance, gales (windspeeds of 34 knots or more) can be expected about 10 percent of the time, most often from SE or S. Windspeeds average 20 to 22 knots while wave heights of 12 feet or more are encountered about 25 percent of the time. In severe conditions, 40-foot seas have been reported. Head or beam waves 12 feet or higher or following seas of 20 feet or more may cause violent ship motions. These motions can be alleviated by a reduction in ships' speed. In these waters, speed reductions in winter are required about 5 to 10 percent of the time on most headings.

(37) Along the inside routes, because of the rugged terrain, winds and waves may vary widely in direction and intensity. The sheltering effect helps keep average windspeeds around 12 knots; gales are rare. Some narrow channels may cause a local increase in windspeed. Descriptions of these effects may be found in the local chapters. Most of the inside routes are somewhat exposed to southerlies and southeasterlies and these winds often average 13 to 15 knots. Seas are often calmer on the inside and observations indicate that wave heights of 5 feet or less are encountered up to 50 percent of the time compared to 15 percent at sea. Swell penetrates these straits only when its direction is in line with the entrance, and then it is rapidly dampened by refraction, reflection, and shoaling in the relatively shallow waters. Swell usually has a long period and can be dangerous in the nearshore areas where shoaling may cause an increase in wave height.

(38) Occasionally, downslope winds from the mountainous interior create problems along the inside routes. Known as "williwaws" these are violent, short-lived squalls with strong, gusty winds that result when cold air builds up in the mountains and then drains down the slopes attaining great force in narrow inlets. They can come up suddenly and successive strong gusts of winds from varying directions may cause vessels at anchor to yaw badly and possibly drag anchor. Sometimes williwaws are accompanied by blinding snowstorms. Even when piloting an outside route close to the coast, williwaws may be encountered near the mouths of inlets.

(39) The seemingly endless procession of winter storms is responsible for the dreary, gray skies and frequent rain and snow. Precipitation can be steady or showery. Showers vary in intensity and are concentrated along cold or occluded fronts, in spiral bands E and NE of the storm's center, and in cumulus clouds within the cold air SW of the center. Steady precipitation usually covers an extensive area NE and N of the center. When storms approach, southeasterlies usually mean rain while E and NE winds often bring snow. Precipitation occurs about 33 percent of the time in winter; about 20 to 30 percent of this falls as snow. Overcast conditions are present about 50 percent of the time. The low pressure systems alternate with migratory high pressure systems which bring brief spells of clear weather. Occasionally, a cold high pressure system will move in from the N or E and become entrenched, enabling bright, clear skies to prevail for several days. These limited cold air outbreaks usually modify rapidly over the relatively warm waters. The prevailing W and SW atmospheric steering currents and the high coastal mountain barriers prevent these continental outbreaks from being a regular feature.

(40) Precipitation can restrict visibility to below 2 miles but, except in a heavy rain or snowstorm, it does not fall below ½ mile. Sometimes precipitation will cool the air causing clouds to lower and fog to form. In general, visibilities of 5 miles or more are encountered 80 to 85 percent of the time. Fog often forms when the air is much warmer than the water, not a common occurrence in winter. Warmest temperatures, both air and sea, run about 50° in winter. On occasion, air temperatures drop into the midteens while water temperatures range down to the mid 30's in open water.

(41) The average monthly sea level pressure charts for spring resemble a battle for control of the Pacific basin between the advancing summer high and the retreating Aleutian Low. The Low makes a stand in the Gulf of Alaska, through which migratory low pressure systems continue to roam with some regularity. While an average of three to five lows per month pass close to the SE Alaskan coast, they are usually less intense than their winter counterparts. This is subtly reflected in the rise in atmospheric pressure, but more dramatically observed at sea in fewer gales and calmer seas. Maximum observed wave heights are now in the 20- to 25-foot range. High seas cause a reduction in ships' speed only about 1 percent of the time or less on most headings. Changes that become noticeable in March accelerate during April and May. In open waters, gales are encountered about 5 percent of the time in March; during April and May they occur less than 5 percent everywhere. Average windspeeds drop below 10 knots in most inner passages by May and even over open waters fall to 13 knots, compared to 18 knots in March. Although winds remain variable, they are most likely to blow out of the SE and S. The parade of lows is responsible for frequent precipitation (20 to 30 percent of the time). Snow becomes less likely as spring progresses and by May it is no longer a threat. Fog becomes more of a problem by May (reported 10 percent of the time). Still, throughout the spring, visibilities of 5 miles or more can be expected 85 to 90 percent of the time, while visibilities of less than 2 miles occur about 5 percent of the time.

(42) Increased daylight means rising air temperatures. By May, subfreezing readings are unlikely in these waters.

Mean air temperatures gradually catch up to the more slowly climbing sea surface temperatures during spring. By May, both average in the mid 40's with a range from the mid 30's to the mid 50's (sea water) and mid 60's (air).

(43) The summer weather charts are usually dominated by the large, semi-permanent North Pacific high centered over the central E North Pacific Ocean. The waters of SE Alaska lie on the N edge of that circulation. Just S of the area, winds blow mainly out of the W due to the clockwise circulation. Winds mainly from the SE through NW blow over this region because of the intrusion of migratory low pressure systems. These storm systems are least frequent, smallest, least intense, and farthest N in summer but still exert considerable influence on the weather. The counterclockwise flow forces warm tropical air over heavier polar maritime air resulting in stratified high and middle clouds with occasional light rain or drizzle. About two or three low centers pass through the area each month. Occasionally, a system will generate strong winds and rough seas, however, gales and waves of 12 feet or more are encountered less than 5 percent of the time. Along the inside passages, windspeeds of 10 knots or less and seas of 5 feet or less are the rule. Even on the outside routes, maximum seas of just 12 to 15 feet have been reported. Ships' speed is reduced by high seas less than 1 percent of the time on all headings.

(44) When high pressure extends over the region, winds, particularly in the inside passages, are determined or influenced by local conditions. Along the passages, nights may be calm with breezes picking up around daybreak, increasing during the day, and moderating around sunset. Directions and speed are often determined by topography.

(45) The S and SE winds associated with the low pressure systems produce frequently cloudy skies while rain occurs 20 to 25 percent of the time. Occasionally these winds, along with westerlies, are responsible for fog which causes visibilities to fall below two miles, about 15 percent of the time, and below ½ mile, up to 3 percent of the time. Advection fog, which forms when warm air blows across cooler water, occurs along some of the inside passages where water from melting glaciers helps keep sea surface temperatures in the 48° to 57° range. In these straits, visibilities fall below 5 miles up to 30 percent of the time. Along the outside routes, the warm Alaska Current helps keep water temperatures in the low 50's to mid 60's. Air temperatures are usually warmest during August when they range from about 50° to 68°.

(46) Autumn is a season of change. The North Pacific subtropical high begins to shrink as the Aleutian Low gradually reasserts itself as the dominant climatic feature. The relatively light breezes of summer are replaced by stronger winds generated by a rapidly increasing number of intense extratropical storms. The seas become rougher, precipitation more frequent, temperatures colder, and nights longer.

(47) An average of about three to five low pressure centers each month move through the area, while many more pass close enough to influence the weather. These systems come mainly from the W and SW as two major storm tracks terminate in the Gulf of Alaska. Storms often move into this region at speeds of 15 to 25 knots, although many decelerate and stall. In the open waters, gales are encountered about 10 percent of the time by November; twice that of September. Seas of 12 feet or more are encountered 10 percent of the time in September and 30 percent by October. Maximum wave heights of 25 to 35 feet have been observed. On most headings, a reduction in ships' speed, due to high seas, is required about 1 to 5 percent of the time; W headings are most vulnerable. Along the inside passages, conditions are usually quieter, although winds and waves from the S through W can create rough conditions at entrances from the sea. Topography can create locally hazardous wind and wave conditions.

(48) Precipitation occurs 25 to 30 percent of the time. In September, this falls as rain, except for a slight chance of snow in the northernmost inland passages where the land has a marked influence on temperatures. By November, about 10 to 20 percent of the precipitation falls as snow. Snow falls most frequently in the northeasternmost inland passages. Precipitation and fog, which is observed 5 to 10 percent of the time, restrict visibilities to below 2 miles about 10 percent of the time. Cloudy conditions blanket the region nearly 50 percent of the time. This extensive cloud cover, along with slowly cooling waters, helps keep the air temperatures in a confined range. In September, both air and sea temperatures range from the mid 40's to mid 60's. By November, minimum air temperatures drop to around 25° compared to the low 40's for sea water; both reach maximums in the mid 50's.

(49) **Superstructure Icing.**–Ice accretion is a complex process that depends on sea conditions, atmospheric conditions, and the ship's size and behavior. Icing can be caused by heavy sea spray, freezing rain, or fog. On large merchant vessels which pass quickly through icing conditions and which experience less wave wash in rough seas because of their high freeboard, it can mean no more than slippery decks. At other times, even large vessels may experience problems. Smaller ships with relatively lower freeboard, such as fishing vessels, small merchant ships, and Coast Guard cutters, are susceptible to wave wash in rough seas. Icing can greatly increase a vessel's weight and elevate the center of gravity, making it top heavy. When ice accretion increases the sail area of the vessel, wind action may result in an increased heeling moment. Nonuniform ice distribution can change a vessel's trim. Icing also hampers steerability and lowers speed. Similar potentially dangerous stresses can occur on oil-drilling and other stationary platforms.

(50) Freezing spray is the most common and dangerous form of icing. It can occur when the air temperature falls below the freezing temperature of sea water (usually about 28.6°) and when sea surface temperatures are below about 41°. The lower the temperature and the stronger the wind, the more rapidly ice accumulates. Freezing spray may deposit thick layers of ice on rigging or on deck areas, rapidly increasing the vessel's weight, which can cause it to sink.

(51) The routes through this region, both inside and out, are susceptible to superstructure icing in winter. Wind and temperature conditions are right for some degree of icing about 5 to 10 percent of the time in midwinter. Along the more exposed outside routes, very heavy to severe icing (accumulations of 1.0 inches to 1.5 inches in 3 hours) have been reported.

(52) The National Weather Service's regional offices at Anchorage and Fairbanks routinely issue structural icing forecasts as part of their marine forecasting program.

(53) **Immersion hypothermia.**–Immersion hypothermia is the loss of heat when a body is immersed in water. With few exceptions, humans die if their normal rectal temperature of approximately 99.7 drops below 78.6°F. Cardiac arrest is the most common direct cause of death. The main threat to life during prolonged immersion is cold or cold and drowning combined.

(54) Cold lowers body temperature, which in turn slows the heart beat, lowers the rate of metabolism, and increases the amount of carbon dioxide in the blood. Resulting impaired mental capacity is a major factor in death by hypothermia. Numerous reports from shipwrecks and accidents in cold water indicate that people can become

confused and even delirious, further decreasing their chances of survival.

(55) The length of time that a human survives in water depends on the water surface temperature and, to a lesser extent, on the person's behavior. Body type can cause deviations. For example, 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.

(56) The cooling rate can be slowed by the person's behavior and insulated gear. A study was made of more than 500 immersions in the waters around Victoria B.C. with temperatures ranging from 39° to 61°F. It was learned that if the critical heat loss areas could be protected, survival time would increase. The Heat Escape Lessening Posture (HELP) was developed for those in the water alone and the Huddle for small groups. Both require a life preserver. HELP involves holding the upper arms firmly against the side 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 four hours, approximately two times that of a swimmer and one and one-half times that of a person in the passive position.

(57) **Wind Chill.**–Human and animal bodies, or any physical bodies warmer than their surroundings, lose heat. The rate of loss depends on the barriers to heat loss, such as clothing and insulation, the speed of air movement, and the air temperature. Heat loss in humans increases dramatically in moving air that is colder than skin temperature taken as 91°F. Even a light wind increases heat loss, while a strong wind can actually lower body temperature if the rate of loss is greater than the body's heat replacement rate.

(58) Loss of body heat can also occur by breathing cold air into the lungs and touching or leaning against cold objects. Heat loss is not as great in bright sunlight where there is some radiant heat gain. Convective cooling is the major source of body heat loss in shady areas and on cloudy days or nights.

(59) **Ice.**–Sea ice affects only a small part of this area and then only during severe winters. Glacial ice, while more prevalent, is usually limited to certain inner passages.

(60) Glacial ice usually appears in the form of icebergs, growlers, and ice flows, and is hazardous to navigation, particularly during periods of darkness and low visibility. Much of this glacial ice is covered with mud and stones and resembles reefs or rocks awash. Glacial ice is usually limited to Frederick Sound, Stephens Passage, Cross Sound, and Icy Strait. These areas can be clogged with ice while W of Cape Spencer glacial ice is rare. Occasionally, a berg will emerge from Cross Sound and be spotted 10 to 25 miles seaward from Cape Spencer.

(61) Sea ice forms when air temperatures cool sea water below its freezing point (about 28.6°). Because water of low salinity and in shallow areas freezes quickest, first ice generally appears near river mouths and close to shore. As the season progresses, the belt of shore ice can spread and form an extension of the land. However, because of the large tidal range there is generally very little fast ice. Most of the sea ice that forms in severe winters is in the form of drift ice, which moves under the influence of winds, tides, and currents, and is constantly breaking up and consolidating. During severe winters, sea ice may form in sheltered bays and inlets N of 56°N during January; it usually melts by April.

(62) Ice conditions are neither monitored nor forecast for Southeast Alaska waters. The presence of glacier ice in shipping lanes is known to the U.S. Coast Guard only through sighting reports from mariners. Reports of glacier ice will not normally be announced in the Coast Guard Broadcast Notice to Mariners unless the reported bergs or ice concentrations present an especially hazardous situation.

(63) Monthly estimates of wind chill, hypothermia, iceberg, and superstructure icing hazards are published in the Pilot Charts.

(64) **Optical Phenomena.**–The two basic types of optical phenomena are those associated with electromagnetic displays and those associated with the refraction or diffraction of light. 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 optical phenomena associated with the 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.

(65) A **mirage** is caused by refraction of light rays in a layer of air having rapidly increasing or decreasing density near the surface. A marked decrease in the density of the air with increasing altitude is the cause of phenomena known as looming, towering, and superior mirages. **Looming** is said to occur when objects appear to rise above their true elevation. Objects below the horizon may actually be brought into view. **Towering** has the effect of elongating visible objects in the vertical direction. 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.

(66) Such mirages, especially looming and towering, are fairly common in the area, with frequency increasing toward the higher latitudes. They are most common in summer when the necessary temperature conditions are most likely. Another type, the **inferior mirage,** occurs principally over heated land surfaces such as deserts, but may be observed occasionally in shallow coastal waters, where objects are sometimes distorted beyond recognition. In contrast to the superior mirage, the condition necessary for the inferior mirage is an increasing air density with height. Atmospheric zones of varying densities and thicknesses may combine the effects of the various types of mirages to form a complicated mirage system known as **Fata Morgana.**

(67) The **green flash** is caused by refractive separation of the sun's rays into its spectral components. This may occur at sunrise or sunset when only a small rim of the sun is visible. When refractive conditions are suitable, red, orange, and yellow waves of sunlight are not refracted sufficiently to reach the eye, whereas green waves are. The visual result is a green flash in the surrounding sky.

(68) The refraction of light by ice crystals may result in many varieties of **halos and arcs.** Because red light is refracted the least, the inner ring of the halo is always red with the other colors of the spectrum following outward. Halos with radii of 22° and 46° have been observed with the refraction angle within the ice spicules determining which type may occur.

(69) **Solar and lunar coronas** consist of a series of rainbow-colored rings around the sun or moon. Such coronas resemble halos but differ in having a reverse sequence of the spectrum colors, red being the color of the outer ring, and in having smaller and variable radii. This reversed sequence of the spectrum occurs because coronas result from diffraction of light whereas the halo is a refraction phenomenon. The radius varies inversely as the size of the water droplets. Another type of diffraction phenomenon is the **Brocken bow**

(also known as **glory**), which consists of colored rings around shadows projected against fog or cloud droplets.

(70) Ice blink, land blink, and water and land skies are reflection phenomena observed on the underside of cloud surfaces. **Ice blink** is a white or yellowish-white glare on the clouds above accumulations of ice. **Land blink** is a yellowish glare observed on the underside of clouds over snow-covered land. Over open water and bared land, the underside of the cloud cover when observed to be relatively dark is known as **water sky** and **land sky**. The pattern formed by these reflections on the lower side of the cloud surfaces is known as "**sky map**."

(71) **Auroral displays** are prevalent throughout the year, but are observed most frequently in the winter. Records show that the periods of maximum auroral activity coincide in general with the periods of maximum sunspot activity.

(72) The cloudlike, luminous glow is the most common of the auroral forms. The arc generally has a faint, nebulous, whitish appearance and is the most persistent of the auroras. Ray auroras are more spectacular but less persistent phenomena. They are usually characterized by colored streaks of light that vary in color and intensity, depending on altitude. Green is the most commonly observed hue, although red and violet may occur in the same display. In the Northern Hemisphere this phenomenon is known as the aurora borealis (northern lights).

(73) **Saint Elmo's fire** is observed more rarely than the aurora and may occur anywhere in the troposphere. It occurs when static electricity collects in sufficiently large charges around the tips of pointed objects to ionize the air in its vicinity and leak off in faintly luminescent discharges. Saint Elmo's fire is observed occasionally on ship masts and on airplane wings in the vicinity of severe storms. It is described either as a weird, greenish glow or as thousands of tiny, electrical sparks flickering along the sharp edges of discharging surfaces.

(74) **Routes.**–The Inside Route from Seattle, Washington, to southeastern Alaska is by way of passages through British Columbia. (See British Columbia Sailing Directions, Volumes I and II, published by the Canadian Hydrographic Service, and Pub. No. 154, Sailing Directions (Enroute) British Columbia, published by Defense Mapping Agency Hydrographic/Topographic Center.)

(75) The best route through British Columbia for deep-draft vessels bound from Seattle to Alaska is by usual courses out of Puget Sound, thence across Strait of Juan de Fuca NE of Hein Bank, 56 miles from Seattle, into the main channel of Haro Strait, thence into Strait of Georgia through Boundary Pass.

(76) The route through Strait of Georgia passes 1 mile N of Ballenas Islands, 150 miles from Seattle. Continuing NW, the vessel enters Discovery Passage and encounters Seymour Narrows, 216 miles from Seattle, where the current velocity is over 15 knots. (See Tidal Current Tables for daily predictions at Seymour Narrows.)

(77) From Discovery Passage the route is through Johnstone Strait, Race Passage, Broughton Strait, Queen Charlotte Strait, Goletas Channel, Christie Passage, and Gordon Channel into Queen Charlotte Sound 1.5 miles W of Egg Island Light, 347 miles from Seattle. From Queen Charlotte Sound the route continues N through Fitz Hugh Sound, Milbanke Sound, Grenville Channel, and Chatham Sound to the Canada-Alaska boundary which crosses the inner part of Dixon Entrance 610 miles from Seattle.

(78) **The Inside Route northward of Dixon Entrance is through Alaska waters.** Revillagigedo Channel and part of Tongass Narrows lead to Ketchikan, 659 miles from Seattle. The route through Tongass Narrows joins Clarence Strait at Guard Island and continues NW to Stikine Strait, which leads N to Wrangell, 749 miles from Seattle, or to Wrangell Narrows, 756 miles from Seattle.

(79) Vessels that wish to avoid Wrangell Narrows can go through Snow Passage, at the head of Clarence Strait, and continue through Sumner Strait and Decision Passage to sea or up Chatham Strait, Frederick Sound, Stephens Passage, and Gastineau Channel to Juneau. Vessels bound for Skagway continue up Chatham Strait and Lynn Canal.

(80) The route through Wrangell Narrows enters Frederick Sound near Petersburg, 771 miles from Seattle, and continues N through Stephens Passage and Gastineau Channel to Juneau, 879 miles from Seattle. Vessels using Wrangell Narrows proceed from Stephens Passage through Favorite Channel and Lynn Canal to Skagway, 962 miles from Seattle.

(81) Vessels bound for Sitka, 883 miles from Seattle, sometimes proceed to sea at Dixon Entrance or Cape Decision and make an outside approach through Sitka Sound. Those desiring shelter use the Inside Route through Wrangell Narrows and enter Peril Strait from Chatham Strait; thence their courses are through Sergius Narrows, Salisbury Sound, Neva Strait, and Olga Strait to Sitka.

(82) The Inside Route is often used by vessels bound for Yakutat and other ports to the NW. From Juneau the route is S in the Gastineau Channel, thence through the N part of Stephens Passage, thence through Saginaw Channel and part of Lynn Canal to the N end of Chatham Strait, and thence through Icy Strait and Cross Sound to the sea. The principal ports in southeastern Alaska may also be reached from seaward through the many deep entrance channels.

(83) **Principal ports.**–The principal ports in southeastern Alaska are Ketchikan, including Ward Cove, Sitka, including Silver Bay, and Wrangell, Skagway, and Juneau, the State capital.

(84) Regular calls are made by deep-draft vessels at Metlakatla, Ketchikan, Ward Cove, Wrangell, Juneau, Lutak Inlet, Skagway and Sitka (Silver Bay); and by container-laden barges from Puget Sound ports at Metlakatla, Saxman, Ketchikan, Wrangell, Petersburg, Juneau, Port Chilkoot, and Sitka.

(85) The principal marine traffic in this part of Alaska, however, consists of fishing vessels operating from canneries and cold storage plants, and log rafts being towed from lumber camps to sawmills and pulpmills.

(86) **Pilotage,** except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska. Exempted from this requirement are (1) vessels under enrollment, (2) fishing vessels registered in the United States or in British Columbia, Canada, (3) motorboats as defined in Sec. 1 of the Federal Motor Boat Act of 1940 (54 Stat. 163; 46 U.S.C. sec. 526 et seq.), (4) vessels of United States registry of less than 300 gross tons and towboats of United States registry and vessels owned by the State of Alaska, engaged exclusively on the rivers of Alaska, or in the coastwise trade on the west coast of the United States including Alaska, Hawaii, and British Columbia, Canada, (5) vessels of Canada, including cruise ships, engaged in frequent trade between British Columbia and Alaska, provided that reciprocal exemptions are granted by Canada to vessels owned by the State of Alaska and those of United States registry, and (6) pleasure craft.

(87) The State of Alaska has established the following boundaries of the inside waters of Southeast Alaska:

(88) A line drawn from Cape Spencer Light due S to a point of intersection which is due W from the southermost

point of Cape Cross, thence to Cape Edgecumbe Light, thence through Cape Bartolome Light and extended to a point of intersection which is due W of Cape Muzon Light, thence to a point which is 1 mile, 180° true, from Cape Chacon Light, thence to Barren Island Light, thence to Lord Rock Light, thence to the southernmost extremity of Garnet Point, Kanagunut Island, thence to the southeasternmost extremity of Island Point, Sitklan Island, and thence a line drawn from the northeasternmost extremity of Point Mansfield, Sitklan Island, 040° true, to where it intersects the mainland.

(89) At all buoyed entrances from seaward to bays, sounds, rivers, or other estuaries for which specified boundary lines are not described, the waters inshore of a line drawn approximately parallel with the general trend of the shore, drawn through the outermost buoy or other aid to navigation of any system of aids, are inside waters.

(90) Vessels proceeding directly from points outside Alaska inside waters to an established pilot boarding station or pickup point are excluded from compulsory use of a pilot when traveling specified inside exclusion routes. The inside exclusion routes for southeastern Alaska are as follows:

(91) (a) travel via Clarence Strait to Guard Islands (55°26.8'N., 131°52.8'W.);

(92) (b) travel via Clarence Strait to a point about 1 mile E of Point McCartey Light (55°06.8'N., 131°42.4'W.);

(93) (c) travel via Cape Bartolome in Bucareli Bay to Cabras Islands (55°21.3'N., 133°23.4'W.);

(94) (d) travel via Cape Ommaney in Chatham Strait to a point off Point Retreat Light (58°24.7'N., 134°57.3'W.);

(95) (e) travel via Sitka Sound to a point off The Eckholms Light (57°00.6'N., 135&°21.5'W.) (applies only to those vessels bound for the port of Sitka); and (f) travel via Revillagigedo Channel to about 1 mile N of Twin Islands Light TI (55°08.6'N., 131°13.0'W.) (applies to vessels traveling Behm Canal only during the period May 1 through September 30); in transiting Revillagigedo Channel, vessels must stay W of longitude 131°05.0'W.

(96) The Alaska Coastwise Pilots Association and the Southeastern Alaska Pilots Association provide pilot services for Yakutat and ports S to the Canadian border.

(97) Their addresses are:

(98) Alaska Coastwise Pilots Association, P.O. Box 22694, Juneau, AK 99802; telephone, 907-586-2272; FAX, 907-463-3773.

(99) Southeastern Alaska Pilots Association, P.O. Box 6100, Ketchikan, AK 99901; telephone, 907-225-9696; cable address, SEAPILOTS; radio call, WKD-53. Their pilot office monitors VHF-FM channels 16 and 13 and works on channel 12.

(100) Pilot services should be arranged in advance through ships' agents, or otherwise, in sufficient time to enable the pilot to travel to the area where the service is required.

(101) The established pilot boarding stations or pickup points for Southeast Alaska are as follows:

(102) (1) Guard Island - about 1 mile NW of Guard Islands Light (55°26.8'N., 131°52.9'W.);

(103) (2) Point McCartey - about 1 mile E of Point McCartey Light (55°06.8'N., 131°42.4'W.);

(104) (3) Cabras Island - about 1 mile NW of Cabras Island, Bucareli Bay (55°22.0'N., 133°24.8'W.);

(105) (4) Sitka Sound - about 0.25 mile N of The Eckholms Light (57°00.6'N., 135°21.5'W.);

(106) (5) Point Retreat - about 1 mile NW of Point Retreat Light (58°24.7'N., 134°57.3'W.);

(107) (6) Twin Islands - about 2 miles NE of Twin Island Light TI (55°08.6'N., 131°13.0'W.), seasonal station utilized only from May 1 through September 30.

(108) The destination of vessels from the above pickup points, while not limited to them, is primarily for the following ports: Ketchikan, Petersburg, and Wrangell from Guard Islands; Ketchikan, Metlakatla, and Juneau from Point McCartey; Klawock from Cabras Islands; Sitka, and/or en route the Point Retreat pilot pickup point, from The Eckholms; Haines, Skagway, and Juneau from Point Retreat; and Misty Fjords from Twin Islands.

(109) In Southeast Alaska, the vessels used as pilot boats serve other functions. However, when engaged in pilotage duties they display the appropriate day and night signals. The pilot boat assumes radiotelephone watch about 1 hour prior to a vessel's ETA at the pickup point. Contact is made on VHF-FM channel 16 or 13 with channel 12 as the working frequency.

(110) **Towage.**–Tugs are located at most ports in southeastern Alaska and are available for assisting vessels in mooring and unmooring at the various wharves and piers. However, these tugs are principally engaged in towing and handling log rafts and barges. Arrangements should be made well in advance through shipping agents. For further information, refer to the description of the port.

(111) **Vessel Arrival Inspection.**–Vessels subject to U.S. quarantine, customs, immigration, and agricultural quarantine inspections generally make arrangements in advance through ships' agents. Government officials conducting such inspections are stationed in most major ports. Mariners arriving at ports where officials are not stationed, should contact the nearest activity providing that service. (See appendix for addresses.) Unless otherwise directed, officials usually board vessels at their berths.

(112) **Harbormasters** are mentioned in the text when applicable. They generally have charge of berthing vessels.

(113) **Supplies.**–Deep-draft vessels usually obtain supplies before visiting Alaska ports. Gasoline, diesel oil, diesel fuel, distillates, lubricating oils, and greases are available in all ports and at many of the operating canneries in southeastern Alaska. Fuel oils for steamships are not available in southeastern Alaska. Provisions, fishing supplies, and some marine supplies are available at most ports in the area. Ice for fishing vessels is available from cold storage companies and from operating canneries. Fresh water is piped to most wharves, piers, and floats.

(114) **Repairs.**–There are no major repair facilities for large vessels in southeastern Alaska. The nearest major repair facilities are in the Puget Sound area and British Columbia. Marine railways, grids, and marine repair firms for smaller vessels are located in the larger cities of southeastern Alaska. The smaller communities and operating canneries usually have machine shops capable of making minor repairs to small vessels. Small craft are sometimes beached on mudflats for minor repairs. Electronic repair firms and commercial divers are in the larger ports.

(115) Spare parts for machinery and electronic equipment are stocked in Ketchikan, Wrangell, Juneau, and Sitka. Parts not stocked can usually be obtained from suppliers in Washington, Oregon, and California by overnight air freight shipment.

(116) **Communications.**–There is regularly scheduled steamer and barge service between Puget Sound ports, Prince Rupert, B.C., and the ports of southeastern Alaska. The State of Alaska operates a vehicle and passenger ferry weekly from Seattle and daily from Prince Rupert, B.C. to Ketchikan, Wrangell, Petersburg, Sitka, Juneau, Haines, and Skagway; this service is less frequent during the winter from Prince Rupert, B.C. Passenger cruise ships sail daily from Vancouver, B.C., to southeastern Alaska during the summer.

(117) Scheduled airline flights are maintained daily from the other states to several points in southeastern Alaska, where connecting service is available by scheduled or chartered flights to all points in Alaska.

(118) Radio transmission and reception is good in the main channels of the inland waters of southeastern Alaska; however, it becomes very poor when in inlets and passes shielded by mountains from the transmitting or receiving stations.

(119) Telephone service is available from most communities in southeastern Alaska.

(120) Alascom, Inc., operates a radio network that includes coast stations with ship-to-shore service throughout most of Alaska. Complete information on this service can be obtained from Alascom, Inc., Office of Public Affairs, Pouch 6607, Anchorage, Alaska 99502.

(121) **Reporting Marine Emergencies and Oil Spills.**–Marine emergencies, oil spills, possible illegal entry, sightings of foreign naval or fishing vessels, icebergs, submarines, or any other unusual events should be reported to the nearest Coast Guard unit by radio or by calling, toll free, Zenith 5555 anywhere in Alaska except Juneau, Douglas, or Kodiak. Within these cities, call 586-2680 for Juneau/Douglas, and 487-5888 for Kodiak.

(122) **Small-craft facilities.**–Small-craft floats for local and transient craft are maintained by most communities in southeastern Alaska. For further information, refer to the description of the community in the text. Complete information on the location of these facilities may also be obtained from the State of Alaska, Division of Waters and Harbors, Juneau, Alaska 99801.

(123) **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).**

(124) **Commercial fishing facilities.**–Canneries and cold storage companies in southeastern Alaska operate during the fishing season as prescribed by the Alaska State Department of Fish and Game. These canneries, cold storage companies, and their facilities are active during some years and inactive in others; some are abandoned by their owners and the buildings and facilities fall into ruins in a short time.

(125) Active canneries, during the non-fishing season, and inactive canneries and cold storage companies usually have a caretaker in attendance. Fresh water, and some fuels and provisions are usually available at these facilities in an emergency.

(126) Radiotelephone communication with the nearest Alascom, Inc. coastal station is maintained by most active facilities and those in caretaker status.

(127) **Logging industry.**–Logging camps are located along the mainland and islands throughout southeastern Alaska. They are established when the forest products are sold by the U.S. Forest Service to private companies. A camp normally operates from 3 to 10 years and has less than 100 people in the smaller camps, but the larger ones may have several thousand residents. The camps generally operate 9 or 10 months each year, closing to caretaker status only during the heavy snow periods.

(128) Float facilities for tugs and small craft used in handling and making up log rafts, and for seaplanes and barges used to transport personnel and supplies are maintained by logging camps located along the waterways. These camps, in addition to maintaining radiotelephone communication with Alascom, Inc., can usually provide fresh water, fuels, and provisions in an emergency.

(129) Location of the various camps can be obtained from the U.S. Forest Service in Ketchikan or Juneau or from the Alaska Loggers Association and the marine operations department of the Ketchikan Pulp Company in Ketchikan. This information can also be obtained from the logging engineering department of the Alaska Lumber and Pulp Company in Sitka.

(130) **Standard Time.**–All of Alaska E of 169°30'W. uses **Alaska standard time (Ak.s.t.),** which is 9 hours slow of Greenwich mean time. Example: when it is 1200 at Greenwich, it is 0300 in Juneau and Anchorage. All the Aleutian Islands W of 169°30'W., including the communities of Adak, Atka, Attu, and Shemya, use **Hawaii-Aleutian standard time (H.A.s.t.),** which is 10 hours slow of Greenwich mean time. Example: when it is 1200 at Greenwich, it is 0200 at Adak.

(131) **Daylight saving time.**–In the State of Alaska, clocks are advanced one hour on the first Sunday in April and set back to standard time on the last Sunday in October.

(132) **Legal public holidays.**–The following are legal holidays in the area covered by this Coast Pilot: 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.

(133) In addition, the following holidays are also observed in the area covered by this Coast Pilot: Seward's Day, last Monday in March, and Alaska Day, October 18.

4. DIXON ENTRANCE TO KETCHIKAN

(1) This chapter describes the waters of Dixon Entrance, Pearse and Portland Canals, Revillagigedo Channel, Tongass Narrows, Carroll and George Inlets, Behm Canal, Ward Cove, and the city and harbor of Ketchikan.

(2) **Weather.**–Dixon Entrance is exposed to the rigors of the nearby Pacific. Gales blow frequently from October through April, mainly out of the SE, up the Hecate Strait. Sometimes N gales draw down Portland Inlet across the NE end of Chatham Sound, making the crossing from Dundas Island to Cape Fox hazardous. Strong SW winds create a heavy beam sea on this same crossing. Swells approach Dixon Entrance mostly from the W and SW, particularly in winter. They move through passages, break on shoals or against shorelines, and are heavy at times. In Caamano Passage, the W coast of Dundas Island experiences almost continuous heavy swell. Parry Passage, as well as the W and N coasts of Langara Island, is subject to prevailing ocean swell.

(3) Uncertain currents and a number of hazards make navigation in Dixon Entrance treacherous when visibility is poor. Advection fog plagues these waters from July through September, when visibility less than 0.5 mile occurs up to 5 percent of the time, and is often cyclical over a period of several days. At Langara Island, fog is reported 4 to 9 days each month from May through September.

(4) **Charts 16016, 17400.–Dixon Entrance,** the S approach from the Pacific Ocean to the inner channels of southeastern Alaska and the N seaward approach to those of British Columbia, is entered between Queen Charlotte Islands on the S and Dall and Prince of Wales Islands on the N. It extends in a general E direction from Cape Muzon and Langara Island to Dundas Island, a distance of about 75 miles, with an average width of more than 30 miles; it then contracts to a width of about 8 miles between Cape Fox and Dundas Island, and continues with this width to the mouth of Portland Inlet, a distance of 17 miles.

(5) **The International Boundary Line between the United States and Canada runs through Dixon Entrance, Tongass Passage, Pearse Canal, and Portland Canal.**

(6) **Bowie Seamount** (chart 531) is a sharp pinnacle with a depth of 15 fathoms in 53°19'N., 135°40'W.

(7) **Learmonth Bank** is in the fairway of the W entrance of Dixon Entrance between 8 and 18 miles N of Langara Island and inside the 100-fathom curve. The bank is about 12 miles long, NW and SE, and about 5 miles wide. The least depth is about 19 fathoms, over a bottom of sand, rock, and gravel.

(8) **Currents.–In Dixon Entrance,** the flood current runs E around Langara Island and sets along the N shore of Graham Island. In the area about midway between Rose Spit and Dundas Island it divides: one part sets N past Dundas Island and the other S into Hecate Strait.

(9) The turn of the current in the vicinity of Rose Spit coincides approximately with the times of high and low water. At times the streams run as high as 4 knots in the vicinity of Rose Spit, and cause heavy overfalls that have the appearance of shallow water in depths of 10 fathoms or more. This area should be navigated with great care. Give Rose Spit a wide berth.

(10) At Cape Muzon the flood current sets around the cape NE and the ebb SW, with a velocity of about 2.4 knots at strength.

(11) At Nunez Rocks and Cape Chacon the currents are irregular and affected by storms. The flood generally sets E or NE. From the cape to Nichols Bay there is apparently an eddy with a W set close to the shores. Between the cape and the rock off the cape, the current apparently always runs W, although not strong during the last half of the flood. N of Cape Chacon an eddy runs to the S, close to the shore. Off the cape a current of 2 to 3 knots has been experienced.

(12) On the ebb the general direction of the current is to the W. From Cape Chacon it runs in the direction of Nunez Rocks, probably forced to the S by the current from Nichols Bay; the latter sets E as far as the cape and then turns S. The current from the S entrance of Nichols Bay runs SE until it meets the main current when it turns W around Nunez Point. W of Nunez Rocks the ebb current is W, but is affected by currents from inlets; there are small eddies along shore.

(13) Between Cape Chacon and Zayas Island on the S, and Duke Island and Cape Fox on the N, the tidal currents are much confused. In bad weather the heavy and confused sea sometimes looks like breakers.

(14) Between Dundas Island and Cape Fox the flood current sets E with an average velocity at strength of 2 knots and the ebb current sets W with an average velocity at strength of 3 knots.

(15) (See the Tidal Current Tables for daily predictions.)

(16) Additional information on currents in these waters is given in the Canadian Sailing Directions British Columbia (North), Volume II.

(17) **Routes.**–Because of the numerous dangers and uncertain currents, navigation of Dixon Entrance at night or in thick or foggy weather is somewhat risky. In approaching from S, the light, fog signal, and radiobeacon on Langara Island is a sufficient guide to the entrance. In approaching from W or NW, Forrester Island is a good landmark. The light on Cape Muzon and the light on Cape Chacon are good guides when in their vicinity, but the unmarked Nunez Rocks, about 3.2 miles SW from Cape Chacon, should be kept in mind. The light on Barren Island is also a good guide when going to the E part of Dixon Entrance; it is advisable to set a course SE of the island in passing.

(18) The high rugged coastline and the isolated islands are very good radar targets.

(19) **Charts 17400, 17420.–Graham Island** forms the S side of Dixon Entrance for 50 miles from Langara Island to Hecate Strait. Its NW end is mountainous with **Pivot Mountain,** 1,922 feet high, the most conspicuous. This mountain, about 2.5 miles back from the W shore, is round, somewhat detached from the others, and can be seen for about 50 miles in clear weather. **Tow Hill,** 500 feet high, is a conspicuous landmark on the NE end of the island, rising above the low and featureless land in its vicinity. It is on the coast and is fronted by a perpendicular cliff nearly 400 feet high, composed of columnar volcanic rocks facing the sea and sloping gradually to the S.

(20) **Langara Island,** on the S side of the W end of Dixon Entrance, is a small irregularly shaped, densely wooded island, close off **Cape Knox,** the northwesternmost point of

Graham Island. Near the middle of the island is a succession of rounded hills of almost uniform height that extend in an E direction.

(21) **Langara Point Light** (54°15.4'N., 133°03.5'W.), 160 feet above the water, is shown from a white hexagonal tower on the NW end of Langara Island. A fog signal, pointing NNW, and a radiobeacon are at the light. A white dwelling is about 135 yards E of the light.

(22) **Forrester Island,** about 14.5 miles off the Dall Island shore, is a prominent landmark for the approach to Dixon Entrance from NW. The island is wooded and mountainous; the highest peak is near the center of the island.

(23) **Cape Muzon,** the S extremity of Dall Island, forms the NW headland of Dixon Entrance. It is heavily wooded and rises to a rounded peak 2 miles NW of the extremity of the cape. Off the E end of the cape is a group of small islands and rocks. A breaker is 0.3 mile off the S shore of the cape. Vessels should give the cape a berth of at least 1 mile. A bank with a reported least depth of 14 fathoms is 2 miles SW of Cape Muzon Light.

(24) **Cape Muzon Light** (54°39.8'N., 132°41.5'W.), 80 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the S extremity of the cape.

(25) **Local magnetic disturbance.**–Differences of as much as 4° from normal variation have been observed at Cape Muzon.

(26) **Chart 17433.**–Point Marsh (54°43.2'N., 132°19.1'W.), about 13 miles E of Cape Muzon, is a group of rocky islets, all of which are comparatively low and wooded, lying close to the main shore of Prince of Wales Island. Between 1 and 2 miles back of the point, the ground rises evenly and several irregular knobs show along the slope. About 2.5 miles NE of the point is a prominent, almost bare hill, with rounded top. **Point Marsh Light** (54°42.7'N., 132°17.7'W.), 74 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a small islet about 1 mile SE of Point Marsh.

(27) **Minnie Bay,** a small bight in the main shore back of Point Marsh, is much used by local fishermen and affords excellent anchorage for small craft. Enter the bay W of the small charted islets inside the entrance and run fairly close-to in order to avoid a reef extending 30 feet out from the W shore opposite the southernmost islet. Heavy kelp covers much of the shoreline during the summer, but the center of the bay is clear.

(28) **Brownson Bay,** about 1.5 miles NE of Point Marsh Light, is narrow, and its entrance is somewhat obstructed by islets and rocks. It affords indifferent anchorage in about 11 fathoms, 0.2 mile S of the rock awash near the head of the bay. A private mooring buoy is 200 yards E of the rock awash. In entering, favor the W side of the bay, taking care to avoid a rock awash that is about 0.6 mile NE of the islets off the W point at the entrance.

(29) In 1968, it was reported that the depths in Brownson Bay were considerably less than the charted depths; caution is advised.

(30) **Little Brownson Bay,** on the E side of the entrance to Brownson Bay, affords anchorage for small craft. The bay is entered from the S, but local knowledge is required; the N passage can only be used by very small boats. Williwaws sweep across the bay during SE gales.

(31) **Surf Point,** about 4.6 miles ESE of Point Marsh Light and 2.5 miles W of Nunez Point, rises rapidly to a knob, and then to higher ground to the N. **Brown Bear Rock** is a prominent rock close to the point. A submerged rock, cleared to 6 fathoms, is about 0.4 mile S of the point, with deep water inshore. Tide rips, hazardous to small craft, are in the vicinity.

(32) An inlet, about 1.2 miles E from Surf Point, is too deep for anchorage and is open and exposed. Foul ground extends about 0.2 mile off the point on the E side of the inlet.

(33) **Bert Millar Cutoff** is the passage to Nichols Bay W of Bean Island. It forms a bight at each end, narrowing at the center to a channel about 30 yards long and 10 yards wide. A depth of about 1¾ fathoms is in the narrow part of the channel, and submerged rocks are in the bight at the N end. At times the current through the channel is very swift.

(34) **Bean Island** is wooded and has a number of rounded, steep-sided, rocky knobs. From W it shows as a rounded hill which stands well above the general level of the island. Off the SE point of the island is a small wooded island from which submerged rocks extend.

(35) **Nunez Point,** about 2.7 miles W of Cape Chacon, is the SE extremity of Bean Island. It has several rocky ridges, with bare bluffs 150 to 200 feet high on the seaward face.

(36) **Nichols Bay** is about 2.5 miles W of Cape Chacon. Three islands divide the entrance into two channels. From the SE end of the S island, irregular bottom with 2- and 2½-fathom spots extend across the entrance of the S channel to a 4¾-fathom spot about 0.6 mile to the NE of Nunez Point. During severe S gales seas pile up heavily at the entrance and are reported to break entirely across it at times. A daybeacon is on the E side of the entrance of the N channel.

(37) The bay has three anchorages, one in each of the three bights on the SW shore. In entering the first bight keep well off the NW end of the N island to avoid rocks. Anchor in 16 fathoms, mud bottom, 250 yards offshore. The second anchorage is to the NW of the peninsula, in depths of 15 fathoms, 300 yards offshore. The third anchorage is about 0.7 mile to the NW of the second anchorage and about 0.6 mile from the head of the bay, in depths of about 13 fathoms, soft mud bottom, 350 yards offshore.

(38) **Nichols Lake,** a large freshwater lake, empties into the head of the bay through a stream. Small boats anchor off the flats at the mouth of this stream.

(39) **Routes.**–When about 1 mile from the entrance, bring the bay wide open and head for the center of the N channel. Stand in between the kelp patches. Favor the N point at the entrance, and then follow midchannel courses. The narrowest part of the channel, about 75 yards wide, is 1 mile inside the entrance, where the least depth is 7 fathoms.

(40) The S channel, used by small craft, leads to the S of the islands. Fishing craft anchor in the lee of the 20-foot rock about 270 yards off the NE shore of Bean Island, and in the channel between the islands.

(41) **Cape Chacon,** the SE point of Prince of Wales Island, is about 23 miles E of Cape Muzon. **Cape Chacon Light** (54°41.4'N., 132°01.0'W.), 50 feet above the water, is shown from a frame with a red and white diamond-shaped daymark on the S extremity of the cape.

(42) From the NE and SW quadrants, the cape is easily recognized by three hills; the outer appears as a perfect cone; the second is slightly higher and somewhat rounded; the third has a flat top. The land to the NW is high and broken.

(43) A rock, awash at extreme low water and usually showing as a breaker, is 260 yards SE from the cape. The pass between the rock and the cape has depths of 5 fathoms and is used by small craft. For a distance of about 0.5 mile from the cape, tide rips are likely to be severe for small craft.

(44) **Nunez Rocks,** about 1.4 miles S of Nunez Point, are bare at half tide and usually show as a breaker. Shoal water extends 550 yards SE to a ¾-fathom spot that frequently

shows as a separate breaker. A ¼-fathom spot is about 400 yards NE of the rocks. The channel between Nunez Rocks and Nunez Point is clear. The rocks when passed to the S should be given a berth of 0.8 mile.

(45) **Chart 17434.–Duke Island,** on the N side of Dixon Entrance between Clarence Strait and Revillagigedo Channel, is low and heavily wooded, and shows numerous round-topped hills. **Mount Lazaro** at its S end is a broad-topped mountain and the only part of the island visible for over 25 miles. The S and SW sides of the island should be avoided, as rocks and reefs extend about 7 miles offshore. Dangers are marked by kelp during the summer, but it is probable that this safeguard is lacking during the fall and winter. The farthest outlying dangers are Hassler Reef, West Rock, Club Rocks, Yellow Rocks, Barren Island, and a reported rocky shoal, covered 3 fathoms with breakers in its immediate vicinity, about 4 miles W of West Rock.

(46) **Judd Harbor,** on the S shore of Duke Island, is N of the E end of **Kelp Island.** It offers excellent shelter with swinging room for vessels up to 175 feet long (short scope). When entering the harbor do not rely on the compass, because there is local magnetic attraction.

(47) The best entrance is N of East Island. When abreast of the NE point of Kelp Island, steer midchannel toward the prominent point marking the W side of the entrance to Judd Harbor. When about to round into the bay give the point to the E a fair berth because of a submerged rock 130 yards off that point. Anchor in the center of the bay in 4 fathoms, sticky mud bottom. This anchorage is used extensively by fishing vessels during the fishing season and may be congested during that period.

(48) Anchorage on the N side of Kelp Island, while good, is not recommended for use except for those with local knowledge, because the E entrance is shallow and the W entrance has numerous reefs. Currents through this passage are very strong at times.

(49) **Kelp Island Anchorage,** a bight in the E end of Kelp Island, offers fair shelter for small boats. Anchorage is in 2 to 7 fathoms, rock and sand bottom. Piles have been driven along the S shore.

(50) **Local magnetic disturbance.**–Extreme magnetic disturbances, with differences of as much as 50° have been observed SE of Duke Island. The magnetic compass should not be relied upon within the area outlined in magenta on the charts.

(51) **East Island,** marked by a light on its E side, is a small island, 2.5 miles S of **Duke Point,** the easternmost point of Duke Island. Round East Island with great care because of the outlying rocks to the W, the magnetic disturbance, and the uncertainty of the tidal currents.

(52) **Hassler Reef** is an extensive shoal area with depths of 3¼ to 10 fathoms about 7.8 miles W of Mount Lazaro. The reef is covered by heavy kelp during the summer and has deep water close-to. Very irregular bottom extends 3 miles to the S of Hassler Reef, and passage over that section is not recommended.

(53) A rocky shoal, covered 3 fathoms with breakers in its immediate vicinity, is reported about 2.5 miles SSW of Hassler Reef and about 4 miles W of West Rock.

(54) **West Rock,** 12 feet high, is 6.3 miles SW of Mount Lazaro. A rock with 2 fathoms over it and marked by kelp is about 0.6 mile S of West Rock.

(55) **Club Rocks,** two in number, bare, and surrounded by reefs and kelp, are about 4.4 miles S of Mount Lazaro; the N rock is 40 feet high, and the S rock is 35 feet high. **Yellow Rocks,** two in number, yellowish in color, and surrounded by kelp, are about 7.3 miles SE of Mount Lazaro. The larger rock is 25 feet high and shows some vegetation.

(56) **Caution.**–Vessels without local knowledge should not go inside the line of Hassler Reef, West Rock, and Club Rocks. These waters should be navigated with great caution, and every appearance of kelp should be avoided. It is quite possible that isolated pinnacle rocks may exist that show no kelp. There is deep water close to Yellow Rock and Barren Island.

(57) **Barren Island** is a bare rock 30 feet high, about 8.5 miles S of Mount Lazaro. There are other small rocks and some kelp near it, but there is deep water within about 0.2 mile in all directions. **Barren Island Light** (54°44.6′N., 131°21.0′W.), 85 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the summit of the island.

(58) **West Devil Rock** is a dangerous ledge in the NE part of Dixon Entrance, about 15.5 miles SSW of Mount Lazaro. The highest part of the rock bares 11 feet, and foul ground, on which the sea breaks, extends about 0.3 mile S, SW, and N of it. A 2½-fathom shoal, on which the sea breaks almost continuously in moderate weather, is 0.6 mile 333° from the rock. A submerged rock is close SE of the 2½-fathom shoal. A 6½-fathom and a 6-fathom shoal are 0.9 mile 015°, and 2.3 miles 141° from West Devil Rock, respectively.

(59) **East Devil Rock** bares 2 feet and is about 3.3 miles N of Zayas Island. The channel between this rock and **Zayas Island Reef** is apparently clear, but the N coast of Zayas Island should not be approached closer than 1 mile.

(60) **Chart 17420.–Celestial Reef** (54°31′N., 131°28′W.), about 10 miles SSE of West Devil Rock, is about 1 mile long and has three heads with less than 1 fathom over them near the S end. The depth over the remainder of the shoal is about 10 fathoms. A rock, covered 1½ fathoms, is 0.7 mile NE of the reef. Two 10-fathom shoals are about 0.5 miles N and 3 miles NNW of the reef, respectively. An 8-fathom shoal is about 2 miles S of the center of the reef.

(61) **Zayas Island,** in the NE part of Dixon Entrance and about 11.5 miles SE of Barren Island, is wooded, flat-topped, and high near the S end. A rock, with 4 feet over it, is about 0.7 mile N of **Aranzazu Point,** the NW extremity of Zayas Island. Foul ground marked by kelp extends along the N shore of the island with several 5-fathom spots about 1 mile N of the island. A light marks the southernmost point of the island.

(62) **McCullock Rock,** a pinnacle rock with 9 feet over it, is about 4 miles W of Jacinto Point, the SW extremity of Zayas Island. A 3-fathom shoal and a 5-fathom shoal are about 0.4 mile ESE and about 1.3 miles NNE of the rock, respectively.

(63) **Dundas Islands,** in the E part of Dixon Entrance, consist of **Dundas Island, Baron Island, Dunira Island, Melville Island,** and numerous small islets and rocks. Dundas, the northwesternmost and largest island, has a number of conspicuous mountains, of which **Mount Henry,** towards the S end of the island, is the highest. Two conspicuous hills are in the NW part of the island. **Slab Hill,** flat-topped with a knob, is conspicuous near the NE end of the island.

(64) The coasts of the four large islands of the group are much indented by small creeks and bays.

(65) **Caution.**–Recent surveys indicate less water than charted in the vicinity of Dundas Islands. Mariners are advised to navigate with caution in the vicinity of these islands as many rocks awash and submerged, and some marked by kelp, have been reported in this area.

(66) **Holliday Island Light** (54°37.4'N., 130°45.5'W.), 30 feet above the water, is shown from a white slatted daymark on a concrete base on the N end of **Holliday Island,** which is 0.3 mile off the NE end of Dundas Island.

(67) **Chart 17437.–Cape Fox,** on the N side of Dixon Entrance, forms the W side of Nakat Bay and the E point of the entrance to Revillagigedo Channel. The cape is mountainous and wooded, with wooded islets close off its S shore. The cape terminates in remarkable high white cliffs, with a conspicuous saddle-shaped mountain, **Harry Saddle,** about 2 miles back. A small-boat channel between Fox Island and the cape is narrow and crooked, and should not be attempted without local knowledge. The channel has many piles andis used as a log storage area. A rock awash is about 500 yards ENE from the E tip of **Fox Island,** a small island about 0.2 mile off Cape Fox.

(68) Tree Point Light, described later in this chapter, is on the NE side of the lower end of Revillagigedo Channel, about 3.7 miles NW of Cape Fox. (See chart 17420.)

(69) **Lord Islands,** about 2.5 miles SE from Cape Fox, are in two groups, separated about 0.7 mile, and have a number of islands in each group, with a clear channel between the groups. The larger islands are wooded and 100 to 200 feet high. Several bold and bare rocks are close to the Lord Islands. Submerged rocks and kelp fringe these islands, and shoal water extends about 0.5 mile N and NW of the N group. The recommended channel into Nakat Bay is to the W of the islands and **Thistle Rock,** favoring the Cape Fox shore.

(70) **Lord Rock,** about 10 feet high, is about 0.7 mile SW from the S group of the Lord Islands. **Lord Rock Light** (54°43.5'N., 130°49.2'W.), 38 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the highest part of the rock.

(71) **Nakat Bay,** making N between Cape Fox and Tongass Island, is the entrance to Nakat Inlet and the W approach to Port Tongass. The bay does not afford anchorage.

(72) **Boat Rock,** 5 feet high, is close to the W shore at the entrance to Nakat Bay. **Boat Rock Light** (54°46.8'N., 130°48.0' W.), 46 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the SW end of the rock.

(73) **Craig Rock,** near the middle of the bay and about 0.7 mile from the W point of Tongass Island, is awash at extreme low water, with deep water all around. It breaks in a heavy sea and is not marked by kelp.

(74) **Harry Bay,** on the NW side of Nakat Bay, is deep and exposed to the SE. **Slim Island** is close to the W shore at the entrance. A boat passage is between the island and the mainland, but the island shore must be kept close aboard, because the W half of the passage is foul. A shoal with 6¾ fathoms over it is 0.4 mile 116° from the S end of Slim Island. **Ledge Point** on the E side of the entrance to the bay should be passed at a distance of 0.5 mile to clear the rocks off the point.

(75) **Nakat Inlet** extends in a N direction for about 8 miles. The shores are steep and heavily wooded to the water's edge. The main inlet is deep and affords no anchorage except near its head. The group of small, wooded islands near the head of the inlet provides shelter for small craft. Anchorage may be had in 8 to 13 fathoms. The inlet is clear of obstructions except near its head or close inshore.

(76) **Local magnetic disturbance.**–Differences of as much as 5° from the normal variation have been observed in the W shore of Nakat Inlet about 1.25 miles N of Surprise Point.

(77) **Nakat Harbor** makes off from the SE part of Nakat Inlet and is separated from it by a chain of wooded islands. An abandoned cannery dock, in ruins, is on the E shore of the harbor E of Observation Rock. In the S part of the harbor, about halfway up the arm, off a small bight having a gravel beach, anchorage and shelter for vessels of moderate size may be found in 19 fathoms. The N arm of Nakat Harbor also has anchorage, but poor shelter. A reef with two pinnacles that bare 3 feet is 200 yards from the W shore about 0.3 mile N from **Simonton Point. Observation Rock,** in the middle of Nakat Harbor, is about 6 feet high, with submerged rocks that extend about 250 yards SE and NW from it. A deep channel is between the rocks and the shore, but the shore must be given a berth of over 100 yards.

(78) The best channel for entering Nakat Harbor is SE of the southeasternmost islet of the chain separating it from Nakat Inlet.

(79) Excellent anchorage may be had in 18 fathoms, mud bottom, in the SW arm of Nakat Harbor, about 0.6 mile SE of **Surprise Point.** Passage to the head of this arm is obstructed by a rock baring 3 feet in the middle of the constricted part of the arm. Small vessels should favor the W shore to avoid the rock and the extensive flats along the E shore. At high water the SW arm is connected with the small bight, about 0.7 mile N of the daybeacon on Tongass Reef, by a narrow passage that is obstructed by trees and is only navigable by small boats.

(80) **Tongass Reef,** on the NE side of the bay, about 0.5 mile N of Tongass Island, is awash at high water. **Tongass Reef Daybeacon** (54°47.2'N., 130°44.7'W.), on a skeleton tower with a red and white diamond-shaped daymark on the N side of the reef, marks the N entrance to Port Tongass. **Passage Rock** and **Track Rock**, between Tongass Reef and the N point of Tongass Island, cover at high water.

(81) **Port Tongass** is a small harbor formed by the passage between Tongass Island and the mainland. **Tongass Island** is low and, except on the NE side, has ledges and submerged rocks that extend well out on all sides. A launch passage is immediately N of Tongass Island, but is tortuous and obstructed and should be used only with local knowledge. Port Tongass is sometimes used as an anchorage, but the bottom is hard, and with wind and changing tidal currents a vessel may drag her anchor and foul.

(82) The anchorage is 200 yards from the NE shore of the harbor, E of **Fort Point** in about 20 fathoms, hard bottom. The flood current sets NW through the anchorage at about 1 knot. The anchorage may be entered by three channels. The SE and SW entrances are described under Sitklan Passage.

(83) The N entrance between Tongass Reef and the mainland is the one recommended and is the best entrance for vessels approaching from W.

(84) **Sitklan Passage,** except for its W entrance between Tongass and Kanagunut Islands, is a deep narrow passage with steep wooded shores that extend ENE between the mainland and the NW shores of Kanagunut Island and **Sitklan Island** from Nakat Bay to Tongass Passage. It forms the SE and SW approaches to Port Tongass. The E entrance of the passage from Tongass Passage is N of **Point Mansfield.** This channel, with depths of 16 to 42 fathoms, is fairly straight and about 300 yards wide. **Dark Point,** the turning point from Sitklan Passage into Port Tongass, has a bare rock about 5 feet high close-to.

(85) The W entrance, on the S side of Tongass Island, is obstructed by rocks and kelp, but is much used by small vessels with local knowledge. Strangers should use this entrance only with small craft at high water. All dangers in the passage are marked by kelp. A circular shoal with a least depth of 2¼ fathoms is about 0.6 mile NW of **Tingberg Island** in the W entrance. When rounding **Katakwa**

Point, the SE extremity of Tongass Island, care should be exercised to favor the E shore of Port Tongass, which is steep-to and clear of dangers.

(86) **Lincoln Channel** is the narrow passage between Kanagunut and Sitklan Islands. It is very narrow at the N entrance with a controlling depth of 9 feet in midchannel. In the S part of the channel, about 0.2 mile N of the island in the bight, is a rock in midchannel with ¾ fathom over it. A shoal with a depth of 1 fathom is about 0.5 mile N from **Garnet Point,** the S extremity of Kanagunut Island.

(87) **Kanagunut Island,** low and heavily wooded, is fringed along its SW shore by rocky ledges that extend 200 to 700 yards from the island.

(88) **Tongass Passage,** between Sitklan and Wales Islands, is a deep passage with steep shores that extends NW from Dixon Entrance. It bends to the NE off the entrance to Sitklan Passage, separates Wales Island from the mainland, and forms the W entrance to Pearse Canal. Tongass Passage is entered between **Haystack Island,** a steep wooded islet, and **Island Point,** the SE extremity of Sitklan Island. Rocks awash are about 300 yards W of Haystack Island. From **Bartlett Point,** the W extremity of Wales Island, to **Phipp Point,** on the N shore of Wales Island about 1 mile NE of Bartlett Point, a midchannel course will lead through deep water.

(89) **Fillmore Inlet** joins Pearse Canal on the Alaska side at the SW end of Fillmore Island, and separates that island from the mainland; it extends NE and is comparatively free to navigation, but there are numerous rocks and reefs close inshore. The narrow entrance beyond the group of islets at the head of this inlet leads into two consecutive basins, each of considerable size. The inlet has no value as an anchorage.

(90) **Willard Inlet** is a narrow inlet that extends in a NW direction from the NW side of Fillmore Inlet, about 1.5 miles N of **Male Point,** the SW extremity of Fillmore Island. It is very narrow at the entrance, and the currents have great velocity, forming swirls that extend well out from the mouth. The times of high and low water inside the inlet are about 1 hour later than at other places in the vicinity, and the rise and fall about 2 feet less. This inlet can only be entered at slack water and has no value as an anchorage.

(91) **Edward Passage** separates Fillmore Island from the mainland N and connects Fillmore Inlet with Pearse Canal. The passage is narrow, foul, and only navigable by small craft with local knowledge.

(92) **Pearse Canal** is about 25 miles long (see chart 17420) from Tongass Passage to its junction with Portland Canal off Tree Point, the N extremity of Pearse Island. The British Columbia shore is formed by **Wales Island** and **Pearse Island,** and the Alaska shore by Fillmore Island and the mainland.

(93) The W entrance to Pearse Canal is to the S of a group of heavily wooded islets about 0.8 mile SW of Male Point. **Pearse Canal Island Light** (54°47.1'N., 130°36.5'W.), 18 feet above the water, is shown from a square skeleton tower with a white square daymark on the S point of the 150-foot island in the entrance to Pearse Canal. A rock with 1¾ fathoms over it is 0.1 mile N of the light. To enter from the W, pass in midchannel between this rock and the southernmost of the islets S of Male Point. A rocky shoal, covered 3½ fathoms, is about 250 yards ESE of the light.

(94) (See Tidal Current Tables for daily predictions in Pearse Canal.)

(95) **Safa Islands,** mostly wooded, are on the S side of the channel off the entrance to Wales Harbor.

(96) **Fillmore Island** forms the NW shore of Pearse Canal and is separated from the mainland by Fillmore Inlet and Edward Passage. Several wooded islets are off its S shore. Passage behind the islets is not recommended except for small craft with local knowledge.

(97) **Regina Cove** indents the S shore of Fillmore Island about 2 miles from Male Point. Anchorage is available in the center of the bay in 14 fathoms, mud bottom. A small shoal of 1¾ fathoms, with deep water surrounding it, is near midchannel about 0.2 mile off the entrance to the cove.

(98) **Wales Harbour,** on the British Columbia side of Pearse Canal, about 1.5 miles from Tongass Passage, affords good anchorage in 14 to 18 fathoms, soft bottom; its entrance is somewhat obstructed by islets and rocks, and only vessels with local knowledge should attempt to enter it. The usual anchorage is N of the larger island near the head of the harbor. In entering, follow the SW shore at a distance of about 200 yards until past the shoal in the entrance to the harbor.

(99) Three arms are at the head of the harbor, the middle and largest opens out into a basin. An island with an islet close SE of it nearly closes the entrances to the W and middle arms; the channel for entering them is W of the islands, but the chart is the best guide for navigating these waters.

(100) **Wales Passage,** between Pearse Island and Wales Island on the British Columbia side of Pearse Canal, is free from midchannel dangers.

(101) **Winter Inlet,** the entrance to which is about 1.3 miles NE of the N entrance to Wales Passage, indents the NW shore of Pearse Island. It affords secure anchorage for small craft; the holding ground is good and there is ample swinging room in the wider part. The N shore is bold, except where small sandspits make out at the mouths of streams. In entering, favor slightly the S shore until past the first spit on the N side, and then keep the N shore close aboard when passing the bight on the S side to avoid a reef that extends about 75 yards off a small wooded islet. Ice forms in the harbor during winter, making it unsafe for small-craft shelter.

(102) **Chart 17437, 17427.–Hidden Inlet,** a narrow arm, extends N into the mainland from Pearse Canal, about 8 miles S of its junction with Portland Canal. **Hidden Point** is on the NE side of the entrance to the inlet. The entrance is less than 150 yards wide, and the tidal currents through it set with a velocity of 8 to 10 knots, forming swirls that extend well into Pearse Canal. The main body of the inlet is about 4 miles long, varying in depth from 30 to 73 fathoms, but there is only 2½ fathoms at the entrance. It can be entered only at slack water, and is of no value as an anchorage.

(103) A rock with 2 fathoms over it is about 0.4 mile S of Hidden Point. **Yelnu Islets** are two wooded prominent islets on the W side of the Pearse Canal about 0.8 mile S of Hidden Point.

(104) **Charts 17427, 17425.–Portland Canal** extends N from its junction with Pearse Canal and **Portland Inlet** at **Tree Point** for about 57 miles to the towns of Hyder, Alaska, and Stewart, B.C. The channel, clear and deep, has no dangers except for a rock awash, about 0.2 mile off the W (Alaska) shore, 2.3 miles above **River Point** (55°34.2'N., 130°08.2'W.). It is reported that in the winter there are strong N blows in the canal and small boats often ice up.

(105) **Reef Island** is close off the W shore, abreast **Spit Point,** at the entrance to Portland Canal. **Reef Island Light** (55°04.7'N., 130°12.2'W.), 19 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the S end of the island.

(106) **Harrison Point,** high and bold, is 2.5 miles N of Reef Island. **Dickens Point,** on the E shore, is about 4.5 miles N

of Spit Point. A black rock, 8 feet high, is close S of Dickens Point, and a drying ledge extends a short distance from it.

(107) **Sandfly Bay,** on the W shore abreast Dickens Point, 14.5 miles above Hidden Inlet, has no value as an anchorage. **Stopford Point,** bold and conspicuous, is on the E shore about 3 miles above Dickens Point.

(108) **Halibut Bay,** free of hidden dangers, is on the W shore of Portland Canal, about 4 miles above Sandfly Bay. Its shores are generally bold, but on each side near the entrance are sandy beaches with shoals that extend 80 yards offshore, and low grassy land running 100 yards back. Near the head of the bay extensive flats, which bare, make out from the W shore almost all the way across leaving a narrow channel close to the E side, through which 5 feet can be carried to a narrow basin 2 to 4 fathoms deep and suitable only for small craft.

(109) Halibut Bay affords anchorage for vessels in the middle of the bay in 10 fathoms, about 0.2 mile above **Astronomical Point,** the NE point at the entrance, and abreast a rocky point at the N end of the sand beach on the W side, where the anchorage is 450 yards wide; also 700 yards farther up abreast the N end of the sand beach on the E side, in 10 fathoms, where the anchorage is 300 yards wide.

(110) **Logan Point,** on the E shore, is 4.3 miles NE of Stopford Point.

(111) **Camp Point** on the W shore about 4.5 miles NE of the entrance to Halibut Bay is wooded and precipitous.

(112) **Hattie Island,** in midchannel about 6 miles above Halibut Bay, is about 700 yards long and has some stunted brush growing on it. **Hattie Island Light** (55°17.2′N., 129°58.4′ W.), 21 feet above the water, is shown from a pole with a slatted orange circular daymark on the W side of the island. **Belle Bay,** the bight E of Hattie Island, does not afford anchorage.

(113) **Car Point** is on the E shore about 3.5 miles NW of Belle Bay. About midway between Car Point and Belle Bay are three conspicuous landslides.

(114) **Chart 17425.–Breezy Point** (55°21.5′N., 130°02.3′W.), about 5 miles N of Camp Point on the W shore, is conspicuous. **Bluff Point,** on the E shore, about 1.5 miles NE of Breezy Point, terminates in a high, bold cliff.

(115) **Tombstone Bay,** on the W side of Portland Canal about 7.5 miles above Hattie Island, affords a temporary anchorage for small craft in 8 fathoms near the head of the N bight.

(116) **Maple Bay,** on the E (British Columbia) side of Portland Canal, 8 miles above Hattie Island, affords fair anchorage for small craft, 300 yards from the S side, in 7 to 8 fathoms. In 1977, a rock awash was reported about 150 yards offshore on the S side of the bay near the entrance.

(117) **Turn Point,** on the W side of Portland Canal, about 9.5 miles above Hattie Island, is 0.5 mile wide.

(118) **Green Islets,** two small wooded islets on the E side, about 21.5 miles above Hattie Island, are connected with the shore by a short spit that bares.

(119) **Fords Cove,** on the E shore just N of Green Islets, is a bight in the shore affording fair shelter from S winds but none from N winds. A rocky ledge, which partly bares, extends N about 75 yards from Green Islets. The S part of the cove is shoal for about 175 yards offshore. A fair anchorage with sufficient swinging room may be found in 13 fathoms, 0.2 mile from Green Islets and the same distance from the E shore. Small craft can anchor closer inshore.

(120) **Cliff Point,** on the W shore, is about 3.3 miles above Green Islets. **Verdure Point,** about 4.5 miles N of Cliff Point, is conspicuous when the maple trees bloom.

(121) **Lion Point,** on the E shore about 3 miles below the head of the canal, is low and wooded, and has a grassy flat in front. The bight in the shore just S of Lion Point is filled by a flat that bares. The **Marmot River** flows through a valley that trends to the E.

(122) There is a government landing float at **Marmot Bay,** 0.5 mile northeastward of Lion Point, with a depth of 18 feet alongside at the southern end and 9 feet at the northern end.

(123) The Bear and Salmon Rivers, which flow into the head of Portland Canal, are separated by the **Reverdy Mountains** (see chart 17420), a high ridge of bare mountains, of which **Mount Dolly,** the southernmost peak, 5,475 feet high, is conspicuous to the mariner. Throughout the year, the discoloration of the water caused by the discharge from the Bear and Salmon Rivers extends as far S as **Glacier Point** (55°49.2 ′N., 130°06.7′W.).

(124) **Salmon River** empties on the W shore about 2 miles below Bear River. Extensive flats make out in a fan shape from the mouth of Salmon River, the N part extends about halfway across the canal; these flats are covered at high water and are steep-to. The E edge of the flats is marked by buoys and a light. **Stewart Light** (55°54.7′N., 129°59.4′W.), 12 feet above the water, is shown from a square skeleton tower on the E side of the canal opposite **Eagle Point,** the N entrance point of Salmon River. It is reported that in the winter the mouth of the Salmon River freezes with 3 to 8 inches of ice.

(125) **Bear River** flows through an extensive wooded flat at the head of Portland Canal. The channels are subject to change during freshets. The flats at the mouth uncover for 800 yards and are steep-to; it is reported that they are slowly extending.

(126) **Hyder,** on the Alaska side of the boundary, is a community occupying the flats off the mouth of the Salmon River and extends up the valley. A 1,250-foot-long trestle with a small dock at its outer end extends SE over the mudflats from Eagle Point, which separates Portland Canal and the entrance to Salmon River. A 150-foot-long small-craft float with a seaplane float at its outer end extends SW from the dock; the community operates the floats. A small-boat harbor with a launching ramp is just NE of the trestle. A buoy marks the entrance to the harbor. In June 1976, depths of 14 to 20 feet were reported along the NW and SE sides of the 150-foot small-craft float. A yacht club on the W side of the canal between Hyder and Stewart has several floats and finger piers.

(127) Limited marine supplies, gasoline, diesel fuel, aviation gasoline, water, provisions, and minor small-craft repairs can be obtained in Stewart.

(128) Hyder, and Stewart, B.C., about 2 miles to the N, are connected by a shore road that leads about 370 miles farther N to a junction with the Yukon Province Highway 1 (ALCAN Highway). Seaplane service to Ketchikan is available, as well as telephone and radiotelephone communications with other cities in Alaska and British Columbia.

(129) **Stewart** is a settlement on the British Columbia side at the head of Portland Canal. Mining is the principal industry.

(130) Anchorage may be had in 25 to 30 fathoms near the head of the canal, about 550 yards off the E shore and about 450 yards S of the flat fronting the mouth of Bear River, with the light marking the edge of the flat E of Eagle Point, bearing 229°. The holding ground is good, soft mud, but the anchorage is unprotected, being exposed to N and S winds that draw through the canal. Vessels should use caution in this area because the flat uncovers only at low water and is very steep-to.

(131) Numerous piles, the remains of the approaches to two former wharves, are on the mudflats at the head of the canal.

(132) The waters of Portland Canal in the vicinity of Stewart are a **seaplane operating area.**

(133) **Currents.**–In Pearse Canal the current has a maximum velocity of 2.8 knots, diminishing toward the head of Portland Canal. (See Tidal Currents Tables for daily predictions of places in Pearse and Portland Canals.)

(134) Stewart has a small hospital with a resident doctor and nurse in attendance; X-ray facilities are available.

(135) **Supplies.**–Provisions in limited quantities can be obtained. Gasoline, diesel fuel, stove oil, and aviation gasoline can be procured by tank truck by prior arrangement with two local oil companies; water is also available.

(136) **Communications.**–Radiotelephone and telephone services are available. A vessel makes regular calls, and an airline and ferries maintain regular service to and from Prince Rupert, with connections to other coastal points.

(137) **Chart 17420.–Revillagigedo Channel** and **Tongass Narrows** (chart 17428) are connecting bodies of water that have a combined length of about 53 miles from their junction with Dixon Entrance at Tree Point Light to their junction with Clarence Strait at Guard Islands Light. On their S side they connect with Clarence Strait through Felice Strait and Nichols Passage. **Revillagigedo Island,** separated from the mainland by Behm Canal, forms the greater part of the N shore of the passages.

(138) Revillagigedo Channel extends in a general NW direction from Dixon Entrance for about 40 miles to Tongass Narrows, the latter being a continuation of the channel, for 13 miles to Guard Islands. The dangers are shown on the charts. From its entrance to Bold Island, Revillagigedo Channel is broad and comparatively free of dangers; the rocks nearest the tracks of vessels show out of water and are readily distinguishable. Above Bold Island, the channel is narrow in places, but the principal dangers are marked by buoys and lights. No difficulty should be experienced in passing through in clear weather.

(139) **Tides and currents.**–The mean range of tide in Revillagigedo Channel is about 13 feet and the diurnal range is about 15 feet. E of Duke Island the average velocity of the tidal current at strength of flood or ebb is about 0.5 knot. A set across the channel is sometimes experienced in the vicinity of Twin Islands. Observations taken in midchannel between Bold Island and Reef Point indicate that the current at that location sets NW most of the time with a velocity up to 1 knot. The current in the channel is usually too weak to be predicted.

(140) The tidal current in Tongass Narrows is weak; however, currents of 2.5 and 3.0 knots have been reported in the vicinity of Idaho Rock. There is evidence of a weak NW nontidal drift. Currents of an appreciable velocity are due to winds.

(141) (See the Tidal Current Tables and Tide Tables for daily predictions in Revillagigedo Channel and Tongass Narrows.)

(142) **Weather.**–Because of its orientation, Revillagigedo Channel is susceptible to the strong SE winds that blow from October through April. At the S entrance to the channel, advection fog is a problem, particularly from July through September. Throughout most of the channel and in Tongass Narrows, visibility is worst during the winter. At Ketchikan visibility drops below 1 mile on up to 8 days each winter month, and 3 to 6 days of fog occur from July through September. The waters around Mary Island are consistently the most foggy. April, May, and June are the most fog-free months in the channel.

(143) **Chart 17434.–Boat Harbor,** about 2.7 miles NW of **Cape Fox** (54°46.2'N., 130°50.0'W.), is a small cove forming a poor shelter for boats. It is badly exposed to SW. Two small wooded islets are at the entrance, and the best passage for small boats is between these islets. Near the middle of the N entrance is a rock that bares 5 feet.

(144) **Tree Point Light** (54°48.2'N., 130°56.0'W.), 86 feet above the water, is shown from a 66-foot white square tower on a building on Tree Point, 4 miles NW of Cape Fox.

(145) **Tree Point,** low and timbered, has a rocky and steep-to shore. The shoreline from Cape Fox to Tree Point is very irregular and studded with many wooded islets and bare rocks. Because of the irregular bottom and inshore dangers this section of the coast should be given a berth of not less than 0.5 mile. The small bight at Tree Point affords no shelter from S seas. **Humpy Point** is 1 mile N of Tree Point.

(146) **Foggy Point,** about 7.5 miles N of Tree Point, is a low, rocky, wooded peninsula marked by a light.

(147) The coast from Tree Point to Foggy Point is clear of dangers except close inshore. A rock awash is about 0.6 mile N of Foggy Point. Other kelp-marked rocks are SE of this rock.

(148) **Local magnetic disturbance.**–Extreme magnetic disturbances exist SE of Duke Island. The magnetic compass should not be relied upon within the area outlined in magenta on the charts.

(149) **De Long Islands** are a group of several low, wooded islets 2 to 3 miles NNW of Foggy Point. The bottom between them and the mainland is exceedingly foul. Foul ground extends 0.7 miles SSE of these islands.

(150) **Kirk Point,** about 4.5 miles NNW of Foggy Point, is a low, wooded peninsula. A kelp-marked reef, bare at low water, is about 550 yards W of the point. Heavy tide rips have been experienced during a SW blow in the vicinity of Kirk Point.

(151) **Foggy Bay** is a wide indentation in the shore between Foggy Point and Kirk Point. It is almost divided into two parts by the De Long Islands and the foul ground that extends inshore from them. The NW part of the bay is foul and seldom used.

(152) The S part of the bay is used considerably by fishing boats and affords safe anchorage for small craft in its SE and E ends. Large vessels can obtain temporary shelter from S storms in the SE part of the bay, but the water is deep and the bottom lumpy. Great caution must be exercised in entering in order to clear the dangers which extend 0.6 mile N from Foggy Point, and also to give sufficient clearance to the submerged rocks and reefs that extend 0.7 mile SE from the De Long Islands. As practically all the dangers are covered at high tide, it is recommended that this bay be entered at low tide when the reefs are visible. Water may be obtained from a pipeline at the head of the bight in the SE corner of the bay.

(153) Excellent anchorage for small craft can be had in the E head of Foggy Bay behind a large wooded island close to shore, about 1 mile SE of the entrance to Very Inlet. Use the N entrance as the S opening bares at half tide.

(154) **Very Inlet,** a narrow arm that extends NE, has its entrance on the E side of Foggy Bay 2.2 miles N of Foggy Point. About 1.5 miles inside the entrance, a branch extends in a SE direction. This branch is very narrow for about 1 mile and then expands into a basin that has considerable foul ground and a number of small islets. The ebb current flows over the rapids in the narrowest part of the branch for about 2 hours after low water. The passage has been made

by a small vessel drawing 8 feet, but it should only be attempted at high-water slack. In entering, pass E of the ledge just within the opening.

(155) At the head of Very Inlet is a small basin much used by fishing boats. A branch, which can only be entered safely at high-water slack, extends in a SE direction from the head of Very Inlet. The entrance is very narrow and, in the narrows, bares at low water.

(156) The entrance to Very Inlet is between a reef awash at high water and a low wooded island. It is usually discernible during the ebb by a strong current running out of the inlet. Favor the island shore in entering and keep in midchannel as far as the entrance to the first arm. Then pass midway between a large, wooded, round islet and a small, grass-covered one, W of it. Just before entering the narrows, favor the N shore slightly, then keep in midchannel. Tide rips have been experienced about 0.5 mile SW from the entrance to Very Inlet.

(157) **House Rock,** a small bare rock, is 0.3 mile 330° from Kirk Point.

(158) **Black Rock Light** (55°01.4'N., 131°03.6'W.), 55 feet above the water, is shown from a cylindrical house, on a pyramidal skeleton tower with a red and white diamond-shaped daymark on the highest part of the rock, which is surrounded by kelp.

(159) **Snail Rock,** grass-topped and 28 feet high, is about 0.6 mile NNE of Black Rock.

(160) Between Black and Snail Rocks are numerous rocks, submerged and awash, and the area should be avoided. A kelp patch having a least depth of 1½ fathoms is 0.5 mile 106° from Snail Rock.

(161) **White Reef** is an extensive white, shell-covered reef, mostly covered at high water, about 2 to 3 miles NNE of Black Rock in the entrance to Boca de Quadra. A rock, 5 feet high, is near the N end of the reef.

(162) **Kah Shakes Cove,** a bight about 2 miles SE of the entrance to Boca de Quadra, is a good anchorage for small craft. A submerged rock is 175 yards from the E shore E of the center of the cove. Care must be exercised in entering the bight leading to Kah Shakes Cove. Numerous islets and rocks are on the S side of the entrance. Local knowledge is essential for entering and anchoring in the cove. About 12 feet can be carried through the entrance channel between the rocky islets. The cove has excellent holding ground in sticky mud.

(163) **Bullhead (Bull Head) Cove,** about 0.5 mile N of Kah Shakes Cove, affords anchorage, but requires local knowledge to enter. There is good holding ground in sand and mud; mooring piles have been driven in the cove. In 1976, it was reported that the mooring piles were no longer visible. The inner part of the cove is almost all bare.

(164) Vessels too large to enter either Kah Shakes Cove or Bullhead Cove can find fair protection in the bight between the coves. The outer part of this bight is rough in heavy S weather; vessels should anchor as near the head as their drafts permit. The bottom is sandy.

(165) **Kah Shakes Point,** on the S side of the entrance to Boca de Quadra, is the termination of a low, broad, wooded peninsula that extends NE for about 1.5 miles, where the ground rises abruptly to the W point of a distinctive ridge running parallel to Boca de Quadra. The ridge has five distinct small peaks when viewed from the S along the coast; from other directions it shows from one to four tops. **South Quadra Mountain** is the highest point on the ridge.

(166) **Ray Anchorage,** a bight in the E side of Duke Island, affords shelter from S winds, but the bottom is hard and the anchorage is open NE. Anchor about midway between the rocky patch in the entrance to Morse Cove and the point about 0.6 mile E, with the rocks bearing 277° in 10 to 22 fathoms, rocky and hard sandy bottom. Deeper water is nearer the rocks.

(167) **Morse Cove,** entered at the SW end of Ray Anchorage, is a landlocked harbor with varying depths and mud bottom. The entrance is very narrow and has a rock that bares 10 feet in the narrowest part, on the SE side of midchannel. The channel on the NW side of the rock is about 75 feet wide. Small craft with local knowledge can enter, preferably at low water. The entrance channel from Ray Anchorage is on the SE side of the rocky patch in its entrance. Rocks awash are between the rocky patch and the W shore.

(168) **Reef Harbor** is the indentation between **Duck Islands,** the reefs on the E, and the shore of Duke Island, S of **Grave Point,** the N extremity of the island. It has depths of 24 to 26 fathoms, mud bottom, but the swinging room is scant for the scope of chain required by this depth. Small craft may secure some protection from S weather by anchoring as close as size permits in the lee of **Flag Point.** Very small craft may use the wide part of the passage between the two largest of the Duck Island group, but this anchorage is not secure in S weather.

(169) **Little Rock** and **Whale Rock** are the extremities of a chain of rocks about 1 mile long, 2 miles NE of Grave Point. **Bird Island,** about 1.5 miles WNW of Whale Rock, is about 20 feet high and bare.

(170) **Cat Island, Fripo Island,** and **Lane Island,** between Duke Island and Mary Island, are low and densely wooded. The islands are surrounded by ledges that extend from 100 to 200 yards offshore. Small craft sometimes anchor off the middle of the W side of Cat Island, but there is little shelter.

(171) **Danger Passage,** between Cat and Mary Islands, is about 350 yards wide between the 3-fathom curves and suitable only for small craft. It is reported that the shoals in the passage are marked by kelp in the summer and fall.

(172) **Mary Island Light** (55°05.9'N., 131°11.0'W.), 76 feet above the water, is shown from a white square tower on a white building on the NE side of **Mary Island.** The island is comparatively low and densely wooded near the shores.

(173) **Mary Island Anchorage** is a bight in the N end of Mary Island between **Point Winslow** and **Giant Point.** It is a contracted anchorage with fair shelter from SE and SW winds, but more room and better protection can be had in Custom House Cove. (See Felice Strait.) Ledges covered with kelp extend about 150 yards N of Point Winslow and Giant Point, and the entire S side of the anchorage is shoal for 150 yards beyond the projection of the shore. The approach is clear. Anchor in 12 to 15 fathoms, hard sandy bottom.

(174) **Twin Islands,** two in number and low and wooded, are 1.8 miles N of Mary Island. The NW and larger island is marked by a light on its NE side. Deep water is close-to in all directions, except for a submerged rock that is 250 yards N of the larger island.

(175) **Boca de Quadra** has its entrance on the E side of Revillagigedo Channel between Kah Shakes Point and **Quadra Point,** about 6 miles E of Mary Island Light. It extends NE to the flat that extends 0.8 mile from its head. (See chart 17427.) The sides are steep-to and densely wooded, and there are no outlying dangers.

(176) **Tides and currents.**–The mean range of tide in Boca de Quadra is 12.7 feet, and the diurnal range is 15 feet. Tidal currents have an estimated maximum velocity of about 1.5 knots at the entrance to Boca de Quadra, diminishing toward the head.

(177) The preferred entrance is between Slate Islands and White Reef, following midchannel courses, passing on either side of Kite Island, but preferably N of it.

(178) **Orca Point** is on the E side of the inlet about 6 miles from the entrance.

(179) **Weasel Cove** indents the N shore about 7 miles from Kah Shakes Point, and affords anchorage in 17 to 19 fathoms, mud bottom, about 0.5 mile above the E point at the entrance. The entrance and anchorage are clear, but vessels must keep clear of the flat that extends 700 yards from its head.

(180) **Badger Bay,** separated from Weasel Cove by a promontory, has 14 to 30 fathoms throughout its length, and there is a small flat at its head.

(181) **Kestrel Island,** a small rocky islet close to the E shore, is about 1.5 miles SE of Orca Point. **Kite Island,** low and wooded, is in the middle of the inlet about 2.5 miles SE of Orca Point.

(182) **Vixen Bay,** entered SW of Kite Island, affords anchorage at the head about 2 miles above the entrance. In entering, the main channel is W of **Gannet Island. Raven Island** is close to the E shore, 1.3 miles from Gannet Island. Rocks, visible and submerged at various stages of the tide, are S of and near Raven Island.

(183) The anchorage is between the rocks off Raven Island and Gosling Island, which is at the head of the bay. A ledge extends 175 yards NW from the N end of Gosling Island. Local knowledge is essential in anchoring near the head of the bay.

(184) Anchorage for deep-draft vessels can be found about 0.3 mile S to SW of Kite Island in 20 to 30 fathoms, hard bottom.

(185) **Chart 17427.–Mink Bay** (55°05.5 'N., 130°43.4'W.) enters the S side of Boca de Quadra about 2 miles E of Kite Island, and has depths of 16 to 60 fathoms to near its head. **Cygnet Island,** low and wooded, is on the W side of the entrance. The narrow passage on the W side of the island is frequently used by small craft. A submerged rock is near midpassage about 100 yards S of the island. **Grouse Rock,** which bares, is about 0.2 mile S from Cygnet Island; deeper water surrounds the rock. A mooring buoy is about 200 yards S of Cygnet Island. Anchorage may be found between Grouse Rock and Cygnet Island in 5¾ to 7 fathoms, off the old cannery site. It is reported that the ruins of the old cannery dock are no longer visible at the S end of the anchorage.

(186) **Humpback Creek** enters from E about 0.8 mile from the head of Mink Bay and carries a flat halfway across the channel. A privately maintained mooring buoy is close N of the flat on the E side of the bay. Above the flat is a secure anchorage, 0.3 mile wide, in 10 to 15 fathoms. A flat extends 700 yards from the head of the bay. Local knowledge is necessary to use this anchorage.

(187) **Hugh Smith Lake** empties through **Sockeye Creek** (chart 17420) into the inlet about 0.3 mile N of the entrance to Mink Bay. A cabin is on the N bank at the head of Sockeye Creek. A trail leads from the inlet along Sockeye Creek to Hugh Smith Lake.

(188) **Marten Arm,** entered about 1.5 miles N of the entrance to Mink Bay, has depths of 23 to 107 fathoms until near the flat that extends 0.7 mile from the head. The arm is clear but has no anchorage. Above **Bactrian Point,** the main NE arm of Boca de Quadra is too deep for anchorage.

(189) **Chart 17434.–Slate Islands,** on the NW side of the entrance to Boca de Quadra, are a group of four low, wooded islands with numerous intervening rocks. The three N islands are almost connected at low water. **Slate Islands Light** (55°05.3'N., 131°03.2'W.), 33 feet above the water, is shown from a spindle with a red triangular daymark on the S end of the southernmost island of the group.

(190) The coast from Slate Islands extends N for about 6 miles to Point Sykes. The shore is fringed by a number of islets and rocks. A cove, about 1.2 miles S of Point Sykes, offers some protection to small craft in moderate weather, but is not sufficiently sheltered for use in heavy weather. The best anchorage is in the lee of the point on the S side of the cove in 8 to 10 fathoms, rock and sand bottom.

(191) **Chart 17428.–Lucky Cove** (55°12.7 'N., 131°15.9'W.) is a small identation in the SW shore of Revillagigedo Island midway between Point Alava and Cone Island.

(192) **Hog Rocks,** the easternmost of a chain of islands, rocks, and reefs that extend SE about 4 miles from the shore of Annette Island, are two principal groups of rocks about 1 mile apart, showing about 6 feet at high water. **Hog Rocks Light** (55°10.7'N., 131°17.0'W.), 23 feet above the water, is shown from a truncated concrete pyramid with a red and white diamond-shaped daymark on the SE rock of the group. A ledge with 7½ feet near its end extends 0.3 mile SE from the light. Good water is between the two groups of rocks, and between the inner group and **Walker Island.** By avoiding the rocks shown on the chart, small craft can pass between Walker Island and **Lewis Island,** or between Lewis Island and Ham Island.

(193) **Ham Island,** 2 miles W of Hog Rocks Light 13, is low and densely wooded. A deep channel is along the entire NE side of the island at an average distance from shore of 225 yards.

(194) **Cascade Inlet** is a deep and narrow body of water between Ham and Annette Islands. A narrow, crooked boat passage connects the inlet at its head with Revillagigedo Channel; small craft can find fair anchorage in midchannel in the broadest part of this passage close to the W end of Ham Island.

(195) **Hassler Harbor,** a bight on the N side of Annette Island, S of Bold Island, affords excellent shelter with good holding ground for small craft in SE gales. A small grass-topped rock, 10 feet high, is 0.2 mile W of **Pow Island,** which is in the bight. An **explosives anchorage** is in Hassler Harbor. (See **110.232,** chapter 2, for limits and regulations.)

(196) **Bold Island,** about 5.5 miles NW of Hog Rocks Light 13, is in midchannel off the NE shore of Annette Island, between **Reef Point** and **Harbor Point.** It is wooded and has several knolls somewhat above the general level of the island. The S shore of Bold Island is steep-to and has no off-lying rocks. Shelter for small craft may be found in the cove on the NE side of the island. Small boats sometimes moor to the dolphin near the head of this cove.

(197) **Angle Point Light** (55°14.3'N., 131°25.6'W.), 24 feet above the water, is shown from a small house with a red and white diamond-shaped daymark on the SW side of Bold Island.

(198) The passage N of Bold Island is seldom used by large vessels. **Mastic Rock,** marked by a daybeacon, bares 2 feet and is near the E end of this passage.

(199) The passage N of Round Island is much used by local fishermen. Numerous shoals are in this area, and passage should not be attempted without local knowledge.

(200) **Round Island,** about 150 feet high and wooded, is about 0.5 mile NE of the E end of Bold Island, with two wooded islets between.

(201) **Thorne Arm** has its entrance E of Bold Island and W of Cone Island. Its general direction is NNE, curving gradually to N. The arm is free from outlying dangers. **Cone Island,** dome-shaped and wooded, is off **Cone Point. Washington Monument Rock,** 0.5 mile SW of Cone Island, is covered 2 fathoms and surrounded by much deeper water. A number of small wooded islands are off the W shore of Thorne Arm near the head. At the head of Thorne Arm in the cove E of **Mop Point** is a somewhat constricted anchorage in 18 to 20 fathoms, hard bottom. Anchorage can also be selected in the bight on the W side at the head between **Snipe Island** and Mop Point in 25 to 30 fathoms, soft bottom. Small craft may find shelter in the small cove NW of Snipe Island, between it and the adjoining small island. A midchannel course leads safely through the arm and to the anchorages. Private mooring buoys are 2.2 and 2.5 miles NE of Snipe Island.

(202) **Moth Bay** is a narrow indentation on the W side of Thorne Arm just inside the entrance. In the middle of the entrance to the bay is a small wooded islet and about 325 yards NW from its northernmost extremity is a smaller islet with a rock about 50 yards to the SSW. The preferred channel leads E of the islets. Vessels up to 100 feet long can anchor in 20 to 24 fathoms, rocky bottom, about 0.4 mile above the smaller islet. Swinging room is limited, and in SE weather vessels subject to yawing will find this anchorage uncomfortable. Small craft can find anchorage near the head of the bay in 12 fathoms, soft bottom.

(203) **Coho Cove,** about 1.2 miles W of Moth Bay and opposite the E end of Bold Island, affords fair anchorage for small craft, although the depths are great. The best channel for entering is on the E side of the islet in the entrance.

(204) **Spire Island** is small, wooded, and about 150 feet high; there is a small islet to the E close-to. **Spire Island Reef Light SI** (55°16.1 'N., 131°30.0'W.), 30 feet above the water, is shown from a square, truncated concrete pyramid with a green square daymark near the NE end of the reef that extends about 500 yards NE of Spire Island. The reef is covered 2 feet at its N end. A 1½-fathom rock is 0.3 mile WNW of the light. Foul ground, with a dangerous rock awash at its end, extends W about 500 yards from the W end of the island.

(205) **Carroll Inlet** has its entrance about 1.5 miles N of Spire Island Reef Light between **Mountain Point** and **Carroll Point.** The inlet extends N about 23 miles. **California Head** separates it from George Inlet.

(206) **Mountain Point Light** (55°17.6'N., 131°32.9'W.), 29 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the SW tangent of Mountain Point.

(207) **Mountain Point** is an unincorporated settlement on the point. A launching ramp is on the point about 500 yards E of the light. **Herring Cove** is an unincorporated settlement on the shores of **Herring Bay,** which indents the W shore of George Inlet about 2 miles N of Mountain Point. In the small cove 0.5 mile S of Herring Bay, locally known as **Hole-in-the-Wall,** the city of Ketchikan maintains 493 feet of small-craft floats and a boat launching ramp. In June 1976, depths up to 20 feet were reported alongside the floats. Local regulations limit the maximum size of vessels using the floats to 65 feet. Marine supplies are not available in the cove, however, gasoline, diesel fuel, provisions, and repairs can be obtained in Ketchikan.

(208) The cove does not afford adequate protection during severe weather, and boats should exercise caution when mooring overnight or for extended periods.

(209) **Cutter Rocks,** two in number, close together and uncovering 11 feet, are on the W side of the entrance to Carroll Inlet about 0.6 mile ESE from Mountain Point; they are marked by a light. A clear passage is between Cutter Rocks and Mountain Point.

(210) **California Cove,** on the W side of Carroll Inlet and immediately E of California Head, is a small open bight exposed to the S. The cove is deep except along the W shore. Two small wooded islets and a rock awash are close to the W shore.

(211) **Gnat Cove** is on the E side of Carroll Inlet about 6.5 miles above California Head and abreast **Hume Island.** A fair anchorage can be had off the entrance to the cove in 17 to 18 fathoms, soft bottom. Foul ground extends 250 yards from the outer of two points at the S side of the entrance to the cove. Small craft can find good moorage inside the cove by rafting up to the anchored log booms of a log storage area on the NE side of Gnat Cove. Care should be taken, however, to avoid the mudflats that extend from the S shore and the rock ledges that extend into the SW bight of the cove.

(212) In the main inlet between Gnat Cove and **Island Point,** a distance of 4 miles, there are depths of about 11 to 67 fathoms, and anchorage in suitable depth can be selected with the aid of a chart. At its head the inlet narrows to 0.2 mile, with depths of 27 to 34 fathoms, shoaling abruptly to the flat that extends about 0.7 mile from the head.

(213) A midchannel course carries safely to the flat at the head of the inlet, and also into Gnat Cove. The only places requiring more than usual caution are the shoal opposite Spit Point about 1.2 miles below Gnat Cove, and the area about 2.5 miles above Gnat Cove, abreast of **Shoal Cove,** where there is a wooded islet 95 feet high in the middle of the inlet, with a spur that extends 300 yards from its NE side, and a flat that extends 0.2 mile toward the islet from the mouth of a stream on the E side, E of the islet. The S and W sides of the islet have a clear channel.

(214) In 1976, a logging camp was operating in the small cove 1.7 miles N of Shoal Cove; rafting grounds extend from the S side of the cove. The logging camp maintains a float landing in the cove for small craft, tugs, and float planes. Water and gasoline are available in an emergency. Radiotelephone communications are available at the camp. A 40-foot Coast Guard pier is at the S end of the camp.

(215) **George Inlet,** joining Carroll Inlet from W at California Head, extends N about 12 miles and has deep water throughout. A former cannery and wharf are on the W side of George Inlet, about 3.5 miles above California Head. In 1976, the wharf was in adequate condition and the cannery buildings were being used for storage. The stub pilings of a former wharf remain close N of the present wharf; caution is advised in this area.

(216) **Mahoney Bight,** on the W shore of the inlet, 6 miles N of California Head, is good shelter for small craft except during SE weather. Its entrance is clear of dangers, with 10 fathoms leading into the inner bight, which has depths from 5 to 11 fathoms, hard bottom.

(217) Midchannel courses lead safely through George Inlet passing W of Coon Island and Bull Island, two wooded islands off the E shore of the inlet about 8.2 and 9.7 miles, respectively, above California Head. **Coon Island** is identified by a large white quartz outcrop showing on its S shoreline. A privately maintained mooring buoy is on the W side of George Inlet about 1 mile NW of Coon Island. The small cove close N of the mooring buoy is foul.

(218) **Coon Cove,** in the E shore of the inlet opposite the S end of Coon Island, offers good anchorage in 13 fathoms, mud bottom, S of the small tree-covered islet off the N shore, and is the best shelter in the inlet in SE weather. It is entered on a midchannel course S of Coon Island.

(219) The upper part of Coon Cove is a tidal flat. The S extremity of the flat is marked by prominent pilings. Small craft may find more convenient anchorage in 7 to 9 fathoms, soft bottom, just S of the pilings.

(220) **Leask Cove,** on the W shore near the head of the inlet, affords fair anchorage in depths of 10 to 15 fathoms, sand and gravel bottom, off the N shore of the cove. A prominent offshore rock, bare at all stages of the tide, is on the E side of the entrance. A shoal with a least depth of 2 fathoms is 400 yards NE of the W side of the entrance.

(221) **Bat Cove,** just E of Leask Cove, affords excellent shelter for small craft, with anchorage at the head in 10 to 11 fathoms, mud bottom. The prominent offshore rock mentioned in the Leask Cove reference marks the W side of the entrance to Bat Cove. Hold close to the rock when entering the cove to avoid a rock ledge, bare at low water, that extends one-third of the way across the entrance from **Bat Point** on the E side.

(222) **Tsa Cove,** on the E shore of the inlet NE of Bull Island, is difficult to enter but affords good shelter and anchorage in 10 to 14 fathoms, mud and shell bottom. Small boats with local knowledge enter between Bull Island on the SW and Granite Island on the NE, holding close to the Granite Island shoreline to avoid shoals that extend from the numerous rock islets off the NE end of Bull Island.

(223) Small boats with local knowledge pass into **Salt Lagoon** (chart 17420) at the head of the inlet, but only at or near high water slack. The entrance is very narrow, with dangerous rapids at most stages of the tide.

(224) **Chart 17428.–Tongass Narrows,** a continuation of Revillagigedo Channel, extends NW to Guard Islands in Clarence Strait. The principal dangers are marked by buoys or lights, so that no difficulty should be experienced in passing through in clear weather.

(225) The narrows is divided at its lower end by Pennock Island; the channel NE of the island is called **East Channel** locally, and the channel SW of the island, **West Channel.** Both channels are good for vessels of any draft. Large vessels approaching Ketchikan from S usually pass through West Channel, since this gives them more turning room in making a port landing at the wharves. A lighted buoy marks the edge of a shoal making out from the SW side of West Channel. An isolated 9½-fathom pinnacle rock is about 0.5 mile SSE from the southernmost extremity of Pennock Island.

(226) (See **162.240,** chapter 2, for regulations governing navigation in Tongass Narrows.)

(227) **Chart 17430.–Potter Rock,** about 0.7 mile ESE of the E end of Pennock Island, is small, has 2½ fathoms over it, and is marked by a lighted bell buoy on its S side. A 7¼-fathom shoal is about 0.2 mile SSE from the rock.

(228) **Pennock Island,** which divides Tongass Narrows at its lower end, is generally wooded. Several rock patches are 250 to 400 yards from shore around the SE end of the island. Other than the dangers previously mentioned, the S shore of the island is steep-to, and the channel is clear if the island side is favored in the narrowest part of the channel. A lighted buoy is about 400 yards S of the southernmost extremity of the island.

(229) **Tongass Narrows West Channel Light 4** (55°19.1′N., 131°38.6′W.), 18 feet above the water, is shown from a skeleton tower with a red triangular daymark on the W side of Pennock Island.

(230) **Radenbough Cove,** on the NE side of and about 0.5 mile S of the N end of Pennock Island, is S and directly across the channel from Thomas Basin. Grids for vessels up to 30 feet long are available in the cove.

(231) **Whisky Cove,** on the E side of Pennock Island about 0.45 mile S of Radenbough Cove, is SW and directly across the channel from the Coast Guard Base.

(232) **Pennock Reef,** 0.25 mile W of the N extremity of Pennock Island, is small and bares at low water; a lighted buoy marks the NW end of the reef. A shoal covered 2 fathoms is about 300 yards SE of the reef.

(233) Foul ground extends about 200 yards N and about 400 yards NW, respectively, of the N and NW extremities of Pennock Island.

(234) **California Rock** is about in midchannel in the passage NE of Pennock Island and 0.5 mile NW from its SE end. The rock is small in extent, has 1½ fathoms over it, and is marked by a lighted buoy. A channel is on either side of the rock, but large vessels usually pass on the N side between it and Idaho Rock.

(235) **Idaho Rock,** covered 2 fathoms and marked by a lighted buoy, is 250 yards NNE of California Rock near the N side of the passage.

(236) **Saxman** is a small settlement in the bight indenting the SW shore of Revillagigedo Island N of Idaho Rock and about 2 miles SE of Ketchikan. The center of the settlement has a prominent group of totem poles.

(237) A privately dredged basin protected on the S side by a breakwater is about 0.3 mile SE of Saxman; a row of breasting dolphins is on the N side of the basin. A private light marks the W end of the breakwater. In June 1976, the basin had a reported depth of 10 feet. The basin is the site of a privately operated barge and rail terminal. A loading ramp with an adjustable bridge at the head of the basin is used for handling containers to and from barges; two 25-ton forklifts are available. The terminal has four acres of open storage and 32,000 square feet of covered storage, and is accessible from Ketchikan by highway.

(238) The bight fronting Saxman N of Idaho Rock is used as a log raft storage area. Unlighted log rafts are frequently found close to shore in this area; caution is advised.

(239) **Ketchikan** (55°20.5′N., 131°38.7′W.), on the SW side of Revillagigedo Island and on the E side of Tongass Narrows, is one of the most important cities in Alaska. It is 659 miles from Seattle via the Inside Passage; 79 miles from the sea at Dixon Entrance via Nichols Passage; 89 miles from Wrangell, and 220 miles from Juneau.

(240) Ketchikan has oil terminals, a sawmill, a cannery, and cold storage plants, and is the distributing point and center of the commercial, logging, and fishing industries of this part of southeastern Alaska.

(241) The deepest draft of commercial vessels calling at Ketchikan was 34 feet in 1976. Commodities handled at the port include petroleum and petroleum products, fish and fish products, logs and lumber products, wood pulp, chemicals, provisions, and general cargo.

(242) **Prominent features.**–The buildings of **Ketchikan Coast Guard Base** at the S end of the waterfront, the 410-foot tower, NW of Bar Point, the arched roof of the marine railways, ESE of Bar Point, the aerobeacon and gray-green gravel slopes of the airport, WNW of Bar Point, and a high yellow hotel and green condominium, close N and NE of Bar Point, respectively, are prominent.

(243) **Channels.**–A Federal project provides for two small-craft basins at Ketchikan: Thomas Basin at Ketchikan Creek, with a project depth of 10 feet, and Bar Point Basin off Bar Point, with a project depth of 15 feet in the NW section and 10 feet in the SE section.

(244) **Thomas Basin,** the small-craft harbor off Ketchikan Creek, is protected on its W side by a log boom, and on the

S side by a stone breakwater. The harbor is entered from the S through a 75-foot opening between the W log boom and the breakwater on the S; two lights mark the entrance. In January 1987, the basin had a controlling depth of 10 feet except for shoaling to 5½ feet at the mouth of Ketchikan Creek between Floats 1 and 1A. The city-operated floats in the basin have water and metered electricity; 80-foot and 65-foot grids are available. Fuel can be obtained at the facilities just N of the Coast Guard base. The U.S. Fish and Wildlife Service maintains a float for its own use on the N side of the basin behind the Federal Building.

(245) The basin is controlled by a **harbormaster,** who maintains an office in the City Building. Local regulations limit the maximum size of vessels using the basin to 80 feet in length and 9 feet in draft. A 3-knot and "no wake" **speed limit** is enforced in the basin.

(246) **Bar Point Basin,** locally called **Bar Harbor,** is a small-craft harbor off Bar Point about 1.35 miles NW of Thomas Basin. The harbor is protected on its W side by a detached floating breakwater, on its S side by a detached floating breakwater and a detached stone breakwater, and on its SE side by another stone breakwater. The harbor has three entrances which are marked by lights and daybeacons. The SE entrance is between the stone breakwater and the detached stone breakwater. The SW entrance is between the two detached floating breakwaters, and the NW entrance is N of the northernmost detached floating breakwater. In January 1987, the basin had controlling depths of 9 ½ feet in the E half and 14 feet in the W half with lesser depths along the N side. The city-operated floats in the basin have water and metered electricity. Fuel can be obtained at the oil facilities just N of the Coast Guard base. A surfaced launching ramp and float are at the N end of the basin.

(247) The basin is under the control of a **harbormaster,** who maintains an office at the NE corner of the basin. Local regulations limit the maximum size of vessels using the basin to a length of 80 feet. A 3-knot and "no wake" **speed limit** is enforced in the basin.

(248) **Anchorage** off Ketchikan is limited by the cable and pipeline areas that extends NW through Tongass Narrows. Scan the chart carefully for limits of cable and pipeline areas before attempting to anchor. The anchorage is secure for all but the heaviest winter gales; the confined channel admits no sea, and the tidal currents do not exceed 1.5 to 2 knots.

(249) (See **162.240,** chapter 2, for regulations governing navigation in Tongass Narrows.)

(250) The harbor area along the Ketchikan waterfront between Thomas Basin and Bar Point is a **safety zone.** (See **165.1 through 165.7, 165.20 through 165.23, and 165.1705,** chapter 2, for limits and regulations.

(251) **Tides and currents.**–At Ketchikan the mean range of tide is 13 feet, and the diurnal range 15.4 feet. There is usually a direct current or eddy setting W along the face of the wharves. (See the Tide and Tidal Current Tables for daily predictions at Ketchikan.) For this reason all large vessels make a port landing, those from the S frequently using West Channel, which is marked by a light and buoys, and making the necessary turn around the W end of Pennock Island.

(252) **Weather.**–This port has about 244 cloudy days a year, and rain falls on the average of about 236 days annually. October is the wettest month; it holds the 24-hour rainfall record of more than 7 inches. The marine nature of the climate is evident by the fact that the minimum temperature falls below freezing on about 76 days a year. Moscow, at approximately the same latitude, records minimum temperatures below freezing on about 170 days annually. Winds are prevalent from the SE, and gales are infrequent in this sheltered port. Calm conditions are frequent. (See page T-2 for **Ketchikan climatological table.**)

(253) **Pilotage,** except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska. (See Pilotage, chapter 3, for details.)

(254) Vessels en route Ketchikan via Clarence Strait, from the S, meet the pilot boat about 1 mile NW of Guard Islands Light (55°26.8′N., 131°52.9′W.); via Clarence Strait from the N, about 1 mile E of Point McCartey Light (55°06.8′N., 131°42.4′W.).

(255) The pilot boat, a tugboat, can be contacted by calling "KETCHIKAN PILOT BOAT" on VHF-FM channels 16, 13, or 12.

(256) **Towage.**–Tugs up to 1,800 hp operating out of Ketchikan and engaged principally in the towing of barges and log rafts are available for assistance in docking and undocking. They are equipped with VHF-FM channels 16, 13, and 12. Arrangements for tugs should be made well in advance through ships' agents.

(257) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(258) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) Contract hospital space is available in a private hospital in an emergency.

(259) Ketchikan is a **customs port of entry.**

(260) **Coast Guard.**–Captain of the port and marine inspection functions at Ketchikan are handled by the Coast Guard Marine Safety Detachment at the **Ketchikan Coast Guard Base** at the SE end of the waterfront. (See appendix for addresses.)

(261) **Harbor Regulations.**–Local regulations require that vessels limit their speed to 5 knots when passing the waterfront area. Harbor regulations are enforced by the **harbormaster,** who maintains an office in the City Building and Bar Point Basin. A copy of the regulations pertaining to speed and other matters may be obtained from either office. The harbormaster can be contacted on VHF-FM channel 16 and by telephone (907-225-3111 or 907-225-6631).

(262) **Wharves.**–The Port of Ketchikan has about 3 miles of developed waterfront on the E side of Tongass Narrows. All the wharves are privately owned. The alongside depths for the facilities described are reported; for information on the latest depths contact the operator. For a complete description of the port facilities refer to Port Series No. 38, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

(263) Chevron U.S.A. Ketchikan Wharf (55°20′01″N., 131°37′33″W.): 75 yards NW of Ketchikan Coast Guard Base; 283-foot face; depth alongside, 40 feet; deck height, 22 feet; marked at each end by a private light; receipt of petroleum products; pipelines to storage tanks; 6 metered hoses for fueling small craft; owned and operated by Chevron U.S.A., Inc.

(264) Chevron U.S.A. fuel float: adjacent to the SE of main wharf; 160-foot face; depth alongside, 40 feet; 21 metered hoses for fueling small craft; owned and operated by Chevron U.S.A., Inc.

(265) Union Oil Co. Wharf: 100 yards NW of Standard Oil Co. Wharf; 115-foot face; depth alongside, 65 feet; deck height, 22½ feet; receipt of petroleum products; pipelines to storage tanks; 2 metered fuel hoses for fueling small craft; owned and operated by Union Oil Company of California.

(266) Union Oil Co. fuel floats: adjacent to the NW of main wharf; two floats each having an 86-foot face; depths along the inner sides are 15 feet, and along the outer sides, 50 feet;

each float has eight metered hoses for fueling small craft; owned and operated by Union Oil Company of California.

(267) Ocean Beauty Alaska Wharf (55°20'11"N., 131°37'50"W.): 650 yards NW of Coast Guard Base; 462-foot face, E side 80 feet long, W side 124 feet long; depth alongside, 26-30 feet; deck height, 22 feet; total berthing space, 422 feet; receipt of seafood, and icing fishing vessels; owned and operated by Ocean Beauty Alaska, Inc.

(268) Mobil Oil Corp. Wharf (55°20'13"N., 131°37'57"W.): 700 yards NW of Coast Guard Base; 50-foot face with 110-foot barge moored along face; depth alongside, 30 feet; deck height, 22 feet; pipelines to storage tanks; 12 metered hoses on barge for fueling small craft; owned and operated by Mobile Oil Corp.

(269) Totem Packing Co. Wharf (55°20'17"N., 131°38'06"W.): 200 yards SE of Thomas Basin; 170-foot face; depth alongside, 30 feet; deck height, 22 feet; receipt of salmon; owned and operated by Totem Packing Co., Inc.

(270) Ketchikan Spruce Mill, Wood Chip Loading Dock (55°20'24"N., 131°38'32"W.): W side of Thomas Basin; 200-foot face; depths alongside, 8 feet; deck height, 23 feet; shipment of wood chips and sawdust by barge; owned and operated by Louisiana-Pacific Corp., Ketchikan Division.

(271) Ketchikan Spruce Mill Wharf (55°20'25"N., 131°38'38"W.): 250 yards NW of Thomas Basin; 470-foot face; depth alongside, 24 to 44 feet; deck height, 23 feet; 9 forklifts and a 5-ton mobile crane are available; storage and shipment of lumber; owned and operated by Louisiana-Pacific Corp, Ketchikan Division.

(272) Port of Ketchikan, City Dock No. 1: 150 yards NW of Ketchikan Spruce Mill Wharf; 460-foot face; depths alongside, 35 to 40 feet; deck height, 21½ feet; general cargo, ferries, and cruise vessels; owned and operated by the city of Ketchikan.

(273) Port of Ketchikan, City Dock No. 2: 100 yards NW of the city dock No. 1; 540-foot face; depths alongside 40 to 60 feet; deck height, 21½ feet; owned and operated by the city of Ketchikan.

(274) Five Star Seafoods Floats (55°20'39"N., 131°39'07"W.): 0.5 mile NW of Thomas Basin; 400 feet of anchored floats; depth alongside, 30 feet; loading of supplies to vessels; owned and operated by Five Star Seafoods Co.

(275) Talbot's Building Supply Wharf (55°20'43"N., 131°39'23"W.): 0.7 mile NW of Thomas Basin; 356-foot face; depth alongside, 35 feet; deck height, 24 feet, receipt and shipment of building supplies and general cargo; owned and operated by Talbot's Inc.

(276) E. C. Phillips & Son Pier (55°20'52"N., 131°39'56"W.): 500 yards E of Bar Point; 232-foot face; 272 feet E and W side; depths alongside, 30 feet; deck height, 24 feet; receipt of fish, W side also used to ice fishing vessels; owned and operated by E. C. Philips and Son, Inc.

(277) Boyer Alaska Barge Line Terminal Fuel Dock and Barge Ramp (55°21'15"N., 131°41'18"W.): 500 yards SE of Sunny Point; four dolphins and a transfer bridge; it dries at low water; receipt and shipment of general cargo and logging supplies; receipt of petroleum products; owned and operated by Boyer Alaska Barge Line, Inc.

(278) Ketchikan Ferry Terminal Dock (55°21'15"N., 131°41'34"W.): 275 yards SE of Sunny Point; 140-foot face; 35-ton transfer bridge; depth alongside, 35 feet; passengers and vehicles; owned and operated by the State of Alaska.

(279) Ketchikan Airport and Metlakatla Terminal Slip (55°21'17"N., 131°41'28"W.): 120 yards E of the main ferry pier; five dolphins and a 35-ton transfer bridge; depth alongside, 18 feet; passengers and vehicles; owned by the State of Alaska and operated by the Alaska Division of Marine Transportation and the city of Ketchikan.

(280) Sunny Point Cannery Wharf (55°21'18"N., 131°41'47"W.): at Sunny Point; 195-foot face; depth alongside, 30 feet; deck height, 29 feet; NW corner marked by a light; storage of fishing supplies; owned and operated by New England Fish company.

(281) Ketchikan Transportation Company Pier (55°21'32"N., 131°41'54"W.): 450 yards NW of Sunny Point; 70-foot face; depth alongside, 10 feet; 4,000 square feet of covered storage; forklifts with a capacity up to 4 tons; receipt and shipment of general cargo; operated by Ketchikan Transportation Company.

(282) **Supplies.**–Provisions, and marine and fishing supplies are available in Ketchikan. The three oil company terminals near the SE end of the waterfront have fueling floats for small craft in addition to wharf space for fueling larger vessels. Gasoline, diesel fuel, diesel oil, distillates, and lubricating oil and greases can be obtained at these terminals. Only diesel oil is available in Ketchikan for large vessels. Most of the wharves can provide water; ice for fishing vessels can be obtained at the cold storage company wharves.

(283) **Repairs.**–There are no drydocking or major repair facilities for large vessels in Ketchikan or in southeastern Alaska. The nearest facilities are in British Columbia and the State of Washington. A boatyard about 300 yards E of Bar Point has two marine railways. The larger of the two railways can handle craft up to 110 feet in length, 26 feet in width, and 12 feet in draft. Several machine shops and repair firms along the waterfront can provide hull, engine, electrical, and electronic repairs. The largest shaft that can be produced by local machine shops is 30 inches by 16 feet. Divers for underwater repairs and salvage work are available in Ketchikan. Engine spare parts are stocked by several of the local repair firms. Spare parts not available locally can be ordered by air freight.

(284) **Small-craft facilities.**–The city of Ketchikan maintains several small-craft facilities in addition to Thomas Basin and Bar Point Basin, which were previously described in this chapter.

(285) Ryus Float: 525 yards NW of the entrance to Thomas Basin and immediately N of Ketchikan City Dock No. 1; 125 feet of berthing space; 60 feet alongside; limited to craft up to 80 feet long; 4-hour limit alongside for loading and unloading, and no vessels are permitted to tie-up when a cruise vessel is docked at Ketchikan City Dock No. 1.

(286) City Float: 875 yards NW of the entrance to Thomas Basin; consists of a main NE-SW pier with two spur floats that extend NW from it; 1,680 feet of berthing space with depths of 20 to 60 feet alongside; limited to craft up to 80 feet long or as otherwise posted; water and metered electricity available.

(287) Small-craft grids are available in Thomas Basin and Bar Harbor; city-operated boat launching ramps are at the N end of Bar Point Basin, 12.7 miles N of the town at Knudson Cove, 5 miles SE of the town at Mountain Point, and 6.9 miles E of the town at Hole-in-the Wall.

(288) **Communications.**–Ketchikan has regular passenger, express, and freight service to Puget Sound ports, British Columbia, and other Alaska ports and towns by water and air. The Alaska State Ferry System has daily ferry service during the summer to Prince Rupert, B.C., Sitka, Wrangell, Petersburg, Juneau, Haines, and Skagway, and weekly service to Seattle. This schedule is less frequent during the winter. In addition to the scheduled airlines, other air services operate from Ketchikan on a charter basis.

(289) A highway parallels the Revillagigedo shore of Tongass Narrows. It extends from Herring Bay to Settler's Cove, about 3.3 miles NE of Knudson Cove, in Clover Passage.

(290) Telephone and radiotelephone communications are available with the other States and parts of Alaska.

(291) **East Clump** is a wooded point on the S shore of Tongass Narrows opposite Bar Point. **East Clump Light 7** (55°20.7'N., 131°41.2'W.), 15 feet above the water, is shown from a square frame structure with a square green daymark on the E extremity of the islet.

(292) **Sunny Point,** on the N shore of the narrows about 0.7 mile NNW of East Clump Light 7, is the site of an abandoned cannery and wharf. The facilities at Sunny Point were described earlier in this chapter under "Wharves" for Ketchikan. The cannery wharf, marked at the end by a light, extends across the flats to deep water; the center of the channel in Tongass Narrows is only about 125 yards off. It is reported that tidal currents form an eddy off **Charcoal Point,** 200 yards NNW of Sunny Point, tending to set vessels off the wharf; caution must be exercised in coming alongside as the strength of current is also unequal along the wharf and may cause a vessel to swing at bow or stern. Vessels have struck the wharf several times.

(293) Ketchikan International Airport is on the S side of the narrows opposite Charcoal Point. A hexagon-shaped seaplane float is moored about 140 yards N of the terminal building.

(294) **Chart 17428.**–From East Clump NW for a distance of 2.5 miles to Lewis Reef, shoals extend 50 to 200 yards from the S shore of Tongass Narrows, but the channel is well marked by buoys.

(295) **Lewis Reef** extends from the S shore at **Lewis Point** about one-third the distance across Tongass Narrows and is bare at half tide. **Lewis Reef Light 11** (55°22.5'N., 131°44.2'W.), 15 feet above the water, is shown from a concrete pyramid with a square green daymark on the SE edge of the reef.

(296) **Peninsula Point,** about 0.4 mile N of Lewis Reef Light 11, is the outer end of a neck of land built out from the N shore. The point is hard-topped and serves as a seaplane launching ramp. A reef, marked at the N end by a buoy, extends about 200 yards NNW from the point; a ½-fathom depth is about 350 yards SE of the point.

(297) **Measured nautical mile.–A 135°–315° measured nautical mile,** about 0.8 mile NW of Lewis Reef Light 11, is along the Gravina Island shore opposite Ward Cove. In 1976, the SE marker was in poor condition.

(298) **Ward Cove,** entered about 0.7 mile N of Peninsula Point, is on the N side of Tongass Narrows about 5 miles NW of Ketchikan. The cove is about 0.3 mile wide at the entrance, wider inside, and has steep shores. Smoke from the pulpmill on the N side of the cove is prominent from the entrance; at times it extends from Peninsula Point to Rosa Reef. **Bolles Ledge,** near the head and about 250 yards off the E shore, is covered by a least depth of 1½ fathoms. A long log boom extends from the NE end of the pulpmill to the ledge. **East Island** is a wooded islet off the NW side of the entrance. At times, the N side of the entrance and the entire cove may become constricted by logs that are normally stored along both sides of the cove. Floating logs and deadheads also may be encountered in the cove and off the entrance; caution is advised. A midchannel course leads safely into the cove, and there are no known dangers other than those mentioned.

(299) **Note:** In August-September 1983, hydrographic surveys revealed general shoaling throughout Ward Cove with depths 1 to 3 fathoms less than charted.

(300) Anchorage may be had in 15 to 20 fathoms 0.1 mile NE of East Island. Small craft often tie up to the anchored log booms in the cove.

(301) A cannery is on the SE shore 0.7 mile from the head of the cove. The wharf has a 150-foot face with a depth of 40 feet alongside; deck height is 25 feet. Water and electricity for fishing vessels may be obtained. The cannery is owned and operated by Ward Cove Packing Co. Fuel and marine supplies are available in Ketchikan.

(302) The Ketchikan Pulp Company Wharf, on the NW side of the cove, has an 800-foot face, with depths of 20 to 40 feet alongside. The NE end of the wharf had shoaled to less than 6 feet in 1983; vessels should not moor at the NE one-third of the wharf. Deck height is 24 feet. One 35-ton gantry crane, one 30- and two 40-ton mobile cranes and six 5-ton lift trucks are available. The wharf is used for receipt of wood chips, caustic soda, and fuel oil for plant consumption, and shipment of wood pulp and general cargo. The company is owned and operated by Louisiana-Pacific Corp., Ketchikan Division.

(303) The Ketchikan Pulp Company Cant Barge Ramp, on the NE side of the cove and 800 feet E of the NE end of the pulp company wharf, has a 240-foot face and four steel pile dolphins and a conveyor belt ramp with a usable berthing length of 390 feet. The wharf has a 20-foot depth alongside. The company is owned and operated by Louisiana-Pacific Corp., Ketchikan Division. Barges are loaded by carts.

(304) A car float, used to load and unload railroad cars from barges is immediately SW of the pulp company wharf. The float has a 100-foot face with 300 feet total berthing space; depth alongside, 20 feet. The float and wharf are connected by three sets of railroad tracks. Waterborne commerce with Prince Rupert is carried on.

(305) **Ward Cove** is an unincorporated settlement on the highway near the NW corner of Ward Cove.

(306) W of Ward Cove and near the N side of Tongass Narrows is a group of small islands, partially wooded, and rocks awash which are mostly surrounded by ledges. These small islands protect **Refuge Cove** from any swells that might be running in Tongass Narrows. The S side of the cove is clear. **Refuge Cove,** an unincorporated settlement, is at the head of the cove. A marina in the cove has floats with a total berthing capacity of 3,500 feet in length, and a reported depth of 40 feet alongside. The entrance to the cove is marked by a light and daybeacons. Water, electricity, gasoline, some marine supplies, storage, and a launching ramp are available. A 9-ton forklift that can handle craft up to 30 feet is available. Some hull and engine repairs can be made. Several private small-craft floats are at the head of the cove; depths of 10 feet are reported alongside. Water is available on the floats.

(307) **Channel Island,** about midchannel in Tongass Narrows and W of the entrance to Ward Cove, is wooded, and has a good passage on either side, but that on the S side is generally used. A ledge extends 75 yards NE from the island. **Channel Island Light 14** (55°23.7 'N., 131°45.9'W.), 24 feet above the water, is shown from a skeleton tower on a concrete base with a triangular red daymark at the W end of the island.

(308) **Ohio Rock,** with 3½ fathoms over it and marked by a lighted buoy, is 0.3 mile NW of Channel Island.

(309) **Mud Bay,** on the N side of the narrows about 1.5 miles NW of Ward Cove, is shallow, with bare flats that extend 100 yards or more offshore. A boatyard is on the N side of the bay at the entrance. Marine railways for craft up to 600 tons and 160 feet long are available at the yard, and some maintenance and repair work are done. The arched roof of the boat shed is prominent from the narrows.

(310) Several totem poles and a replica of an old Indian meetinghouse are on the E point of **Totem Bight,** the first bight NW of Mud Bay.

(311) **Rosa Reef** makes off about 0.2 mile from Rock Point on the S shore 1.8 miles NW of Channel Island, and is covered at highest tides. **Rosa Reef Light 15** (55°24.8'N., 131°48.2'W.), 24 feet above the water is shown from a caisson with a square green daymark at the E end of the reef. The bight S of Rosa Reef forms an indifferent anchorage, but is seldom used. The W part of the bight is shoal for over 0.2 mile offshore.

(312) **Pond Reef** is about 0.2 mile from the N shore near the W end of Tongass Narrows. It is bare at half tide and usually surrounded by kelp during the summer, and is marked by a light on the SW side.

(313) **Vallenar Point,** the NW extremity of Gravina Island, is low and wooded, and rises in a long easy slope to the high land of the island. A rocky patch, marked by a buoy, is 700 yards NE of the point. Close NW of the point are two wooded islets, and W of them are rocks awash at highest tides; there is no safe passage inside these rocks. The northernmost rock, **Vallenar Rock,** marked by a light, has deep water close to NW. Small boats with local knowledge often use the passage between Vallenar Point and the small islands close-to. It has a least found depth of 1 fathom in the middle of the passage. It is necessary to pass between the two shoals NE of Vallenar Point, which can usually be identified by being awash or by the surrounding kelp.

(314) **Guard Islands,** two in number, wooded, and close together, about 1.5 miles NW of Vallenar Point, guard the W entrance to Tongass Narrows. **Guard Islands Light** (55°26.8'N., 131°52.9'W.), 74 feet above the water, is shown from a 30-foot white square tower on a rectangular building on the N island of the group. A radiobeacon is at the light, and special radio direction finder calibration service is provided on request. (See Light List for details.)

(315) About 0.3 mile SE of Guard Islands is a large kelp patch marking a reef covered 4 feet. Passage can be made on either side of the reef, but **Inside Passage,** between the reef and Vallenar Rock and 0.6 mile wide, is preferred. An 8¾-fathom patch is near the middle of Inside Passage about 0.7 mile SE from Guard Islands Light.

(316) **Point Higgins,** low and wooded, is on the N shore opposite Vallenar Point. The radio towers of the Coast Guard radio station on the hills back of Point Higgins are useful landmarks, but they are not very prominent.

(317) **Charts 17434, 17424, 17422, 17420, 17423.–Behm Canal** borders the E, N, and W sides of Revillagigedo Island; its E entrance, between **Point Sykes** and **Point Alava,** is about 5.7 miles NNE of Mary Island Light. The W entrance of the canal between Point Higgins and Caamano Point is about 2 miles N of Guard Islands Light; the distance from the E entrance to the W entrance through Revillagigedo Channel and Tongass Narrows is about 30 miles; the length of the canal from entrance to entrance is about 100 miles. The main channel of the canal is exceptionally free from dangers, with no submerged rocks or ledges that cannot be easily avoided by a stranger in clear weather. It was reported that in the winter there are strong N blows and that small boats often ice up in Behm Canal.

(318) Naval **restricted** areas are in Behm Canal along the W side of Revillagigedo Island. (See **334.1275,** chapter 2, for limits and regulations.)

(319) **Currents.**–The flood current enters Behm Canal at each end and meets somewhere in the vicinity of Burroughs Bay. In general the currents are not very strong, ordinarily from 1 to 1.4 knots. Tide rips generally occur on the ebb at the mouths of the various tributaries. During the ebb a strong W set is noticed in Behm Canal at the entrance to Naha Bay. (See the Tidal Current Tables for daily predictions in Behm Canal.) In the early summer, milky colored water extends from Burroughs Bay to the W end of Gedney Island and up into Yes Bay. This is the result of the glacial silt carried down by the rivers emptying into Burroughs Bay.

(320) The cove E of **Roe Point,** on the E shore, is a fair anchorage for small craft in 5 to 10 fathoms, soft bottom.

(321) **Chart 17434.–Alava Bay,** on the W shore of Behm Canal, about 2.8 miles NE of **Point Alava** (55°11.6'N., 131°11.1'W.), is partly open to S weather. Depths in the main part of the W bight are 16 to 28 fathoms, but fair shelter for small vessels can be found close inshore in 6 to 10 fathoms, soft bottom. Some swell but very little wind comes into the head of this arm. A privately maintained mooring buoy is in the W bight. The entrance to the W bight is constricted by a 1½-fathom shoal in midchannel. The shoal is marked by thick kelp in the summer. The E bight is clear, but too deep to afford anchorage.

(322) **Narrow Pass** is W of **Rudyerd Island,** on the W side of Behm Canal 8 miles above Point Alava. The NE and SW shores of Rudyerd Island are very foul and should be given a wide berth. Small craft can find some shelter from SE blows in the two narrow bights at the N end of the island. Such craft have tied to the steep W shore of the W bight. The head of the W bight is shallow and rocky; in 1957 an anchored 50-foot cruiser grounded on a falling tide 100 yards from the S shore.

(323) **Chart 17424.–Smeaton Bay** enters Behm Canal from E 10 miles above Point Sykes (chart 17434) and E of the S end of Smeaton Island. On the S side of the entrance to the bay, between **Carp Island** and **Short Point,** a vessel can lie in summer in 19 fathoms, hard bottom, protected from the summer winds. Small vessels may find shelter close to Short Point in 5 to 10 fathoms. Numerous shoals and rocks are close to Carp Island; foul ground extends about 0.3 mile from the NW side of the island. Another deep-draft anchorage may be found on the S side of the bay near the entrance to a small inlet 0.6 mile E of Short Point in 20 to 30 fathoms, hard bottom.

(324) Seven miles from the entrance, the bay divides into **Wilson Arm** and **Bakewell Arm** . A mining camp is on the S shore of Wilson Arm about 3.5 miles from the entrance. A floating pier is at the camp, and a private mooring buoy is NE of the camp.

(325) **Princess Bay,** to the W of Smeaton Island, is open and exposed to the S. Deep water extends close to the shores, and depths in the bay are too great for anchorage. **Short Pass,** between the N end of Smeaton Island and **Wasp Point,** has a depth of 11 fathoms.

(326) A private mooring buoy is about 0.8 mile NNW of Wasp Point. Small craft can find anchorage in the small bight in the W shore about 1 mile N of **Sharp Point** (55°20.7'N., 131°01.4'W.) in 15 to 20 fathoms, hard bottom. This anchorage affords good protection from S and SE winds. Anchorage for small craft can be had in the bight to W of Sharp Point, depths ranging from 5 to 20 fathoms, hard bottom. In entering favor the W shore. Very small craft can find a land-locked anchorage in the bight on the W shore, about 1.5 miles SW of Sharp Point in 2 fathoms, soft bottom. This bight and the entrance are foul. Enter only on a rising tide with local knowledge, and use extreme caution.

(327) **Wasp Cove** is on the W shore of Behm Canal, about 3 miles N of Smeaton Island. It affords anchorage for small craft in 5 to 7 fathoms, soft bottom, free from obstructions.

(328) **Shoalwater Pass** is a narrow body of water that separates **Winstanley Island** from the mainland. The pass is divided into two separate anchorages, the N one being the better of the two, with depths of 5 to 33 fathoms, mud bottom. The S anchorage has depths of 12 to 27 fathoms, mud bottom. Small craft can pass through the narrows between the anchorages at high water. **Candle Island** is on the W side of the S entrance to the pass. A submerged rock with 3 feet over it is near the middle of the S entrance about 0.9 mile N of Candle Island. The bar at the N entrance has a depth of 9 feet and should not be crossed at low water except by small craft. A privately maintained mooring buoy is about 0.3 mile SW of the bar at the N entrance to the N anchorage.

(329) **Entrance Island,** which is fairly bold, may be passed on either hand in approaching the N entrance to Shoalwater Pass. Pass in midchannel between the highwater islet at the N end of Winstanley Island and **Slag Point;** then favor the mainland shore and proceed with caution until up with the wooded island on the Winstanley side of the channel. Leave this island to the W and select an anchorage S of it.

(330) **Checats Cove,** on the E side of Behm Canal, is entered about 1.7 miles NNE of Winstanley Island between **Edith Point** on the N and **Checats Point** on the S. The cove affords anchorage for small vessels, protected from S winds, in about 8 to 10 fathoms, mud bottom, about 100 to 200 yards N of Checats Point. Strangers should select an anchorage at low water, as the flats extend for some distance and are then plainly visible.

(331) **New Eddystone Rock** (55°30.2'N., 130°56.2'W.), 20 miles above Point Sykes, is a remarkable shaft of rock, 230 feet high, rising from a sand shoal in the middle of the canal, with deep water surrounding it. It may be passed on either hand, keeping it at a distance of 0.5 mile to avoid the sand shoal. At the E extremity of the shoal is a small pinnacle rock that uncovers about 4 feet.

(332) **New Eddystone Islands** are a group of islets and rocks, some of which cover; they extend for about 1.2 miles offshore NE of New Eddystone Rock. Small craft with local knowledge pass among these islands, but strangers should keep to W of them.

(333) **Ella Creek,** W of New Eddystone Rock, empties into the small bight behind **Ella Point** on the W shore of Behm Canal. A mooring buoy is about 0.15 mile NW of Ella Point.

(334) **Rudyerd Bay,** about 11 miles long, enters Behm Canal from E between **Point Eva** and **Point Louise,** about 23 miles above Point Sykes and 3.5 miles NE of New Eddystone Rock. The bay and approaches are free from outlying dangers.

(335) Two arms enter the bay from S; the lower, named **Punchbowl Cove** because of its precipitous sides, is 2.2 miles, and the upper arm about 7 miles, from the entrance. Temporary anchorage may be found close to the S shore near the head of Punchbowl Cove in 25 fathoms. A privately maintained mooring buoy is on the S side of the cove, about 0.3 mile from the head.

(336) An anchorage in 20 fathoms, hard bottom, is near the head of the upper arm and opposite a prominent landslide. Small craft can find temporary anchorage near the edge of the flats at the head of the bay and the head of the upper arm. Temporary anchorage may be had about 0.5 mile E of Point Louise and about 400 yards N of a small, but prominent landslide, in 18 to 20 fathoms, hard bottom. The bottom is very irregular.

(337) **Sargent Bay,** on the W shore of Behm Canal opposite Rudyerd Bay, is open and exposed to S. Depths throughout the bay are too great for anchorage. **Cactus Point** is the NE point and **Tramp Point,** the S point at the entrance. A small-boat passage is on the W side of the group of islands N of Tramp Point. The passage is clear, but favor the islands to clear the foul ground along the W shore.

(338) The channel on the W side of **Manzanita Island** (55°34.7'N., 130°55.9' W.) is clear, with a controlling depth of only 6 feet. This channel is used to a large extent by small fishing vessels. Midchannel courses are good.

(339) **Manzanita Bay,** on the W side of Behm Canal, W of **Wart Point** (55°35.3'N., 130°56.5'W.), affords good anchorage in 20 fathoms, soft bottom. The head of the bay is filled with a flat that bares, and several rocks that bare are along the edge of the flat. The anchorage is in the SE bight of the bay. In entering, favor the E shore to avoid the rocks and flat previously mentioned. The Forest Service maintains a float in the small bight on the W side of Wart Point. Depths at the outer end of the float are reported to be 8 fathoms. The Forest Service also maintains a mooring dolphin off the mouth of **Grace Creek,** 4.7 miles N of Wart Point.

(340) **Snip Islands** are off the W shore of Behm Canal, 1.3 miles N of Grace Creek. Good anchorage for small craft can be had in the passage W of the islands in about 15 fathoms, sandy bottom. The entrance is from N. The S entrance is obstructed by a bar that bares.

(341) **Walker Cove** enters Behm Canal from E about 10 miles above Rudyerd Bay entrance and abreast Snip Islands. The cove has great depths throughout except at the entrance. The shores of Walker Cove are very abrupt and in some places almost perpendicular. A summer anchorage can be made in midchannel on the inside of the bar at the entrance between **Hut Point** and **Ledge Point** in 10 to 20 fathoms. The bar has depths of 4 to 10 fathoms. Rocks and ledges off the entrance points are the only dangers in the cove. Foul grounds extend about 0.25 mile WNW of Ledge Point and about 0.2 mile SW of Hut Point; caution is advised in the narrow entrance channel. U.S. Forest Service mooring buoy is near the head of a bight on the S side of the cove about 5 miles ENE of the entrance.

(342) **Channel Islands** are two wooded islands about 0.6 mile off the E shore of Behm Canal, about midway between Walker Cove and Chickamin River. The islands may be passed on either side, but care should be taken to avoid the reef, awash at high water, that extends about 0.2 miles SE of the islands.

(343) **Chickamin River** enters Behm Canal from E, between **Fish Point** and **Trap Point,** about 5 miles above the entrance to Walker Cove. Large flats occupy almost the whole of the bay at the mouth of the river and extend almost to the two points at the entrance from Behm Canal. Small craft can find temporary anchorage near the edge of the flat.

(344) **Portage Cove** on the W side of the canal opposite the entrance to Chickamin River bares. Depths of 3 to 8 fathoms can be found at the entrance, but these drop off quickly to deep water.

(345) **Saks Cove** on the NE shore of Behm Canal 10 miles above the mouth of Chickamin River, affords anchorage near the N end. There are no dangers, except the small flat at the NE corner of the cove and a reef that uncovers 4 feet about 75 yards SE of **Fire Point,** the W point at the entrance.

(346) **Fitzgibbon Cove** is on the NE shores of Behm Canal, about 2.6 miles N of Saks Cove and about 1.5 miles SE of the entrance to Burroughs Bay. The entrance between **Dew Point** and **Hose Point** is clear. **Center Islets,** wooded, are near midchannel, 0.4 mile inside the entrance. **Gibbs Rock,** bare and 15 feet high, is on the E side of the cove, 0.3 mile above Center Islets. A submerged rock with 6 feet over it is 110 yards 300° from Gibbs Rock. The cove affords good

anchorage about 0.2 mile above Gibbs Rock in 11 to 13 fathoms, mud bottom.

(347) **Burroughs Bay,** clear, enters Behm Canal from the NE. **Unuk River** enters the head of the bay from N and **Klahini River** from NE; Unuk River is said to be navigable a considerable distance for skiffs. The head of the bay and the mouths of both rivers are filled with flats. There is no secure anchorage. Temporary anchorage for moderate-sized craft can be selected on the E side just S of the flat of the Klahini River in about 30 fathoms. Small craft can anchor near the edges of the flats. The depths at the head of the bay are gradually shoaling. The U.S. Forest Service maintains a mooring buoy here.

(348) **Chart 17422.–Anchor Pass** is a narrow strait about 6 miles W of the entrance to Burroughs Bay, which separates the NE end of Bell Island from the mainland. Protected anchorage can be found about 0.4 mile inside the S entrance in 30 to 32 fathoms of water, mud bottom. The pass has good anchorage for small craft in the small cove just S of the restricted N entrance in 3 to 5 fathoms, soft bottom. The N entrance to Anchor Pass is shallow and rocky. The least depth of the shoalest reef, in the middle of the pass at its N end, is 1½ feet. A privately maintained mooring buoy is on the E side of the pass about 0.8 mile NNW of **Point Lees,** the E point at the entrance to Anchor Pass.

(349) The estimated tidal current has a velocity of 2 to 3 knots at the N end of the pass and flows N from about 2 hours after low water until 2 hours before the next low water. From 2 hours before to 2 hours after low water the current flows S with a velocity of about 1 knot.

(350) **Behm Narrows** separates **Bell Island** from Revillagigedo Island. The shores of the narrows are generally steep and heavily wooded. **Snipe Point Light** (55°55.5'N., 131°36.9'W.), 18 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the SW end of Bell Island; it marks the W entrance to Behm Narrows and the S entrance to Bell Arm. Anchorage can be had in the bight on the N side of the narrows about 1.6 miles E of Snipe Point Light and about 0.5 mile S of Bell Island Hot Springs. The bight affords anchorage in about 14 fathoms, mud bottom. Care should be taken to avoid the rocks and ledge on the N side of this bight. In 1978, it was reported that foul ground with rocks was in the vicinity of the S point of the bight.

(351) **Bell Island Hot Springs** is a private seasonal fishing and health resort at the head of the cove at the SW end of Bell Island about 1.5 miles E of Snipe Point Light.

(352) **Bell Arm,** which separates the NW shore of Bell Island from the mainland, extends NE from Behm Canal and at its head is joined by Anchor Pass; it has good anchorage in the expansion at its head in 16 fathoms, soft bottom. Snipe Point Light on **Snipe Point,** marks the S entrance to Bell Arm. **Short Bay** and **Bailey Bay** are two small, narrow bays entering the NW side of Bell Arm. Short Bay, the E one, has good anchorage in 17 to 20 fathoms; a flat extends about 300 yards from its head. A private mooring buoy is near the flat. In April 1984, the buoy was reported to be submerged at high water. A red float was attached to the buoy to mark its position; caution is advised. Inland from Bailey Bay is an area of hot springs. A mooring buoy is on the W side of Bailey Bay about 1 mile from the head.

(353) **Hassler Pass** and **Gedney Pass** , on the E side of Behm Canal and S of Snipe Point Light, separate Hassler Island from Revillagigedo Island; the passes are broad and clear. At the head of Gedney Pass is **Shrimp Bay,** and at the head of the latter in **Klu Bay** is a good anchorage in 16 fathoms, soft bottom, suitable for vessels of moderate size. A private mooring buoy is on the W side of Klu Bay.

(354) **Dress Point** is a broad point on the E side of the S entrance to Hassler Pass. A snug anchorage for small craft in depths of 5 to 17 fathoms is in the cove, 1.5 miles N of Dress Point on the E side of Hassler Pass.

(355) **Blind Pass,** between **Black Island** and the NW side of **Hassler Island,** is useless except as a small-craft anchorage in the basin at the SW end of the pass. Because of rocks in this entrance, local knowledge is necessary in entering the basin. The pass is closed by a sandbar just NE of the basin. The bar uncovers 3 feet and is studded with small boulders up to a foot in diameter. NE of the bar the water is deep, ranging from 10 to 50 fathoms except for a 3½-fathom spot near midchannel in the NE part of the pass. A privately maintained mooring buoy is in a small bight on the S side about 0.9 mile NE of the bar.

(356) **Convenient Cove,** in the SW end of Hassler Island between it and Gedney Island, is too deep for anchorage. The narrow passage ESE of the cove leading to Gedney Pass is clear except for some rocks on the N shore and a ledge that extends in a N direction from the easternmost islet.

(357) **Yes Bay** enters Behm Canal from the NW between **Bluff Point** and **Syble Point. Bluff Point Light** (55°53.0'N., 131°44.8'W.), 12 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on Bluff Point on the SW side of the entrance to the bay. The entrance is free from dangers.

(358) A fishing resort is on the N point of a narrow passage leading to the first basin, about 2.6 miles above the entrance of Yes Bay. Caution must be exercised in navigating the E end of this passage, particularly in the vicinity of a wharf which stood 300 yards E of the resort. No visible signs remain of the wharf. A 65-foot float landing at the fishing resort had, in 1976, a reported depth alongside of 12 feet. Water and gasoline are available. The resort maintains radiotelephone communication with Ketchikan. Charter seaplane service with Ketchikan is also available. Anchorage can be had about 0.3 mile SE of the resort in 22 fathoms, mud bottom. A beached barge, covered at high water, is in the small cove in 55°54'55"N., 131°47'10"W., about 0.3 mile E of the resort.

(359) The narrow passage, close SSW of the fishing resort, leads to the first basin where good anchorage can be had in 15 to 32 fathoms, mud bottom. A good small-boat anchorage in 8 fathoms is near the SE end of the first basin. At the head of the first basin is a group of islands, E of which is a channel leading to the inner basin, where good anchorage can be had in 11 to 12 fathoms, mud bottom.

(360) Care is required in navigating Yes Bay, and strangers should do so at low water. Enter in midchannel and then favor the N shore. In entering the first basin, pass about 35 to 40 yards SSW of the resort site and keep the N shore close aboard until the basin opens up. If going to the inner basin, keep about 100 yards off the N shore until up to the group of islands that separate the two basins. Here the channel narrows to about 75 yards because of a submerged rock with 3 feet over it, and a rock awash at low water, both of which are on the W side of the channel. In passing through this channel, keep the NE shore aboard about 30 yards. The inner basin is clear.

(361) **Spacious Bay,** WSW of Bluff Point Light, is a broad bay in the W shore of Behm Canal about 22 miles above **Caamano Point** (55°30.0' N., 131°58.2'W.). **Square Island** is in the entrance near the S shore; the channel S of the island is not recommended. Near its head the bottom is irregular and there is a considerable area of tidal flats with off-

lying reefs and submerged rocks. Good anchorage can be selected in the lee of Square Island, sand and mud bottom. A dangerous submerged rock has been reported about 0.4 mile NW of the island. The bights in the N shore of the bay are not recommended for anchorage.

(362) **Snail Point,** on the W side of Behm Canal about 3.8 miles S of Bluff Point Light, is readily identified by the distinct knoll, about 0.5 mile S of the point. On the W side of the point is a bight 0.5 mile long that affords good anchorage for small craft. A submerged rock with ¾ fathom over it is in the middle of the bay, and small craft should favor the E shore until clear of this rock and proceed to the head of the bay for anchorage.

(363) **Neets Bay** indents the E shore of Behm Canal about 19 miles above Caamano Point. The bay has no good anchorage. Small craft, however, can find fair shelter in the last cove (locally called Fire Cove) toward the head of the S side of the bay. Pass E of the small wooded islet and anchor E or S of it in 3 to 5 fathoms, sand bottom. In 1976, a logging camp was in operation in the cove. A log storage area is 1 mile W of the camp. Floats for small craft and seaplanes extend SW from the small wooded islet. Water and fuel are available only in an emergency. Radiotelephone communications with Ketchikan are maintained. The bottom in Neets Bay is very irregular and there are several dangers, one of which is a submerged rock with ¼ fathom over it, 300 yards SW from the W end of **Bug Island,** which is in the middle of the entrance to the bay. Enter Neets Bay either N or S of Bug Island but S of **Clam Island,** which is about 1.4 miles E of Bug Island. A shoal extends from Clam Island almost to the N shore of the bay.

(364) **Bushy Point,** a prominent projection on the E side of Behm Canal about 2 miles S of Neets Bay, is readily recognized from N and S by a series of dome-shaped hills immediately inshore from the point. **Bushy Point Light** (55°43.9'N., 131°43.9' W.), 18 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the W side of the point.

(365) **Bushy Point Cove,** a small bay inside of Bushy Point, is too deep for anchorage except for small craft that anchor close to the beach at the head of the bay.

(366) **Heckman Point,** on the W shore of Behm Canal opposite Bushy Point, is prominent and readily identified by some reddish brown rocks. On the W side of the point is a small bight that is used as a temporary anchorage for small craft.

(367) **Traitors Cove,** entered about 2.5 miles SSE of Bushy Point Light, indents the E shore of Behm Canal about 15 miles above Caamano Point. An island is in the middle of the entrance. Ledges extend N and S from this island, and the center of the channels on both sides are clear. About 300 yards W from the N point at the entrance is a reef that uncovers 6 feet. It presents a real danger to craft leaving or entering the cove by the N entrance.

(368) The cove should be avoided by strangers as the strong tidal currents and rocks make navigation dangerous. The upper part of the cove can be entered only by small craft at slack water, which is very short in duration; on the flood small craft should keep away from the narrow entrance to the upper cove as there is danger of being swept through by the force of the current. There is very little time of slack water on spring tides; the current changes direction very suddenly. **Marguerite Bay,** the bight on the S shore of Traitors Cove about 2 miles above the entrance, affords the only anchorage in the cove. Rocks are on both sides of the bight near its entrance, and a depth of 10 feet is found in midchannel at the entrance.

(369) **Port Stewart** is an indentation in the W side of Behm Canal, 12.5 miles N of Caamano Point. Its S entrance is marked by **Point Francis** (55°40.2 'N., 131°49.0'W.), a prominent wooded point. The N entrance point is not well defined, being low, flat country for 1 mile from the beach. Four wooded islets are across the mouth of the bay. A clear channel is between the easternmost and southernmost islets, but there are some off-lying rocks to avoid. The best entrance is N of the two islets. The passage between the southernmost wooded islet and the main shore is narrow, but clear, with a least depth of 5 fathoms.

(370) Anchorage can be had in 16 fathoms, rock and mud bottom, 350 yards 315° from the NW point of the westernmost wooded islet. Small craft with local knowledge can find sheltered anchorage in 5 to 6½ fathoms, mud bottom, in the land-locked bight in the N shore of Port Stewart, about 3.5 miles above Point Francis. A log storage area is on the flats at the head of Port Stewart.

(371) The small bight on the E shore of Behm Canal, about 0.5 mile N of **Escape Point** opposite Point Francis, is too deep for anchorage, although in good weather small craft anchor in the S end of this bight near Escape Point.

(372) **Raymond Cove** and **Wadding Cove,** opposite Naha Bay, are indentations in the W shore of Behm Canal about 3 and 3.9 miles, respectively, SW of Point Francis. They are useless as anchorages, and at low water there are extensive tidal flats of sand and gravel with some boulders.

(373) **Mike Point** is a low, rocky point separating Wadding and Raymond Coves. The point is foul and should be given a good berth. The beach here is strewn with bleached logs and other drift, and this is also true, to a lesser extent, of all the shore N to Point Francis.

(374) **Helm Bay** indents the W shore of Behm Canal about 5.5 miles above Caamano Point. The N entrance point is marked by **Trunk Island,** off **Helm Point,** a small, prominent, slightly wooded island. The S entrance point is marked by **Helm Bay Light** (55°34.8'N., 131°55.7'W.), 14 feet above the water, shown from a skeleton tower with a red and white diamond-shaped daymark on the outermost islet on the SW side of the entrance.

(375) Behind **Forss Island,** on the W shore, 3.3 miles in from the light, is a small cove at the head of which is a float with depths of 20 feet reported alongside in 1976. It is maintained by the State. Enter the cove from the N passing between two charted off-lying rocks.

(376) There are some dangers, but midchannel courses carry safely to the head of the bay. The channel leads between **Thomas Island** on the N and two wooded islands joined by a reef to S. Pass in midchannel N of Forss Island and another wooded island beyond, above which the bay is comparatively clear. There is about 0.5 mile of tidal flats at the head of the bay which drops suddenly into deep water.

(377) Anchorage is available in midchannel in 16 fathoms, mud bottom, about 1.2 miles above Forss Island, and in 21 fathoms, gravel and mud bottom, about 2 miles above the island. The latter is the better anchorage.

(378) **Smugglers Cove,** W of Helm Bay Light, is on the W side of Behm Canal, about 5 miles N of Caamano Point. It is a fair anchorage for small craft, although local knowledge is necessary to clear the dangers. Extensive tide flats are at the head of the cove. Two private mooring buoys are about midway in the cove.

(379) **Charts 17423, 17422.–Indian Point** marks the N entrance to Naha Bay. The country N of the point is heavily wooded. The shore is rocky and generally steep-to.

(380) **Naha Bay,** on the E side of Behm Canal about 11.5 miles NE of Caamano Point, is a popular sports fishing and

hunting area. The bay and its approaches are clear. **Loring** is a village on the N side near the head of the bay. **Cache Island,** round and wooded, is near the middle of Naha Bay and has deep water on all sides with the exception of a 9-fathom spot about 0.3 mile W of the island.

(381) The usual anchorage is just below the ruins of an old wharf about 300 yards from the shore of the village, in 19 fathoms, mud bottom. The shore in front of the village should not be approached closer than 100 yards. Small craft can find anchorage in the small bay N of **Dogfish Island** where shelter is had from any SW squalls which occasionally strike with considerable force. The bight E of the village is practically dry at low water. A State-maintained L-shaped small-craft float and a seaplane float joining it at the SE end are at the head of the cove W of the wharf in ruins. In 1976, depths of 12 feet were reported alongside both floats.

(382) **Roosevelt Lagoon** is a body of brackish water that is connected to Naha Bay through a tiderace only at extreme high water. The passage is dangerous and should not be used without local knowledge. Small barges at one time made this passage.

(383) **Moser Bay,** an indentation in Revillagigedo Island, is separated from Naha Bay by **Cedar Island, Moser Island,** and **Stack Island.** Good anchorage for small craft is found in 7 fathoms in the small bight in the NW part of the bay; for larger craft in 20 fathoms at the head of the bay. Two private homes with floats are on the E side of the bay. At the head of the bay is a tidal flat about 0.5 mile long. A reef makes off SE from **Cod Point,** the N point at the entrance to **Long Arm.**

(384) **Grant Island,** on the E side of Behm Canal, is about 1.5 miles SSW of Naha Bay and about 8 miles NE of Guard Island Light. The island is heavily wooded. **Grant Island Light** (55°33.3'N., 131°43.7'W.), 18 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the W side of the island.

(385) **Chart 17422.–Clover Passage,** a deep passage on the W side of Revillagigedo Island, is frequently used by vessels proceeding between Tongass Narrows and Naha and Moser Bays. It has several entrances from the N in deep narrow channels between Cedar and Moser Islands, Stack and Grant Islands, and a deep, wider entrance between Back and Grant Islands.

(386) **Back Island,** low and heavily wooded, is about 1.2 miles W of the S end of Grant Island. A reef extends about 0.2 mile off the NW end of the island, and broken ground extends 0.3 mile E of the island. The channel between Back Island and Betton Island to the SW is foul with reefs of submerged rocks and rocks awash.

(387) **Hump Island** is close off the E side of Betton Island about 0.4 mile S of Back Island. A daybeacon is on the SE end of the island.

(388) **Betton Island** is on the E side of the W entrance to Behm Canal. **Betton Head,** on the W side of the island, is a prominent feature of the locality.

(389) **Joe Island,** close SE of the S extremity of Grant Island, is in midchannel near the N entrance with deep channels on each side.

(390) **Pup Island** is off the S extremity of Betton Island at the SW entrance to Clover Passage. A narrow channel less than 100 yards wide with a depth of 5 fathoms is between the two islands.

(391) **Clover Island** is in midchannel in the SW entrance to Clover Passage. Deep channels are on each side of the island. **Clover Passage Entrance Light** (55°28.7'N., 131°48.7'W.), 20 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on an islet about 0.4 mile SW of Clover Island. A ledge with rocks awash extends about 0.2 mile NE of the light.

(392) **Knudson Cove** is a small bight on the SE side of Clover Passage, about 0.6 mile ESE of Clover Passage Entrance Light. Small craft use it as an anchorage. A depth of 4 fathoms is at the entrance. In 1970, the 4-fathom area was reported to provide good anchorage in SE winds up to 35 knots. A daybeacon marks the W side of the entrance to the cove. Another daybeacon near the head of the cove marks a rock awash at half tide. A floating breakwater, marked on the NW end by a private daybeacon, is in the cove. **Clover Pass** is an unincorported settlement on Knudson Cove.

(393) The city of Ketchikan maintains small-craft floats with about 615 feet of mooring space, on the E side of Knudson Cove near the head. In 1976, depths of 20 to 60 feet were reported alongside. Local regulations limit the size of vessels using the floats to 65 feet in length. Two boat launching ramps with a float in the middle are close SW of the approach pier. Private floats are 75 yards NE and 150 yards W of the approach pier, respectively. Clover Pass has telephone and highway communications with Ketchikan.

(394) **Survey Point** is on the SE side of the SW entrance to Clover Passage. A fishing resort is 0.7 mile NE of the point. In 1976, the reported depths alongside the floats at the resort were 3 to 5 feet. Water, gasoline, and limited marine supplies are available.

(395) **Tatoosh Islands,** W of Betton Island, are a group of islands N of which are numerous off-lying rocks known as **Tatoosh Rocks.** The southernmost island has deep water close to the W shore, and a yellow cliff 130 feet high on this island is a good landmark. The northwesternmost rock of Tatoosh Rocks is 14 feet high and has an off-lying reef that bares 10 feet, 140 yards NW. The rocks are light colored and show well in clear weather.

(396) The passage between the southernmost Tatoosh Island and Betton Island is clear, but the N end of the passage is rocky, and local knowledge is necessary to navigate this area. Small craft use these waters for anchorage, but there is some danger from williwaws.

(397) **Bond Bay** and the smaller indentations between Bond Bay and Caamano Point Light are used as temporary anchorages by the smaller fishing craft during the trolling season. These anchorages are exposed to SE and are not recommended because of the suddenness and great force with which the SE winds strike in this area.

(398) **Bittersweet Rock** (55°31.7'N., 131°55.7"W.), about 0.5 mile E of the S extremity of the point forming the N side of Bond Bay, is a dangerous submerged rock covered 2 fathoms. Mariners are urged to exercise extreme caution in this area because other dangers or shoals may exist.

(399) **Caamano Point Light** (55°29.9'N., 131°59.0'W.), 41 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the southernmost part of the point.

(400) **Caamano Point,** the W point at the W entrance to Behm Canal, is long and low. Its extremity is somewhat indefinite when abeam, because of the Bond Bay shore in the background and because the light is not on the actual point, but 0.5 mile W.

5. CLARENCE STRAIT, DIXON ENTRANCE TO WRANGELL

(1) This chapter describes Clarence Strait and the subsidiary channels to Sumner Strait and Wrangell. Also described are the numerous tributaries, islands, islets, towns, and villages related to these waterways. Preferred passages through these waterways are discussed.

(2) **Charts 17420, 17360.–Clarence Strait** extends in a N direction from Dixon Entrance for 45 miles to Guard Islands and the W entrance to Tongass Narrows and Behm Canal, and thence in a NW direction for 67 miles to Sumner Strait. From its S entrance to Zarembo Island, a distance of about 100 miles, the channel is broad and comparatively free from dangers. At Zarembo Island the strait divides. The channel E of the island, called Stikine Strait, is the route taken by vessels to Wrangell and Wrangell Narrows; that W of the island, called Snow Passage, is used by vessels bound to Wrangell Narrows or W through Sumner Strait because it is more direct.

(3) Passage through Clarence Strait and subsidiary channels to Sumner Strait and Wrangell is described in the following order: W shore, Cape Chacon to Kasaan Bay; E shore, including Felice Strait and Nichols Passage, to Vallenar Point; Kasaan Bay and N to Kashevarof Passage; Snow Passage, Ernest Sound and Zimovia Strait; Blake Channel and Eastern Passage; and Stikine Strait to Wrangell.

(4) **Currents.**–The current has a maximum velocity of 4 knots in Clarence Strait from the S entrance to the vicinity of Zarembo Island. At Cape Chacon, the flood current sets NE around the cape and the ebb SW. S of the line of Cape Chacon the tidal currents are much confused.

(5) In general the currents in the strait set directly in and out during flood and ebb, except in the vicinity of the entrances to the tributaries, where a slight set across the channel may be experienced setting to or from them, especially the large tributaries; and along the shores of the strait where the current is either slack or there is a small countercurrent. The most noticeable of these countercurrents is at Dewey Anchorage and among the islands at Onslow Point, where it has considerable velocity, from 2 to 3 knots, and sets directly opposite in direction to the current in the strait. This countercurrent meets the main current at the entrance of the large bay E of Point Stanhope, and is confined to the bay and the immediate vicinity of the shore SE. (See the Tidal Current Tables for daily predictions of places in Clarence Strait.)

(6) **Weather.**–The orientation of Clarence Strait and its proximity to the continent influence its weather. The strait is exposed to the strong southeasterlies of fall and early winter, although shelter may be found in several bays and inlets. Winter gales may also blow down the strait from the NW. Williwaws blow in many of the anchorages that are off the strait. While these waters are often sheltered from the summer advection fog, they are susceptible to winter radiation fogs. The S part of the strait is more exposed here, poor visibilities are most likely in late summer and early fall.

(7) **Chart 17433.–Cape Chacon** (54°41.5'N., 132°00.9'W.) has been described in Chapter 4.

(8) From Cape Chacon to Stone Rock Bay, the shoreline is rocky and the bottom irregular. Temporary anchorage may be obtained 0.5 mile offshore about 1.5 miles N from the cape in depths of 18 to 20 fathoms. A 2-fathom shoal is about 2.3 miles NNE from the cape, and about 900 yards offshore from **Huaji Cliff.**

(9) **Stone Rock,** gray-colored and bare, is 3.5 miles NNE of Cape Chacon. Rocks awash and unmarked shoals are within 0.4 mile of Stone Rock.

(10) **Stone Rock Bay,** about 4.5 miles N from Cape Chacon, is an open bight with deep water and irregular bottom. Foul ground extends off the entrance points, and there is a 5¼-fathom shoal midway in the entrance. Small fishing craft anchor close to shore, but the use of the bay as an anchorage is not recommended.

(11) **Mallard Bay** is about 5 miles N from Cape Chacon. Foul ground extends about 0.6 mile offshore from the point separating Stone Rock Bay and Mallard Bay.

(12) Fair weather anchorage may be had near the head of the bay in 15 fathoms, sandy bottom, with about 0.1 mile swinging room. Favor the N shore of the bay when entering. The channel between the shoals making out from the N and S shores is narrow.

(13) **McLean Arm** is a narrow inlet about 6.5 miles above Cape Chacon. **McLean Point,** the S entrance point, is marked by **McLean Point Light** (54°47.5'N., 131°57.4'W.), 58 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark. The point is low but at a short distance back rises to a dome-shaped hill. **Island Point,** the N entrance point, is a wooded island close to the main shore. A bare rock, 22 feet high, is 100 yards S of the point.

(14) The head of the arm has two branches. The W and larger branch affords anchorage in its widest part in 20 fathoms, sticky bottom, with swinging room for small vessels. A flat extends 0.1 mile from the head of this branch. Anchorage can be selected in about 17 fathoms at the entrance to the north branch, however it is less desirable, and care must be taken to avoid a ledge that bares, and extends about 250 yards E from the point dividing the two branches. Large vessels can anchor at the head of the main arm in 28 to 30 fathoms, irregular rocky bottom. A midchannel course will lead safely to the anchorage. The williwaws come down from the adjacent mountains with considerable force. A small craft anchorage is close under the S shore about 3.2 miles inside the entrance. Water can be obtained from several streams.

(15) **Gardner Bay,** about 8 miles N from Cape Chacon, affords good anchorage, but its narrow entrance restricts its use to small vessels only. The N entrance point is a bold, light-colored, rocky point with timber on top. A breaker close to the point and one in the bight W of the point frequently show. A group of small wooded islands with rocks awash off the SE end is about 0.1 mile off the S entrance point.

(16) A group of islands choke the entrance to the inner bay. The channel N of the islands is narrow and crooked; its use is not recommended. The channel S is about 100 feet wide and has a least depth of 8 fathoms. About midway between the islands off the point and those in the entrance is a 1½-fathom spot marked by kelp. Water may be obtained from several streams.

(17) Fishing vessels and small craft frequently use the channel S of the outer islands and rocks. Midchannel courses suffice. Caution should be exercised when entering, because the dangers are unmarked. Anchorage in 13 fathoms, mud bottom, can be had in the basin at the head of the

bay. The points at the entrance to the basin should be given a berth of about 150 yards.

(18) **Kendrick Bay** is about 10 miles above Cape Chacon. Except for a reef in the middle of the bay 2 miles inside the entrance, and 7½- and 10-fathom spots, 500 yards N and 0.5 mile SE, respectively, from the reef; it is free of off-lying dangers until near its head.

(19) Three arms lead S and W from Kendrick Bay. **South Arm** is clear, and, near its head, affords good anchorage for small craft. **Short Arm** is clear of off-lying dangers except for an 8-fathom spot in the center of the arm, about 0.6 mile inside the entrance, and submerged rocks, about 0.3 mile from the head. **West Arm** is foul for a distance of 0.5 mile inside the entrance and should be entered preferably at low water. Enter S of the islets and proceed with caution. Good anchorage for small craft can be had near the head of the arm; however, during the colder winter months this area has ice and cannot be used as an anchorage.

(20) **Kendrick Islands,** on the N side of the entrance to Kendrick Bay, are a group of about 20 islands varying in size, and for the most part wooded. Foul ground extends about 0.7 mile SE of the main islands of the group. Small craft with local knowledge can enter Kendrick Bay from N by passing N of all the islands, between them and the main shore. Good anchorage and shelter for small craft can be found among the islands.

(21) **Local magnetic disturbance.**–Differences of as much as 4° from normal variation have been observed N of the Kendrick Islands.

(22) The N point of Kendrick Bay rises rather sharply to a flat-topped peak, forming a headland that shows prominently from points along the W side of the strait.

(23) The shoreline from the N entrance point of Kendrick Bay to Hidden Bay (chart 17432), a distance of about 2.2 miles, is very broken. Rocks are offshore from 0.2 to 0.4 mile.

(24) **Chart 17432.**–An inlet (54°55.3'N., 132°58.7'W.), 0.6 mile long in a NW direction and about 0.1 mile wide, is about 1.2 miles above the N entrance point of Kendrick Bay. The channel is narrow and has general depths of 3 to 6 fathoms, except in the narrow part, where they range from 2 to 4 fathoms. A rock covered 3¼-fathoms is 0.3 mile offshore in line with the S shore of the inlet, while rocks, awash, are 0.3 mile to the E of the N point of the entrance.

(25) **Hidden Bay** (54°56.4'N., 131°58.7'W.) indents the W shore of Clarence Strait about 15 miles N of Cape Chacon. The entrance is less than 100 yards wide and is N of a group of rocky islets. A submerged rock covered 3¾ fathoms and rocks awash are off the entrance. The largest island of the group, 200 feet high, is to the S. The S entrance point at the first narrows rises to a rounding hill 260 feet high. The N entrance point is low, with a little knob near the extremity. A depth of 1 fathom is in the entrance to the first narrows, and rocks are close to its S shore. Depths of 5 to 21 fathoms were obtained in the first cove. A rock is 50 yards off the E entrance point of the second narrows. Depths in the second narrows range from 1 to 6 fathoms and ledges project from the SE shore. Depths in the inner cove range from 4 to 18 fathoms.

(26) A stranger entering for the first time should select low-water slack when the reefs outside and the rocks in the entrance will be showing. The currents in the narrow part of the entrance are strong. Small craft may, with care, work their way to the entrance from the S back of the islands. The bay is suitable for small craft only.

(27) **Scott Point,** about 1 mile N of Hidden Bay, is a round point with an abrupt shoreline characterized by large gray ledges. It rises rapidly to a peak.

(28) **Ingraham Bay** is about 1.2 miles NW from Scott Point. Rocks, usually marked by kelp, extend about 200 yards off the entrance points. The entrance to Ingraham Bay is best approached from the E in midchannel, between the S entrance point and the E end of the two groups of islets in the middle of the entrance. A depth of about 20 fathoms can be carried to the head of the main bay and to an anchorage with sand and gravel bottom. The channel N of the inner group of islets is very narrow and should not be used.

(29) The bay has two arms and is about 3.5 miles long to the head of the S arm. The N arm starts about 0.8 mile within the entrance and is about 1.5 miles long.

(30) To enter the N arm, pass S of the two groups of rocky islets off its entrance. A narrow channel extends into the N arm. A shoal with a depth of 3 ¼ fathoms extends from the W shore to the middle of the channel.

(31) The controlling depth in the narrows is 6 fathoms. Follow the trend of the channel leaving the small islet in the second narrows to the S and anchor in 10 fathoms, mud and sand bottom, in the bight at the head of the arm. This arm is suitable for small craft only.

(32) To enter the S arm, the small wooded islet, 200 yards N of the long, wooded tongue that marks the SE point of the entrance to this arm, is left about 100 yards to the S. The channel leads between this islet and the long reef, 200 yards to the W, that parallels the shore.

(33) The S arm is characterized by numerous rocks and reefs; the controlling depth in the entrance is 3 fathoms. With local knowledge 4 fathoms may be carried to the head where anchorage may be found for small craft in depths of 2 to 10 fathoms, with excellent holding ground in mud bottom. The chart should be the guide.

(34) **Ingraham Point,** the NW entrance point of Ingraham Bay, is low and wooded for a distance of 0.6 mile from the point where it commences a sharp rise to a wooded ridge. The shoreline to Polk Island is rocky and foul.

(35) **Polk Island** is about 1.3 miles N of Ingraham Point. A reef, bare at half tide, is midway in the channel between the island and the Prince of Wales Island shore. The N end of the channel is obstructed by rocks and islets. There is a controlling depth of 2 fathoms in the narrow crooked section at the NE end. Small craft with local knowledge can work their way through.

(36) A small rocky islet with a prominent tree is close to the SE end of Polk Island. It is noticeable from the N or S, for a distance of 2 miles.

(37) **Chichagof Bay** is about 2.5 miles N from Ingraham Point. It is about 0.3 mile in length and width, and has varying depths from 2¼ fathoms in the entrace to 4 fathoms near the shore. A reef extends 0.1 mile in a N direction from the S shore, 0.2 mile from the entrance point. A narrow inlet, with depths of 4 to 7 fathoms, extends 0.3 mile in a S direction from the SW corner of the bay. A depth of 1 fathom is in the middle of the entrance to the inlet.

(38) **Rip Point,** about 3.2 miles N from Ingraham Point, is low for about 1 mile back from the shore, then rises steeply to a long ridge. There is a small wooded knob about 250 feet high in the center of the flat area and several hummocks with an elevation of 200 feet or less. Foul ground extends 0.3 mile SE from the point.

(39) **Sun Rocks,** the two most prominent rocks in this area, about 100 yards long, 20 yards wide, and 15 feet high, are about 0.2 mile SE from Rip Point. Tide rips extend 0.8 mile off Sun Rocks and Rip Point during a SE wind and ebb tide.

(40) A small cove is 0.3 mile SW from Rip Point. Rocks are on both sides of the entrance about 50 yards offshore. A rock is about 50 yards off the middle of the NW shore. Depths in the middle of the cove range from 9 to 21 fathoms; small-craft anchorage in 5 to 6 fathoms, fine sand bottom, may be had in the arm that extends S from the center of the cove.

(41) **Moira Sound** indents the W shore of Clarence Strait, about 25 miles N of Cape Chacon; it is 4.5 miles wide between Rip Point and Adams Point. **Adams Point** (55°06.7'N., 131°59.7' W), the N entrance point, is low and wooded. Near the extremity is a knob about 350 feet high. Rocks extend about 0.2 mile off the E shore of the point. The general direction of the sound is SW, and within the entrance it divides into three separate arms.

(42) **South Arm** extends about 5 miles to the S and has numerous reefs that uncover at low water. Favor the E shore in entering. The S end of the arm affords good all-weather anchorage in about 6 fathoms. **West Arm** has a length of 2.2 miles and then divides into two short arms, the N, known as **Dickman Bay,** the S as **Frederick Cove. Johnson Cove** is about 2 miles long and indents the S shore of the sound about 2 miles S of **Black Point** (55°02.3'N., 132°05.2' W.). The chart is the guide.

(43) **Moira Rock Light** (55°05.0'N., 131°59.8'W.), 40 feet above the water, is shown from a pipe structure with a red and white diamond-shaped daymark on the highest part of Moira Rock, the northernmost of a chain of islands that stretch from Rip Point towards Adams Point. A rock with 6 fathoms over it is 1 mile ENE of Moira Rock. **Moira Island,** 0.6 mile long and wooded, is about 0.9 mile to the SSW of Moira Rock. The channel between Moira Rock and Adams Point has depths ranging from about 26 to 189 fathoms.

(44) A small islet is about 0.2 mile ENE of the N end of Moira Island. Kelp and rocks are in the channel between them. A group of rocks, awash and marked by kelp, is midway between Moira Rock and Moira Island. Deep water surrounds these rocks; the channel between them and Moira Rock is clear.

(45) **Kegan Cove** is about 2.8 miles SW of Black Point. The outer cove has fair anchorage in 8 to 12 fathoms, mud bottom. The inner cove has an entrance 50 yards wide and can be entered by boats drawing 5 feet, on the upper half of the tide. The W shoreline should be favored when entering. Excellent shelter and anchorage in 6¼ fathoms, mud bottom, can be had inside. **Kegan Creek,** outlet from **Kegan Lake,** flows into the head of the cove. A marker on the E side of the stream indicates the end of a trail paralleling the creek to the shore of the lower part of the lake.

(46) **Whiterock Island,** about 0.3 mile SE of Moira Island, is irregular in shape and wooded. A large grayish-white, conical-shaped rock is on the SE side of Whiterock Island. S is a smaller rock with the same general features. The small cove on the NW shore of Whiterock Island is foul. Midway between the S ends of Moira and Whiterock Islands is a reef that uncovers 11 feet. A clear channel, about 250 yards wide, favoring Moira Island, is W of this reef. The channel between Whiterock Island and the reef is foul. Foul ground extends off the N and E shores of Whiterock Island for about 0.2 mile and off the S shore for about 0.5 mile.

(47) **Chart 17432.–Menefee Anchorage,** about 1 mile W from Rip Point (55°02.2'N., 131°58.7'W.), is much used by fishing craft, but is not suitable for large vessels. Anchorage may be had in about 15 fathoms, mud and rock bottom, with 200 yards swinging room. By following the shoreline from Rip Point at a distance of 0.2 to 0.3 mile, a clear channel may be carried to the anchorage. A small cove in the S part of the anchorage, with depths of 25 fathoms in the center and shoal water near the E shore, is entered W of the midchannel islet.

(48) **Menefee Islands,** about 1.3 miles W of Rip Point, are two large wooded islands. A narrow ledge and small rocky islets project about 250 yards from the N shore of the W and larger island. A group of three large islets and several smaller ones, covering an area about 0.9 mile long in a SW direction, is about 0.5 mile NW of the larger Menefee Island. Foul ground extends 300 yards SE of the NE islands. The channel between these islands and the Menefee group is obstructed at the NE end by an islet, and at the SW end by a midchannel rock that is awash at low water.

(49) A bight is about 1.5 miles to the W of Menefee Anchorage. In the center of the bight is a rock, awash at high water. A bank with a least depth of 3 fathoms is about 0.2 mile W from the rock. There are numerous rocks and islets along the S shores. The small cove on the NE shore of the bight might furnish anchorage for small vessels in 10 to 13 fathoms.

(50) **Egg Islands** are a group of wooded islands on the NW side of the entrance to Moira Sound, about 2.8 miles SW of Moira Rock.

(51) **Niblack Anchorage,** just W of the Egg Islands, affords good protection in depths of 6 to 20 fathoms, mud bottom. **Clare Island** is on the N side of the entrance to Niblack Anchorage. **Safety Rock,** grass covered and about 15 feet high, is in midentrance. A ledge that uncovers 5 feet is 400 yards S of Clare Island and 250 yards off the S shore. A rock, covered 9 feet, is 0.5 mile from the head of the anchorage and 0.1 mile from the S shore. Vessels entering Niblack Anchorage usually pass N of Moira Rock, Safety Rock, and the ledge S of Clare Island near the S shore of the anchorage.

(52) From Adams Point to **Point Halliday,** the N point of the entrance to North Arm, the shoreline is broken and there are many rocks close to shore. A 5-foot spot is about 0.4 mile E from Point Halliday. A shoal making S from Point Halliday has a depth of 3½ fathoms about 0.25 mile off the point.

(53) **North Arm,** about 4 miles long and 0.3 mile wide at the entrance, is in the NW side of Moira Sound about 2.8 miles W of Moira Rock. There is a 3¾-fathom spot in the center of the entrance about 0.3 mile S of Point Halliday. A secure anchorage can be found inside near the E shore, in the cove about 1 mile from the entrance directly S of the small cedar-covered island, in 6 to 10 fathoms, mud bottom. There is a rock awash near the middle of the cove.

(54) **Deichman Island,** 2 miles inside the entrance of North Arm, has foul ground between it and the E shore, and foul ground extends about 400 yards SE and 300 yards S from it. In passing beyond Deichman Island, the S shore should be favored until past **Beck Rock,** about 700 yards to the W, which uncovers 12 feet. Then a midchannel course will pass 200 yards NE of **Cannery Rock,** about 0.8 mile WNW of Beck Rock, which uncovers 9 feet.

(55) At the head, North Arm divides into two fingers. The N finger, **Nowiskay Cove,** affords good small-craft anchorage in about 8 fathoms. The W finger extends to **Clarno Cove** and **Aiken Cove.** Craft entering this finger should favor the S shore, taking care to avoid the rock awash that is 240 yards SE of the small islet off the N point at the entrance. By passing about 50 yards off the S beach, a least depth of 10¼ fathoms can be carried into Clarno Cove, where good all-weather anchorage is available in about 12 fathoms, soft mud bottom.

(56) The small unnamed bay S of Clarno Cove is entered by a narrow, crooked channel with a least depth of 1 fathom, between ledges that extend out from both shores. The middle of this bay provides excellent anchorage in about 4 fathoms.

(57) From Clarno Cove a narrow channel continues W into Aiken Cove, which is shoal and mostly bare except for a small area near the mouth where an anchorage can be found in about 9 fathoms. Favor the N shore in entering from Clarno Cove.

(58) **Cannery Cove,** just NW of **Cannery Point** (55°06.7'N., 132°08.3'W.), affords good anchorage in 13 fathoms, and the small bight on the NW side of the cove has small-craft anchorage in 1½ fathoms.

(59) **Port Johnson,** a narrow deep inlet, that extends about 3.5 miles in a W direction, is on the W side of Clarence Strait, between Adams Point and Wedge Islands. From the entrance, midchannel courses hold good. There is good anchorage in 15 fathoms about 2.4 miles above the entrance. Water is available from a stream on the N shore about 0.2 mile below the head of the inlet. Anchorage in about 11 to 14 fathoms, but with limited swinging room, is at the head, and from this shore a trail through a divide leads to North Arm of Moira Sound.

(60) **Scraggy Point** and **Inner Point,** on the N and S sides, respectively, at the entrance to Port Johnson, present no characteristics of interest to the navigator.

(61) **Dolomi Bay** is a small arm on the N side of Port Johnson, about 1.3 miles W of Inner Point. The cove on the W side and near the head of the bay has a rock, covered 5 feet, near its center. Dolomi Bay is very restricted; the chart is the best guide.

(62) **Paul Lake,** about 0.9 mile NNW of Dolomi Bay, has a high prominent mountain near its head. The summit is grass covered, the slopes are uniform, and it is not often clouded.

(63) **French Harbor** and **Dutch Harbor** are locally known small-boat anchorages behind Wedge Islands, 2 miles NE of the entrance to Port Johnson. They do not furnish good anchorages for strangers, and the approaches are rocky.

(64) **Wedge Islands** are a group of low islands and rocks 2 miles NE of the entrance to Port Johnson. From the larger island, rocks, bare and awash, extend for about 0.6 mile to the S; shoal and irregular bottom extends about 1 mile to the SW. A 2-fathom spot is 1 mile to the SSW of this island. Rocks awash, marked by kelp, are 0.5 mile NW from the N end of the larger island. A submerged rock with a least depth of 3 feet and marked by kelp is 0.2 mile N of these rocks. A shoal with 7½ fathoms over it is 0.8 mile to the N of the N end of large Wedge Island. A channel 0.3 to 0.5 mile wide, with a least midchannel depth of 30 fathoms, is about 0.6 mile W of large Wedge Island; its direction is **030°**. This course is within 0.2 mile of dangerous shoals on either side, and those without local knowledge should not attempt to use the channel.

(65) Foul ground extends 0.3 to 0.5 mile offshore, to the point 4 miles N of Port Johnson. From this point to Windy Point, a distance of 2 miles, foul ground extends 200 yards offshore.

(66) **Charts 17436, 17420.–Windy Point** (55°13.0'N., 131°58.8'W.), low and wooded, is between two small exposed coves with an island close-to on each side. The S cove has midchannel depths of 5 to 9 fathoms but is foul to the W of the small island and near the N shore. The N cove has midchannel depths of 1¾ to 10 fathoms but is foul toward the head. Rocks extend off the point for about 240 yards.

(67) From **Scraggy Point** (55°07.6'N., 132°02.0'W.), the N entrance point to Port Johnson, to Chasina Point, which is the point about 4.5 miles N from Windy Point, the land is thickly wooded and slopes gently for about 0.2 mile from the shore and then rises quickly to a ridge. Two small exposed coves are midway between Windy Point and Chasina Point. Midchannel depths in the SE cove range from 5 to 10 fathoms, shoaling to 4 fathoms near the head. The NW cove has depths in the middle of 5 to 14 fathoms; the W bight has depths of 3 to 5 fathoms; the S bight is foul.

(68) Currents in the vicinity of Wedge Islands to Skin Island are stronger on the flood and reach an estimated velocity of 2 knots during spring tides. Moderate tide rips are set up with the wind against the current N of Wedge Island in the vicinity of Windy Point. (See the Tidal Current Tables for daily predictions in this area.)

(69) **Cholmondeley Sound** is a deep inlet entering Prince of Wales Island between Chasina Point and Skin Island. Its extreme length from the entrance of the sound to the head of **West Arm** is about 16 miles; it has several arms, all of which are deep and bold with heavily wooded mountain slopes ending with steep-to rock shorelines. Cholmondeley Sound's tributaries have not been closely surveyed but are generally free from dangers. The currents in the sound are too weak or variable to be predicted.

(70) **Chasina Point,** about 36 miles N of Cape Chacon and the S point of the entrance of Cholmondeley Sound, is a wooded rounded point without any prominent features. The land is low for a distance of about 0.8 mile and then rises rapidly. It is advisable to give the point a berth of at least 0.3 mile in rounding it.

(71) **Chart 17436.–Chasina Island** is a low, wooded islet about 0.7 mile WSW from Chasina Point, about 0.1 mile offshore. The passage behind the island is foul. A 1-fathom spot is midway between Chasina Point and Chasina Island and about 250 yards offshore.

(72) **Chasina Anchorage,** to the W of Chasina Island, affords a lee only from E to S winds. Anchorage may be obtained on a rocky patch in about 9 fathoms with the NW corner of Chasina Island bearing about 042° and Skin Island Light bearing about 338°; swinging room is about 250 yards. Anchorage in 17 fathoms, with the light on the same bearing, may be obtained farther offshore.

(73) **Charts 17436, 17420.–Skin Island,** 0.8 mile off the NW point of the entrance to Cholmondeley Sound, is wooded, and about 170 feet high on the SE side. A reef that uncovers 10 feet is about 450 yards to the SW of the island. A sunken wreck, with less than 11 fathoms over it and a danger to navigation in this area, is about 200 yards SW of the S edge of the reef. A group of small islets is between the reef and Skin Island. A rock, awash at low water, is about 0.1 mile off the point on the W side of the island. **Skin Island Light** (55°18.1'N., 132°04.3'W.), 33 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the NE point of the island.

(74) The channel between Skin Island and Prince of Wales Island shore to the W is navigable, but the bottom is very irregular. Passage can be made through the channel without encountering depths of less than 6¾ fathoms, except for a 2½-fathom patch about 0.85 mile 264° from Skin Island Light. The bight SE of Anderson Point, the S entrance point of Clover Bay, is foul.

(75) **Hump Island,** 3.5 miles inside the entrance to Cholmondeley Sound, about 4 miles SSW of Skin Island, is timbered and about 400 feet high, and presents a conical appearance.

(76) **Lancaster Cove,** about 1 mile SE of Hump Island, is the N one of two coves E of an island on the E side of Cholmondeley Sound. It affords good anchorage in 13 to 14 fathoms. It can be entered on either side of the wooded island in its entrance. A bare rock is 0.1 mile N of the NW end of the island. An islet is close SW of the island, and a rock with a least depth of 3 fathoms is close E of the island about 55°13'04"N., 132°05'13"W. In 1959, a survey vessel used an anchorage about 150 yards S of the wooded island, in 12 to 20 fathoms, mud bottom, good holding ground. There were no dangers in the anchorage or approach.

(77) **Kitkun Bay** has its entrance W of **Babe Islands,** about 6 miles SW of Chasina Point and extends in a general SW direction from the S side of Cholmondeley Sound. The area was surveyed in 1961. Entrance to the N part of the bay should be made through the W of two channels. The least depth in midchannel is 3½ fathoms. Entrance to the S part of the bay can be made through a narrow channel about halfway down the E shore of the N part of the bay. This channel is foul at the entrance; the foul area is marked by kelp. Currents in the channel and near the entrance are very strong, with tide rips near the entrance. The least depth in the narrowest part of the channel is 1½ fathoms.

(78) **Dora Bay,** on the S side, about 7 miles inside the entrance to Cholmondeley Sound, may be used as an anchorage, but is not recommended. There is an irregular ridge, with a least depth of 7 ¼ fathoms, in the middle of the bay about 1.1 miles inside the entrance.

(79) **Sunny Cove** is on the N side at the head of the main part of Cholmondeley Sound, about 8 miles W of Chasina Anchorage, and with local knowledge affords anchorage for small craft. Vessels entering Sunny Cove should steer midchannel courses. **Sunny Point** is the rounding point on the E side of the entrance to the cove.

(80) The head of Cholmondeley Sound is divided into two arms known as **South Arm** and **West Arm.** West Arm has a straight unbroken N shoreline. Its S shore has two indentations, the first about 1.5 miles above the confluence of the two arms is small but furnishes shelter for small craft with anchor depths of 4 to 8 fathoms. The second indentation in the S shore is SSW of the most E of the chain of small wooded islets. Anchorage with ample swinging room may be had here behind the islet in 7 to 15 fathoms, soft bottom. Enter the small bay from West Arm by keeping W of the islet. Anchorage may also be had in 7 to 15 fathoms, soft bottom, at the head of West Arm. This anchorage is exposed to strong winds drawing through the low pass from Hetta Inlet.

(81) From the head of West Arm a portage trail leads W about 3.5 miles to the head of Hetta Inlet.

(82) **South Arm** is free of off-lying dangers as far as is known. Vessels entering should steer midchannel courses to the head of the arm to anchorage in 6 to 10 fathoms, soft bottom. Strong winds from Klakas Inlet draw through the low pass at the head of South Arm.

(83) All tributaries of Cholmondeley Sound freeze in their upper reaches during the winter.

(84) To enter Cholmondeley Sound, from a position 0.5 mile NW of Chasina Island, vessels should steer **219°** to abeam of Hump Island, then steer midchannel courses to the head of West Arm, passing to the N of the chain of wooded islets.

(85) **Clover Bay** has its 0.2-mile-wide entrance between Clover Point and **Anderson Point,** the S entrance point, about 1.5 miles W of Skin Island. A bare rock is about 120 yards N of Anderson Point, and a rock with a depth of ¼ fathom is in midchannel in the entrance. Safe entry can be made on a course **245°,** passing between the midchannel rock and the rock off Anderson Point. Foul ground extends about 0.2 mile E from Anderson Point. An area, small in extent with a least depth of 1½ fathoms, is about 0.9 mile within the entrance and about 125 yards from the S shore; otherwise depths within the bay range from 7¾ to 41 fathoms.

(86) The head of the bay is blocked by small islands. A small cove with depths of 12 to 21 fathoms, except for lesser depths along the edges, is to the N of **King Island,** the largest of the group. A bar with a midchannel depth of 1¾ fathoms stretches across the entrance to the cove from King Island to the rock off the point on the N shore. A ledge extends 50 yards NW of King Island within the cove.

(87) **Clover Point,** a narrow wooded neck of land about 100 feet high, projects NNE for about 0.6 mile. About 1 mile inshore the land rises to a series of knobs and ridges with higher peaks inland. A bank, small in extent with 6¼ fathoms over it, is 0.6 mile NE from Clover Point.

(88) The cove to the W of Clover Point is blocked by rocks and islets. The open bight 1 mile NW of Clover Point is deep. A small 2½-fathom patch is in midentrance. The cove, that is 1.6 miles NW from Clover Point, has depths of 11 to 12 fathoms until near the head. Rocks extend off the S point of the entrance for 500 yards, and a rock, that uncovers 3 feet, is in midentrance. A flat area, with depths of 11 to 20 fathoms, extends about 1.5 miles in a NW direction from the N entrance point of the cove.

(89) **Charts 17434, 17435, 17436, 17428.**–The E shore of Clarence Strait from Dixon Entrance to Vallenar Point, at the W end of Tongass Narrows, is formed by three large islands, Duke, Annette, and Gravina, and a number of smaller islands. Between these islands flow Felice Strait and Nichols Passage which connect Clarence Strait with Revillagigedo Channel.

(90) **Chart 17434.–Sealed Passage** is an approach to Felice Strait from Clarence Strait and is between Duke Island on the E and Percy Islands and Hotspur Island on the W. On the SE side of the S end of the passage about 5.2 miles SW of **Point White,** the W extremity of Duke Island, there are numerous rocks, submerged and awash, of which Hassler Reef and the **Bee Rocks** are the outermost.

(91) Duke Island, the rocks to S, and Hassler Reef, about 5.2 miles SW of Point White, have been described in chapter 4.

(92) **Bee Rocks,** about 3.7 miles SW of Point White, is a group of awash and submerged rocks that is marked by kelp. Passage between Bee Rocks and Hassler Reef to the SW, and Point White to the NE, is not recommended without local knowledge.

(93) A shoal with 1¾ fathoms over it, is about 2.8 miles S of Point White.

(94) **Percy Islands** are a large number of low wooded islands on the NW side of Sealed Passage. The passages between these islands are not navigable except for very small craft with local knowledge. Anchorage can be had either NE or SW of the southernmost island.

(95) **Local magnetic disturbance.**–Differences of as much as 17 ½° from the normal variation have been observed in the vicinity of the southernmost island at 54°56.0'N., 131°35.5'W.

(96) **Sealing Reef** is a double-headed rock awash about 1 mile ESE from the S extremity of Percy Islands.

(97) A pinnacle rock, not marked by kelp, with a least found depth of 4¾ fathoms, is 1.5 miles ESE from the S extremity of Percy Islands. The depth may be less. A group of

rocks, some of which are 6 to 8 feet high, are 1.5 miles WNW of Point White.

(98) **Hotspur Island,** on the NW side of Sealed Passage NE of Percy Islands, is heavily wooded and has its greatest elevation near the N side.

(99) **Werlick Island,** S of Hotspur Island, is low and heavily wooded.

(100) **Vegas Islands,** 1.2 miles E of the S extremity of Hotspur Island and about 0.5 mile off the Duke Island shore, are 160 feet high and heavily wooded. Between them and Duke Island are several rocks.

(101) **Felice Strait** extends from Sealed Passage to Revillagigedo Channel, between Duke Island, Dog Island, Cat Island, and Mary Island on the SE, and Annette Island on the NW. It offers the most direct route for vessels from the S end of Behm Canal, but is little used. There are several dangers, all charted, but those nearest the sailing line are marked or show above water, with the exception of the 1½-fathom depth on Bostwick Reef in 55°02.3'N., 131°18.8'W. No difficulty should be experienced in making the passage through the strait in daytime and with clear weather.

(102) **Currents** in Felice Strait have considerable strength. At Harris Island they have a maximum velocity of about 4.2 knots, diminishing rapidly at short distances away. Around Snipe Island the currents have a maximum velocity of 4.2 knots. (See the Tidal Current Tables for daily predictions for places in Felice Strait.)

(103) **Percy Point** (54°56.8'N., 131°37.1'W.), the westernmost point of Percy Islands and on the N side of the SW entrance to Sealed Passage, is a small island, 150 feet high, with a bold, rocky shore.

(104) From Percy Point NE to Harris Island, the shore is free from dangers except close-to. **Cow Island** is a small, wooded island 100 feet high, N of the Percy Island Group. N of Cow Island are two wooded islets; between the islets and Cow Island are two reefs that bare.

(105) **Point Davison** and the W part of Annette Island are low and wooded. There are numerous off-lying islands and reefs for some distance from the main shore. The extremity of Point Davison is a double island with a small wooded patch on it, and is conspicuous only from E or W. **Point Davison Light** (54°59.7'N., 131°36.8'W.), 33 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the outermost of the small islands off the S end of the point.

(106) **Harris Island** is a small wooded island 90 feet high NW of Hotspur Island. Along the N shore of this island are considerable quantities of kelp that should be given a berth of at least 150 yards in rounding the island. Fair anchorage in 6 to 12 fathoms, sandy bottom, can be had 0.2 mile NE of Harris Island. A light is on the N end of the island.

(107) A group of wooded islets are 0.2 to 0.8 mile off **Sextant Point,** the first point NE of Point Davison. Foul ground extends about 500 yards N and about 700 yards S of these islets. Between the islets and Sextant Point is a clear, deep channel, about 400 yards wide. The main channel into Felice Strait and Tamgas Harbor passes E of the islets and midway between them and Harris Island.

(108) Foul ground extends for 0.4 mile off **Moss Point,** which is 2 miles NE of Point Davison.

(109) **Chart 17435.–Tamgas Harbor** has its entrance about 1.5 miles N of Harris Island. It is a landlocked anchorage suitable for small and moderate-sized craft. The harbor is subject to strong winds in winter. Winds of over 60 knots from NE to S have been experienced when anchored off **Creek Point.** The depths are generally good except near the SW shore, which is shoal.

(110) **Survey Point,** E of the entrance to Tamgas Harbor, is indefinite; both it and the SE section of Annette Island are low and wooded for a distance of 1.5 miles, and then the land rises rapidly to the summit of **Davison Mountain.**

(111) **Ajax Reef,** about 2.5 miles E from Harris Island and about 0.7 mile offshore, extends 0.2 mile in a NE direction and uncovers 12 feet. It is surrounded by kelp. A light is on the S side of the reef on a rock awash at high water.

(112) **Grass Rock,** 0.3 mile off **Grey Point** on the W side of the entrance, is 15 feet high and grass covered. A rock, bare at low water and marked by kelp, is about 200 yards SSE from Grass Rock.

(113) **Mule Rock,** 0.2 mile from the E shore at the entrance, covers at high water; it may be passed on either side. **Tamgas Harbor Entrance Light** (55°01.3'N., 131°30.8'W.), 30 feet above the water, is shown from a small house on a skeleton tower with a red and white diamond-shaped daymark on the rock.

(114) **Annette** is an unincorporated settlement on the W side of Tamgas Harbor at the narrows. A commercial airport is about 2 miles SW of the settlement. Most of the residents of Annette are government employees or their dependents.

(115) **Prominent features.**–About 1.7 miles NW of Crab Point is a microwave tower (see chart 17434), with red obstruction lights, that is prominent inside Tamgas Harbor. The waterfall at the mouth of the creek at the base of Berry Knoll is visible only at low water. A large prominent rock is on the beach off Tent Point.

(116) **Anchorages.**–The best anchorage is in 6 fathoms in the middle of the basin, about 0.5 mile N of Crab Point, taking care to avoid the 2½-fathom spot 0.4 mile NW of the point.

(117) **Weather.**–The climate of Annette is governed by the Gulf of Alaska, topography, and its nearness to the paths of extratropical storms. Its maritime location provides relatively mild temperatures with small daily variations. Periods of subfreezing temperatures seldom exceed 10 days, and a below 0°F reading has occurred only once during the entire period of record. During the summer, while maximums occasionally climb into the 80's, a 90°F reading is unlikely. Storms moving E across the Gulf of Alaska dump frequent and heavy precipitation with annual amounts similar to those along the Washington and Oregon coasts. Precipitation of some sort falls on an average of about 220 days each year, while snow can be expected on 3 to 5 days per month from December through March. Accumulated snow depths of 1 foot or more are infrequent and, because of moderating temperatures, snow cover seldom persists beyond a week or two. As a result of topography, Annette averages about 65 percent as much precipitation as Ketchikan, just 20 miles to N. Winds blow out of the ESE through SSE. Strong southeasterlies are frequent from October through March with windspeeds attaining 28 knots or more 2 to 4 percent of the time. During summer afternoons, southerlies are common and conditions with windspeeds of 4 to 10 knots, temperatures between 33°F and 89°F, and no precipitation are encountered on about 20 days per month. Thick fogs are infrequent and of short duration. Visibilities of 0.25 miles or less occur on about 15 days each year; conditions are worst from July through October. (See page T–1 for **Annette climatological table.**)

(118) **Routes.**–In entering Tamgas Harbor, pass about 500 yards W of Tamgas Harbor Entrance Light and keep the E shore close aboard, distant not over 300 yards until about abeam of Tent Point. Then follow a midchannel track into the harbor avoiding the shoals that extend off Crab Point and Yellow Point.

(119) **Caution.**–A shoal, marked by a buoy at its outer extremity, extends about 0.4 mile SE from Deer Point on the W side, 0.8 mile above Grass Rock. Shoals extend 300 yards offshore between Tent Point and Crab Point, and 200 yards off **Yellow Point**, thus narrowing the channel to a width of about 250 yards between these points.

(120) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(121) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(122) **Wharves.**–Annette has an L-shaped fuel pier with small-craft and seaplane facilities attached. In 1976, the pier was in poor condition.

(123) Annette L-shaped Fuel Pier (55°04'00"N., 131°32'30"W.): on the W side of Tamgas Harbor, between Tent Point and Crab Point; 200-foot face; 29 feet reported aloneside; receipt of diesel fuels, gasoline, kerosene, and jet aircraft fuels from barges; operated by the community of Metlakatla.

(124) **Supplies.**–Water, gasoline, and diesel fuel are available at the airport, about 3 miles by highway from the L-shaped fuel pier. Provisions and fishing supplies can be obtained in Metlakatla.

(125) **Small-craft facilities.**–Small-craft floats and a seaplane float at the end of the more northerly float are on the NW side of the fuel pier approach. A log breakwater is between the floats and the fuel pier approach. The floats provide about 800 feet of berthing space; one berth is available for transient craft. In July 1976, depths of 5 to 20 feet were reported alongside the floats. Electricity is available on the floats. A boat-launching ramp is on the NW side of Crab Point. There are several small-boat mooring floats in the vicinity of the ramp. The small-craft floats are operated by the Annette Outboard Club.

(126) **Chart 17434.–Wallace Reef,** 2 miles E from Ajax Reef and about 0.5 mile off the Annette Island shore, has a least depth of ¾ fathom over it and is surrounded by kelp.

(127) **Snipe Island** is small and is marked by a light. The island is about 10 feet above the water and has a few grassy patches on the highest part.

(128) **Annette Point,** at the SE extremity of Annette Island, is low and wooded and has deep water close-to.

(129) **Indian Rock,** 2 miles NE of Annette Point and 0.7 mile off Annette Island, is a cluster of rocks about 0.3 mile in diameter, several of which bare at extreme low water and are marked by heavy kelp. A lighted buoy marks the W side of the shoal.

(130) **Bostwick Reef** is 1 mile ENE of Indian Rock; it is of considerable extent, marked by kelp, and has a least found depth of 1½ fathoms near its northernmost end.

(131) **Ryus Bay** is on the NW side of Duke Island about 1.4 miles E of Vegas Islands. It is easy of access and well-sheltered, and affords excellent anchorage for small craft in 10 fathoms, mud bottom.

(132) **Tamgas Reef,** about 0.8 mile off the N shore of Duke Island appears as a five-headed rock. One head shows about 3 feet at high water; the others show at various stages of the tide.

(133) **Niquette Harbor,** E of Ryus Bay, is on the NW side of Duke Island and is about 0.3 mile wide at the widest part. It extends about 0.5 mile in a SW direction, narrowing to an inlet that dries, about 0.5 mile long. A submerged rock is 100 yards off the E shore of the narrowest part of the entrance to the harbor, and a rock awash is opposite close to the W shore. Favor the W shore in entering. Anchorage for very small craft may be had in 4 to 6 fathoms in the bight within the entrance. Two rocks, awash, extend about 150 yards N from the point on the S side of the W shore of the bight.

(134) **Dog Bay,** about 1.4 miles ENE of Niquette Harbor, is a small open bight with 33 fathoms at the entrance, 17 fathoms near the head, and 13 to 15 fathoms in the SE corner. Rocks are off the E and W shores, as shown on the chart.

(135) **Dog Island,** immediately E of Dog Bay, is heavily wooded and has a rocky shore. Between Dog Island and Cat Island about 1.8 miles to the NE, are Double Islands, Fish Islands, and Village Island.

(136) **Double Islands,** small and wooded, are connected at low water and are surrounded by a considerable area of rocks and reefs that bare.

(137) **Fish Islands,** two in number and surrounded by moderate-sized rocky ledges, are about 150 feet high and heavily wooded.

(138) **Village Island** is low with a sand beach on all sides. During the summer, grass grows rankly around the old grave sites and decaying totem poles on the island.

(139) **Pond Bay,** SE of Dog Island between it and Duke Island, affords good anchorage when once inside, but is little used because of the dangerous approach. The entrance from Felice Strait and Dog Bay, W of Dog Island, bares about 2 feet. A 6-fathom passage leads N of Dog Island into Pond Bay, but it is obstructed by rocks and requires local knowledge to enter safely.

(140) The best approach to Pond Bay is from Revillagigedo Channel through **Cat Passage** between Grave Point and three islets off the SE point of Cat Island. The best water leads about 0.3 mile off Grave Point until up to a reef that extends SW from a small highwater island off the NE point of the entrance to the bay; thence it leads about midchannel. It is advisable for strangers to enter at low water and with caution. Rocks in depths of 4½ and 6 feet have been reported in the W end of Cat Passage.

(141) **Beaver Creek,** on the W side of Mary Island, is a small creek the entrance to which is not readily discerned at high water. A 2¾-fathom spot is 0.3 mile to the SW of its entrance, with a rock awash between it and the shore.

(142) **Customhouse Cove** is an indentation in the W side of Mary Island that affords good shelter during SE weather. The anchorage is in the middle of the cove, 300 yards from the bare ledges fringing the shore.

(143) **Giant Point,** the N extremity of Mary Island, has reefs that extend 200 yards N from it.

(144) **Kwain Bay** and **Crab Bay** are on the E shore of Annette Island opposite Mary Island. The former affords fair anchorage for moderate-sized vessels and has an entrance S of the rocks in the center of the bay. Crab Bay is an excellent anchorage for small craft and is used considerably.

(145) **Charts 17432, 17434.–Nichols Passage** is between **Annette Island** on the E and **Gravina Island** on the W, and connects Clarence Strait with the SE end of Tongass Narrows. It offers the shortest route for vessels from Dixon Entrance and the S part of Clarence Strait to Ketchikan. There are several clusters of dangerous rocks in the passage, but they are well marked and easily avoided. The channel generally used by large vessels passes W of Warburton Island and Kelp Rocks. Most small craft when entering or leaving Clarence Strait from the N, or from Moira Sound, use the narrow channel that passes between the Bronaugh Islands and Gravina Island into Nichols Passage.

(146) **Currents.**–Vessels bound to Nichols Passage from points across Clarence Strait should take the current into

consideration, for the course is rarely made good. In Nichols Passage the flood sets N with a velocity of 0.7 to 2.8 knots, the greatest strength being felt in the vicinity of Walden Rocks. Currents are considerably influenced by the winds. (See the Tidal Current Tables for predictions for places in Nichols Passage.)

(147) The SW end of Annette Island on the E side of Nichols Passage, from Point Davison to Yellow Hill, is about 200 feet high and wooded. The shoreline is irregular and broken by numerous small bights, islands, and rocks. **Yellow Hill** is a yellow-topped hill 1.5 miles S from Metlakatla. The summit is formed by several bare, rounded knolls of approximately equal elevation.

(148) **Chart 17434.–Hid Reef** (see also chart 17432) is about 2 miles off the W shore of Annette Island at the S entrance to Nichols Passage. On the reef are three distinct clumps of rocks, bare at about half tide with narrow passages between them. The outermost rock is 2.8 miles SW from **Cedar Point** (55°05.8′N., 131°36.4′W.), and is marked by a lighted whistle buoy.

(149) **Canoe Cove** indents the W shore of Annette Island about 3 miles S of Cedar Point. The cove is used by small boats and is entered through the N passage.

(150) **Smuggler Cove,** immediately S of Cedar Point, is open and exposed. In the upper part of the cove is a beach of fine clear sand 200 yards long. The microwave tower close ESE of Smuggler Cove is prominent from the cove and Nichols Passage.

(151) **Chart 17432.–Dall Head,** the S extremity of Gravina Island, is the W headland at the S entrance to Nichols Passage. It is low and wooded. At a distance of 1.5 miles N of Dall Head the land rises rapidly to the high mountains of **Dall Ridge** (chart 17434), with its high and remarkable peaks, forms a conspicuous landmark from Clarence Strait and Dixon Entrance in clear weather. The S end of Dall Ridge is unusually rugged and broken. The southernmost summit is crowned with a narrow cap of trees, below which for 600 feet are bare cliffs of gray and brownish rock. Several rounded hills covered with dead trees show white against the mountains of Dall Ridge. At the S end of Dall Ridge are two large landslides facing S.

(152) **Bronaugh Islands,** that extend from 0.3 to 2 miles from Dall Head, are low and wooded with rocks and reefs surrounding them. The easternmost island of the group, known as **Point McCartey,** is bare on the S and E edges. It is marked by **Point McCartey Light** (55°06.8′N., 131°42.4′W.), 44 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

(153) A rock, bare at half tide, is 0.7 mile SW of Point McCartey Light. Several other similar rocks are between this one and the Bronaugh Islands. A rock, which uncovers 2 feet and has deep water close to it, is about 0.3 mile ESE from Point McCartey. This rock is marked by a buoy. A shoal, covered 25 feet, is about 0.5 mile SE of Point McCartey Light.

(154) Banks and broken ground, with least found depths of 7 to 15 fathoms, are about 0.9 mile NE from Point McCartey. This area should be avoided.

(155) The narrow passage between Bronaugh Islands and Gravina Island has a least depth of 30 feet and is used considerably by small craft. It should be used only with local knowledge.

(156) **Dall Bay,** on the W side of Nichols Passage, about 1.5 miles N of Dall Head, has many dangers that are shown on the chart. It offers good anchorage in 8 fathoms, mud bottom, between the two islands well inside the bay. There is also small-craft anchorage farther in, depth 3 fathoms, soft mud bottom. Local knowledge is essential for entering. A privately maintained mooring float is near the head of the bay. The bay is used for storing fish traps.

(157) **Chart 17435.–Warburton Island** is about 2.8 miles NE of Point McCartey and 1.4 miles from the W shore of Annette Island. It is about 0.1 mile in diameter, 130 feet high and round topped, and has steep, rocky shores. A rock with 1½ fathoms over it is about 200 yards NW of the island.

(158) **Warburton Island Light** (55°07.9′N., 131°37.9′W.), 35 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the E side of the island.

(159) **Kelp Rocks** are four widely spaced patches surrounded by deep water, NW of Warburton Island Light. The northeasternmost patch is marked on its NE side by a buoy, and the westernmost patch by a lighted bell buoy on the W side. The northeasternmost rock is on the range of the waterfall in Port Chester and the N end of Gull Island.

(160) **Port Chester** is an extensive bay indenting the W shore of Annette Island E of Warburton Island. It is encumbered by numerous islands and reefs, of which the southernmost is **Gull Island,** known locally as **Crow Island,** 150 feet high and wooded. About 0.4 mile WSW of Gull Island is a rock awash at highest tides. Surrounding it and extending to the islet E are extensive ledges with bare heads; the W extremity of these ledges is marked by a light. Another ledge with bare heads extends about 0.6 mile E from Gull Island. The bare head closest to Gull Island in this ledge is known locally as **One-Tree Island.** A lighted buoy is on the E side of the 1¼-fathom rock lying about 0.7 mile ESE of Gull Island. **Village Point,** on the S side of the entrance to Port Chester, is low and sandy, with a gravel beach on the E side. W of Village Point are extensive reefs that bare to a distance of 0.2 mile offshore. A light is on the pier on the W side of Village Point.

(161) **Metlakatla** (55°07.7′N., 131°34.6′W.), is a large native American community on the S side of Port Chester about 16 miles S of Ketchikan, through Tongass Narrows and Nichols Passage.

(162) Metlakatla has a cold storage plant, a cannery, a sawmill, and an oil terminal.

(163) **Prominent features.**–The cold storage plant and a large white church with two square towers are prominent from Nichols Passage.

(164) **Pilotage,** except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska. (See Pilotage, chapter 3, for details.)

(165) Vessels en route Metlakatla meet the pilot boat about 1 mile E of Point McCartey Light (55°06.8′N., 131°42.4′W.).

(166) The pilot boat, a tugboat, can be contacted by calling "METLAKATLA PILOT BOAT" on VHF-FM channels 16, 13, or 12.

(167) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(168) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(169) **Wharves.**–Metlakatla has an oil company pier, a city pier, a State ferry terminal, a packing company wharf, a barge terminal, a barge ramp, a seaplane float, and public and privately owned small-craft facilities.

(170) Union Oil Company Pier (55°07′55″N., 131°34′33″W.): on the W side of Village Point; a marine fuel

facility extends NE from the outer end of the approach pier; 80-foot face, S side 40 feet long, NE side 40 feet long; 10 to 12 feet alongside; deck height, 26 feet; receipt of petroleum products and fuel for small craft and fishing vessels; owned by Metlakatla Indian Community and operated by Union Oil Company.

(171) Annette Island Packing Company Wharf (55°07'48"N., 131°34'14"W.): about 300 yards SE of Village Point; 380-foot face, SW side 70 feet long, NE side 120 feet long; 23 feet alongside; deck height, 26 feet; 17 forklifts, one 25-ton forklift; ice for fishing vessels and water are available; receipt of seafood; owned by Metlakatla Indian Company and operated by the Annette Island Packing Company.

(172) Metlakatla City Dock (55°07'43"N., 131°34'02"W.): about 200 yards SE of Annette Island Packing Company Wharf, close E and parallel to the breakwater protecting the small-craft basin to the W, and marked on its NW and SE ends by private lights; 400-foot face; 35 feet alongside; deck height, 26 feet; two 10-ton forklifts; forklifts up to 20 tons are available; water and electricity are available; receipt and shipment of general cargo, shipment of logs, cants and occasionally lumber; owned and operated by Metlakatla Indian Community.

(173) Metlakatla City Barge Ramp: close S of the City Dock; adjustable transfer bridge; 15 feet reported alongside the outer end of the ramp and the inshore is dry; uses same cargo handling equipment as City Dock; water and electricity are available; two 25-ton mobile forklift trucks and tractors are available; receipt and shipment of containerized and roll-on/roll-off general cargo; owned by Metlakatla Indian Community and operated by Foss Alaska Line and Boyer Alaska Barge Line, Inc.

(174) Louisiana-Pacific Annette Hemlock Mill Dock (55°07'38"N., 131°33'44"W.): about 340 yards SE of the City Dock; 20-foot T-head pier with six dolphins providing about 400 feet of berthing space; 10 feet alongside; receipt of log rafts; shipment of wood chips and waster; owned by Metlakatla Indian Community and operated by Louisiana-Pacific Corp., Ketchikan Division.

(175) Alaska Marine Highway System, Metlakatla Ferry Terminal: about 900 yards SE of the City Dock; 35-ton transfer bridge with three dolphins providing 250 feet of total berthing space; 15 feet alongside; passengers and vehicles; owned and operated by the State of Alaska. In 1976, a State ferry terminal was under construction at the same location of the present State ferry terminal. The new terminal has a designed berthing area of 235 feet and a project depth alongside of 24 feet.

(176) **Supplies.**–Gasoline, diesel fuel, distillates, and water are available at the fuel facility. Provisions, fishing supplies, and limited amounts of marine supplies can be obtained in Metlakatla. Additional supplies may be obtained in Ketchikan 16 miles N.

(177) **Repairs.**–There are no provisions for overhauling vessels in Metlakatla. During the fishing season, the machine shop at the Packing Company Wharf is available for minor repairs to small craft. Extensive repairs for small craft are available in Ketchikan, 16 miles to the N.

(178) **Small-craft facilities.**–A small-craft basin, protected by a breakwater, is close SW of the City Pier. In February 1992, the controlling depth was 10 feet in the entrance channel and basin with lesser depths along the W edge and SW corner of the basin. The entrance is marked by a light on the NW end of the breakwater. There is 1,100 feet of berthing space along the floats. The basin is under the control of the **harbormaster** who monitors VHF-FM channel 16 and can also be contacted by telephone at (907) 886-4646. A combination seaplane and small-boat float is on the NE side of Village Point.

(179) Another small-craft basin, protected by breakwaters, is 0.3 mile W of Village Point. In February 1992, the controlling depth was 9 feet (14 feet at midchannel) in the entrance channel, thence in January 1989, depths of 9 to 14 feet were available in the basin except for lesser depths along the edges. The entrance is marked by a light on the end of the NW breakwater and daybeacons just off the end of the SE breakwater.

(180) **Communications.**–The Alaska State Ferry System has scheduled ferry service to Metlakatla. Seaplanes from Ketchikan also make scheduled trips to the community. Metlakatla is connected with Annette by highway. Telephone and radiotelephone communication is maintained with other States and parts of Alaska.

(181) **Scrub Islands,** known locally as the **Two Sisters,** about 0.8 mile E of Gull Island, have two scraggy clumps of trees and are surrounded by ledges, mostly covered at high water. A buoy marks the NE side of the ledges.

(182) **Hub Rock,** known locally as **Devils Rock,** about 1 mile NNE of Village Point, is a small bare ledge about 6 feet above high water. A 1-fathom spot is about 0.3 mile NNE from Hub Rock.

(183) **Martin Rock,** awash at low water, is 0.2 mile NW of Hub Rock; it is not marked by kelp.

(184) **Murdo Island,** about 1.1 miles N of Village Point, and locally known as **Battleship Island** from its former vegetation, is covered with grass and numerous trees. Extensive ledges extend S, W, and N from the island. A daybeacon is 0.8 mile NW of Murdo Island.

(185) **Fillmore Rock** is about 0.3 mile NNW of Murdo Island and bares 1 foot at lowest tides.

(186) **Lively Rock** is about 0.5 mile N from Murdo Island and has 5 feet over it at low water. It is marked by a lighted buoy close NE of the rock.

(187) **Hemlock Island,** close to the N shore of Port Chester, is wooded. It is fringed with reefs, and at lowest tide is connected at its N corner with Annette Island.

(188) Leading to Port Chester are three channels, of which the S one, between Gull Island and Village Point, is of chief importance; the dangers are shown on the chart. Enter on a **085°** course with Warburton Island Light directly astern. The second entrance is the narrow passage between Murdo and Gull Islands; it is seldom used.

(189) The N entrance leads from off Driest Point to midway between Hemlock Island and the lighted buoy marking Lively Rock, then SSE passing E of Scrub Island Buoy 7, then SSW to Port Chester.

(190) Port Chester does not afford good anchorage. During SE gales, winds blow with great violence across it, and williwaws of 60 to 70 knots sweep down from **Purple Mountain** and across the anchorage. Anchorage is to be had in 14 fathoms, mud bottom, about 0.5 mile E of the Packing Company Wharf.

(191) **Driest Point,** on the NW side of Port Chester and separating it from Sylburn Harbor, is a narrow, rocky stretch of land, 250 feet high, and wooded down to high-water line. Foul ground extends about 0.5 mile N from the point. **Driest Point Light 4** (55°10.6'N., 131°36.4'W.), 29 feet above the water, is shown from a spindle with a red triangular daymark on the W extremity of the point.

(192) **Sylburn Harbor** is a small bay N of Driest Point, the S end of which affords fair anchorage for small craft in 7 to 18 fathoms. The easternmost branch of the harbor is known locally as **Japan Bay.** About the middle of the outer entrance to Sylburn Harbor is a large double-headed rock that

is covered several feet at high water. Strangers entering the harbor are advised to wait for low water when the dangers are visible. A **159°** course, with the middle of Blank Inlet (chart 17428) astern and the middle of the S bight ahead, leads midway between the foul ground off Driest Point and the rock in the middle of the outer entrance.

(193) **Charts 17428, 17434.–Seal Cove** (55°11′N., 131°43′W.) is on the W side of Nichols Passage, 4 miles N of Point McCartey. It has depths of about 30 to 40 feet, but is suitable only for small craft because of its narrow entrance. A reef, mostly bare at half tide, extends across the entrance, through which are two channels. The N one has a depth of 8 feet and width of 75 yards, but it is full of boulders and dangerous. The S entrance is generally used. It is close to the S shore and has a depth of about 3 to 11 feet. The channel is narrow and has thick kelp and strong currents. Caution is advised when entering Seal Cove by the N or S entrance. **Seal Cove Rock,** covered 1¼ fathoms and surrounded by kelp, is about 0.4 mile E of the highest part of the reef in the entrance to Seal Cove.

(194) **Bostwick Inlet,** immediately N of Seal Cove, is on the W side of Nichols Passage, 6 miles N of Point McCartey. It affords no shelter in SE weather. The S shore is generally foul, and the upper part of the bay bares for 1.2 miles from the head. In entering, follow the N shore at a distance of about 0.2 mile. A rock awash at high water is on the SW side of the channel at about 55°13.2′N., 131°44.0′W.

(195) **Blank Inlet,** about 4 miles N of Bostwick Inlet and W of Gravina Point, the E extremity of Gravina Island, extends 3 miles NW into the shore of Gravina Island. It is open to the sea from Nichols Passage and affords no sheltered anchorage. Two rocks awash are almost in the center of the inlet.

(196) **Blank Islands,** two in number, 200 feet high and wooded, are near the N side of the entrance to Blank Inlet. The S shoreline is bare rock for 50 to 100 yards outside the trees, and the shore is bold. Small craft can find good anchorage in the bight on the N side of the islands. **Blank Islands Light** (55°16.0′N., 131°38.3′W.), 37 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the SE extremity of the S Blank Island.

(197) **Walden Rocks** are a group of bare rocks at the N entrance to Nichols Passage. The group at its E end shows about 10 feet at high water, and at that time the smaller rocks are covered. About 150 yards W of the group is a rock that covers at half tide and shows kelp. The rock is marked by a light. Close N of the group are other kelp-marked rocks, and 0.2 mile NNW is a rock with 1 fathom over it. About 0.6 mile S of Walden Rocks is a rocky ledge that uncovers 12 feet: between it and Annette Island are a number of rocks that bare.

(198) **Walden Point** offers considerable shelter for small craft directly offshore. **Bailey Rock** covers at high water, is marked by a daybeacon, and is about 1 mile S of Walden Point.

(199) **Annette Bay,** at the NW end of Annette Island, is about 0.8 mile wide at the entrance and narrows to a small stream; it is about 3 miles long, has deep water, and does not afford anchorage for vessels. Small craft can anchor near its head in 7 to 8 fathoms. **Race Point,** the N extremity of Annette Island, and the NE point at the entrance to the bay, is wooded and has a height of about 150 feet. A ledge with a rock awash extends 450 yards NW of the point. The point should be given a berth of over 0.3 mile.

(200) **Charts 17436, 17420.**–The W shore of Gravina Island from Dall Head to South Vallenar Point is heavily timbered, bold, and rocky. Close to shore are many large boulders and rocks, and the bottom is rocky and uneven. The 100-fathom curve is from 0.5 to 1 mile offshore, and it is advisable to give the coast a berth of that distance.

(201) Tidal currents are usually strong close to shore, especially on the flood, reaching an estimated velocity of 2 knots. Small tide rips are found off the more prominent points when the wind is opposed to the current. W of Bronaugh Islands moderate tide rips are set up on a flood current with a N wind. Around South Vallenar Point, an estimated velocity of 2.5 knots is reached on the flood and 1.5 knots on the ebb, with moderate tide rips when wind and current are opposed. W of Vallenar Point the flood current is estimated at 3 knots and 1.5 knots on the ebb with strong tide rips on the ebb during a SE storm.

(202) Dall Head has been described with Nichols Passage.

(203) **Chart 17432.**–Rocks and islands extend about 0.6 mile offshore for a distance of 1.2 miles NW from Dall Head. A small open bight, foul near the head, with depths of 6 to 7 fathoms in the entrance, is 1.4 miles NW from Dall Head. A small rocky islet is off the S shore of the entrance. A rock awash is 400 yards off the wooded islet S of the entrance; it is 1.5 miles WNW of Dall Head.

(204) **Nehenta Bay,** open to the S, is 2.5 miles NW of Dall Head. Depths of 12 to 16 fathoms were obtained in the channel W of the small rocky islet in the middle of the entrance that marks the end of the chain of rocks and rocky islets that extend N from the island at the S entrance point. Foul ground extends 0.1 mile from the head of the bay, and a 6-foot spot is 650 yards 212° from the midchannel rock. Depths of 7¾ to 14 fathoms were obtained in the middle of the bay, while depths of 14 fathoms were obtained in the small bight E of midchannel rock. The narrow arm, 0.4 mile long in a NW direction on the NW side of the bay, has a depth of 3½ fathoms at the entrance and 2¼ fathoms halfway to the head. A reef extends from the NE shore to within 50 yards of the SW shore of this arm.

(205) **Phocena Rocks,** the highest 25 feet, are 275 yards offshore, W of the NW point of the entrance to Nehenta Bay.

(206) **Charts 17436, 17420.–Phocena Bay** (55°10.8′N., 131°48.5′ W.), 3.6 miles NW from Dall Head, open to the S, has a 5¼-fathom spot about midentrance and depths of 9 to 17 fathoms just within the entrance. Foul ground extends about 350 yards off the N entrance point. The N end of the cove is foul for about 0.1 mile from the shore, to the S of which is an area about 200 yards wide, with depths of 1 to 3 fathoms, where fishermen find fair-weather anchorage. The bight to the E of the S entrance point has 7 fathoms at the entrance and shoals rapidly to the head. The small cove immediately W of the N entrance point to the cove is foul.

(207) **Open Bay** (55°11′45″N., 131°49′30″W.), 5 miles NW from Dall Head, is open to the W and NW. Depths of 6 fathoms are found at the entrance, 1¾ fathoms 150 yards within, and shoal water to the head.

(208) **Grant Cove,** about 14.5 miles NNW of Dall Head and 1.7 miles SSE of South Vallenar Point, is exposed to the W. The cove shoals from depths of over 20 fathoms at the entrance to depths of 10 fathoms at the edge of the flat 300 yards from the head. Give the shore S of the S entrance point to the cove a berth of about 0.3 mile. A mooring log is anchored near the head of the cove in 10 fathoms.

(209) The small cove 0.8 mile NNW of Grant Cove is open, exposed, shallow, and foul. A rock with a depth of about 1 fathom is about 300 yards W of the N entrance point to the cove. Another rock, which uncovers 3 feet, is about 200 yards S of the N entrance point; the area N of this rock should be avoided. The small cove 1.1 miles NNW from Grant Cove bares at low water, with the exception of a very narrow opening 200 yards long midway in the entrance that has depths of about 2 fathoms. A large kelp-marked shoal is about 0.5 mile WSW of the cove. A rock with a depth of about 3 feet is near the S end of this shoal.

(210) **South Vallenar Point,** about 1.7 miles N of Grant Cove, is near the NW end of Gravina Island on the NE side of Clarence Strait.

(211) A ridge extends about 0.8 mile N from South Vallenar Point. The bottom is rocky and very irregular. A rock, 5 feet high, is about 0.2 mile N of the point.

(212) **Vallenar Bay,** between South Vallenar and Vallenar Points, affords good shelter from winds drawing up the strait. A foul area with several rocks, some awash and others that uncover, extends about 0.5 mile N from the S shore of Vallenar Bay about 0.2 mile E of the 5-foot high rock N of South Vallenar Point. A mudflat that dries extends about 0.4 mile from the head of the bay. Anchorage in about 14 fathoms can be found 0.7 mile from the head of the bay about 350 yards off the E shore.

(213) Vallenar Point is described in chapter 4.

(214) **Charts 17426, 17436.–Kasaan Bay,** 47 miles N of Cape Chacon, has its entrance on the W side of Clarence Strait, between Island Point and Grindall Island, where it is about 4.0 miles wide. It extends about 17.5 miles NW to Karta Bay at its head. About halfway up the bay, in the middle, are several islands. The shores of the bay and islands are steep-to and heavily wooded. A high, steep mountain range extends along the N shore of the bay almost to the head. Fog often prevails in the S part of Clarence Strait, while it is clear in Kasaan Bay. During SE stormy weather, clouds and mist travel low along the N shore, while the S shore is generally free from low-flying scud. During SE storms the sea at the entrance to the bay is rough and treacherous for small craft. Temporary anchorage while waiting for the fog to lift may be had on an extensive bank, 0.6 to 1.2 miles S from Grindall Point in depths of 8 to 16 fathoms. All known dangers are shown on the chart. Midchannel depths are generally good.

(215) **Currents** in Clarence Strait from Clover Bay to High Island are most noticeable on the flood, and with a S wind attain an estimated velocity of 2 to 2.5 knots. From Island Point S there is generally a S eddy close to shore during flood tides. Off Island Point and the E end of High Island, moderate tide rips are formed when the wind is against the current.

(216) **Island Point,** the S point at the entrance to Kasaan Bay, is rounded and wooded and has an elevation of 228 feet. A small rocky islet is close to the N shore and two small rocks are close to the E shore of the point. The shoreline is grayish-white rock about 25 feet high. Moderate tide rips are encountered off the point.

(217) The small cove to the W of Island Point has depths of 22 fathoms at the entrance shoaling to 6 fathoms near the head. It is used as an anchorage by fishing boats, but is exposed to the N.

(218) **Twenty Fathom Bank** is 2 miles ESE of Island Point. The bottom is rocky and has a least depth of 17 fathoms. The bank is used extensively by fishermen engaged in trolling.

(219) **High Island,** about 1.4 miles N of Island Point, is wooded. From the S there appears to be twin summits on the island, but they merge into one from the E and again become visible from the NW. The slope of the island is uniform. The NE and S shores are abrupt and consist of gray rock, 20 to 40 feet high.

(220) **High Island Light** (55°24.1′N., 132°09.8′W.), 40 feet above the water, shown from a skeleton tower with a red and white diamond-shaped daymark on the NE side of the island, marks the entrance to Kasaan Bay. A rocky islet, 43 feet high and with a few trees on it, is off the SE end of the island.

(221) **Patterson Island,** separated by a channel from the W end of High Island, extends W about 1.3 miles. The channel, about 100 yards wide, is clear for small boats and has a depth of 3 fathoms. The island is timbered and has three summits; the highest is at the E end. A bight makes into the S shore of the island near the W end in the depression between the W summit and the E ridge. It is used as an anchorage during N weather, but affords no protection during SE weather. Several rocks that cover at high water are at the entrance. The outermost rock, which bares at half tide, is 0.25 mile ESE from the W point of the entrance to the bight. A house is at the head of the bight.

(222) A rock with 1¼ fathoms over it is about 0.4 mile SSW from the easternmost point of Patterson Island, and it is not always marked by kelp; otherwise the passage S of the island is clear.

(223) **Grindall Island,** the N point of the entrance to Kasaan Bay, is about 4.0 miles N from Island Point. It is heavily wooded and has two knobs near the SW end, the W knob is the highest. The E part of the island is low. **Approach Point** is the E extremity of the island.

(224) **Local magnetic disturbance.**–Differences of as much as 5° from the normal variation have been observed on Grindall Island in the vicinity of Approach Point.

(225) **Grindall Point,** the SE end of Kasaan Peninsula, has a symmetrical rounded hill that is visible in every direction. Being separated from the higher land of the peninsula, it forms an excellent landmark. From the upper reaches of Kasaan Bay it could possibly be mistaken for the hill on Grindall Island, which it obscures from view.

(226) **Grindall Passage** is frequently used by those with local knowledge. It is safe for steamers, though the clear part of the channel is only 150 yards wide in the narrowest part. A wooded islet and two bare rocks about 550 and 750 yards, respectively, SSW of it are close to the W end of Grindall Island. A 1½-fathom spot is 275 yards 290° from the southernmost rock. A rock with a depth of 2¼ fathoms is in the middle of the passage, 300 yards N of the wooded islet off the W end of Grindall Island. A patch of foul ground is on the W side of the S entrance to the passage. This foul ground will be cleared by keeping E of the range formed by two prominent points, one on either side of the cove on the W side of the passage. The N point has a wooded islet close by that should not be mistaken for the point. Pass close to the S point of the cove to avoid the 2¼-fathom spot in the middle of the passage. The N entrance is clear.

(227) A good anchorage for small vessels in N weather may be had in what is locally called **Grindall Anchorage,** the small cove at the end of Grindall Point. Anchor in 5 to 12 fathoms, soft bottom. In S weather fair protection can be found directly across the pass off a U.S. Forest Service cabin. The U.S. Forest Service maintains a mooring buoy in the small cove close to the cabin. Fresh water may be obtained here. The current floods E through Grindall Passage, ebbs W, and is of moderate strength.

(228) **Trollers Cove** is back of a chain of islands about 1.4 miles W from Island Point. The cove has depths of 4 to 6 fathoms. It is considered a good small-boat anchorage and is used by those fishing on Twenty Fathom Bank. Three channels may be used in entering. The channel E of the islands bares, is foul, and should be used only by those with local knowledge. The channel in the middle of the chain of islands has a depth of 5 fathoms. It is marked by a light on the E end of a small island on the W side of the entrance to the cove. The channel W of the island is the best.

(229) Round the W island at a distance of about 125 yards and then follow a midchannel course to the S of the islands. Pass about 50 yards S of the S shore of the E island to avoid a rock awash that is about 100 yards S of the island. When abeam the SE end of the island, anchor in about 4 fathoms.

(230) The small cove W of the W island has three rocky islets and several rocks marked by kelp in the center. It is not recommended as an anchorage.

(231) **Skowl Arm** and Polk Inlet, its W arm, have a combined length of about 14 miles. The head of the inlet is only about 3 miles from the head of Cholmondeley Sound (chart 17436), though the intervening land is high. **Skowl Point,** the S point at the entrance to Skowl Arm, is really a group of small islands close inshore.

(232) **Skowl Point Light** (55°25.7'N., 132°16.1'W.), 15 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the outlying bare rock about 300 yards N of the point at the entrance to Skowl Arm. Fishing boats find good protection close to the shore immediately W of Skowl Point during SE storms.

(233) On the N side, about 3.5 miles up the arm, is the abandoned Haida village of **Old Kasaan.** No evidence of the village remains; other than a few weathered totem poles and a few graves. The village site is part of **Old Kasaan Village Historical Area,** administered by the U.S. Forest Service. In front of the village site is a ledge, covered at high water, that extends about 100 yards offshore.

(234) **Smith Cove,** the large bay E of Old Kasaan village site and about 2 miles W of **Kasaan Point,** affords good anchorage in 10 to 20 fathoms, soft bottom. It should be entered with caution, taking care to avoid the rocks and shoals off the two small wooded islets at the entrance and inside the bay.

(235) **Saltery Cove** is a small bay, about 1 mile long, in the SE shore of Skowl Arm, about 2.5 miles W of Skowl Point and close E of McKenzie Inlet. A group of islands, surrounded by foul ground, is on the E side of the cove; this foul ground extends into the cove about 0.5 mile from the E shore. The channel E of the group of islands in the entrance is the one mostly used. A well-protected anchorage for small craft in about 4 to 9 fathoms, mud bottom, is at the head of the cove.

(236) **McKenzie Inlet,** the S branch of Skowl Arm, has its entrance about 3.7 miles W of Skowl Point. The inlet extends about 5 miles in a S direction. **McKenzie Rock,** bare, is about 0.5 mile W of **Khayyam Point,** the E point at the entrance; there is no safe channel between. A dangerous submerged rock is immediately N of McKenzie Rock. A rock, that uncovers 3 feet, and a rock awash immediately to the NW, are about 400 yards from the E shore, 0.5 mile S of McKenzie Rock. The only good anchorage in Skowl Arm for vessels of any size is in McKenzie Inlet, about 500 yards N of East Sentinel Island, in 28 fathoms, mud bottom.

(237) About 1 mile inside the entrance, the channel leads between **East Sentinel Island** and **West Sentinel Island,** two rounded wooded islands. Kelp extends from the islands a short distance into the channel, which is narrow and has a depth of about 5 fathoms. A careful midchannel course between the islands leads through safely; S of the islands the inlet is clear. There is good anchorage near the head of the inlet on the W side of **Peacock Island,** in depths of 7 to 10 fathoms, soft bottom.

(238) **Paul Bight,** on the W side of the entrance to McKenzie Inlet, affords anchorage for small craft in 3 to 5 fathoms. A group of bare rocks is off the N point at the entrance. In entering, favor the S point.

(239) **Polk Inlet,** the W arm of Skowl Arm, is entered about 4.7 miles above the entrance to Skowl Arm, and extends W and S for about 9.3 miles. The entrance to the inlet is foul, and extreme caution must be exercised when entering. The current in the entrance to the inlet is weak.

(240) **Black Rock** bares 10 feet and is about 1 mile N from Kasaan Point. The range formed by the NE tangent of **Daisy Island,** 1.3 miles NW of Black Rock, and the rocky islet SE of Daisy Island clears Black Rock by a distance of about 0.1 mile.

(241) **Kasaan Island,** low and wooded, and **Round Island,** a small wooded islet NW of Kasaan Island, are the most noticeable of the islands in the middle of Kasaan Bay. A reef that uncovers 9 feet is 0.6 mile 162° from the W end of Kasaan Island. The channel S of this reef and S of Kasaan Island has been found clear of dangers. The entrance at both ends of the channel are clear, with the exception of a 2½-fathom spot 0.1 mile NW of **Berry Island.** A 5¼-fathom spot is 0.8 mile 125° from the E end of Kasaan Island.

(242) Anchorage for small boats is to be found in the landlocked inlet on the NE side of Kasaan Island in 7 to 10 fathoms, soft bottom. This is called **Happy Harbor** locally. The entrance is 2 feet deep, and caution is necessary in entering. A shoal, covered 11 feet and marked by kelp, is 150 yards NNW of the rock awash off the NE entrance point. Another shoal, covered 9 feet and marked by kelp, is 300 yards N of the same rock awash. After entering the narrow channel, favor the E side until through the entrance.

(243) The lagoon on the S side of Kasaan Island is sheltered, but subject to strong winds drawing through from the N. The channel is very narrow and has a controlling depth of 4 feet.

(244) A small cove, known locally as **Linney Bay,** 0.6 mile W of Daisy Island, is used regularly for storage of log rafts. Excellent shelter is afforded in all weather, but center depths and bottom do not favor good anchorage. A 2-fathom shoal is just E of the center of the entrance, but depths throughout the greater part of the bay are 10 to 24 fathoms with no known dangers.

(245) The small bay about 1.8 miles S of the W end of Kasaan Island affords anchorage for small boats in depths of 6 to 10 fathoms. A reef, which bares, extends about 200 yards SE from the small island at the SW side of the entrance, and another reef with a dangerous rock at its end extends about the same distance to the NE. When entering the bay, favor the E point. A least depth of 2¼ fathoms was obtained in the entrance.

(246) **Kasaan** is a village on the N shore of Kasaan Bay about 10 miles NW of Grindall Island. The former cannery wharf here has a face 125 feet long with a depth of 32 feet alongside. Some of the pilings under the wharf are badly deteriorated, and some are broken off. Neither water nor supplies are available. The cannery building fronting the wharf is in poor condition as the cannery has not been in operation since 1954. A State-maintained small-craft and seaplane float, with 224 feet of berthing space, is about 25 yards N of the cannery wharf. In 1976, 10 to 25 feet was reported alongside the float. The State-operated radio station in Kasaan maintains radiotelephone communications with

Ketchikan. **Kasaan Light** (55°32.1'N., 132°23.8'W.), 12 feet above the water, is shown from a small house with a red and white diamond-shaped daymark on shore, S of the cannery. The point W of the village is foul and should be given a berth of at least 150 yards.

(247) **Coal Bay,** on the S shore of Kasaan Bay about 3.8 miles SW of Kasaan and 1.5 miles SE of Outer Point, affords good anchorage in 15 fathoms except in N weather. It is probable that winter gales from the NW blow hard into the bay. A reef, that bares, extends about 0.3 mile in a N direction off the W point of the entrance to the bay. A shoal, with 2 ¼ fathoms over it, is about 0.4 mile ENE from the same point.

(248) **Kina Cove,** about 0.5 mile W of Coal Bay, affords good anchorage in 7 to 10 fathoms, 0.8 mile inside the entrance. In entering, follow a midchannel course. A reef is about 100 yards off the W shore about 0.1 mile S of the W point of the narrow entrance to the inner bay.

(249) **Karta Bay,** at the head of Kasaan Bay about 2 miles NW of Sandy Point, affords good anchorage in 10 to 12 fathoms, with a clearance of about 430 yards. **Mound Point** (55°34.6'N., 132°34.0'W.), on the N side of the entrance to Karta Bay, is prominent. A 4-fathom shoal is about 1.1 miles ESE from the point. A number of shoals with less water over them are farther inshore in the direction of Sandy Point.

(250) The head of Kasaan Bay is separated from the main part of the bay by a chain of wooded islands and affords secure anchorage in 5 to 8 fathoms. In heavy SE weather the NE part of this inner bay affords the only secure anchorage in 7 to 12 fathoms, soft bottom. The best entrance is between the fourth and fifth islands counting from E. This passage is 225 yards wide, but the channel is only 50 yards wide between the 3-fathom curves, with a depth of 4 fathoms in midchannel.

(251) **Twelvemile Arm,** a narrow inlet entered between Sandy Point on the N and Outer Point on the S, extends SW about 13 miles from near the head of Kasaan Bay. The depths are generally good.

(252) **Sandy Point** (55°33.2'N., 132°31.4'W.), the N point at the entrance to Twelvemile Arm on the W shore, is low and wooded. A reef about 300 yards wide extends off the point in a SE direction for about 500 yards. The approximate center of the reef is marked by a flat islet 5 feet high. The immediate vicinity of this reef is shoal and rocky. For 1 mile to the SW, the shoreline forms two small bights, and is marked by rocks and islets. Beyond this point the shore is comparatively clear to Loy Island and the entrance to Hollis Anchorage, except for log rafts moored close ashore in the vicinity of **Pellett Point,** 2.4 miles SW of Sandy Point.

(253) **Outer Point** is a rocky, wooded promontory, on the S shore at the entrance to Twelvemile Arm. A small island with a lone tree on it is just off the point to the NE in Kasaan Bay. Reefs extend about 150 yards offshore on the Twelvemile Arm side. A 4-fathom spot is about 300 yards NW of the point.

(254) **Jarvis Island** is about 1.1 miles SW of Outer Point along the SE shore of Twelvemile Arm. The shoreline is abrupt like the general shoreline. About 0.3 mile NE of Jarvis Island is a small grass-covered rock about 0.3 mile from shore. A 1-fathom shoal is about 250 yards NW of this rock. About 1.5 miles SW of Outer Point and 0.2 mile W of Jarvis Island is a small island, with a reef about 50 yards in diameter, just off the NW shore. It is wooded and about 200 feet high to the tree tops. To a ship entering Twelvemile Arm, this reef appears as two rocks awash, except at very low water. At high water the reef is covered.

(255) **Loy Island** is to the NE of the entrance to Hollis Anchorage on the W shore of Twelvemile Arm. The water toward the center of the arm from the island is clear. Behind the island the bottom is foul and full of reefs. The bight is hardly large enough for anchorage, and the rocks render it of no value as such.

(256) A ferry terminal is in **Clark Bay,** about 0.4 mile NNW of the NE point of Loy Island. The terminal has berthing space, with dolphins, of about 235 feet, and a reported depth alongside of about 26 feet.

(257) **Hollis Anchorage,** on the W side of Twelvemile Arm, affords good anchorage in 5 to 7 fathoms. The anchorage is somewhat constricted by a rocky ledge that extends W about 200 yards from the W end of the island on the N side of the entrance, and by the extensive flat in the NW part of the anchorage that extends off the mouth of **Maybeso Creek.** In entering Hollis Anchorage, avoid the gravel reef that uncovers 9 feet making off from the S shore to the center of the channel, and the rock that uncovers 5 feet lying 80 yards off the N shore opposite the reef; the latter danger is marked by a daybeacon.

(258) The approach channel to Hollis Anchorage has been cleared by a wire drag to a depth of 25 feet. The small arm of Hollis Anchorage that extends NE has a controlling depth of 12 feet. The usable area of the arm is very limited and is suitable only for small vessels. The cleared 12-foot dragged area is only 45 yards wide at the entrance to the arm. The shoal area on the NW side of the arm extends with depths of 5 to 10 feet for two-thirds of the distance across the entrance.

(259) **Hollis** is on the peninsula on the N side of the anchorage. A ferry terminal ramp is near the SW end of the peninsula. A small-boat float, with a seaplane float at its SW end, and a surfaced launching ramp are about 400 and 300 yards, respectively, to the ENE of the ferry terminal.

(260) **Althouse Point** is the S point at the entrance to Hollis Anchorage. A rocky shoal with 2 fathoms over it is 550 yards S of the point and 300 yards offshore.

(261) **Harris River Bay,** at the mouth of **Harris River,** is bare, but at high tide small craft can cross into the river.

(262) Midchannel courses lead in good water through Twelvemile Arm. Numerous rocky reefs at the points do not extend more than 60 yards offshore. In the middle of the arm, about 400 yards NNE from the first wooded islet at the head of the arm, is a small grass-covered islet that is just awash at extreme high tide. A rocky shoal that bares is 400 yards NNE from this islet and numerous patches of rocks that uncover 4 feet are between the islet and the W shore. Log booms and rafting grounds are reported to cover much of the head of Twelvemile Arm.

(263) **Chart 17420.–Caamano Point,** marked by a light (55°29.9'N., 131°58.9'W.), is the S extremity of Cleveland Peninsula and the W point at the W entrance to Behm Canal; ledges extend SE from the point. Caamano Point and light, and Behm Canal are described in chapter 4.

(264) The W coast of **Cleveland Peninsula** from Caamano Point to Lemesurier Point, a distance of 20.5 miles, is rocky, bold, and heavily wooded, and has deep water close inshore. The shore is fringed with kelp and has many dangers, but none are more than 0.5 mile offshore. Very often a following sea will be encountered along this section of the coast; mariners are cautioned to guard against being set onto these dangers.

(265) Launches may find anchorage in any of the several shallow bights that indent the W coast of Cleveland Peninsula between Caamano Point and Lemesurier Point. These bights, however, are surrounded with many dangerous

rocks, and their use during stormy weather is attended with extreme danger.

(266) **Lee Rock** (55°42.2'N., 132°14.2'W.), close off the W coast of Cleveland Peninsula, about 15.9 miles and 6.4 miles N of Caamano Point and Ship Island, respectively, is about 20 feet high and the westernmost of three rocky wooded islands at the entrance to a small cove. Anchorage may be made in the center of the cove, 0.2 mile from its head in 8 to 14 fathoms. Passage can be made between Lee Rock and the two E islands in 7 to 9 fathoms. There is no safe passage between the two E islands or between the islands and the shore. A reef 200 yards S of the easternmost island and 100 yards offshore bares 10 feet.

(267) **Cabin Cove,** indenting the W coast of Cleveland Peninsula, about 3.2 miles N of Ship Island, is shoal and should not be entered.

(268) A rock (55°38.5'N., 132°12.5'W.), about 3 feet high, is about 400 yards offshore 2.6 miles N of Ship Island. Midchannel depths between the rock and the shore are 8 to 14 fathoms.

(269) **Chart 17426.–Niblack Point** (55°33.1'N., 132°07.1'W.), 5.5 miles NW of Caamano Point, is marked by a daybeacon.

(270) **Ship Island,** 0.3 mile offshore on the E side of Clarence Strait, is about 4 miles NW of Niblack Point and 14.5 miles above Guard Islands. The island is 35 feet high and has a few scraggy trees on it. A ledge extends a short distance from the S end. **Ship Island Light** (55°36.0'N., 132°12.1'W.), 40 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the highest part of the island. Passage may be made in 10 to 15 fathoms midway between the island and the mainland.

(271) **Chart 17423.–Myers Chuck,** a small harbor with good anchorage for small craft, is about 1.6 miles SE of **Lemesurier Point** (55°45.9'N., 132°16.9'W.) and immediately E of **Myers Island.** A light is on the N side of the island. The harbor is entered between the light and a buoy that marks the end of the reef that extends SE of the small island NNW of Myers Island. **Myers Chuck** is a small settlement along the E shore of the harbor. The lighted microwave tower at the settlement is readily visible up and down Clarence Strait from Ship Island to Lincoln Rock.

(272) A State-operated float with about 384 feet of berthing space and a reported depth of 12 feet alongside the NE end, and 25 feet alongside the rest is at the NE side of the harbor; a seaplane float extends NW from the float near the approach pier. Care should be taken to avoid the reef that bares about 25 feet NW of the head of the approach pier. A private float, S of the State float, has gasoline and diesel fuel; water is available in an emergency. A 56-foot boat grid is available just inside the State-operated float. Limited amounts of provisions can be obtained at the store at the head of the private float.

(273) A State-operated radiotelephone is at the residence next to the store. A telephone is outside the store. Seaplane transportation to Ketchikan is available upon request. A supply and mail boat from Ketchikan calls weekly at Myers Chuck.

(274) Anchorage for small craft can also be had in the narrow arm between Myers Chuck and the mainland. This arm, however, freezes over in the winter and the outer harbor does not.

(275) To enter, give the NW point of Myers Island a good berth to avoid a submerged rock with 5 to 6 feet over it, which is reported to be about 100 yards off this point. Pass midway between the light and the buoy and turn SE into the harbor.

(276) **Misery Island** is 0.5 mile NW from Myers Chuck. The W shore is faced by almost perpendicular cliffs about 40 feet high. Two rocks, marked by a daybeacon, are S from the island; the outermost, distant about 300 yards, bares 4 feet, and the inner rock bares 9 feet. A small rock, marked by kelp, two rocks awash, and a reported submerged rock with about 4 feet over it extend from about 300 to 600 yards E from near the S point of Misery Island. There is reported to be 3 to 4 fathoms in the passage between the N end of Misery Island and the mainland. Favor the mainland shore.

(277) **Lemesurier Point,** the S point at the entrance to Ernest Sound, and also the SW entrance point to Union Bay, is long, low, and wooded; its shores are bold. Ernest Sound and Union Bay are described later in this chapter.

(278) **Lemly Rocks,** 0.2 mile off Lemesurier Point, are about 3 feet high. At low water there are three rocks close together with submerged rocks between them.

(279) **McHenry Ledge,** with a depth of ¼ fathom and showing kelp, is 0.7 mile 320° from Lemly Rocks; it is marked by a lighted bell buoy 0.1 mile NW of it. There is a good passage between McHenry Ledge and Lemly Rocks, but the currents have considerable velocity; strong tide rips have been reported. A number of groundings have occurred on Lemly Rocks in attempting the passage in thick weather.

(280) **Chart 17426.**–The W shore of Clarence Strait along the E side of Kasaan Peninsula from Grindall Island to Windfall Harbor, a distance of about 12 miles, is rocky, abrupt, and wooded, and rises rapidly to peaks. The shore close-in is paralleled by kelp beds that give a good indication of the many dangers along this section of the coast; mariners are advised to exercise caution. Occasional beaches do exist, and these are covered by rocks ranging from pebbles to large boulders. Almost all contain a large number of deteriorating cut timber. Among the small inlets and indentations along this coast, Lyman Anchorage and Windfall Harbor are the largest.

(281) **Streets Island** is a low rocky islet, 0.4 mile from the W shore of Clarence Strait, and about 2.3 miles NNW from Approach Point, Grindall Island. Kelp extends a short distance from the ends of the island. About 175 yards SE of the island is a rock covered 12 feet. A shoal area, with a depth of 3 fathoms near its outer end and with lesser depths inside, extends ENE for about 0.3 mile from the E side of Kasaan Peninsula towards Streets Island. A narrow channel with a controlling depth of 15 fathoms is between the outer end of this shoal and the island. However, this passage is not recommended without local knowledge.

(282) **Lyman Anchorage** is on the SW shore of Clarence Strait about 6.5 miles NW of Streets Island. Its outer part is an open bight about 1 mile wide at its entrance. The inner harbor extends 0.6 mile to the SW from the head of the main bay, is about 200 yards wide, and has a controlling depth of ½ fathom in its narrow approach. It offers excellent shelter in all weather for small craft in 4 to 5 fathoms, mud bottom.

(283) **Lyman Point** is the E point of the entrance. Rocky shoals are N and NE of the point.

(284) **Lyman Rock** is a submerged rock near the middle of Lyman Anchorage.

(285) **Hadley** is a settlement on the S side of Lyman Anchorage E of Sawmill Point. It was formerly a shipping point for the abandoned mines in the vicinity.

(286) **Figgins Point** is a very bluff point about 0.8 mile N of Lyman Anchorage. Rocks that bare are about 150 yards off the point.

(287) **Windfall Harbor,** about 4 miles NW of Lyman Anchorage, is a narrow, crooked inlet that extends SW for about 1 mile. Its entrance is obstructed by rocks, reefs, and islands. It is a poor anchorage and should be avoided by all except small craft with local knowledge.

(288) **Chart 17420.**–From Windfall Harbor to Tolstoi Point small rocks and islets extend offshore for about 300 yards. **Tolstoi Point** (55°40.2′ N., 132°23.5′W.), 9 miles above Lyman Point, is high, bluff, and wooded, and has a low, bare rock close to its N end and a similar rock at its W end.

(289) **Local magnetic disturbance.**–Differences of as much as 3 ¼° from normal variation have been observed at Tolstoi Point.

(290) **Chart 17423.–Tolstoi Bay** has its entrance W of Tolstoi Point and extends in a general S direction for about 4 miles. The E shore is high and steep; the head of the bay is flat, and the land is low and marshy. Near the E shore at the head of the bay is a wooded islet, and S of it is a line of rocks, some of which are covered at high water. There is anchorage in about 10 to 15 fathoms in midchannel W of the wooded islet, protected from all directions except from N, from which direction the wind and sea come home, making the anchorage uncomfortable. SW winds draw through with considerable force. A midchannel course leads to the anchorage. There are several private mooring buoys in the bay.

(291) On the W side of Tolstoi Bay about 1.2 miles S of the entrance is a small harbor marked by a wooded islet 150 yards offshore. The entrance is obstructed by an islet in midchannel and a rock that shows at low water off its E side, leaving a clear channel less than 100 yards wide on the NE side of the islet. The anchorage is in about 7½ fathoms near the middle. In entering, pass S of the outlying wooded islet.

(292) There is no safe passage inside the group of small islands close to the W point at the entrance to Tolstoi Bay, although entering from SE, between submerged rocks, one can find contracted anchorage for small craft in 6 to 7 fathoms.

(293) **Charts 17423, 17420.–Thorne Bay** (55°40.8′N., 132°28.2′W.) has its navigable entrance on the N side of a large island obstructing its mouth, 2.5 miles W of Tolstoi Point. The entrance is marked on the N side by a light and reportedly by private daymarks. A shoal area is close to the N shore of the channel leading into Thorne Bay, N of the large island, and extends over one-half of the way into the channel from the main shore toward the island. This area is thick with kelp; however, the kelp is towed under when the current runs strong. This current causes numerous eddies and rips through the entrance. After passing this shoal area, follow a midchannel course to the entrance to Thorne Bay proper. Thorne Bay is about 0.4 mile wide with an arm that extends about 1.5 miles SE and a larger arm that extends about 2 miles NW. In rounding the N point, between the entrance channel and Thorne Bay proper, follow a course slightly S of midchannel to avoid a gently sloping sandbar that extends SW from the point. After this point is cleared, Thorne Bay is clear and has depths of 4¼ fathoms or more to a line running SW from the lumber camp float in the small cove in the N shore of the bay. Midbay, on a line with the float bearing 052°, is a shoal with a least depth of 1 fathom. NW of this line the bay shoals gently to the head. A fan-shaped shoal area extends about 0.25 mile from the mouth of the Thorne River.

(294) Floating logs and deadheads may be encountered in the bay and off the entrance; caution is advised. Reefs and rocks in the entrance and out into Clarence Strait are usually covered with kelp; this kelp may be towed under by the existing currents.

(295) The bight S of the large island in the entrance to Thorne Bay affords a good anchorage in 14 to 20 fathoms; the channel to it favors the main S shore. A large reef, covered with kelp, extends almost midway into this channel from the large island. The small cove in the N shore of the bay, about 2.3 miles WNW of the island in the entrance, has depths of 2 to 3 fathoms. In 1976, a logging company was operating in this small cove and was maintaining several floats for small craft, tugs, and float planes. Gasoline, diesel fuel, water, and some provisions can be obtained in an emergency. The logging company maintains telephone and radiotelephone communications with other States and parts of Alaska.

(296) **Tolstoi Island,** about 2 miles NW of Tolstoi Point, is low and flat, with a few scrubby trees.

(297) **Snug Anchorage** is about 1 mile W of Tolstoi Island. It is about 1.2 miles long and from 0.1 to 0.2 mile wide. An islet is in the center of the bight at the head of the anchorage. In entering, pass S of the islands off the entrance, then favor the W shore to avoid the rock awash that is about 300 yards S of an island off the N point of the entrance. The channel passes to the SW of the small islets that are close to the N shore. Depths of 4 to 5 fathoms were obtained in the narrowest part of the channel, and depths of 3 to 16 fathoms were found at the head of the cove. In the small cove E of Snug Anchorage, depths of 12 to 15 fathoms were found. Rocks are along the W side and near the head of this cove. Irregular depths indicate the necessity for caution in Snug Anchorage and the cove to the E.

(298) **Forss Cove** is about 1.8 miles NNW from Tolstoi Island. A narrow channel 0.3 mile long in a SW direction and in places less than 50 yards wide, opens into a bight 0.5 mile long in a NW direction and 0.2 mile wide, in which there are numerous small islets. A midchannel course should be followed until about 150 yards before the entrance opens into the cove. The SE shore should then be favored to avoid a large reef and shoal area. The bottom comes up to about 1¼ fathoms at this point. Anchorage in 14 fathoms can be obtained 100 yards NW of the large island SW of the entrance. The N part of the cove has numerous reefs and shoal areas and should not be entered.

(299) From Forss Cove to Narrow Point there are numerous small bights, exposed to S winds, in which there are rocks and small islets.

(300) **Narrow Point,** about 7.5 miles NNW of Tolstoi Point, shows as a wooded knob just above the wooded shore in its vicinity. **Narrow Point Light** (55°47.5′N., 132°28.6′W.), 35 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point.

(301) A small cove, open to the SE, is 5.5 miles NW of Narrow Point. It is rocky in the N part.

(302) **Chart 17423.–Ratz Harbor,** about 7 miles NNW of Narrow Point, is a small anchorage that is little more than 0.5 mile long and 0.2 mile wide. It affords shelter from all winds except from N to NE, and these probably blow home with some force. Williwaws from the SE at times strike with great force in this anchorage. The NW point at the entrance is a ledge with an islet near the shore, and two heads, each with a single scrubby tree, near its SE end all connected at low water. **Ratz Harbor Entrance Light** (55°53.3′N.,

132°35.8'W.), 20 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the outer head or islet. From the SE point at the entrance, a ledge covered only at high water extends 175 yards NW and has two rocky heads. The width of the channel between is about 230 yards.

(303) A careful midchannel course carries in clear. Depths of 4 to 11 fathoms were found at the entrance and 4 to 13 fathoms inside. The usual anchorage is in the middle of the S part of the harbor. There is a flat in the W indentation of the harbor, and a few stub pilings on the SE side of the harbor.

(304) **Chart 17360.**–The shoreline from Ratz Harbor NW to **Clear Creek,** a distance of 6.3 miles, is practically straight. A small rock, 20 feet high, is 450 yards to the NE of the mouth of the creek.

(305) **Luck Point** (55°59'N., 132°44'W.), on the W side of Clarence Strait opposite Point Stanhope, is a rounding point without marked features. Here the shoreline turns WNW and changes from a steep, rocky formation to a boulder beach about 100 yards wide. About 0.4 mile WNW from Luck Point, a narrow ledge extends offshore for about 0.3 mile. From about 0.7 mile NW of Luck Point to Coffman Cove, the coast is fringed with bare, awash, and submerged rocks. The outermost rock is about 0.3 mile from the shore.

(306) **Etolin Island,** on the NE side of Clarence Strait near its head, separates Ernest Sound from Stikine Strait. The coast is bold, rocky, and densely wooded, and is broken by numerous inlets and off-lying islands.

(307) **Chart 17385.**–The Onslow Islands, on the N side at the entrance to Ernest Sound, are five wooded islands and numerous small ones, the largest of which is **Onslow Island,** 3.5 miles long and about 350 feet high.

(308) The W shore of Onslow Island is indented with small bays filled with ledges and rocks. Small rocks and islets extend offshore 0.1 to 0.5 mile. An inlet about 0.5 mile long, opening from the S and extending E, is about 1.8 miles from Ernest Point. It is unsurveyed, but it is reported that 8 feet can be carried through the narrow neck near high water, and that 4 fathoms, mud bottom, are obtained within. Rocks awash and kelp are in the entrance, and tide rips extend off the point.

(309) **Ernest Point** (55°51.1'N., 132°22.1'W.) is the southernmost point of Onslow Island and is the NW point to Ernest Sound. Foul ground extends for 0.5 mile SSE of the point.

(310) **Onslow Point,** about 2.1 miles ESE of Ernest Point, consists of a large and small islet with a large bare rock to the SE; deep water is close SW of the point. Reefs and foul ground connect Onslow Point with **Eagle Island,** a large wooded island N of Onslow Point. The cove on the SE side of Eagle Island is foul. Tide rips form off Onslow Point.

(311) **Muffin Islands** are a group of four small wooded islands about 0.4 mile E of Eagle Island. The channel between Eagle Island and Muffin Islands is clear. Reefs extend offshore about 0.6 mile to the N and NW of the Muffin Islands.

(312) The SE and E shores of **Stone Islands,** about 0.6 mile N of Eagle Island, are foul; rocks extend offshore 0.2 to 0.5 mile. The small bight between the Stone Islands affords shelter for very small craft to the SE of the wooded island in the entrance. Anchorage may be obtained in 5 fathoms, mud bottom; the channels leading to it are tortuous. The cove in the N shore of the larger Stone Island is completely filled by flats. No freshwater was found here.

(313) The channel between Onslow Island and Eagle Island is clear except for reefs that make out from each side of the channel about 1 mile N from the S end of Eagle Island. The end of each reef is marked by a rock; the rock on the E side of the channel uncovers 8 feet, and the rock on the W side uncovers 6 feet. Midchannel courses are good, but, when passing between the two rocks, slightly favor the E side. The cove on the W side of the channel to the S of the N end of Eagle Island has depths of 3½ fathoms in the middle and 12 fathoms, mud bottom, at the entrance. Water may be obtained from a small stream at the head.

(314) The channel between Onslow and Stone Islands is irregular, depths of 6 fathoms being found near the S end. A wooded island is in the passage with deep water between it and the larger Stone Island. Rocks awash are 0.1 mile E and 0.2 SE, respectively, of the wooded island. In passing, favor the larger Stone Island. The channel between Onslow Island and Carlton Island to the N is foul and bares. The passage N of Carlton Island has depths of 5½ to 7 fathoms and from the S passes E of the rock that uncovers about 8 feet and is 500 yards E of Carlton Island.

(315) A dangerous rock that uncovers about 6 feet is in midchannel in the passage N of Stone Islands. Keep Stone Islands close aboard about 100 yards distant when this rock is covered. A dangerous ledge, which uncovers, extends more than halfway from Etolin Island toward E Stone Island. Rocks awash are just off the N end of the E Stone Island. These dangers render this passage hazardous except at low water.

(316) These channels are small-boat passages and are not suitable as anchorage because of the rocky bottom and the currents that vary in strength from 2 to 4 knots and often are considerably strengthened by a moderate breeze.

(317) **Chart 17423.–Dewey Anchorage,** on the NE side of Clarence Strait opposite Ratz Harbor, can be used as a summer anchorage, but the bottom is irregular and rocky; there are several dangers in the entrance and the protection is poor. **Gull Point,** the NW extremity of Onslow Island, is the SE point at the entrance. A rock awash is about 200 yards NW of the point, and a reef, marked by kelp and covered by 1 ½ feet of water, is 0.6 mile SW of it. **Carlton Island,** flat and timbered, is the larger island NE of Gull Point; a shoal extends 350 yards SW from its W end. **Mabel Island,** about 0.2 mile in diameter, is about 0.8 mile NW of Gull Point; a reef covered at half tide and without kelp is 0.6 mile SSW of the island; two reefs that bare are about 0.8 mile to the NW. The channel between the reefs to the NW has a least depth of 17 feet; a rock awash is 0.1 mile S of the E reef. A 9-foot spot is 1.3 miles NW of Mabel Island. **Center Island,** about 0.1 mile in diameter, is about midway between Mabel Island and the N shore of Dewey Anchorage. A shoal with a least depth of 23 feet is between Center and Mabel Islands. A reef extends about 75 yards off the NE side of Center Island; a rock awash is just off the end of the reef. A shoal with a least depth of 20 feet is 0.5 mile SE of Center Island. The area between Center Island and the N shore of Dewey Anchorage is shoal and has a least depth of 21 feet.

(318) **Caution.**–There may be other dangers that are not charted.

(319) **Split Island,** small and wooded, is 0.3 mile to the S of the S extremity of **Kelp Point** (chart 17360), the NW entrance point of Dewey Anchorage. A reef is close to the E end of the island. **Double Island,** small and wooded, is about 0.2 mile S of Split Island. A small wooded islet is 0.1 mile SE of Double Island, and foul ground extends to the NE; the channel between is foul.

(320) To enter Dewey Anchorage from S, stand in on the line of the E sides of Mabel Island and Center Island until

abreast of Gull Point, and then pass midway between Mabel Island and Carlton Island, taking care to avoid the 14-foot shoal 0.5 mile NW of Carlton Island. Anchor 0.4 to 0.5 mile NNW of Carlton Island in 15 to 18 fathoms.

(321) From W, pass 0.5 mile S of Double Island and head for the N end of Center Island. When abeam the W end of Mabel Island, proceed with caution to the anchorage. The chart is the guide.

(322) Small craft can find better anchorage 0.5 mile E of Carlton Island in 6 to 8 fathoms, hard sand bottom. This anchorage can be entered from W, passing N of Carlton Island, or from SE, using one of the passages described previously.

(323) **Chart 17360.–McHenry Anchorage,** about 7.5 miles N of Ernest Point (55°51'N., 132°22'W.), has a clear width of about 700 yards and a length of about 1 mile from Avon Island to a small island at its head. It is sheltered except from W, and small vessels can anchor in the SE part of the harbor with shelter from all winds. **Avon Island,** on the N side of the entrance, is small, wooded, and close to shore; it should be given a berth of over 250 yards. A reef extends about 400 yards in a SE direction from the SE side of Avon Island. A rock, with a depth of 1¾ fathoms over it, is 0.5 mile WSW of Avon Island. **Sand Islet,** with a green bush on it, is close to the SE point at the entrance; a reef that bares and shows kelp extends 0.2 mile NW from it, and a shoal extends 250 E of Sand Islet.

(324) To enter McHenry Anchorage, keep Avon Island aboard, distant 450 yards, and anchor in the middle, with Sand Islet bearing 198°, in about 8 fathoms; or a small vessel can follow a midchannel course and anchor 250 yards W of the wooded island in the SE end of the harbor in 5 to 7 fathoms.

(325) **Quartz Rock** is the extremity of the reef, awash at high water, about 0.3 mile W from the point NW of McHenry Anchorage.

(326) **Chart 17382.–McHenry Inlet** has its entrance 5 miles E of Point Stanhope (56°00.9'N., 132°36.5'W.), and 2.5 miles N from McHenry Anchorage. It is horn-shaped, about 4 miles long, and about 0.4 to 0.8 mile wide. Foul ground extends about 1.5 miles in a W direction from the SE entrance point. **Range Island,** the small wooded island in midchannel at the entrance, is the most N of the group off this point and is about 0.4 mile to the SW of a small rocky islet off the NW point of the entrance, with a clear channel between. A 2-fathom spot is 1.2 miles 310° from Range Island. A long narrow ridge, with depths of 3¼ to 10 fathoms with deep water on each side, is in midchannel in the direction of the channel, 0.6 mile ENE of Range Island.

(327) **McHenry Islet,** a small rocky islet, is 1.6 miles 082° from Range Island. Foul ground extends in a SW direction from this islet for about 0.1 mile, and to the NW extends to the N shore of the bay.

(328) **Nut Rock** is about 700 yards 220° from McHenry Islet. A rock awash is 550 yards 073° from McHenry Islet.

(329) In entering, pass about 0.1 mile N of Range Island, then turn between McHenry Islet and Nut Rock, favoring Nut Rock, and follow the trend of the channel favoring the SE shore until past the rock awash NE of McHenry Islet; then follow midchannel courses. Anchorage may be had in 12 to 19 fathoms beyond the turn in the channel. Foul ground extends about 0.3 mile from the head of the inlet.

(330) **Jadski Cove,** on the N side of McHenry Inlet, has its entrance about 1 mile NE of Range Island. A depth of about 10¼ fathoms was found in the bight in the NW end of the cove, but the approaches are foul.

(331) **Burnett Inlet,** about 5 miles NE of Point Stanhope, extends in a N direction for about 7 miles, with an average width of 0.2 mile. **Fawn Island,** wooded, is on the W side of the channel at the entrance. Three small wooded islands and some rocks extend 0.2 mile off the N shore of Fawn Island. A small wooded islet, with a rock awash 150 yards off its N end, is 0.3 mile W of Fawn Island. A 2¼-fathom spot is 0.5 mile SE of Fawn Island close to the E shore. A midchannel entrance between Fawn Island and the E shore is safe from hazards. There is an anchorage for deep-draft vessels off the small cove on the E side of Burnett Inlet about 0.7 mile due E of Fawn Island. To safely reach this anchorage area, approach from the S on a course that is tangent to the E edge of Fawn Island. At a distance of 0.3 mile from Fawn Island come right to 070° and proceed to the anchorage area about 0.4 mile offshore in a depth of about 20 fathoms, mud bottom.

(332) Rocks extend from 50 to 100 yards off the E and S shores of **Cannery Point,** the W point of the entrance. A reef, bare at low water, is about 300 yards off Cannery Point. The channel between it and the point is too narrow for ships to use. Two shoals separated by depths of 12 fathoms are almost in midchannel between Cannery Point and South Burnett Island. The N shoal, about 300 yards long in a N direction, has a least depth of 1¼ fathoms near its N end; the S shoal, about 100 yards to the S, is narrow and has a least found depth of 6¼ fathoms. The 1¼-fathom spot is marked by a buoy. The channel between the shoals and the reef to the W has depths of 10 to 37 fathoms.

(333) The small cove behind Cannery Point has depths of 6 to 7 fathoms in the middle, with swinging room of about 150 yards, and is used by fishing craft for an anchorage.

(334) **North Burnett Island** and **South Burnett Island** are close to the E shore of Burnett Inlet near the entrance. The passage between the midchannel shoal and South Burnett Island has a least depth of 17 fathoms. **Deadman Island,** about 0.4 mile NNE of Cannery Point, is at the N end of the bight off the NW shore near the entrance. A narrow shoal with depths of 6¼ fathoms is midway between Deadman Island and North Burnett Island. The channel W of this shoal has depths of 10 to 27 fathoms, but leads over a 4¼-fathom spot and probably less water. The channel E of this shoal has depths of 20 fathoms.

(335) The depth of the inlet remains greater than 10 fathoms until about 1 mile S of the narrows. There are minimum depths of 1 fathom at the narrows, which is obstructed by kelp. The inlet above the narrows, about 3.5 miles above Deadman Island, is quite deep and clear. At periods of low water, the upper part of the inlet shoals to less than 5 fathoms with an even muddy bottom. There is a prominent waterfall on the E shore 3 miles above the entrance. The inlet is too deep for secure anchorage.

(336) **Mosman Inlet,** about 4 miles NE of Point Stanhope, makes NNW into Etolin Island for about 6 miles, with an average width of about 0.3 mile. There are two rocks on the E side about 0.8 mile above **Marble Point,** the E point at the entrance. A reef extends from the N end of the islet lying 1 mile NNW of Marble Point to the W shore. This reef obstructs the N approach to the coves on the W side of the entrance to the inlet. Above this area, the inlet is deep and free of obstructions.

(337) **Cooney Cove** is a narrow inlet to the NE of Rocky Bay. It is exposed to the S, the approach is foul, and there are rocks near the head.

(338) **Rocky Bay,** to the N of Point Stanhope, is studded with rocky islets and rocks awash. **Streets Lake** has its outlet in the middle bight at the head of Rocky Bay. A rock with ½ fathom on it is 2.5 miles 060° from Point Stanhope.

(339) **Point Stanhope** is the S extremity of a group of islands. A rock with a depth of 1 fathom over it, marked by a buoy, is 0.8 mile SSW of the point. There are several available passages among these islands for small craft bound for Rocky Bay. **Three Way Passage,** having its entrance about 1.3 miles NW of Point Stanhope, is the best. It has a depth of about 2½ fathoms, is narrow, leads close to several dangers, and requires local knowledge for its safe navigation.

(340) Anchorage may be obtained by small craft drawing less than 4 feet in the channel just E of Three Way Passage. The widest part of the channel is about 150 yards and is entered by way of Three Way Passage. There is an anchorage for very small craft in the cove, 2.6 miles NW from Point Stanhope. The channel that leads from the head of the cove to Rocky Bay bares in spots and is suitable only for boats drawing about 1 to 3 feet, with local knowledge and making passage at high water only.

(341) The Etolin Island shore from Point Stanhope NNW to Point Harrington, a distance of about 10.5 miles, is rocky and generally foul. A fringe of islands parallel the coast about 0.6 mile off to Point Harrington. It comprises **Abraham Islands, Screen Islands, Marsh Island, Observation Island,** and **Steamer Rocks,** which is a wooded islet about 100 feet high with a rock 12 feet high that marks the SSE extremity of a ledge that connects them. It is advisable for vessels navigating the strait to give the shore a berth of at least 1.5 miles and pass W of Lincoln Rock West Light. The passage E of the islands may be used by small craft. The chart shows the known dangers.

(342) **Lincoln Rock West Light** (56°03.4′N., 132°41.8′W.), 58 feet above the water, is shown from a skeleton tower on a concrete base with a red and white diamond-shaped daymark on **Lincoln Rock.** A 35-foot white square tower on a house, 0.3 mile 062° from Lincoln Rock West Light, is prominent on an islet; it is the site of a former lighthouse.

(343) **Abraham Islands** are 0.6 mile off the W shore of Etolin Island. The largest island is 150 feet high and wooded.

(344) **Johnson Cove,** to the E of the N end of Screen Islands, offers anchorage for four or five small craft of less than 4-foot draft to those with local knowledge. Strangers should not attempt entrance. Swinging room is limited by ledges on the NW side of the cove and shoal water toward its head. Several islands are off the entrance. The cove is entered S of the rock, awash, 150 yards off the SE end of the large island near the entrance and E of the rock, awash at high water in midchannel at the entrance. Water may be obtained from streams that empty into the cove.

(345) **Steamer Bay, E of Point Harrington,** affords anchorage at its head, but the holding ground is not good and SE winds draw with considerable force through **Porcupine Creek.** It is open to NW. The bay is 1 mile wide at its entrance, gradually contracting near its head to less than 0.2 mile, then again widening into a basin about 0.3 mile long, into which Porcupine Creek empties. For a distance of about 1.2 miles from Point Harrington both shores of the bay have some rocks close inshore.

(346) **Local magnetic disturbance.**–Differences of as much as 3° from the normal variation have been observed at Point Harrington.

(347) The bay is easy of access; a midchannel course leads fair into the inner basin. The best anchorage is probably near the middle of the basin, favoring the E shore, in about 16 fathoms. Small craft may find better bottom by anchoring in 6 fathoms close to the E shore, just past a cabin on the beach and S of **Independence Island,** a bare rock 3 feet high that is near the shore on the NE side of the basin.

(348) **Mariposa Rock,** with 3¼ fathoms over it and marked by a buoy off its NW side, is 0.6 mile 312° from Point Harrington.

(349) **Kindergarten Bay,** the deep cove 2 miles N of Point Harrington, is used extensively as an anchorage for small craft. It is one of the best anchorages in the area and affords protection in all weather, although at times strong winds will blow down from the hills. It was reported that the N side of the bay appeared to be clear. Enter midchannel, passing S of the wooded islet, and anchor in 5 to 7 fathoms, soft bottom. Mariners are cautioned to avoid a large rock, covered 4 to 6 feet at high tide, that was reported close SW of the largest islet near the head of the bay.

(350) **Steamer Point,** 3 miles N of Point Harrington, is bold, steep, and heavily wooded. Deep water extends close to the point. **Steamer Point Light** (56°13.4′N., 132°42.8′W.), 30 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a small wooded islet close N of the point.

(351) **Kashevarof Passage** and Snow Passage form the head of Clarence Strait and are the two passages connecting with Summer Strait W of Zarembo Island. Kashevarof Passage is wide, but is beset with rocks, reefs, and shoals, with strong tidal currents and tide rips. The pass is used extensively by small craft. Large vessels use Snow Passage, which is clear and marked by lights and a lighted buoy.

(352) (See the Tidal Current Tables for daily predictions in the passages.)

(353) **Chart 17401.**–An unnamed cove (56°01′N., 132°49′W.), on the W side of Clarence Strait about 2.3 miles SE of Beck Island, is noticeable for its low-water area at the head, and a sand beach about 300 yards wide. The cove is fringed with rocks and shoals. Mariners, without local knowledge, are to use caution in this area. The chart is the best guide.

(354) **Coffman Cove,** protected on the N by Coffman Island, is close W of the unnamed cove and about 1.5 miles SSE of Beck Island. The NW half of the cove is filled with rocks, some of which bare. Good anchorage for small craft may be had in the middle of the SE part of the cove in 10 to 15 fathoms, mud bottom, and a midchannel course will carry in safely. The outermost dangers in the SE part of the cove are a 2¾-fathom spot and two rocks awash about 500 yards SSW, 0.3 mile SSW, and 0.5 mile S of the southermost tip of Coffman Island, respectively. A flat extends about 0.2 mile from the SE end of the cove.

(355) In 1976, a logging camp was operating in Coffman Cove. Logs are stored along the E shore of the SE part of the cove. A small-craft and seaplane float is on the E shore of the flat, about 0.8 mile SSE of Coffman Island. Water and gasoline are available only in an emergency. Radiotelephone communications are maintained with Ketchikan.

(356) **Lake Bay** is on the S side of Kashevarof Passage between **Stevenson Island** and **Coffman Island.** Across the entrance and in the bay are detached islands and reefs and the best channel is from NE between Beck and Coffman Islands.

(357) **Beck Island,** small and wooded, is about 0.8 mile NW of Coffman Island. **Beck Island Light** (56°02.9′N., 132°51.8′W.), 27 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the N side of the island; it marks the entrance to Kashevarof Passage.

(358) **Gull Rock** and **Barnacle Rock** , awash at highest tides, are about 0.6 mile SSW and W, respectively, from Beck Island; they should be given a berth of over 300 yards.

There are also extensive submerged reefs between Beck Island and **Bush Rock,** about 1.9 miles to the WNW. The latter is 35 feet high and has bushes on top.

(359) Abreast **Keg Point** (56°02′02″N., 132°55′18″W.), on Stevenson Island, the channel is about 150 yards between an extensive shoal that makes out from the E shore and a shoal projecting out about 175 yards from Keg Point. There is good anchorage inside the constricted entrance for large or small craft in 6 to 15 fathoms, soft bottom. The buildings of a fishery are on the E shore about 0.3 mile inside the entrance to **Lake Bay Creek** .

(360) **Chart 17382.–Point Barnes** (56°03.6′N., 132°55.8′W.), the NE extremity of Stevenson Island, is low and wooded, without characteristics of interest to the navigator.

(361) **Barnes Lake** is a saltwater lake of considerable extent lying SW of Stevenson Island. It has two outlets through which strong currents flow during changes of tide. Small craft up to 10-foot draft may enter into the lake on high water slack, passing through **Indian Creek,** the W of the two entrances. This passage has many dangers and must be navigated with extreme caution. It has a least depth of 3 feet in midchannel.

(362) At high water small boats with outboards go from Barnes Lake through **Gold and Galligan Lagoon** into large inner **Sweetwater Lake** (chart 17360).

(363) **Whale Passage** leads S and W of Thorne Island. The passage is used extensively by tugs, oil barges, and a freight boat servicing a logging camp in the bay that extends NW from about the middle of the passage.

(364) This passage has many dangers and must be navigated with extreme caution. The chart is the best guide for mariners without local knowledge.

(365) Shelter for small craft may be found on the N side of the passage near its S entrance in 5 fathoms, soft bottom, in the small cove just after passing between the two charted rocks directly off a small cabin near the beach. The bay that extends to the NW near the middle of the passage affords good anchorage with ample swinging room in about 4 to 10 fathoms, soft bottom. In 1976, a logging camp was operating on the NE side of the bay. Logs are stored on both sides of the bay. Floats for small craft, tugs, and seaplanes are at the camp. Fresh water and gasoline may be obtained in an emergency. Radiotelephone communication is maintained with Ketchikan. An excellent anchorage for small craft in all weather may be found when headed N from the middle of Whale Passage, on the E side between the irregularly shaped wooded island and the shore of Thorne Island. Enter around the N end of the wooded island and N of the charted rocks, pass S along the E side of the island, keeping the charted rocks on the starboard side, and come to anchor in 4 to 5 fathoms of water, soft bottom, off the SE tip of the small island and a cabin on the shore of Thorne Island.

(366) **Kashevarof Islands,** on the NE side of Kashevarof Passage, are low and wooded, though there are many bare rocks. There are many passages between the islands, but all are beset with rocks and reefs and require local knowledge for safe navigation.

(367) The **Blashke Islands** form a group of islands at the SE end of the Kashevarof group. All are wooded and separated by narrow foul channels. **Rose Rock, Rose Island, Seal Rock, The Triplets,** and **Deichman Rock** are on the foul ground to the SE.

(368) The islets and bays at the NW end of Kashevarof Passage are described with Snow Passage following.

(369) The currents at the NW end of Kashevarof Passage are similar to those of Snow Passage, but their velocity is considerably less.

(370) The main channel, leading between Beck Island and The Triplets and as far NW as **West Island,** has been examined, and the dangers are shown on the charts. The section from West Island to Fire and Echo Islands has many dangers and has not been closely examined, but there is an apparently clear channel leading from the S end of West Island.

(371) **Kashevarof Passage Light** (56°10.8′N., 133°01.3′W.), 27 feet above water, is shown from a skeleton tower with a red and white diamond-shaped daymark, on the W side of a small sparsely wooded islet off the W side of West Island.

(372) **Exchange Cove,** on the NW side of Kashevarof Passage about 2 miles NW of Kashevarof Passage Light, is about 0.2 mile wide and 2.5 miles long, and is the largest sheltered anchorage in this vicinity. It has room for several small vessels and is well protected from all directions. The depths are 10 fathoms at the entrance, shoaling gradually toward the head. Exchange Island forms the E shore of the N part of the cove.

(373) To pass through the N part of Kashevarof Passage, West Island should be left about 0.5 mile to the E to avoid a 2¾-fathom spot. Pass midway between West Island and Kashevarof Passage Light; thence about 0.2 mile to the E of the small rocky wooded islet that is about 0.8 mile E of the S end of Exchange Island; thence in midchannel between Exchange Island and the small double island to the N; thence in midchannel to W of Fire Island; thence between Tide and Bushy Islands, or Rookery and Tide Islands.

(374) There is another channel between **Fire Island** and **Echo Island.** Echo Island, about 150 feet high and wooded, has foul shores with the outermost danger extending about 800 yards SSW. A rock wash, marked by a daybeacon, is in the channel about 1.1 miles S of Echo Island; the channel W of Fire Island is preferred. The channel to the S of **Shrubby Island** is used by small craft. In making the passage, avoid kelp at all times. The bottom is very irregular, and the channel has not been wire-dragged. The channel between **East Island** and **Middle Island** is used by small boats.

(375) There is a channel E from 0.9 mile N of the N end of West Island and S of the small wooded island with the two islets to the E being left to the N; thence midchannel between Shrubby Island and the most N of the Middle Islands. Follow the shore of the Middle Islands about 0.3 mile off and S of the larger wooded island nearest Shrubby Island.

(376) On the S side of the last described channel, between the 240-foot island and the larger island SE of it, is a shelter for small craft in all weather. The entrance passes over a 1-fathom depth to anchorage in 2½ fathoms off a float and house.

(377) **Key Reef** is an extensive reef about 1.8 miles E from the Kashevarof Islands. The N end of the reef, about 3.5 miles W of Point Harrington, usually shows at high water as two rocks about 5 feet high and about 100 yards long, but they are awash at extreme high tides. **Key Reef Light** (56°09.6′N., 132°49.9′W.), 43 feet above the water and shown from a single pile on a truncated concrete pyramid with a red and white diamond-shaped daymark, is near the N end of the reef. A number of low water rocks are near Key Reef. **Key Reef Rock** about 0.7 mile SE uncovers 12 feet.

(378) **Bluff Island** is a small wooded island about 1.8 miles to the W of Key Reef. Reefs extend about 250 yards from the N and S ends of the island. The E and W shores are clear.

(379) **Zarembo Island,** heavily wooded, is at the head of Clarence Strait. A rather low valley extends E and W across the island. The shoreline is rocky, with off-lying rocks and reefs, except along the E shore.

(380) **Point Nesbitt,** the S point of Zarembo Island, is low, rising to high ground inshore.

(381) **Nesbitt Reef** is a dangerous reef that extends 0.8 miles S from Point Nesbitt. Near the outer end of the reef is a rock that uncovers 12 feet. There are rocks that bare a short distance outside it and a string of rocks between it and the shore, which covers at various stages of the tide. The tidal currents have considerable velocity in its vicinity, and care should be taken, especially in foggy weather. Shoals with a least depth of 5½ fathoms over them are E of the reef. **Nesbitt Reef Light** (56°13.2'N., 132°51.7'W.), 27 feet above the water, shown from a skeleton tower on a concrete pier with a red and white diamond-shaped daymark is on the S end of Nesbitt Reef.

(382) From Point Nesbitt NW to **Macnamara Point,** a low wooded point, a distance of 9 miles, ledges extend offshore in places about 0.5 mile, almost all of which bare. Those abreast the bare rocks close to the middle of the E side of Bushy Island are always covered and are marked by kelp at slack water. Rocks extend about 0.5 mile S from Macnamara Point.

(383) From Macnamara Point NE to St. John Harbor the shore is fringed with ledges to a distance of 0.5 mile in places, with broken ground farther out, and this shore should be given a berth of 1 mile or more.

(384) **Snow Passage** is between **Bushy Island,** the northernmost of the Kashevarof group, and Zarembo Island. It is a deep channel with foul shores and strong tidal currents. Snow Passage is largely used by vessels bound from or to Wrangell Narrows or between Clarence and Sumner Straits, and not desiring to touch at Wrangell, as it is shorter than the route through Stikine Strait. It is clear in midchannel, except for a shoal with a depth of 4½ fathoms in the middle of the channel at the N end, ENE of Rookery Islands. The shoal is marked on its W side by a buoy. The shoals in Snow Passage are clearly marked by kelp at slack water. During spring tides, the passage may have a considerable number of drifting logs that may endanger vessels.

(385) **Bushy Island Light** (56°16.6'N., 132°57.6'W.), 22 feet above the water and shown from a skeleton tower on a brown cylindrical base with a red and white diamond-shaped daymark, is on a rock off the NE end of Bushy Island, and marks Snow Passage. From points to the NW the light appears well off the Bushy Island shore.

(386) A lighted buoy is about 0.7 mile SE from Bushy Island Light. It marks the E side of the channel close to a kelp patch near the edge of which are two rocks covered at half tide.

(387) Excellent anchorage may be had NW of Bushy Island in 15 to 20 fathoms, with Tide Island bearing 209°, distance 1 mile. This anchorage is protected from all but winds from the NW.

(388) The currents of Snow Passage somewhat resemble those of Seymour and Sergius Narrows in their peculiarities. The flood or SE current has a velocity of 1.4 to 3.4 knots and the ebb or NW current 3.1 to 4 knots in the narrowest part of the passage. Swirls of some severity at times occur from abreast Ossipee Channel to the N end of Bushy Island; W of the last named point they are very much lessened. In 1975, the NOAA Ship DAVIDSON observed particularly steep waves at the N entrance to Snow Passage during strong S winds with contrary currents. (See the Tidal Current Tables for predictions of times and velocities of the current in Snow Passage.)

(389) **Ossipee Channel** is between Shrubby and Bushy Islands. An examination by means of the lead indicates a clear channel. Thick kelp and ledges line the channel on both sides, but the midchannel is apparently clear.

(390) The current sets fair with the channel in Ossipee Channel. When the current runs N in Snow Passage, its direction in Ossipee Channel is W, and when S in Snow Passage, its direction in Ossipee Channel is E.

(391) **Tide Island,** small and wooded, is about 2.2 miles WNW of Bushy Island. Rocks, marked by kelp and bare at low water, are to the SE and SW, close-to.

(392) **Rookery Islands,** three in number and wooded, are in midchannel near the NW end of the passage and 1.8 miles SW of Macnamara Point. Between the islands are bare rocks and ledges that cover, and close W of W Rookery Island are two islets, each with a clump of trees. **Rookery Islands Light** (56°18.9'N., 133°06.4'W.), 40 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the NE side of **Round Island,** the easternmost island of the group.

(393) **Salmon Bay** is about 1.2 miles WSW of Rookery Islands. Small craft can find sheltered anchorage in 1 to 3 fathoms near the head. It is extensively used as a harbor by local boats during certain seasons of the year. In July 1985, a wreck covered at high water was reported in the center of the entrance to Salmon Bay in about 56°18.3'N., 133°09.1'W.

(394) A line of detached rocks about 1.4 miles long, bare at different stages of the tide and marked by kelp at slack water, is about midway between Rookery Islands and Point Colpoys and from 0.2 to 0.7 mile offshore. A daybeacon is on a rock at the NW end, 0.7 mile NE of Bay Point. The channel leading along the shore W of them appears to be clear.

(395) The bays and coves to the S of Salmon Bay are almost dry at low water and have foul entrances. They lead into a salt marsh that parallels the beach. Overfalls, currents, and rocks make the various entrances dangerous except at high water. It is reported that at extreme high water boats drawing 5 feet make the passage from Salmon Bay to the first bay to the S through the salt marsh.

(396) **Point Colpoys,** about 4.5 miles W of Macnamara Point, is low and wooded, and is marked by **Point Colpoys Light** (56°20.2'N., 133°11.9'W.), 19 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark. Irregular bottom extends about 0.3 mile to the N.

(397) **Bay Point** is a low wooded point about 1 mile to the SE of Point Colpoys.

(398) **Chart 17360.**–Ernest Sound and Stikine Strait, with their connecting passages, Zimovia Strait, Blake Channel, and Eastern Passage, afford various routes from Clarence Strait to Wrangell. Large vessels go by way of Stikine Strait, but small craft frequently go by way of Ernest Sound and Zimovia Strait, or by Ernest Sound, Blake Channel, and Eastern Passage. The last two routes afford better protection in stormy weather. The distances to Wrangell by these routes from a point 2 miles W of Lemesurier Point are about 52, 50, and 60 miles, respectively.

(399) **Chart 17385.–Ernest Sound** is the large body of water that opens from Clarence Strait between Lemesurier Point and Onslow Point, with a width of about 4.5 miles between the points. Its general direction is NNE for about 25 miles to Point Warde; from this point, under the name of Bradfield Canal, it extends about 17 miles in a general E direction, with a width of about 1 mile. There are numerous

small islands in the sound and two large ones, one on each side, about midway of its length.

(400) From Ernest Sound two arms extend NNW and join N of the northernmost extremity of Wrangell Island near the mouth of Stikine River. The W arm is called Zimovia Strait. The S part of the E arm is called Blake Channel and the N part Eastern Passage. A passage to Wrangell through Ernest Sound, Blake Channel, and Eastern Passage is practicable and is sometimes used. Small craft use Zimovia Strait frequently.

(401) The principal dangers in the main part of Ernest Sound are McHenry Ledge (55°46.7'N., 132°18.0'W.), with a depth of ¼ fathom and marked by a lighted bell buoy, and a 2¾-fathom rock about 2.2 miles NE of McHenry Ledge off the entrance to Union Bay. A shoal area with a least depth of 13 fathoms is off the entrance to Ernest Sound in 55°49.1'N., 132°21.5'W. To keep in the middle of the channel between Eaton Point (55°56.3'N., 132°04.0'W.) and the N end of Deer Island, vessels should pass 0.6 mile W of Eaton Point; thence 1.2 miles W of Point Peters, the S extremity of Deer Island; thence in midchannel between Deer and Niblack Islands; thence 0.6 mile W of the N end of Deer Island.

(402) Lemesurier Point, Lemly Rocks, McHenry Ledge, the Onslow Group, on the N side of the entrance to Ernest Sound, together with Ernest Point, Onslow Point, and the passage leading from Ernest Sound to Dewey Anchorage, have been described with Clarence Strait earlier in this chapter.

(403) **Currents.**–The currents in Ernest Sound follow the general direction of the channel. The flood current sets N with an average velocity of about 1.7 to 2.1 knots. The ebb current sets S with about the same average velocity. At the junction of Bradfield Canal and Blake Channel, the joining of the tidal currents cause swirls. (See the Tidal Current Tables for daily predictions.)

(404) **Chart 17423.–Union Bay** is E of Lemesurier Point. At its head is a large lagoon, mostly bare, into which a large stream, **Black Bear Creek** , empties. The waters of the bay are deep, but there is anchorage with protection from S, on the E side of the head of the bay, in about 18 fathoms. The SW angle of the bay is foul for 0.2 mile offshore. The only danger, except near the shores, is a rock with a depth of 2¾ fathoms in the middle of the entrance and about 2.5 miles NNE of Lemesurier Point. At high water do not approach the head of the bay too rapidly as the points at the entrance to the lagoon are platforms of rock only 3 feet above high water and are not readily distinguished. Anchor in 18 fathoms, about 0.4 mile offshore, on the E side of the head of the bay, with the NE point at the entrance to the lagoon bearing about 140°.

(405) For anchorage, fishermen use the cove behind the small islet (55°46.3'N., 132°11.0'W.) and the long cove behind **Magnetic Point,** about 1 mile N of the islet.

(406) Small boats use the channel between **Union Point,** which is low and wooded, and the two islets S of it.

(407) An estimated current velocity of 3 knots sets S around Union Point on the ebb.

(408) **Local magnetic disturbance.**–Differences of as much as 10° from the normal variation have been observed in the E part of Union Bay, and a difference of 38° from normal variation has been observed at a small islet 0.8 mile SW of Union Point.

(409) **Vixen Harbor,** 0.8 mile E of Union Point, is about 0.4 mile long, with an even sand and mud bottom and an average depth of 4½ fathoms. The entrance channel, about 100 yards wide, has depths of only 2 fathoms. In entering, proceed carefully to the N of and close to the small islands in the entrance. Temporary anchorage for larger craft may be had in 16 fathoms, sand and gravel, 0.4 mile N of the small island in the entrance.

(410) **Chart 17385.–Vixen Inlet,** about 6.5 miles NE of Lemesurier Point and S of **Vixen Point** (55°51.0'N., 132°05.5' W.), has a small islet, **Sunshine Island,** in the middle of the entrance and a stream at the head. A reef makes out from the W side of Vixen Point and extends S about 1.2 miles. A reef with a least depth of ¾ fathom, not marked by kelp, is in the middle of the entrance, 1.2 miles 284° from Sunshine Island.

(411) In entering, the passage to the S of Sunshine Island is preferable. Round the S end at a distance of about 250 yards and select anchorage in depths of 11 to 15 fathoms. The inlet dries for a considerable distance from the head of the flats, dropping off sharply to 7 fathoms.

(412) **Emerald Bay,** open and exposed, is 2.8 miles N of Vixen Point. It is used by fishermen during E weather, but is a poor anchorage. A stream empties at its head.

(413) **Easterly Island,** a small timbered island with sheer steep sides, is in midchannel about 2.8 miles N of Vixen Point. **Easterly Island Light** (55°53.8'N., 132°05.5'W.), 28 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the N end of the island.

(414) **Petersen Islands,** separated by a narrow channel with a depth of 3 fathoms and having the appearance of a split island, are about 4.6 miles W of Easterly Island Light and 3 miles SSW of Brownson Island.

(415) **Westerly Island,** small and wooded, is about 1.4 miles S of Brownson Island. The channel between it and Brownson Island is clear, except for the rocks N and NNE of Petersen Islands.

(416) **Brownson Island,** on the W side of Ernest Sound 7 miles NE of Onslow Point, is cut almost in two by a large lagoon. A group of small islands is separated from the S end of the island by a channel about 0.1 mile wide, suitable for launches, which also find anchorage there.

(417) An island, small and wooded, is 0.7 mile SE of Brownson Island. Rocks awash at extreme high tide are about 0.2 mile E of the N end of the island. About 0.2 mile E of these rocks is a cluster of rocks that bare about 5 feet and are marked by a daybeacon. These constitute a danger. In navigating this section of Ernest Sound, Eaton Point on the Cleveland Peninsula shore should be favored.

(418) A small, narrow island, with rocks off its N and S ends, is close to the E shore of Brownson Island, near the S end. The channel separating the two is used by launches, the deeper water being W of the rock off the point N of the middle of the island.

(419) **Canoe Passage** separates Brownson Island from Etolin Island. It runs in a N direction, with depths too great for anchorage, until the narrows are reached about 2 miles from the N end, where the channel dries and in places is 100 yards wide. Pass E of a small islet at the N end of the narrows. A shoal makes out about 150 yards from the W shore, 0.4 mile S of the N end of the passage. Beyond this point midchannel depths are the greatest. At the N end of Brownson Island, the passage turns E, increases in width, and affords anchorage in 13 fathoms, sand bottom.

(420) **Deer Island,** E of the N part of Brownson Island, is on the E side of Ernest Sound. There are a number of islands and rocks close to the W shore of the island.

(421) Two coves indent the W shore of the S part of Deer Island. The more S cove is entered from the S just W of **Point Peters,** the S point of Deer Island. The cove's W

shores are formed by two islands. A depth of 10 fathoms can be carried in the narrowest part of the entrance by avoiding the foul ground that extends off the E side of the S island, and the rocks that extend about 0.1 mile off the W side of Point Peters. Depths inside range from 7 to 35 fathoms. There is a narrow small-boat passage between the two islands and between the N island and Deer Island. The more N cove, about 2 miles N of Point Peters, has depths of 8 to 38 fathoms. Rocks are 0.5 mile inside the entrance, 0.1 mile from the W shore. The channel leading NW from the NW end of the cove bares in places. This channel and the channels between the islands close to the W shore of Deer Island are suitable for small boats only.

(422) **Kuakan Point** is the N point of Deer Island. A 3½-fathom spot is 0.2 mile N of the point, and a small cove too deep for anchorage is SE of the point.

(423) **Seward Passage,** deep and clear, separates Deer Island from the mainland. **Watkins Point** (55°57.5'N., 132°02.3'W.), the S point of the S entrance, is low and timbered. **Sunny Bay** and the small coves between Watkins Point and **Point Santa Anna,** about 3.2 miles to the ENE, are used by launches. A group of islands is off the SW end of Sunny Bay, the outermost of which, **Change Island,** is timbered.

(424) **Santa Anna Inlet** is on the E side of Seward Passage about 2.7 miles NNE of Point Peters. A shoal area extends about 200 yards off the SW shore about 0.5 mile from the entrance. From 1 mile within the entrance the midchannel depths decrease gradually from 18 to 9 fathoms near the head. Small craft will find good anchorage in 9 fathoms near the head of the inlet.

(425) **Frosty Bay** is on the E side of Seward Passage near the N end. Two rocks, bare at half tide, are about 150 yards N of the S point of the entrance. Fishing craft anchor in 7 fathoms in the SW part of the bay. The head of the bay narrows, then widens, forming a bight with depths less than 1 fathom. A large stream empties at the head of the bay.

(426) **Niblack Islands** are a cluster of small islands between Brownson and Deer Islands. The passage on the E side is deep and clear. **South Niblack Islands Light** (56°00.4'N., 132°05.4'W.), 24 feet above the water, is shown from a square frame structure with red and white diamond-shaped daymarks on the E side of the largest of the southernmost Niblack Islands.

(427) **Bold Island,** with a conspicuous cliff 100 feet high on the W shore, is at the entrance to Menefee Inlet about 3.6 miles NNW of South Niblack Islands Light. A channel with adepth of 15 fathoms separates Bold Island from a group of small islands to the S.

(428) **Menefee Inlet,** on the W side of Ernest Sound, is deep to within 1 mile of the head, where three fair-sized streams empty. Anchorage may be had 1.2 miles from the head of the inlet in 14 fathoms, sand and mud bottom.

(429) **Fisherman Chuck** separates **Menefee Point,** the low wooded point on the S side of Menefee Inlet, from Etolin Island. It is from 30 to 100 yards in width, has a depth of 14 fathoms at the N entrance, shoals to 2 fathoms 0.3 mile to the S, and thence to the S end is dry except at high water. It is used as an anchorage by fishermen.

(430) **Southwest Cove,** to the N of Bold Island, is too deep for anchorage. A reef extends offshore about 100 yards from a point at the head of the cove. Very small craft find anchorage back of the island on the E side of the cove.

(431) **Found Island,** at the S entrance to Zimovia Strait and about 3.2 miles NE of Bold Island, is rectangular in shape and wooded, with ledges that extend about 100 yards off the N shore. **Found Island Light** (56°06.2'N., 132°04.8'W.), 34 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the SW side of the island. A grass-covered rock, 12 feet high, is 0.2 mile W of the N end of the island. A rock, covered ¼ fathom and marked by a daybeacon, is 0.4 mile N of Found Island. **Blanche Rock** , 7 feet high, about 1.1 miles SSW of Found Island off the S point of the entrance to Zimovia Strait, is conspicuous because of its white color.

(432) **Southeast Cove,** about 1.5 miles NE of Found Island does not afford anchorage.

(433) **Fools Inlet** is about 5 miles NE of Found Island. Mudflats bare 0.9 mile from its head, almost to two small islets. Anchorage may be had in 14 to 19 fathoms S of the S islet.

(434) **Point Warde** (56°10.5'N., 131°58.1'W.), to the SE of Fools Inlet, is the S point at the entrance to Bradfield Canal. The point rises to two not very definite timbered knobs with higher land to the E. The shore is rocky. Cliffs on the W face of the point average 80 feet in height.

(435) Foul ground extends about 75 yards off the N shore of the cove, 1 mile S of Point Warde. The cove has depths of 18 to 38 fathoms in the middle. It shoals gradually to the N shore. In the small bight on the N side of the cove, depths range from 6 to 9 fathoms.

(436) **Bradfield Canal** is apparently free of dangers, although, in 1976, a shoal about 10.8 miles above Point Warde with a depth of 10 fathoms near the end was reported to extend toward the middle of the canal from the N shore. About 12 miles from Point Warde, the canal is almost closed by **Duck Point** which is wooded. The small cove W of the point affords the best protection for small craft in the canal. The best anchorage is at the head of the cove in depths of 5 to 8 fathoms, soft bottom.

(437) The navigable channel of Bradfield Canal above Duck Point follows the N shore of the point, being restricted in one place to a width of 0.2 mile by a small islet which is passed on its S side. Beyond this point the canal continues 2 miles, where it ends in a broad flat off the mouths of two large streams.

(438) **Anan Bay,** about 2.3 miles E of Point Warde, is an open bight on the S shore of Bradfield Canal. A large salmon stream empties into Anan Bay and offers a good shelter and anchorage for small craft during S weather in 5 to 10 fathoms, mud bottom. A mooring float is on the E side of Anan Bay in about 56°11'10"N., 131°53'26"W. There are no known dangers other than those charted. The U.S. Forest Service maintains a bear observatory on **Anan Creek** at the large waterfall about 0.5 mile from the beach. A trail marker on the beach indicates the end of a well-maintained trail leading inland along the creek and passing the bear observatory. This area is visited each year by many people who come to observe the thousands of salmon in the stream and passing up the falls, and the many black bear feeding on the salmon.

(439) **Zimovia Strait,** between Etolin Island and Wrangell Island, connects Ernest Sound with the E end of Sumner Strait. It is about 25 miles long, varies in width from about 0.4 to 2.5 miles, and furnishes a convenient route for small vessels bound from Ketchikan to Wrangell. The critical part of the passage is in **The Narrows,** in the vicinity of Button Island, (56°12'04"N., 132°15'05"W.), where the channel is tortuous, but marked by buoys, daybeacons, and lights.

(440) **Currents.**–The flood current enters Zimovia Strait from both the N and S ends and meets near Village Islands. The approximate velocity of the current is 1.6 knots. Between Woronkofski Island and Wrangell Island, the ebb sets S and out through Chichagof Pass with a velocity of about

1.7 knots and the flood sets N with a velocity of about 1.7 knots. (See the Tidal Current Tables for daily predictions.)

(441) The channel in places is narrow and intricate, the depths are irregular, and local knowledge is desirable for safe navigation.

(442) A small cove (56°06.9'N., 132°07.0'W.) on the Etolin Island side of the channel, about 1.4 miles from the S entrance, has depths of 18 fathoms 0.3 mile from the head, shoaling to 6 fathoms at the head.

(443) **Thoms Place,** a cove on the Wrangell Island side of the channel, about 3.5 miles from the S entrance, has two small wooded islets in the entrance. A group of islets is near the head close to the SW shore, and another close to the NE shore.

(444) In entering, pass between the entrance islets, where soundings of 10 fathoms were obtained. The channel between the E islet and the Wrangell Island shore is foul. The SW shore and the head of the cove are foul and should be given a wide berth. A wooded island, about 0.2 mile in diameter, is about 0.2 mile off the headland on the W side of the entrance to Thoms Place.

(445) A lagoon, about 0.8 mile long, is W of Thoms Place. Rocks are off the entrance, and the channel is narrow, with a controlling depth of ½ fathom. A small bight just inside the entrance has depths of 6 to 10 fathoms. There are several smooth beaches that have been used for beaching boats. The head of the lagoon is foul.

(446) **Zimovia Islets,** about 6 miles from the S entrance to the strait, are a group of low wooded islands, the largest and highest of which has an elevation of 268 feet. **Zimovia Strait Light 2** (56°11.0'N., 132°12.8'W.), 23 feet above the water, is shown from a small pile structure with a triangular red daymark on an islet off the W end of the largest island of the group.

(447) **Trap Rock,** 0.4 mile WNW of Zimovia Strait Light 2 and 0.5 mile E of the entrance to Whaletail Cove, consists of a shoal of sand and boulders that bare 1 foot. A buoy is 100 yards E of the rock. Foul ground is between the rock and the Etolin Island shore.

(448) A small islet, 125 feet high, is about 0.4 mile N from Trap Rock. Small vessels anchor in the vicinity.

(449) **Whaletail Cove,** W of Trap Rock, has two branches; the entrance has depths of about 1 foot. The W branch, which dries almost entirely, has a small island at its entrance. Depths of 1 to 8 fathoms are found in the E branch, the greater depths are near the S shore. This branch shoals rapidly near the head.

(450) **Whaletail Point** is on the N side of the entrance to Whaletail Cove. **Button Island,** 160 feet high and wooded, is near the N end of a shoal area that extends between the island and Whaletail Point. A buoy about 160 yards E of Button Island marks the N edge of the shoal area. A wooded island is about 0.2 mile S of Button Island. The controlling depth across that part of the shoal area between these two islands is ½ fathom, and it is obstructed by kelp.

(451) A light is on the Wrangell Island shore 0.2 mile N of Button Island.

(452) **Double Rock** uncovers 11 feet, is marked by a daybeacon, and is close to the Wrangell Island shore about 0.2 mile W of the light. A rock, with ¾ fathom over it and marked on its S side by a buoy, is about 0.25 mile S of Double Rock.

(453) **Midchannel Rock,** which uncovers 3 feet and marked by a daybeacon, is 0.4 mile W of Double Rock. A deserted village is on the point about 0.3 mile N of Midchannel Rock.

(454) **Village Islands,** a group of islands, rocks, and ledges, are a part of a general shoal area that extends about 2.4 miles NW from the W end of Whaletail Point, and about 0.5 mile off the NE shore of the strait, with the main channel between.

(455) **Village Islands Light 13** (56°12.8'N., 132°18.1'W.), 17 feet above the water, is shown from a pile structure with a square green daymark on a rock off the NE shore of the largest island of the group.

(456) **Village Rock,** marked by a daybeacon, is on the NE edge of the channel about 0.3 mile from Village Islands Light 13.

(457) **Village Islands Rock,** awash and marked by a daybeacon, is about 0.6 mile NW of Village Islands Light 13 and marks the NW end of the general shoal area, at the W end of The Narrows.

(458) **Olive Cove** is SSW of the Village Islands. A stream of considerable size empties through the flats, which at low water extend about 0.5 mile from the head of the cove. With local knowledge anchorage may be had off the entrance in 10 to 15 fathoms. Just inside the NW entrance point is a small private float with a reported depth of 8 feet.

(459) A small cove, which dries, is about 0.7 mile E of Olive Cove. Foul ground extends about 700 yards offshore between Whaletail Point and the cove. The two coves are best approached from NW.

(460) **Chart 17382.–Anita Bay,** on the W side of Zimovia Strait, about 13 miles from the N entrance, is deep and clear inshore on both sides, except for a shoal that extends E about 0.2 mile from the point of the cove on the S side of the bay, 3.7 miles from the entrance. Shoals extend about 0.1 mile off the entrances to small coves, one on each side, about 0.6 mile from the head of the bay. A depth of 10 fathoms may be obtained 0.2 mile from the head of the bay, but beyond this it shoals rapidly. **Anita Point** (56°13.6 'N., 132°22.4'W.), the S point of the entrance, rounded, wooded, and indefinite, may be passed at a distance of 0.2 mile. The bight in the NW shore of the bay near the entrance dries about 50 yards offshore. A group of rocks is in the entrance to the bight in the NW shore, 1 mile W of Anita Point. A cabin is on the N shore of the bight. Anchorage may be had near the head of the bay in 13 to 17 fathoms, mud and sand bottom, with swinging room somewhat restricted by flats that make out from the head and sides of the bay.

(461) **Turn Island** is close to the Wrangell Island shore about 1.4 miles NE from Anita Point. **Nemo Point** is about 2.8 miles N of Turn Island.

(462) The E shore of Zimovia Strait, between 2 and 5 miles above Nemo Point, is foul with rocks and islets that extend for 0.5 mile offshore. **Young Rock,** about 4.5 miles N of Nemo Point, with a depth of 2 fathoms and not marked by kelp, is in the center of the strait at its junction with Chichagof Pass.

(463) **Chart 17385.–Blake Channel,** locally called **Back Channel,** having its entrance 3 miles NE of Point Warde (56°10.5'N., 131°58.1'W.), connects Ernest Sound with **Eastern Passage** and through it with the E end of Sumner Strait. **Blake Channel Light 1** (56°12.6'N., 131°55.4'W.), 28 feet above the water, is shown from a skeleton tower with green square daymarks on the W side of the channel entrance. Because of deposits from the Stikine River, shoaling at the N end of Eastern Passage has progressed S. From **Gerard Point** (56°30.8'N., 132°19.6'W.) the shoal extends SE for about 0.5 mile to and beyond the next small creek. The current from the South Arm of the Stikine River is diverted through the channel off Green Point (56°32.5'N., 132°21.5'W.; chart 17360). The deepwater passage N of Highfield Anchorage, 1.7 miles SW of Gerard Point, has

been narrowed to a width of less than 0.5 mile by the encroachment of the shoaling from sedimentation on its N side. It is recommended that ships using Eastern Passage favor Simonof Island that is on the N side of Highfield Anchorage, passing a safe distance off. A light is shown from the N side of Simonof Island.

(464) **Currents.**–In Blake Channel the flood current sets NNW with a velocity of about 2.2 to 3 knots, and meets the flood current from Eastern Passage in the vicinity of The Narrows. The ebb current sets in the opposite direction with a velocity of about 2.2 to 3 knots.

(465) In Eastern Passage NW of The Narrows, the flood current sets SE and the ebb sets NW with average velocities of about 1.8 knots. The first and last of the ebb is backed into Eastern Passage by the current from the Stikine River. (See the Tidal Current Tables for daily predictions.)

(466) **Blake Island,** locally called **Ham Island,** is at the S entrance, with a narrow channel on each side. A pinnacle rock, not marked by kelp, with a depth of 1¼ fathoms, is about 0.3 mile N of the SE end of Blake Island. A 5-fathom spot is SW of Blake Island near the entrance about 150 yards from the Wrangell Island shore. If the W channel is used, avoid the rocks off the point of the cove on the W side of the channel when turning in from Bradfield Canal.

(467) The channel E of Blake Island passes E of a reef that extends NW from the NW end of Blake Island and terminates in a wooded islet at the narrowest part of the channel. A midchannel course will avoid the rocks along the E side of Blake Island. The tidal currents have considerable velocity in this vicinity, and a midchannel course should be followed through either channel.

(468) **Neptune Island,** about 7.5 miles NNW of Blake Island, is low and wooded and marked at its SW end by a light. The lagoon with its entrance E of Neptune Island shoals too rapidly for good anchorage. The greater part of the lagoon bares at low water, and the E side is used for log storage. **Aaron Creek** empties into the head of the lagoon.

(469) **Berg Bay,** N of Neptune Island, has depths of 5 to 11 fathoms to near its head and affords the best anchorage in Blake Channel. Vessels canenter on either side of the island in the mouth, but should give the island a good berth, and avoid a reef that extends 0.1 mile N of the inner end of the island. A log storage area is along the E shore in the E entrance. A mooring float is on the E side of the bay, near the head. Other tributaries of Blake Channel and Eastern Passage shoal rapidly inside their entrances, and are not good anchorages.

(470) Between Neptune Island and The Narrows, the S shore should be favored to avoid dangers that are off the N shore.

(471) **The Narrows,** about 12 miles NNW of the entrance to Blake Channel, is about 1.5 miles long and about 250 yards wide at its narrowest part, and connects Blake Channel with Eastern Passage. The only dangers are a reef off the N point at the E entrance, and a rocky area with 3 to 4 feet over it at high water and marked by a buoy, on the S side of the channel just W of the narrowest part of the channel.

(472) **Channel Island,** about 100 feet high and wooded, is in midchannel in Eastern Passage, about 1.3 miles W of The Narrows. The island, marked near its N end by a light, can be passed on either side but the channel N is more direct. The small cove SE of Channel Island is used as an anchorage by very small craft.

(473) **Point Madan,** on the E side of Eastern Passage, about 2 miles WNW of The Narrows, is high and wooded; a shoal covered 2¼ fathoms is 0.2 mile SE of the point. **Madan Bay,** E of Point Madan, is deep and clear of dangers. It offers excellent anchorage for small craft N of the projecting point near its head on the W side in 7 fathoms, soft bottom. Large vessels may find anchorage in 12 fathoms, soft bottom, farther offshore and near the head of the bay.

(474) **Mill Creek** empties into the N side of Eastern Passage about 5 miles above Point Madan. A path leads from the shore to **Virginia Lake,** about 1.2 miles inland.

(475) **Chart 17382.–Stikine Strait** connects the N part of Clarence Strait with the E end of Sumner Strait and the waters off the mouth of Stikine River. The strait is broad and deep, and is generally used by vessels going to Wrangell, or following the Inner Passage from Clarence Strait to Wrangell Narrows. Both shores of Stikine Strait are free from dangers except at a few points, and all dangers are shown on the chart.

(476) **Currents.**–In Stikine Strait the flood current sets N through the strait until met by the current from Stikine River W of Wrangell Harbor. Velocity of the current is about 2 knots. (See the Tidal Current Tables for daily predictions.) The glacial waters of the Stikine River usually discolor all the water in the vicinity of Wrangell Harbor.

(477) **Quiet Harbor** (56°14.2′N., 132°39.8′W.) is on the SE side of Stikine Strait about 2.5 miles S of Round Point, Zarembo Island. A well-protected and easily accessible anchorage, except in N wind, is reported to be about 400 yards from the head of the harbor in about 16 fathoms, mud and sand bottom.

(478) **King George Bay,** on the W side of Etolin Island about 6.5 miles NNE of Quiet Harbor, affords protection for small craft in SE weather. A log storage area is on its N side.

(479) **Round Point,** the SE extremity of Zarembo Island, drops steeply from a high headland, rounding off in an almost perfect quadrant. The shoreline consists of gray and yellow cliffs rising to heights of about 40 feet. **Round Point Light** (56°16.7′N., 132°39.5′W.), 24 feet above the water, is shown from a small white house with a red and white diamond-shaped daymark on the point.

(480) **Meter Bight,** 4 miles N of Round Point, is an open bight with sand flats at the head over 1 mile in extent that bares for about 500 yards offshore. Three streams empty through the flats. From the edge of the flats the water deepens rapidly.

(481) **South Craig Point,** marked by a light, is about 7 miles N from Round Point. It has no special characteristics.

(482) **Fritter Cove,** to the S of South Craig Point, is an open bight with rocks off the N point of the entrance. No information is available regarding depths inside.

(483) **Roosevelt Harbor,** NNW of South Craig Point, affords anchorage near the head for small craft in depths of 11 fathoms, mud bottom. In entering, leave the grass-covered rock at the entrance to the S. The channel S of the rock is reported foul.

(484) **Deep Bay** is on the Zarembo Island side of the N end of Stikine Strait, about 1.1 mile N of South Craig Point Light. It is reported as too deep for anchorage until near the head.

(485) **Woronkofski Island,** E of Zarembo Island, is about 5.5 miles in diameter. It rises in a series of peaks to **Mount Woronkofski** near its center, and is timbered to a height of 2,500 feet. The shoreline is generally rocky, with off-lying rocks close-to.

(486) **Reef Point,** low and wooded, is the SW extremity of Woronkofski Island. Rocks and kelp extend offshore for about 300 yards. A rock, with ¼ fathom on it, is about 0.6 mile NNW from this point.

(487) **Drag Island,** about 250 yards in diameter and about 150 feet high, is 0.2 mile S of the point.

(488) **Point Ancon** is on the W side of Woronkofski Island. **Point Ancon Light** (56°24.3'N., 132°33.3'W.), 20 feet above the water, is shown from a square frame structure with a red and white diamond-shaped daymark on the point. A rock awash and kelp are close to the point.

(489) **Wedge Point,** about 1.1 miles NNE of Point Ancon, is a low, thickly wooded point that shows prominently.

(490) **Elephants Nose** is a knob on a ridge near the N end of Woronkofski Island.

(491) **Woronkofski Point,** the N point of the island, is low and rounding without any marked characteristics. A daybeacon marks the NE end of the point. The shore SE of Woronkofski Point should be given a berth of at least 0.5 mile. There are rocks along this section of the coast, and also piles enclosing log storage areas.

(492) **Fivemile Island** is about 1.9 miles N of Woronkofski Point. **Fivemile Island Light** (56°28.2'N., 132°30.7'W.), 34 feet above the water, is shown from a single pile with a red and white diamond-shaped daymark on the N end of the island.

(493) **Chichagof Pass,** between the S side of Woronkofski Island and the N side of Etolin Island, connects Stikine Strait with the N part of Zimovia Strait. It is clear except for Young Rock, with a depth of 2 fathoms, at the E end of Chichagof Pass in Zimovia Strait. **East Point,** at the E end of Woronkofski Island, is low and wooded. The small cove on the N side of East Point is used as a log raft storage area. **Circle Bay** is an open bight W of East Point.

(494) **Hat Island** is at the entrance to Circle Bay, about 0.8 mile SW of East Point. It is wooded, and is marked by a light on the S side. Rocks awash extend about 250 yards SW of Hat Island.

(495) **Chart 17384.–Highfield Anchorage** is at the N end of Wrangell Island, about 1.5 miles from Wrangell Harbor. The anchorage is in 6 to 15 fathoms, fine sand and mud bottom, W of the line of and about midway between **Point Highfield** and **Deadman Island,** which is marked on its N side by **Eastern Passage Light** (56°29.6'N., 132°22.2'W.); the light is 13 feet above the water and showing a red and white diamond-shaped daymark on a square frame. Anchorage can also be had in 4 to 12 fathoms, fine sand and mud bottom, E from that areas to directly N of **Polk Point** and about halfway between Deadman Island and the shore of Wrangell Island. Light floating ice from Stikine River is encountered here in the spring, and countercurrents render a vessel very uneasy at times.

(496) **City of Topeka Rock,** in Highfield Anchorage about 50 yards N of the airport runway, is awash at low water.

(497) **Wrangell Harbor** is on the W side of the N end of Wrangell Island, about 1 mile below Point Highfield. It is a bight formed by **Point Shekesti,** that projects 0.4 mile in a NW direction from the island. A breakwater 200 yards long extends from the N extremity of Point Shekesti and affords protection for small craft in the S part of the harbor. **Wrangell Harbor Breakwater Light 2** (56°28.0'N., 132°23.1'W.), 21 feet above the water, is shown from a skeleton tower with a red triangular daymark on the outer end of the breakwater.

(498) **Wrangell** is a city on the N side of Wrangell Harbor, 89 miles from Ketchikan and 148 miles from Juneau. The deepest draft commercial vessel calling at Wrangell in 1976 was 33 feet. Wrangell has a cannery, a cold storage facility, large lumber mills, and two oil company facilities.

(499) **Prominent features.**–An 80-foot-high standpipe, on a low ridge immediately E of the city of Wrangell and marked on top by a red light, a lighted microwave tower, and the aerobeacon at the airport are the most prominent objects seen in Wrangell from seaward.

(500) **Channels.**–A Federal project provides for a mooring basin within the protected area in the SE part of the harbor and a breakwater on the W side of the entrance; an inner basin on the tidal flat area E of Shakes Island with a connecting channel to it, all dredged to a depth of 10 feet. The connecting channel is marked by daybeacons, and the breakwater is marked by a light at its outer end. In August 1991, depths of 10 feet were available except for lesser depths along the edges of the basins and connecting channel.

(501) **Anchorages.**–Wrangell Harbor affords shelter for vessels only from offshore winds. During heavy SE winter gales Highfield Anchorage is sometimes used for better shelter. Good anchorage in strong SE weather has been found 0.8 mile off the NE side of Woronkofski Island in about 23 fathoms, mud bottom.

(502) **Dangers.**–The approach to Wrangell Harbor is clear of dangers. A shoal with 1 fathom on it extends about 80 yards N of the breakwater. Submerged dolphins are on both sides of the entrance channel, E of the breakwater, to the outer mooring basin. Submerged piles and other wreckage are at the SE end of the outer mooring basin.

(503) **Tides and currents.**–The mean range of tide in Wrangell Harbor is 13.3 feet, and the diurnal range 15.7 feet. Tidal currents in Wrangell Harbor are variable. Vessels approaching the wharves should note the way small craft are swinging to anchor to determine the direction of the current and should exercise caution in coming alongside.

(504) **Pilotage,** except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska. (See Pilotage, chapter 3, for details.)

(505) Vessels en route Wrangell meet the pilot boat about 1 mile NW of Guard Islands Light (55°26.8'N., 131°52.9'W.).

(506) The pilot boat, a tugboat, can be contacted by calling "WRANGELL PILOT BOAT" on VHF-FM channels 16, 13, or 12.

(507) **Towage.**–Tugs up to 1,270 hp operating out of Wrangell and engaged principally in the towing of barges and log rafts are available for assistance in docking and undocking. They are equipped with VHF-FM channels 16, 13, and 9. The tugs are available on a 24-hour basis, and arrangements should be made well in advance through shipping agents.

(508) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(509) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(510) Wrangell is a **customs port of entry.**

(511) **Harbor regulations.**–The **harbormaster** at Wrangell assigns berths and controls the use of the grid in the inner basin. He maintains an office on the trestle connecting Shakes Island to Wrangell Island. The harbormaster's office monitors 2182 kHz and VHF-FM channel 16.

(512) **Wharves.**–All of the piers and wharves at Wrangell are privately owned and operated with the exception of the City Pier and the State Ferry Pier, which are owned by the City of Wrangell and the State of Alaska, respectively. The alongside depths given for each facility described are reported; for further information on the latest depths, contact the individual operators.

(513) Alaska Marine Highway System, Wrangell Ferry Terminal (56°28'28"N., 132°23'23"W.); 320 feet of berthing space with dolphins; depths of 24 feet alongside; owned and operated by the State of Alaska.

(514) Wrangell City Wharf (56°28'16"N., 132°23'14"W.); 0.2 mile SSE of the Alaska State Ferry Pier; 400-foot SW face; deck height, 24 feet; depth alongside, 35 feet; 100,000 square feet of open storage and 4,000 square feet of covered storage; owned and operated by the city of Wrangell.

(515) Wrangell City Pier (56°28'14"N., 132°23'07"W.); S side 275 feet, 200 feet of berthing space; depths of 24 to 35 feet alongside; two forklifts for containerized cargo; 4,800 square feet of covered storage; general cargo and passengers from cruise vessels; owned and operated by the City of Wrangell.

(516) Wrangell City Transfer Bridge; immediately SE of Wrangell City Pier; 140-foot face; 72-ton capacity; raises and lowers by compressed air, using a large floating tank; designed for Lip Barges, but can adapt to other type barges with advance notice; forklift and tractor equipment are available; 100,000 square feet of open storage and 4,000 square feet of covered storage; roll-on/roll-off general cargo; owned by the City of Wrangell and operated by Foss Alaska Line and Boyer Alaska Barge Line, Inc.

(517) Bar Harbor Seafoods Wharf (56°28'01"N., 132°22'52"W.); 125-foot face; depth alongside, 10 feet; deck height, 24 feet; receipt of seafood, and icing fishing vessels; hoists and forklifts available; owned by the city of Wrangell and operated by Bar Harbor Seafoods, Inc. and the city of Wrangell.

(518) Wrangell Harbor Cannery Float (56°27'56"N., 132°22'50"W.); 675-foot float; 10 feet alongside; moorage for fishing vessels and small craft; owned by the State of Alaska and operated by the city of Wrangell.

(519) Chevron U.S.A. Wrangell Dock (56°27'53"N., 132°22'52"W.); 90-foot float; depth alongside, 10 feet; deck height, 25 feet; pipelines extend to storage tanks, 10,700-barrel capacity; receipt of petroleum products; bunkering vessels; owned and operated by Chevron U.S.A., Inc.

(520) Union Oil Co. Wrangell Dock (56°28'54"N., 132°22'54"W.); 100-foot float; depth alongside, 10 feet; deck height, 24 feet; pipelines extend to storage tanks, 4,500-barrel capacity; receipt of petroleum products; bunkering vessels; owned and operated by Union Oil Co. of California.

(521) Alaska Wood Products, Shoemaker Bay Pier (56°23'52"N., 132°20'28"W.); 4.5 miles SSW of Alaska Wood Products, Wrangell Pier; 300 feet of berthing space; depth alongside 32 feet; 7 acres of open storage; cargo handling equipment available from the Alaska Wood Products, Wrangell Pier; owned and operated by Alaska Wood Products. The area N and S of the pier is occupied by log booms and small craft; caution is advised.

(522) **Supplies.**–Provisions and fishing and some marine supplies are available in Wrangell. Two oil companies maintain piers and fueling floats in the small-craft basin in the S part of the harbor. Gasoline, diesel fuel, distillates and lubricating oil and greases are available from the fuel facilities. There are no facilities for fueling large vessels at Wrangell. Water is available at the wharves and on the floats in the small-craft basins; ice for fishing vessels is available at the Bar Harbor Seafoods Wharf.

(523) **Repairs.**–There are no drydocking or major repair facilities for large vessels in Wrangell or in southeastern Alaska. The nearest facilities are in British Columbia and the State of Washington. A marine railway that can handle vessels up to 80 feet in length and 8 feet in draft is available in the small-craft basin E of Shakes Island. Another marine railway E of Shakes Island is available for wooden and metal hull repairs for small vessels up to 50 feet in length and 6 feet in draft. A machine shop for limited shaft repairs to small craft is adjacent to this small-craft basin.

(524) **Small-craft facilities.**–The City of Wrangell operates about 3,300 feet of float space in the mooring basin in the S part of the harbor, and about 1,900 feet of float space in the inner basin E of Shakes Island. Fresh water and electric power are available on all floats. A 65-foot grid is in the mudflats on the W side of the trestle connecting Shakes Island to Wrangell Island.

(525) Two fuel facilities are on the SSW side of the harbor. Also on the SSW side of the harbor are sections of a float maintained by the State Fish and Wildlife Service and the U.S. Forest Service for their own use. A seaplane float is on the NE side of the channel leading to the S mooring basin about 200 yards 109° from the Wrangell Harbor Breakwater Light 2.

(526) Limited boat-launching facilities are available at the S end of the S basin and close S of the ferry terminal.

(527) **Shoemaker Bay Boat Harbor,** about 3.5 miles SSE of Wrangell, had a reported controlling depth of 15 feet in July 1976. The entrance channel is marked by lights. The stalls can accommodate 230 small craft, ranging from 20 to 62 feet with a 10-foot overhang. Metered electricity is available upon request, and fuel can be obtained in Wrangell. A motel, restaurant and lounge, telephone service, and a large vehicle parking area are available in the immediate vicinity.

(528) **Communications.**–Wrangell has regular passenger, express, and freight service to Puget Sound ports, British Columbia, and other Alaska ports by water and air. The Alaska State Ferry System operates daily service during the summer months to Prince Rupert, B.C., Sitka, Ketchikan, Petersburg, Juneau, Haines, and Skagway; weekly service is available to Seattle; this schedule is less frequent during the winter.

(529) Scheduled airlines and charter air services operate daily from Wrangell.

(530) Telephone and radiotelephone communications are maintained with the other States and other parts of Alaska.

6. WEST COAST OF PRINCE OF WALES ISLAND

(1) This chapter covers the outer coast between Dixon Entrance and Sumner Strait, and includes the inlets and bays on the W coast of Prince of Wales Island, and the offlying islands with the connecting bodies of water. The area is described in the following order: Forrester Island and W coast of Dall Island; Meares Passage; Cordova Bay; Hetta Inlet; Sukkwan Strait; Kaigani Strait; Tlevak Strait and Narrows; Ulloa Channel; Bucareli Bay, San Alberto Bay, and Klawock Inlet; Port Real Marina, Portillo Channel, and San Christoval Channel; Arriaga Passage, Gulf of Esquibel, and Tonowek Bay; Bocas de Finas; Tonowek Narrows; Tuxekan Passage, Davidson Inlet, Sea Otter Sound, and El Capitan Passage. The cities of Hydaburg on Sukkwan Narrows, and Craig and Klawock on Klawock Inlet are described in this chapter.

(2) **Chart 17400.**–The connecting bodies of water, along the W coast of Prince of Wales Island and between the offlying islands, afford protected inside passages between Dixon Entrance and Sumner Strait. The main passages have been surveyed, but there are several inlets and bays that have not been surveyed.

(3) **Currents.**–A few observations made during June 1917, at times when the sea and air were calm, show a NE to NW set varying from 0.3 to 1.3 knots between Dall Island and Forrester Island. W of Lowrie Island at the 100-fathom curve, a NE to N sea of 0.1 knot to 0.8 knot was observed. Near the 1,000-fathom curve, a slight S set was experienced during calm weather.

(4) The currents have considerable strength in the vicinity of the rocks and islets off Forrester Island, and are irregular in direction, but generally have a N set during flood. Tide rips are usually found around Forrester Island and in the passages between the rocks.

(5) **Weather.**–Along the inside passages between Dixon Entrance and Sumner Strait, the rugged islands W of Prince of Wales Island afford some protection from the rigors of the open Gulf. However, passages such as Cordova Bay and Kaigani Strait, as well as numerous inlets and harbors along these routes, are exposed to heavy SE weather, which is prevalent from September through April. The worst conditions usually occur in November, December, and January when gales are encountered about 8 to 11 percent of the time in open water; strong winds are most often out of E through SE. Winds are further intensified in some restricted passages, and when they blow across strong currents the waters become treacherous. Swells from the open ocean add to the problem in areas like Steamboat and Cordova Bays and North Kaigani Harbor. In addition, because of the high elevations of the islands, williwaws can develop and create rough conditions in many of the inlets and passages. Local weather knowledge is essential to the safe navigation of these waters.

(6) **Forrester Island** (54°48′ N., 133°31′W.), about 14.5 miles off Dall Island shore and about 30 miles WNW from Cape Muzon, is wooded. The N half of the Island is a ridge with distinctive summits; the S summit is rounding, relatively flat with a ragged tree line; the next peak to the N is sharp; the third is rounding; and the N peak shows flat, with two knobs. The S part of the island is a wooded flat with a knob on the E side. At the S end of the island is a detached knob, which from E and W directions appears as a separate island.

(7) Forrester Island is a National Wildlife Refuge under the jurisdiction of the U.S. Fish and Wildlife Service.

(8) There are no secure anchorages off Forrester Island. During the summer, small craft anchor in four different places: Wood Cove, Eagle Harbor, the N end, and the bight on the W side near the N end. Anchorage is close to the beach at the edge of the kelp in about 10 fathoms, rocky bottom. There is a small freshwater stream in Eagle Harbor.

(9) **Wood Cove** and **Eagle Harbor** are on the E side of the island, about 1.4 miles and 0.8 mile, respectively, from the N end.

(10) **Petrel Island** is about 1 mile S from Forrester Island. It has two wooded summits. From a distance these look like two islands.

(11) **South Rock,** close to the S end of Petrel Island, is not very prominent. Between South Rock and Petrel Island is a rock, 73 feet high, and several smaller rocks.

(12) N of Forrester Island for 3 miles there are, in succession: **Sea Lion Rock,** 117 feet high, with a flat and grassy top; **Cape Horn Rocks,** 148 feet high, with steep sides and grassy tops; **Lowrie Island,** wooded and marked by a light; and North Rocks, 15 to 25 feet high, a group with outlying rocks and breakers.

(13) Breakers are numerous around the Forrester Island group, but for the most part are close to shore or are readily discernible. **Butler Rock,** 20 feet high, is 500 yards W from the point on the N side of the bight in the NW end of Forrester Island. Breakers are N and S of the rock. A breaker between Sea Lion Rock and Lowrie Island is reported to break at low water springs with a moderate swell. During unusually fair seasons, this locality has been marked by kelp.

(14) The pass between Forrester Island and Petrel Island is used by fishermen. At times the currents are severe, and during heavy weather the pass is dangerous. The channel around the N end of Forrester Island and S of Sea Lion Rock and Cape Horn Rock is reported clear; that between Sea Lion Rock and Cape Horn Rocks is seldom used. There is a channel between Lowrie Island and North Rocks, but the locality of North Rocks is reported foul. The passes are used only by small fishing craft and should only be attempted by those with local knowledge.

(15) **Wolf Rock,** 13.5 miles 005° from the highest summit of Forrester Island, is small in extent and bare of vegetation; it is surrounded by foul ground to a distance of about 0.5 mile.

(16) **Dall Island,** the largest island off the W coast of Prince of Wales Island, is about 40 miles long from Cape Muzon, its SE extremity, to Eagle Point, its NW extremity, in Meares Passage. It is about 8.5 miles wide between Cape Augustine and High Point, in Tlevak Strait. It is mountainous; Thunder Mountain in the vicinity of Cape Lookout is 3,010 feet high. Both the E and W coasts of the island are indented by numerous bays, coves, and inlets, some of which are excellent harbors of refuge.

(17) The W coast of Dall Island from Cape Muzon to Meares Passage, a distance of about 40 miles, is rugged with prominent partially wooded peaks ranging in elevation to about 3,000 feet.

(18) In 1972, a shoal covered 4 fathoms or less was reported in 54°59.6′N., 133°16.6′W., about 4.3 miles SW of Sakie Point. A rock covered 2 fathoms or less is about 0.8

mile NW of the 4-fathom shoal in about 55°00'03"N., 133°17'51"W.

(19) **Chart 17409.–Chickwan Bight,** about 2.5 miles W of Cape Muzon, is open and exposed and has depths of about 30 fathoms at the entrance, decreasing to 12 fathoms near the head.

(20) **Wolk Harbor,** about 3.5 miles W of Cape Muzon, is deep throughout and is open and exposed. Midchannel depths are 20 to 40 fathoms. There are tide rips off **Wolk Point** between Chickwan Bight and Wolk Harbor.

(21) **Liscome Bay,** about 4.3 miles WNW of Cape Muzon, affords an anchorage for small vessels, but is exposed to S weather and swell. A submerged rock is about 100 yards off the E shore, about 1.1 miles within the entrance, where the bay narrows. A small rock is about 230 yards N of the submerged rock. Favoring the W shore, depths of 40 fathoms at the entrance to about 16 fathoms in the vicinity of the rocks may be carried. Depths of 8 to 10 fathoms are found at the head of the bay.

(22) **Point Cornwallis,** marked by a light, is a prominent headland about 6.6 miles WNW of Cape Muzon. At the extremity is a projecting rocky point, 195 feet high, on the N side of which, close-to, is a similar point, 131 feet high, near which are two small rocks. A rock awash is immediately W of the projecting point, and a submerged rock and a bare rock are about 0.3 mile to the SE. Immediately back of the point is a round-topped hill, 440 feet high. **Stripe Mountain,** about 1.3 miles NE of the point, is marked by a prominent slide on the NW side.

(23) **Security Cove** is 2.7 miles N of Point Cornwallis. Two rocks awash are close off the S shore at the entrance. Depths at the entrance are deep but irregular; in the narrow part of the cove depths of 6½ fathoms are obtained. Depths of 19 to 35 fathoms are found inside. In the bight on the N side, close inside the narrowest part of the entrance, small craft have found temporary anchorage in depths from 6 to 22 fathoms. A small lake, about 0.5 mile inshore, at an elevation of 950 feet, empties into the head of Security Cove.

(24) **Essowah Harbor** is about 1.7 miles NNW from Security Cove. The entrance channel is about 0.3 mile long and 30 yards wide; there are two rocks near the entrance. **Essowah Lakes** empty into the head of Essowah Harbor. A small lake, 0.5 mile S of Essowah Lakes, empties near the entrance to Essowah Harbor.

(25) **Parrot Rock** is about 0.9 mile WNW from **Essowah Point,** the point S of the entrance to Essowah Harbor, and is about 0.2 mile offshore.

(26) **Port Bazan** (54°48.8'N., 132°58.5'W.) is between two prominent mountain peaks, about 15 miles from Cape Muzon and 7.5 miles NW of Point Cornwallis. The NW mountain top is a small bare tip; the SE mountain is roughly the shape of a rounded cone, and is heavily wooded to the top. Often when the tops of the mountains are enveloped in fog or low clouds, the latter mountain stands out clearly. There are a number of islands within the port.

(27) **Dolgoi Island,** at the entrance to Port Bazan is mound shaped and wooded (with the seaward side rocky and bare of vegetation) to heights of 50 to 100 feet. There are through channels to the NW and SE. W from Dolgoi Island, on the S side of the entrance to the N channel, is a group of four islets close together. The W side of the outermost islet is a precipitous sharp pointed rock, light brown to white, 125 feet high; the E part is lightly wooded. The next larger islet is lightly wooded; the other two are small and bare. A shoal with a depth of 4 fathoms, and probably less, is about 750 yards NW from the W extremity of the largest islet.

(28) Port Bazan affords good anchorage N and NE of the islands that stretch across the E part of the bay. The anchorage is well protected from the swell and is generally free from williwaws. It can be entered either SE or NW of Dolgoi Island, but the NW entrance is more often used. At low water the channels are fairly well defined. Rocks that cover are a considerable distance from the shores of the narrow channels, presenting elements of danger to those without local knowledge. The chart shows known dangers.

(29) Anchorage may be had NE of the islands in the center of the bay in 11 to 19 fathoms, mud bottom, or in the bight N of the N island in 11 to 13 fathoms. A rock, bare at low water, is close to the NE end of the N island. A small 6¼-fathom shoal is 0.2 mile NE from the N island. The small bight at the head of the bay is foul.

(30) **Tides and currents.**–The mean tide range is about 9 feet while the diurnal range is about 11 feet. Currents are reported to seldom exceed 1 knot.

(31) **Chart 17408.–Gooseneck Harbor** (54°53'N., 133°03'W.), about 4 miles NW of the NW entrance point to Port Bazan (chart 17409), is identified by a black rock, 65 feet high, close S of the entrance. The upper half of the harbor is mostly obstructed by bare rocks and ledges, and the head is especially foul. A rock, awash at extreme low water, is near the middle of the entrance, 200 yards W of a small islet off the S shore. A rock, that bares, is almost in midchannel, about 0.8 mile inside the entrance. In entering, follow the N shore at a distance of about 250 yards until about 1 mile inside. After rounding the point on the N side, find anchorage for small craft 100 yards off the N shore, 1.5 miles within the entrance.

(32) **Gold Harbor,** about 2 miles NW of Gooseneck Harbor, is reported clear in midchannel. On the N side of the bay is a peak, on the S side of which is a very prominent landslide, 110 yards wide and 350 yards long, with its top at an elevation of 1,560 feet. About 2.6 miles from the entrance and about 0.6 mile NW of the N shore are **Twin Peaks** about 500 yards apart. The peaks are bare above an elevation of 1,700 feet.

(33) About 0.9 mile from the entrance, to the S of midchannel, is a small island. A midchannel course, passing N of the island leads to the head of the bay, where depths of 23 to 29 fathoms are found. The small cove W of the NW point of the entrance to Gold Harbor is foul.

(34) **Waterfall Bay** is about 4.5 miles NW of Gooseneck Harbor. The entrance is distinguished by a bold, bare point on the SE side and **Gourd Island,** a wooded islet in the middle. Near the head of the bay are extensive deposits of marble on the slopes of Twin Peaks, two prominent bare summits that are about 0.6 mile E of the head. Two small islands, one close to the N shore, and the other about in midchannel, are about 0.9 mile ENE of Gourd Island. Dangers are shown on the chart. The bay has two prominent waterfalls: one at the head and the other on the N shore close to the N island and several islets.

(35) The bay may be entered NW or SE of Gourd Island. A narrow area with 8 fathoms on it extends from the N shore of the bay to within 270 yards of the N side of Gourd Island. A channel about 120 yards wide, with depths of 26 to 38 fathoms, is between this area and the rocks and kelp that extend off the N side of Gourd Island for about 100 yards.

(36) The channel between the two islands within the bay has a depth of 15 fathoms near midchannel. A depth of 30 fathoms is available in the channel S of the S island with an 8-fathom spot, marked by kelp, and a 3¼-fathom spot, which are about 0.2 mile SW and 0.1 mile ESE, respectively,

of the island. If this channel is used, round the island at a distance of about 180 yards, and leave the 3¼-fathom spot to the E.

(37) Anchorage may be had near the head of the bay in about 26 fathoms, sticky bottom. W winds draw into the bay with considerable force. With SE winds, williwaws are severe. Small craft anchor in 10 fathoms on the NW side of the bay, just N of the N island. There is anchorage for small craft, 50 feet long or less, in 5 fathoms, mud bottom, in the small bight at the extreme head of the bay.

(38) **Cape Augustine** (54°57.0′ N., 133°09.8′W.), at the NW side of the entrance to Waterfall Bay, has several bare black rocks close-to.

(39) **Augustine Bay** is a small bay N of Cape Augustine. Kelp and rocks extend offshore; depths of 8 to 16 fathoms are found near the center of the bay. It is open and exposed and is not suitable for anchorage.

(40) **Welcome Cove** is about 1.5 miles N of Cape Augustine. Off the entrance the ground is foul, but there is a narrow channel into the cove, where anchorage may be had for small boats in 2 to 5 fathoms, mud bottom. The entrance should not be attempted without local knowledge.

(41) **Camp Cove** is about 2.5 miles N from Cape Augustine. Off the entrance is a rock 15 to 20 feet high with foul ground that extends in a NNE direction to the shore. The S shore of the cove is foul.

(42) **Devil Lake** empties to the N of **Devil Island,** about 0.8 mile to the N of Camp Cove. The channel at the entrance is very narrow. The lake extends about 2.5 miles in a NE direction.

(43) **Fisherman Cove** is about 4.5 miles N from Cape Augustine. At the entrance is a small island that has a few scattered trees. In entering, pass the S point of this island at a distance of about 100 yards and steer for the left or W edge of the sand beach at the head of the cove. The anchorage is about 170 yards wide, with depths of 3 to 6 fathoms, mud bottom, and is large enough for four or five small fishing vessels.

(44) **Sakie Bay** is about 7.5 miles NNW from Cape Augustine. Rocks and reefs extend 0.6 mile offshore in a WSW direction from **Sakie Point,** the S point of the entrance. The outermost rock is 20 feet high. **Table Rock** is the most prominent of the rocks that extend about 320 yards off the N shore at the entrance. The channel, about 300 yards wide, is to the S of Table Rock. Tide rips, severe for small craft, are experienced at the entrance. The bay has not been thoroughly surveyed.

(45) **Middle Island** is near the center of the bay. Near the head of the bay and about 450 yards off the N shore is a group of small islands and rocks. Anchorage can be found in the bay in 6 to 8 fathoms, sticky mud bottom.

(46) **Cape Lookout** (55°06′N., 133°14′W.) is a prominent headland about 2 miles N of Sakie Bay. From the cape, extending in a SE direction, are four prominent peaks. **Cone Mountain,** 0.6 mile from the extremity of the cape, is a symmetrical, timbered cone. **Bear Mountain,** 1.4 miles from the cape, is round topped, and timbered to an elevation of 1,800 feet. **Thunder Mountain,** the highest peak on Dall Island, 2.8 miles from the cape, has a bare, rugged summit.

(47) There are several breakers off Cape Lookout. One, about 3.4 miles WNW from the cape, has no kelp on it and does not break in a calm sea. A 2½-fathom shoal, which breaks, is about 2.8 miles WNW from the cape; 0.4 mile N of it is another shoal, covered with a heavy mass of kelp, which breaks only in a heavy sea.

(48) **Sea Otter Harbor** on the N side of Cape Lookout divides into two branches about 1.4 miles from the entrance.

(49) **Entrance Island,** a prominent rock, is 0.6 mile NW of Cape Lookout and a little to the S of the middle of the entrance to Sea Otter Harbor. Foul ground surrounds the island. Give the island a berth of 0.5 mile on the W side, and a berth of about 0.3 mile from the N around to the S side. Kelp patches extend from the island to a breaker 0.8 mile in a S direction, and about 0.4 mile off Cape Lookout.

(50) **Juel Point,** the headland on the N side of Sea Otter Harbor, is rugged and rocky. From the point the land slopes E for 1.3 miles to a summit, 1,100 feet high.

(51) Inside the entrance to Sea Otter Harbor, rocks and reefs extend N about 0.6 mile from Cape Lookout. Within the entrance, 1.5 miles E of Entrance Island, a group of rocks extends 0.2 mile off the N shore of the bay. The largest and southernmost rock of this group is known as **Gate Island. Clear Point** is the W extremity of the headland that divides the bay into two arms. To the S of this point is **Nellag Island,** with off-lying rocks close-to that extend in a W direction.

(52) In entering Sea Otter Harbor, small boats, with local knowledge, frequently use a channel to the E of Entrance Island, passing close to Cape Lookout. A rock awash, about 450 yards ESE of Entrance Island, is left to the W.

(53) **Hook Arm,** the N arm of Sea Otter Harbor, is well protected from wind and sea. Anchorage may be had anywhere in the arm in 21 to 26 fathoms in the center and 17 to 19 fathoms at either end, mud bottom. Small vessels can anchor in 8 to 15 fathoms at the head of the arm or in the bight N of Channel Island. A small sand and gravel beach is at the head of this bight.

(54) **Camp Island,** small and rocky, is close to the W shore of Hook Arm, about 0.5 mile N of Clear Point.

(55) **Channel Island,** separated by a very narrow passage from the W shore of Hook Arm about 0.8 mile N of Clear Point, is wooded. **Low Rock** and a rock awash close E are 200 yards off the S shore of Channel Island.

(56) Two small rocky islets are near the head of Hook Arm; the outermost is 240 yards from the N shore.

(57) The W end of Nellag Island should be given a berth of at least 100 yards. The principal dangers in the channel are the rocks off Camp Island and Low Rock, and the rocks awash.

(58) **Manhattan Arm,** the SE branch of Sea Otter Harbor, is exposed to the force of the wind and sea and is too deep for secure anchorage. A rocky islet, with off-lying rocks awash, is in the middle of the arm.

(59) **Chart 17407.–Foul Bay,** immediately N of Juel Point (55°07.6′N., 133°13.6′W.), is about 2.5 miles N of Cape Lookout. In the center of the bay near the entrance is a cluster of submerged rocks. The shores of the bay are foul where the bay narrows; reefs extend from either shore almost to midchannel, leaving a narrow passage 50 to 100 feet wide through which very small boats pass to a secure anchorage in 3 to 5 fathoms near the head of the bay. Only those with local knowledge should enter the bay.

(60) **Meares Passage** is at the NW end of Dall Island, between it and Suemez Island, and affords passage from the sea to Tlevak Narrows and the E part of Ulloa Channel. The approach to Meares Passage from W is foul in places for about 2 miles from the Suemez Island shore.

(61) **Suemez Island,** about 8.5 miles in diameter, is W of and separated from the N end of Dall Island by Meares Passage. The island is mountainous; the peaks are generally rounded and wooded, except near the summits. The shoreline is rocky, fringed by small rocky islets and kelp, and indented by numerous bays and inlets.

(62) **Arena Cove** is a small open bight in the S shore of Suemez Island W of **Lontana Point**, the S extremity of the island. It has depths of about 17 fathoms near the entrance, shoaling to about 4 fathoms near the head.

(63) **Diver Islands,** off the E shore of Meares Passage, are prominent in the approach from seaward. The W island is wooded; the E island has a lone tree on its summit. The passage E of the islands is narrow, and its shores are marked by heavy kelp. Most small craft coming from the S use this passage when the weather permits.

(64) **Diver Islands Light** (55°10.7'N., 133°15.9'W.), 130 feet above the water, and shown from a small house with a red and white diamond-shaped daymark on the NW side of the island, marks the SW entrance to Meares Passage.

(65) **Diver Rocks,** two in number and bare at half tide, are about 0.2 mile W of the island. A 2½-fathom shoal, marked with kelp, is 200 yards W of them.

(66) **Diver Bay,** on the SE side of Meares Passage at its entrance, extends SE from Diver Islands. The bay is clear except for a kelp-marked rock, with ½ fathom over it, that is 650 yards from the N shore about in midchannel. Small craft can find excellent anchorage in the **Hole in The Wall,** an indentation in the N shore; the entrance is narrow, but has a least depth of 4¼ fathoms. Pass either side of the ½-fathom rock in entering.

(67) **Bobs Bay,** NE of Diver Islands, is an irregularly shaped bay, obstructed by a chain of reefs and islands. The bay is divided into three arms. The northernmost arm is deep and clear and the middle arm is foul and not navigable except by small boats. The easternmost arm affords good anchorage for moderate sized craft in 6 to 10 fathoms, soft bottom. Enter Bobs Bay 0.2 mile or more S of the largest outer island, and follow the E side of the island at a distance of about 250 yards. Pass in midchannel S of the high island off the entrance to the E arm.

(68) **Millar Rocks,** a group of bare rocks surrounded by submerged and rocks awashed, are about 1 mile N of Diver Islands. The passage N of the rocks is foul to the Suemez Island shore, although there are deep passages between. In heavy weather the entire area appears to be covered with breakers.

(69) In the N part of Meares Passage, about on a line from **Eagle Point** to the summit of Ridge Island, at a distance from Eagle Point of about 0.6 mile to 1.5 miles, there are several rocky kelp-marked patches with deep water between; all should be avoided.

(70) **Currents.**–The tidal currents in Meares Passage set NE on the flood and SW on the ebb. The estimated velocity of the current is about 1 to 1.8 knots. S of Meares Island the flood sets E and the ebb W with an average velocity of 2.1 knots. (See the Tidal Current Tables for daily predictions for places in Meares Passage.)

(71) **Chart 17400.–Cordova Bay** has its entrance on the NW side of Dixon Entrance between Cape Muzon (54°39.9'N., 132°41.4'W.) and Point Marsh and extends about 19 miles in a N direction from between Dewey Rocks and the SE end of Long Island. The bay has a clear channel about 3 miles wide between Barrier Islands and Long Island, and an average width of about 3 miles from Ship Islands to Lime Point. From the head of Cordova Bay at Lime Point, Hetta Inlet extends in a general N direction for about 15 miles to Gould Island.

(72) The best entrance to the bay is between Barrier Islands and Long Island, but Eureka Channel, E of Barrier Islands, is sometimes used by vessels with local knowledge. From Cordova Bay and Hetta Inlet, Tlevak Strait and Sukkwan Strait extend NW and afford passage through channels to Bucareli Bay. Small craft ply from Ketchikan to Cordova Bay, Hetta Inlet, and other points on the W coast of Prince of Wales Island.

(73) **Currents.**–In Cordova Bay and adjacent waters the flood current sets N and the ebb current S. The estimated velocity of the current is 1 to 2 knots; the stronger velocity occurs in the narrows. (See the Tidal Current Tables for daily predictions in Cordova Bay.)

(74) **Chart 17409.**–The W side of the entrance to Cordova Bay from Cape Muzon to Natoma Point (54°52.3'N., 132°37.4'W.) is comparatively clear.

(75) Off the E end of Cape Muzon are a group of small islands and rocks. On the main shore is a sandy beach where landings can be made in good weather. This area was occupied by the Haida Tribe (a Native American tribe) at the time they migrated N from British Columbia and Puget Sound territory. Only a few graves now mark the site of their village of **Kaigani.** Rather severe tide rips are experienced off the cape. Along the S shore of the cape, close in, are several large rocks. The shoreline in this section is rocky, precipitous, and marked by light-colored cliffs. Breakers are about 0.2 mile off the S shore of the cape. Vessels in passing should give the cape a berth of at least 1 mile.

(76) **Local magnetic disturbance.**–Differences of as much as 4° from normal variation have been observed at Cape Muzon.

(77) The N side of Cape Muzon trends NW for about 2.5 miles, forming the S side of **McLeod Bay.** Temporary anchorage in 5 to 9 fathoms, exposed to all E winds, may be had in this bay, about 0.5 mile NW of a green landslide. The chart and the lead are the best guides, as landslides frequently occur, and there are several landslides besides the one mentioned. At the head of the bay is a small stream of freshwater and a sand and gravel beach for about 200 yards. **Little Daykoo Harbor,** a small-boat harbor, is close N of McLeod Bay.

(78) **Daykoo Islands** and **Datzkoo Islands** extend 2 miles in a N direction from McLeod Bay, with a maximum distance of about 1 mile offshore.

(79) **Long Island** forms the W side of Cordova Bay for a distance of about 12 miles. The E shore of the island is rugged and broken, with a number of outlying islets and rocks within a distance of about 0.5 mile. There are also a number of indentations and some anchorages.

(80) A shoal area that ends in a submerged rock with 1¼ fathoms over it and marked by kelp extends for 0.5 mile off the S point (54°45.1'N., 132°38.0'W.) of Long Island. This point is marked by a very prominent landslide about 0.3 mile inshore. The points at the S and SE parts of the island should be given a berth of not less than 0.8 mile.

(81) **South Rocks,** about 0.3 mile off the SE point of Long Island, consist of two large rocks, 28 and 29 feet high, and several smaller rocks.

(82) **Coning Inlet** is on the E side of Long Island about 4.5 miles from the S end. It is open to E and does not afford good anchorage. A lagoon is at the head of the inlet, where it is connected by saltwater rapids.

(83) **Nina Cove,** on the S side of Coning Inlet at the entrance, affords secure anchorage for small craft in 3 to 4 fathoms, sticky bottom. The anchorage is about 200 yards in extent and is S of the small islet in the center of the cove at its head.

(84) **Coning Point,** the N point at the entrance to Coning Inlet, is low and wooded. A conspicuous black rock 40 feet high is about 0.3 mile off the point.

(85) **Natoma Bay,** on the E side of Long Island about 6 miles from its S end, is about 1 mile in diameter and open to

E and SE. Partially protected anchorage can be had in the N part of the bay in 11 to 20 fathoms, mud bottom. The entrance is on either side of the two wooded islets in the middle of the entrance. A 5¼-fathom shoal is about 0.6 mile NW of the islets. The shores of the bay are foul and should be given a good berth.

(86) **Natoma Point,** low and wooded, is the N point at the entrance to Natoma Bay. A large wooded, high-water islet is close off the point to S. Give the E side of the point and islet a berth of about 0.3 mile.

(87) **Chart 17433.**–The E side of the entrance to Cordova Bay, from Point Marsh (54°43.2'N., 132°19.1'W.) to Shipwreck Point (54°53.8'N., 132°29.5'W.), is very broken and abounds with islands, reefs, shoals, and pinnacles in random pattern. The channels between the islands, for the most part, are deep with steep sides but are often obstructed by shoals. Currents and eddies about the islands, large tides, and exposure to ocean swells make the running of straight courses difficult.

(88) Small fishing vessels bound between Point Marsh and Eureka Channel frequently pass through **Minnie Cutoff,** then run between the reefs close inshore along the SW coast of Prince of Wales Island, and thence through Thompson Passage to Eureka Channel. Local knowledge is necessary. The area has few protected anchorages for large vessels.

(89) **Round Islands Light** (54°46.7'N., 132°30.4'W.), 56 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark on the SW side of the westernmost of the Round Islands, marks the E approach to Cordova Bay.

(90) **Round Islands,** about 7 miles NW of Point Marsh, consist of four small wooded islands about 140 feet high. A dangerous rocky reef that uncovers 6 feet is about 500 yards WSW of Round Islands Light. Between the reef and the island are other rocks awash and kelp patches; this area should be avoided.

(91) **Dewey Rocks,** about 1.8 miles SSE of Round Islands Light, are small in extent, and consist of one large rock and several smaller ones that uncover at various stages of the tide. A red sector in Round Islands Light from 327° to 346° covers Dewey Rocks.

(92) **Egg Rock,** 20 feet high and bare, is about 0.5 mile N of Round Islands, with extensive areas of kelp between. A wooded islet, 60 feet high, is about 1 mile N of Egg Rock. Rocks awash are about midway between the wooded islet and Egg Rock. Some fishing vessels use **Egg Passage,** about 0.5 mile E of Egg Rock and Round Islands; this passage is not recommended for strangers.

(93) **Boat Rocks,** two in number and bare, are about 2.5 miles N of Round Islands, and are the northwesternmost dangers of this group. E of a line from Round Islands to Boat Rocks are numerous dangers.

(94) **Barrier Islands** are an extensive group of wooded islands between 4 and 8 miles NW of Point Marsh, and E of Round Islands. **Black Rock,** 20 feet high and the southernmost large offshore rock of the Barrier Island group, is a conspicuous black rock near the SE edge of a foul area containing numerous rocks awash. A 1½-fathom shoal is approximately 0.7 mile SSE of Black Rock. Approach courses to seldom-used channels through the Barrier Islands pass about 0.5 mile both E and W of Black Rock. These two passages, **Rocky Pass** and **Kelp Passage**, continuing E and W, respectively, of **Middle Island,** are useful only to small craft. It is possible to carry 2 fathoms of water through the W passage and 7 fathoms through the E.

(95) **Mexico Point,** at the SE end of Eureka Channel about 3 miles NW of Point Marsh, is the W extremity of an island, bluff and wooded, with several high rocky islets that extend about 0.1 to 0.5 mile off it. The area along the S and SE sides of the island is very foul, and there are numerous shoals, rocks, and islets between Mexico Point and Point Marsh. **Thompson Passage,** used extensively by fishing craft, extends between the islands from 1.2 to 1.5 miles N and NE of Mexico Point. Although 8 fathoms can be carried through it, this passage is not suitable for large vessels. Small vessels using it frequently continue through the narrow passage off the mouth of Minnie Bay behind Point Marsh where 2 fathoms can be carried.

(96) **Hessa Inlet,** NE of Mexico Point, is about 3.5 miles long and has depths up to 32 fathoms. The best approach to the inlet is through the passage N of **Hessa Island,** but it can be approached from the S via **Buschmann Pass;** only small craft with local knowledge should attempt this pass, which is narrow and full of rocks. In **Hessa Narrows** the tidal currents attain a reported velocity of 6 to 7 knots.

(97) **Eureka Channel,** between Barrier Islands and Prince of Wales Island, affords a short cut to Klakas Inlet and is suitable for moderate-sized craft with local knowledge; large vessels should use the passage W of Dewey Rocks and Barrier Islands. The depths in Eureka Channel are good, but it is narrow and has several dangers that are generally marked by kelp in summer.

(98) **Far Point,** on the W side of Eureka Channel and at the SE extremity of Barrier Islands, is about 1.4 miles NNW of Mexico Point. Eureka Channel Daybeacon 1 is on the S end of the small island about 0.4 mile NE of Far Point.

(99) **Center Island** is a small round island with a few trees, about 1.6 miles NNE of Far Point and 0.4 mile SSW of **Leading Point.** It is fairly steep-to on all sides and can be approached closely. A rock, awash at high water and marked by Center Island Reef Daybeacon 3, is 350 yards W of Center Island.

(100) About 0.6 mile N of Leading Point is the narrowest part of Eureka Channel. **The Narrows** has a least width of 125 yards. Good depths are found through The Narrows except for narrow ledges close to the W shore. About 480 yards N of the N end of The Narrows is a submerged rock that is awash at extreme low tides.

(101) **Guide Rocks,** gray and marked by a daybeacon, are about 0.5 mile NNE of the N end of The Narrows and are conspicuous, except at high water, when coming through The Narrows.

(102) **Currents.**–Tidal currents through The Narrows have an estimated velocity of from 1 to 2 knots. The flood sets N, and the ebb S.

(103) **Routes, Eureka Channel.**–From a point 670 yards W of the rocky islets off Mexico Point, a course of **002°** will keep in the deepest channels and clear all dangers in the S part of Eureka Channel. Center Island Reef Daybeacon 3 is on the leading bearing on this course. It is almost on range with the E tangent of the second group of islands W of The Narrows. The **002°** course passes 345 yards E of Eureka Channel Daybeacon 1 and if made good keeps well clear of a submerged rock with a least depth of 3 feet that is about 0.7 mile NNE of Eureka Channel Daybeacon 1. When Center Island Daybeacon 3 is distant 440 yards and the W bank of The Narrows is slightly open, change course to **022°** and pass about midchannel between Center Island Reef Daybeacon 3 and Center Island, slightly favoring the daybeacon, but keeping clear of the kelp bed that is NE of the daybeacon. When Guide Rocks Daybeacon 4 shows in the middle of The Narrows, change course to **032°,** which is a leading bearing on that daybeacon. Continue on this

course until the N tangent of the nearest island bears **275°**, then change course to **350°** for Klakas Inlet and Hunter Bay. Avoid the submerged rock that is 205 yards NE of the N point of the island that forms the W side of The Narrows. This rock is awash at extreme low tides. Small fishing vessels also frequently use the channel that leads to the NNW from a point about 0.3 mile S of Center Island Reef Daybeacon 3. An extensive shoal area in this channel is 0.7 mile NW of the daybeacon where the best water is near the W shore.

(104) **Wallace Rock,** with ½ fathom over it and marked on its NW side by a buoy, is about 2.3 miles NE of Boat Rocks. Vessels going to Hunter Bay usually pass well N of it.

(105) **Tah Bay,** NE of Guide Rocks, has depths up to 37 fathoms. Several rocks and reefs bare near the center of the bay. The best entrance is to the N of **Tah Island;** the entrance S of that island is partly obstructed by a rock with 1 fathom of water over it. No good anchorages are available, although small craft can anchor near the beach at the S part of the bay.

(106) **Local magnetic disturbance.**–Differences of as much as 4° from the normal variation have been observed S of Tah Island in the vicinity of Anchor Island.

(107) **Turn Island** (54°52.2'N., 132°23.6'W.) is about 3 miles N of the N end of Eureka Channel and is the easternmost of a number of small islands. It is bare except for a small stunted growth of trees that gives it the appearance of a building. It is bold-to on the W side, but foul ground extends about 0.2 mile NNE and about 180 yards E. A dangerous rock awash is close SSW of the island.

(108) **Turn Point,** marked by an abandoned light structure, is 1.2 miles ENE of Turn Island and consists of a number of small, low, grassy rocks. It is at the extremity of a low peninsula that is not wooded for about 300 yards back from the point.

(109) **Hunter Bay** makes in for a distance of about 2.5 miles E of Turn Point. The entrance to the bay is obstructed on its N side by a number of islets, but the channel close around Turn Point is comparatively clear. About 1 mile above the entrance, the bay contracts to a width of 275 yards, with a large bare rock in the middle. The best channel is between this rock and a rock awash about 200 yards N of it. About 0.4 mile E of the bare rock is an arm leading NNE about 1 mile to **Biscuit Lagoon.** Passage into this lagoon is through a narrow pass that is partially obstructed by several rocks. Small craft of 3-foot draft can clear these rocks at high water. Tidal currents are strong, and passage should be attempted only on the high-water slack.

(110) **The Saltchuck** is the Chinook jargon name for the brackish lagoon to the NW of the upper end of Biscuit Lagoon. The two are connected but the passage is too shallow for navigation other than by small skiffs.

(111) Hunter Bay has good anchorage about 1.8 miles E from the entrance in 10 to 15 fathoms. The anchorage, however, is subject to strong williwaws with winds from the E meeting those of equal force from the W. Velocities up to 78.2 knots have been experienced here. Nearby, off the S shore of the bay, is an islet surrounded by a flat of considerable extent. About 0.4 mile beyond the anchorage the bay contracts and is foul.

(112) **Klinkwan Cove,** E of **Gusdagane Point** (54°53.1'N., 132°21.4'W.), should be avoided as it contains many rocks. **Grave Point** is about 0.8 mile NW of Gusdagane Point.

(113) **Chart 17431.–Klakas Inlet** joins Cordova Bay W of the entrance to Hunter Bay. The inlet is about 1 mile wide, 12 miles long, and 20 to 100 fathoms deep in midchannel. **Max Cove** (54°57.4'N., 132°24.3'W.), about 2.5 miles above the entrance on the E side, offers good anchorage for small craft near the SE end in 8 fathoms, mud bottom. The main entrance to Klakas Inlet is E of **Klakas Island;** the deepest water favors the W side of the entrance. Local fishermen frequently use **Ruth Cutoff,** the narrow pass N of Klakas Island that has a controlling depth of 1¾ fathoms and extends from Ruth Bay to Klakas Inlet.

(114) Good anchorage in a depth of about 16 fathoms can be found E of a small wooded island about 1.5 miles ENE of the N end of Klakas Island. A rock that uncovers 3 feet is about 0.2 mile SW of the small island.

(115) **Bird Rocks,** about 1.3 miles SW of Klakas Island, have a gray appearance with a rounded white pinnacle that forms the highest point.

(116) **Shipwreck Point** (54°53.8' N., 132°29.5'W.), 2.5 miles W of Klakas Island, is low and timbered, and rises to a knob 605 feet high. **Barbara Rock,** a low rocky islet, is about 300 yards off the point. An island, about 160 feet high, is close-to and W from this point.

(117) **Ship Islands,** 50 to 120 feet high, with outlying rocks and ledges, are about 0.5 mile offshore, W of Shipwreck Point. Small craft from Turn Point pass N of Bird Rocks and between Shipwreck Point and the island close-to. The narrow channel has a submerged rock. The pass to the W of the inner island is preferable; avoid the rock in the middle of the entrance.

(118) **Kassa Inlet,** just N of the northernmost of the Ship Island group, has an entrance about 0.8 mile wide. Good anchorage for small craft is available at **Clam Cove** and several places in the upper reaches. A mooring buoy is about in the middle of the entrance to Clam Cove.

(119) **Point Webster,** about 6 miles NW of Shipwreck Point, is a small projection where the E shore of Cordova Bay changes direction. Near the point are a number of outlying rocks and reefs, and this shore should be given a berth of 0.5 mile.

(120) **Elbow Bay** (54°54.5'N., 132°39.4'W.), on the W side of Cordova Bay, indents the NE side of Long Island and is partially protected by two wooded islands, connected at low water in the entrance. Good anchorage for small vessels can be had in the SE arm in 13 fathoms, mud bottom. The anchorage is about 250 yards wide. A large lagoon extends S from the W end of the bay, where it is connected by a narrow rocky channel. Rapids make this channel impassable except at high water.

(121) To enter Elbow Bay, pass in midchannel SE of the wooded islets in the entrance and avoid the reefs making off to S of the islets. The submerged rock in the middle of the bay can be passed on either side; the W side has the best water.

(122) **Dova Bay,** on the N side of Long Island, about 2 miles NW of Elbow Bay, appears to be well protected at its head, but because of the configuration of the surrounding hills, SE and NW winds draw across it with considerable force. The shores are lined with small islets and rocks.

(123) Tlevak Strait, described later in this chapter, has its entrance on the W shore of Cordova Bay between Long Island and Jackson Island.

(124) **Shoe Rock** (54°56.9'N., 132°44.1'W.), about 15 feet high, is about 160 yards NNE of the most easterly island of a group of small islands at the junction of Tlevak Strait and Cordova Bay.

(125) **Jackson Island,** about 1.8 mile N of Shoe Rock and close SE of the S end of Sukkwan Island, has prominent cliffs on its S side. About 300 yards SW of these cliffs are two dangerous rocks that bare only on minus tides. The channel between Jackson and Lacey Islands, to the E, is partially obstructed by **Triplet Rocks.** The most prominent

rock of this group uncovers 10 feet. **Jackson Passage,** the channel W of Jackson Island, is clear in midchannel.

(126) **Lacey Island,** about 0.9 mile E of the SE end of Jackson Island, comprises three small wooded knolls close together and joined by the bare spits. Foul ground extends up to 0.2 mile from the island.

(127) **Mellen Rock** is a bare rock about 0.8 mile off the W shore of Cordova Bay and about 3 miles to the NE of Jackson Island. **Mellen Rock Light** (55°01.6'N., 132°40.0'W.), 32 feet above the water, is shown from a pole with a red and white diamond-shaped daymark on the rock.

(128) **Hassiah Inlet,** on the E shore of Cordova Bay, about 3 miles ESE of Mellen Rock Light, is about 2 miles long to the head of its NE and E arms; the latter is a landlocked anchorage known as **Mabel Bay. Mabel Island,** on the S side of the entrance, is wooded; a low place in the center gives the appearance of two islands. **Helen Island,** at the entrance to S arm and Mabel Bay is low and wooded, and has rocky beaches on the N and W shores and sandy beaches on the E and S shores.

(129) To enter Mabel Bay pass N and E of Mabel Island, giving it a berth of 0.2 mile, and steer for the E end of Helen Island. Follow a careful midchannel course, passing NE of Helen Island, and anchor about 0.3 mile from the islet at the head in 10 to 12 fathoms.

(130) **Nutkwa Inlet** and **Keete Inlet** are at the head of Cordova Bay E of Lime Point. Nutkwa Inlet, about 4.5 miles N of Point Webster, is 1.5 miles wide at the entrance and extends about 5 miles NNE. Depths range from 90 fathoms at the entrance to 10 fathoms at the head, with several shoals of 4 to 6 fathoms in between. **Nutkwa Point** is the promontory between the two bays.

(131) **Nutkwa Lagoon** is a narrow body of water about 3.5 miles long with midchannel depths of from 40 fathoms at the SW end to 20 fathoms at the NE part. **Nutkwa Falls,** at the head of Nutkwa Inlet, obstructs passage into the lagoon; on the higher water slacks, drafts of 3 or 4 feet can be carried into the lagoon, but this passage should not be attempted without local knowledge.

(132) **Keete Inlet** has its entrance about 2.5 miles E of Lime Point. The inlet has depths of more than 10 fathoms throughout, except for several scattered shoal spots with depths of 4 to 8 fathoms. Local fishermen bound from Cordova Bay to Keete Inlet usually pass S of **Keete Island,** about 0.8 mile W of **Keete Point,** the S point of the entrance to the inlet. A shoal with a least depth of 3 feet extends N about 0.5 mile from the N end of Keete Island. Inside the bay, a rock that uncovers 5 feet is about 1.1 miles E of Keete Point. Good anchorage in 20 fathoms, mud bottom, can be had S of the small island at the bend in the inlet.

(133) **Hetta Inlet** extends 5 miles N from Lime Point to the entrance of Sukkwan Strait, and is about 2 miles wide. Then it trends in a general NNW direction for 11 miles to Gould Island, above which it is navigable for small craft only. Above Sukkwan Strait, the width of the inlet decreases gradually from 1.2 miles to 0.4 mile or less in places; there are apparently no outlying dangers. Considerable fishing for salmon is done in the inlet in season, and boats may be found in all of its parts.

(134) **Lime Point** is the dividing point between Cordova Bay and Hetta and Nutkwa Inlets. The tip of the point is marked by a white marble formation that is conspicuous from S. Three bare rocks are about 0.2 mile S of the point, with other rocks, submerged and awash, between. A submerged rock and a 4-fathom spot are 0.1 mile SW and 0.2 mile S, respectively, from the southernmost of the three bare rocks.

(135) **Mud Bay,** the small cove about 2 miles N of Lime Point on the E shore of Hetta Inlet, is used extensively for anchorage during the fishing season. The anchorage has a depth of 4 to 10 fathoms with mud bottom. A 1¼-fathom rock is 100 yards N of the islet on the S side of Mud Bay.

(136) **Alder Cove,** the small cove 1 mile N of Mud Bay, is used by small craft for anchorage in 4 to 8 fathoms, mud bottom, during the fishing season. The cove has no known dangers.

(137) **Eek Inlet,** on the W side of Hetta Inlet, about 0.6 mile N of Eek Point (55°08.4'N., 132°39.9'W.), which is marked by a light, may be used by fishermen with local knowledge. A midchannel course leads to an anchorage in 8 fathoms, midway in the inlet, about 0.3 mile NW of the narrow entrance.

(138) **Hetta Point,** on the E side of Hetta Inlet, about 3.2 miles NE of Eek Point, is bold, rocky, and heavily wooded. The bight about 0.8 mile S of the point, in which are two wooded islets, affords temporary anchorage. The cove E of the point affords anchorage for small craft having local knowledge of the area. The cove has numerous reefs and shoal soundings.

(139) **Copper Harbor,** on the E shore, 2.4 miles NNW of Hetta Point, is about 1 mile long and 0.3 mile wide. A midchannel course leads to the head of the harbor, where there is anchorage in 10 to 20 fathoms. **Simmons Point** is at the S entrance to Copper Harbor.

(140) **Deer Bay,** on the W shore about 2 miles above Copper Harbor, affords good anchorage in 5 to 16 fathoms; the midchannel course is clear. A flat extends 0.3 mile from its head.

(141) **Jumbo Island,** in the middle of the inlet, about 2.5 miles above Copper Harbor, is wooded. The channels on either side are about 300 yards wide, but the better channel is E of the island. The W channel should be attempted only at high water, as there is a rock with 1 fathom over it in midchannel at the entrance.

(142) **Dell Island,** about 1.1 miles above Jumbo Island and close to the E shore, is wooded. Anchorage can be had in 14 to 16 fathoms about 250 yards off the N shore of the inlet about 1.4 miles NE of Dell Island.

(143) **Gould Island** practically closes the inlet for a distance of about 1.4 miles. **Gould Passage,** S of the island, runs dry at about half tide and should not be attempted at any stage of the tide as a through passage into Portage Bay because of tidal currents and numerous rocks and dangers at the E end of the passage. **Sulzer Passage,** N of the island, is navigable for small craft, but foul for 1 mile above the entrance, and the tidal currents have considerable velocity. It should be navigated only by those having thorough local knowledge.

(144) **Local magnetic disturbance.**–Differences of as much as 6° from normal variation have been observed on Gould Island.

(145) **Portage Bay,** that part of the inlet above Gould Island, is about 1.5 miles long, with depths of 9 to 27 fathoms. A trail leads from its head to the head of Cholmondeley Sound, about 2.8 miles.

(146) **Sukkwan Strait** has its SE entrance between **Eek Point** on the NE and **Round Point,** the E extremity of Blanket Island, on the SW. **Eek Point Light** (55°08.3'N., 132°40.0'W.), 19 feet above the water, is shown from a square frame structure with a red and white diamond-shaped daymark on Eek Point. The strait extends 7 miles NW from Hetta Inlet to Sukkwan Narrows. It has good

depths and few dangers and is entered by vessels of considerable size as far as the village of Hydaburg. **Saltery Point,** 5.2 miles above the entrance.

(147) **Chart 17407.–Sukkwan Narrows** has a least depth of 2¼ fathoms in a narrow channel with rocky shoals on both sides. The average maximum current is about 1.3 knots and sets NW with the flood and SE with the ebb. The channel is buoyed, and its W entrance is marked by **Sukkwan Narrows Light** (55°12.1′N., 132°50.5′W.), 16 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark on the N end of Sukkwan Island.

(148) **Hydaburg** is an incorporated Native American village on the NE shore of Sukkwan Narrows. The village has an airport, a post office, school, and church.

(149) **Caution.**–Vessels drawing 15 feet or more when approaching or leaving Hydaburg Cooperative Pier should avoid the submerged ledge that makes out into the channel from the point close E of pier. The ledge extends about 290 yards S of the pier and has a depth of 16 feet at its outermost end. A pinnacle rock at a depth of 2¼ fathoms is about 350 yards SW of the pier; it is marked by a buoy.

(150) **Wharves.**–Hydaburg has one pier at the SE end of the village, and small-craft facilities in the basin, at the NW end of village, and alongside the pier.

(151) Hydaburg Cooperative Pier (55°12′08″N., 132°49′24″W.): at the SE end of the village; berthing for larger vessels are at the outer end of this T-shaped pier; 2,300 square feet of warehouse storage space; gasoline and diesel fuel can be obtained at the pier during the summer.

(152) **Small-craft facilities.**–Small-craft berthing is alongside Hydaburg Cooperative Pier. In 1976, depths of 7 feet were reported alongside.

(153) A small-craft basin is about 0.5 mile N of the Hydaburg pier. The State-operated floats in the basin provide about 65 berthing spaces. In 1976, depths of 12 to 15 feet were reported alongside. Water and electricity are available at the floats. A **harbormaster** assigns berthing. A 100-foot by 39-foot grid is inshore of the floats.

(154) **Communications.**–A supply boat makes weekly trips to Hydaburg. Scheduled commercial air travel is available at Hydaburg airport. Daily seaplane communication is maintained with Ketchikan and with other cities on Prince of Wales Island. Hydaburg has road connection with Craig. Telephone and radiotelephone communications are maintained with other States and parts of Alaska.

(155) Above Sukkwan Narrows, Sukkwan Strait divides into two parts known as South Pass and North Pass.

(156) **South Pass** extends about 3.5 miles SW from Sukkwan Narrows to Tlevak Strait. It has good depths in the middle of a channel that has many turns between islands, islets, and rocks.

(157) **Scrag Islands,** two wooded islands about 75 feet high, are on the E side of South Pass about 1.2 miles to the SW of The Narrows and are separated from Sukkwan Island only at high water. A reef with two bare rocks extends about 100 yards from Scrag Islands into the pass; it is marked by a buoy and kelp. A reef, with 1¼ fathoms over it and marked by a buoy and kelp, is about 0.3 mile N of Scrag Islands. A kelp patch marks a 1-fathom shoal about 600 yards to the NNE of Scrag Islands. Depths of 5 to 9 fathoms are found around this shoal. Small craft can find good anchorage in South Pass in the small bay on the SE side, about 2.4 miles SSW of Sukkwan Narrows. Good anchorage also is available for medium-sized vessels in 16 fathoms, mud bottom, in the bight on the same side of South Pass 1.5 miles from the narrows.

(158) **Lone Tree Island (Lone Spruce Rock),** on the S side of the SW entrance to South Pass, is about 0.2 mile W of a 75-foot island. It is a low, grass-covered islet. A rock with two knobs is close-to, to the W. A 1½-fathom spot is about 300 yards W of the rock.

(159) **Goat Island Light** (55°10.1′N., 132°53.6′W.), 21 feet above the water, is shown from a skeleton tower with a triangular red daymark on **Whisker Point,** the S extremity of **Goat Island.** The light marks the N side of the SW entrance to South Pass.

(160) **Turn Rock,** about 5 feet high and 20 yards in diameter, and marked by a daybeacon, is about 0.8 mile W of the light.

(161) **North Pass,** on the N side of Goat Island, is navigable by shallow draft vessels at high-water slack with local knowledge. Numerous rocks and reefs must be passed close aboard until clear of North Pass to the W. Tidal currents are estimated at 3 to 4 knots. Surveys indicate a least depth of ½ fathom at the shoalest point of the pass.

(162) **Natzuhini Bay,** N of Hydaburg and Sukkwan Narrows, is navigable for large fishing vessels. However, strangers should not attempt it because of the many reefs and shoals in it and the lack of aids to navigation.

(163) **Chart 17400.–Kaigani Strait** (54°44.4′N., 132°40.2′W.) is the passage that extends from Cordova Bay to Tlevak Strait and separates Long Island, and the group of islands NW of it, from Dall Island. **Howkan Narrows,** immediately N, is the narrow part of the passage from American Bay to above Channel Islands; it is endangered by several unmarked shoals and reefs. Ships from Dixon Entrance, bound through Tlevak Strait, should preferably use the broad channel through Cordova Bay E of Long Island and enter Tlevak Strait between Long and Jackson Islands.

(164) S of American Bay, the strait is clear of dangers along a midchannel course and may be navigated easily with the aid of the chart. N of American Bay the channel is tortuous, narrow, and complicated by strong currents; in the absence of aids to navigation, it is not recommended for use by large vessels.

(165) The channel through Howkan Narrows opposite the deserted village of Howkan is about 250 yards wide and is between a reef off Howkan, which uncovers 5 feet, and a reef off the W shore that has a depth of ½ fathom. The currents are strong here and have an estimated velocity of about 3 knots. Strong winds greatly affect them. N of Howkan, the channel leads W of the Channel Islands, and extreme caution is necessary to avoid the dangerous shoals on each side of the channel. After passing **Keg Point** (54°53.8′N., 132°51.2′W.), shape the course as desired and be guided by the chart.

(166) **Chart 17409.**–The SE entrance to Kaigani Strait is about 1.8 miles wide between Kaigani Point on the NE and Datzkoo Islands on the SW. It is clear except for the 1¼-fathom shoal 1 mile SE of Kaigani Point and the ¾-fathom rock about 0.5 mile E of the Datzkoo Islands.

(167) **Local magnetic disturbance.**–Differences of as much as 3° from normal variations have been observed in the Daykoo Islands, and 4° in Kaigani Strait 1.2 miles NW of Kaigani Point.

(168) **Kaigani Point,** at the SW end of Long Island, is low and wooded. A large rock, 18 feet high, is 0.7 mile NW of Kaigani Point and about 0.2 mile offshore.

(169) **Datzkoo Harbor** is on the E side of Dall Island about 1.6 miles NW of the Datzkoo Islands. The entrance is clear and is N of two wooded islands. Anchorage can be had

in 15 to 20 fathoms, soft bottom. A wooded islet, about 20 feet high, is visible in the mudflats at the head of the harbor.

(170) **South Kaigani Harbor,** immediately N of Datzkoo Harbor, is constricted at the entrance by reefs on the N side and a rock that uncovers 5 feet on the S side. The channel about 100 yards wide has a depth of 4½ fathoms. During the fishing season a fish-buying scow may be anchored in the harbor. The scow sells gasoline, diesel fuel, water, provisions and fishing supplies. In 1968, it was reported that anchorage for small craft was available in depths of about 5 fathoms, mud bottom, in the cove on the S side of the harbor about 0.7 mile above the entrance. In 1971, submerged pilings were reported in about the middle of the cove; caution is advised.

(171) **North Kaigani Harbor,** immediately N of South Kaigani Harbor, is entirely exposed to SE weather and the ocean swell, and is of no use as an anchorage.

(172) The small bight about 0.8 mile N of North Kaigani Harbor has an entrance difficult even for small vessels. Good anchorage may be had here in 5 to 10 fathoms. Very small vessels may anchor near the head in about 3½ fathoms.

(173) **Pond Bay** is on the SW side of Kaigani Strait about 3.5 miles N of North Kaigani Harbor. A wooded island is halfway toward the head of the bay with a clear channel on the N side. Anchorage may be had W of this island in desired depths up to 20 fathoms, soft bottom. However, a strong wind blows up the bay in SE weather and, because of the danger from dragging, it is not recommended for anchorage.

(174) **Bolles Inlet** is a narrow inlet on the E side of Kaigani Strait about 6.5 miles N of Kaigani Point. The entrance is about 0.5 mile NNE from a wooded islet 90 feet high. The entrance is very narrow, and rapids occur here; the currents are estimated to be at least 8 knots. It is reported that the inlet once had a logging camp and small craft used the entrance at high-water slack.

(175) **American Bay,** on the W side of Kaigani Strait opposite Bolles Inlet, is about 12 miles NNW of Cape Muzon. Good anchorage may be had a little N of midchannel and about 400 yards WSW from the group of islands, known as **Bay Islands,** which are on the N side of the entrance. Small craft may find good anchorage in 5 fathoms near the N shore in the cove just E of the group of islands.

(176) **Mission Cove** is a small bight on the E side of Kaigani Strait about 1.4 miles NNE of American Bay. Small craft can anchor here in 6 to 8 fathoms, although there is considerable kelp in the cove. A submerged rock is close off the S shore just inside the entrance.

(177) **Howkan Reef,** bare at half tide and surrounded by kelp, extends 400 yards SW from the shore S of the entrance to Mission Cove; at the SE end of the reef is a small island with grave sites. There is deep water close to the reef.

(178) The channel is 300 yards wide between Howkan Reef and an extensive kelp patch about 600 yards in diameter on the W side of **Howkan Narrows. Mill Reef ,** between the kelp patch and the shore W of it, shows at high water. There is no safe channel between the kelp patch and the W shore.

(179) **Chart 17408.–Channel Islands** (54°52.9′N., 132°49.4′W.), near midchannel in Kaigani Strait and about 0.6 mile NW of Mission Cove, are two wooded islands joined by a bare spit. A rock, with a least depth of 2¼ fathoms, is in midchannel, 550 yards S from the W end of these islands. The main channel is SW of the islands. The channel NE of Channel Islands is used by small craft going to and from Mission Cove, but is narrow in places between kelp patches.

(180) **Ham Cove,** on the W side of Kaigani Strait, about 0.8 mile W of Channel Islands, has a very narrow entrance and can be entered only by small craft.

(181) **Pond Rock,** which uncovers 4 feet and marked by kelp, is 0.5 mile NW of the W end of Channel Islands and 0.5 mile ENE of the entrance to Ham Cove. **West Mill Rock** is the easternmost of two islets close to shore about 1 mile NW of Channel Islands. Two rocks, which uncover 1 foot, and a grassy islet from which a reef makes off about 0.2 mile, are 0.3 mile ENE and 0.4 mile, NNW, respectively, of West Mill Rock. Kelp extends about 200 yards off the SW side of the large island close W to the NW extremity of Long Island.

(182) From the NW end of Long Island, a group of islands and rocks extend about 5 miles NNW, two of the larger ones being **Aston Island** and **Grand Island.** A small-timbered islet, 50 feet high, is about 0.9 mile NW from Grand Island; to the W of this islet, about 0.3 mile, is a cluster of rocks about 15 feet high. A 1-fathom spot, with a 3-fathom spot close to the N, is 0.4 mile W of these rocks.

(183) **Square Island** (54°58.2′ N., 132°53.5′W.), so called from its appearance, is about 0.8 mile W of Grand Island and is the westernmost of a group of rocks and islets.

(184) **Grace Harbor,** about 3.5 miles NW of Channel Islands, is on the W side of Kaigani Strait, near its N end. When entering, give **Luke Point** (54°55.8′N., 132°53.7′W.), the N point at the entrance, a berth of over 0.2 mile to avoid the rocks that extend SE from that point, and then stand in for the inner bay or basin in midchannel. Anchor near the middle of the basin in 10 to 16 fathoms, soft bottom, taking care to avoid a ledge that extends 150 yards from the N shore. SW winds draw through a low divide from the ocean.

(185) **Vesta Bay,** 1.5 miles N of Grace Harbor, is entered between Luke Point on the S and **Vesta Point** on the N. The bay is about 1 mile long in a W direction and appears to be clear in midchannel. A 2¾-fathom spot is about 150 yards off the S shore of the bay, 0.5 mile SW of Vesta Point. There is anchorage near the head of the bay in 12 to 15 fathoms, soft bottom, with scant swinging room. **Bushy Island,** small and wooded, is close to the headland between Vesta Bay and Rose Inlet.

(186) **Rose Inlet,** on the W side of Kaigani Strait, is 1.5 miles NW of Vesta Point and about 20 miles N of Cape Muzon (chart 17409). Two groups of islands are in the entrance with the entrance channel between. There are three patches of light-colored cliffs on the N point of the entrance. The larger and more southerly patch is roughly triangular in shape.

(187) A rock, awash at spring low water, is about 50 yards SE of the prominent point on the N shore, about 1.6 miles WNW of Vesta Point. An unmarked ledge, about 300 yards long with a rock awash at lowest tides on its E end, is 0.7 mile W of the prominent point on the N shore. Submerged pile ruins are 100 yards N of the ledge; caution is advised.

(188) **Chart 17400.–Tlevak Strait** and Tlevak Narrows separate Sukkwan Island and Prince of Wales Island from Dall Island and from the group of islands N of Long Island, and extend from Cordova Bay to Ulloa Channel. From Cordova Bay, the main channel of Tlevak Strait trends NW for about 10 miles to McFarland Islands and then NNW for about 14 miles to Tlevak Narrows; the width of the strait is 1.2 to 4 miles. Islands are numerous, and the shores are much indented.

(189) The SE entrance to the strait, about 20 miles N of Cape Muzon, is marked by **Shoe Island Light** (54°57.1′N., 132°44.7′W.), 20 feet above the water and shown from a skeleton tower with a red and white diamond-shaped

daymark on the NE end of Shoe Island, about 0.7 mile off the N end of Long Island.

(190) **Currents.**–The direction of maximum flood current (and ebb) varies considerably as one progresses through the 24-mile-long Tlevak Strait. Maximum average currents range from 1.5 to 3.0 knots on the flood and 1.5 to 4.3 knots on the ebb; the strongest currents occurring in Tlevak Narrows. (See the Tidal Current Tables for daily predictions for places in Tlevak Strait.)

(191) **Sukkwan Island** is on the NE side of Tlevak Strait and separated from Prince of Wales Island by Cordova Bay, Hetta Inlet, and Sukkwan Strait. It is mountainous, and its rugged coastline is indented by numerous inlets. The W shore of the island, just outside of Dunbar Inlet and opposite the McFarland Islands, is very irregular and foul.

(192) Lacey and Jackson Islands, on the N side of Tlevak Strait at the entrance from Cordova Bay, have been described previously in this chapter.

(193) The group of islands, islets, and rocks that extend 5 miles NW from the NW end of Long Island have been described with Kaigani Strait.

(194) **Chart 17431.–Shoe Inlet** (54°55.7'N., 132°48.7'W.) indents the NW part of Long Island, is about 2 miles long and 0.3 mile wide. The inlet is clear except near the shore. Anchorage for small vessels can be had near its head. **Touchit Cove** is a foul bight on the NE side of Shoe Inlet just within the entrance.

(195) **Cleva Bay,** E of Shoe Inlet, is an open bight on the NW end of Long Island and is of no importance as an anchorage.

(196) **Kasook Inlet** makes into the S shore of Sukkwan Island 2 to 3 miles NW of Jackson Island and about 5 miles N of Shoe Inlet. A cluster of small wooded islands with a good clear channel on either side are in the entrance. The inlet divides just inside the islands. The NNW branch is about 1.8 miles long in a NNW direction, and is midchannel course is clear, except at a point about midway of its length, where a ledge projects from the E side about half the distance across the inlet. On the NE side, at the head of the inlet, good anchorage can be had in about 12 fathoms, soft bottom. The other branch has a NE direction for about 0.8 mile to a bay from which a short arm extends SE. There is a good anchorage in about 10 fathoms, soft bottom, just inside the entrance to the short SE arm, favoring the S shore.

(197) **Chart 17408.–McFarland Islands** (55°04'N., 132°55'W.) are a group of large and small islands 3.5 miles in extent, on the E side of Tlevak Strait off the W coast of Sukkwan Island, about 5 miles NW of Kasook Inlet. The southernmost island is bluff, high, and prominent. Among the islands are passages and fairly well-sheltered anchorages for small launches.

(198) **Dunbar Inlet,** E of McFarland Islands, has numerous rocks and islets at the entrance, but a clear channel, about 0.2 mile wide with least depths of 5 to 6 fathoms, leads to a protected anchorage inside. Small craft can find good anchorage in the passage between Dunbar Inlet and Island Bay. A narrow passage N of the islands off the entrance to Dunbar Inlet may be used by small fishing vessels.

(199) When approaching from the S via Tlevak Strait, take care to avoid the 3 ¼-fathom shoal a little W of midchannel. between McFarland Islands and the W shore of Sukkwan Island.

(200) **Island Bay,** the deep bight just N of Dunbar Inlet, affords well-protected anchorage from all winds, except W, in depths of 6 to 7 fathoms, sticky to hard bottom. Swinging room is limited, and large vessels should anchor farther offshore in greater depths.

(201) Two miles N of Island Bay is a second bight with a small island to the NW. An indifferent anchorage is about 0.3 mile offshore and 0.3 mile ESE from the S point of the island in depths of 8 to 12 fathoms, sticky bottom, but provides rather poor protection. The entrance should only be attempted with local knowledge.

(202) **Profit Island (Gui Kangulas),** 75 feet high, is a small prominent island, about midway between the McFarland Islands and Corlies Islands. A reef extends about 0.3 mile NNE from the N end of the island.

(203) **Baldy Bay** is on the W side of Tlevak Strait opposite the McFarland Islands and is easily approached when coming from Cordova Bay. The entrance is between High Point and Reef Point. It has two large arms known as View Cove and Coco Harbor. **High Point,** bold and rounded, is the S point of the entrance to the bay. **Reef Islands** are a large group of low wooded islands about 0.8 mile N of High Point. They are steep-to along the N shore. **Reef Point,** the N point of the entrance, is a long projecting point.

(204) **View Cove Entrance Light** (55°03.2'N., 132°57.8'W.), 35 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark on a rock awash, is about 0.5 mile SE of Reef Point.

(205) S of Reef Islands and just inside High Point is a small inlet with two arms at the head. The W arm is rather deep and clear, but the anchorage area is suitable only for small vessels; it is exposed to williwaws. The E arm offers fairly good anchorage for small vessels. The entrance is very narrow and partially obstructed by rocks awash. Anchor in the center in 5 fathoms, sticky bottom. A ¼-fathom spot is about 600 yards N of the entrance.

(206) **Windy Cove,** about 2 miles WNW of High Point, is narrow, clear, and deep. Its entrance is scarcely 100 yards wide with a depth of 1 fathom. Strong tidal currents prevail through this entrance.

(207) **Coco Harbor** is the W arm of Baldy Bay. **Entrance Island,** off the entrance to the main reach, is a large island with a constricted passage to the N and S. Off this island are numerous rocks and islets that must be avoided when entering Coco Harbor. After these obstructions are passed, the channel is clear and deep, except close along the shores, to the head of the inlet.

(208) Near the head of Coco Harbor are anchorage depths of 12 to 20 fathoms, soft bottom, but heavy williwaws prevail.

(209) **View Cove,** the N arm of Baldy Bay, extends about 4.5 miles inside Reef Point and is practically free of obstruction. The shores are generally steep-to. There are some offlying rocks about the S and E shores of Clam Island. About 0.8 mile from the head of the cove on the S shore is a small rather prominent island with foul ground between it and shore. A good anchorage, with protection from all but W to NW winds, is about 0.25 mile from the head of the bay in 15 to 20 fathoms.

(210) Pile ruins of a wharf are on the N shore of View Cove about 2 miles from Reef Point; caution is advised.

(211) **Clam Island** is off the S shore of View Cove about 2.5 miles inside Reef Point and divides the head of View Cove into two parts.

(212) N of Clam Island an arm extends over 2 miles farther inland; S of the island is a large circular bight about 0.8 mile in diameter. E of Clam Island is a small cove offering fair anchorage for small boats.

(213) **Green Inlet** is a small narrow inlet on the S shore of View Cove. It offers good anchorage, with sticky bottom, for

small craft, but the entrance is shallow, running dry on minus tides, and large mudflats extend a long distance from the head; also, there are heavy williwaws.

(214) View Cove has three indifferent anchorages. In the bight SW of Clam Island, anchor about 0.3 mile from the head of the bight in 17 to 18 fathoms, hard bottom, with the W end of Clam Island bearing 034°, distant 0.5 mile. Off Clam Island, anchor in 13 to 14 fathoms, sticky to hard bottom, with the large bare rock off the island bearing 270° and distant 450 yards. At the head of the long arm, anchor about 0.3 mile offshore in 16 to 18 fathoms. At the head of the long arm the winds seem to blow harder than outside, which is especially true for SE winds. Opposite Clam Island, although apparently an exposed position, is fair protection for larger vessels, although the swinging room is restricted. For large vessels the best anchorage is in the bight SW of Clam Island, where there is fair protection and good swinging room.

(215) **Chart 17407.–Corlies Islands** are a group of low wooded islands about 1.8 miles in extent, on the NE side of Tlevak Strait, S of the W entrance to South Pass, Sukkwan Strait. There is foul ground among the islands and to the S of them. About the middle of the group is a channel for small craft with local knowledge.

(216) A small-boat passage between Sukkwan Island and Corlies Island is used by small fishing vessels. The entrance is easily approached from the S. The W shores of Sukkwan Island should be favored in order to clear the numerous rocks and small islets E of Corlies Islands. When up to the northernmost of the Corlies Islands, steer a midchannel course to avoid the thick patches of kelp.

(217) **Nichols Islands,** about 2 miles NW of the Corlies Islands, are a group of wooded islands that extend in a NE direction for about 2.1 miles. **Fort Islet,** small and wooded, is the most N of the group.

(218) **The Sentinels,** a scattered group of five small wooded islets and rocks that cover, are about 1 mile NNW of Nichols Islands. A rock with 3 fathoms over it is 3.2 miles 329° from the SW point of Nichols Islands and slightly W of a line from this point to Guide Island. This rock is light in color and bare of sea growth and can be seen on extreme low tide. It is large in extent and surrounded by deep water. No kelp marks the area.

(219) **Breezy Bay** is on the W side of Tlevak Strait abreast Nichols Islands; it is 2 miles wide between Eolus and Boreas Points. It is divided into two arms and has several small islands and numerous rocks in the bay. It does not appear to afford an anchorage. **Eolus Point,** on the SE side at the entrance, is high, steep, and rocky. A wooded island is close S of **Boreas Point.**

(220) **Farallon Bay** is on the W side of Tlevak Strait, about 3 miles WNW of the Nichols Islands. Enter in midchannel. The bottom is rocky and very broken; SE winds draw through it, and it is not recommended as an anchorage. Just E of the SE entrance point of the bay is a high-water islet that shows from S.

(221) **Halibut Nose** is the promontory on the NE shore of Tlevak Strait opposite Farallon Bay. It is irregular in outline and not so high and prominent as some of the other headlands in Tlevak Strait.

(222) **North Bay** is on the W side of Tlevak Strait, about 1.5 miles NNW of Farallon Bay and 2.8 miles S of Tlevak Narrows. **Hassler Point,** the NW point of the entrance is timbered. **Cayman Point,** the SE point of the entrance, is low at the extremity and rises to a knob, 0.4 mile from the beach, that is separated by a very low saddle from a ridge to the S.

(223) When entering North Bay, favor the SE side and anchor near the head of the bay in 12 to 15 fathoms soft bottom, with the high-water islet at the head, bearing about W. SE winds draw around Cayman Point and blow directly into the bay with severe squalls and williwaws.

(224) An open bight on the N side of Hassler Point has depths of 29 to 31 fathoms at the entrance, shoaling to 16 fathoms about 250 yards from the head. The N side of the bight is formed by a wooded island; between it and the main shore is a cove with depths of 1 to 4 fathoms.

(225) **Guide Island,** about 0.9 mile E of the entrance to North Bay, is small, wooded, and surrounded by kelp. Reefs extend N about 0.4 mile from it.

(226) **Lively Islands,** NNW of Guide Island, are about 1.2 miles in extent and wooded. There are several outlying rocks off the islands marked by kelp and mostly covered at high water. The currents have considerable velocity around the Lively Islands group, and swirls occur in places.

(227) **Lively Islands Light** (55°13.7'N., 133°05.1'W.), 20 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the W side of the southernmost island of the group.

(228) In passing Lively Islands, consider the channel W of them to be the main channel, and favor the Dall Island shore slightly. The channel NE of Lively Islands is deep, safe, and largely used by small craft bound N; the dangers are charted.

(229) **Round Island,** about 0.5 mile E of the northernmost large Lively Islands, is a large, grass-covered rock about 20 feet high, with a small clump of trees near its SW end. It is steep-to on all sides.

(230) **Soda Bay** is on the NE side of Tlevak Strait to the NE of the Lively Islands. Anchorage can be found in Soda Bay about 0.5 mile E of Shelikof Island in about 20 fathoms, mud and shell bottom. The low surrounding land offers little protection from the wind.

(231) **Midway Island** is a small wooded islet in the middle of the strait about midway between the northernmost of the Lively Islands and Block Island.

(232) **Block Island** is heavily wooded; the S side of it is bold-to. The narrow passage N of the island is foul, and the currents are unusually strong. **Tlevak Narrows Light 2** (55°15.8'N., 133°07.0'W.), 22 feet above the water, is shown from a skeleton tower with a red triangular-shaped daymark on the SW side of the island.

(233) **Turn Point,** at the N extremity of Dall Island and just W of Block Island is a bluff, wooded knoll. Foul ground extends about 300 yards SE and 150 yards N from the point.

(234) **Tlevak Narrows,** locally known as **The Skookum Chuck,** is a narrow and comparatively deep passage between Block Island and Turn Point, and connects Tlevak Strait and Ulloa Channel. A 6¼-fathom spot, near midchannel, is about 0.3 mile NW of Block Island Light. A ½-fathom shoal 0.4 mile NW of Turn Point is marked on its S side by a buoy that is reported to tow under during large tides. The channel S of the buoy is the one generally used.

(235) Good anchorage for small craft can be had in 3¼ fathoms, soft bottom, in the small cove on the N side of Tlevak Narrows; the entrance to it is about 0.5 mile N of Turn Point.

(236) **Currents** in the vicinity of Tlevak Narrows run very strong during large tides; in the narrowest part the velocity is over 4 knots. Soon after passing through the narrows, the current greatly diminishes in strength; beyond Guide Island and Meares Island it is almost imperceptible.

(237) With the large tides there is very little slack, while with the small tides, slack water lasts from 10 to 30 minutes,

and there is not much current for 1 hour on either side. (See the Tidal Current Tables for predicted times and velocities.)

(238) NE of Lively Islands it is reported that the current sets constantly NW, being stronger when the main stream W of the islands is setting NW. To take advantage of this constant set, small craft bound N usually pass NE of the Lively Islands.

(239) The current setting NW divides into two parts off the E end of Ulloa Island. One part sets N of the island, and the other sets with considerable strength into Meares Passage.

(240) **Ulloa Channel** is 9 miles long from Tlevak Narrows to Bucareli Bay. For a distance of about 3 miles from Tlevak Narrows, it leads between the islands at the N end of Meares Passage and is about 0.25-mile-wide; and thence between Suemez Island and Prince of Wales Island, where its width is about 0.35 mile at its E end and 1.4 miles at its W end at Cape Flores, where it joins Bucareli Bay.

(241) **Currents.**–The flood current in the channel sets SE, and the ebb NW. The average velocity of the currents is 1.8 to 2.2 knots on both the ebb and flood. (See the Tidal Current Tables for predictions for places in Ulloa Channel.)

(242) **Ulloa Island,** close to the W end of Tlevak Narrows, is wooded. The main channel is close S of the island.

(243) Anchorage in 10 to 15 fathoms, soft bottom, near Tlevak Narrows, can be had in Ulloa Channel, at the entrance to a small passage that is on the NW side of the largest island N of Ulloa Island, between it and the main shore of Prince of Wales Island. A shoal with a depth of 2¼ fathoms near its end extends about 0.2 mile SW from the point 0.2 mile N of the W end of this island. Ulloa Island, and the 160-foot high island to the NW, can be passed on either side, but the channel N of Ulloa Island is foul.

(244) **Bush Islets,** about 0.8 mile W of Turn Point and S of Ulloa Island, consist of two rocks with a single tree on one of them. A wooded islet, 50 feet high and surrounded by kelp, is 700 yards NW of Bush Islets. Two other islets are 0.2 and 0.3 mile, respectively, SW of Bush Islets.

(245) **Meares Island,** about 1.8 miles W of Tlevak Narrows, is the largest island in Ulloa Channel. **Meares Island Light** (55°16.4′N., 133°10.6′W.), 13 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the N side of the island. The main channel is N of the island, the N side of which is bold-to. A rocky islet is 275 yards SE of Meares Island, with rocks and kelp between.

(246) **Ridge Island** is off the E extremity of Suemez Island about 1 mile W of Meares Island Light. The island is high, wooded, and joined to Suemez Island by a sandy neck, awash at high water. Off the S side of the island are two wooded islets, with rocks submerged and awash, close W. The islets are connected with the island by a spit, bare at half tide.

(247) **Waterfall,** on the E side of Ulloa Channel and about 1.7 miles above Ridge Island, is the site of a fishing resort. Vessels waiting for berthage at Waterfall can find temporary anchorage in 6½ to 10 fathoms, rocky bottom, on a shoal about 0.3 mile NW of the fishing resort. The main dock (55°17.8′N., 133°14.6′W.) at Waterfall has a 70-foot face with depths of 28 feet reported alongside in 1976. The resort usually operates only during the summer. During the off-season it has a caretaker. A wharf with a 250-foot face is 500 yards N of the main dock; depths of 24 feet were reported alongside in 1976. Gasoline, diesel fuel, and water are available at the main dock. A nearby store sells limited supplies and provisions. A seaplane and a small-craft float are close N of the main dock.

(248) Waterfall has radiotelephone and seaplane communications with Ketchikan during the summer.

(249) **Port Refugio** is a large bay, with two arms, on the W side of Ulloa Channel opposite the fishing resort at Waterfall. Its SE arm, inside of **Bocas Point,** is 1 mile long and about 0.2 mile wide, and near its head affords anchorage for small craft in about 12 fathoms. **Point Verde,** the NW point of the entrance, is wooded.

(250) Anchorage for larger vessels may be had between the E shore of the SW arm of Port Refugio and the island at its head, in 12 to 20 fathoms, sand or mud bottom. The dangers are charted; the chart is the guide.

(251) **San Adrian Island,** 130 feet high, is about 0.7 mile N of Point Verde. Less than 100 yards to the SSE of San Adrian Island are a smaller island and a reef that bares connecting them.

(252) **Adrian Cove,** on the W side of Ulloa Channel, at its N end, is open to N and is of no importance.

(253) **Cape Flores,** on the E side of Ulloa Channel at its N entrance, is the NW point of **Joe Island,** which is wooded. Rocks bare at low water, and foul ground, marked by kelp, extends about 0.3 mile N of Cape Flores and about 0.3 mile SSE of the S end of Joe Island. A lighted buoy marks the NW extremity of the foul ground N of Cape Flores. The channel on the NE side of Joe Island is largely used by small craft.

(254) **Chart 17400.–Bucareli Bay** (55°13.5′N., 133°31.0′W.), about 50 miles NW of Dixon Entrance, extends about 20 miles NE from its SW entrance between Cape Bartolome and Cape Felix. Baker, St. Ignace, Lulu, and San Fernando Islands form its W shore, and Suemez and Prince of Wales Islands form its E shore. The passages between these islands connect the bay with the sea, the Gulf of Esquibel, or Cordova Bay. They are used by small vessels and small craft as a protected route when proceeding along the outer coast between Dixon Entrance and Sumner Strait.

(255) **Currents.**–The tidal currentsin Bucareli Bay set NE on the flood and SW on the ebb. The average velocity of the current is 1.0 to 1.5 knots on both the ebb and flood. (See the Tidal Current Tables for daily predictions for places in Bucareli Bay.)

(256) **Chart 17406.–Cape Bartolome Light** (55°13.8′N., 133°36.9′W.), 163 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark on the S end of one of the islets S of Cape Bartolome, marks the entrance to Bucareli Bay.

(257) **Cape Bartolome,** the S extremity of Baker Island, has several storm-swept islets, some partly wooded, off the main shore. The southernmost wooded islet, 300 feet high, slightly higher than those close to the cape, shows prominently from offshore. The cape rises rather sharply. A small rounded peak, 2 miles N from the cape, with higher peaks on either side, shows prominently when other peaks are clouded. In rounding the cape, the outer wooded islet should be given a berth of about 1 mile. A shoal with a least depth of 2½ fathoms is about 0.5 mile E of Cape Bartolome Light.

(258) The rocks and cliffs NW of Cape Bartolome are black, while those SE are whitish gray; it is reported that this characteristic is of considerable assistance in identifying the locality when making the coast in thick weather.

(259) **Baker Island,** forming the W side of the S end of Bucareli Bay, is cut up by numerous bays and inlets. The shore along the outer coast is precipitous and marked by ragged ledges and deep clefts. The interior is rugged, mountainous, and generally wooded.

(260) **Fortaleza Bay,** on the W side of Bucareli Bay, about 4.5 miles N of Cape Bartolome, is a small open deepwater bight. **Lake Fortaleza,** with an elevation of about 12 feet, empties into the bay. **Thimble Cove,** about 0.8 mile N of Fortaleza Bay, is a small exposed bight with bare rocks and rocks awash that extend nearly across the entrance from the S shore.

(261) **Port San Antonio,** on the W side of Bucareli Bay, about 6.5 miles N of Cape Bartolome, has two arms at the head, one that extends in a NNE and the other in a SSW direction. The midchannel is clear, but a shoal with rocks that uncovers 7 feet is about 0.3 mile WSW from **Point San Roque,** the N point at the entrance. Depths in the bay decrease from 35 fathoms at the entrance to about 8 fathoms at the head. Small craft can find anchorage in the N arm in 5 to 7 fathoms, and in the S arm in 10 fathoms, mud bottom. The N arm has a low shoreline with gravel beach.

(262) **Port Asumcion,** on the W side of Bucareli Bay, 9 miles NNE of Cape Bartolome, offers protected anchorage in 12 to 21 fathoms, sand bottom, near its head. The midchannel is clear.

(263) **Cape Felix** (55°12.7'N., 133°25.9'W.) is at the SW end of Suemez Island. The depths off the cape are comparatively regular and good, but, to the E, foul ground extends about 0.7 mile offshore. Cliffs well up on the mountain side, and a steep light-colored cliff a little to the NE of the cape, are the most prominent landmarks. NE of the cape is a small section of a cliff of columnar formation, somewhat unusual for this section of Alaska. From the cape the shoreline trends in a N direction, forming the E side of Bucareli Bay.

(264) **Port Santa Cruz** is on the E side of Bucareli Bay 4.5 miles N of Cape Felix. The N shore is steep and rocky, with detached rocks close-to, whereas the rest of the shoreline is generally low, with rocky, gravel, or sand beaches. **Labandera Rock,** a kelp-marked submerged rock covered 2¾ fathom, is midway between **Point Rosary** and **Point San Jose,** the two points at the entrance. A rock that bares at low water is about 0.7 mile ENE from Point Rosary and 250 yards off the islet fronting **Point Isleta.** With a moderate swell, the breakers on this rock can frequently be seen at night.

(265) In entering, round Point Rosary or Point San Jose at a distance of 0.2 mile and head for the point on the N side of the bay 1 mile inside the entrance. Round this point at a distance of 300 yards and select anchorage as desired in 12 to 17 fathoms, mud bottom. Anchorage with more swinging room may be had to the S of the point in 17 to 19 fathoms, mud bottom. The channel to the N of Labandera Rock is preferable.

(266) **Point Arboleda** is a low point about 2.2 miles N of the entrance to Port Santa Cruz. Several outlying islets and rocks make it necessary to give the cape a berth of 0.5 mile in rounding it. A light is shown from the northernmost islet. **Point Quemada** is midway between Point San Jose and Point Arboleda.

(267) **Point Fula, Point Remedios,** and **Point Barrigon** are headlands on the NW shore of Suemez Island.

(268) **Port Delores** is on the E side of Bucareli Bay, 2 miles ENE of Point Arboleda. It has generally broken bottom with a rocky reef, about 400 yards in extent, in its center about 0.4 mile inside the entrance. Its use is recommended only for small craft, and they can find anchorage in about 11 fathoms 0.4 mile from the head. The anchorage is exposed to W winds.

(269) **Point Arucenas,** the headland on the N side of Port Dolores, and **Point Cangrejo,** about 1.6 miles E of Point Arucenas, are wooded.

(270) **Cabras Islands** are a small, wooded group, about 1.5 miles NE of Port Dolores. A reef that uncovers 5 feet and marked by kelp is about 0.5 mile SW from this group.

(271) **St. Ignace Island,** on the NW side of Bucareli Bay about 11.5 miles from Cape Bartolome, is bold and wooded. The E and NE shores are mostly rocky, whereas the W and NW shores are gravel. **St. Ignace Rock Light** (55°25.7'N., 133°23.7'W.), 20 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on **St. Ignace Rock** about 0.8 mile NE of **Silvester Point,** the NE end of St. Ignace Island.

(272) **Port Mayoral,** the passage between St. Ignace Island and Baker Island, has depths of 6 to 12 fathoms, with irregular bottom. **Cristina Island,** small and wooded, and a cluster of high-water islets are W of midchannel at the entrance, with a deepwater passage on either side. Foul ground extends 300 yards off the S end of the island and for 550 yards off **Canal Point.** The N entrance is obstructed by the Santa Rita group of islands between them, and the St. Ignace Island shore is a narrow channel less than 50 yards wide with a least depth of 3¼ fathoms. The channel between Santa Rita and Baker Islands is passable at high water by rowboats and similar craft.

(273) **Chart 17405.–San Juan Bautista Island,** in the N part of Bucareli Bay, is densely wooded and has two prominent summits. The island separates Bucareli Bay from Ursua Channel to the NW and San Alberto Bay to the N.

(274) **Agueda Point,** at the NE end, and **Diamond Point,** at the SW end of the island, have no special features as landmarks. Deep-draft vessels passing W of San Juan Bautista Island should exercise caution in the area.

(275) **Point Miliflores,** bold and wooded, is the SE point of San Juan Bautista Island. **San Juanito Island,** about 500 yards ENE of the point, is wooded and from N and S directions shows as a prominent landmark clear of San Juan Bautista Island. Deep water extends close to the point and island.

(276) **Port Estrella** is S of San Juan Bautista Island and E of Cape Flores (55°21.2'N., 133°17.4'W.). Foul ground, marked at its outer end by a lighted buoy, extends N for about 0.3 mile from Cape Flores and about 0.2 mile S from **Point Providence,** the N point of the entrance. Anchor near the head of the bay in 7 to 9 fathoms. Caution is necessary on entering, as shoal water makes out from each side of the bay.

(277) **Tranquil Point, Point Batan,** and **Point Lomas** (55°22.7 'N., 133°10.5'W.), on the SE shore of Bucareli Bay and SE of San Juan Bautista Island, are headlands without any prominent features.

(278) **Port Caldera,** about 4.5 miles NE of Cape Flores and immediately E of Point Lomas, is open to the N. It affords anchorage for small craft. A 6½-fathom spot is in the center near the entrance. Foul ground extends about 300 yards off **Point Iphigenia,** the NE headland at the entrance.

(279) **Trocadero Bay,** E of the entrance to Port Caldera, extends about 9 miles E from the head of Bucareli Bay, with a greatest width of about 3 miles. The bay is locally known as **Big Harbor.** In the entrance is a group of islands, of which the largest is **Madre de Dios Island,** high and wooded. The islands are bold-to, with a few outlying rocks, and the passages between them are mostly of good depth. Near the head of Trocadero Bay, islands and rocks are numerous and the channel becomes more difficult. From the head of the bay is an easy portage to Twelvemile Arm, Kasaan Bay, on the E side of Prince of Wales Island. In entering Trocadero Bay, the chart is the guide.

(280) The **Ladrones Islands,** E of Madre de Dios Island, are a group of small wooded islands in the entrance to Trocadero Bay. **Toti Island,** a small wooded island, is 0.5 mile N of Madre de Dios Island.

(281) **Port St. Nicholas** is N of Trocadero Bay. **Coronados Islands,** a group of islands, are midway in the entrance, and rocks and reefs, with two channels between, extend to the N. **Rancheria Island** is SSW of and close to **Point Miraballes ,** the S point at the entrance to Port St. Nicholas. Dangers are shown on the chart. About 2 miles N of Point Miraballes is a peak 2,940 feet high, light green in the summer, which shows conspicuously from N and S.

(282) **Balandra Island** (55°27.2′ N., 133°13.2′W.), small and wooded, is about 0.6 mile E of Agueda Point, at the junction of Bucareli Bay and San Alberto Bay. Foul ground extends 250 and 100 yards off the E and W ends, respectively. A 2½-fathom spot is 0.2 mile NE of the island. The channel between Balandra Island and San Juan Bautista Island has a least found depth of 4½ fathoms.

(283) **San Alberto Bay,** with numerous shoals and broken areas, extends about 7 miles N from Bucareli Bay to San Christoval Channel.

(284) **San Fernando Island,** on the W side of San Alberto Bay and on the NE side of Portillo Channel (chart 17406), is about 7 miles in diameter, with low rocky shores cut up by numerous small indentations and bights. Timbered hills and ridges cover the island.

(285) **Ursua Channel** separates San Fernando and San Juan Bautista Islands and connects Bucareli Bay and San Alberto Bay. Midchannel depths are good. The principal dangers are a 4½- and a 5¾-fathom shoal about 1.0 mile W of Diamond Point, on the SW coast of San Juan Bautista Island; the shoal ground that extends about 0.4 mile S from **Point Amargura,** the S point of San Fernando Island; and the shoal ground that extends about 0.4 mile off **Point Eugenia,** the middle point on the NW side of San Juan Bautista Island. From this point to the shoal spot, 0.5 mile WNW of Agueda Point, the San Juan Bautista Island shore should be given a berth of at least 0.4 mile. Irregular bottom with shoal spots extends about 0.6 mile off the San Fernando Island shore, near the N end of the channel. The channel E of San Juan Bautista Island is more generally used.

(286) **Ballena Islands,** two in number and wooded, are about 1.2 miles NE of Balandra Island and about the same distance SW of Fish Egg Island. The bottom is foul between Ballena Islands and Fish Egg Island. A reef, with a least reported depth of ¾ fathom, is 0.4 mile SW of the W Ballena Island, with an extensive kelp patch between.

(287) **Ballena Island Shoal,** with a least depth of 1¾ fathoms, is 0.6 mile W of the W Ballena Island. Its W side is marked by a lighted buoy.

(288) **Balandra Shoal,** about 1.1 miles W of the W Ballena Island, consists of two small areas 0.2 mile apart, having a least depth of 1 fathom in the N area and ¾ fathom in the S area, with deep water between. The N area is marked by a buoy on its NE side. The usual course in passing Balandra Shoal leads E of it, between the buoys marking it and Ballena Island Shoal.

(289) **Fern Reef,** marked by kelp, is about 1.5 miles NW of Balandra Shoal and about 1 mile off the San Fernando Island shore. Two rocky heads, 0.2 mile apart and bare at low-water springs, are conspicuous. **Fern Point** is on the E extremity of San Fernando Island. A 2¼-fathom spot, marked on its SE side by a lighted buoy, is about 0.3 mile S of Fern Reef.

(290) **Parida Island** (55°31.2′ N., 133°14.5′W.), about 1.5 miles NE of Fern Point, is a prominent wooded landmark in the middle of San Alberto Bay. **Parida Island Reef** is 0.5 mile S from Parida Island. One head bares at low-water springs. An area with a least depth of 4 fathoms and marked by a buoy on its SE side is 0.5 mile SE of this reef; the depth may be less.

(291) **Alberto Islands** are NE of Parida Island and N of Fish Egg Island and Klawock Reef. The southernmost island is wooded and is 1.7 miles NE of Parida Island and about the same distance N of Fish Egg Island.

(292) **Alberto Reef** extends 0.4 mile WSW from the southernmost of the Alberto Islands; its highest point uncovers 5 feet. A 5½-fathom channel separates this reef from the southernmost Alberto Island; the deepest water is found 100 yards off the island.

(293) **Wadleigh Rock** is 0.5 mile E of the southernmost Alberto Island and consists of two reefs about 100 yards apart. The W reef bares at half tide and the E reef at low water. The shoal is about 0.2 mile long in a N direction, steep on the W side, and can be passed 100 yards off.

(294) Three rocky patches, covered by about 5 feet, are about 1 mile NNW of Parida Island. They are marked by a lighted buoy off the northernmost patch. These rocky patches are usually marked by kelp. The range of the SW end of Parida Island and the NE end of San Juan Bautista Island passes a little NE of the patches.

(295) **The Witnesses,** locally known as **Hour Islands,** are wooded islets 2 miles N of Parida Island. **Witness Rocks,** about 0.9 mile W of The Witnesses, are almost covered at high water.

(296) **Abbess Island,** at the N end of San Alberto Bay, about 0.5 mile W of **Wadleigh Island,** is surrounded by foul ground and off-lying islets. A winding, unmarked channel is between Abbess Island and Wadleigh Island. This channel has many dangers and is only suitable for small craft with local knowledge.

(297) **Shinaku Inlet** makes off from the N end of San Alberto Bay and connects with Big Salt Lake and Klawock Inlet. The inlet has much foul ground, and the passages leading to Big Salt Lake and Klawock Inlet are only good for small craft with local knowledge.

(298) **Klawock Inlet** extends in a N direction from the head of Bucareli Bay for about 7.5 miles to the entrance of Big Salt Lake. The inlet has two entrances. The entrance from Bucareli Bay is SE of Fish Egg Island; the entrance from San Alberto Bay is N of Fish Egg Island.

(299) **Cape Suspiro** is the low wooded point on the E side of the S entrance to Klawock Inlet. **Port Bagial,** a small cove on the E side of Cape Suspiro, has depths of 4 to 5 fathoms W of the islands on the E side.

(300) **Fish Egg Island,** at the S end of Klawock Inlet, is low and wooded. Shoals extend off the SW end of the island to the Ballena Islands. **Fish Egg Reef** extends for 350 yards SE of the SE point of the island and is marked by a lighted buoy at its outer end. **Cole Island,** a low, wooded island, is in the bight in the NE side of Fish Egg Island.

(301) **Craig** is an incorporated settlement on the island at the S end of Klawock Inlet and close SE of Fish Egg Island. The community has a cold storage depot, hotel, an oil terminal, and several general stores. A maintenance, support, and storage facility for fishing vessels is near the NW end of the island.

(302) **Prominent features.**–A brown water tank near the SW side of the island, several white oil tanks near the NW side of the island, and a microwave tower close E of the brown tank are prominent from the waters near Craig.

(303) **Channels.**–A Federal project provides for a mooring basin and a 100-foot-wide entrance channel, protected by

two breakwaters, in **Shelter Cove** at the SE side of Craig Island. The project depth for the entrance channel and basin is 11 feet. In March 1989, the entrance channel had a controlling depth of 5 feet (9½ feet at midchannel) with 11 feet in the basin. A **048°** range and a light on the NW end of the S breakwater mark the entrance channel. Craig Island, N side, can be approached by using three natural channels. The channel W of Craig Island, leading N, has a least found depth of 2¾ fathoms at midchannel; it is marked by buoys. The channel E of Craig Island Reef is deep; the channel W has a least depth of 4½ fathoms in midchannel; E channel is marked by buoys.

(304) **Dangers.–Craig Island Reef,** marked by a lighted buoy, is a submerged rock with 1 fathom over it, about 0.6 mile NNE of the fish facility at Craig. A shoal, about 400 yards in extent with 1¼ fathoms over it, is about 400 yards W of Craig Island Reef. Fish Egg Reef extends from the SE point of Fish Egg Island for about 275 yards into the channel W of Craig Island. A lighted buoy is off the outer end. A shoal extends about 300 yards from the NW point of Craig Island, in a NNW direction, obstructing the channel W of the island. Another shoal extends in a N direction about 300 yards from the NE point of Craig Island. Both shoals are marked off their outer ends by a buoy.

(305) **Currents.**–It is reported that the flood current sets toward the wharf and the ebb current sets off the wharf.

(306) **Harbor regulations.**–The **harbormaster** controls the use of the community dock, grids, and floats. The harbormaster monitors VHF-FM channel 16 and can be contacted by telephone (907-826-3275) or FAX (907-826-3278).

(307) **Wharves.**-All of the piers and wharves at Craig are on the N side of the island, except for the facilities in Shelter Cove.

(308) Columbia-Wards Wharf (55°28′41″N., 133°09′08″W.): the westernmost facility on the N side of Craig Island; 146-foot face; 20 feet reported alongside; support and storage facility for fishing vessels; owned and operated by Columbia-Wards Cold Storage Co.

(309) Whitepass Oil Dock: 100 yards E of Columbia-Wards Wharf; 90-foot face; 12 to 16 feet reported alongside; for fueling small craft; owned and operated by Whitepass Alaska Oil Co.

(310) Craig City Dock (55°28′42″N., 133°08′58″W.); about 150 yards E of Columbia-Words Wharf; 72-foot face; 14 feet reported alongside; electricity is available; owned and operated by the community of Craig.

(311) Silverlining Seafoods Pier (55°28′52″N., 133°08′25″W.); about 0.4 mile NE of Craig City Dock, on the E side of North Cove; 124-foot face; 23 feet reported alongside; water and ice are available to fishing vessels; receipt and shipment of fish; owned by Shaan-Sect Company.

(312) **Supplies.**-Water, gasoline, diesel fuel, distillates, and lubricating oils and greases are available at the oil pier and floats. The general stores in the community sell some fishing supplies and limited provisions.

(313) **Repairs.**-A 60-ton travel lift is available to the public at Prince Wales Marine. The community operates three grids; a 103-foot grid on the E side of the approach pier to Craig City Dock, and two 51-foot grids at the N end of Shelter Cove. A small machine shop is available at Columbia-Wards Wharf.

(314) **Small-craft facilities.**–The community of Craig operates the small-craft basin and floats at Shelter Cove. Water and electricity are available on the floats. A boat-launching ramp and a U.S. Forest Service float are on the W side of the basin. Craig has 200 feet of float space at the W side of the City Dock. The floats extend from the approach pier in a W direction for 50 feet, then N for 150 feet. A depth of 8 feet was reported alongside the floats W of the City Dock. Additional public float space is on the W side of North Cove, about 500 yards E of the City Dock. This 300-foot float has a reported depth alongside of about 18 feet. A privately owned fueling float is at the Chevron Oil Dock. Another privately owned float, with 200 feet of berthing space, extends from the S side of the approach pier of Craig Fisheries Inc. Pier. The reported depths alongside of the float are 8 to 25 feet, and 4 feet along the inside edge. Water, electricity, and a laundromat are available at the float. A seaplane float is on the W side of the cove W of North Cove.

(315) **Communications.**–Craig has weekly barge and freight service with Ketchikan, and monthly barge and freight service with Seattle. A road connects Craig with Klawock, Hollis, Hydaburg, and Thorne Bay Logging Camp. Klawock is about 7 miles N. The road along the shore from Craig to Klawock is visible from Klawock Inlet. Craig has daily seaplane service with Ketchikan and other settlements on Prince of Wales Island. Telephone and radiotelephone communications are maintained with other parts of Alaska and with other States.

(316) **Clam Island** is a low wooded island, about 1 mile N of Fish Egg Island. **Klawock Reef,** marked by a lighted buoy at the SW end and an unlighted buoy at the S end, consists of four groups of rocks that extend in a SW direction from the W end of Clam Island.

(317) A channel, about 200 yards wide, with depths of 11 to 22 fathoms, separates the reef from the shoals off Fish Egg Island. The channel is marked by lighted and unlighted buoys. A tow channel, about 0.4 mile S, has depths of 3¼ to 7 fathoms and is marked by a light, a lighted buoy, and daybeacons.

(318) **Entrance Point** is a low wooded point about 0.3 mile E of Clam Island. A channel leads between Entrance Point and Clam Island into the bay SE of the Alberto Islands. The channel is foul and unmarked and should not be entered without local knowledge.

(319) **Klawock Island** is near the head of Klawock Inlet. A 1¼-fathom spot, marked by a lighted buoy, is about 0.4 mile W from the S end of the island.

(320) **Klawock Harbor,** separates Klawock Island from the W shore of Prince of Wales Island. A large amount of freshwater discharged into Klawock Harbor from Klawock River and Klawock Lake causes severe ice conditions in the colder months of winter. The harbor is reported to freeze over at times during the winter. There are times each winter when the harbor cannot be used by small craft. At these times, outside communication with Craig is by the highway that extends between the two settlements.

(321) **Klawock** is a community on the E shore of Klawock Harbor. Two general stores, an airstrip, a sawmill, and a cannery are here.

(322) **Klawock Harbor Entrance Light 2** (55°33.4′N., 133°06.3′W.), 20 feet above the water, is shown from a small house on a skeleton tower with a red triangular daymark on a concrete pier, at the NE extremity of a reef that extends N of Klawock Island.

(323) **Channels.**–The approach to Klawock Harbor is rocky and narrow. Depths of 3½ to 8 fathoms can be made with local knowledge.

(324) The entrance channel, about 200 yards wide, is between Klawock Harbor Entrance Light 2 and a daybeacon, about 250 yards N of the light.

(325) **Anchorages.**–A small anchorage is in the bight S of the community. The S end of the anchorage has a high-water pass for canoes to Klawock Inlet.

(326) **Dangers.**–A reef extends S from **Peratrovich Island** into the entrance channel to Klawock Harbor. The S

extremity of the reef is about 250 yards N of Klawock Harbor Entrance Light 2 and is marked by a daybeacon. A daybeacon about 175 yards SE of the light marks the W side of a rocky shoal on the E side of the harbor entrance channel. This daybeacon should be given a berth of not less than 35 yards.

(327) **Pilotage,** except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska. (See Pilotage, chapter 3, for details.)

(328) Vessels en route Klawock meet the pilot boat about 1 mile NW of Cabras Islands, Bucareli Bay (55°22.0′N., 133°24.8′W.).

(329) The pilot boat, a tugboat, can be contacted by calling "KLAWOCK PILOT BOAT" on VHF-FM channels 16, 13, or 12.

(330) **Towage.**–Two tugs, 500 hp and 700 hp, are available at Klawock for assistance in docking and undocking. Arrangements for tugs should be made well in advance through ship's agents.

(331) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(332) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(333) **Wharves.**–All piers and wharves at Klawock are on the E side of Klawock Harbor, except for the sawmill dock S of Klawock Island and the logging dock on the W side of Klawock Island.

(334) Alaska Timber Corporation Dock (55°32′26″N., 133°06′19″W.): about 0.2 mile S from the S end of Klawock Island; 603-foot face; 640 feet of berthing space with floats; 40 feet alongside; deck height, 8 feet; a pipeline extends from the sawmill to a chip-loading spout on the S end of the dock; an 18-ton crane and four 10-ton forklifts are available; water and electricity are available if advance notice is given; shipment of lumber and wood chips; owned and operated by Alaska Timber Corporation.

(335) Klawock Logging Dock (55°33′17″N., 133°06′30″W.): on the W side of Klawock Island; 435-foot face; 590 feet of berthing space with mooring buoys; 40 feet alongside; deck height, 17 ½ feet; shipment of logs; owned by Sealaska Timber Corporation.

(336) Southeast Seafood Processors Pier (55°33′28″N., 133°05′54″W.): about 300 yards E of Klawock Harbor Entrance Light 2; 95-foot face; 16 feet alongside; water is available; receipt and shipment of fish; owned and operated by Southeast Seafood Processors.

(337) Klawock Dock: about 150 yards S of Southeast Seafood Processors Pier; 68-foot face; 12 feet alongside; electricity is available; operated by the community of Klawock.

(338) **Supplies.**–Limited amounts of provisions can be obtained at Klawock. During the fishing season, the cannery has water and ice for fishing vessels. The nearest fuel facility is at Craig.

(339) **Repairs.**–A 68-foot grid is in the mudflats at the S side of Klawock Dock. A machine shop at the cannery can assist fishing vessels with minor repairs during the fishing season.

(340) **Small-craft facilities.**–The community of Klawock operates 766 feet of small-craft floats with a seaplane float at the N end of the W float, about 0.2 mile S of Klawock Dock. Electricity is available at the float; fuel is available at the cannery. Depths of 4 to 34 feet were reported alongside in 1976.

(341) **Communications.**–Klawock has daily seaplane service to Ketchikan and to other communities on Prince of Wales Island, and weekly freight boat service with Ketchikan. A road connects Klawock with Craig, Hollis, and Thorne Bay Logging Camp. Craig is about 7 miles S. Telephone communications are maintained.

(342) The head of Klawock Inlet consists of a series of irregular flat islands broken by a great number of intricate channels. Beyond these is **Big Salt Lake,** which is separated from the inlet by an island, on both sides of which are narrow channels obstructed by ledges. These serve to dam the waters of the lake. The flow of water from the lake into the inlet at the lower stages of the tide is reversed near high water. A slack water occurs about 2 hours before and after high water at Klawock, at which time a draft of about 8 feet can be taken into the lake. The passages above Klawock are intricate and foul in places, and should not be attempted without local knowledge. Guides can be obtained at Klawock.

(343) **Chart 17406.–Port Real Marina,** the passage on the N side of Baker Island, connects Bucareli Bay with Siketi Sound and thence with the Pacific Ocean. It is about 0.7 mile wide, but its use is not recommended for any except small craft. The W entrance is constricted; the bottom is very irregular. The E entrance is also constricted by Rana Reef.

(344) **Rana Reef** extends about 0.7 mile in a N direction from a point about 500 yards N of **Point Gorda,** the NW point of St. Ignace Island, almost to **Arrecife Point,** the SE point of Lulu Island. The reef has several rocky heads; the two highest are about 8 feet high. There is a channel at each end of the reef, but the one to the S is reported to be better, giving the St. Ignace Island shore a berth of 200 to 400 yards.

(345) **Lulu Island,** which forms the N shore of the passage, is less than 1 mile N of Baker Island. It is a large irregularly shaped mountainous island with summits from 418 to 1,618 feet in elevation.

(346) **Santa Rita Island** is between St. Ignace and Baker Islands, and is part of a group of five low, irregularly shaped, wooded islands. The elevation of Santa Rita Island is 250 feet. Rocky shores predominate.

(347) Anchorage, reported to be the best in the vicinity, may be had in 12 fathoms in the bight between Santa Rita Island and St. Ignace Island.

(348) **Coposo Island,** in midchannel near the E end of the passage and about 0.5 mile N of Santa Rita Island, is small, wooded, and 120 feet high. It shows prominently from E and W directions. Foul ground extends W from the island with a rock with 1 fathom over it about 300 yards W from the center of the island. A shoal, reported covered by at least 3 feet, is about 330 yards SW from the center of Coposo Island.

(349) **Sola Rock,** marked by a daybeacon, is a pinnacle rock that uncovers 4 feet, 0.5 mile SW of Coposo Island.

(350) **Pigeon Island,** between Baker Island and Lulu Island, off the NW end of Baker Island, is wooded. A small wooded islet is close to its SE shore, and a group of small rocky islets and submerged rocks are off its S shore.

(351) **Paloma Pass** is between Pigeon Island and Lulu Island. This pass and the pass SW of Pigeon Island have least depths of 3½ fathoms in midchannel, but the channels are winding and lined with dangers. In 1992, numerous uncharted rock and shoals were reported.

(352) In entering from the Pacific, pass the S end of Cone Island at a distance of about 0.5 mile and avoid the foul ground that extends off the Baker Island shore. Pigeon Island may be rounded on the NE side through Paloma Pass

or through the pass to the SW of the island. In Paloma Pass shoal water extends for about 180 yards in an E direction from the N end of Pigeon Island. Halfway from either end of the pass, rocks awash extend for 200 yards from the Lulu Island shore. At this place the channel, about 40 yards wide, favors the Pigeon Island shore. Near the S end of the pass is a 3½-fathom spot on the W side of the channel.

(353) The pass to the SW of Pigeon Island is a more direct route, passing between two small islets, the W one of which is in about midchannel. Favor the E islet in passing through. The pass is about 40 yards wide and has a depth of 3½ fathoms. To the W of the W islet is a narrow channel with 3 to 3¼ fathoms.

(354) Coposo Island may be passed about 300 yards to the N and about 400 yards to the S; the S passage appears preferable. In approaching the island, favor the N shore of the S passage and pass between Sola Rock and the reported shoal covered 3 feet about 330 yards SW from the center of Coposo Island.

(355) **Portillo Channel** connects Bucareli Bay at its N part with the Gulf of Esquibel. It is of irregular width, about 2.5 miles across the entrance and about 0.8 mile wide halfway between the ends. There are many islets in the channel, the S part of which is shoal; the bottom is irregular, and there are numerous kelp patches. The N half is comparatively clear. The channel may be used by small craft, but local knowledge is desirable for safe navigation.

(356) The currents in the channel flow N and S with an estimated velocity of about 2 knots.

(357) **Reef Point,** on the Lulu Island shore, is low and inconspicuous.

(358) **San Clemente Island,** about 1.5 miles from the S entrance close off the shore of San Fernando Island, is wooded and about 108 feet high. The channel to the E is shoal, and numerous rocks and reefs extend to the N.

(359) **Arboles Islet,** near Lulu Island shore about 1 mile NW of San Clemente Island, is 90 feet high and wooded.

(360) **Snail Point,** the W extremity of **Caracol Island,** on the E shore of Portillo Channel, is 80 feet high, wooded, and conspicuous.

(361) **Point Delgada,** on the Lulu Island shore about 1.5 miles from the NW entrance, is a gravel spit, grass covered inshore, and conspicuous from the E.

(362) **Abrejo Rocks** are about midway between the two points of the NW entrance; the highest is 6 feet. **Quitasueno Rock,** 12 feet high, is about 0.4 mile E of Abrejo Rocks. A 4-fathom spot is about 0.5 mile W, and a 3-fathom spot is about 0.5 mile N of Abrejo Rocks.

(363) **Animas Island,** close to **Point Animas,** is a small wooded island 120 feet high. Foul ground extends in a N direction parallel with the San Fernando Island shore.

(364) **Point Santa Gertrudis,** the N extremity of Lulu Island, is a low wooded point at the NW entrance to Portillo Channel.

(365) **Chart 17404.–San Christoval Channel** is the passage leading WNW from San Alberto Bay to the Gulf of Esquibel. There are numerous islands, reefs, and shoals with three passages between them, all of which present difficulties for vessels of any size, because of the narrowness of the passages and the strength of the currents. The dangers, mostly marked by kelp in summer, are shown on the charts.

(366) **Catalina Island,** near the E end of San Christoval Channel 0.5 mile off the S shore, is small, 145 feet high, and wooded. Rocks and foul ground extend almost 0.4 mile off the N and E sides of the island.

(367) **Piedras Island,** 0.6 mile N of Catalina Island, is a wooded islet, 75 feet high. A reef marked by a buoy extends 200 yards N from the island.

(368) **San Christoval Rock,** with 1 fathom over it and marked by a lighted bell buoy off its SE side, is about midway between Piedras Island and the easternmost Hermanos Island. The rock is surrounded by a heavy bed of kelp that tows under when the current is running strong.

(369) **Cruz Islands** are a group, 1.4 miles long, level, and wooded, close to the S shore of the E end of San Christoval Channel, with deep water between them and shore.

(370) **Cruz Pass,** between Cruz Islands and San Fernando Island, affords a passage for small craft through San Christoval Channel; however, this pass is seldom used because the passage N of Rosary Island is more direct and less difficult to navigate.

(371) **Hermanos Islands,** four in number, small and wooded, are about 0.5 mile N of Piedras Island. Range daybeacons on the N islands mark the channel N of Cruz Islands.

(372) **Point Ildefonso** is the low wooded point of the island E from the Hermanos Islands. **Rosary Island,** the largest island of the group, is near the N shore of San Christoval Channel. All of the islands of the group are low and wooded.

(373) The channel on the N side of the Rosary Island group is used by small craft, which follow the general trend of the main shore at a distance of about 250 yards.

(374) **Larzatita Island,** 115 feet high and wooded, is the westernmost of the islands near the middle of San Christoval Channel; there is a good channel on either the E or W side. **Tuft Rock,** small, and bare except at extreme high water, is 400 yards SE of Larzatita Island. A rocky patch, with 3¼ fathoms over it and marked by a buoy on its E side, is about 350 yards ESE of Tuft Rock.

(375) **Larzatita Island Reef,** marked by kelp and awash at half tide, is 300 yards N of Larzatita Island. Its N extremity is marked by **Larzatita Island Reef Light** (55°35.0′N., 133°19.7′W.), 22 feet above the water and shown from a small house on a skeleton tower with a red and white diamond-shaped daymark on a concrete pier.

(376) **Point Santa Lucia** is the easternmost of four points at the N extremity of San Fernando Island, W of Cruz Islands. Foul ground extends about 0.2 mile N from the point. A small open cove, with depths of 8 to 24 fathoms, is W of the point.

(377) **Palisade Island,** a low wooded island, is separated from San Fernando Island by a channel about 100 yards wide, with depths of 1½ to 2½ fathoms. Foul ground extends to the N and NW of the island for about 400 yards. **Palisade Point,** the extremity of the small island close to and N of Palisade Island, shows prominently from W. Shoal spots are about 0.5 mile NNW and NE of the point.

(378) **Point San Pasqual** and **Point Santa Rosalia** are low wooded points on the N shore of San Fernando Island. A small open cove, with depths of 14 to 20 fathoms, is between the points.

(379) **Chart 17406.**–Cape Bartolome, the S extremity of Baker Island, has been described earlier in this chapter. About 3 miles NNW from the cape is a low headland with a pinnacle rock, 50 feet high, close to the beach. There are several dangers in the vicinity, the outermost is about 500 yards offshore. The chart shows all known dangers.

(380) **Cape Chirikof,** a prominent headland with a group of rocky islets close-to, is about 4.8 miles NNW from Cape Bartolome. A small bay, about 1.4 miles long in a NNE direction and 0.5 mile wide at the entrance, is E of the cape.

At the W side of the entrance are two small rocky islets. A rock that bares is 285 yards S from the S islet. The head of the bay is shoal for almost 0.3 mile. Small vessels find temporary anchorage in 6 fathoms, about 1 mile from the entrance, but the SW swell makes in heavily.

(381) **Granite Point,** about 0.8 mile N from Cape Chirikof, is a rocky point with light-colored cliffs and ledges. From Granite Point the shore trends NE for about 1.4 miles to a small cove. At the entrance to the cove are two rocks awash; the outer one is almost in midchannel. A 3¼-fathom spot, usually marked by kelp, is 300 yards from the E shore at the entrance. A 13-fathom channel is between this spot and the outer rock. A rock that bares 3 feet is 0.7 mile N of the entrance and about 700 yards offshore. Depths of 6 to 13 fathoms are found within the bay. Shoal water extends about 250 yards from the head of the bay.

(382) **Veta Bay,** an open bight 3 miles NE of Granite Point, with depths of 4 to 13 fathoms, is too exposed for safe anchorage. At the head of the bay is a group of small rocks, awash at high water. Close to **Veta Point,** on the NW shore of the bay, are two small islets off which kelp extends S for 350 yards.

(383) From Veta Point the shoreline trends in a W direction for about 1 mile, then N for 0.3 mile, forming the headland, the N extremity of which is Outer Point. **Arcada Rock,** locally known as **Arch Rock,** 130 feet high, is close to the S end of the headland. At times kelp extends about 0.6 mile SW from the rock.

(384) **Outer Point,** about 3.5 miles N from Granite Point, is a projecting rocky point. E of Outer Point, about 0.2 mile, is a prominent knob 500 feet high, separated by a divide from high land to the E. Foul ground extends 0.6 mile NNW from the point. A bank of considerable area, with depths of 12 and 14 fathoms, is 2 miles W of the point; lesser depths may exist.

(385) **Gaviota Rock,** about 40 feet high, is the largest of a group of rocky islets, about 1 mile NNE of Outer Point. Breakers are found 0.2 mile N of the islets. The bottom is shoal and irregular for about 0.6 mile from the islets. Foul ground is between the islets and the points to the E.

(386) **Cone Island,** 2.5 miles N of Outer Point, is on the NW side of the Pacific entrance to Port Real Marina, and on the SE side of the entrance to St. Nicholas Channel. It has several summits, the tallest is 1,120 feet high and centrally located. The S end of the island is clear of off-lying dangers. Kelp extends for 200 to 300 yards off the NW and E shores. From the NE point of the island, shoal water extends in a NE direction for 0.5 mile. **Siketi Point** is at the SW extremity of Cone Island.

(387) **Siketi Sound,** between Cone Island and Baker Island, is the Pacific Ocean entrance to Port Real Marina. The S part of the entrance is obstructed by the **Gaviota Islets;** the rest of the sound is clear. At the NW end of the sound, a narrow channel leads to St. Nicholas Channel, passing close along the Lulu Island shore and avoiding extensive reefs that extend off the NE end of Cone Island.

(388) **Noyes Island,** about 2.1 miles NNW of Baker Island, is mountainous with rugged steep cliffs along the W shore. **Noyes Peak,** a triple-headed peak on the N part of the island, is a very conspicuous landmark and during clear weather has been seen from 50 miles offshore.

(389) **St. Nicholas Point,** the SE extremity of Noyes Island, is about 5.5 miles E from Cape Addington. The shoreline between the cape and the point forms a large open bight; at its head kelp extends about 0.3 mile offshore. The shoreline is fringed with rocks. From St. Nicholas Point the shoreline turns N, forming the W side of St. Nicholas Channel.

(390) **Cape Addington** is the SW extremity of the narrow tongue of land which for 2 miles is less than 0.5 mile wide and forms the SW end of Noyes Island. The extremity of the cape is a rocky knob, 65 feet high, cut by deep crevices. To the N of it are two timbered knobs. From offshore, the knobs appear as islets and the tops of the wooded knobs show flat. The cape rises to a rocky steep ridge, with jagged, serrated skyline. This ridge and the knobs at the extremity of the cape serve as good landmarks.

(391) Two rocky islets, with rocks between, bear WNW from the cape. The outermost is about 0.2 mile offshore. Heavy tide rips form immediately W of these islets.

(392) **Shaft Rock,** 1.1 miles N of the cape, is conical in shape and light brown, and shows prominently from the S and N. Between the cape and Shaft Rock, ledges extend offshore for about 0.3 mile. The cape should be given a berth of at least 0.8 mile when rounding.

(393) Four miles NE of the cape, on the W coast of Noyes Island, is a small bay where small boats find anchorage in 4 to 8 fathoms, in calm weather, near the head of the bay.

(394) **Roller Bay,** 6 miles NE of Cape Addington, is open, exposed, and not recommended as an anchorage. At the head of the bay a tongue of land extends offshore and appears as a wooded island. A small rocky islet is close to the S shore of this tongue, and two rocks awash are about 0.3 mile to the SW. The inner part of the bay is shoal. The outer part of the bay has 5 to 17 fathoms.

(395) The head of the bay is the W end of a divide that extends across the island. From W directions, it is a conspicuous means of identifying the locality. The headland at the N entrance point of the bay rises to a prominent flat-topped mountain. At the W slope of the peak near the shore, pinnacle rocks over 100 feet high are formed by deep clefts.

(396) **St. Nicholas Channel,** connecting the Gulf of Esquibel with the Pacific Ocean, is 8 miles long in a NE direction, 0.5 mile wide at the S end, and 2.2 miles wide at the N end. Noyes Island forms its W shore; Cone Island and Lulu Island, its E shore.

(397) **Prominent features.**–The grassy hill at the SW part of Lulu Island is prominent from N directions, appearing rather sharp, covered with grass and brush, with a steep slope to the NE and a gradual slope to the SW. The hills to the W appear as rounding hills. The peaks at St. Nicholas Point and the peaks on Cone Island are prominent.

(398) **Tides and currents.**–The current floods N and ebbs S. During large tides, tidal currents are strong. Heavy tide rips sometimes occur near the entrance, extending from St. Nicholas Point to Cone Island, which appear as breakers when viewed from N.

(399) **St. Nicholas Point,** at the S entrance of St. Nicholas Channel on the Noyes Island shore, is high, rising sharply. **Point Santa Theresa,** on the same shore about 1 mile from St. Nicholas Point, presents no prominent features. **Point St. Isidor,** at the W extremity of Lulu Island, is low, with a gradual rise to Isidor Hill, rounded and high. Foul ground extends 0.2 mile offshore from the point and from the shore N of it. **Twin Rocks,** 1.5 miles from Point St. Isidor, slightly to E of midchannel, show two rounded knobs, each about 6 yards in diameter. A small timbered island is about 0.7 mile E of Twin Rocks. A 1-fathom spot is 300 yards off the N end of the island.

(400) **Kelly Cove,** on the W side of St. Nicholas Channel, 0.6 mile from Point Santa Theresa, affords anchorage for small craft in 6 to 9 fathoms, rocky bottom.

(401) A fish-buying scow is usually anchored in the cove during the fishing season. This vessel sells gasoline, diesel

fuel, water, provisions, and fishing supplies. The scow usually has a radiotelephone.

(402) **San Francisco Island,** three high-water islands 3 miles from the N entrance and about 0.4 mile from the Lulu Island shore, is 108 feet high. The S side is a sheer rock bluff, inconspicuous because of its dark color.

(403) The bight 0.7 mile S of San Francisco Island affords anchorage for small craft in about 10 fathoms, sand and gravel bottom. The gravel beach at the head of the bight makes well offshore. Anchorage for small vessels may be had in 8 to 18 fathoms, sand and gravel bottom, in the bight 0.7 mile E of San Francisco Island; here the gravel beach at the head of the bight makes well offshore.

(404) **Point San Francisco,** on the W side of the channel about 2 miles from the N entrance, is a low sandy point, with sand and grass near the high-water line. It shows prominently and may be distinguished by its light color. A rock awash is 1 mile SW from Point San Francisco. A shoal with ¾ fathom over it, and marked by kelp, is about halfway between the rock and the W shore. There is deep water between the rock and the shoal and between the shoal and the shore.

(405) **Marabilla Island,** 0.8 mile from the N entrance and about 180 yards off Lulu Island, is wooded. Rocks and reefs extend off the S end for 0.4 mile and for a distance of 0.1 mile off the W and N shores. A 2¾-fathom shoal is 0.4 mile NW of the N end of Marabilla Island.

(406) **Chart 17404.–Arriaga Passage,** the channel N of Noyes Island and separating it from the Maurelle Islands, is 4 miles long in an E direction and 1 to 1.8 miles wide.

(407) **Tides and currents.**–In general, the current floods E and ebbs W. Only at the W entrance has the tidal current any noticeable effect. Drifting kelp is frequently found in midchannel abeam the entrance to Sonora Passage.

(408) **Cape Ulitka Light** (55°33.7'N., 133°43.7'W.), 115 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark on the N end of the cape, marks the S side of the W entrance to Arriaga Passage. The cape, locally known as **Snail Point,** is a neck of land that projects about 0.6 mile in a N direction from the NW end of Noyes Island. A long rounded ridge and a pinnacle rock at the extremity of the cape give it an appearance, from E and W, that accounts for its local name.

(409) **Ulitka Bay,** E of Cape Ulitka, affords fair-weather anchorage for fishing boats in depths of 6 to 8 fathoms. The head of the cove should not be approached too closely as the shores are foul.

(410) The point 2.2 miles E of Cape Ulitka shows well at night from the W entrance. Rocks extend off this point for about 0.2 mile. An 11-fathom bank, usually marked by kelp, is 0.7 mile NNW from the point. The shoreline between this point and Cape Ulitka should be given a berth of at least 0.4 mile.

(411) **Steamboat Bay,** about 3 miles E of Cape Ulitka, is 0.8 mile wide at the entrance, and 0.2 mile wide at the head. A 6-fathom spot, marked by kelp, is just within the entrance, slightly W of midchannel. Good anchorage in 18 fathoms may be had about 0.4 mile from the head of the bay. The bottom is sand with a rather hard crust, through which a heavy anchor sinks into softer and better holding ground. During heavy SE weather the wind draws through with considerable force and may cause vessels to drag their anchors. At low water, a sand and gravel beach extends several hundred yards from the head of the bay. Small boats anchor close to the head of the bay. The bay is open to the N; during N blows it affords little protection. It is reported that the ocean swells enter the bay. At night, deep shadows are cast by the mountains and the entrance cannot always be readily distinguished. **Steamboat Point,** rounding and indefinite, is the W entrance point of the bay. In 1976, it was reported that a landslide has left a prominent grey scar at about the 1,000-foot level on the NW side of Steamboat Point, showing well into Arriaga Passage and Sonora Passage.

(412) A 285-foot wharf is on the W shore of Steamboat Bay near the head. The face of the wharf is 136 feet long and has a depth of 18 feet alongside. Pile ruins of a pier are immediately S of the wharf. An oil dock, with a 40-foot face, is close N of the wharf. A 75-foot small-craft float extends N from the 285-foot wharf. During the fishing season, the facility for fishing vessels has fishing supplies, limited provisions, gasoline, diesel fuel, lubricating oils, greases, water, and ice. A machine shop makes emergency repairs to small craft during the fishing season, and radiotelephone communications are maintained with Ketchikan. Weekly seaplane service is available during the summer. The facility is in caretaker status in the winter.

(413) **Point Incarnation,** 3.6 miles E of Cape Ulitka, is the E entrance point. A light marks the point, which is the N extremity of a low wooded islet. Rocks and kelp are off the point, close-to. From the point 8- to 10-fathom spots extend in a N direction for 0.8 mile.

(414) **St. Joseph Island,** at the NW end of Arriaga Passage, has a number of high timbered knobs. The W coast is rocky and foul, and the NW section should be given a berth of at least 1 mile. Rocks and irregular bottom extend off the N coast for about 0.4 mile. The E and S coasts are, in general, rocky shelves that drop off rapidly. A 10-fathom spot is 0.3 mile SW from the S point of the island.

(415) **San Lorenzo Islands,** at the NE end of Arriaga Passage, consists of two timbered islands separated by a narrow channel. This channel is locally known as **Hole in the Wall.**

(416) A midchannel course through the very narrow SE entrance is safe, but, when inside, the NE side of the channel should be favored when passing the vertical bluff on that side. A submerged rock, which covers 4 feet, is about 150 feet off the W shore, opposite the vertical bluff. A depth of 3 fathoms can be carried past the rock on its NE side.

(417) **Sonora Passage,** between St. Joseph Island and the San Lorenzo Islands, connects Iphigenia Bay with Arriaga Passage. It is about 1.7 miles wide, but has a very irregular bottom. Sonora Passage affords the only ship channel among the islands. The chart shows the known dangers. Vessels using this passage should follow a midchannel course, but the use of Arriaga Passage is considered preferable. The channels between the islands that are used by small boats are numerous, but have many dangers, mostly indicated by kelp.

(418) The **Gulf of Esquibel** is 8 miles long from Noyes Island to Tonowek Bay and 6 miles wide from San Fernando Island to the Maurelle Islands. It is clear of islands and is connected to the sea by several passages. The navigation of the Gulf of Esquibel presents no difficulty. The waters are generally deep except near the shores. The known dangers are shown on the chart; the principal one, Curacao Reef, is marked by a buoy. Small craft with local knowledge pass inside all the islands of the St. Philip and Culebra groups. A rock awash and a submerged rock are about 300 yards SE and ESE, respectively, of the 130-foot island off the SE end of St. Philip Island.

(419) **The Hermagos Islands,** on the SE side of the Gulf of Esquibel, are a group of low wooded islands N of Garcia Cove about 0.3 miles offshore from San Fernando Island. A small island, with a prominent evergreen on its N side, is halfway between the group and San Fernando Island. Either side of this island has a small-boat channel.

(420) **Point Garcia** and **Point Aguirre** are low, wooded points on the NW end of San Fernando Island. Foul ground extends offshore for 0.5 mile in a NW direction.

(421) **Garcia Cove** is a small inlet at the NW end of San Fernando Island and 0.4 mile E of Point Garcia. In December 1983, a rock, which bares at low water, was reported in the approach to Garcia Cove in about 55°33'52"N., 133°25'47"W. A group of small islets extends S from the E side of the entrance to the cove. A rock that uncovers 7 feet is on the W side of the cove at the entrance. In December 1983, a large rock was reported in the center of the cove in about 55°33'28"N., 133°25'41"W. A 9-foot-high rock is just S of the large rock. An islet was reported on the SW side of the cove in about 55°33'22"N., 133°25'54"W. Anchorage with restricted swinging room may be found in 9 fathoms, mud bottom about 150 yards S of the 9-foot rock in the center of the cove.

(422) **Aguirre Bay** is an open bight S of Point Aguirre. Rocks awash extend part way across the entrance.

(423) **Blanquizal Islands, St. Philip Island,** and **Culebra Islands** are in the E part of the Gulf of Esquibel close to the Prince of Wales Island shore, distant 3, 4.5, and 6 miles, respectively, NW of Larzatita Island Reef Light. They are comparatively low and heavily wooded. At the SE end of St. Philip Island is an old Native American village, known locally as **Bobs Place.** Fair anchorage for moderate-sized vessels can be had in midchannel off the village.

(424) A rock awash, marked by kelp, is 0.5 mile off St. Philip Island at a point 1.4 miles 311° from the W point of Blanquizal Islands.

(425) **Curacao Reef** is 0.8 mile W of the S end of Culebra Islands, with deep water between. The reef has a least depth of ½ fathom, is small in extent, and marked by a buoy off its SW extremity.

(426) The **Maurelle Islands** are a group of islands, rocks, reefs, and breakers forming the W side of the Gulf of Esquibel, covering an area about 12.5 miles long in a NNW direction and about 9 miles wide.

(427) **Currents** appear to be entirely tidal; the strongest are reported around Timbered Island and the N end of St. Joseph Island, but do not exceed 2 knots. Between Timbered Island and the Wood Islands and to the SE, also to the N of St. Joseph Island, currents run NE in flood and SW in ebb; between Emerald Island and Feather Rock, the current runs E on flood and W on ebb. SW of Emerald Island and Gull Island, flood sets SE and ebb NW. In the vicinity of Lambda Rock, S of Twin Islands, the flood runs E and the ebb, W. In the area between this rock and the San Lorenzo channels, little, if any, current was observed. In the small passage E of Wood Islands, the flood runs N and the ebb S.

(428) **Caution.**–Without local knowledge, navigation among these islands, except in small craft, is dangerous.

(429) **Anguilla Island,** one of the largest of the group, is timbered and rises to an elevation of 630 feet. From offshore the summit may be recognized, appearing rather sharp; its skyline to the W and SE appears lower and somewhat flat. **Anguilla Bay,** on the S side of the island, is foul at its head.

(430) **Esquibel Island, Turtle Island, Sonora Island, Twin Islands (Princesa Island** and **Favorita Island),** and the unnamed islands are generally wooded, and have no characteristics of marked interest to the navigator. The largest and highest of the **Wood Islands** is wooded and rises conically to a height of 280 feet; it is somewhat prominent from offshore. An anchorage for small craft is in the W side of **Nagasay Cove,** on the N side of Esquibel Island, in 4 fathoms, mud bottom.

(431) **Timbered Island,** very prominent from offshore, the westernmost of the Maurelle group, is 198 feet high and wooded. The shores are brown sheer cliffs and ravines. Many rocks are close by. Tide rips are N and S of the island. A barren, gray island, slightly smaller, is just S of Timbered Island.

(432) From Timbered Island to the Wood Islands is a line of rocks and breakers that show in a moderate swell. In heavy weather, breakers may be seen for about 800 yards around the rock 0.8 mile 205° from the center of Emerald Island (55°44.0'N., 133°40.7'W.). The body of water between the two groups of rocks that are about 0.8 mile NW and about 0.6 mile W from the W shore of Little Dome Islet (55°41.5'N., 133°37.9'W.) breaks in heavy weather.

(433) About 550 yards S of Feather Rock, 1.8 miles W of Little Dome Islet, is a small area, marked by kelp, that is dangerous in heavy weather.

(434) About 0.5 mile W of the Wood Island group is an extensive area of rocks and breakers that are marked by kelp. Near the S end of this patch is a low, bare, round-topped rock.

(435) Tide rips, heavy for small craft, were observed in the vicinity of Timbered Island, the N end of St. Joseph Island, and Feather Rock.

(436) **Launch Passage,** between Anguilla Island and Esquibel Island, is frequently used. In making passage from the Gulf of Esquibel, keep S of the rocks awash at half tide and the submerged rocks just inside the entrance. When abeam the inner rock, change course to pass close to and just S of the two islands in midchannel. Keep close to the islands. From here the channel is clear to the anchorage in Nagasay Cove, on the N side of Esquibel Island; the chart is the best guide for mariners without local knowledge.

(437) NW of the anchorage in Nagasay Cove are numerous islands. The channel between these and the Anguilla Island shore is used. In passing N, favor the islands, passing W of two rocks in midchannel. When past these rocks, favor the Anguilla Island shore. Near the N end of the channel are shoal spots. There is a rock awash 250 yards W of the NW island. The two islands off the SW shore of Anguilla Island should be given a berth of at least 0.2 mile. Deep water was found on all sides of the rock awash, 0.3 mile NW of the N end of Turtle Island.

(438) There is a launch channel N of the San Lorenzo Islands, just S of **Escurial Island.**

(439) **Tonowek Bay** extends NE for about 6 miles from the Gulf of Esquibel to Tonowek Narrows and borders the SE side of Heceta Island. **Kabanof Rock,** awash, is near midchannel about 0.9 mile SSW of the 1,085-foot hill on Heceta Island.

(440) **Warm Chuck Inlet,** on the NW side of Tonowek Bay, has considerable foul ground, as indicated on the chart. A rock, with ½ fathom over it, is in midchannel, 0.5 mile E of a well-defined point on the SW shore. About 0.7 mile N of this point is a group of wooded islets. Rocks that uncover 7 feet are 150 yards S of the group.

(441) **Salt Lake Bay,** on the SE side of Tonowek Bay, is about 2 miles NE of the Culebra Island Group. The entrance is choked by a group of wooded islands. Two channels are used, one N of the group with a depth of 1½ fathoms, the other S of the group with a depth of 2½ fathoms. The NE and SW ends of the bay are shoal; depths of 7 to 15 fathoms are found in the center. A number of freshwater

streams, emptying into the bay, attract salmon in considerable numbers.

(442) **Harmony Islands,** on the E side of Tonowek Bay, are a group of high, wooded islands. There are channels between the islands of this group, but they are made difficult by numerous dangers. Rocks that cover are off the S and W points of the group.

(443) The channel E of the Harmony Islands and E of the islands to the S, off the entrance to Salt Lake Bay, is used extensively by small craft plying between San Christoval Channel and Tonowek Narrows. The midchannel is safe and partially protected. It is a continuation of the small-craft channel E of Blanquizal Island, St. Philip Island, and Culebra Islands.

(444) **Nossuk Bay,** in the NE part of Tonowek Bay 1.5 miles S of Tonowek Narrows, is largely filled with islands and shoals. **Nossuk Anchorage,** in the N part of the bay, 0.7 mile S of Tonowek Narrows, affords excellent anchorage in 10 fathoms, soft bottom. The N entrance is narrow; the chart shows the least depths.

(445) **Bocas de Finas** is the passage leading from the junction of the Gulf of Esquibel with Tonowek Bay to Iphigenia Bay and the Pacific Ocean. It is between Anguilla, Tonina, Bushtop, and Twocrack Islands, which are the northeasternmost of the Maurelle group, and the SW coast of Heceta Island.

(446) **Current.**–Between Emerald Island and Dead Tree Point, the estimated velocity of the current is about 2 knots.

(447) The Heceta Island shore, on the NE side of the passage, is steep with no outlying dangers. The SW side of the passage is foul for about 0.3 mile off the Anguilla Island shore, and should be avoided. The least width about 0.7 mile between Twocrack Island and Heceta Island is at the NW end end of the passage.

(448) **Heceta Island** shows up prominently from the W. The S end is rocky, rugged, and mountainous, and the W shore is formed by light-colored cliffs; the N part of the island is lower and more heavily timbered. **Bald Mountain** has several bare summits and is a prominent landmark near the S end of the island. **Timber Knob,** centrally located on the S part of the island, and lower than Bald Mountain, is timbered and has moderate slopes; from a considerable distance offshore to the W, it may be recognized over the coast ridges. **Cone Peak** shows from the W over long, wooded ridges as a low wooded cone. The 1,050-foot peak to the N shows prominently from offshore.

(449) **Point Desconocida** (55°41.7'N., 133°31.7'W.), the S point of Heceta Island, marks the N side of the E entrance to Bocas de Finas. **Desconocida Reef,** an area of broken ground, boulders, and submerged rocks, extends 700 yards SSE of the point. A rock, barely covered at low water at the outer end of the reef, is marked by a buoy on its SE side.

(450) There is a secure anchorage in the W bight on the N side of Anguilla Island, about 0.5 mile S of Bushtop Island. When entering, pass about 200 yards E of Bushtop Island and stand in on a S course. Anchor in 11 to 15 fathoms, soft bottom. Kelp and broken ground are on the W side of the anchorage.

(451) **Tonina Island** is about 300 yards N of the W end of Anguilla Island, with islets and rocks between. **Twocrack Island,** on the S side of Bocas de Finas, is wooded and has two prominent crevices that can be seen only from the N and S. The island shows up dark against Heceta Island.

(452) **Bushtop Island,** about 0.8 mile SE of Twocrack Island, is 45 feet high and conspicuous from Bocas de Finas; 200 yards E of it is a small bare rock with a rock awash close W.

(453) **Dome Islets** are two small wooded islands close together, about 0.6 mile SW from the S end of Twocrack Island. **Feather Rock,** 5 feet high, is about 2.4 miles W from Twocrack Island.

(454) From Bocas de Finas to Cape Lynch the coast is rugged, with numerous outlying islets and reefs, most of which show above water. The main passage follows the general trend of the shoreline at a distance of 0.2 to 0.5 mile. The SW side of the passage is fringed by an area of broken ground, reefs, and islets that extend about 3.6 miles NW from Emerald Island to Losa Island. This section of the passage is exposed to the swell from seaward, and during and after gales, vessels traversing it are subjected to a disagreeable beam sea that breaks furiously over the rocks on both sides of the passage. Too much reliance should not be placed on the position of the buoys, especially after severe storms.

(455) **White Cliff** (55°43.9'N., 133°38.6'W.), on the Heceta Island shore, is a precipitous wooded point with white cliffs 100 feet high. About 0.8 mile SE of White Cliff is a conspicuous landslide that extends down to the water from near the summit of the ridge. A lighted bell buoy, 0.6 mile W of White Cliff, marks the outer limit of dangers on the E side of the passage.

(456) **Emerald Island,** about 1.2 miles W of White Cliff, is 45 feet high and flat, has several clumps of stunted spruce, and shows up green. The SE side has a very small sand beach. The ground in the vicinity of this island is foul. A buoy, about 0.6 mile NNE of Emerald Island, marks the outer limit of dangers on the SW side of the passage.

(457) **Dead Tree Point,** about 1.2 miles NNW of White Cliff, juts out from the higher land of Heceta Island and is low and wooded with bare cliffs at the water. **Raso Rock,** a large bare rock 20 feet high, is 0.6 mile WSW of Dead Tree Point. A rock, 6 feet high, is about 0.7 mile NW of Raso Rock.

(458) **Gull Island** is about 2.3 miles WNW of Emerald Island. The island, 87 feet high, is light colored, grass covered at the top, and somewhat flat, and has rather steep shores. Rocky islets and foul ground extend in a N direction for about 1.3 miles. The ground is foul to the ESE for about 0.4 mile. A rock that bares is 0.9 mile WSW from Gull Island.

(459) **Losa Island,** about 2 miles WSW of Cape Lynch and 1.5 miles NNW of Gull Island, is only 5 feet high and is the westernmost of the chain of islands and reefs S and SW of Heceta Island. Foul ground extends for 0.2 mile NW of Losa Island.

(460) **Cape Lynch Light** (55°46.9'N., 133°42.1'W.), 50 feet above the water and shown from a small house with a red and white diamond-shaped daymark on an islet off the SW end of Cape Lynch, marks the W end of Heceta Island. The light also marks the NW approach to Boca de Finas, the approach to Davidson Inlet, and the E side of the entrance to Sumner Strait. (See also chart 17360.)

(461) A kelp-marked ledge, with 1½ to 4¼ fathoms over it and a 2¾-fathom spot at its outer end, extends 0.7 mile NW of the cape.

(462) **Cone Bay,** NE of Cape Lynch, is open and exposed to the W. The bottom is irregular, and kelp extends well into the bay along the S shore.

(463) **Tonowek Narrows** (55°45.5' N., 133°20.1'W.), locally known as **Little Skookum Chuck,** connects Tonowek Bay and Karheen Passage. It has a least width of 100 yards between the 10-fathom curves.

(464) **Currents.**–The currents in Tonowek Narrows set NE on the flood and SW on the ebb. The velocity of the current

is 3.0 knots. (See the Tidal Current Tables for daily predictions.) Tide rips have been reported, but they are seldom dangerous even to small boats.

(465) **Karheen Passage** extends from Tonowek Narrows to Sea Otter Sound. The SE part of the passage is characterized by islets, ledges, and generally broken ground, surrounded by comparatively deep water. Much of the area is filled with kelp. The channel is marked by a daybeacon, buoys, and an unlighted range as far as Karheen Cove and is used by vessels with a draft of about 17 feet.

(466) **Currents.**–Currents in Karheen Passage set NW on the flood and SE on the ebb. The velocity of the current is 0.4 to 0.5 knot.

(467) **Point Swift** is on the E side at the NE end of Tonowek Narrows. Two totem poles and a gravesite can be seen on an island about 0.4 mile W of Point Swift, on the W side of Tonowek Narrows. **Point Swift Rock** uncovers 5 feet and is 0.3 mile NNE of Point Swift. A buoy is about 0.3 mile NNE of the rock and marks the N end of the shoal area that extends from the rock. A daybeacon is on a small islet 16 feet high, on the W side of the channel, about 0.6 mile N from Point Swift.

(468) **Ham Islands,** a group of wooded islets, are about 1.8 miles NE of Tonowek Narrows and extend about 1 mile in a SSE direction from the E end of Heceta Island. Reefs and broken ground extend E, S, and SW of the islands. A buoy about 1.1 miles NE of Point Swift marks a submerged rock about 0.3 mile S of the southernmost of the three larger central islands of the group. Another buoy is on the W side of a submerged rock marked by kelp, about 1 mile NW of Kauda Point, the S extremity of Tuxekan Island.

(469) **Trim Island** is about 0.5 mile NE of the larger Ham Island, close to the Tuxekan Island shore. **Cob Island** is about 0.3 mile NW of Trim Island and 1 mile SSE of Karheen Cove. Reefs extend about 200 yards SE, S, and W of Cob Island. A daybeacon marks the reef on the W side of the island.

(470) **Chapin Island,** small and wooded, is on the W side of Karheen Passage W of Cob Islet. An unlighted range of two daybeacons on the N end of the island, in line **306°**, marks the center of the channel N of Ham Islands and S of Trim Island and Cob Island. Local fishing craft prefer the shortcut known as **Canoe Pass,** which extends SW from Chapin Island between Heceta and Ham Islands. Strangers and larger vessels should use the longer route through Karheen Passage.

(471) For 1.5 miles NW from Cob Island, Karheen Passage has an average width of about 0.5 mile. The depths are generally good except for an extensive kelp-marked ledge, with a least depth of 1¾ fathoms over it, in midchannel W of Karheen Cove. During summer, streamers of kelp are visible along the W half of the passage, just N of Chapin Island, in 3 to 5 fathoms.

(472) **Karheen Cove** is a small indentation on the NE side of Karheen Passage at its NW end. A bare rock is off the S point at the entrance. A buoy marks the outer end of the ledge that extends about 400 yards SW from the S point.

(473) **Peep Rock,** a conspicuous rock, marked by a light, is about 0.7 mile NW of Karheen Cove. Shoal areas, marked by kelp, extend for about 700 yards W and about 500 yards NW of the rock. The channel E and N of the rock is clear and is generally used in preference to the channel S, where there are unmarked dangers.

(474) **Charts 17404, 17403.–Tuxekan Passage** has its S entrance on the SE side of Karheen Passage, and extends N along the E side of **Tuxekan Island** for about 10 miles to El Capitan Passage. The shores are heavily wooded throughout its length, and are indented with numerous bights, coves, and bays that provide anchorage in any desired depth. The width varies from a maximum of about 2 miles N of Staney Island to about 225 yards in **Tuxekan Narrows.** This passage is preferred to Karheen Passage by some operators enroute between Tonowek Bay and El Capitan Passage.

(475) **Currents.**–The currents in Tuxekan Passage set generally N on the flood and S on the ebb. The velocity of the current is weak, being less than 1 knot. (See the Tidal Current Tables for daily predictions.)

(476) **Chart 17404.–Kauda Point** (55°46.4′N., 133°15.5′W.), at the S tip of Tuxekan Island and on the W side of Tuxekan Passage, is a small islet at high water and is conspicuous from the SW and NE.

(477) **Kaguk Cove,** at the S end of Tuxekan Passage, about 2 miles SW of Kauda Point, affords a well-protected anchorage in depths of 4 to 8 fathoms, with a gentle sloping bottom.

(478) The **Dasani Islands** are in the S entrance to Tuxekan Passage midway between Kauda Point and the entrance to Kaguk Cove. The islands are wooded and have boulder-strewn beaches. An extensive kelp patch usually extends NE from the N island. Other kelp patches, over rocks awash, are E of these islands.

(479) **Gaohi Islands,** across the passage from Kauda Point, form the SW shore of Winter Harbor, where good small-boat anchorage is available in depths of 2 to 10 fathoms. They are difficult to identify when approaching from the W.

(480) **Yahku Cove,** on the W side of Tuxekan Passage 1.5 miles NNE of Kauda Point, and **Nundei Cove** on the E side of the passage opposite Yahku Cove are not recommended for small-boat anchorages. Nundei Cove is deep and exposed to the N. A rocky reef that is uncovered at high water constricts the entrance to Yahku Cove.

(481) **Chart 17403.–Staney Island,** about 3.5 miles NE of Kauda Point (55°46.4′N., 133°15.5′W.), is the largest and most NW of a chain of wooded islands that extend into Tuxekan Passage from the E shore. The passage to the W and SW of Staney Island is clear, but from other directions it should be approached with caution. A 1¾-fathom rock and a 1½-fathom rock are 0.8 mile and 0.5 mile N, respectively, of the island. NE from Staney Island the waters are generally foul with a number of submerged rocks and rocks that uncover 1 to 7 feet.

(482) **Naukati Bay** is the largest indentation in the E shore of Tuxekan Passage. Its entrance, about 2 miles N of Staney Island, is constricted by rocks and kelp, and the entire area has numerous islets, reefs, and rocks. In the narrow winding channel, 3 fathoms can be carried well in toward the head of the bay.

(483) **Klinau Island,** on the W side of the entrance to Naukati Bay should be given a wide berth. A rock that uncovers 5 feet is about 0.3 mile SSW of the island, and the waters around it from E through S to W are foul.

(484) **Nichin Cove** on the W side of the passage, about 1.3 miles WSW of Klinau Island, affords good small-craft anchorage. Larger vessels will find unprotected anchorage in 6 to 8 fathoms, mud bottom, off the entrance to the cove. A ramp and float, with a 60-foot face, are on the W side of the cove near the entrance.

(485) **Little Naukati Bay,** on the E side of Tuxekan Narrows and about 6.5 miles N of Kauda Point, is not recommended as a small-boat anchorage. At low water its entrance is almost closed by rocks and reefs. The best water into it is the N channel. The narrows NW of Little Naukati Bay is relatively clear and deep.

(486) **Village Rock,** about 0.5 mile NW of the N end of Tuxekan Narrows, is awash at high water and is marked by a daybeacon. The safest and recommended route for northbound transit vessels is S and W of Village Rock. Mariners transiting the waterway about 100 yards E of Village Rock should use care; detached rocks and shallow water extend about 0.2 mile off Kinani Point.

(487) **Jinhi Bay** extends SW from Village Rock. This bay shoals gradually to mud flats that bare in its SW extremities. It is studded with small islets and numerous rocks that bare at various stages of tide. Only those with local knowledge should attempt to enter this bay.

(488) **Elghi Island,** near the N extremity of Jinhi Bay, is one of the more prominent features of Tuxekan Passage. The waters to the W are foul, and a large rock that uncovers 4 feet is about 0.1 mile E of its N tip.

(489) **Aikens Rock,** 3 feet high and marked by a daybeacon, is about 400 yards E of the N end of Elghi Island. **Kassan Islands,** about 1.4 miles N of Elghi Island, separate Tuxekan Passage from El Capitan Passage. These islands are heavily wooded and separated only by a narrow channel that runs dry at half tide.

(490) **Kahli Cove,** between Kassan Islands and Prince of Wales Island, provides suitable anchorage for small craft. The SW entrance is constricted by rocks and reefs, but a narrow winding channel is open. The NW entrance is less winding and has fewer rocks.

(491) **Davidson Inlet** is the W part of a large expanse of water, NE of Iphigenia Bay, between Heceta Island and Kosciusko Island. The E part, Sea Otter Sound, is separated from it by a chain of islands that extend SW from Marble Island and Orr Island. The shores and islands in the inlet and sound are wooded and generally high. The entrance to El Capitan Passage is at the NE end of Sea Otter Sound.

(492) The entrance to Davidson Inlet is 2 miles wide between Whale Head and Surf Point, the NW extremity of Heceta Island. **Surf Point Light** (55°50.0′N., 133°38.0′W.), 29 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark on the point, marks the SE side of the entrance. **Surf Point** is low and wooded. From it broken ground extends about 0.7 mile N, with a 1¼-fathom shoal 0.3 mile NE of the light. During severe weather the seas are reported to pile up heavily and it is advisable to give the point a berth of at least 1 mile.

(493) **Whale Head** (55°51.1′N., 133°40.9′W.), a prominent cliff 50 to 300 feet high that shows up conspicuously offshore to the SW marks the NW side of the entrance. It is the S extremity of **Whale Head Island.**

(494) Broken ground extends 0.6 mile S of Whale Head, with a 1½-fathom shoal that breaks about 0.5 mile, and a 3¾-fathom patch, marked by kelp, about 0.6 mile SSE of the head. **Whale Rock** uncovers 3 feet and is 0.5 mile SSW of the head. A midchannel course through the entrance clears all dangers.

(495) N of Whale Head Island is a chain of islands that extend to the S end of Kosciusko Island. The passes between these islands are suitable for small craft only.

(496) **Fake Pass,** the southernmost of the two larger channels N of Whale Head Island, has a minimum depth of 4 feet. A rock awash is near the center of the SW entrance. The seas pile up heavily on this rock and in the pass during moderate to severe SW weather. **Cosmos Pass,** the northernmost channel, has a controlling depth of about 5 feet and current of not more than 3 knots, and is used by small boats bound to and from Warren Channel. (See chart 17402.) Breakers cover the W entrance to Cosmos Pass in heavy SW weather. A rock awash is near midchannel.

(497) **Port Alice,** on the S side of Davidson Inlet E of Surf Point, is a secure anchorage. A ledge, about 0.4 mile inside the entrance, extends about 0.5 mile from the E shore into the bay; two rocks that uncover 8 and 5 feet are near its center. To enter, give the points at the entrance a berth of about 0.5 mile and enter in midchannel. Follow the W shore at a distance of about 250 yards, passing W of the ledge until about 0.5 mile from the head of the port, where good anchorage will be found in the middle in 14 to 18 fathoms, soft bottom. Water can be obtained by boats from several small streams.

(498) **Green Island,** 4.2 miles NE of Whale Head, is about 0.5 mile in diameter. A shoal with a depth of 2¼ fathoms near its center extends about 0.7 mile SSW from the small island SE of Green Island. The 2¼-fathom spot and a 3½-fathom patch about 300 yards to the SW are surrounded by kelp.

(499) **White Cliff Island** is on the E side of Davidson Inlet about 4.2 miles E of Green Island. A rock, with 1¼ fathom over it, is about 1.4 miles W of the island, and a 3½-fathom shoal, marked by kelp, is about 1.9 miles WNW from the NW extremity of the island. Davidson Inlet and Sea Otter Sound have numerous other unmarked isolated dangers and shoals. They are shown on the chart and, with close attention, can be avoided.

(500) **Edna Bay** is on the W side of Davidson Inlet, 5.5 miles N of Whale Head. It has good anchorage about 0.3 mile from the S shore in 14 to 17 fathoms, soft bottom. Islets and foul ground make out 0.5 mile from the W end of the bay; foul ground makes off in the N part of the bay, about 750 yards from the W shore and about 500 yards S from an islet.

(501) In September 1986, an uncharted reef, covered 5 feet, was reported about 50 feet SW of the face of a T-float at the N end of Edna Bay. A dangerous shoal area near the float is marked by buoys.

(502) **Limestone Point,** the N entrance point to the bay, is marked by **Edna Bay Entrance Light** (55°56.3′N., 133°37.0′W.), 23 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark on the end of the point.

(503) **Entrance Island** forms the SW side of the entrance to the bay. A narrow channel, W of the island, has a controlling depth of 3 fathoms, but should be used only by those with local knowledge. Kelp-marked reefs extend 300 yards S of the island. A shoal, with depths of 3½ fathoms near its S end and 7¾ fathoms at the N end, extends 0.2 mile N of the island and about halfway across the entrance. At about midchannel 18 fathoms are found. A 9-fathom spot is just inside the entrance about 0.3 mile W of Edna Bay Entrance Light. Near the center of the bay are two unmarked shoals with depths of 6 and 8 fathoms. The chart is adequate for the entrance E of the island.

(504) A rock, covered 9 feet and marked by a buoy, is at the SE end of the extensive shoal area making out from the W side of the bay. About 300 yards SE of this shoal is an unmarked 8-foot shoal.

(505) **Edna Bay Light 3** (55°56.5′N., 133°39.5′W.), 20 feet above the water and shown from a small house with a green square daymark on the W escarpment of the bay, is the guide for a channel between these shoals, leading NW to an inner bay. The 10- and 14-foot shoals are near midchannel about 275 and 375 yards, respectively, N of the light. Strangers should not attempt this channel without first obtaining local information.

(506) Small boats will find excellent shelter in the extreme SW part of the bay from winds from the SE through S to W,

in depths of 3 to 12 fathoms, with good holding ground, sticky mud.

(507) **Van Sant Cove** is a small open bight on the W side of Davidson Inlet, about 4 miles NE of Edna Bay. A reef is off the S point of the entrance.

(508) **Tokeen Cove,** opposite Van Sant Cove, is on the NW end of Marble Island. Anchorage can be had W of the ruins of a wharf, on the E side of the cove, in 14 to 18 fathoms. Small craft can find anchorage in 4 to 8 fathoms, soft bottom. The cove is shoal S of the wharf site. A rock that uncovers 6 feet is 300 yards W from the NE point of the cove.

(509) **Tokeen Bay,** on the E side of Davidson Inlet, about 12 miles NE of Whale Head, extends ENE for about 4 miles. Its E side is connected with El Capitan Passage by a high-water boat passage. A shoal, with about 1½ fathoms over it, is in the middle of the bay, about 2.4 miles E of the N point at the entrance. Elsewhere in the bay a midchannel course is clear, but there are rocks near the shores and care is required in its navigation.

(510) Anchorage can be found in the middle of Tokeen Bay, about 0.5 mile E from the N point at the entrance in 14 to 16 fathoms; also at the N end, NE side, and SE end of the bay. There are several sheltered anchorages for small craft, one of which is at the head of the bay behind the small islet in 4 fathoms, mud bottom. The area E of the small wooded islands in the SE part of the bay also offers good anchorage in 4 to 10 fathoms, mud bottom.

(511) **Marble Passage** extends NE from the NE part of Davidson Inlet between **Marble Island** and **Orr Island.** The approaches to the channel at each end are obstructed by rocks and ledges, and about midway between the ends the channel shoals to depths of about 2 feet. Numerous rocks both submerged and awash are throughout the passage. The tides meet in the N part of this passage.

(512) **Sea Otter Sound** extends W from Karheen Passage and Tuxekan Island along the N side of Heceta Island to Davidson Inlet. Its NW shore is formed by numerous islands, large and small. The sound is about 6 miles in extent, with depths of 15 to 75 fathoms, irregular bottom. The sound has few desirable anchorages. With the assistance of the chart, depths suitable for anchorage can be found on its E side, but care is required because of submerged rocks that are generally marked by kelp during summer.

(513) **Turn Point** (55°50.8′N., 133°21.5′W.), low and wooded, is on the E shore of the sound and forms the N point at the NW entrance to Karheen Passage. The cove E of Turn Point has considerable foul ground.

(514) About 1.7 miles S of Turn Point are a group of wooded islands that form the S shore of the NW entrance of Karheen Passage. Shoals, marked by kelp, extend for about 0.5 mile N of the W islands of this group. Good anchorage for small vessels can be found back of the islets and shoals about 1.2 miles WSW of the light on Peep Rock (55°49.2′N., 133°19.8′W.). By running on a NW course, keeping Clump Island on range with the gap between the two largest islands in this group, the mariner will find suitable depth in less than 20 fathoms.

(515) The cove on the N end of Heceta Island, just W of Camp Island and about 5 miles SW of Turn Point, is shoal in its E part. Protected anchorage for small craft can be found in the westernmost of two bights at the head of the cove, with restricted swinging room.

(516) **Gas Rock** is the bare islet about 0.6 mile from Heceta Island and 4 miles E of Whale Head. **Clump Island,** 2.8 miles ENE of Gas Rock, is the outer one of a group 1.3 miles S of Eagle Island, with foul ground between. A shoal with depths of 4¾ to 6½ fathoms is about 0.9 mile SSW of Clump Island.

(517) **White Cliff Island** is about 0.9 mile N of **Eagle Island.** It is wooded and has a prominent white cliff on the SW side, **Fox Rock** is about 0.4 mile W of the Eagle Island group. **Dove Island, Owl Island, Hoot Island,** and **Cap Island** are some of the small wooded islands in the N part of Sea Otter Sound. The passages between Owl Island, Hoot Island, and Orr Island should be used only with local knowledge.

(518) **Cyrus Cove,** N of Owl Island, is a small bight in the N part of the sound and is an excellent anchorage for small boats. The best anchorage, in depths of 5 to 11 fathoms, good holding ground, mud bottom, is in the center of the N part where the cove branches to E. Five fathoms can be carried through midchannel to this anchorage. Smaller vessels may anchor in shoaler water in midchannel in the E arm of the cove.

(519) The channel close E of White Cliff Island is known as **White Cliff Passage.** A rock, with 9 feet over it, is in midchannel about 0.35 mile SE of the SE end of White Cliff Island.

(520) **Charts 17403, 17387.–El Capitan Passage** has its entrance on the NE side of Sea Otter Sound. It extends about 18 miles in a N direction from Sea Otter Sound to Aneskett Point, then trends W for about 6.5 miles to Shakan Strait. The S part of the passage is 1 to 4 miles wide, forming a bay about 7 miles long with numerous rocks and islets. To the N of this section the passage is 0.3 to 1 mile wide and is comparatively clear to Aneskett Point. The shoreline should not be approached too closely, as numerous rocks, awash at various stages of the tide, are close-to. From a point about 3.5 miles W of Aneskett Point to Shakan Strait a 12-foot channel has been dredged through the shoals to provide a protected route for fishing vessels and log rafts.

(521) Numerous bights and inlets indent the shores of the passage. The islands in the passage are heavily wooded without any marked characteristics of interest to the navigator.

(522) **Channels.**–Local knowledge is desirable for safe navigation through the channels in El Capitan Passage. This applies in particular to the section between Aneskett Point and Shakan Strait, including **Dry Pass.** From N of Tenass Island to Aneskett Point, midchannel courses hold good; from Sea Otter Sound to Tenass Island, various courses among the islands may be followed. The charts are the guide to safe navigation. The channel above Aneskett Point favors the S shore until about 1.8 miles W of the point, where it takes a turn to the SSW and narrows. Here a small wooded islet in the midchannel should be left to the W. Then for about 1.5 miles a midchannel course should be followed to the E end of a Federal project about 2.8 miles long that provides for a 12-foot channel dredged through seven shoals, including Dry Pass, to the W entrance of El Capitan Passage at Shakan Strait. In 1957-1977, the controlling depth in the dredged sections of the passage was 7 feet. Daybeacons mark the dredged sections of the channel.

(523) **Anchorages.**–All of El Capitan Passage is protected, and large vessels can anchor wherever the depths are suitable; the chart is the best guide. Small craft can usually find anchorage in the bights and inlets that indent the shores of the passage.

(524) **Tides and currents.**–The mean range of tide in El Capitan Passage is 8.7 feet and the diurnal range is 10.8 feet. In the S part of El Capitan Passage, the current floods N from Sea Otter Sound. In the channel between El Capitan Island and Tuxekan Island, the velocity of the current may reach 3 knots. In the channel N of Tenass Island the current

is reported to be negligible. In Dry Pass, the current floods E with a velocity of 1.8 knots and ebbs W with a velocity of 0.9 knot. (See the Tidal Current Tables for daily predictions.) High and low water in this vicinity occur at practically the same time as at Sitka.

(525) **Chart 17403.–Cap Island** is at the S entrance to the passage. **Knob Island,** about 0.5 mile N of Cap Island, is a small wooded island with two knobs. The channel between it and El Capitan Island is about 100 yards wide and has depths of 2 to 3 fathoms. Rocks are offshore on either side of this channel. Rocks extend off the shore of the island for about 100 yards. **Dot Island** is the larger of two islands about 0.3 mile N of the northernmost point of Cap Island.

(526) **El Capitan Island** is near the S end of the passage. A narrow inlet is in the S side of the island where rocks and depths less than 1 fathom are found. Off the SE end of the island, separated from it by a narrow, high-water channel, is a small wooded island. A daybeacon marks a group of rocks off the E side of El Capitan Island. On the W side of El Capitan Island, about 1.6 miles N of Knob Island, is a deep bight with three islands in the entrance.

(527) **Tokeen** is a small settlement at the head of the bight.

(528) **Tokeen Harbor Entrance Light** (55°56.2'N., 133°19.9'W.), 35 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the S end of the southernmost island at the entrance.

(529) The bight is entered from the S through a clear channel. A wharf, with a 100-foot face and reported to be in poor condition, is on the N side of the bight; depths of about 24 feet were reported alongside in 1976. A mooring float 180 feet long is anchored in the bight for the use of fishing vessels. Limited amounts of ice, gasoline, diesel fuel, water, and provisions can be had during the fishing season.

(530) Tokeen maintains radiotelephone communications with other parts of Alaska and with other States. Charter seaplane service is available with Ketchikan and communities on Prince of Wales Island.

(531) **Twin Islands** are a group of small islands about 12 feet high about 0.6 mile W of the S end of El Capitan Island. Several rocks are on the reef 0.4 mile NE of Twin Islands.

(532) **Fir Rock** is a rock awash at higher high water 0.3 mile WNW of Twin Islands. Rocks awash are close-to.

(533) **Keski Island** is a wooded island about 1 mile N of Knob Island on the W side of El Capitan Island. Foul ground extends 250 yards W from the S end of the island, and irregular bottom extends 0.25 mile W off the NW part of the island.

(534) **Flat Island** is a small island on the S end of the large shoal area E of and close to Teal Island. To the NE of Flat Island is another small island. Submerged rocks extend in a N direction from Flat Island for 250 yards to a rock awash at high water.

(535) **White Point** is the NW point of a bight on the W side of El Capitan Island E of Singa Island. Foul ground extends for about 100 yards S of White Point. **Teal Island** is the southernmost of three large islands W of El Capitan Island. Rocks extend off the S shore for about 0.2 mile.

(536) **San Island** is the largest and middle of the group W of El Capitan Island. Between San Island and Teal Island are several islets and foul ground.

(537) **Singa Island** is the northernmost of the three large islands W of El Capitan Island. Between Singa Island and San Island are several islets with channels between, navigable by small boats.

(538) **Scow Island** is a small island NNE of Singa Island and about 0.3 mile NW of the N end of El Capitan Island.

(539) **Hub Rock** (55°56.5'N., 133°17.8'W.), 8 feet high, almost in midchannel, E of El Capitan Island, is a prominent landmark marked by a daybeacon. Foul ground and irregular bottom extend for almost 0.2 mile from N through W to S from the rock.

(540) **Graveyard Island,** about 1.4 miles NNE of Hub Rock, is a small island with a few graves on it at the entrance to Sarkar Cove.

(541) **Brockman Island,** about 0.6 mile to the NW of Graveyard Island, is the largest and most southerly of a group of three islands.

(542) **Burnt Island** is the small island about 325 yards NNE of Brockman Island. The island is covered with a heavy growth of underbrush and a few young second-growth trees. **Burnt Island Light 5** (55°58.4'N., 133°17.8'W.), 15 feet above the water, is shown from a skeleton tower with a square green daymark on the island.

(543) **Tenass Island,** about 1 mile N of Burnt Island, is SE of the E entrance to Tenass Pass. A 4-fathom shoal is 0.6 mile NE of the N end of the island.

(544) **Sarkar Cove,** on the E side of El Capitan Passage, is entered about 1.3 miles SE of Burnt Island Light 5, and is about 6 miles from Sea Otter Sound and about 18 miles from Shakan Strait (chart 17387). The cove affords good anchorage in 6 to 8 fathoms, mud bottom. A large lake empties into the head of the cove through a series of rapids. Water at the lower end of the lake is brackish, and at the head is fresh. The lake is an important spawning ground for red salmon.

(545) In entering Sarkar Cove favor the N shore to avoid a rock, awash at high water, 0.6 mile NE of **Sarkar Point.** A 3½-fathom patch is 0.2 mile E of Graveyard Island.

(546) On the N side of Sarkar Cove are the ruins of a few houses and a wharf.

(547) **Salt Water Lagoon** is about 0.5 mile NE of Sarkar Cove. It is connected to **Tunga Inlet** by short rapids. Water ebbs from the lagoon for about 2½ hours after low water. At slack water, about 2½ hours after high water, a launch drawing 4 feet may pass through the entrance into the lagoon.

(548) **Clam Cove** is a small cove about 1.1 miles N of Sarkar Cove. **Clam Island** and rocks block the S part of the entrance. The head of the cove is shoal. Mariners should navigate with caution, referring to the latest edition of the chart.

(549) **Rocky Cove** is a small cove about 0.4 mile N of Clam Cove. In midchannel, off the entrance, is a rock awash at minus tides with deep water on all sides; it is usually marked by kelp. The cove is foul.

(550) **Tenass Pass,** N of **Spanberg Island,** and **Brockman Pass,** S of the island, connect Tokeen Bay with El Capitan Passage. Both passes bare at low water. Tenass Pass carries slightly more water than Brockman Pass, but is very narrow, having a width of 25 feet at one place where the current exceeds 5 knots at times. Boats drawing 7 feet have gone through Brockman Pass on extreme high tides.

(551) **Chart 17387.–Sarheen Cove** (56°03.0'N., 133°15.9'W.) is on the E shore of El Capitan Passage about 5.3 miles N of Sarkar Cove (see chart 17403) and about 6 miles S from Aneskett Point. Depths of 8 to 10 fathoms were found within the cove except toward the head where it is shoal.

(552) **Devilfish Bay** is on the W side of the passage about 3 miles NNW of the entrance to Sarheen Cove and 3.5 miles S of Aneskett Point. The bay consists of two parts connected by a narrows; the E part has depths of 34 to 52 fathoms at the entrance, shoaling to 7½ fathoms about 0.1 mile from

the narrows. The bight in the N corner of this part of the bay is shoal.

(553) The narrows, about 170 yards wide, expands into an arm with depths of 7 ½ to 18 fathoms at midchannel to within 0.8 mile of the head. About 0.5 mile from the head of the arm, in midchannel, is a submerged rock with ¾ fathom over it. The narrows is constricted by a rock in midchannel, awash at high water. Depths of 3½ fathoms W and 5 fathoms E of the rock were found, but the channel should not be attempted until seen at low water. Currents of 2 to 3 knots were observed in the vicinity of the rock.

(554) **Aneskett Point,** bold and wooded, is on the W side of the passage where its trend turns from N to W. N from the point is a wooded island that may be passed on either side.

7. SUMNER STRAIT

(1) This chapter describes Iphigenia Bay, Sumner Strait, and the many bays bordering it, the S part of Keku Strait including Rocky Pass, Duncan Canal, Wrangell Narrows, Dry Strait, Stikine River, and the city and harbor of Petersburg.

(2) **Charts 17360, 17400.–Sumner Strait** is one of the great inlets into southeastern Alaska from the sea. The strait has three entrances. The main entrance from the sea, between Coronation Island and Warren Island, is about 5.8 miles wide. Warren Channel, the entrance E of Warren Island, between it and Cape Pole, is about 1.2 miles wide and is used by vessels bound to and from Davidson Inlet and Bucareli Bay. Decision Passage, the entrance between Cape Decision and the Spanish Islands, is about 1 mile wide and is used by vessels bound to and from Chatham Strait. These entrances are described under separate headings.

(3) The usual route of vessels bound N from Clarence Strait is by way of Snow Passage or Stikine Strait to Sumner Strait, and thence to Wrangell Narrows. Vessels too large to make the passage through Wrangell Narrows with safety continue W through Sumner Strait, round Cape Decision, and go N through Chatham Strait or W to sea by way of Cape Ommaney. In fog or thick weather, vessels bound around Cape Decision, instead of using the channel N of Spanish Islands, can continue S and round Helm Point, entering Chatham Strait between Hazy Islands and Coronation Island, or pass to sea S of Hazy Islands. Almost all of Sumner Strait has been examined, and the dangers are shown on the chart.

(4) **Currents.**–From the S entrance to Sumner Strait in Iphigenia Bay, the current floods N to the vicinity of Point Baker, where it turns E with an estimated velocity of 2 knots. W of Zarembo Island the current divides. One branch passes through Snow and Kashevarof Passages and meets the flood current from Clarence Strait near Key Reef. The second branch sets N and E of the island until it meets and is overcome by the current from the Stikine River. The ebb sets in generally the opposite direction with considerably greater velocity. The edge of the current from the Stikine River is well defined by its muddy white appearance. Near the end of the ebb, it is sometimes noticed to be W of Vank Island and S in Chichagof Pass and Stikine Strait. Between Point Baker and Strait Island, the irregularities of the bottom produce heavy swirls and surface disturbances.

(5) The ebb current flows from the vicinity of Wrangell through Sumner Strait and through Stikine Strait and Chichagof Pass to Clarence Strait.

(6) It is reported that strong currents and heavy tide rips occur off Cape Decision, Fairway Island, Point St. Albans, and the small islands to the N.

(7) (See the Tidal Current Tables for daily predictions.)

(8) **Weather.**–The S part of Sumner Strait is most susceptible to strong winds with a S component, whereas the N part is vulnerable to easterlies. These winds blow year round, but are strongest from October through February when gales in the nearby open sea occur about 10 percent of the time and wave heights of 10 feet or more are encountered about 15 to 20 percent of the time; many of these open-ocean waves arrive from SE through SW. Reduced visibility is a problem from June through September. Visibilities of less than 2 miles are encountered 10 to 15 percent of the time, most often in the N part of the Strait.

(9) **Chart 17400.–Iphigenia Bay** extends between the Maurelle Islands on the E and Coronation Island on the W, and is the approach from the sea to Sumner Strait, Warren Channel, Davidson Inlet, Bocas de Finas, Sonora, and Arriaga Passages. The depths are generally good, but the bottom is very irregular, and there are several dangers. On the E side of the bay, deep water prevails until within 1.5 miles of a line passing from the NW end of St. Joseph Island to Timbered Islet to Losa Islet, where the depths become irregular.

(10) Vessels bound from the S for Davidson Inlet and Warren Channel should give Timbered Islet a berth of 1 to 1.5 miles; those bound for Sumner Strait should favor the Coronation Island side of the entrance. Those bound for Cape Ommaney can pass between Hazy Islands and Coronation Island on a midchannel course or pass outside of the Hazy Islands, giving them a berth of at least 1 mile.

(11) **Charts 17386, 17402.–Warren Island** is almost rectangular in shape, with numerous peaks. **Warren Peak,** near the N end of the island, is snow covered from November to May. From N it shows prominently as a sharp, almost conical peak. From W, the skyline appears as a series of jagged summits; near the S end of the island it appears lower and rounding. From the S, the skyline appears ragged and irregular. The land rises abruptly from the shore and is heavily timbered; the peaks are generally bare.

(12) With the exception of small stretches of sand beach in Warren Cove, False Cove, and in the two small coves in the N coast, the shoreline is a rocky shelf. Off-lying rocks that bare at different stages of the tide are from 50 to 600 yards off the W coast and about 175 yards off the S coast.

(13) Off the S end of Warren Island are three groups of dangerous, rocky, unmarked shoals. The outermost group, about 2.8 miles S of **Boot Point,** does not show but breaks occasionally with a long heavy break at low water. Another group, about 2.7 miles SW of Boot Point, has two rocks awash, one of which uncovers 8 feet. The third group, about 1.5 miles SW of the point, has a rocky islet 15 feet high. **Alice Rocks,** with a least depth of 1¾ fathoms, are about 0.3 mile NW of the islet. Between the islet and Boot Point heavy tide rips were observed when the wind was against the current. Broken ground and shoals with a least depth of 2 fathoms were found in this area, and it should be avoided.

(14) **Point Borlase** is an indefinite point at the NW end of Warren Island. **Borlase Rock,** with two rocky heads that uncover 3 feet and generally show as a breaker, is 0.7 mile W of Point Borlase. A group of rocks with a least depth of 2 fathoms is from 1.3 to 1.6 miles S of Borlase Rock and about 0.5 mile offshore. A 6½-fathom spot is about 0.4 mile NE of the N end of Warren Island. A large kelp patch with a depth of 3¾ fathoms is 500 yards off the NW shore of the island about 1.4 miles NE of Point Borlase.

(15) The two small coves in the NW coast of the island close E of Point Borlase offer protection for small craft in SE weather. Anchorage may be had in 4 fathoms, mud bottom.

(16) **Warren Cove** is on the E shore of Warren Island, about 2 miles from the S end. In entering, favor the S shore and give it a berth of at least 300 yards until inside the entrance, thereby avoiding a shoal covered 1½ fathoms that extends about 250 yards N from the S point at the entrance. A rock awash is 250 yards S of the N point at the entrance.

Between this rock and the shore is a bare rock. This area is usually kelp-marked. At low water a sand beach extends a considerable distance from the head of the cove. There is a small gravel beach just inside the entrance on the S side of the cove; the light color of it may often be distinguished at night.

(17) Anchorage may be had in 7 fathoms, sand bottom, in the center of Warren Cove. A heavy swell enters the cove during SE weather. At night, in the approach to the cove from the S, the entrance is not readily picked up, because the headland to the N shows prominently, while that to the S does not, and the entrance to False Cove is easily mistaken for that to Warren Cove.

(18) **False Cove,** the small bight 1.5 miles N of Warren Cove, affords anchorage in depths of 4 to 5 fathoms, sand bottom, behind the kelp-marked rocks awash that extend across the N half of the entrance.

(19) **Local magnetic distrubance.**–Differences of as much as 4° from normal variation have been observed in False Cove.

(20) **Warren Channel** leads between Warren Island and **Kosciusko Island** to the E. No outlying dangers were found in the channel proper, which has depths of 17 to more than 100 fathoms. Numerous islets and rocks above water extend about 2.8 miles S from the SW point of Kosciusko Island; **Black Rock,** the southernmost, is 50 feet high and pointed on top. **Cape Pole** is the W point of Kosciusko Island. In July 1975, a rock awash was reported S of Black Rock in about 55°52′00″N., 133°45′41″W.

(21) The tidal currents set N on the flood and S on the ebb. The currents have a velocity of 1.4 knots on the flood and 2.4 knots on the ebb. Heavy tide rips form NW of the entrance to Pole Anchorage.

(22) **Halibut Harbor,** on the S side of Kosciusko Island, E of its SW point, is protected by numerous islands and affords anchorage for small vessels in 16 fathoms. The entrance is foul, and only those with local knowledge should attempt to enter.

(23) **Coronation Island,** W of Warren Island, is triangular in shape, divided into three peninsulas by Windy Bay on the W side and Aats Bay on the N side, the heads of which are separated by a range 1 mile in the center of the island. From offshore, the NE peninsula shows heavily wooded ridges of moderate slopes, but without characteristics of interest to the navigator. The W and N sides of the island are described with Chatham Strait.

(24) The S end of Coronation Island appears from offshore to the W as timbered ridges with gentle slopes from **Needle Peak,** in the center of the island, to Helm Point, where they terminate in yellow and reddish cliffs. The summit of Needle Peak is not very definite and appears flat with a series of sharp knobs of a grayish color.

(25) **Windy Peak,** on the NW side of Windy Bay, is prominent. From the W and SW it shows as a cone marked by a large landslide. From the NW and S it shows as a flat-topped mountain with a small knob on the W end.

(26) **Pin Peak,** on the NW end of the island, is easily recognized as a long ridge covered with trees and shrubs. Near the S part of the ridge is a conspicuous knob or point. The ridge for several hundred feet below the summit is loose rock, without vegetation, and shows as light yellow from a W direction. The peak is not conspicuous from a N direction, because it shows against higher peaks to the S. From the summit the ridge has a rounding slope to the depression between it and Windy Peak. To the N the slope is gradual and drops in a long hollow or concave shoulder to a height of 900 feet, where there is an abrupt and noticeable change to a steep slope that ends at the shoreline.

(27) **Helm Point,** perhaps the most conspicuous and prominent headland in southeastern Alaska, is the S extremity of Coronation Island. Differing from most of the capes and points in this section, which have moderate slopes, it rises vertically in sheer weather-beaten cliffs to a height of 1,085 feet and ends abruptly in what appears to be flat tableland. The point is cut by numerous crevices and caves, one of which shows prominently from the S. Devoid of vegetation, of a light yellow to reddish color, barren and bleak, it is the nesting place of thousands of sea birds. Local conditions are such that it is generally visible in moderately thick weather when other sections are not visible. In approaching Helm Point in thick weather, the soundings give very little indication of shoaling or the existence of rocks. Two rocks, awash at half tide, and a reported 5-fathom shoal, are 1.4 miles 240°, and 0.4 mile SE, respectively, from Helm Point Light.

(28) **Helm Point Light** (55°49.6′N., 134°16.2′W.), 140 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the S extremity of a point about 0.4 mile ENE of Helm Point. This point has the appearance of a dome-shaped grassy islet that is prominent from NE and SW. The light marks the W side of the entrance to Sumner Strait.

(29) **China Cove,** just N of Helm Point Light, is an open bight into which a heavy swell enters in SE weather. The sandy bottom slopes gently, and anchorage may be had in 5 to 10 fathoms.

(30) From Helm Point to Cora Point, the coastline is marked by ledges and cliffs. Rocks extend about 600 yards offshore.

(31) **Cora Point** is the extremity of a projecting ledge at the NE end of Coronation Island. **Cora Island,** a small wooded islet about 0.7 mile S of Cora Point, is about 170 feet high and has a cluster of rocks close-to. A clump of trees on the island shows prominently from the direction of Helm Point. Small craft may find protected anchorage in SE weather behind the island, in 6 fathoms, mud and gravel bottom.

(32) The **Spanish Islands** are a chain of wooded islands and rocks that extend N from the NE extremity of Coronation Island in the direction of Cape Decision. At its NE end, the S large island has a wooded summit that shows prominently from the W. A small rocky islet with a scrub growth is 0.3 mile off the W shore.

(33) A submerged rock is about 1.6 miles WNW of the NW end of the southernmost of the Spanish Islands. During severe weather the seas pile up heavily. Rocks awash and submerged rocks extend up to 0.2 mile off the E side of the N island.

(34) A narrow 20-fathom channel separates Coronation Island and the S Spanish Island. The chart shows the dangers, and courses can be laid out as desired. Tide rips are usually very heavy in this channel.

(35) A channel 120 yards wide with depths of 8 to 12 fathoms is between the S large Spanish Island and the small islet off its N end. Between this small islet and the small islet to the NE of it is a narrow channel with depths of 8 to 9 fathoms. Small craft sometimes anchor in 8 to 14 fathoms in the bight formed by these islets and the middle island.

(36) The middle island has an elevation of 370 feet near its N end, with a moderate slope to the S. From offshore it appears as a flat ridge. A rocky islet, 35 feet high, is 0.3 mile off the E side of the island near its S end. Broken ground and submerged rocks are between this islet and the middle island.

(37) **Spanish Islands Light** (55°59.2′N., 134°06.3′W.), 38 feet above the water, is shown from a skeleton tower with a

red and white diamond-shaped daymark on the N extremity of the northernmost of the Spanish Islands. The light marks the SE side of Decision Passage.

(38) **Cape Decision,** the S extremity of Kuiu Island, is a low, bare, rocky point, from which the land rises gradually to an irregular, timbered ridge. It stands out well when approached from a direction to pass through the passage between it and the Spanish Islands. Avoid the large kelp patches 1.5 and 2 miles NW from the cape and about 0.8 mile off the Kuiu Island shore.

(39) **Cape Decision Light** (56°00.1'N., 134°08.2'W.), 96 feet above the water, is shown from a white square tower on a white square building at the S end of the cape. A fog signal and radiobeacon are at the light.

(40) **Decision Passage,** 1 mile wide between Cape Decision and the Spanish Islands, is used by large vessels bound from Sumner Strait to Chatham Strait or Cape Ommaney. The passage is clear; however, the cape and the islands should be given a berth of not less than 0.2 mile. Vessels rounding the cape are cautioned to give this area sufficient berth.

(41) The large body of water to the W of the Spanish Islands and to the N of Coronation Island has been closely surveyed, and all dangers found are shown on the chart. After prolonged severe gales, very heavy breakers have been seen on spots where the shoalest water was found.

(42) **Charts 17360, 17386, 17402.**–This section covers the W side of Sumner Strait from Cape Decision to the S entrance to **Keku Strait.** From Iphigenia Bay to Strait Island, Sumner Strait follows a N direction, and at Strait Island it turns E to its junction with Stikine Strait near the town of Wrangell.

(43) The W side of Sumner Strait between Cape Decision and Keku Strait is indented with many inlets and bays, and has many islets, rocks, and reefs that extend from 1 to 2 miles off the main shore into the strait. Lighted buoys mark the outermost dangers.

(44) **Fairway Island** (56°02.4' N., 134°03.1'W.), small and wooded, is on the W side of the S end of Sumner Strait about 3.6 miles NE of Cape Decision Light. It is surrounded by kelp, rocks, and reefs, bare at various stages of tide. Two rocks with 6- and 7-foot heights are 0.5 mile S of the island and nearby is another rock that uncovers 10 feet.

(45) **Port McArthur** is about 4.5 miles N of Cape Decision. It is protected at the entrance by a group of islands and reefs, and it affords anchorage that is not secure because large swells run to the head of the bay. For small craft the most secure anchorage is in 4 fathoms behind South Island. In bad weather the landing can be made behind the island, from where an emergency trail leads to Cape Decision Light. In 1968, this trail was reported poorly maintained and difficult to follow. The entrance to Port McArthur leads N and W of North Island and has a clear width of 300 yards between the kelp patches. Freshwater can be had from small streams at the head of the harbor.

(46) **North Island** and **South Island,** at the entrance to Port McArthur, are low and wooded, with surrounding ledges; they are about 0.5 mile apart N and S. Between them is a rocky islet and numerous rocks awash and ledges surrounded by kelp. The passages S of South Island, and between South and North Islands, are shoal and rocky and should not be attempted without local knowledge.

(47) Two large kelp patches are about 0.4 mile and 0.5 mile E and ESE, respectively, from North Island. The S patch has a least depth of 1½ fathoms, and the N patch has a least depth of 3 fathoms.

(48) Kelp patches and an area of foul ground extend to the W and N of North Island for a distance of 0.3 mile. When entering Port McArthur, give this area a good berth.

(49) **Lemon Point,** on the opposite side of the entrance channel, is low and has several bare rocks off it. On the SE and S sides kelp extends a short distance out, and the point should be given a berth of 400 yards in rounding into the port. A rock, covered at half tide, 0.4 mile ENE of the outer bare rock off Lemon Point, is marked by **Lemon Point Rock Light** (56°04.4'N., 134°06.7'W.), 26 feet above the water and shown from a small house on a pier, with a red triangular daymark on a skeleton tower. The rock is surrounded by kelp and is the only serious danger on the W side of the channel.

(50) To enter Port McArthur, pass N and W of North Island and SE of Lemon Point Rock Light. When the outer rock off Lemon Point is abeam, round the point and keep in midchannel to the anchorage.

(51) The shores of Port McArthur are steep-to; the 5-fathom curve is less than 200 yards off the high water line except at the head of the bay. Anchorage depths are about 16 fathoms with the exception of S of Lemon Point where there is a depth of 12 fathoms.

(52) **Affleck Canal,** the entrance to which is W of Point St. Albans and NW of Fairway Island, is 14 miles long in a N direction. The depths in general are great but very irregular, especially near the shores and at the head of the canal.

(53) **Marble Islet,** named from its formation, marks the W point of the entrance to Affleck Canal. Near it are several small islets.

(54) **Bush Islets,** on the S side of the entrance to Kell Bay, are three in number, and from 10 to 12 feet high. The two N islets are sparsely wooded. The area to the W is foul and covered with thick kelp during the summer.

(55) A dangerous rock, covered 1 fathom, is in Affleck Canal, 1,300 yards 151° from the center of Bush Islets. From this rock a kelp patch extends in a NW direction for about 250 yards.

(56) **Kell Bay** is about 7 miles N of Fairway Island on the W side of Affleck Canal. One mile inside the entrance and about 500 yards off the S shore is a wooded islet 10 feet high; deep water exists between this islet and the S shore of the bay. An area of foul water, marked by thick kelp in the summer, extends for a distance of about 0.4 mile NW from the N end of the islet. Within this area are several rocks and islets, bare from 3 to 15 feet at high water, and, in addition, there are rocks with 2 to 9 feet over them at low water. The N shore of the bay is very broken, with numerous indentations, wooded islets, and rocks.

(57) At the head of the bay are two arms that extend in a NW and SW direction. The NW arm is about 1.5 miles long. Two wooded islands and numerous rocks mark the S side of the entrance. Vessels entering this arm should proceed with caution, favoring the N shore until abreast the largest wooded islet, and then favor the S shore in order to avoid the rocks awash and bare 8 feet at low water, near the N shore. The entrance to the extreme head of the arm is blocked by obstructions that do not permit entry of even small vessels at low tides.

(58) The SW arm is separated from the main body of Kell Bay by three wooded islands. To enter, pass midchannel between the islands and the SW shore, follow the SW shore at a distance of 150 yards until the S point of the W island has passed abeam. Then stand in midchannel, taking care to round the S side of the island at a distance of 200 yards so as to avoid the ledge that extends about 150 yards offshore. Anchorage may be had in 9 to 12 fathoms, soft bottom.

(59) The basin at the head of the SW arm affords excellent anchorage for small craft in depths of 4 to 5 fathoms, soft bottom. The entrance is constricted, being only 30 to 35 yards wide, and vessels entering are advised to proceed with caution keeping close to the W shore, which is abrupt and steep-to.

(60) Affleck Canal is clear E of the small wooded islet, about 10 feet in elevation, about 1 mile N of Kell Bay. There are several rocks in the immediate vicinity of this islet. A lagoon, connected with Affleck Canal at high water, is on the W shore about 2 miles N of Kell Bay.

(61) **Bear Harbor** is on the W side of Affleck Canal, about 4 miles N of Kell Bay. From the entrance to its head, it is about 2 miles long in a NW direction. The harbor has three arms; the E is deep and open to the S; the middle and W arms are sheltered and afford suitable anchorage for small vessels. The approach to these two arms is S of the island at the entrance. The deepest part of the channel, about 5¼ fathoms, is 100 yards off the shore of the island. Favor the shore of this island in entering and navigate with caution. After the E tip of the island is passed abeam by 100 yards, a midchannel course will lead over a ½-fathom spot marked by kelp. This spot is the end of a reef making out from the S shore.

(62) After the entrance is passed, midchannel courses lead into the W arm that is deep except along the S shore near the head.

(63) A midchannel course is followed in the middle arm until about 1 mile from the entrance when the E shore is followed at a distance of about 200 yards. This arm is deep to within 0.5 mile of its head where it shoals gradually to the tidal flats off the mouth of the principal streams that empty into Bear Harbor.

(64) On the W shore of Affleck Canal, about 3 miles N of Bear Harbor, is a grass-topped islet, about 5 feet high. A depth of about 10 fathoms can be carried to about 1 mile S of the head of the canal by favoring the W shore at all times in order to avoid the extensive kelp patches and shoals in the E side. About 1 mile S of the head of the canal, the E shore is foul and studded with rocks; the foul area extends from 300 to 400 yards offshore.

(65) The two main inlets on the E side of Affleck Canal are not recommended as shelter; the heavy ground swell runs into both, well toward their heads. The entrances of both are free of obstructions. The S inlet, which is about 500 yards long, is about 5.5 miles N of the E entrance point of Affleck Canal. Inside are depths of 5 to 7 fathoms, soft bottom. A group of rocks that bare 7 feet and are surrounded by kelp are about 0.7 mile 232° from the S entrance point of this inlet.

(66) The N inlet about 1 mile further N has an entrance about 350 yards in width, and extends E for about 0.8 mile. Its center has depths of 9 to 12 fathoms. Vessels desiring to enter this inlet should favor the N shore, as a rock that bares 6 feet is about 340 yards inside the entrance and about 70 yards off the S shore.

(67) **Point St. Albans** is about 7.5 miles NE of Cape Decision. Rocks and heavy kelp extend 1.1 miles S, and a 3-fathom spot is 1.8 miles S of the point; heavy tide rips and swirls may be experienced off this extensive kelp patch. Offlying rocks and reefs extend to a distance of 0.3 mile offshore along the E shore of Affleck Canal to the point opposite Marble Islet.

(68) **Point St. Albans Reef** is an extensive foul area, about 1.6 miles ENE of Point St. Albans. The highest part of this area is a rock awash at high water, in the NW part of the kelp patch. Numerous other rocks bare at various stages of the tide. A lighted bell buoy, off the end of the reef, also marks a 6½-fathom shoal. Vessels should pass to the E of the buoy.

(69) From Point St. Albans to **Point Amelius,** about 7.5 miles to the N, islands and reefs extend offshore to a distance of 1.5 miles. This section of the coast is foul and marked by kelp. A rock awash at low water is in the kelp patch about 2.8 miles NE of Point St. Albans. There are passages between and inside the group of islets located 4 miles N of Point St. Albans. This area is foul, with numerous rocks and kelp patches, and only those with local knowledge should enter. Small vessels may find shelter in the two small bays 3 miles and 4.5 miles N of Point St. Albans. The bays are exposed to the E, and there are shoals off the approaches.

(70) **Amelius Island Shoal,** a rocky shoal with a least depth of 4¼ fathoms, is about 1.8 miles ESE of **Amelius Island,** the outermost islet off Point Amelius. A lighted buoy is on the E side of the shoal. Deep-draft vessels should avoid passing close to the buoy.

(71) The bight W of Point Amelius is exposed to the SE and is used only as a temporary anchorage. **Louise Cove,** on its W side near the head, affords anchorage for small vessels in 3½ fathoms.

(72) An isolated 3¼-fathom shoal is about 2.5 miles N of Amelius Island and about 0.3 mile offshore.

(73) **Port Beauclerc** is a large arm on the W side of Sumner Strait, the entrance to which is about 11 miles N of Point St. Albans and 10 miles WSW of Point Baker. **Beauclerc Island,** small and wooded, is off the middle of the entrance, with a wooded islet close N of it.

(74) **Beauclerc Island Light** (56°15.4′N., 133°51.3′W.), 30 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a rock on the E side of the island. A reef extends 300 yards E from the small wooded islet.

(75) The narrow passage S of **Edwards Island** is clear and deep in midchannel. The E shore of the cove, NW of Edwards Island, is formed by a small island with a very small islet off its N end. The entrance to the cove is N of the islet.

(76) There is anchorage, exposed to the S, in the bight on the E shore, 3 miles from the entrance to Port Beauclerc.

(77) Anchorage in Port Beauclerc may be had N of the small island that is about 1.4 miles N of Edwards Island, but the anchorage is obstructed by a large kelp patch, with a depth of 3 fathoms and possibly less, which is 0.7 mile N from the small island. Good anchorage may be found S of Edwards Island in 20 fathoms, sand bottom; enter from the E in midchannel on a course of **278°.** Small-boat anchorage is available in the small cove W of the charted rock awash on the S side of this island, or in the cove on the Kuiu Island side S of the E end of Edwards Island.

(78) Anchorage may also be had in the S arm in 4 or 6 fathoms, mud bottom. Enter by the narrow passage S of Edwards Island and slightly favor the E shore of the arm to avoid a sunken rock, marked by kelp, 1 mile W of the W end of the narrow passage S of Edwards Island. On the E shore of the arm, 1 mile SE from the narrow passage, is a point close to a 3½-fathom spot.

(79) **Caution.**–Where local knowledge is lacking, caution is advised in entering Port Beauclerc.

(80) **Boulder Point,** about 4 miles N from Beauclerc Island, is a bold rounding point with numerous rocks close-to.

(81) **Reid Bay** is on the W side of Sumner Strait, 3 miles N of Boulder Point. It has two islets and several outlying rocks along its NW shore and rocks awash S of the islets in midchannel. Small craft may anchor in the cove on the W side of the peninsula point at the S side of the entrance to the bay in 5 to 6 fathoms, mud bottom. There are dangers

off the points at the entrance to this cove, and it should be entered with caution. A kelp-marked reef with rocks awash is 1.8 miles WSW from the S end of Sumner Island.

(82) **Sumner Island** is 4.3 miles NNE of Boulder Point. It has steep, rocky shores and is surrounded by small rocky islets that extend NW to Kuiu Island and SE from the SE point of the island for about 0.5 mile. Several reefs extend a short distance off the NE shore of the island and should be approached with caution.

(83) **Alvin Bay,** NW of Sumner Island, is clear of dangers except for a depth of 1¼ fathoms in the center near where it starts to narrow. At this point a small islet is on the S side of the bay with a rock between it and the S shore; there are also rocks N of the islet.

(84) To enter, pass N of the islet leaving the detached rocks on the starboard side. Good anchorage may be had inside in 4¼ fathoms, mud bottom. With caution, this entrance can be made easily. The bay is used extensively for anchorage during the fishing season.

(85) **Strait Island** is in the middle of Sumner Strait 3 miles NW of Point Baker. It is divided into two parts at high water, and is low and wooded. **Mariposa Reef,** which partly bares, extends about 0.8 mile S from the island. A lighted bell buoy is about 250 yards off the S end of the reef.

(86) A rock that uncovers at low water is 0.3 mile WNW of the NW tip of Strait Island; it is not marked by kelp, and there are strong currents around it. A shoal covered 2¼ fathoms is 0.35 mile S of this rock, and another shoal area, covered 2¾ fathoms, is about 0.2 mile WSW of the rock.

(87) **Charts 17360, 17402.–Warren Channel** to **Point Baker** covers the E shore of Sumner Strait below Strait Island. Shipley Bay, Shakan Bay, Shakan Strait, and Port Protection are the important harbors in this section. The coast is bold and rugged with many off-lying rocks and islets. Calder Rocks and Helm Rock are the principal offshore dangers.

(88) **Pole Anchorage,** on the E side of the S end of Sumner Strait, affords an anchorage for small vessels, protected from NE and SE winds; it is exposed to W winds and swells. The SW point of the entrance is a large mass of grassy-topped rocks, about 10 feet high, that extend about 0.6 mile N of **Cape Pole;** the passage between them and the cape has many bare rocks and almost dries. There is considerable kelp for some distance N of the grassy-topped rocks. The N point at the entrance is a wooded islet close to shore; kelp extends some distance NW of it, also about 100 yards W.

(89) Anchorage can be had in 10 to 11 fathoms, mud bottom, with the N end of Warren Island showing about midway between Cape Pole and the grassy-topped rocks. Small fishing vessels may find suitable anchorage SE of Cape Pole, E of a large kelp patch, in any desired depth.

(90) **Fishermans Harbor,** a bight NE of Pole Anchorage, is used extensively by small fishing craft. **Cape Pole** is a settlement at the E side of the harbor. A 60-foot small-craft and seaplane float is operated by a logging camp on the E side of the harbor. In 1976, the reported depth alongside was 18 feet. A T-shaped wharf is on the SW side of the harbor opposite the small-craft and seaplane float. In June 1983, the T-shaped wharf was reported not in use. S of the small-craft and seaplane float are groups of piling used for log storage. Gasoline, water, limited provisions, and a small machine shop are available in an emergency only. A freight boat from Ketchikan visits weekly, and radiotelephone communications are maintained.

(91) **Fishermans Harbor Light** (55°58.0'N., 133°47.7'W.), 17 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the edge of a reef on the SE side of the harbor. A daybeacon is on a reef on the E side of the entrance to the harbor.

(92) To enter Fishermans Harbor at the S end, **steer 149°** heading for Fishermans Harbor Light, being careful to avoid the reefs and a submerged pile on the NE side of the channel in about 55°58'21"N., 133°47'54"W., then haul gradually S, heading for the W side of the float on the E side of the harbor. When abreast of the float, anchor in any desired depth. The channel has a controlling depth of 2½ fathoms about 0.3 mile NW of the light, but deepens gradually when approaching the float.

(93) **Point Hardscrabble,** about 2.2 miles NE of Cape Pole, is not very prominent. Two small islets are about 600 yards W of the point. There are depths of from 4½ to 11 fathoms between the extensive kelp patches that are between the islets and the point. A small cove, 5.5 miles NNE of Cape Pole, affords protection from S weather for small vessels, but is open to N.

(94) **Charts 17386, 17387.–Ruins Point** (56°04.0'N., 133°42.0'W.), 8 miles NNE of Cape Pole (chart 17402), is on the S side of the entrance to Shipley Bay. The point is poorly defined and has no prominent features. **Finger Shoal** and other foul ground extend about 0.5 mile from the shore in the vicinity.

(95) **Shipley Bay,** entered about 2 miles NE of Ruins Point, has good anchorage available at the head. **Bluff Island,** 200 feet high and wooded, is in the middle of the entrance. The vertical E face is a rookery for sea birds; the W side has gradual slopes. Islets and rocks extend about 0.4 mile from the W extremity of the island.

(96) The S approach to Shipley Bay extends between the S tip of Bluff Island and a tiny islet 0.5 mile N of the S shore. The area between the islet and the S shore is mostly foul, and passage should not be attempted except by small craft with local knowledge. A rock awash at minus tides is 1 mile SE of the S tip of Bluff Island; navigable water extends on all sides of this rock that is surrounded by thick kelp and is easily distinguishable at all stages of tide during summer. From a small wooded islet on the N side of the entrance, foul ground extends for about 0.7 mile SE. This constricts the passage to a width of only about 0.5 mile along the S shore. E of this point, however, the bay is generally clear, although the depths are irregular and there are several rocks 100 to 200 yards off the S shore.

(97) About 4 miles from the entrance, the bay is constricted by a promontory jutting out from the S shore. A small wooded islet surrounded by foul ground is off the point. W of the point is a large bight in which are two islands. Anchorage in 3 to 10 fathoms is available in the bight W of the islands; poor holding ground. Winds are reported to draw with great force through the gap to the S during SE storms.

(98) The best anchorage is near the S shore at the head of the bay, just E of the point 1 mile from the head of the bay, in depths of 15 fathoms, mud bottom, and good holding ground. A small cove just W of the point is suitable for small craft; depths are 3 to 5 fathoms, mud and sand bottom.

(99) Shipley Bay may be entered safely from either side of Bluff Island.

(100) **Shakan Bay** is on the E side of Sumner Strait about 6 miles NNE of Ruins Point. The bay, including Shakan Strait, is circular in shape. Its entrance is between Shakan Island on the S and the Barrier Islands on the N. The center of the bay is almost filled with islands. At the E extremity of Shakan Strait, the bay connects with El Capitan Passage.

(101) The N shore of the bay is foul for about 1.5 miles offshore and should be avoided. The E part of the outer bay is extremely foul.

(102) **The Nipples,** 1 mile SE of Shakan Strait, and Mount Calder, N of the bay and 2 miles NE of Barrier Islands, are good landmarks for the bay.

(103) **Station Island,** off the S point at the entrance, is marked by **Shakan Bay Light** (56°08.9'N., 133°37.5'W.), 25 feet above the water and shown from a small house with a red and white diamond-shaped daymark on a brown skeleton tower on the N side of the island. There are submerged rocks and rocks awash between Station Island and Shakan Island, which is close W.

(104) **Shakan Island,** 0.3 mile W of Station Island, is about 18 feet high and is covered by scrubby trees. A rock awash and a 3-fathom shoal are about 0.2 mile and 1.2 miles, NNW and SW, respectively, of Shakan Island. The area S of the islet and E of the 3-fathom shoal has several detached rocks, all marked by kelp, and other dangers. The chart is the best guide.

(105) **Shakan Strait,** comprising the S part of Shakan Bay, is about 4.6 miles long, averages 0.4 mile in width, and is semicircular in shape. It affords a clear and safe route to El Capitan Passage. The W entrance, marked by a daybeacon on an islet off the SW end of Hamilton Island, is 0.3 mile wide, but between the 5-fathom curves is constricted to about half that, by reefs on both sides. About midway of its length is a 5¼-fathom rocky shoal in midchannel about 0.2 mile E of the daybeacon marking the SE end of Hamilton Island. Off-lying dangers are few, and none is more than 200 yards offshore. A log storage area is along the E shore, 0.5 mile S of the entrance to El Capitan Passage.

(106) **Hamilton Island, Middle Island, Divide Island,** and **Fontaine Island** are heavily wooded islands in the center of Shakan Bay. Of the several passages between and around them, Shakan Strait is the principal one; the others are used only by small craft with local knowledge.

(107) **Mount Calder,** a sharp conical peak projecting above the dark timbered slopes, is an outstanding landmark. Easily identified by its light-gray color, it can be seen from the entrance to Sumner Strait in clear weather.

(108) **Calder Bay** is on the N side of Shakan Bay N of Middle Island. Depths shoal gradually from about 9 fathoms at its entrance to the tidal flat about 0.6 mile from the entrance.

(109) **Local magnetic disturbance.**–Differences of as much as 6° from the normal variation may be expected in Shakan Strait.

(110) Enter Shakan Bay with Beauclerc Island Light (chart 17360) astern and Shakan Bay Light a little on the starboard bow.

(111) In entering Shakan Strait, favor the N point slightly. When 1.2 miles inside the entrance to the strait, favor the N shore slightly, otherwise follow a midchannel course to the anchorage, about 0.8 mile SSW of the entrance to El Capitan Passage, a distance of 4 miles. Anchor about 0.3 mile offshore in 7 to 9 fathoms, mud bottom.

(112) At night, deep shadows make it difficult to distinguish the entrance to the channel between Hamilton Island and Kosciusko Island. The channel between Divide Island and Middle Island is used by small craft.

(113) **Barrier Islands,** on the N side at the entrance to Shakan Bay, are two islands with numerous rocks and islets around and between them. Both islands are almost level and wooded. A reef extends about 0.7 mile S from the S point of the W island. A rock with 2 ½ fathoms over it, about 0.7 mile W from that point, is marked on the W side by a lighted bell buoy.

(114) **Calder Rocks** are dangerous kelp-marked reefs off the E shore of Sumner Strait, the southernmost point that is about 2 miles NW of the Barrier Islands. From this southernmost point, which bares 3 feet, the reefs extend 1.2 miles in a N direction with little depths over them and with deep water close-to. A lighted whistle buoy is close W of the N end. There is good passage on each side of Calder Rocks; the E one is generally used by small craft, and the W one is used by larger vessels.

(115) **Chart 17378.–Hole in the Wall** (56°15.7'N., 133°38.5'W.) is a small cove on the E side of Sumner Strait, E of Calder Rocks and 2.5 miles N of Barrier Islands (chart 17387). The entrance is through a very narrow passage 0.5 mile long, between high bluffs, and opens into a basin 400 yards in diameter. Two rocks that bare are in the narrow entrance. Depths in the basin are from ½ to 7 fathoms; it may be used for anchorage, but is subject to strong winds drawing through the entrance. The bottom is sand and mud. Small craft pass through the narrow entrance only at half tide or higher water.

(116) **Labouchere Bay** is about 1.8 miles N of the entrance to Hole in the Wall and about 4 miles S of Point Baker. It is studded with islets and rocks, the entrance being partially closed by Labouchere Island and the islands and reefs that extend SE of it to the shore.

(117) There is sheltered anchorage for small vessels just inside the bay on the S side in about 56°17.2'N., 133°39.0'W., in depths of 3 to 21 fathoms, mud and sand bottom. Three detached rocks that cover at half tide are near the head of the anchorage. Small fishing craft anchor SE of the rocks and near the sand beach in 2 to 5 fathoms. The recommended entrance to Labouchere Bay is from the NW. Small fishing vessels may enter Labouchere Bay from the S on a N course, through a channel passing E of the kelp-marked submerged reef at the entrance, 0.5 mile SE of Labouchere Island, and avoiding the large kelp beds on their right.

(118) In 1976, a logging camp was at the cove about 1.7 miles ENE of Labouchere Island. There are a small-craft float, a seaplane float, and log storage in the cove. Water and gasoline are available in an emergency only. A road connects Labouchere Bay with Port Protection. The logging camp maintains radiotelephone communications with the Alaska Loggers Association in Ketchikan.

(119) **Protection Head,** a bold white bluff, 1 mile N of Labouchere Island, is an outstanding landmark visible from the S for many miles.

(120) **Port Protection** has its entrance 1.5 miles S of **Point Baker,** the NW extremity of Prince of Wales Island, and 1.5 miles N of Protection Head. The entrance is marked by **Port Protection Light** (56°19.6'N., 133°36.7'W.), 19 feet above the water, shown from a pile with a red and white diamond-shaped daymark on the NE end of the wooded island at the SW side of Wooden Wheel Cove, 1 mile inside the entrance, and by a daybeacon on a detached reef, 0.3 mile off the N shore. A ship may enter Port Protection on either side of the daybeacon while being careful to pass the reef at a safe distance. There is good anchorage for large craft 1.8 miles in from the daybeacon and SW of the chain of small wooded islands in the upper half of the bay, in 6 to 18 fathoms, mud and sand bottom. A more sheltered anchorage may be had E of the chain of islands.

(121) To reach the second anchorage, proceed from the first on an ENE course, keeping the two N of the small wooded islands to the NW. Pass close to the tangent of the larger island on the right. Depths in the passage between the islands are 6 to 11 fathoms. Good anchorage in 10 fathoms, mud bottom, is directly ahead and about halfway between

the island passed on the right and the E shore of the bay. This is the best shelter in the bay, affording protection in all weather. Small vessels may find anchorage in 5 to 8 fathoms a little farther in.

(122) The shores of Port Protection are usually fringed with kelp, and the soundings, though deep, are irregular and the bottom rocky. Log raft mooring facilities are along the SW shore about 1.2 miles S of Port Protection Light.

(123) **Port Protection** is a small settlement on the NE side of the port in **Wooden Wheel Cove** and S of Port Protection Light. Along the beach are some homes and an abandoned shrimp cannery. A 250-foot State-maintained small-craft float is anchored on the W side of the cove with 4 to 8 fathoms reported alongside in June 1976. Water is available. Radiotelephone communications are maintained.

(124) **Joe Mace Island** is on the N side of the entrance to Port Protection. **West Rock,** in a cluster of dry rocks and rocks on a reef, is about 300 yards N of Joe Mace Island. The rock is marked by **West Rock Light** (56°21.2'N., 133°38.2'W.), 20 feet above the water, and shown from a skeleton tower with a red and white diamond-shaped daymark.

(125) **Point Baker** is a settlement with two general stores on the inner bay E of Point Baker and about 0.4 mile S of Point Baker Light. Gasoline, provisions, water, diesel fuel, and fishing supplies can be had at the stores. A State-maintained 391-foot small-craft float with a seaplane float at its end is at Point Baker. In June 1976, depths of 10 to 12 feet were reported alongside. A 45-foot grid is in the mudflats about 60 yards NNW of the float. During the fishing season, a fish-buying scow usually moors at Point Baker. Provisions, fishing supplies, gasoline, diesel fuel, and water are available from the scow. The settlement maintains radiotelephone communications. A freight boat visits weekly from Ketchikan, and charter seaplanes are available from Ketchikan.

(126) The shores of the bay are steep-to and lined with thick kelp. The midchannel passage, with a controlling depth of 2½ fathoms, leads to the float. The inner bay is restricted by several submerged off-lying dangers and is not recommended as an anchorage. This port is used extensively during the fishing season.

(127) **Point Baker Light** (56°21.5'N., 133°37.0'W.), 20 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the NW end of the outer island on the E side of the entrance to Point Baker anchorage. **Point Baker Anchorage Daybeacon** is on the E side of the passage about 0.2 mile S of the light. A narrow constricted passage, which extends from the head of Point Baker Harbor into Port Protection, is used considerably by very small craft drawing up to 3 feet at half tide or higher.

(128) **Helm Rock,** covered 2½ fathoms, is about 0.75 mile NNW of West Rock Light and on a line between the S point of Strait Island and Point Baker and 0.8 mile from the latter. A lighted buoy is about 0.2 mile N of the rock. There are usually heavy tide rips and swirls around it. A rocky shoal with 3 fathoms over it is 700 yards NNE of Point Baker. The usual course is midchannel between Point Baker and Strait Island. Small craft frequently pass between Point Baker and Helm Rock to avoid the current and swirls around the rock.

(129) **Merrifield Bay,** 1 mile E of Point Baker, is good anchorage for small vessels in 8 to 10 fathoms, mud bottom, but is open to the N. On the W side at the entrance are several bare rocks, and a little W of the entrance about 0.55 mile E of Point Baker Light is **East Rock,** a large rock, awash at highest tides.

(130) **Charts 17360, 17368.–Keku Strait** connects Summer Strait with Frederick Sound and separates Kuiu Island from Kupreanof Island. The strait consists of three parts: a large bay at the S and N ends, and a narrow, intricate passage, about 18 miles long, known as Rocky Pass, that connects the two bays. The following description covers the S bay and Rocky Pass. The N part is described with Frederick Sound, chapter 8.

(131) The bay forming the S entrance to the strait is very foul, particularly the E and NE shore. Navigation through any part of the bay should be with caution. The entrance to the bay is between Sumner Island and Point Barrie.

(132) In the S bay, anchorage can be had about 300 yards off the E shore, E of Meadow Island. Anchorage can also be had in Threemile Arm, or in the NE part of the bay, E of the entrance to Rocky Pass.

(133) **Point Barrie** forms the E point at the S entrance to Keku Strait. Reefs and shoals extend from 0.5 to 1 mile off the point. **Barrie Island,** 0.9 mile SE of the point, is a wooded island making a good mark for entering Keku Strait from the E. Foul ground extends from the island to the shore.

(134) W and NW of Point Barrie are numerous off-lying rocks, reefs, and islets. **Trouble Island,** 2 miles NNW of Point Barrie, is a prominent wooded islet at the outside edge of the foul area. Small craft with local knowledge can follow an irregular passage through this area, but this should not be attempted when the extensive kelp beds are not showing.

(135) **Conclusion Island** is the large densely wooded island about 4.5 miles WNW of Point Barrie and 3 miles N of Sumner Island; it has several peaks and is generally steep-to.

(136) **No Name Bay,** about 3 miles W of Conclusion Island, is constricted at its head by several wooded islets. Near the head is anchorage suitable for small craft.

(137) **Seclusion Harbor** is a small inlet about 3.5 miles NNW of the W end of Conclusion Island. A chain of islands is E of its entrance.

(138) **Threemile Arm,** N of Seclusion Harbor, makes off to the W at the NW end of the bay. Its entrance is obstructed by rocks. By proceeding with care, vessels can enter passing NE of the islet in the middle of the entrance, and find good protected anchorage in the middle of the arm in 5 to 8 fathoms, soft bottom.

(139) In 1974, a survey revealed a rock awash in the middle of the arm in 56°35'45"N., 133°50'10"W.

(140) **Meadow Island** is a low, wooded island in the E part of the bay, 4 miles N of Point Barrie. The island is used as a fox farm. Foul ground extends 300 yards S and 0.6 mile N of the island.

(141) **Chart 17372.–Skiff Island** (56°31.1'N., 133°41.0'W.), on the E side of the bay at the S end of Keku Strait, is low and wooded and is surrounded by rocks and reefs. A small-boat passage is E of the island.

(142) About 1.1 miles WNW of Skiff Island is a small, wooded island, divided at high water. The cut is quite prominent from E and W. The S point of the island is a bold, light-colored cliff, easily identified.

(143) **Monte Carlo Island,** near the center of the bay, is a relatively large, low, wooded islet, 2.5 miles SSW of the entrance to Rocky Pass. It is surrounded by foul ground, particularly to the S, E, and N. Clear of the foul ground to the N, is a passage leading to the W that affords indifferent anchorage in 6 to 7 fathoms, sticky bottom. The small cove on the N side of the island affords anchorage for small craft, but the entrance is difficult because of the numerous rocks and reefs.

(144) **Rocky Pass** has its S entrance about 8 miles N of Point Barrie.

(145) A Federal project provides for a channel dredged to a depth of 5 feet through Devils Elbow and The Summit, the shallowest parts of the pass.

(146) The pass is used by fishing vessels, cannery tenders, and tugs with log rafts. The draft which can be carried through depends on the tide. It is reported that 12 feet can be carried through 40 percent of the time, with a resultant saving of from 30 to 80 miles. Because of strong currents, narrow channel, and sharp turns, it is advisable to make passage at or near high-water slack.

(147) The depths through Rocky Pass are generally shallow, and small craft can anchor practically anywhere with the aid of the chart. Larger craft can enter the S end of the pass for a distance of 2 miles until opposite **Tunehean Creek** and select anchorage according to draft, either to N or S of the midchannel reef off the mouth of the creek. At the N end of Rocky Pass, larger craft can anchor in Big John Bay, Stedman Cove, or in the channel as far S as 1 mile below High Island.

(148) **Devils Elbow,** about 14 miles N of Point Barrie, is the most dangerous part of the pass. The channel here makes a full right-angle turn. It had a controlling depth of 5 feet in 1977.

(149) **Local magnetic disturbance.**–Differences of as much as 3° from the normal variation have been observed in the Devils Elbow in the vicinity of 50°38′N., 133°41′W.

(150) **Beck Island** is a small island in the center of the pass about 6.5 miles N of the S entrance and about 0.7 mile S of Summit Island. S of Beck Island is **Brown Bear Head Island** with off-lying rocks awash to the S.

(151) **Summit Island,** a relatively large island about halfway through the pass, is at the S end of the most constricted part of the pass, known as The Summit. The island is low and wooded to the high-water mark, with large tide flats about the N and E sides.

(152) **The Summit** is the narrow passage, W and NW of Summit Island, through which a channel has been dredged. The channel had a controlling depth of 5 feet in 1977. Passage through The Summit should be attempted only with local knowledge.

(153) **Local magnetic disturbance.**–Differences of as much as 4° from normal variation have been observed in Keku Strait, N of The Summit, in the vicinity of 56°42′N., 133°44′W.

(154) **High Island,** about 10.5 miles N of Keku Strait S entrance and 1.8 miles S of Beacon Island, is the largest island in Keku Strait. The W arm of the island has a conspicuous conical peak. Boats awaiting the tide often are off the NW point of this part of the island. Just S of the point are several clusters of mooring piles close-in along the shore, and anchorage in 12 to 18 feet can be secured just NW of the point.

(155) **Beacon Island** marks the turn in the general direction of the pass from N to W. A low-water rocky ledge extends all around the island to the extent of 125 yards E of the island and 200 yards SW of the island.

(156) Passage E of Beacon Island leads into **Big John Bay,** a large bay that extends N and E of Horseshoe Island. Fishing vessels often anchor in the SE arm of Big John Bay in 18 to 24 feet, soft bottom. This anchorage is protected from all directions except NW. The N part of Big John Bay is considered good game country. Entering from the W the channel leads N of Horseshoe Island and between the larger two of the islands W of Horseshoe Island.

(157) **Berry Island,** SW of Horseshoe Island and about 1.2 miles WNW of Beacon Island, is small but quite prominent in the vicinity; the vegetation has a rather distinct shade. The island is on the SW part of a reef that extends about 0.3 mile NE. This reef, which covers at half tide, should be given a wide berth.

(158) **Stedman Cove,** the deep bight in the SW shore of **Horseshoe Island,** affords the best anchorage in the vicinity for small craft; it is well protected from almost every direction, particularly from SE and from N to NW. It is a convenient place to await favorable tidal conditions before proceeding S through the pass.

(159) When entering the cove, care should be taken to avoid the long sandspit that extends about two-thirds the distance across the entrance from the E shore. The point of this spit is usually marked by a pole. Continue beyond the second point along the E shore and anchor in 12 to 18 feet in the inner cove.

(160) **Entrance Island,** a long narrow island marking the N entrance to Rocky Pass, is low and wooded to the high-water line. A low-water ledge extends 225 yards off the S shore of the island. Strong tidal currents run around the N end of Entrance Island, and this area is not very favorable for use as an anchorage. Even the head of the bight NE of Entrance Island is a poor anchorage area, being too exposed.

(161) **Tides.**–The range of tide at The Summit is about the same as at Ketchikan, but the time of tide occurs about ½ hour later than at Ketchikan. In the S and N bays of Keku Strait, the range of tide is about 0.8 of that at Ketchikan, and the time of tide is about the same as at Ketchikan. When proceeding in either direction, it is best to enter Rocky Pass about 1½ to 2 hours before high water. There are many places at each end of Rocky Pass where vessels waiting for the tide can anchor. Strangers should make passage on a rising tide and be careful to remain in the channel because of the many unmarked dangers close to the channel edge. (See the Tide Tables for daily predictions.)

(162) **Currents.**–The flood current enters Keku Strait at both ends and meets in varying places between High Island and The Summit. At the entrance to Rocky Pass the tidal current has a velocity at strength of 0.9 to 1.2 knots.

(163) At Devils Elbow the velocity of current is 1.8 to 2.4 knots, this being the strongest current encountered in the pass. Slack water occurs at practically high and low water. The period of slack at low water lasts only 5 or 10 minutes, and the current attains considerable velocity within a half hour of this time. The high-water slack lasts considerably longer, and passage through Devils Elbow can easily be made within an hour before and after the high-water slack.

(164) At The Summit strong currents set in within 1 hour of high-water slack attaining a velocity of about 2.6 knots. Through The Summit and the passages N of The Summit, the currents are quite variable because of frequent shallow depths and the intricate topography. High-water slack occurs near high water, but the ebb current runs for a considerable time after low water. (See the Tidal Current Tables for daily predictions.)

(165) **Chart 17360.–Point Bakerto Duncan Canal.**-Point Baker and Helm Rock have been described earlier in this chapter.

(166) In **Buster Bay,** the open bight 6.5 miles E of Point Baker (56°21′N., 133°37′W.), vessels may find anchorage with shelter from S winds in 10 fathoms, sand bottom, about 0.7 mile from shore.

(167) **Totem Bay,** about 10.5 miles NE of Point Baker, is a large indentation on the N shore of Sumner Strait, midway between Point Barrie and Mitchell Point. A reef extends 1.2

miles E from the W point at the entrance. A shoal extends 0.2 mile off the E point at the entrance.

(168) To enter the bay, approach from E, keeping about 1 mile off **Moss Island** and about 0.5 mile off the E point at the entrance. The bay has depths of 7 to 8 fathoms, mud bottom, and is good protection except in S weather. Shoals extend over 0.2 mile from the shores of the bay.

(169) **Shingle Island,** low and wooded, is about 1.5 miles S of the entrance. The bay and its approaches have reefs that extend S of the island and detached submerged rocks.

(170) **The Eye Opener** is a rocky ledge near the middle of Sumner Strait, about 11.7 miles E of Point Baker. It is marked by **The Eye Opener Light** (56°23.2'N., 133°16.6'W.), 28 feet above the water and shown from a skeleton tower on a brown cylindrical base with a red and white diamond-shaped daymark. A rock with 1 fathom over it, not marked by kelp, and a rock with 5 ¼ fathoms over it and marked by a buoy, are 0.4 mile SW and 1.8 miles SE, respectively, of the light.

(171) **Douglas Bay** is a bight, open S, about 4 miles N of The Eye Opener and E of Moss Island. It has depths of 5 to 6 fathoms, but is not important as an anchorage.

(172) **Chart 17381.–Red Bay** indents the S shore of Sumner Strait, 11 miles E of Point Baker and 3 miles W of Point Colpoys (chart 17360). The chart shows all known dangers. It is used extensively for anchorage during the fishing season.

(173) The entrance is through a narrow and rocky channel about 0.7 mile long, with depths of 1 to 4½ fathoms. The narrowest part of the channel is between the SW side of Bell Island and a rock awash off the SE end of Danger Island. At about 0.8 mile S of this area, the channel leads between two grassy rocks 13 and 16 feet high, and then W of **Range Islet** (56°18'15"N., 133°19'48"W.), which is wooded. A reef, bare at low water, is about 90 yards NNW from the N end of Range Islet. S of Range Islet the bay is about 2 miles long and 0.4 mile wide, with depths of 3 to 15 fathoms. A rock awash is near the S end of Red Bay in 56°16'52"N., 133°19'08"W., about 1.4 miles S of Range Islet.

(174) **Dead Island,** small and wooded, is close N of Bell Island and forms the E point at the entrance; a reef with bare heads extends 0.2 mile NE of the islet. **Pine Point** forms the NE entrance of the outer bay. **Bell Island** and **Danger Island,** low and wooded, form the E and W sides of the narrow entrance and are separated from the main shore by shallow passes useless for navigation except for a high-water canoe channel behind Bell Island.

(175) Vessels not wishing to enter or waiting for the proper stage of tide may anchor at the entrance to Red Bay in the bight W of Dead Island. Another anchorage is in the middle, NE of Dead Island, in 7 to 10 fathoms, mud bottom. Larger vessels should anchor farther out with more swinging room in 18 to 20 fathoms. Inside the entrance the anchorage most used is the small bay E of **Flat Island** in 4 to 10 fathoms, mud bottom. This is good shelter in all weather. Vessels wishing to go farther into the bay may find anchorage in 5 to 9 fathoms, mud bottom.

(176) Tidal currents in the narrow entrance to the bay have velocities of 3 to 5 knots, with very short intervals of slack at times of high and low water.

(177) About 12 feet is the greatest draft that can be safely carried in at low water. The safest time to enter is at, or shortly before, high-water slack. All dangers are marked by kelp, but it is run under during the strength of the current.

(178) Enter between the bare rock at the NE end of Danger Island and the SW end of Dead Island, favoring the latter, and then favor the W or Danger Island shore until halfway through the passage, when the E or Bell Island shore should be favored to avoid the rock close to the SE point of Danger Island. Bring the E grassy rock in line with the W side of Range Islet, about 0.3 mile S of Flat Island, and steer that range until near the rock, and then pass midway between the two grassy rocks and W of Range Islet. Then follow a midchannel course up the bay and select anchorage as required.

(179) **Chart 17360.**–Two miles E of Red Bay (56°20'N., 133°18'W.) is an open bight, sheltered from S winds, that affords anchorage for vessels of any size in 10 to 15 fathoms, mud bottom, about 0.5 mile offshore. The shore from Pine Point to Point Colpoys is rocky and should not be approached closely.

(180) **Chart 17382.–Point Colpoys,** low and wooded, is on the NW side of Clarence Strait where it joins with Sumner Strait. **Point Colpoys Light** (56°20.2'N., 133°11.8'W.), 19 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point. Irregular bottom extends about 0.3 mile N from the point. A rock, which uncovers 5 feet and is marked by a daybeacon, is 1.2 miles E of the light. Shoals and foul ground extend about 2 miles SE from the rock to Rookery Islands.

(181) **McArthur Reef,** covered 3 fathoms, is about 3.2 miles E of The Eye Opener and 3.6 miles N of Point Colpoys. The reef is marked by a lighted bell buoy.

(182) **Mitchell Point,** on the SE end of Kupreanof Island and about 6.7 miles N of Point Colpoys, is low, level, and rocky. A broad tapering reef, showing considerable kelp, extends about 2.2 miles SE from the point. The extreme outer end of the reef bares; at high water it is usually marked by tide rips. A lighted buoy marks the SSW entrance of the narrow channel leading to the W of Level Islands.

(183) **Level Islands,** heavily wooded, are about 2.5 miles E of Mitchell Point. S of the W island is a small islet surrounded by rocks, and the entire group is surrounded by a shelving ledge and by kelp that extends out nearly 0.5 mile. A pinnacle rock, with 3 fathoms over it, marked by a lighted buoy, is 0.6 mile SE of Level Islands in the direction of Vichnefski Rock. The passage SW and W of Level Islands is foul. A white tower on the N side of the E Level Island is reported obscured by trees from Sumner Strait.

(184) **White Rock** is 1 mile NE of the E end of Level Islands and can be readily recognized by its white appearance and detached position. Several rocks awash are S of White Rock. The outermost, 0.2 mile S, is marked by kelp.

(185) **Kah Sheets Bay,** N of Level Islands, is shoal and has many dangers. Three wooded islands are S of the N entrance point. Small fishing craft frequently anchor W of the S island in 1 ½ fathoms, mud bottom.

(186) **Vichnefski Rock,** on the SE side of Sumner Strait, about 0.8 mile N of Point St. John, Zarembo Island, is long and bare, and awash at extreme high water. It is marked by **Vichnefski Rock Light** (56°26.3'N., 133°00.9'W.), 33 feet above the water, is shown from a skeleton tower with red and white diamond-shaped daymark. SE of Vichnefski Rock are several ledges that partly bare, and the passage between the rock and **Point St. John** should not be attempted except by small craft with local knowledge.

(187) **St. John Harbor,** on the NW side of Zarembo Island and E of Vichnefski Rock Light, is sheltered except from N. **Low Point** and Point St. John, respectively, are to the N and S of the entrance. **Northerly Island** and **Southerly Island** are in the outer part of the harbor. Two large rocks are close to the N side of Northerly Island, and rocks that bare and are marked by kelp are just outside of them. Vessels

should enter midway between Northerly Island and Low Point.

(188) Anchorage in about 14 fathoms, mud bottom, can be had midway between the middle of Southerly Island and the first bight in the opposite shore of Zarembo Island. Anchorage in 7 fathoms can be had farther in, but the currents are strong.

(189) Small craft can enter St. John Harbor SW of Northerly Island and Southerly Island, taking care to avoid a rock, awash at half tide, 200 yards SW of the S point of Northerly Island, and a similar rock that is 80 yards S of Southerly Island. A daybeacon is on the point about 1 mile E of Low Point.

(190) **Chart 17360.–Duncan Canal** has its entrance 3 miles W of the entrance to Wrangell Narrows. From its head a low marshy valley, sometimes used as a portage, extends to Portage Bay. The soundings in the canal generally are less than 20 fathoms and somewhat irregular. Commercial crabbers and shrimpers operate in the canal.

(191) **Duncan Canal Light 3** (56°32.5'N., 133°05.4'W.), 21 feet above the water, is shown from a frame structure with a square green daymark. The light marks the W side of the entrance to the canal; a light on Butterworth Island marks the E side.

(192) **Anchorages.**–Several good anchorages were found in Duncan Canal, usually in depths of 8 to 15 fathoms, sticky mud bottom, good holding ground.

(193) **Currents.**–The flood enters Duncan Canal with a velocity of 1 to 2 knots and runs in the direction of its axis, except at the W entrance of Beecher Pass, through which it passes into Wrangell Narrows, causing a crosscurrent in this immediate vicinity. The ebb flows in an opposite direction, and the same crosscurrent, with a W set, is found at Beecher Pass. The flood current has a W set in the vicinity of the rocks that are off the S end of Woewodski Island. Strong tide rips are found at the entrance to the canal.

(194) In 1959 a survey vessel experienced moderate to strong currents in the entrance between Kupreanof and Woewodski Islands, especially near Butterworth Island. Strangers should use caution when navigating this passage. The effect of the current diminishes inside the canal proper, but light to moderate tide rips have been noted in midchannel as far as Indian Point.

(195) **Routes.**–Enter Duncan Canal E of Lung Island, proceed in midchannel W of Butterworth Island, and follow midchannel courses. The known dangers are shown on the chart. Caution is needed in navigating it.

(196) **Pilotage,** except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska. The pilot boarding station for Duncan Canal is about 1 mile NW of Guard Islands Light (55°26.8'N., 131°52.9'W.). (See Pilotage, chapter 3, for details.)

(197) **Towage.**–Three 500 hp tugs from Wrangell are available for assistance in docking and undocking vessels at the Alaska Barite Facility in Duncan Canal. Arrangements should be made in advance through ship's agents.

(198) **Chart 17382.–Foremost Rock** (56°30.2'N., 133°00.3'W.) uncovers 12 feet and is marked by a daybeacon. It is near the E end of a reef 0.8 mile long off the entrance to Duncan Canal, almost on a line joining White Rock and the W point at the entrance to Wrangell Narrows and about 1 mile from the point.

(199) **Lung Island,** wooded, is on the W side of the entrance to Duncan Canal. A small islet, 25 feet high and wooded, is in midchannel W of Lung Island; each side of this islet has a narrow passage, the W passage being foul.

(200) **Baby Island** is on the E side of the entrance to Duncan Canal, about 1.1 miles ENE of the SE end of Lung Island.

(201) **Butterworth Island,** wooded, is close off the W shore of Woewodski Island and on the E side of Duncan Canal, about 1.5 miles from the entrance. The narrow passage between Butterworth Island and Woewodski Island is navigable for small craft at high water, but is not recommended for strangers.

(202) **Butterworth Island Light 2** (56°32.2'N., 133°04.5'W.), 21 feet above the water, is shown from a frame structure with a red triangular daymark on the W side of the island. The light marks the E side of the entrance to Duncan Canal.

(203) **Chart 17360.–Woewodski Island** separates the lower part of Duncan Canal from the lower part of Wrangell Narrows, and is separated from Lindenberg Peninsula by Beecher Pass. The island is wooded and mountainous.

(204) **Beecher Pass Light 6** (56°34.8'N., 133°04.5'W.), 15 feet above the water, is shown from a skeleton tower with a red triangular daymark on the NW point of the island. In the first bight to the S of the light are the buildings of the abandoned **Olympic Mine.** A trail leads inland to **Harvey Lake.** A 4¾-fathom shoal, marked by a buoy on its SW side, and a 3¼-fathom shoal are on the E side of Duncan Canal, about 1 mile and 1.7 miles, respectively, S of Beecher Pass Light.

(205) **Beecher Pass,** 4 miles within the entrance to Duncan Canal, connects the canal with Wrangell Narrows; it is filled with islets and reefs showing much kelp. **Fair Island** is at the W end of the pass. A reef extends about 700 yards in a N direction from the NW end of Woewodski Island, and rocks are off the E end of Fair Island in the middle of the channel to the S of Fair Island. Reefs extend about 250 yards off the N shore of Fair Island, and a rock is about 250 yards E of its E point. All known dangers are charted. The pass is used by tugs with tows and extensively by fishermen and hunters, and is easily navigated with proper caution. Boats may pass either N or S of Fair Island with safety. Depths of about 10 feet can be carried through Beecher Pass to Wrangell Narrows.

(206) To go through Beecher Pass, steer midchannel courses from W until beyond the E end of **Big Saltery Island,** and then with the chart as a guide, favor the S shore until almost abeam of No Thorofare Point.

(207) The bay between Keene Island and Big Saltery Island (see chart 17375) is good shelter and used extensively. A rock, which uncovers at extreme low tide, is about 0.2 mile E of Big Saltery Island in 56°36.0'N., 133°00.0'W. Anchor in 8 to 13 fathoms, mud bottom. Small craft also anchor near the W end of the pass in the small cove on the N side, N of Fair Island in 2 to 3 fathoms.

(208) **Little Duncan Bay,** entering the W shore of Duncan Canal opposite Beecher Pass, about 5 miles from the entrance, is shallow, but affords protected anchorage for small craft. **Emily Island** is a small, wooded islet on the S side of the bay. Foul ground extends in a SE direction from the N point at the entrance.

(209) **Grief Island,** on the E side of Duncan Canal NW of Beecher Pass, must not be approached closely, as foul ground is found close inshore and SW of it. A rock that bares is 1.2 miles 340° from the island.

(210) A rock with a depth of ½ fathom over it, 1.7 miles 323° from the NW point of Grief Island, is marked by a buoy close W. In 1972, a survey revealed a shoal covered 6½

fathoms in 56°38'33"N., 133°09'22.8'W., about 0.6 mile SE of a mooring facility.

(211) **Castle Islands** are a group of small islands, most of them wooded, on the SW side of Duncan Canal, about 9 miles from the entrance. **Castle River** empties into the bight W of the islands. The head of the bight is filled with a mudflat. The entire area is shoal to the W of the Castle Islands from the S end of Big Castle Island, the largest in the group. A shoal covered ¼ fathom is about 2.1 miles NNW of Big Castle Island in 56°41'57"N., 133°12'00"W.

(212) **Wharves.**–The only commercial facility in the canal is a barite mining facility.

(213) Alaska Barite Facility Berth (56°39'02"N., 133°10'01"W.): on the W side of the larger islet S of Big Castle Island; 600 feet of berthing space; a reported depth alongside of 35 feet in 1976; the facility consists of a conveyor trestle, loading tower, and a boom with a loading capacity of 1,000 tons per hour; a causeway connects the two islets.

(214) **Mitkof Island,** triangular in shape, is mountainous and wooded at the N and S ends, with a low divide in an E and W direction through the central portion. Wrangell Narrows is to the W and Federick Sound and Dry Strait to the N and E, respectively.

(215) **Chart 17382.–Wrangell Narrows to Wrangell.–Point Alexander,** the E point of the S entrance to Wrangell Narrows, is marked by **Point Alexander Light** (56°30.5'N., 132°27.0'W.), 17 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark on a reef off the point. **Point Howe,** 4.5 miles to the E of Point Alexander, presents no special features.

(216) **Woodpecker Cove** is a small indentation on the N side of Sumner Strait, close W of Point Howe. It affords anchorage for small craft with protection from Stikine winds.

(217) **Station Island,** about 1.7 miles E from Point Howe, is small and timbered. The shoreline is rocky with cliffs 15 to 30 feet high. **Station Island Light** (56°29.7'N., 132°45.7'W.), 19 feet above the water, is shown from a square frame structure with a red and white diamond-shaped daymark on a rock off the E side of the island.

(218) **Blind Slough** enters the S end of Mitkof Island about 2 miles NE of Station Island. It has a wooded island at the entrance and another island 1.7 miles inside. The head of the slough divides into several arms. A large stream empties into the E arm. From the head of the slough, low ground extends to Wrangell Narrows. The slough is too shallow to be of use as an anchorage except for small craft, and then local knowledge is desirable. In 1976, there was log storage along the E and N shoreline of the slough.

(219) **Baht Harbor,** on the N shore of Zarembo Island, about 3.5 miles E of Low Point (56°27.1'N., 132°56.9'W.), is a broad, open bight, affording anchorage in SE winds. The anchorage is in the middle of the bight, in 12 to 15 fathoms, about 0.2 mile offshore. At high water, the navigator should not seek less than 15 fathoms.

(220) **Little Baht Harbor,** 1 mile W of Craig Point, affords anchorage for small craft in 11 fathoms, soft bottom, behind a wooded islet and off the mouth of a small creek. There is considerable current at the anchorage, and its use is recommended only in case of emergency.

(221) **Craig Point,** marked by a light, is on the N shore of Zarembo Island, about 2.5 miles E of Baht Harbor.

(222) **Vank Island,** about 2 miles off the NE end of Zarembo Island, is timbered and has two prominent hills. The S shore is marked by cliffs 40 feet high in places; the N shore is low and strewn with rocks. A small church on the N end of the island is visible from N. A light is on Neal Point at the S end of the island. Mud Bay is to the NW of Neal Point. It is deep at the entrance, shoals rapidly, and is not regarded as a favorable anchorage. The bight in the N end of Vank Island at times is used as a small-craft anchorage.

(223) **Two Tree Island,** a small rocky islet off the N end of Vank Island, is marked by a light. A 2-fathom spot is about 1 mile NNW from Two Tree Island. Passage may be made on either side of Vank Island, but the S is preferred.

(224) **Sokolof Island,** NE of Vank Island, is timbered. The center is low and is drained by a stream running W, which empties into a bay used as an anchorage by small boats except during W winds. In 1976, log storage took up most of the bay.

(225) **Wilson Islands** are at the S end of Dry Strait about 2.2 miles N of Sokolof Island. The two low, rocky islands are thickly wooded with spruce.

(226) **Chart 17360.–Dry Strait,** mostly bare at low water, affords passage for small craft at high water between the head of Sumner Strait and the head of Frederick Sound. It is extensively used by fishing boats and towboats operating between the towns of Wrangell and Petersburg. The channel requires local knowledge for safe navigation. Boats should attempt the passage only on the upper half of a rising tide. There are no abrupt changes in depth. The water is muddy at all times, and strong currents are experienced in places, 5 knots having been observed at times at Blaquiere Point.

(227) **Dry Strait Light 1** (56°35.0'N., 132°32.6'W.), 29 feet above the water, is shown from a skeleton tower with a green square daymark on **Blaquiere Point** on the W side of the S entrance to Dry Strait. The channel passes close E of Blaquiere Point and to the W of the small islet 0.9 mile N of the point. A light on the W shore, about 3.5 miles NW of the islet, marks the N end of the shoal water area through the strait.

(228) **Dry Island** and **Farm Island** are on the E side of Dry Strait NNE of Blaquiere Point. Boats should not attempt passage between these islands. A poor channel can be followed at high tide between Farm Island and **Sergief Island** to the S.

(229) **Kadin Island,** about 2.5 miles S of Sergief Island, is 1,810 feet high, and wooded. **Rynda Island** and **Greys Island,** W of Kadin Island, and **Pocket Island** and **Hidden Island,** NW of Dry Island, are within Dry Strait. Fivemile Island, marked by a light, is about 1.8 miles N from the N end of Woronkofski Island and is described with Stikine Strait.

(230) A rock with ¾ fathom over it and a rock awash are about 0.6 mile ENE of **Liesnoi Island,** a small wooded island to the S of Kadin Island.

(231) The **Stikine River** has its source in a small lake in British Columbia near 57°10'N., 128°00'W., and is about 200 miles long. It flows in a SW direction through glaciers and gorges; one of the latter, very narrow and about 30 miles long, is known as the Grand Canyon. The river freezes in the winter, and with the spring freshets the current builds up great force. The river is usually navigable from about May 1 to October 15. The highest water is generally in July. Vessels drawing 3 feet and less navigate the river to Telegraph Creek, B.C., about 143 miles above the mouth.

(232) Stikine River empties by two mouths: one, the N channel, following the mainland W, enters the head of Frederick Sound; the other follows the mainland S and forms the only navigable entrance to the river. The N channel can be navigated only by small craft at high water. The S entrance has a least depth of about 2 feet at mean lower low water.

The mean range of tide is about 11½ feet, and the diurnal range is about 14 feet. The channel is from 0.2 to 0.5 mile wide. Tidal effects have been noted for a distance of about 17.4 miles above the mouth.

(233) The Federal project provides for snagging of the Stikine River from its mouth to the Canadian border, a distance of about 26 miles above Gerard Point (56°31'N., 132°20'W.). Snagging operations are made annually by the U.S. Forest Service.

(234) No permanent directions can be given since the channel across the mud flats at the mouth of the river changes with every freshet. Strangers can obtain directions from the masters of the river boats at Wrangell. The channels of the S arm of the Stikine River are followed by experienced boatmen by the appearance of the water. There is a strong S current in the channel. The water appears to boil in the deeper parts, while over the shoals it runs smoothly and evenly.

(235) **Chart 17375.–Wrangell Narrows** extends in a general N direction for 21 miles from near the E end of Sumner Strait to the E part of Frederick Sound. The channel is narrow and intricate in places, between dangerous ledges and flats, and the tidal currents are strong. It is marked by an extensive system of lights, lighted ranges, daybeacons, and buoys that, with the aid of the chart, renders the navigation of the narrows fairly easy for small craft, even without local knowledge. It is safest to enter either end late on a flood tide. Waterborne traffic through the narrows consists of cruise ships, State ferries, barges, and freight boats carrying lumber products, petroleum products, fish and fish products, provisions, and general cargo.

(236) **Channels.**–The Federal project for Wrangell Narrows provides for several dredged sections 24 feet deep through the narrows, except for a dredged section W of Turn Point, that has a project depth of 27 feet. In 1977-August 1991, the controlling depth through the narrows was 20 feet with the exception of lesser depths along the edges. Some of the cuts have a tendency to fill, and considerable maintenance dredging has been required. Once or twice each year exceptionally low tides occur, at which time the water level may fall as much as 4 feet below chart datum.

(237) **Currents.**–The currents enter Wrangell Narrows from both ends on the flood and meet a little S of Green Point (56°42.0'N., 132°57.2'W.). At the N end of the narrows during the turn of the tide on the last of the flood and the first of the ebb, an unexpected current of about 2 knots sets NW directly across the channel. The velocity of the current in the narrows varies from place to place. Off Petersburg the velocity of the current is 3.5 knots. The strongest currents occur off Turn Point and off Spike Rock and South Ledge Light. The velocity of the current at times of strength at these points is between 4 and 5 knots. During spring and tropic tides, velocities of 6 to 7 knots may occur. (See the Tidal Current Tables for daily predictions.)

(238) **Ice.**–Occasionally a few stray pieces of ice from Le Conte Bay (chart 17360) work into Wrangell Narrows as far as Green Point (56°42.0'N., 133°57.2'W.). The pieces are sufficiently large to make them dangerous to navigation.

(239) **Routes.**–Specific courses for Wrangell Narrows would be of little help and could be confusing. The navigator should pay close attention to the chart as the narrows are well marked with aids to navigation that should be closely followed.

(240) In some cases with twin screw vessels, the engines are reversed in order to help make the sharp turns. Inquiry of local pilots showed that they did not use courses in the narrows because of strong currents and sharp turns. In foggy weather vessels come to anchor at either end of the narrows and wait until the fog clears away. The anchorage off Anchor Point, about 8.5 miles above the S entrance, is also available to vessels under the stress of weather.

(241) On the course between **Deception Point** and Point Lockwood, there is a strong tendency to be set to the W with a flood current. At Point Lockwood Rock Light, a sharp turn is necessary and usually the time required to get on course makes it necessary to immediately change to the next course. Commercial vessels make this turn by going hard left and hard right without steadying.

(242) On the course between Burnt Island Reef and South Ledge, there is a tendency to be set to W on the flood.

(243) On the course out of the N end of the narrows during the flood, there was found to be a strong W set especially in the vicinity of Prolewy Rocks.

(244) Low-powered vessels usually enter the narrows on the last of the flood and carry a favorable current all the way through. The currents meet about 8 miles from the N entrance and 12 miles from the S entrance.

(245) Vessels too large to make the passage through Wrangell Narrows safely, continue W through Sumner Strait, round Cape Decision, and go N through Chatham Strait, or W to sea by way of Cape Ommaney. Smaller vessels regularly using Wrangell Narrows sometimes use the longer passage to their advantage when not favored by suitable conditions of tide or daylight in the narrows.

(246) (See **162.255**, chapter 2, for navigation regulations for the Wrangell Narrows.)

(247) **Midway Rock** is about 1.3 miles N of Point Alexander, the E point at the S entrance to Wrangell Narrows, and 400 yards from the E shore. It is low and marked by a light.

(248) Anchorage with protection from N and NE winds can be had near the W shore of the S end of the Narrows W of Midway Rock, in 6 to 12 fathoms, sticky bottom.

(249) **Point Lockwood,** 1.6 miles N of Midway Rock, is marked by a light. A ledge is close to the W shore nearly 0.5 mile above the point. A dangerous flat that bares extends 300 yards off the mouth of a stream on the E shore opposite the ledge.

(250) **Point Lockwood Rock,** covered ¾ fathom, is 200 yards off the W shore, about 0.6 mile N of Point Lockwood. The rock is marked on the NE side, its highest point, by a light. A rock, covered 2¾ fathoms, but with no kelp, and marked by a light, is about 300 yards N of Point Lockwood Rock and the same distance S of the southernmost **Battery Islets.** The main channel leads W of Battery Islets and has a clear width of 100 yards with rocks on both sides. Two lighted buoys mark the edge of the shoal water on the W side of the channel, and on the E side of the channel a light marks the NW edge of the reef off the northernmost islet. The tow channel used by small craft and tows runs E of Battery Islets and is marked by buoys. Dense kelp extends into this channel from both sides.

(251) **Boulder Point,** on the W side of the narrows about 0.4 mile NW of Battery Islets, is marked by a light.

(252) **No Thorofare Point,** on the W side of the channel 5 miles above Point Alexander, is the S point of the E entrance of Beecher Pass. Beecher Pass has been described with Duncan Canal earlier in the chapter.

(253) **Spike Rock,** about 0.6 mile N of No Thorofare Point and 475 yards SE of Keene Island, is close to the W edge of the channel and is marked by kelp in the summer and fall. Uncharted pinnacles were reported in the area of Spike Rock. Mariners are advised to use extreme caution when transiting the area. A lighted channel buoy is close S of the rock. The dredged channel E of the rock is marked by lights, on the E edge, and by a lighted centerline range. Pick

up the lighted range promptly when approaching Spike Rock from the N.

(254) **Burnt Island,** small and wooded, is on the W side of the channel about 6.1 miles above Point Alexander. A light marks the end of the rock ledge that extends S from Burnt Island. The E edge of the reef off the N side of the island is marked by a buoy. **Caution** is advised when transiting this area due to the proximity of the ledge to the W channel limit. **Burnt Island Reef** is on the E side of the channel, NE of Burnt Island, and is marked by a light. The dredged channel that leads W of the reef is marked by a lighted range.

(255) **South Ledge,** a reef marked by kelp in the summer and fall, is on the E side of the channel about 7 miles above Point Alexander. The E edge of the channel NW of the ledge is marked by a light. The W edge of the channel is also marked by a light.

(256) **North Ledge** is a bare reef marked by a light on the E side of the channel 0.5 mile N of South Ledge. **North Point** is on the W side of the narrows between North and South Ledges. A reef that extends off the point is marked by a light.

(257) **Bush Top Island,** N of North Ledge, is to the W of the channel. The SE edge of the reef surrounding the island is marked by a light.

(258) **Spruce Point,** low and wooded, is on the E side of the channel opposite Bush Top Island.

(259) **Colorado Reef** is a reef that bares, on the W side of the narrows opposite **Anchor Point,** about 8.5 miles above Point Alexander. A mud flat fills the large bight between Anchor Point and **Blind Point.** A narrow channel, called **Blind Slough,** is navigable for small craft at high tide and leads across the mudflat to the mouth of **Blind River.** A fixed highway bridge with a 38-foot span and a clearance of 6 feet is about 3.5 miles above the entrance to the river.

(260) The winding channel between Anchor Point and Rock Point, about 2.2 miles to the N, is well marked by lights, buoys, and a daybeacon.

(261) The dredged anchorage area, 200 yards wide, is on the W side of the channel NW of Anchor Point. The controlling depth in the anchorage was 26 feet in 1963.

(262) **Vexation Point** is the E point of **Woody Island,** about 9.5 miles N of Point Alexander. The edge of the reef that makes off to the NE of the point is marked by a light. The tow channel, with a reported controlling depth of 10 feet in 1976, passes to the W of the main channel between Anchor Point and Woody Island.

(263) **Danger Point Ledge** is a reef that bares, off **Danger Point** on the E side of the channel opposite Vexation Point. It is marked by a light.

(264) **Green Rocks** are wooded and about 0.8 mile N of Vexation Point. The N end is marked by a daybeacon and S end by a light. The main channel passes E of Green Rocks.

(265) **Papkes Landing,** on the E side of the narrows, about 11 miles N of Point Alexander, is the site of a State-maintained small-craft float. In 1976, the 100-foot-long float had a reported depth of 12 feet alongside. A lumber company bulkhead pier that runs dry at low water is close N of the float. The U.S. Forest Service maintains a log pond and rafting area just N of the pier. A road extends N about 10 miles along the E shore of the narrows from Papkes Landing to Petersburg and SE about 17 miles through Blind Slough to Dry Strait.

(266) **North Flat** is a wide flat that bares, on the E side of the channel, N of Papkes Landing and SE of **Green Point** (56°42.0'N., 133°57.2'W.). **South Flat** is a smaller flat that bares on the opposite side of the channel. The main ship channel between the flats is marked by lights and a lighted buoy.

(267) From the light off Green Point the channel widens to almost the whole width of the narrows, and the water deepens to 15 to 20 fathoms.

(268) A logging company has an 80-foot floating pier on the W side of the narrows about 0.75 mile N of Green Point.

(269) **Mountain Point,** about 2.3 miles N of Green Point, is marked by a light 43 feet above the water.

(270) **Scow Bay,** on the E side of Wrangell Narrows, is about 2 miles below Petersburg and immediately S of Blunt Point. At night, the lights from the community of Scow Bay show prominently on the narrows. A restaurant and lodge are 0.6 mile S of the bay. The small-craft float at the lodge had a reported depth of 12 feet alongside in 1976.

(271) A 300-foot-long lumber wharf, formed by a landfill, is about 0.3 mile SW of Blunt Point. A barge ramp with an adjustable transfer bridge is at the NW end of the wharf; the rest of the wharf is not used to berth vessels. In 1976, depths of 9 feet were reported alongside the barge ramp. There are three acres of open storage for lumber and containers on the wharf, and a 25-ton forklift is available to handle these products.

(272) At **Blunt Point** the channel narrows and boulder patches, marked by kelp, are on either side. A light marks the edge of the reef on the E side of the channel off Blunt Point. The light is most brilliant down channel, diminishing around the rest of the horizon.

(273) At **Turn Point,** about 1.5 miles N of Blunt Point, a shoal extends to NW halfway across the narrows. Frequent dredging is necessary to keep the channel open at this point. The dredged channel is marked by two lighted ranges, lighted buoys, and three lights. The tow channel passes E of the three lights marking the E edge of the bend in the main channel off Turn Point.

(274) **Petersburg Creek,** which empties into the narrows from the W side opposite Turn Point, is navigable for small craft at high tide.

(275) **Bayou Point** is the N point at the entrance to Petersburg Creek. A road extends along the shore behind the point.

(276) **West Petersburg** is a small settlement on the W side of Wrangell Narrows, 1.6 miles inside the entrance opposite Petersburg.

(277) **Prolewy Rocks,** off the W point just inside the N entrance to Wrangell Narrows, are marked by a daybeacon. The tow channel passes NW of the main channel and SE of the daybeacon. A lighted bell buoy marks the N entrance to Wrangell Narrows.

(278) **Petersburg** is a fishing center on Mitkof Island, on the E side of Wrangell Narrows, 1 mile inside the N entrance. The city has two cold storage plants, four canneries, two oil terminals, and a sawmill. Petersburg is the home port of over 300 fishing boats. The deepest draft of a commercial vessel calling at the port in 1976 was 19 feet. Commodities handled at the port include fish and fish products, logs and lumber products, machinery, petroleum and petroleum products, provisions, and general cargo.

(279) **Prominent features.**–A church spire, about 1.2 miles ENE of Turn Point, is conspicuous from seaward.

(280) **Channels.**–A Federal project provides for a depth of 24 feet in the approaches to the existing wharves; a small-craft basin 11 to 15 feet in depth; and a short channel 8 feet deep to the S side of the U.S. Forest Service float. In 1981, project depths were reported to be available in the approaches to the wharves and in the short channel to the S side of the U.S. Forest Service float. In February 1984,

depths of 10 to 15 feet were available in the small-craft basin with lesser depths along the S and E sides.

(281) **Anchorages.**–The harbor affords excellent protection for small craft. Larger vessels may find protected anchorage 0.3 mile S of Scow Bay in 4 to 5 fathoms, mud bottom.

(282) **Dangers.**–All known dangers are charted, and most are marked. There are two shoals, each marked by heavy kelp, 100 to 240 feet N of the N end of Petersburg Processors Inc. Pier.

(283) **Tides.**–The mean range of tide is 13.4 feet and the diurnal range is 15.7 feet at Petersburg.

(284) **Weather.**–Petersburg has a typical maritime climate with mild winters, cool summers, and an annual precipitation of more than 100 inches. Petersburg's location shields it from most of the high winds observed in the channels of southeastern Alaska with a resulting average annual wind speed of about 4.3 knots. The high winds can occur from almost any direction, but most commonly blow from either N, NNE, SSE, or SE. About 45 percent of the winds, 21 knots or more, blow from the SSE and SE, and about 30 percent from the N and NNE; higher winds have been observed from other directions.

(285) Fog is observed on an average of 10 to 12 days in each month except September and October, when fog occurs on an average of 16 to 19 days each month. Snowfall, however, is the greatest restriction to visibility in the winter. (See page T–2 for **Petersburg climatological table.**)

(286) **Pilotage,** except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska. (See Pilotage, chapter 3, for details.)

(287) Vessels en route Petersburg meet the pilot boat about 1 mile NW of Guard Islands Light (55°26.8′N., 131°52.9′W.).

(288) The pilot boat, a tugboat, can be contacted by calling "PETERSBURG PILOT BOAT" on VHF-FM channels 16, 13, or 12.

(289) **Towage.**–Tug assistance is not normally required for docking or undocking vessels at Petersburg. If such services are required or desired, commercial towboats up to 320 hp operating from Petersburg and engaged in towing of barges and log rafts are available. Towboats up to 1,270 hp are available from Wrangell.

(290) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(291) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(292) Petersburg is a **customs station.**

(293) A **Coast Guard** vessel is stationed at Petersburg.

(294) **Harbor regulations.**–A **speed limit** of 7 knots is prescribed for Wrangell Narrows off Petersburg Harbor. (See **162.255,** chapter 2, for regulations.)

(295) Petersburg city ordinance prescribes a 4 mph and "no wake" **speed limit** inside the floats at the city boat harbors.

(296) **Wharves.**–All the wharves in Petersburg are privately owned and operated except City Pier, which is owned by the city, and the Ferry Terminal, which is owned and operated by the State of Alaska.

(297) Nelbro Packing Co. Wharf (56°48′24″N., 132°58′38″W.): 160-foot face; depth alongside, 13 feet; deck height, 24 feet; two 2¼- and one 1¾-ton forklifts; receipt of fish; owned and operated by Nelbro Packing Co., Inc.

(298) Alaska Marine Highway System, Petersburg Ferry Terminal (56°48′31″N., 132°58′28″W.): 130-foot face; depth alongside, 28 feet; total berthing space with dolphins, 420 feet; loading and discharging passengers and vehicles via a 35-ton transfer bridge; operated by the State of Alaska.

(299) City Pier (56°48′37″N., 132°58′12″W.): 160-foot face; depths alongside, 20 feet; deck height, 27 feet; receipt and sale of marine fuels, oils, and lubricants; owned by the City of Petersburg and operated by White Pass Alaska, Inc. and U.S. Coast Guard.

(300) Union Oil Co. Pier (56°48′40″N., 132°57′53″W.): 65-foot face; depth alongside, 18 feet; deck height, 30 feet; receipt and sale of marine fuels, oils and lubricants; owned and operated by Union Oil Co.

(301) Whitney-Fidalgo Packing Co. Wharf (56°48′47″N., 132°57′44″W.): 300-foot face; depth alongside, 20 feet; deck height, 27 feet; owned by Whitney-Fidalgo Packing Co. and operated by U.S. Forest Service, Alaska Department of Fish and Game, and Machine Shop, Inc. A strong current was reported to set off the wharf on the ebb.

(302) Alaskan Glacier Sea Food Co. Wharf (56°48′49″N., 132°57′26″W.): 60-foot face; depth alongside, 13 to 15 feet; deck height, 26 feet; one 2- and two 1½-ton forklifts; receipt of seafood; owned and operated by Alaskan Glacier Seafood Co.

(303) Petersburg Fisheries Wharf (56°48′52″N., 132°57′30″W.): W face 175 feet; depth alongside, 26 feet; deck height, 26 feet; nine 1- to 2-ton forklifts; receipt of fish, loading of supplies, and icing fishing vessels; owned and operated by Icicle Seafoods. A strong current is reported to set on the wharf on the flood and ebb.

(304) Petersburg Fisheries Supply Pier (56°48′56″N., 132°57′26″W.): 45-foot face; depth alongside, 20 feet; deck height, 26 feet; receipt and shipment of fish, loading of supplies, and icing fishing vessels; owned and operated by Icicle Seafoods.

(305) **Supplies.**–Provisions, fishing supplies, and some marine supplies can be obtained in Petersburg. Water is available at all wharves. Gasoline, diesel fuel, distillates, lubricating oils, and greases can be had at the oil companies' wharves. Only diesel oil is available in Petersburg for large vessels. Fishing vessels can obtain ice at the wharves of the canneries and cold storage plants.

(306) **Repairs.**–There are no drydocking or major facilities for larger vessels in Petersburg or in southeastern Alaska. The nearest facilities are in British Columbia and the State of Washington. A marine railway that can handle vessels up to 60 feet long is available in the mudflats 0.1 mile S of the Whitney-Fidalgo Pier. A 191-foot small-craft grid is on the E side of the N boat harbor, and a three tiered grid with individual lengths of about 100 feet is on the E side of the S boat harbor. Emergency shaft repair and minor repairs can be made in several machine shops adjacent to the waterfront. Repairs to electronic equipment can be made by several local firms.

(307) **Small-craft facilities.**–The city of Petersburg operates two boat harbors immediately N and S of the Whitney-Fidalgo Pier. The harbors berth up to 260 vessels from 16 to 85 feet long. In 1977, depths of 11 to 15 feet were available in the N boat harbor. In January-May 1979, depths of 12 to 15 feet were reported in the S boat harbor. Water and electrical power are available on all floats. A surfaced boat-launching ramp is in the SE corner of the N boat harbor. The **harbormaster** assigns berths, controls the use of the small-craft grids, and maintains an office on the approach pier in the NE corner of the N boat harbor. The harbormaster's office monitors VHF-FM channel 16.

(308) Several floats maintained by the U.S. Coast Guard for their own vessels are on the N side of the Whitney-Fidalgo Pier in the SW part of the N boat harbor. A float for

the use of the U.S. Forest Service is on the S side of the Whitney-Fidalgo Pier in the NW part of the S boat harbor.

(309) A State-maintained 95-foot small-craft float is 0.5 mile W of the Whitney-Fidalgo Pier at West Petersburg close NE of Bayou Point. In 1976, a depth of 6 feet was reported alongside.

(310) **Communications.**–Petersburg has regular passenger, express, and freight service to Puget Sound ports, British Columbia, and other Alaska ports by water and air. The Alaska State Ferry System has daily service during the summer to Prince Rupert, B.C., Ketchikan, Wrangell, Juneau, Haines, Skagway, and Sitka, and weekly service to Hoonah, Kake, and Seattle. This schedule is less frequent during winter. Scheduled airlines operate daily from Petersburg; charter air service is available. A highway parallels the N shore of Mitkof Island along Frederick Sound for about 5 miles from Petersburg, and parallels the W shore of Mitkof Island to Blind Slough, across to Blind Slough on Sumner Strait, and along the S and E shores of Mitkof Island to about 1 mile above Blaquiere Point, about 27 miles from Petersburg. Petersburg maintains telephone and radiotelephone communications.

8. FREDERICK SOUND

(1) This chapter describes Frederick Sound, Le Conte and Thomas Bays, the N part of Keku Strait, Saginaw and Security Bays, and the city and harbor of Kake.

(2) **Charts 17320, 17360.–Frederick Sound** has its entrance from Chatham Strait between Kingsmill Point and Point Gardner and extends NE to The Brothers and Cape Fanshaw, at the entrance to Stephens Passage, and SE to Dry Strait, a high-water boat passage connecting it with the E end of Sumner Strait. The sound is open and clear of obstructions, and has few offshore dangers to navigation. The shores and islands of the sound are all high.

(3) **Currents.**–The tidal current on the flood enters Frederick Sound from Chatham Strait; it sets N into Stephens Passage and through the E arm. The ebb sets in the reverse direction.

(4) Strong flood and ebb currents were observed in the vicinity of Cape Fanshaw, Round Rock, and in the passage between Turnabout Island and Kupreanof Island. Standing waves were sometimes observed in the vicinity of Cape Fanshaw when strong winds shift rapidly from SE to N.

(5) Current observations made between Cape Fanshaw and Cape Strait indicate that the ebb or W current is considerably stronger than the flood. In the vicinity of Cape Strait the ebb velocity is about 1.5 to 2 knots and it is probable that the current floods only with the largest tides of the month.

(6) **Weather.**–Although sheltered from the open Gulf, Frederick Sound and its surrounding waterways are subject to local effects because of the high ground that surrounds the area. Many locations are vulnerable to strong SE winds, which are a problem from October through February. Visibilities are most often a problem from about November through March, and least often a hazard in April, May, and June. The winter maximum indicates restrictions of visibilities because of snow. Precipitation is most likely from September through December with an October peak, when about 9 inches falls on 18 days on average. Temperatures fall below freezing on about 90 days during the year, while in summer they climb to 70°F or above on just a few. Extremes range from just below 0°F to about 80°F over the open water. To the SE, in the more restricted and more continental regions, the temperature range is much greater and extremes range from about –15°F to the mid 80's.

(7) **Ice.**–Glacial ice from Le Conte Bay is generally present in the E arm of Frederick Sound, and at times in large quantities. The ice generally follows the N shore of the sound as far as the entrance to Thomas Bay. Under certain conditions of wind and weather, ice may be expected as far as the Sukoi Islets, and it may also be found at Cape Strait and Turnabout Island. Occasionally a few stray pieces of ice work into Wrangell Narrows as far as Green Point, making navigation dangerous.

(8) **Chart 17360.–Camp Island, Pocket Island,** and **Hidden Island** are wooded islands on the flats N of Dry Strait.

(9) **Ideal Cove** has its entrance on the S side of Frederick Sound, about 13.8 miles SE of Wrangell Narrows and 1.2 miles S of Coney Island. Log storage extends along the E shore of the cove to the head. At times, logs take up the whole cove. Small craft desiring moorage will tie up to the log booms. A well-defined rock awash is close to the E point of the entrance. A small islet is on the W side at the entrance. Cosmos Point, the E point of the entrance, is wooded.

(10) **Coney Island** is steep-to; the edge of Stikine River flats is about 0.5 mile E of it, and reefs extend 0.3 mile N from the point 0.8 mile S of the island.

(11) **Le Conte Bay,** on the N side of the head of Frederick Sound, at times is inaccessible because of floating ice. The great depths in the bay prevent anchorage. Le Conte Bay is entered from Frederick Sound through a very narrow passage just N of Stikine River flats. At the entrance, a reef that bares at low water extends from the N shore halfway across the passage. The junction of the reef and the N shore is privately marked by a white rectangular marker at tree line about 1.5 miles N of Camp Island. Several groundings have occurred on this reef; extreme caution is advised. The bay is very shallow along its W edge from the mouth N to Timber Point.

(12) Large icebergs from **Le Conte Glacier** are a menace to navigation from Camp Island to **Frederick Point.**

(13) The shores of Frederick Sound, from Wrangell Narrows to Cape Strait, are bold. The SW shore can be safely approached as close as 0.5 mile. A ledge, which uncovers about 8 feet, is about 0.3 mile from the head of the bight, about 3 miles N of Prolewy Point, the NW point of the entrance to Wrangell Narrows.

(14) The **McDonald Islands** are two small islands about 3.8 miles E of the N entrance to Wrangell Narrows. The E island, 228 feet high, is the larger.

(15) **Brown Cove,** on the NE side of the sound, about 5.5 miles NE of the entrance to Wrangell Narrows, affords indifferent anchorage in 11 to 12 fathoms at the entrance. The head of the cove bares at low water.

(16) **Sukoi Islets,** locally known as **Sockeye Islets,** are two wooded islands, with a smaller one between, about 3.8 miles N from the entrance to Wrangell Narrows and about 1 mile off the W shore of Frederick Sound. The westernmost and largest island is about 330 feet high. The easternmost island is about 120 feet high, and the middle island is low. **Sukoi Islets Light** (56°53.7'N., 132°56.6'W.), 18 feet above the water, is shown from a skeleton tower on a concrete pier with a red and white diamond-shaped daymark on the westernmost islet. The usual channel is W of the islets.

(17) **Charts 17367, 17360.–Point Agassiz** (56°55.4'N., 132°53.0'W.), on the SE side of Frederick Sound, is low and wooded. An extensive marsh flat extends about 2 miles to the N.

(18) **Beacon Point,** on the W shore, WNW of Point Agassiz and about 3.6 miles N of Sukoi Islets, is marked by a daybeacon.

(19) **Cape Strait** is marked by **Cape Strait Light** (56°59.9'N., 133°05.5'W.), 30 feet above the water, shown from a skeleton tower with a red and white diamond-shaped daymark.

(20) About 1.4 miles SE of Cape Strait are a small valley and bight. A reef, which has a wooded islet, extends 0.2 mile off the point on the E side of the bight.

(21) **Thomas Bay,** about 3.6 miles E of Cape Strait, is the large estuary on the N side of Frederick Sound between Wood Point and Point Vandeput. The entrance, marked by buoys, is about 10 miles N of the N entrance to Wrangell Narrows and 22 miles ESE of Cape Fanshaw. Good

anchorage with protection from SE weather can be had off the S shore well inside Wood Point. Very good small-craft anchorage can be had in either of two small coves on the E shore of Ruth Island in depths of 3 to 10 fathoms, soft bottom.

(22) Thomas Bay, from the bar to **Baird Glacier,** at its head, is about 10 miles long. The moraine of Baird Glacier was reported to have encroached to a point about 900 yards S of **Elephants Head** in 1976. On the SE side is an arm that extends S to the moraine of the **Patterson Glacier.** These glaciers do not discharge ice into the bay.

(23) **Wood Point,** the E point of the entrance to Thomas Bay, is low and wooded. A kelp-covered reef, largely bare, extends 0.6 mile off Wood Point. A lighted bell buoy and an unlighted buoy mark the W extremity of the reef.

(24) **Point Vandeput** is the S extremity of a low neck of land that extends 2.5 miles S from shore on the NW side of the entrance to the bay. A detached clump of trees is at the end of the wooded section of the point. A narrow channel, with a depth of 4 fathoms, separates the reef S of the point from a kelp-covered bar that extends 0.8 mile farther in a SE direction. A buoy marks the SE end of the bar. The 4-fathom channel should be used with local knowledge.

(25) The entrance channel between the bar and the reef W of Wood Point has depths of 4¾ to 14 fathoms.

(26) The **tidal currents** have a velocity of about 3 knots over the bar at the entrance to Thomas Bay, and swirls occur at times from the shoal spot in the middle of the channel to Point Vandeput. The swirls are little felt in the channel E of the shoal spot.

(27) **Spurt Point,** in Thomas Bay, about 3.5 miles E of Point Vandeput, is steep and wooded.

(28) In 1982, several rocks that bare at low water were reported to be about 0.8 mile W of Spurt Point; caution is advised in this area.

(29) **Bock Bight,** about 1.8 miles E of Wood Point, is a narrow and deep bight. The entrance to the bight is bare nearly 2 hours before low water, forming a dam with deep water inside that overflows with great force except at slack water.

(30) **Ruth Island** is the large island on the W side of the entrance to the SE arm of the bay; close to its N end are a small islet and some low-water rocks. The NW entrance to the passage W of Ruth Island is shoal, but may be used by small vessels.

(31) **Spray Island** is on the E side of the SE arm E of the center of Ruth Island. A mooring buoy is about 0.25 mile SE of the island in about 56°59′51″N., 132°47′08″W.

(32) Anchorage for small boats may be had in 5 fathoms off the NW entrance of the passage between Ruth Island and the mainland. Anchorage for small vessels may be had in the bight E of Spray Island in 18 fathoms. The anchorage is close to the beach that is steep-to. Anchorage for larger vessels may be had in 11 fathoms, mud bottom, off the bight at the SE end of Ruth Island.

(33) **Scenery Cove,** in the N part of Thomas Bay, does not afford anchorage except for small craft. Large vessels can anchor at the entrance to the cove in 7 to 15 fathoms.

(34) **Farragut Bay** is the large indentation on the N side of Frederick Sound, about 8 miles NW of Cape Strait. The entrance, between Grand Point and Bay Point, is about 20 miles NW of the N entrance to Wrangell Narrows and 12 miles ESE of Cape Fanshaw.

(35) **Grand Point,** the E point at the entrance to Farragut Bay, is marked by **Grand Point Light** (57°05.5′N., 133°11.2′W.), 16 feet above the water and shown on a pile with a red and white diamond-shaped daymark. The point is low and rocky at its end. **Bay Point,** the W point at the entrance, is bold and wooded.

(36) Farragut Bay has two arms. The W arm is smaller, and its entrance is obstructed near midchannel by a rock awash, and by a shoal that extends from the W shore. Vessels may enter by favoring the E shore. The E arm expands into a large bay known as **Francis Anchorage.** SE winds are reported to draw through the anchorage with velocities up to 60 mph. Small craft may find anchorage with adequate protection in close to the E shore, just N of the projecting point, in 4 to 5 fathoms. The extensive tidal flats at the head of the bay were reported to be encroaching in 1976. Tidal currents have little velocity in the bay.

(37) **Read Island** is just inside the entrance on the E side of Farragut Bay. A very narrow passage, which may be used by small craft, and with reported depths of 4 fathoms, leads between the island and Grand Point. In June 1988, an obstruction was reported in the passage about 0.25 mile NNW of Grand Point Light in about 57°05′45″N., 133°11′13″W. A shoal area with a rock awash about midway and an unnamed islet at the outer end extend off the NE end of Read Island.

(38) **Flock Rock** is a small rock islet in the middle of the passage N of Read Island. Submerged rocks are reported to be between Flock Rock and the shore.

(39) A small vessel can make a temporary fair-weather anchorage between Grand Point and the S end of Read Island in 5 to 6 fathoms, hard bottom. Of the four coves or indentations making into the E side of Read Island, the third, leading N, is reported to provide the best anchorage for small vessels in 3 to 5 fathoms, rocky bottom. A log storage area is along the E shore of the bay about 1.2 miles E of the NE tip of Read Island. The best passage to Francis Anchorage is W of Read Island, and between Flock Rock and Read Island, about 0.2 mile off the latter. The chart is a sufficient guide.

(40) **Portage Bay,** on the S side of Frederick Sound 7 miles W of Cape Strait and nearly opposite Farragut Bay, is a secure anchorage, but its entrance is narrow. The tidal currents in the entrance have considerable velocity at spring tides. Ice forms in the bay during extreme cold weather. **Portage Islets,** two in number, are in Frederick Sound, about 0.8 mile W of the entrance and 0.4 mile offshore.

(41) The entrance channel has a controlling depth of 3½ fathoms, but is constricted by shoals to a width of 150 yards. Shoals make out from the shores of the bay and also from the head to 0.8 mile N of **Stop Island. Harrington Rock,** 3 feet high, is about 0.2 mile NW of Stop Island.

(42) **Portage Bay Light 3** (57°00.3′N., 133°19.4′W.), 16 feet above the water, is shown from a skeleton tower with a square green daymark on the end of **East Point. West Point** is marked by a daybeacon.

(43) High-water slack is the best time to enter Portage Bay. Small boats have used the grass line of East Point, Hook Point, and a small hill in the background as an entrance range. Round East Point about 200 yards off and follow midchannel courses.

(44) Anchor in 4 to 6 fathoms from 1 to 1.5 miles NNW of Stop Island. The water shoals gradually toward the shore; there are no dangers outside the 3-fathom curve.

(45) **Charts 17360, 17368.**–From Farragut Bay to Cape Fanshaw, the shore should not be approached closer than 0.5 mile. The coast is bold and heavily wooded. **Point Highland,** 4.2 miles SE of Cape Fanshaw, is steep-to and wooded, but is not prominent.

(46) **Cape Fanshaw,** at the junction of Stephens Passage and Frederick Sound, is a long, low, wooded point terminating in a moderately long point of bedrock, with a mound of bedrock at the extreme end and deep water within 0.2 mile of the point. **Cape Fanshaw Light** (57°11.1'N., 133°34.4'W.), 33 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point of the cape.

(47) **Turnabout Island,** about 13.5 miles WSW of Cape Fanshaw, is high and wooded. The shores are fairly bold except at the S end. The cove on the NW side of the island has temporary anchorage for small craft. An islet, 0.5 mile SW of Turnabout Island, shows as two rocks about 20 feet high, at high water; but at low water the ledge surrounding the islet shows for about 800 yards SW and on the line of the bare rocks. A clear channel 1.5 miles wide, between these rocks and Pinta Rocks, may be safely used in the daytime and with clear weather. **Turnabout Island Light** (57°07.9'N., 133°59.3'W.), 23 feet above the water, is shown from a small house with a red and white diamond-shaped daymark on an islet N of Turnabout Island. A 5 3/4-fathom spot is about 0.7 mile SSW of the light in about 57°07'22.7"N., 133°59'56.9"W.

(48) **Pinta Rocks** are two patches of rocks surrounded by extensive kelp beds about 2.2 miles S from Turnabout Island and about 1 mile off the main shore. **East Pinta Rocks,** covered at about half tide, are marked on the N side by a buoy. **West Pinta Rocks** are marked at the W end by a light, 30 feet above the water and shown from a pile with a red and white diamond-shaped daymark.

(49) The passage S of Pinta Rocks is used extensively by small craft, and is especially valuable when going against the current, since the currents here are much weaker than those N of the rocks. Slack water in this passage occurs up to 2 hours before predicted high and low waters.

(50) **Cape Bendel,** a rounding wooded point, is about 4 miles S of Turnabout Island. In rounding Cape Bendel, keep well offshore to avoid the foul ground and rocks awash that extend 0.8 mile off the cape in the direction of West Pinta Rock.

(51) **Keku Strait, northern part.**–Keku Strait is divided into three parts: a S bay, a N bay, and a narrow intricate passage about 18 miles long known as Rocky Pass, which connects the two bays. The S bay and Rocky Pass are described in chapter 7. Rocky Pass is shown in detail on chart 17372.

(52) The N bay of Keku Strait is about 13 miles long from the entrance to Point Camden where the bay branches, the W branch forming Port Camden and the E branch forming Rocky Pass. The NE shore of the bay is formed by **Kupreanof Island** and the SW shore by **Kuiu Island.** The entrance from Frederick Sound is between Point Macartney and Cornwallis Point.

(53) **Point Macartney,** the NE point at the entrance from Frederick Sound, 2.5 miles S of Cape Bendel, is a long, low, wooded point, terminating in an abrupt wooded islet with two tree- and brush-covered masses of rock between, all connected by a rocky platform at low water. **Point Macartney Light** (57°01.5'N., 134°03.5'W.), 20 feet above the water, is shown from a pile with a red and white diamond-shaped daymark on a small islet off the point. A rock awash is about 0.8 mile SE of the light.

(54) **Point White** is about 2 miles SE of Point McCartney. Rocks and reefs extend SE from a point about 1.1 miles SSW of Point White. The rocks and reefs connect with **Mosquito Islands,** Grave Island, **Burnt Island,** and **Hamilton Island,** to form a chain over 4 miles long. The chain is parallel to and about 1 mile off the NE shore of the bay and is marked at its NW end by Kake Entrance Light 2 (56°59.1'N., 134°01.2'W.). A narrow channel, between the chain and the Kupreanof Island shore, leads SE to **Kake Harbor** and the city of Kake. **Grave Island,** small and scrubby, is about 1 mile S of Kake and 3 miles SE of the northwesternmost reef. The island is marked on its NE side by **Kake Harbor Light** (56°57.6'N., 133°57.2'W.), 16 feet above the water and shown from a square frame with a red and white diamond-shaped daymark. Anchorage may be found in Kake Harbor in 15 fathoms, soft mud, between the city and Grave Island.

(55) **Kake,** about 4.4 miles SE of Point Macartney, is a community with three stores, a lodge, and an Alaska Public Health Center with a nurse in attendance every other month. A lighted microwave tower at Kake is prominent from the strait. Reefs, marked by a light and a buoy on their outer edges, and extensive flats, also marked by a buoy, extend 600 yards offshore and about 0.9 mile SE of Kake, respectively. A fish weir, marked by a private seasonal light, is about 250 yards NW of the cannery pier.

(56) **Routes.**–The best approach to Kake Harbor is from the NW on a SE course from between Point White and the light about 1.1 miles to the SSW. The approach to the City Pier is marked by a light and a daybeacon. If bound for the piers 1 to 1.5 miles SE of Kake, pass SW of the buoys marking the reefs off the village and the flats SE of it; when clear and S of the southeasternmost buoy, head for the piers, taking care to avoid the tidal flats to the N and the reef marked by a light about 0.3 mile SSW of the Alaska State Ferry Terminal (56°57.7'N., 133°55.1'W.). A landing on either side can be made at the cannery pier.

(57) Small craft coming from the W usually pass 100 yards off **Payne Island,** the northernmost of the Keku Islands, and head for Kake Harbor Light on Grave Island, course **088°**, until within 0.5 mile of it, and then pass N of the light. Small fishing vessels approaching Kake and the cannery from the S often pass through the reef N of Hamilton Island. This channel is extremely foul and should only be attempted with local knowledge, preferably on a rising tide.

(58) **Wharves.**–Kake has three commercial wharves and small-craft floats.

(59) The City Pier (56°58'23"N., 133°56'38"W.): SE end of Kake; 67-foot face; 9 feet reported alongside; used by fishing vessels; owned by the State of Alaska and operated by the community of Kake.

(60) Kake Tribal Fuel Company Pier (56°57'48"N., 133°55'19"W.): about 1 mile SE of Kake; 150-foot face; 10 feet reported alongside; fueling and loading supplies to fishing vessels; owned and operated by the Kake Tribal Fuel Company.

(61) A cold storage dock is about 70 yards NW of Kake Tribal Fuel Company Pier. Ice for commercial fishing vessels and fresh fish are available.

(62) Alaska State Ferry Terminal (56°57'41"N., 133°55'10"W.): 235 feet with dolphins; 25 feet reported alongside; 35-ton steel transfer bridge; passengers and vehicles; owned and operated by the State of Alaska.

(63) **Supplies.**–Limited amounts of provisions can be had at Kake. Gasoline, diesel fuel, oils, and greases are available at the Kake Tribal Fuel Company Pier, and by truck to the other piers. Water is available year-round at the fuel pier and seasonally at the cold storage dock.

(64) **Repairs.**–A 72-foot grid is on the S side of the approach of the City Pier.

(65) **Small-craft Facilities.**–A small-craft and seaplane float branches NW from the approach of the City Pier. A State-maintained 420-foot small-craft float with over seventy

32- to 40-foot stall floats, connected to shore by a 307-foot approach pier, extends into **Portage Bay,** about 2.3 miles SE of Kake. In 1976, 3 to 15 feet was reported alongside the float, but caution should be exercised during periods of extreme spring tides that sometimes reach minus 4 feet. Two lights and a daybeacon mark the approach from the N, but the area surrounding the float is foul and approach should only be made with local knowledge.

(66) **Communications.**–The Alaska Ferry System runs twice weekly during the summer to Petersburg and Sitka. Daily seaplane service with Juneau, Petersburg, and Sitka is available. Telephone and radiotelephone communications are maintained.

(67) **Keku Islands,** on the SW side of Keku Strait, comprise a group of wooded islands, with outlying reefs, between which are no practicable channels. There are other reefs on the SW side, but they have sections showing above water and are easily avoided in daytime. Between Keku Islands and the reefs on the NE side is a channel about 1.5 miles wide and 8 miles long to Point Hamilton, with depths of 7 to 50 fathoms. S of Eva Island the channel is about 1 mile wide, between Point Hamilton and Hound Island, and leads between kelp-marked rocks and shoals on both sides.

(68) **Eva Island,** about 8 miles SE of Point Macartney, is wooded and marks the turn of the channel when bound for Hamilton Bay or Port Camden. Off its W end is a bare rock.

(69) **Point Hamilton,** about 0.9 mile SE of Eva Island, marks the entrance to Hamilton Bay. A mound-shaped islet is connected at low water with the point.

(70) **Hamilton Bay,** on the NE side of Point Hamilton, is a secure anchorage for vessels of any size. The entrance is clear in midchannel, and extensive bare flats are at the head of the bay. Two large streams enter near the head.

(71) The islands on the SW side of the channel, from abreast Eva Island to the middle of Hound Island, are fringed with kelp to a distance of about 0.4 mile.

(72) **Hound Island** is about 2 miles S of Eva Island. It is 1.5 miles long, low, and wooded, with outlying rocks at either end; on its N side are extensive kelp patches. A rock that uncovers 3 feet is about 1.2 miles S of Hound Island.

(73) **Pup Island,** about 2.8 miles SSE of Hound Island, is small, steep, and wooded, and marks **Point Camden,** the E point at the entrance to Port Camden.

(74) **Port Camden,** the entrance to which is on the W side of Pup Island and 14 miles from Point Macartney, is an inlet 13 miles long and 1.5 miles wide for a distance of 5 miles from its entrance. At this point are several islands, the most important and in midchannel, is **Cam Island.** From these islands the inlet contracts gradually to its head, which has a portage to Bay of Pillars. From the entrance to Cam Island there is 8 to 34 fathoms; above Cam Island there is 8 to 24 fathoms, decreasing to 4 to 8 fathoms 2 miles from its head. A good anchorage can be found in 20 fathoms in the wide part of Port Camden SW of Cam Island, favoring the SW shore of the inlet. Good anchorage, protected from all directions but the N, is available in 4 to 10 fathoms in the cove SE of Cam Island. Favor the W shore of the cove to avoid a large reef and a 3-fathom shoal to the N on the E side of the cove. An excellent anchorage for small boats can be had in a small cove on the E shore E of Cam Island. The entrance shoals to 2½ fathoms. Keep close to the W shore of the entrance. Beware of the reefs on the N side of the entrance to this cove. Anchorage in 4 fathoms, well protected on all sides, can be had.

(75) **Salt Point Light** (56°50.7′N., 133°52.0′W.), 17 feet above the water, is shown on a pile with a red and white diamond-shaped daymark on the SW end of the point and marks the entrance to Davidson Bay.

(76) **Rocky Pass,** extending SE from Point Camden and connecting with the S bay of Keku Strait, is a high-water passage for small craft. (See description in chapter 7.)

(77) **Tidal currents** enter the NW part of Keku Strait and Port Camden from Frederick Sound. The velocity in the open strait is reported to be about 1.2 knots.

(78) **Chart 17368.–Saginaw Bay** indents the N shore of Kuiu Island for about 7 miles in a SE direction. **Cornwallis Point,** the N point at the entrance is low and wooded. **Cornwallis Point Light** (56°55.9′N., 134°16.4′W.), 34 feet above the water, shown from a small house with a red and white diamond-shaped daymark on the SW part of the point, marks the entrance to the bay. Shoal water extends about 0.3 mile W and N from Cornwallis Point. A rock that uncovers 7 feet, an extension of rock out from the point, is 0.1 mile WNW of the light. The high point of the rock is away from the main point of land. On an ebb tide, the current from Saginaw Bay sets toward the rock. When the current is against the wind, a considerable tide rip results. Mariners are advised to give the point a wide berth when rounding it.

(79) **Sachem Island,** small and wooded, is in midchannel in Saginaw Bay, about 2.7 miles SSE of Cornwallis Point. Shoals and other dangers extend in a NW-SE direction near midchannel from a point about 1.6 miles NW of Sachem Island to the head of the bay. In the approach to the head of the bay, there are also numerous islands with surrounding ledges.

(80) **Halleck Harbor,** on the NE side of Saginaw Bay about 1.5 miles SE of Cornwallis Point, is the best anchorage in Saginaw Bay, but is open W, and the bottom is generally hard and in places uneven. It is readily distinguished by high white bluffs on its NE side. At the foot of these bluffs are some houses and gravesites. The best channel to enter is 0.4 mile wide between the 3½-fathom rock in the entrance and the NW point. The bight at the NW end of the harbor dries. Anchorage can be had in the middle of the harbor in 8 to 12 fathoms.

(81) The piling ruins of a high-water dock are in the cove on the E side of Saginaw Bay about 3 miles SE of Halleck Harbor and N of a high island that is close to the N shore.

(82) The piling are in rotted condition, and only stubs, covered at high water, remain. These stubs are a hazard to small boats that might maneuver too close to shore in this area. A private 75-foot float, used by small boats, is anchored immediately NW of the pile ruins. In 1976, 15 feet to bare was reported alongside. Gasoline is available in an emergency only. Anchorage in 9 to 10 fathoms, with protection from the prevailing SE winds, can be had about 300 yards SW of the small-craft float. In 1976, a log storage area was along the N and NE shores of the high island in the cove.

(83) A logging camp was operating off the SW shore of Saginaw Bay, 2.5 to 3.4 miles SE of Sachem Island. A small-craft and seaplane float is at the NW end of the camp, and a log storage area is at the SE end. A mailplane calls three times weekly in the summer. Gasoline and a small machine shop are available in an emergency only. Radiotelephone communications are maintained.

(84) **Security Bay,** about 4.5 miles SW of Cornwallis Point, is a secure anchorage. Numerous islands and ledges obstruct the entrance and bay, which should be entered with caution because of the possibility of unknown dangers.

(85) **Roadstead Island** is in the middle at the entrance, from which a chain of three small islands, **Flat Island, Cedar Island,** and **Harbor Island,** extends about 0.7 mile in a SE direction. The usual entrance to the bay is between

Roadstead Island and Paralysis Point. It is marked by **Security Bay Light 1** (56°52.4'N., 134°22.4'W.), 32 feet above the water, shown from a skeleton tower with a square green daymark on the SW end of a ledge that extends from the N end of Roadstead Island.

(86) **Bibb Shoal,** usually showing kelp, is an extensive shoal with ½ fathom over it, on the W side of the entrance to Security Bay, N of **Paralysis Point.**

(87) **Christmas Island** is the largest of several small islands on the S side of Security Bay at its entrance; the island is bluff. Between Christmas Island and Cedar Island, the channel is 0.2 mile wide.

(88) **Cleft Island,** in the middle of Security Bay, about 1.1 mile SE of Christmas Island, is about 0.6 mile long and has a deep notch in its W end. At its SE end are some bare rocks. A narrow islet, about 0.3 mile long, is close to the NE side of Cleft Island.

(89) **Retaliation Point,** about 0.4 mile N of Cleft Island, is bluff, steep-to, and wooded. **Cedar Bight** is E of Cleft Island. Its entrance, between Cleft Island and Retaliation Point, is obstructed by a ledge bare at lowest tides and surrounded by kelp. The SE part of the bight is shoal and rocky; otherwise the depths are 4 to 6 fathoms, rocky bottom.

(90) A foul area extends W about 0.2 mile from the middle of Cleft Island to a ½-fathom spot. **Indian Rock,** a few feet above high water, and **Stewart Rock,** close N, are W of the island and both surrounded by foul ground. The usual passage is through the narrow channel between the rocks and the ½-fathom spot.

(91) The best anchorage in Security Bay is about 0.5 mile SE of Cleft Island in 9 to 11 fathoms, midway between the large island on the NE side and a wooded islet and some bare rocks near the SW side. Anchorage can also be had between the W end of Cleft Island and Harbor Island, in 11 to 16 fathoms, clear of the 1¼-fathom rock 0.2 mile SE of Harbor Island. The head of the bay is foul with several reefs, some of which cover at high water.

(92) **Band Cove** is just E of **Hourigan Point** and W of Bibb Shoal, at the entrance to Security Bay. A small vessel can anchor in the entrance in about 6 fathoms, but the cove is not clear and is open from the NW to SW. With Security and Saginaw Bays available, the cove is not recommended as an anchorage.

(93) **Charts 17360, 17320.**–This section covers the NW shore of Frederick Sound from Pybus Bay to Chatham Strait. Anchorage can be had in Surprise Harbor, Herring Bay, or Chapin Bay. Small vessels can find secure anchorage in Murder Cove.

(94) **The Brothers,** a number of large and small wooded islands, are about 2.5 miles off the W shore at the junction of Frederick Sound and Stephens Passage.

(95) Secure anchorage for small craft can be found in the narrow passage close W of the **West Brother Island** and between it and the small islet surrounded by reefs close W. The entrance is from S, passing close along the W shore of the West Brother Island. The N approach is foul.

(96) **Chart 17363.–Round Rock,** 40 feet high and bare, about 2.7 miles SW from West Brother Island (chart 17360), is marked by **Round Rock Light** (57°15.6'N., 133°56.2'W.), 49 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark. There is a clear channel about 2 miles wide between Round Rock and the NW shore, but the bottom is irregular and the depths are from 8 to 40 fathoms. The water is much deeper E of Round Rock and between it and The Brothers.

(97) **Pybus Bay** is located on the NW side of Frederick Sound, W of its junction with Stephens Passage and about 3.5 miles WNW of Round Rock Light. It is divided into two arms by a long point from which three groups of islands, rocks, and reefs extend in a S direction. The best anchorage in the bay is in Cannery Cove.

(98) **Point Pybus,** the N point at the entrance to Pybus Bay, is low and wooded. A group of rocks extend 0.6 mile S from the point.

(99) **San Juan Islands,** low, wooded, and surrounded by foul ground, are about 0.8 mile SW of Point Pybus. A rock with ½ fathom over it is 0.4 mile SW of the southernmost and largest island; dangerous rocks are 0.2 mile W of the W point of this island.

(100) **Southwest Islands** are a narrow chain of four wooded islands, parallel with the W shore of the bay, about 1.5 miles SW of San Juan Islands. Foul ground extends about 0.5 mile S of **Elliott Island,** the largest of the group, and two rocks that uncover 11 and 14 feet are 0.3 mile NNW of the northernmost island of the group. Two dangerous rocks, bare at half tide, are about 0.2 and 0.3 mile W of **Long Island,** the middle island of the group.

(101) **Grave Island,** steep-to, and wooded, is on the W side of West Channel, about 0.7 mile W of the N extremity of Elliott Island, and is a prominent landmark for this channel. Bare rocks are 0.2 mile N of the island and about 0.8 mile S of the island.

(102) **Grave Island Light** (57°16.0'N., 134°05.0'W.), 18 feet above the water and shown from a small house with a red and white diamond-shaped daymark on the SE side of Grave Island, marks the entrance to Pybus Bay.

(103) **Midway Islands** are the triangular group of wooded islands N of Southwest Islands and E of the entrance to Cannery Cove. Each island of the group has foul ground surrounding it. A dangerous rock that uncovers 2 feet is 0.7 mile SE of the N island. A 2-fathom rock is about halfway between this dangerous rock and the N island.

(104) **Cannery Cove** indents the W shore of Pybus Bay, about 3.5 miles NW of Elliott Island. The cove is nearly landlocked and affords secure anchorage in 6 to 15 fathoms, sticky bottom. A large island with an islet close to the S forms the N point at the entrance. A rock with ¼ fathom over it is in the middle of the entrance. Only a few broken piles mark the site of the cannery wharves that formerly stood on the S shore of Cannery Cove. A seasonal fishing cabin (57°18.4'N., 134°08.1'W.), with a floating dock for small craft, is on the S shore of the cove. The cabin monitors VHF-FM channel 16.

(105) **Donkey Bay,** on the W side of Pybus Bay, about 1.8 miles N of Cannery Cove, is an open bight that bares in its W part and is of no importance to navigation.

(106) **Henrys Arm,** the southernmost of the two coves opposite Donkey Bay, has depths of 1¼ to 6¾ fathoms.

(107) The channel between Point Pybus and the San Juan Islands is not recommended except for small craft with local knowledge.

(108) The best passage between the E and W parts of the bay is between the NW Midway Island and the mainland. An unmarked rock with a depth of 2½ fathoms over it is 0.5 mile W of the N point of the NE Midway Island. West Channel, described below, is recommended for vessels bound for Cannery Cove.

(109) **West Channel** extends between Grave Island and Southwest Islands and then between the Midway Islands and the W shore of the bay. Several dangers, which are shown on the chart, are passed when using this channel. Rocky islets about 6 feet high are about 0.6 mile S of Grave

Island. They are not easily picked up at night. Strong cross-currents may be encountered between Spruce Island and the entrance to West Channel.

(110) **Little Pybus Bay** (57°15′ N., 134°08′W.), close W of Pybus Bay and NW of Spruce Island, is about 2.5 miles long and 1 mile wide at the entrance, and is open to the S. A chain of islets, reefs, and broken ground extends about 1.5 miles S of the E entrance point. Shoal water, with several islets and rocks, extends about 1.2 miles from the head of the bay.

(111) **Spruce Island,** small, wooded, and 2 miles from the Admiralty Island shore, is 3 miles S of Grave Island Light and 6 miles NW of Turnabout Island. (See also chart 17360.) A ledge that uncovers 4 feet extends 500 yards SW of the island.

(112) **Chart 17365.**–Woewodski and Eliza Harbors have a common entrance between **Point Napean** and **Deepwater Point** 9 miles WNW of Turnabout Island. (See also chart 17360.) The entrances are much obstructed by dangerous ledges, and with the close proximity of better anchorages the use of these harbors is seldom necessary. **Liesnoi Island,** of irregular shape, is in the entrance.

(113) **Deepwater Point Light** (57°10.3′N., 134°14.2′W.), 17 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a small islet about 0.2 mile W of the point.

(114) **Woewodski Harbor** is the open bight between Liesnoi Island and Deepwater Point. Ledges and rocks, covered or awash at various stages of the tide and generally marked by kelp, extend NE from Liesnoi Island halfway across Woewodski Harbor. **Polivnoi Rocks,** three bare rocks surrounded by ledges, are at the N edge of this foul ground. The only anchorage for large vessels in Woewodski Harbor is NE of this foul ground in 20 to 26 fathoms, hard bottom, and exposed to SE winds. Small vessels find temporary shelter off **Bluff Point** in 6 fathoms, and S of Polivnoi Rocks in 3 to 6 fathoms, soft bottom.

(115) **Eliza Harbor** is a deep inlet with generally bold shores. The only available anchorage is at the S end of the harbor, off the W side of Liesnoi Island in depths of 18 to 20 fathoms. On each side of Liesnoi Island are narrow passages called North and South Passage, leading to Eliza Harbor.

(116) **North Passage** to Eliza Harbor enters from the NW part of Woewodski Harbor. This passage is straight, but narrow; its N shore is bold-to, its S shore foul, and submerged rocks and kelp patches extend to midchannel, leaving a navigable passage 75 to 100 yards wide with least depths of 6 fathoms. The rocks on the S side of the passage cause tide swirls; the ebb has a velocity of 4 knots, and the flood about 3 knots. When through the passage, haul S and anchor in midchannel in 18 to 20 fathoms, soft bottom in places, at two-thirds the distance toward **Thumb Point,** the SW extremity of Liesnoi Island.

(117) **South Passage,** S of Liesnoi Island, is reduced by submerged rocks at its narrowest part to a width of 70 yards, has a sharp turn and strong tidal currents, and should not be attempted except at slack water and with local knowledge. The rocks are marked by kelp, which, however, does not show when the current is running. In N winds, an indifferent anchorage may be had in the entrance to South Passage in 6¾ fathoms, with the SE side of Liesnoi Island bearing 082°, and Point Napean and **Sharp Point** in line, bearing 189°.

(118) **Charts 17336, 17320.–Chapin Bay** is a small inlet on the N side of Frederick Sound, and on the SW side of Point Napean (57°08.5′N., 134°17.5′W.), affording secure anchorage in 9 to 11 fathoms, sandy bottom. A reef, marked by kelp, extends 0.6 mile NE from the W point at the entrance, terminating in a bare ledge in the middle of the entrance. A ledge, bare at half tide, is 330 yards SW from the N point at the entrance, and kelp shows about 400 yards S of the ledge. There is also kelp in the middle of the channel, about 0.8 mile inside the entrance, and a shoal extends 150 yards E from the point on the W side of the S entrance to the narrows. A log storage area is on the SW side of Chapin Bay about 1.4 miles above the entrance.

(119) It is safest to enter Chapin Bay at low water. Enter about 400 yards SW of the half-tide ledge off the N point at the entrance and keep the N shore aboard at a distance of 200 yards until in the narrows. A midchannel course leads safely to the anchorage in the basin above the narrows.

(120) **Herring Bay,** 10 miles NE of Point Gardner Light, has its entrance between **Point Brightman** and the point to the N that separates Herring Bay from Chapin Bay. A tongue of land, prolonged by rocks, reefs, and kelp patches, extends in a SE direction from the bay, dividing it centrally into two parts.

(121) A rock awash is about 225 yards W of the charted 3-fathom shoal in the middle of the NE arm of the bay.

(122) There is a fair anchorage, open to the SE, in the SW corner of the bay, about 0.8 mile from the head. To make this anchorage, follow the S shore at a distance of about 0.4 mile, the chart being the guide.

(123) **Chart 17320.–Carroll Island** (57°01.7′N., 134°28.5′W.), on the N side of Frederick Sound, is a small island about 5.5 miles SW of Point Brightman and 4.5 miles E of Point Gardner Light. The island is conspicuous, but appears as a point of the main shore.

(124) **Chart 17336.–Walker Point,** about 2.4 miles ENE of Point Gardner Light, is the end of a low wooded peninsula separating Murder Cove from a foul bight E of it. Ledges and kelp surround the point to a distance of 0.2 mile.

(125) **Bartlett Point** is the end of a long, low, wooded strip separating Murder Cove from Surprise Harbor; the end of the point is two wooded islands joined by dry ledges. A bare ledge extends 300 yards S, and foul ground marked by kelp extends 0.5 mile SE and SW of the point, and more than halfway across Surprise Harbor.

(126) **Murder Cove** has its entrance between Bartlett Point and Walker Point, 2 miles E of Point Gardner. The channel narrows to 300 yards 0.4 mile inside the entrance, between a bare ledge on the E and two rocks, each with a clump of scrub, on the W. Above this point the channel has a width of about 200 yards between kelp-marked ledges, and it is best to enter at low water when the dangers show. The tide rips are sometimes heavy across the entrance when the wind is strong against the current.

(127) **Tyee** is an abandoned cannery on the E side of Murder Cove, about 1.2 miles N of Walker Point. Only submerged piles, that extend 130 yards from shore, remain of the cannery and fuel piers. Ruins of the cannery building and cabins are on shore. A 60-foot float with 5 feet reported alongside is 150 yards off the E shore. An unoccupied dwelling and a fishing cabin are on the NE side of the cove. The cabin monitors VHF-FM channel 16 daily except during the winter months. Fair anchorage, unprotected from SE winds, is in midchannel, in 8 to 11 fathoms, off the cannery site.

(128) **Point Gardner,** the S extremity of Admiralty Island, is low and wooded, and has two rocks 20 to 30 feet high, 600 yards S of the point. The W of the two rocks is marked by **Point Gardner Light** (57°00.6′N., 134°36.9′W.), 65 feet above the water and shown from a skeleton tower with a red

and white diamond-shaped daymark. A prominent mound is 0.2 mile NNE from the point, and a conspicuous round hill is 1.3 miles NNE from the point. The water is clear 0.2 mile from the rocks off the point, but the rocks should be given a berth of 0.5 mile to avoid frequent tide rips.

(129) **Surprise Harbor,** on the E side of Point Gardner, is open S, has much kelp, and is not a good anchorage. It is, however, a good lee when the wind is blowing strong down Chatham Strait.

(130) To enter, keep from 0.2 to 0.5 mile off the W shore, using caution and avoiding kelp. Anchor about midharbor in 7 fathoms, rocky bottom.

(131) **Chart 17320.–Yasha Island,** about 3.5 miles SE of Point Gardner, is small, low, wooded, and surrounded by kelp to a distance of 200 yards. A rock with a depth of 1¾ fathoms over it is about 1 mile 318° from the N point of the island. A lighted buoy marks the NNW side of the rock.

(132) Heavy tide rips will be found between Yasha Island and the buoy. These tide rips sometimes extend across to Point Gardner and along that shore E as far as Carroll Island, and are dangerous for small boats.

9. STEPHENS PASSAGE

(1) This chapter describes Stephens Passage, Holkham Bay, Endicott Arm, Tracy Arm, Taku Harbor, Gastineau Channel, Auke Bay, Tee Harbor, and the city of Juneau, including the communities of Douglas and Auke Bay.

(2) **Chart 16016.–Stephens Passage** extends from its junction with Frederick Sound at Cape Fanshaw (57°11.1′N., 133°34.3′W.) in a general NNW direction for about 88 miles to Shelter Island, which divides it into two channels, Saginaw Channel and Favorite Channel, and connects it with Lynn Canal. Numerous islands are in both entrances to the passage, but otherwise it is open, deep, and generally free from dangers.

(3) **Anchorages.**–The waters of Stephens Passage and its branches are generally deep, and there are few good anchorages. Anchorage can be had in Cleveland Passage, Gambier Bay, Seymour Canal, Taku Harbor, Gastineau Channel, Young Bay, Fritz Cove, Auke Bay, Barlow Cove, Tee Harbor, and Eagle Harbor. Temporary anchorage can also be found in Port Houghton, Hobart Bay, Sanford Cove (Endicott Arm), Limestone Inlet, Taku Inlet, and Adams Anchorage.

(4) **Currents.**–The flood current enters Stephens Passage from both ends and meets in varying places W of Point Arden; the ebb current flows in the opposite direction. The velocity of the current is 0.5 to 2 knots. In Saginaw Channel, the current frequently ebbs throughout the day when the Moon is in quadrature. The ebb current in this channel is considerably stronger than the flood. The currents have considerable velocity in the entrance to all the larger bays and inlets that make off from Stephens Passage, causing tide rips and swirls. (See the Tidal Current Tables for daily predictions of places in Stephens Passage.)

(5) **Weather.**–The prevailing winds are SE throughout the year. During the winter the winds are more variable and winds from the NE quarter may prevail, particularly in January. SE gales may occur at any season, but they are more frequent and more severe in winter than in summer. Fog may occur at any time, but is more frequent during the winter, reaching its maximum in January. The least fog occurs during April to July, inclusive, the minimum being in May.

(6) **Ice** is discharged from glaciers in Tracy and Endicott Arms and is always found in Holkham Bay, and is prevalent in Stephens Passage off the entrance to that bay. Occasional pieces of ice may be expected in all parts of the passage. In daytime with clear weather it is not a serious menace to navigation, but it is dangerous at night or in thick weather.

(7) **Chart 17365.–Cape Fanshaw,** on the E side at the junction of Stephens Passage and Frederick Sound, is a long, low, wooded point terminating in a sandspit, with a reef and rocks at the extreme end and deep water within 0.2 mile.

(8) **Cape Fanshaw Light** (57°11.1′N., 133°34.4′W.), 33 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point of the cape.

(9) **Fanshaw Bay,** on the NE side of Cape Fanshaw, is connected with Cleveland Passage by South Passage. Anchorage can be made in the SE side at the head, about 600 yards offshore and 0.5 mile SW of Whitney Island in 12 to 15 fathoms, sand and shell bottom, sheltered from NE and SE winds.

(10) **Storm Islands,** about 1.5 miles N of Cape Fanshaw, consist of a wooded island and several rocks; the southernmost, **Bird Rock,** is grass covered and marked by a light on the S side. A ledge extends about 300 yards WSW of Bird Rock. A grass-covered rock is between the larger Storm Island and Bird Rock. A 3 3/4 - fathom shoal was reported about 300 yards NE of the light marking Bird Rock in about 57°12′37.0″N., 133°35′05.1″W. There is no safe passage through Storm Islands and adjoining rocks, and the passage between Storm Islands and Whitney Island is narrowed to about 0.6 mile by a ledge awash at half tide 0.2 mile NE of the N end of Storm Islands.

(11) **Whitney Island,** wooded, forms the NE shore of Fanshaw Bay and the W shore of Cleveland Passage. **Duck Point,** the S point of the island, and **Bill Point,** the N point, are marked by lights.

(12) **Cleveland Passage,** separating Whitney Island from the mainland, is 0.5 mile wide and affords good anchorage near its SE end. The depths vary from 8 fathoms at its SE end to over 70 fathoms at the NW end. A rocky shoal, covered 1¼ fathoms, is reported about 250 yards off the W shore of the passage about 0.9 mile N of Duck Point. The anchorage is about 0.8 mile N of the narrowest part of South Passage, favoring the E shore, in 12 to 20 fathoms, soft bottom; take care to keep clear of East Spit. Small craft find anchorage in 4 to 8 fathoms E and N of East Spit. Winds from W to N bring in a slight swell, but do not seem to blow home with any force. Winds from SE, however, blow down from the mountains with great force during the SE blows in Frederick Sound.

(13) The entrance from NW is much safer because a midchannel course leads safely to the anchorage. **South Passage** has a midchannel depth of 11 fathoms. At the N end of South Passage are **East Spit** and **West Spit,** projecting N and NE, respectively. East Spit is about 0.25 mile into the SE end of Cleveland Passage. A rock is at the E end of West Spit.

(14) Small boats can find anchorage E of Duck Point close to the mainland in 10 to 12 fathoms with protection from NE and SE blows.

(15) The **tidal currents** have a velocity of 1 to 2 knots in South Passage.

(16) **Steamboat Bay** is 1 mile NNE of Whitney Island and has Foot Island on its N side. **McNairy Point** is the S point and **Fort Point** the N point at the entrance. The bay has generally deep water except for a reef that uncovers, about 400 yards N of McNairy Point, and has an advantage as an anchorage near Cleveland Passage. **Foot Island** is connected with a rocky reef at the head of the bay by a sandspit. The narrow passage on the NE side of Foot Island might afford shelter to small craft in 7 to 10 fathoms, abreast the middle of the island.

(17) **Chart 17360.–The Five Fingers,** about 6 miles NNW of Cape Fanshaw, are a group of islets, the larger ones wooded, and ledges that extend about 3 miles in a NW direction and about 1.5 miles wide. The SE islet is marked by **Five Finger Light** (57°16.2′N., 133°37.9′W.), 81 feet above the water and shown from a white concrete tower rising from the center of a building. A radiobeacon is at the light. A reef, covered at high water, extends 300 yards SW from the light.

(18) **Akusha Island,** the N island of the group, is wooded and the largest. Rocks are about 1 mile to the W. Deepwater channels are on all sides of the group.

(19) **Sail Island,** about 5.3 miles NW of Five Finger Light, is wooded. It has two hummocks with low land between and is conspicuous when approaching from the N. At the S end are two small islets and a rock awash.

(20) **False Point Pybus** is on the W side of Stephens Passage, about 9.5 miles NW of Five Finger Light. A daybeacon marks the point 1 mile to the SSW of False Point Pybus.

(21) **Point Walpole** on the E side of Stephens Passage, about 7.3 miles N of Cape Fanshaw, is the W extremity of the W wooded islet on the S side of the entrance to Port Houghton. The shores of the bight SE of the point are foul.

(22) **Port Houghton** is an extensive bay, about 9 miles above Cape Fanshaw. **Robert Islands** are a group of islands forming the S point of the entrance. The waters of Port Houghton are very deep, and afford no shelter for large craft. A good small-craft anchorage may be found in **Sandborn Canal,** which is a long narrow arm SE of **Walter Island,** in 8 fathoms, soft bottom. This is a good winter anchorage if ice does not bother. A midchannel course into it is clear. The proximity of Cleveland Passage makes it unnecessary to use Port Houghton for anchorage except in winter. A reef is reported to extend about 0.5 mile N from the N side of Walter Island. In 1971, rocks awash were reported off the unnamed point, on the S side of the bay about 3.5 miles ENE of Walter Island; caution is advised in this area because depths and character of bottom are not totally known. The chart is the best guide.

(23) **McDonald Rock** is in the broad part of Stephens Passage, about 8.8 miles N of Five Finger Light; it is small, has 3½ fathoms over it with deep water close-to, and is marked by a lighted buoy on its N side. The range of the SE tangent of East Brother over the middle of Sail Island crosses this dangerous rock, which is almost directly in the track of vessels from Cape Fanshaw through Stephens Passage.

(24) **Chart 17363.–The Twins** are two wooded islets on the E side of Stephens Passage about 9.8 miles NNE of Five Finger Light (chart 17360) and off the entrance to Hobart Bay.

(25) **Hobart Bay,** on the N side of **Point Hobart,** has its entrance about 14 miles N of Cape Fanshaw and 3 miles E of The Twins. A pinnacle rock, covered 3 ½ fathoms, is on the N side of Hobart Bay entrance about 1.1 miles W of Entrance Island in about 57°24′55″N., 133°28′41″W. A light about 0.3 mile offshore marks the S side of the entrance to the bay.

(26) **Entrance Island,** 458 feet high, is in the entrance to Hobart Bay. A small islet is 0.1 mile N of the island. A small bay, suitable for small craft, indents the SE side of the island for about 300 yards. A house on the neck of land that forms the S side of the entrance to the small bay is prominent when coming around the S side of the island from W. A State-maintained 100-foot-long small-craft and seaplane float is near the head of the small bay off the SW shore. The float is connected to shore by a long log catwalk, that is reported to be in poor condition. The float is used primarily as a weather layover facility. In 1976, depths of 15 feet were reported alongside the float. A privately owned radiotelephone is available on shore in an emergency.

(27) About 0.5 mile NE of Entrance Island, projecting points narrow the entrance into the inner bay. Bars, on which there are rocks, extend from the points of this entrance, leaving a navigable channel about 100 yards wide and 5½ fathoms deep into the inner bay. A rock with 1 fathom over it has been reported about 0.5 mile NNE of the S point at the entrance to the inner bay.

(28) Just within the entrance to the inner bay, a narrow arm leads NW to a basin, where a constricted anchorage in 10 fathoms may be found. In entering this basin, pass close E of the rocky islets just inside the entrance.

(29) The channel leading to the basin at the head of the bay is very narrow. Heavy overfalls at the end of the narrow passage are dangerous for small craft, except during a short period at slack water.

(30) Temporary anchorage may be found in 27 fathoms, soft bottom, NE of Entrance Island, with the N point of the entrance to Hobart Bay in range with the S shore of the small islet N of Entrance Island. Temporary anchorage may also be found in the bight SE of Entrance Island in 17 fathoms, soft bottom, about 0.2 mile from a fine sand beach. The N tangent of the easternmost of The Twins just shuts with the S tangent of the westernmost of The Twins.

(31) **Caution.**–The foregoing information relative to anchorages has been obtained from a source considered reliable. In entering the S anchorage favor the shore of Entrance Island, keeping on the range mentioned above. A ledge makes out about 160 yards from the point on the S shore.

(32) **Sunset Island** is a large rounded island, about 4.5 miles N of The Twins and SSW of the entrance to Windham Bay. A reef awash is about 0.1 mile off the S shore, and a rock awash at low water is about 0.1 mile off the E point of the island.

(33) **Windham Bay,** on the SE side of Point Windham, has its entrance about 7.5 miles N of The Twins and about 17 miles N of Five Finger Light. In the middle of the entrance is a small group of wooded islets, with a deep passage on either side. Reefs extend about 0.2 mile E of the islands. Close E of Point Windham is another small group of islets. The northernmost islet is wooded, and the islet SW of it has some shrubbery on it.

(34) **Windham Bay Entrance Light** (57°33.7′N., 133°32.6′W), 35 feet above the water, is shown from a small house with a red and white diamond-shaped daymark on the southeasternmost islet, about 0.6 mile E of Point Windham.

(35) Indifferent anchorage, in about 20 fathoms, may be had off the ruins of Windham N of the flat near the head of the bay. There is constricted anchorage in the cove just E of the S point of the entrance to the bay in 25 fathoms. Small craft anchor closer in.

(36) A fog bank of varying density frequently hangs over the upper part of Windham Bay, especially at night.

(37) From its 1.5-mile-wide entrance, Windham Bay narrows rapidly and connects with a deep inner basin about 4 miles long and 0.5 mile wide. This narrow connecting channel is constricted to about 100 yards by a ledge on its N side that bares. In passing through the narrows, great care should be exercised and the S shore kept aboard at a distance of about 50 yards. From the point on the S shore SE of the ledge, a spur that bares extends about 20 yards. A small wooded islet is close to the N shore about 0.6 mile W of the narrows. The extensive flat that extends from the SE side of Windham Bay leaves a passage about 0.2 mile wide close to the N shore up to within 0.4 mile from the head of the bay. **Chuck River,** entering the head of the bay, is reported to be navigable in a rowboat for about 1 mile. During the winter the head of Windham Bay to the narrows freezes over.

(38) **Chart 17360.–Point League** (57°37.6′N., 133°40.0′W.), on the E side of Stephens Passage about 5.3

miles NW of Point Windham, is a gently rounding precipitous point. The cliff, about 30 feet high, is whitish. The point rises rapidly to a lofty mountain with partially bare slopes. **Point Lookout** is about 1.4 miles N of Point League and is hummock and timbered.

(39) Anchorage has been obtained in the cove between Point League and Point Lookout by a vessel 150 feet long in 15 fathoms close to the entrance near the N shore, but it is not recommended. It is exposed to SW winds and is constricted by a shoal making out from the S shore and shoal water inside the cove.

(40) **Thistle Ledge,** covered at high water and marked by kelp, is about 0.6 mile from the E shore of Stephens Passage about 1 mile N from Point Lookout. The shore is foul between Thistle Ledge and Point Astley, about 3 miles N. A small islet is 0.8 mile S of Point Astley.

(41) **Chart 17362.–Gambier Bay** has its entrance on the W side of Stephens Passage, about 8 miles N of The Brothers (chart 17360). There are numerous islands and ledges in the entrance, but with the aid of the chart it can readily be entered in the daytime.

(42) **Point Gambier,** the NE point at the entrance to Gambier Bay and the SE end of Gambier Island is marked by **Point Gambier Light** (57°26.1′N., 133°50.4′W.), 38 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

(43) The bay is irregular in shape and is divided into two parts by a chain of narrow islands and reefs. The outer bay, which extends from Point Gambier about 7 miles in a NNW direction, is about 1.7 miles wide at the entrance; its N end is an inlet that affords anchorage in 15 to 20 fathoms, soft bottom. Anchorage in 6 to 17 fathoms, mud bottom, can be had N of **Good Island.** It can be approached without difficulty, but care should be taken to avoid the foul ground that extends off the NW point of Good Island.

(44) **Romp Island** is about 0.4 mile NW of Gambier Island with ledges between.

(45) The chain of islands and reefs, including Chapel Island and Price Island, paralleling Gain Island and the mainland at Church Point divides the outer part of the bay into two passages. The fairly straight narrow channel W of this chain is considered the better approach to the inner parts of the bay. In navigating the passage care should be taken to avoid the bare rocks, that extend 165 yards out from the point, 0.5 mile SSE of **Church Point.**

(46) **Currents** have a velocity of about 3 knots in the passage between Church Point and Gain Island, and some swirls occur around the ledges E and N of Gain Island.

(47) **Price Island** is 680 yards from the W shore of the outer bay. A rocky shoal with a least depth of 5 fathoms is about 1 mile SE from the S end of Price Island, with deep water between it and the ledges, that have a number of bare heads, that extend 0.6 mile SE of the island. A large, conspicuous, gray boulder on the S ledge is a good landmark.

(48) **Chapel Island,** small in extent, is about 0.8 mile N of Price Island. A rock that bares 1 foot is about 0.4 mile E of Chapel Island. Ledges extend about 0.9 mile NW from the NW point of Chapel Island to a channel about 450 yards wide. The reef on the NW side of this channel is marked by **Gambier Bay Entrance Light 2** (57°27.9′N., 133°55.1′W.), 16 feet above the water and shown from a skeleton tower with a red triangular daymark.

(49) **Tree Island** appears as a clump of trees just N of **Gain Island.** At low water Tree Island appears at the end of a spit off Gain Island; in reality it is a part of Gain Island. About 0.3 mile NW of Tree Island is a much larger unnamed island, which is wooded. Two pinnacle rocks, covered 2½ and 2 fathoms, are 0.4 mile and 0.6 mile, respectively, NW of the unnamed island. Once past these rocks, the inner bay is relatively clear.

(50) Anchorage, with good protection from all but SW winds, is in the bight about 1.4 miles NNW of Gain Island, in about 11 fathoms with sand and mud bottom.

(51) **Snug Cove,** on the S side of the inner bay about 2 miles WSW of Church Point, has anchorage in 15 to 20 fathoms, soft bottom. Small craft find good protection here in 4 to 7 fathoms. Large vessels reach the cove by way of the channel close E of Church Point, Gain Island, and the unnamed island to the NW; the NW end of the unnamed island can be rounded at a distance of about 300 yards, thence a S course can be laid to pass about midway between the unnamed island and Muse Island, 0.7 mile to the SW. Only small boats can navigate the passage between Church Point and Gain Island because of the rocks.

(52) The preceding paragraphs have pointed out the channels into Gambier Bay and the dangers to be avoided. Specific courses would be of little help and could be confusing. The navigator should pay close attention to the chart.

(53) **Charts 17360, 17300.–Seymour Canal** has its entrance W of Point Hugh (57°34.5′ N., 133°49.0′W.), 15.5 miles N of The Brothers. It extends in a NW direction into Admiralty Island for about 38 miles, with an average width of about 3 miles. The survey of the canal is old and incomplete, and dangers exist in addition to those shown on the chart, especially near the shores. The upper part of the canal (chart 17300), to a distance of about 21 miles from its head, is filled with islands, ledges, and rocks. **Tiedeman Island,** 15 miles above Point Hugh, divides the canal for a distance of 8 miles. Above Tiedeman Island is another large island called Swan Island. A rock that bares at low water and surrounded by an extensive bed of kelp is 1 mile S of the SE end of Tiedeman Island. **Dorn Island** and **Faust Island,** 1.5 miles E of Tiedeman Island, and **Bug Island,** 1 mile E of Swan Island, are small and wooded. A 4-fathom ridge extends about 300 yards S of the SW end of Dorn Island. The waters of the canal are, in general, deep. By passing W of Dorn and Faust Islands and E of Tiedeman Island and Swan Island, the canal may be navigated to the head of **Fool Inlet** , though above Tiedeman Island the passage is narrow and somewhat intricate. A 1½-fathom spot is close E of Tiedeman Island in about 57°49′42″N., 134°07′57″W. In December 1986, a 6-fathom spot was reported about 3.5 miles NW of Faust Island in about 57°51′11″N., 134°07′48″W. N and NE of Swan Island numerous submerged pinnacles rise to within 2 fathoms of the surface. An extensive area of ridges and reefs extends 1 mile SE from the E side of the entrance to King Salmon Bay. In the upper part of the canal the depths are moderate, and anchorage can be selected in places for which the chart is the guide. The extreme head of the canal is separated by a portage of less than 0.5 mile from Oliver Inlet. Vessels transiting the canal N of Tiedeman Island should use caution and local knowledge.

(54) Currents in excess of 4 knots during both flood and ebb have been observed in the channel that approaches Fool Inlet in Seymour Canal.

(55) **Point Hugh** is the S extremity of **Glass Peninsula,** a long, narrow, and moderately high strip of land that separates Seymour Canal from Stephens Passage. Rocks, awash, are about 400 yards off the point.

(56) **Chart 17360.–Pleasant Bay** is a small cove on the SW side of Seymour Canal, 7 miles above Point Hugh

(57°34.5'N., 133°49.0'W.), which affords anchorage for small craft. Two islets are in its entrance. The channel between the two islets is foul. A reef extends about 150 yards N from the NW islet. The best channel to enter is between this reef and the very prominent point of broken rock resembling a breakwater on the NW side of the entrance. This breakwater reef shows prominently at all stages of the tide. The channel is about 75 to 100 yards from the point of the breakwater reef. Depths of about 6 fathoms are in the entrance, and depths of 2 to 5 fathoms are inside the bay. Anchor in 4 fathoms about 300 yards SW of the NW islet. The bottom here is apparently a thin layer of mud on rocks that makes poor holding ground in heavy S weather. A spit extends 125 yards SW of the islet.

(57) The head of the bay bares except for a pool just W of the small point that projects from the NW shore. Small craft can pass into this pool at high water and have sufficient depth and swinging room for one or two boats at low water. This is an excellent shelter in N winds. Water can be obtained from a spring in the little bight near this pool.

(58) **Mole Harbor** is on the SW shore of the canal, about 9 miles above Point Hugh. A flat that bares at low water extends 0.6 mile from the head of the harbor. **Beacon Rock,** in the middle of the entrance, is part of a chain of rocky reefs extending from the S side of the entrance to the harbor to 400 yards NW of Beacon Rock. The reefs bare at low water. **Rasp Ledge,** a small bare rock, is 0.2 mile NE of **Flaw Point,** the N point at the entrance. A 2¼-fathom shoal and a 3-fathom shoal are 0.5 mile and 0.3 mile SW of Flaw Point, respectively. Enter midway between Beacon Rock and Rasp Ledge; when abeam of Flaw Point, maintain a distance of 0.2 mile from the N shore and come to a W heading, using care to avoid the 2¼- and 3-fathoms shoals. Anchor in 13 to 17 fathoms, sticky bottom, about 1 mile within the harbor, giving the shores a berth of about 0.2 mile. Small craft can find anchorage SW of Beacon Rock in 3 to 10 fathoms, mud bottom.

(59) **Sore Finger Cove,** on the NE shore of the canal about 4.5 miles N of Mole Harbor, offers good anchorage in 1 to 5 fathoms with shelter from all but W winds.

(60) **Charts 17360, 17300.–Short Finger Bay** (57°48.5'N., 134°02.0'W.) is a small bay on the E shore of Seymour Canal about 16 miles N of Point Hugh and directly E of Faust Island. Good shelter from S weather and anchorage in 5 to 10 fathoms, mud bottom, can be had here.

(61) **Winning Cove,** about 3.5 miles NNE of Faust Island, is a shallow inlet of no importance in the E shore of the canal.

(62) **Chart 17300.–Windfall Harbor** is on the W shore of Seymour Canal, abreast the NW end of Tiedeman Island, and about 23.5 miles N of Point Hugh. **Windfall Island,** large and high, is in the middle of the entrance. A flat extends about 0.8 mile from the head of the bay, and a long bight indents its W shore 1.5 to 2.8 miles SW of Windfall Island; both dry. The entrance to Windfall Harbor is SE of Windfall Island between **Late Point,** the S end of the island, and **Staunch Point,** directly opposite on Admiralty Island. A 2½-fathom shoal extends 0.3 mile S of Late Point. The passage on the NW side of Windfall Island is foul. The midchannel depths in the harbor are 12 to 19 fathoms.

(63) On the W shore near the head of the harbor is a trail marker and shelter cabin. A trail, maintained by the Forest Service, starts near the cabin and extends inland 9 miles to Lake Hassellborg.

(64) On the shoreline W of the N end of Windfall Island is a trail marker indicating the beginning of a trail maintained by the Forest Service, leading 1 mile inland to a sheltered platform for observing bears. A private floathouse, with a radiotelephone, is beached at the entrance to **Pack Creek** about 0.8 mile NW from the NW side of Windfall Island.

(65) Windfall Harbor should be approached only by the channel W of Tiedeman Island, which is about 0.8 mile wide. In using this passage keep in midchannel, except at a point 2 miles above the SE end of the island, where the W shore, which is bold, should be favored to avoid a patch of rocks about 700 yards off the E shore. A 3¼-fathom spot is 0.8 mile E of Staunch Point. Enter the harbor SE of Windfall Island and anchor anywhere in 15 to 17 fathoms, sticky bottom, preferably near the SE shore.

(66) **King Salmon Bay,** on the W side of the canal near its head, affords anchorage but the approach is difficult. The U.S. Fish and Wildlife Service patrol vessel BRANT reported grounding on a gravel bar that extends 100 yards W from the end of the long point forming the W side of the bay.

(67) **Chart 17360.–Point Hugh Light** (57°37.2'N., 133°48.4'W.), 34 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point on the W shore of Stephens Passage 2.9 miles N of Point Hugh. About 1.2 miles S of the light, rocks extend offshore about 0.2 mile.

(68) **Midway Point,** about 10 miles N of Point Hugh, is distinguishable from seaward and made prominent by a white rock cliff about 30 feet high, backed by a round grassy knoll.

(69) **Point Glass,** about 4.5 miles N of Midway Point, is an indefinite point. The shore is steep and rocky. Rocks covered at half tide are about 0.2 mile offshore, 0.7 mile S from the point. A rock, awash at half tide, is 0.3 mile S of the point about 100 yards offshore.

(70) **Holkham Bay** is an inlet, with two extensive arms, on the E side of Stephens Passage, about 8.5 miles NE of Point Hugh Light and about 28 miles N of Five Finger Light. The water in both arms is very deep, in some places more than 200 fathoms. In both arms the shores are steep and high.

(71) **Currents.**–The **tidal currents** have an estimated velocity of 4 knots at the entrances to Tracy Arm and Endicott Arm, forming swirls in these areas. Currents of much greater velocity are found in Fords Terror.

(72) Glaciers discharge ice into both Tracy Arm and Endicott Arm. It is always present in Holkham Bay, sometimes in large quantities, and is prevalent in Stephens Passage off the entrance to the bay in greater or smaller quantities. This ice is dangerous at night or in thick weather, and in entering Tracy Arm or Endicott Arm care should be taken when near the ice, as the swirls are often dangerous.

(73) **Point Astley** and **Point Coke** are the S and N points, respectively, at the entrance to Holkham Bay. A group of three rocky islets are about 0.1 mile off Point Astley. The highest of the three is about 35 feet high; the westernmost about 15 feet high; and the third, close NE of the highest one, is about 5 feet high. A gravel bar connects the two larger ones at low water.

(74) A cove about 0.2 mile in extent, close under the E side of Point Coke, might afford a lee and anchorage for small craft with heavy NW winds blowing down Stephens Passage.

(75) An anchorage with shelter from SE winds may be had in the W bight between Point Astley and Wood Spit, in 20 to 30 fathoms, hard bottom.

(76) **Harbor Island** is a high wooded island in the middle of the entrance to Holkham Bay. In N weather the bight on

the SE side of the island affords safe anchorage for small craft in 2 to 8 fathoms, hard bottom. A group of five islets, the largest and southeasternmost of which is **Round Islet,** is within 0.7 mile SE of Harbor Island. There is a safe passage through the group for small craft.

(77) A long, low wooded point extends W from the mainland E of Harbor Island. An extensive flat, with boulder patches on it, extends up to 1.2 miles from the point. The edges of the flat are steep-to. **Sand Spit,** a small islet, stands on the SE edge of the flat. Two bare rocks on the flat are 0.4 and 0.8 mile SW of Sand Spit.

(78) The passage between Harbor Island, the Round Islet group, SE of it, and the flat, is about 0.8 mile wide and has depths of about 23 fathoms in midchannel.

(79) **Wood Spit** is a long narrow spit that extends about 0.8 mile in a N direction from the S entrance point of Endicott Arm. At high water, it shows as a small, partially wooded island, about 20 feet high. Two boulder patches are 0.2 mile N of the spit. **Wood Spit Light** (57°44.3'N., 133°34.6'W.), 27 feet above the water and shown from a tower with a red and white diamond-shaped daymark, is on the N end of the boulder patches.

(80) Between Wood Spit Light and the SW end of the flats N of it, the channel leading into Endicott Arm is 0.5 mile wide and has depths of 18 fathoms 0.44 mile off Wood Spit Light.

(81) **Endicott Arm** is the S arm of Holkham Bay. **Sumdum Island** is in midchannel, abreast Sanford Cove. **Bushy Islands** are two small islets midway between Sumdum Island and the NE shore. **Dawes Glacier,** at the head of the arm, extends to the water's edge. This glacier occasionally calves off enough ice into the arm to hamper navigation seriously.

(82) **Fords Terror** is a narrow inlet that extends 5 miles in a N direction. Its entrance, dangerous except at high water slack, is on the N side of Endicott Arm, 10 miles SE of Sumdum Island. Tidal currents rush through the narrowest part of the inlet with great velocity. The controlling depth through the narrows is ¼ fathom. Fords Terror has magnificent scenery and affords a relatively safe anchorage.

(83) **Brown Glacier,** at the head of Fords Terror has receded, and the shoreline is about 0.5 mile E of the former charted position of the edge of the glacier.

(84) **Sanford Cove,** on the S shore of Endicott Arm, 5 miles within the entrance, is one of the two available anchorages in the arm. It has a depth of 36 fathoms and is protected except from N winds. **Rock Point** forms the NE side of the cove. A shoal with a depth of 4½ fathoms extends 0.3 mile off the point. A flat extends out 300 yards in the S part of the cove. An occasional piece of ice drifts into the cove, but is of no danger to vessels at anchor.

(85) **Routes, Holkham Bay and Endicott Arm .**–In approaching from S give the E shore of Stephens Passage a berth of 1 mile or more. From a position 0.8 to 1 mile NW of Point Astley steer for **Sumdum Glacier ,** and pass in midchannel between Wood Spit Light and the Round Islet group, passing 0.44 mile off the light.

(86) In approaching from W, pass about 0.5 mile S of Point Coke and steer SE, leaving Harbor Island 0.2 mile or more to NE. Follow around the S side of Harbor Island and the Round Islet group at a 0.2-mile distance and pass midchannel between the latter and Wood Spit Light. The chart should be the guide.

(87) **Chart 17300.–Tracy Arm,** the N arm of Holkham Bay, takes a general N direction for 9 miles and then turns E 13 miles to its head, where two large glaciers, North Sawyer and South Sawyer, discharge into salt water. The arm is often clogged by small icebergs for several miles, and great care is needed in navigating the ice field. At times **South Sawyer Glacier** is very active, and huge blocks of ice fall off its face into very deep water. These set up waves that have been observed as high as 25 feet; however, a small boat can ride the waves safely if it keeps a few miles distant from the glacier face and avoids getting packed in the ice flow. **North Sawyer Glacier** ordinarily is much less active. Tracy Arm, with its deep water and bold shores, is one of the outstanding fiords of southeast Alaska.

(88) The entrance to the arm is about 1 mile wide. The navigable channel is constricted but not to the extent of making it unsafe to enter. The point of the rocky shoal on the NW side extends about 0.5 mile into the channel and is unmarked. The entrance between this rocky shoal and the shoal water on the SE side is about 0.2 mile wide and has a depth of 6½ fathoms. The shoal on the SE side is marked by **Holkham Bay Buoy 2** (57°46.8'N., 133°37.5'W.) and heavy kelp beds in the summer. The buoy is reported to submerge during periods of strong current. An unlighted **215°** range on the NW end of Harbor Island marks the entrance to Tracy Arm. Tidal swirls will be met in the entrance except at slack water.

(89) **William Cove,** a deepwater anchorage with constricted swinging room and hard bottom with patches of mud, is at the head of a large bight on the W side of Tracy Arm about 6 miles above the entrance to the arm. An anchorage for small boats in 5 fathoms, rocky bottom, is reported available in the small bight on the W side of the arm, about 2 miles above the entrance. A rock awash is about 0.2 mile SE of the entrance to the small bight. To enter Tracy Arm, pass N of Harbor Island, pick up the **215°** unlighted range astern, and pass between the rocky shoal on the NW side and the shoal water on the SE side of the entrance. Thence steer for the daybeacon on the E shore of Tracy Arm and proceed in midchannel in the arm; the chart is the guide.

(90) **Midway Islands** are two small, sparsely wooded islets, 16 miles N of Point Hugh and 2 miles off the E shore of Stephens Passage. Rocks, awash at highest tides, are between them, with deep water close-to. A ledge extends about 0.2 mile S from the S islet, which is marked by **Midway Islands Light** (57°50.2'N., 133°48.9'W.), 83 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

(91) **Twin Point,** a narrow wooded point with steep rocky shores, the more northerly of two similar points, is on the W side of Stephens Passage, about 7.5 miles NW of Midway Islands Light.

(92) **Station Point,** about 6 miles to the N of Twin Point, is wooded and rises to a knob 1.4 miles inshore. A small wooded islet 105 feet high is 300 yards off the point. The bight, about 0.5 mile S of the islet, is used as a fair-weather anchorage by small craft.

(93) **South Island,** about 2 miles SE from Station Point, is wooded. Reefs extend 50 to 100 yards from its shores, except at the SE end, where a reef extends about 0.5 mile SE. Two small wooded islets are close to the point to the SW of South Island. Anchorage in 14 fathoms, sticky bottom, has been found to the W of South Island. In the bight to the S of the small islets, small craft can find fair-weather anchorage.

(94) **Charts 17313, 17300.–Port Snettisham** has its entrance on the E side of Stephens Passage, about 7 miles N of Midway Islands and 10 miles SE of Grand Island. It is about 1.7 miles wide at the entrance and has a NE direction for 4.3 miles, narrowing somewhat, and dividing into two arms. **Speel Arm,** the N arm, is 7.5 miles long to the flat at

the mouth of **Speel River** at its head. A powerplant and a 2,000-foot airstrip are at the head of Speel Arm. **Gilbert Bay,** the south arm, is 3.5 miles long to the flat that extends 1 mile from its head, above which is a low valley 3 miles long to Holkham Bay.

(95) **Point Styleman** is the NW point of the entrance, and **Point Anmer,** marked by yellow and white cliffs, is 1 mile S of the SE point of the entrance.

(96) **Local magnetic disturbance.**–Extreme magnetic disturbance exists in Port Snettisham and Gilbert Bay. The magnetic compass should not be relied upon within the area outlined in magenta as shown on charts 17300 and 17313.

(97) A private channel and basin are at the head of Speel Arm, but it was reported in 1976 that the channel and basin were no longer maintained. The basin was reported to freeze over in the winter.

(98) The shores of Port Snettisham are steep and wooded. Because of the great depth, it is not suitable as an anchorage, though in case of necessity a vessel may anchor in about 20 fathoms at the head of either Speel Arm or Gilbert Bay, close to the flats. A poor but possible anchorage in 28 fathoms, sticky bottom, can be found in the small cove W of **Mist Island,** about 1.8 miles ENE of Point Styleman. It is exposed to S winds and eddies during strong tides. Anchorage can be had directly across from Mist Island, on the SE side of Port Snettisham in a small cove in 5 to 15 fathoms, hard bottom.

(99) The port is entirely free from dangers, but there are large flats at the head of all the arms. Moderately heavy tide rips are sometimes found at the entrance to Port Snettisham.

(100) A barge dock and a small-craft float are in the basin at the head of Speel Arm. Gasoline is available in an emergency only. A machine shop is available for emergency use. A supply barge visits twice a year. Telephone and radiotelephone service is available only in an emergency. Seaplanes visit Port Snettisham on a weekly schedule.

(101) **Whiting River** empties into the middle arm at the NE part of Gilbert Bay.

(102) **Charts 17314, 17300.–Limestone Inlet** has its entrance on the E side of Stephens Passage, about 13 miles NNW of Midway Islands Light and 2 miles SE of Taku Harbor. It is a narrow arm that extends in an easterly direction. The depths are 13 to 30 fathoms in the lower half of the inlet, and a vessel may anchor anywhere in midchannel, but the holding ground is not very good. With the close proximity of Taku Harbor, vessels seldom find it necessary to enter. The upper half of the inlet is filled by a flat, most of which covers at high water. An overhead power cable with a clearance of 93 feet crosses the inlet about 0.3 mile above the mouth. The maximum safe clearance under this 138,000-volt line is 80 feet.

(103) **Taku Harbor,** about 19 miles SE from Juneau, indents the E shore of Stephens Passage about 3 miles SE of Grand Island. The entrance is between **Stockade Point** and the SE tangent of **Grave Point.** In the approach from the S, its position is readily known by the projecting high land of Grave Point and **Taku Mountain** rising behind the point. Taku Mountain is prominent in Stephens Passage from Sunset Island N to Point Tantallon. A flat extends about 0.2 mile from the head.

(104) **Local magnetic disturbance.**–Differences of as much as 10° from normal variation have been observed in the vicinity of Grave Point.

(105) **Grave Point Light** (58°03.7'N., 134°03.1'W.), 45 feet above the water, shown from a skeleton tower with a red and white diamond-shaped daymark on the SW extremity of Grave Point, marks the N side of the entrance to the harbor.

(106) The anchorage is in about 13 fathoms, soft bottom, favoring the E shore. A slight eddy current in Taku Harbor from Stephens Passage is sometimes noticed on the flood and, with large tides, swirls are produced that cause a vessel to surge somewhat on her cables at times. The N winter winds from the interior draw through the valley back of the harbor with great force. In the winter these conditions, when at their severest, render the anchorage somewhat dangerous.

(107) Enter Taku Harbor on a midchannel course using the chart as a guide.

(108) The ruins of a wharf are on the E shore of Taku Harbor. A State-maintained T-shaped small-craft float, with a 200-foot face, is about 0.1 mile S of the ruins. About 100 feet of float space connects the face with about 260 feet of approach sections from shore. In 1976, depths of 10 to 20 feet were reported alongside the small-craft float.

(109) **Slocum Inlet** is on the E shore of Stephens Passage, about 4.5 miles N of Grave Point Light and 2.5 miles NE of Grand Island. It is almost filled with flats. The water is deep close to the flats, but it does afford convenient anchorage.

(110) **Circle Point,** the S point of the entrance to Slocum Inlet, rises to **Butler Peak,** a prominent conical peak.

(111) **Chart 17300.–Grand Island,** in the middle of Stephens Passage, 17.5 miles NW of Midway Islands and 3.5 miles S of Point Arden, is marked on its NE side by **Grand Island Light** (58°06.0'N., 134°06.5'W.), 47 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark. It has three knolls and rises abruptly from deep water. A good channel is on each side of the island; the E one is generally favored.

(112) **Cove Point,** on the W side of Stephens Passage, about 1.6 miles NW of Grand Island, rises to a timbered knob, with a depression between it and a ridge to the NW. Two rocks are close to the S shore of the point; the outer rock bares and the inner rock uncovers 12 feet. **Doty Cove,** S of Cove Point, is deep. Flats at the head of the cove drop off rapidly to 20 fathoms.

(113) **Chart 17315.–Point Arden** is a rocky bluff on the W side of Stephens Passage about 3.5 miles N of Grand Island and 11.2 miles from Juneau. **Point Arden Light** (58°09.6'N., 134°10.7'W.), 50 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the NE end of the point.

(114) **Taku Inlet,** on the E side of Stephens Passage, has its entrance about 2.7 miles NE of Point Arden Light. The inlet is about 15 miles long from **Bishop Point,** the W entrance point, to Taku Glacier at its head. A 1¼-fathom depth is about 100 yards SE of Bishop Point.

(115) **Anchorage.**–The inlet has no secure anchorage and is exposed to strong winds. The best general anchorage, with fair protection from S winds, is to be had in 5 to 7 fathoms, soft bottom, 2 miles ENE of Jaw Point and about 0.5 mile offshore. Temporary anchorage, partially protected from N winds, can be had in from 3 to 7 fathoms, soft mud bottom, E of the Annex Creek Power Station. Another anchorage in midchannel, in 3 to 8 fathoms, soft mud bottom, is E of Flat Point. This anchorage is not sheltered from the wind.

(116) **Currents.**–In Taku Inlet, currents have greater velocity on the ebb than on the flood. At Taku Point, the ebb current has an estimated velocity of 3 to 4 knots at times. At the entrance to Taku Inlet the velocity of the ebb current does not exceed 2 knots. (See the Tidal Current Tables for daily predictions.)

(117) **Winds.**–The conformation of Taku Inlet is such that N winter gales sweep down the inlet and across Stephens Passage with great force, often accompanied by a blinding snowstorm. SE gales draw through the inlet.

(118) **Ice.**–Taku Glacier has now pushed up the moraine ahead of its face, and ice no longer is a serious threat to navigation in the inlet. A few small chunks of ice occasionally drift down the inlet, but these are rarely more than 3 to 4 feet wide.

(119) For a distance of about 9 miles, from Bishop Point to about 2.6 miles above Jaw Point, the water is deep and the shores bold. Thence to about 2.6 miles S of Taku Point, a distance of about 3 miles, the channel is narrowed by a flat that extends out from the E shore. From 2.6 miles S of Taku Point the channel is ill-defined, narrow, and subject to change, and should not be traversed without local knowledge. Large vessels should not venture N of Flat Point because of the extensive shoaling at the head of Taku Inlet. It is reported that the deepest water between Flat Point and Scow Cove is 4 feet in the channel about 100 yards off the W shore of the inlet.

(120) **Jaw Point** is the prominently projecting point on the E shore about 5.5 miles within the entrance; there are high cliffs on the E shore S of it. **Flat Point** is on the W shore 3 miles N of Jaw Point. **Greely Point,** on the E shore, 4 miles S of Jaw Point, is distinguished by its reddish-brown color.

(121) **Sunny Cove** is on the W side of the inlet about 4 miles above **Cooper Point,** which is reddish-brown. In a small bight between Sunny Cove and Flat Point about 1.3 miles NE of Sunny Cove is the **Annex Creek Power Station,** which furnishes electric power to Juneau, and a small wharf at the station. The power station constitutes a good landmark. The bottom bares alongside the wharf.

(122) **Taku Point** is on the E shore S of the mouth of Taku River and 4.5 miles N of Flat Point.

(123) **Norris Glacier** is on the W side of Taku Inlet, about 4.5 miles N of Flat Point.

(124) The early prospectors used to go up Taku River by canoe to the fabulous Yukon gold fields.

(125) **Taku Glacier,** the discharge of which is blamed for filling in the head of the inlet, is almost the only one of all Alaska's glaciers that is still advancing. It pushes ahead of it vast quantities of sediment that have filled up the formerly deep basins in the inlet.

(126) Because of the extensive shoaling at the head of the inlet that bars the mouth of **Taku River,** no directions can be given for proceeding N of the line between **Scow Cove** and **Davidson Creek .**

(127) **Caution.**–Small craft should exercise caution when maneuvering in shoal water especially off Sunny Cove, Annex Creek Power Station, and off **Turner Creek** on the E side of Taku Inlet. These areas have scattered boulders that stand 2 to 5 feet above the surrounding bottom. Because of the discoloration of the water it is impossible to see them even when covered by only a foot of water. There is a flat for 1.5 miles alongshore S of Flat Point that extends off a greatest distance of 0.5 mile offshore. It has depths of ½ to 2 fathoms over it within these limits and deepens to 10 fathoms in about 0.2 mile. Along the edge of the flat for a distance of 0.2 mile SW of Flat Point, boulders and rock ledges bare at extreme low water. This area should be avoided by small boats except at high water. If the Flat Point-Taku Point range is kept slightly open, a least depth of 4 fathoms will be had and this flat avoided. Depths increase as the range is opened.

(128) **Gastineau Channel,** separating Douglas Island from the mainland, extends NW for 13 miles from Stephens Passage, and then W for 2.5 miles to Fritz Cove. The channel is marked by lights, lighted and unlighted buoys, and daybeacons. The section of the channel from **Salmon Creek** NW for about 2 miles is marked by seasonal buoys. Juneau, 8 miles above the SE entrance, is the head of deep-draft navigation. The channel from Juneau to Fritz Cove, a distance of 7.5 miles, crosses **Mendenhall Bar** and is navigable only by small craft with local knowledge. This part of the channel is subject to considerable shoaling; mariners are advised to obtain the latest local information concerning channel conditions.

(129) **Caution.**–The transit of the channel from Buoy 7 to Light 21 is limited by Mendenhall Bar. In 1983, it was reported that the shallowest part of the bar, between Daybeacons 15 and 17, bared at 10 feet above Mean Lower Low Water. The bar may be crossed **only** when the tide is high enough, i.e., when the tide is **at least** 10 feet above Mean Lower Low Water, plus the draft of the vessel transiting, plus a safety factor suitable for the vessel and operator. In selecting a safety factor, mariners should consider that the actual height of high tide can differ appreciably from the predicted high tide and that most often the actual height is less than the predicted height.

(130) Tide gages are on Mendenhall Bar Channel Lights 5 and 21. The zero mark on these gages is at the level of the least depth of the channel across Mendenhall Bar. Thus, the reading on these gages at higher tidal elevations shows the amount of water available over the shallowest part of the channel. Since this reading shows the actual tide level over the bar, it is unaffected by whatever difference there may be between the actual and the predicted tide.

(131) A free diagram of the channel across Mendenhall Bar is available from the Aids to Navigation Branch of the Seventeenth Coast Guard District office in Juneau. (See appendix for address.)

(132) A 5 mph **speed limit** with wake not to exceed 6 inches in height is enforced in Gastineau Channel between Juneau Isle and Buoy 7.

(133) **Marmion Island,** about 300 yards to the NE of Point Tantallon, the SE point of Douglas Island and the SW point of the SE entrance to Gastineau Channel is small, flat-topped, and bushy. **Marmion Island Light** (58°11.9'N., 134°15.4'W.), 50 feet above water, is shown from a skeleton tower with a red and white diamond-shaped daymark. A shoal with a least depth of 4¾ fathoms extends 0.2 mile E of the light.

(134) **Local magnetic disturbance.**–Differences of 5° from normal variation have been observed in Gastineau Channel in the vicinity of latitude 58°15'N.

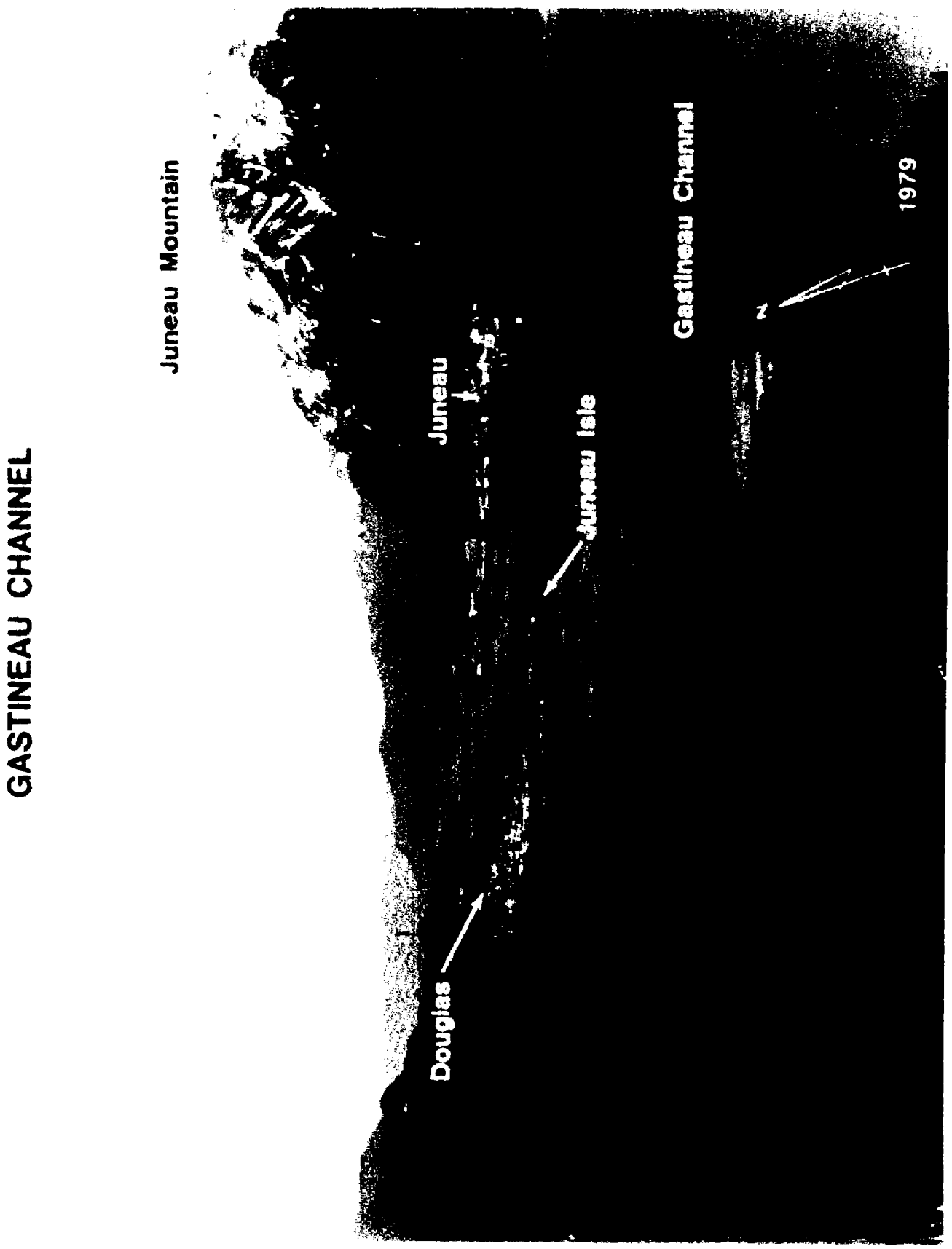
(135) **Sheep Creek Flat,** 4.5 miles above Marmion Island and close S of Thane, on the E side of Gastineau Channel, extends 0.25 mile across the channel from the mouth of Sheep Creek and bares. The outer limit of the flat is marked by a light.

(136) **Thane** is a residential section of the borough of Juneau on the NE side of Gastineau Channel, 5 miles from Stephens Passage. A highway connects it with Juneau.

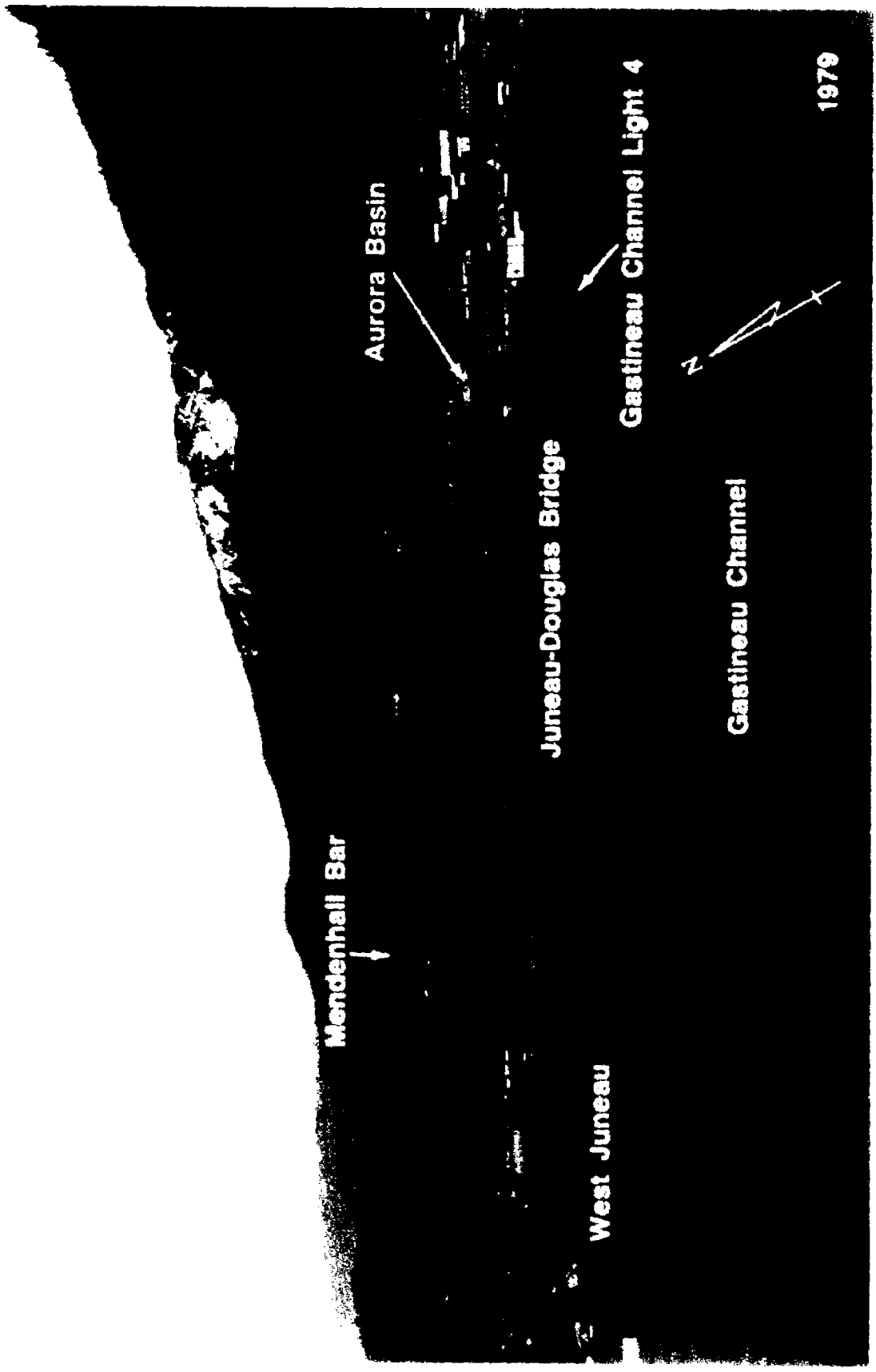
(137) **Juneau Isle,** a small wooded promontory opposite the S edge of Douglas, is connected to Douglas Island by a roadway. A light is on the NE end of the isle, and a tall white flagpole is near the S end. The U.S. Bureau of Mines occupies the buildings on the isle.

(138) **Douglas** is a residential section of the borough of Juneau on the SW side of Gastineau Channel, about 6.5 miles from Stephens Passage. A highway connects it with Juneau by way of the Juneau-Douglas Bridge.

GASTINEAU CHANNEL


GASTINEAU CHANNEL
Juneau Mountain
Juneau
Juneau Isle
Gastineau Channel
1979
Douglas

GASTINEAU CHANNEL



(139) **Wharves.**–A city dock is at Douglas. Douglas also has a protected harbor with small-craft facilities.

(140) Douglas City Dock (58°16′40″N., 134°23′11″W.): 105-foot face; 20 feet reported alongside; owned by the State of Alaska; in 1976, the dock was reported to be inactive.

(141) **Small-craft facilities.–Douglas Boat Harbor,** on the inshore side of Juneau Isle, has a Federal project depth of 12 feet. The basin is protected by a 105-foot-long jetty, marked by a light, that extends from the westernmost end of the isle. In 1976, the controlling depth in the NW part of the basin was 10 feet, thence in March 1980, 12 feet in the remainder of the basin. Enter the basin between the jetty and the Douglas City Dock.

(142) The small-craft floats in Douglas Boat Harbor, operated by the city of Juneau, can accommodate about 135 craft including transients. The basin has a boat launching ramp and a 52-foot grid. Water and electricity are available; fuel and other supplies can be obtained in Juneau.

(143) The spit off the mouth of **Lawson Creek,** about 0.8 mile NW of Douglas, is marked by a light.

(144) The rock dump of mine tailings, about 1 mile S of Juneau, extends from the NE shore. Shoal water extends from the dump and is marked by a lighted buoy.

(145) **Juneau,** the State capital of Alaska, is a thriving city. The city's primary commerce is in containerized cargo, fish and fish products, petroleum products, and tourism. It is on the NE side of Gastineau Channel, 8 miles N of Stephens Passage. Extensive hard-rock gold mining operations formerly were carried on, but the mines have been closed since 1943.

(146) **Prominent features.**–Prominent are the ruins of the mine buildings on the mountain slope above the S end of the Juneau business district, the tank farm at the rock dump about 1 mile S of Juneau, the Federal Building on Gold Creek, Juneau-Douglas fixed highway bridge, the lighted TV tower NW of the bridge, and the Governor's Mansion (58°18′11″N., 134°24′47″W.), a large white colonial mansion with green roof.

(147) **Channels.**–The approach to Juneau from the SE through Gastineau Channel is clear and deep. The approach through Fritz Cove and **Mendenhall Bar** from the NW is narrow, shallow, and seasonally marked to show the best water; this approach should be attempted only during high water. The draft of the deepest vessels calling at Juneau in 1976 was 30 feet.

(148) **Anchorage.**–Anchorage is available off the wharves, NE of the cable area, in 12 to 19 fathoms, soft bottom. Permission, however, must be obtained from the Coast Guard Captain of the Port prior to anchoring in this area from June through September.

(149) The harbor area off the waterfront at Juneau is a **safety zone.** (See **165.1 through 165.7, 165.20 through 165.25, and 165.1702,** chapter 2, for limits and regulations.)

(150) **Dangers.**–Shoals extend off the mouths of the creeks and are, for the most part, marked. In navigating Gastineau Channel do not approach the shores too closely, especially the SW shore. Stream flats and deposits from mine tailings extend well offshore.

(151) **Bridges.**–The Juneau-Douglas fixed highway bridge over Gastineau Channel has a clearance of 50 feet. An overhead power cable with a reported clearance of 55 feet crosses the channel just NW of the bridge.

(152) **Tides.**–(See the Tide Tables for daily predictions at Juneau.)

(153) **Currents.**–In Gastineau Channel, the current floods NW and ebbs SE past Juneau with a velocity of 2.0 knots. (See the Tidal Current Tables for daily predictions.) Currents at the wharves in Juneau Habor, NE of the centerline of Gastineau Channel, are much weaker than at midchannel. The current follows the shoreline, going around the harbor in a counterclockwise direction on the flood and clockwise on the ebb.

(154) **Weather.**–Juneau is well within the area of maritime influences that prevail over the coastal areas of southeastern Alaska, and is in the path of most storms that cross the Gulf of Alaska. Consequently, the area has little sunshine, generally moderate temperatures, and abundant precipitation. The surrounding rugged terrain causes considerable variation in the weather within relatively short distances.

(155) Temperature variations, both daily and seasonal, are usually small because of the marine influence. On average, the difference between maximums and minimums ranges from about 9°F in December to around 18°F in June. Extremes range from 90°F in July to –22°F in February with above 80°F readings occurring from May through August, while –20°F temperatures have been recorded in December, January, and February. The city is often warmer than the airport in winter. Periods of severe cold, which usually begin with strong northerlies, are most often the result of cold air from NW Canada flowing across the Juneau ice field and are usually of short duration. During such periods, gusty, sometimes strong winds, known locally as **"Taku Winds,"** occur in the city and other local areas. They draw down the mountain passes from N, but their force is modified somewhat under the lee of the highland E of Juneau. SE gales may occur in the vicinity of Juneau at any season, but they are much more frequent in winter than in summer. They are usually accompanied by rain. In summer, SE winds seldom blow home and when they do, the confined channel admits but little sea.

(156) February to June mark the period of lightest precipitation; monthly averages are about 3 to nearly 4 inches. After June the monthly amount increases gradually, reaching a maximum during October when it averages 8 inches. Monthly averages of precipitation then tend to decline from November until February.

(157) The first snow usually occurs in the latter part of October. On the average there is very little accumulation on the ground at low levels until the last part of November. Snow accumulation usually reaches its greatest depth during the middle of February when it averages around 10 inches at the Juneau Airport. Snow cover is usually gone before the middle of April. (See page T-4 for **Juneau climatological table.**)

(158) **Pilotage.**–Except for certain exempt vessels, pilotage is compulsory for all vessels navigating the inside waters of the State of Alaska. (See Pilotage, chapter 3, for details.)

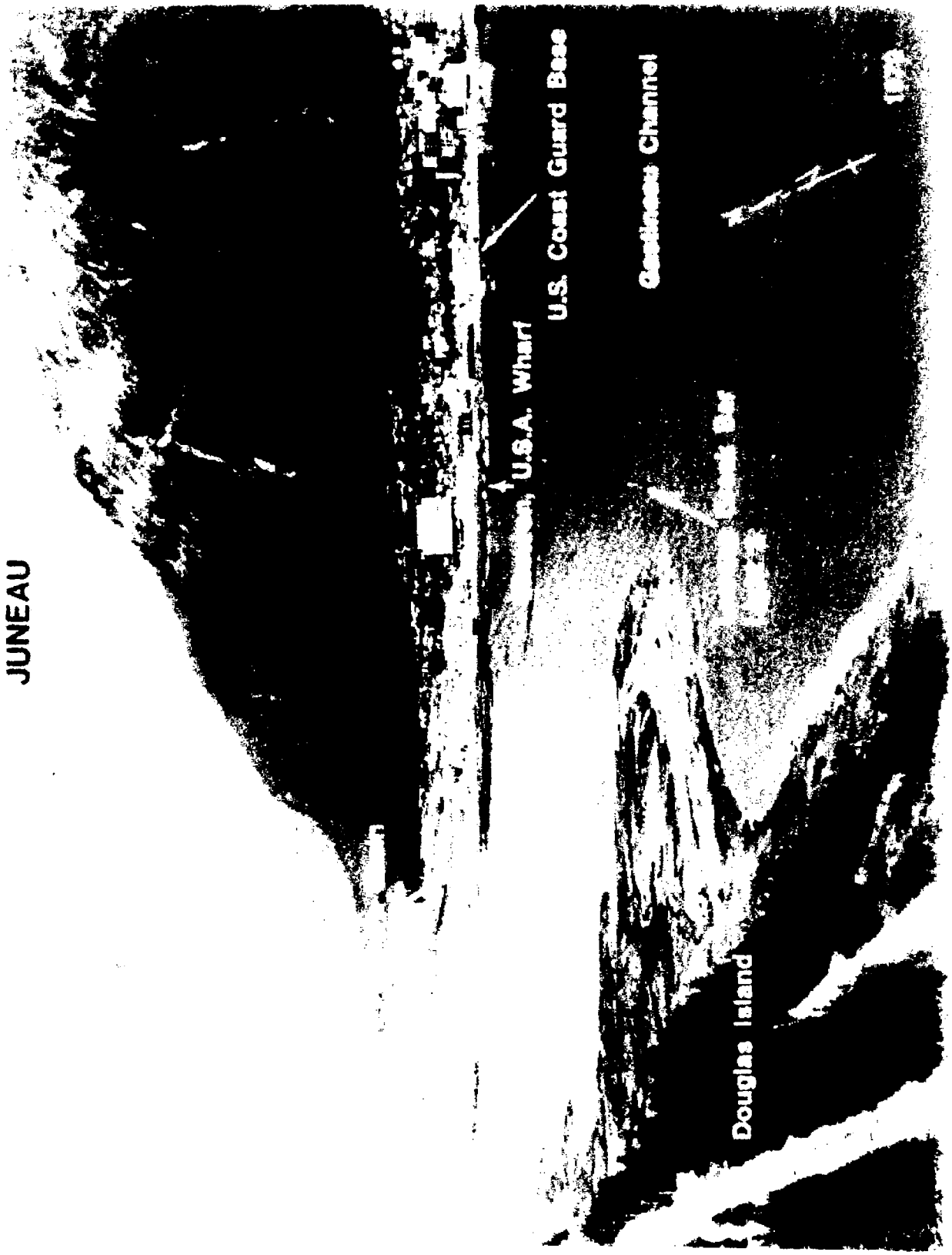
(159) Vessels en route Juneau via Chatham Strait meet the pilot boat about 1 mile NW of Point Retreat Light (58°24.7′N., 134°57.3′W.).

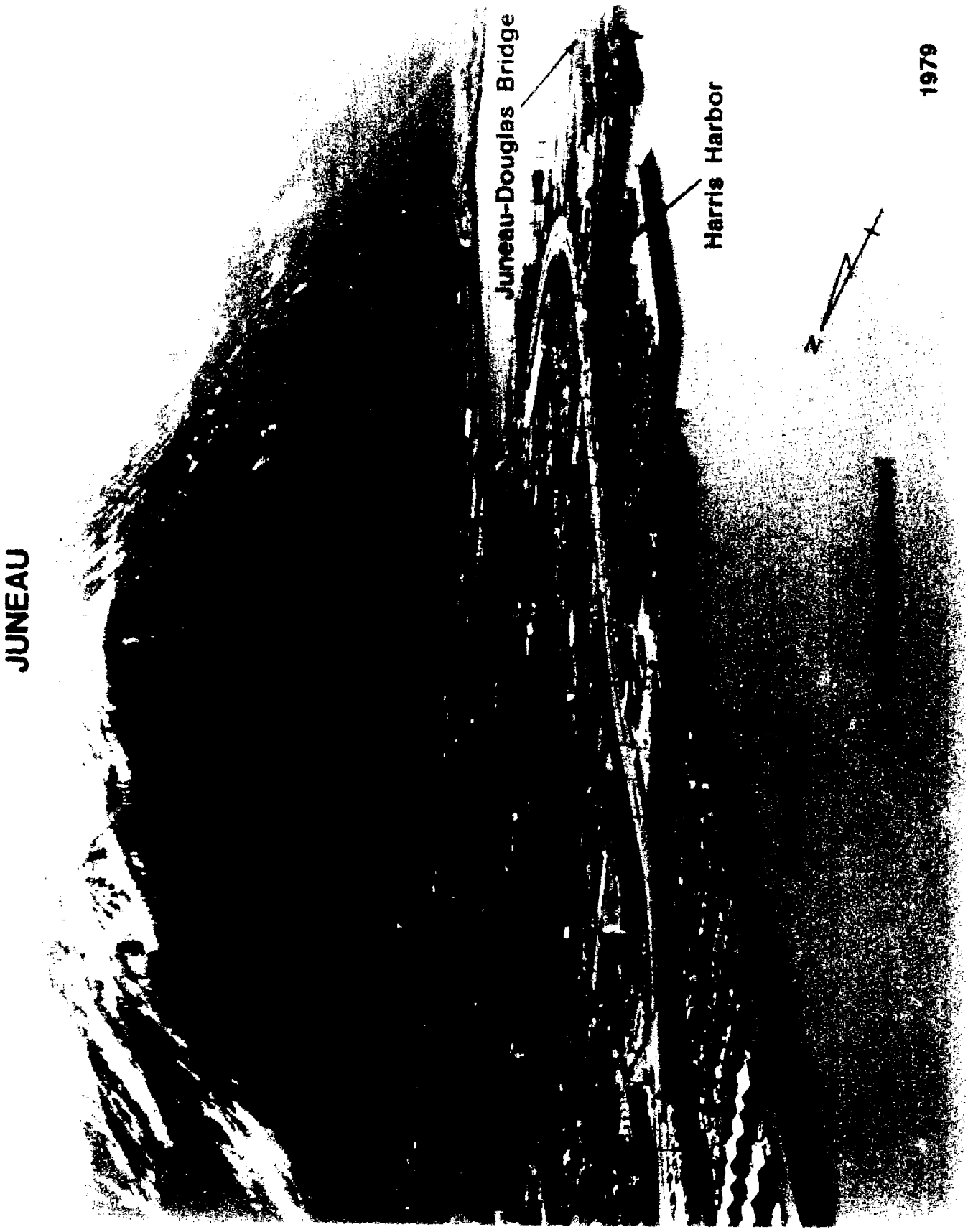
(160) Vessels en route Juneau may also meet the pilot boat about 1 mile E of Point McCartey Light (55°06.8′N., 131°42.4′W.).

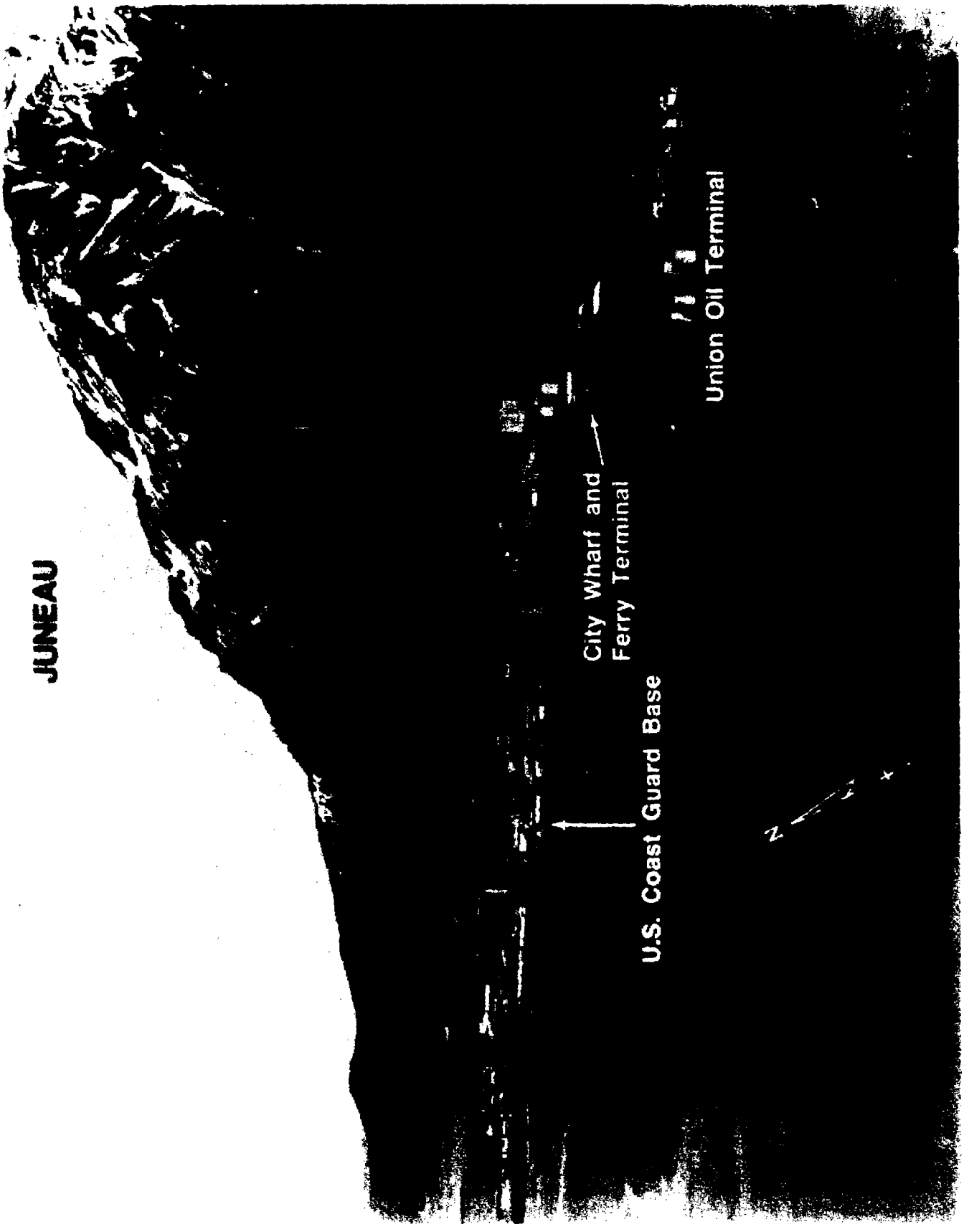
(161) The pilot boat, a crewboat, can be contacted by calling "JUNEAU PILOT BOAT" on VHF-FM channels 16, 13, or 12.

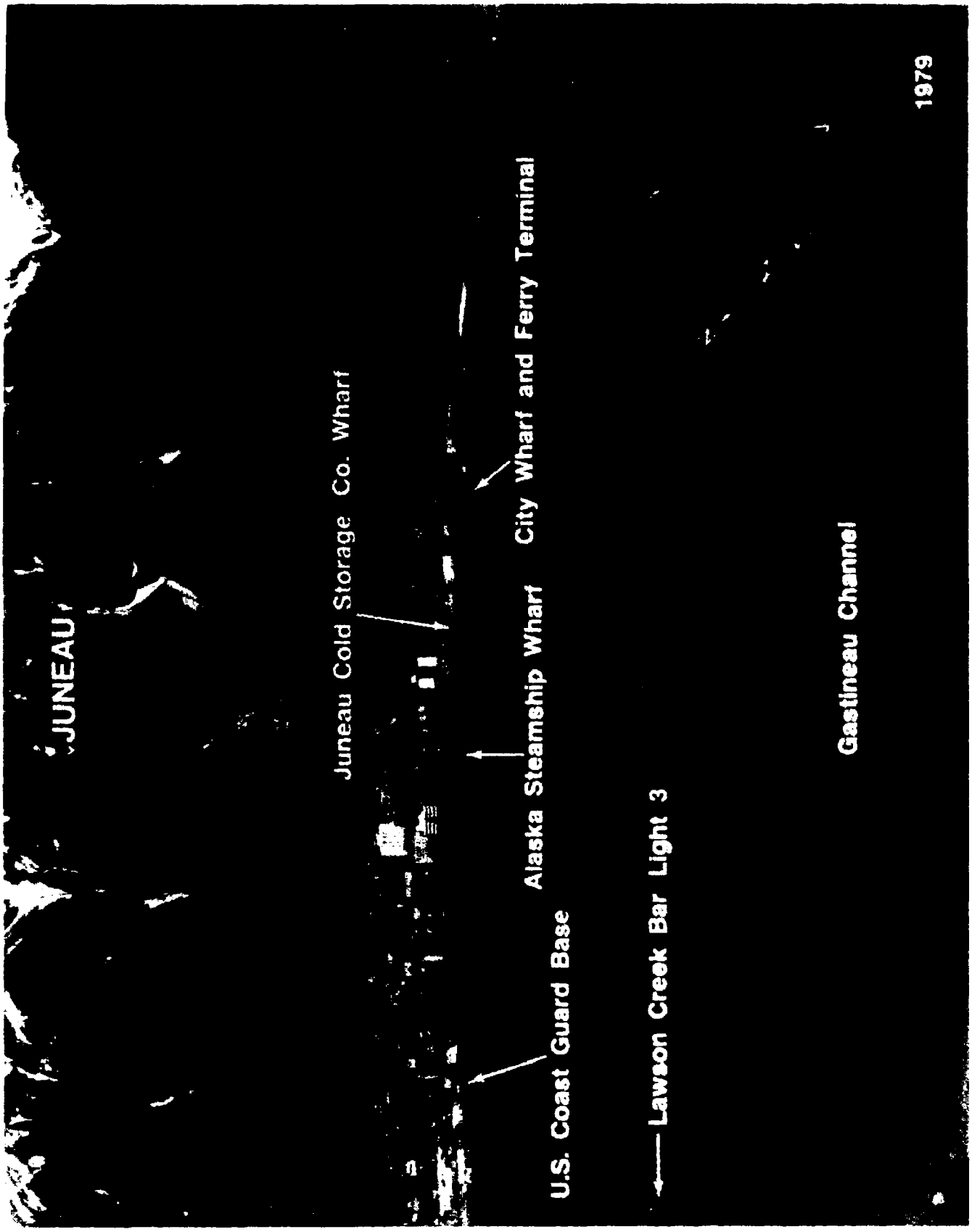
(162) **Towage.**–Tugs up to 750 hp operating from Juneau and engaged principally in the towing of barges and log rafts are available for assisting in docking and undocking. They are equipped with VHF-FM channels 16, 13, and 6. Arrangements for tugs should be made well in advance through shipping agents.

(163) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)


JUNEAU
U.S.A. Wharf
U.S. Coast Guard Base
Gastineau Channel
Douglas Island


JUNEAU
Juneau-Douglas Bridge
Harris Harbor
N
1979


JUNEAU
City Wharf and
Ferry Terminal
U.S. Coast Guard Base
Union Oil Terminal


JUNEAU
Juneau Cold Storage Co. Wharf
City Wharf and Ferry Terminal
Alaska Steamship Wharf
U.S. Coast Guard Base
Lawson Creek Bar Light 3
Gastineau Channel
1979

(164) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(165) **Juneau is a customs port of entry.**

(166) **Coast Guard.**–The U.S. Coast Guard station is on the NW side of the harbor at the U.S. Government Wharf (Subport). A **marine safety office** and a **vessel documentation office** are in Juneau. (See appendix for address.)

(167) **Harbor regulations.**–The **harbormaster** assigns berths at the city float, Aurora Basin, Harris Harbor, and Douglas Boat Harbor, and controls the use of the grids in Harris Harbor and Douglas Boat Harbor. The harbormaster is on call 24 hours daily, and his office is on the S shore of Aurora Basin just inside the S entrance. The harbormaster's office monitors VHF-FM channel 16 from 0800 to 1630 daily during the summer and year round on Sundays. Working frequencies are channels 12 and 68. The call sign is WAB–950. The harbormaster can also be contacted by telephone (907–586–3300, ext. 255).

(168) **Wharves.**–All of the wharves in Juneau are privately owned and operated with the exception of the City Wharf and Ferry Terminal, and the U.S. Government Wharf, known as Subport. (For information on the latest depths, contact the individual operators of each facility.)

(169) Union Oil Terminal (58°17'26"N., 134°23'37"W.): 100-foot face; depth reported alongside, 40 feet; 90-foot small-craft fueling barge moored W of wharf; pipelines extend to tank farm in rear; receipt of petroleum products from barges and tankers and discharge to vessels and small craft; owned by Union Oil Co. and operated by Taku Oil Sales, Inc.

(170) Foss Alaska Line Terminal (57°17'30"N., 134°23'35"W.): 343 feet of berthing space with dolphins; 20 feet reported alongside; a 20-foot wide pontoon transfer bridge; two 26-ton container forklifts, and 3 acres of open storage; containerized and noncontainerized general cargo; owned by Foss Alaska Line and Pacific Marine Properties, Inc. and operated by Foss Alaska Line, a Dillingham Maritime Co.

(171) City Wharf and Ferry Terminal (58°17'49"N., 134°24'00"W.): 345-foot face, S side 80 feet long, N side 115 feet long; 30 feet alongside; deck height, 26 feet; 25-ton container forklifts; 2 acres of open storage; 35-foot adjustable transfer bridge; transfer of passengers and vehicles from and to Alaska State Ferries and cruise ship traffic, and receipt and shipment of containerized cargo on barges; owned and operated by the city of Juneau and State of Alaska.

(172) Juneau Cold Storage Company Wharf (58°17'53"N., 134°24'09"W.): 216-foot face; 27 to 39 feet alongside; deck height, 26 feet; one 2-ton and 1¼-ton forklifts; one 1½-ton and one ½-ton electrical hoists; two ¼-ton hydraulic hoists; 20,000 square feet cold storage; 20,000 square feet covered storage; receipt and shipment of fish, and supplying fishing vessels; owned and operated by Juneau Cold Storage Company.

(173) City of Juneau, Alaska Steamship Wharf (58°17'56"N., 134°24'13"W.): 484-foot face; depths alongside, 12 feet at the N end and 30 feet at the S end; receipt of general cargo and passengers; owned and operated by the city of Juneau.

(174) U.S. Coast Guard Base, Juneau Wharf (Subport) (58°17'55"N., 134°24'38"W.): 760-foot face, 36 to 40 feet alongside; deck height, 24 feet; mooring of U.S. Coast Guard and other Government vessels; owned by U.S. Government and operated by U.S. Coast Guard, National Marine Fisheries Service, and Alaska Army National Guard.

(175) Chevron U.S.A. Juneau Wharf (58°17'51"N., 134°24'50"W.): 100-foot face, 500 feet with dolphins; 30 feet alongside; receipt and sale of petroleum products, bunkering vessels; owned by Alaska Electric Light and Power Co. and operated by Chevron U.S.A., Inc.

(176) Jet Supply Co. Wharf (58°18'00"N., 134°26'01"W.): 200-foot face; 20 feet alongside; 30-foot-wide ramp is midway along the face; two 25-ton container forklifts; 4½ acres open storage; receipt of conventional and containerized cargo; owned and operated by Trucano Construction Company.

(177) **Supplies.**–Provisions, and marine and fishing supplies are available in Juneau. Diesel fuel, diesel oil, gasoline, distillates, and lubricating oil and greases can be obtained at the oil company wharves. Only diesel oil is available for large vessels. Water can be had in the summer at all of the wharves and at the U.S. Government Wharf in the winter. Ice for fishing vessels can be obtained at the cold storage company wharf.

(178) **Repairs.**–There are no drydocking or major repair facilities for large vessels in Juneau or in southeastern Alaska. The nearest facilities are in British Columbia and the State of Washington. Two private 50-ton cranes, that can handle small craft up to 5 feet in draft at high water, are available for mariners' use about 1.6 miles NW of Juneau-Douglas Bridge, on the NW side of Gastineau Channel. A 450-foot small-craft grid is in the NE part of Harris Harbor, and a 52-foot grid is in the SW part of Douglas Boat Harbor. Both grids are for public use. Several machine shops and repair firms along the waterfront can provide hull, engine, electrical, and electronic repairs.

(179) **Small-craft facilities.**–Harris Harbor and Aurora Basin, both Federal projects, are small-boat basins just N of Juneau-Douglas Bridge, and Juneau City Float, immediately NW of the City Wharf and Ferry Terminal. All three facilities are operated by the city of Juneau. The **harbormaster** monitors VHF-FM channels 16 and 73 and can be contacted by telephone (907-586-5255) or FAX (907-586-5367).

(180) **Harris Harbor,** immediately N of the bridge, has a 12-foot project depth and is protected by two rock-mound breakwaters. In March 1980, depths of 8 to 12 feet were available in the harbor. A light at the end of the N breakwater marks the entrance.

(181) The harbor floats can accommodate over 178 commercial fishing vessels and about 136 pleasure craft. Berths for transients are available. A seaplane hangar and float are in the SE part of the harbor, and a 450-foot grid is in the NW part. Water and metered electricity are available at the floats.

(182) **Aurora Basin,** 0.5 mile NW of Harris Harbor, has a project depth of 14 feet in the SE half and 12 feet in the NW half. The basin is protected on the NW side by a breakwater, marked by a light, and by a detached breakwater on the channel side. In March 1980, depths of 8 to 12 feet were available in the N part of the basin, and 14 feet in the S part. The basin can be entered at either end of the detached breakwater. The SE end of the detached breakwater is marked by a light.

(183) The basin can accommodate 474 small crafts. Water and metered electricity are available at the floats. A 105-foot-long float with facilities for fueling small craft is at the SE end of the basin. In March 1980, the depth alongside the float was 14 feet. Gasoline, diesel oil, and lubricating oils and greases are available at the float.

(184) Juneau City Float (58°17'51"N., 134°24'03"W.), immediately NW of the City Wharf and Ferry Terminal, provides 350 feet of transient space for loading and unloading of supplies.

(185) **Communications.**–Juneau has regular passenger, express, and freight service to Puget Sound ports, British Columbia, and other Alaska ports and towns by water and air. The Alaska State Ferry System, operating from Juneau and Auke Bay, about 12 miles NW of the city, has daily ferry service during the summer to Haines, Skagway, Hoonah, Petersburg, Sitka, Wrangell, Ketchikan, and Prince Rupert, B.C., and weekly service to Kake and Seattle. This schedule is less frequent during the winter. In addition to the scheduled airlines, other air services operate from Juneau on a charter basis.

(186) A highway parallels Gastineau Channel and Favorite Channel from Little Sheep Creek, about 5 miles SE of Juneau, to Echo Cove, about 33 miles NNW of Juneau. The highway on Douglas Island parallels Gastineau Channel and Fritz Cove from Paris Creek, about 1 mile SE of Douglas to Outer Point, about 11 miles NW of Douglas.

(187) Juneau maintains radiotelephone and telephone communications with the other States and parts of Alaska.

(188) **Chart 17315.**–Stephens Passage continues NW from Point Arden (58°09.6'N., 134°10.6'W.) for about 22 miles to a junction with Saginaw Channel and Favorite Channel. (See chart 17300.) **False Arden** is a prominent point 1 mile WNW of Point Arden.

(189) **Douglas Island,** between Stephens Passage and Gastineau Channel, is large and wooded. It has several prominent peaks ranging in height from 2,500 to 3,500 feet. The S shore of the island is fairly bold and steep-to and can be followed at a distance of 0.3 mile.

(190) **Point Tantallon,** a timbered point with a rocky beach, is at the SE extremity of Douglas Island. **Icy Point** is 0.6 mile W of Point Tantallon.

(191) **Point Hilda,** the W point of a large bight, is about 8 miles to the W of Point Tantallon. **Point Hilda Light** (58°13.1'N., 134°30.3'W.), 20 feet above the water, is shown from a square frame structure with a red and white diamond-shaped daymark on the point. There is good anchorage and shelter from N weather 1 mile E of the light in depths of 6 to 15 fathoms.

(192) **Inner Point,** marked by a daybeacon, is 2.8 miles W of Point Hilda. **Middle Point,** 4.3 miles WNW of Point Hilda, is marked by a light; a shoal extends 0.2 mile off the point.

(193) **Chart 17300.–Oliver Inlet** has its entrance on the S side of Stephens Passage about 5 miles W of Point Arden (58°09.6'N., 134°10.6'W.), through a narrow channel 1 mile long and 200 yards wide. The inlet is accessible only at high water to boats and small craft. The narrow entrance of the inlet is bared at low water by a natural dam of rocks, over which the water pours like a waterfall except at slack water. At high-water slack, small vessels drawing not over 6 feet can enter. The currents in the entrance have a velocity of 6 to 8 knots, forming heavy swirls. A portage about 0.5 mile long connects this inlet with the head of Seymour Canal.

(194) **Chart 17315.–Point Young** (58°11.6'N., 134°33.7'W.) is on the S side of Stephens Passage about 12.2 miles W of Point Arden. The extremity of the point is grass covered and has a pebble beach. From the point the land rises in a timbered ridge with a long gentle slope in a SE direction. A low, rocky cliff, fringed by a kelp patch of 100 yards offshore, extends about 0.2 mile W along the point.

(195) **Admiralty Cove** is on the S side of Stephens Passage W of Point Young. It does not afford anchorage except for small craft because of shallow water. A small vessel can anchor in the cove S of the island on the SW side of Admiralty Cove, in 3 to 6 fathoms, mud bottom. This is a favorite anchorage for small craft but is open to W winds. A conspicuous trail-marker on the SE shore marks the end of a good trail maintained by the U.S. Forest Service. The trail extends 4.5 miles to **Admiralty Lake** and is much used by trout fishermen and hunters in season. A shelter cabin is on the beach near the end of the trail, and another is on the shore of the lake.

(196) A long narrow sand beach fronting a large tidal marsh is at the head of the cove, into which empties **Admiralty Creek,** a swift shallow stream.

(197) **Young Bay** is the broad bight in the S shore of Stephens Passage W of Point Young. **Scull Island,** a grass-covered rock 53 feet high with deep water around it, is in the middle of the entrance. A rocky shoal with a least depth of 1½ fathoms extends about 300 yards S of Scull Island. A good foot trail maintained by the U.S. Forest Service extends from the SW side of Young Bay to the shore of Hawk Inlet. The cliff on the SE shore about midway between the head of the bay and Point Young is marked by a light-colored scar 60 feet high and 30 feet wide.

(198) Anchorage with shelter from SE winds can be had about 0.5 mile from the SE side of the bay, between Point Young and the head, in 18 to 22 fathoms, soft bottom. Small vessels may anchor closer in shore in desired depths.

(199) Horse Island and Colt Island, connected at low water and wooded, are on the W side of Stephens Passage N of the W entrance point to Young Bay. **Colt Island,** the N island, has ledges on its NE and NW sides. The N point of Colt Island appears as a separate islet about 20 feet high, but is a part of the island at all stages of the tide.

(200) **Horse Island,** the larger and southernmost of the two islands, has shoal ground that extends about 0.2 mile off the S shore of the island and practically continuous rock ledges extend from the S tip of the island in a SSE direction across the entrance of a cove SSW of the island. A fair anchorage for small boats is had in this cove, but its use is not recommended because of the obstructions across the entrance. The best water for entering the cove from the SE is just N and close to a part of these ledges that uncover 7 feet about 0.6 mile SSE from the S end of Horse Island.

(201) A fair anchorage for small boats with protection from S winds can be had in midchannel W of Colt Island in 12 to 15 fathoms, mud bottom. Approach the anchorage from the N and avoid the ledge and rock that uncover 10 feet about 0.6 mile NNW of Colt Island, and the various small ledges and rocks near the shores.

(202) **Horse Shoal,** about 0.6 mile E of Horse Island, consists of two patches 0.5 mile apart, both of which bare at half tide. A light marks the S patch.

(203) **Shaman Island,** about 2.3 miles NE of Colt Island and 0.2 mile to the N of Outer Point, is wooded, and is connected with Douglas Island by a gravel bar. There is a rock awash at extreme low tides 0.1 mile off the N end of the island.

(204) **Dornin Rock,** with 7 feet over it, is 0.4 mile W of Shaman Island. **George Rock,** about 1 mile NNW of Outer Point, is awash at highest tides. It is marked by a light.

(205) **Fritz Cove,** NE of **Outer Point,** the NW extremity of Douglas Island, affords anchorage and shelter from S and E winds. A boat-launching ramp is along the S shore at Fritz Cove about 1.6 miles inside the entrance.

(206) **Entrance Point,** at the E end of Fritz Cove, is a wooded knoll connected with Douglas Island by a low spit. A fish rearing structure is anchored in 10 fathoms close SW of Entrance Point.

(207) **Spuhn Island,** with a high wooded knob at its SW end, is on the N side of Fritz Cove, about 1.6 miles W of Entrance Point. **Gibby Rock** with ¼ fathom over it about 0.7 mile WSW from **Spuhn Point,** the S end of Spuhn Island, is marked by a light. To enter Fritz Cove, pass on either side of George Rock and follow the shore of Douglas Island, giving it a berth of 0.2 mile. Anchor about 400 yards from shore and 0.4 mile SW of Entrance Point in 20 to 25 fathoms, soft bottom.

(208) **Auke Bay** is a popular fishing and boating recreational area N of Fritz Cove. **Coghlan Island** is on the SW side of Auke Bay, about 1 mile NW of Spuhn Island. A buoy is off the N end of Coghlan Island. **Point Louisa** and **Indian Point** are on the N shore of the bay, about 1.2 miles NW and 0.6 mile N, respectively, of the N extremity of Coghlan Island. **Fairhaven** is on the shore of the bay between these two points. After passing 0.2 mile S and E of Coghlan Island, enter the bay on a NE course with the summit of the island astern. Anchorage for small craft, with protection from SE winds may be found at the head of Auke Bay.

(209) **Auke Bay** is a community with general stores, a ferry terminal, and seasonal small-craft facilities on the NE shore at the head of Auke Bay. The National Marine Fisheries Service has a biological laboratory at Auke Bay. Auke Lake and **Mendenhall Glacier** are about 0.3 mile and 3.6 miles inland, respectively, from the community.

(210) The Alaska State Ferry Terminal (58°22′54″N., 134°41′11″W.) on the N shore of Auke Bay and is the only deep-draft facility in this area. The face of the terminal is 265 feet long with a reported depth alongside of 22 feet in 1976.

(211) The National Marine Fisheries Service Float, 1.1 miles E of the ferry terminal along the E shore of Auke Bay, is for the use of their own vessels. It has a 70-foot face, and in 1976, the reported controlling depths were 15 feet along the outside edge and 10 feet along the inside edge.

(212) Auke Bay Public Float Facility is along the E shore of Auke Bay about 330 yards N of the National Marine Fisheries Service Float. There are 56 transient berths from 17 to 60 feet long. In 1976, the reported depths were 10 to 35 feet alongside the floats. The floats have a 72-hour tie-up limit. A large parking area, and a float with a surfaced boat-launching ramp on each side are adjacent to the public floats. The Juneau **harbormaster** has control of the public float facility and the 45-foot grid about 60 yards NE of the floats. A U.S. Coast Guard patrol boat is stationed at the facility.

(213) Two private marinas are at the head of Auke Bay, N of the public float facility. Each facility can accommodate about 180 small craft, and can provide gasoline, diesel fuel, water, ice, marine supplies, provisions, dry storage, and minor repairs. A 15-ton mobile lift, a crane capable of handling craft up to 4 tons, and forklifts up to 10 tons are available at the marinas. The S side of the facilities is protected by a floating breakwater with a light at its W end.

(214) The National Park Service Pier is at the head of the cove immediately W of Indian Point. This 321-foot pier has a 60-foot face, and, in 1976, the depth alongside the face was 10 feet, with 5 feet alongside the outer 100 feet of each side of the pier. The pier is used to berth Park Service vessels.

(215) Auke Bay has highway connections with Juneau, 12 miles SE, and with Echo Cove, 21.5 miles N. Juneau Airport is about 2 miles E of Auke Bay on filled ground just E of the mouth of Mendenhall River.

(216) **Chart 17316.–Portland Island** is a wooded island at the junction of Stephens Passage with Saginaw Channel and Favorite Channel. A reef, covered for the most part at high water, extends 0.7 mile NW from the N end of the island. **Portland Island Light** (58°21.1′N., 134°45.5′W.), 20 feet above the water and shown on a pile with a red and white diamond-shaped daymark, marks the end of the reef.

(217) **Saginaw Channel** connects Stephens Passage with Lynn Canal and separates Mansfield Peninsula, the NW end of Admiralty Island, from Shelter Island. This channel is used by vessels going from Stephens Passage to Chatham Strait or Icy Strait.

(218) **Symonds Point,** the S point at the entrance to Saginaw Channel, about 2.8 miles W of the N extremity of Portland Island, is low and wooded; it rises with a gradual slope to Lone Mountain.

(219) **Lone Mountain, Mount Robert Barron,** and the low divide between them are conspicuous landmarks on **Mansfield Peninsula.**

(220) **Shelter Island,** at the NW end of Stephens Passage and E of the N end of Mansfield Peninsula, separates Saginaw Channel from Favorite Channel. The island is timbered. A dome-shaped peak on the NW part of the island forms an excellent landmark when coming down Lynn Canal. The SE part of the island is a long ridge. Reefs extend off the NW end of the island for about 0.5 mile. **Shelter Island Light** (58°22.5′N., 134°48.5′W.), 20 feet above the water, is shown from a frame structure with a red and white diamond-shaped daymark on the SE side of the island. About 0.2 mile NW of the light, a reef makes offshore for about 300 yards.

(221) **Strauss Rock,** 0.5 mile S of the SE end of Shelter Island and marked by a buoy, has 2 fathoms over it. It is of small extent and dangerous. Submerged rocks and broken ground are between Strauss Rock and the SE end of Shelter Island.

(222) **Adams Anchorage,** off the S end of Shelter Island and NW of Strauss Rock, offers good anchorage in 11 fathoms and very good anchorage for small craft in less depth, close to the shore during N weather.

(223) **Favorite Reef,** in the SE part of Saginaw Channel, bares at half tide and is marked on its S part by **Favorite Reef Light 2**(58°22.8′N., 134°51.7′W.), 33 feet above the water and shown from a pile with a red triangular daymark. The reef is about 0.4 mile from the Shelter Island shore, with a deep channel between, which is seldom used, as it is partially obstructed at its SE end by a reef that uncovers 6 feet and extends out about 0.2 mile from Shelter Island.

(224) **Barlow Point** is about 2.8 miles NW from Symonds Point and about 1.1 miles W of Favorite Reef Light. **Barlow Islands** extend about 1.4 miles in a NNW direction from Barlow Point.

(225) **Barlow Cove** is on the NE side of the N end of Mansfield Peninsula. A light on Point Retreat, described in chapter 11, marks the W point of the entrance and the Barlow Islands form the E point of the entrance. The waters throughout the cove are deep. Anchorage may be obtained 0.2 mile from the SE side at the head, in 22 to 23 fathoms, soft bottom.

(226) In entering, favor the Barlow Islands to avoid the foul ground that extends about 0.2 mile offshore SE of Point Retreat. There is a narrow passage between Barlow Point and the Barlow Islands through which 20 feet can be carried, but it is unfit for vessels and is filled with tidal eddies and swirls except at slack water.

(227) **Faust Rock,** in Saginaw Channel 1.1 miles from Barlow Islands and in line with them, is of small extent, has 2¼ fathoms over it, and is marked on the N side by a lighted bell buoy, which is reported to heel over considerably from icing in the winter. It can be passed on either side.

AUKE BAY
Auke Lake
Auke Bay

(228) **Favorite Channel** connects Stephens Passage with Lynn Canal N of Shelter Island. It is the channel used by vessels going from Stephens Passage to upper Lynn Canal points and Skagway. **Eagle Glacier** and **Herbert Glacier** are prominent from Favorite Channel between Aaron Island and Vanderbilt Reef.

(229) **Lena Cove** is on the E shore of Favorite Channel, about 2 miles NE of Shelter Island Light and N of Point Lena. It affords a SE lee, but the bottom is rocky and is not a good anchorage for large vessels. Rocks awash are close to the NE shore, N of the N point of the entrance.

(230) **Point Lena,** the SW point at the entrance to Lena Cove, is low and wooded. Rocks awash are about 100 yards from the N shore of the point. The wreck of the SS PRINCESS KATHLEEN is in 20 fathoms about 100 yards W of the point. In 1953 it was reported that the minimum depth over the wreck was 40 feet at low water.

(231) Four lighted towers are about 0.3 mile to 0.7 mile SE from Point Lena.

(232) **Tee Harbor,** on the E side of Favorite Channel, 1.5 miles N of Point Lena, affords anchorage in the middle just within the points at the entrance, in 12 to 14 fathoms. During SE weather, williwaws are severe at times. Small craft avoid these by anchoring in 6 to 9 fathoms at the S end of the S arm close to the beach. Winter N winds can be avoided by small craft by anchoring in the N arm, close to the beach, in 4 to 9 fathoms. Tee Harbor has telephone and highway connections with Juneau. **Point Stephens Rock,** with 1 fathom over it and marked by a buoy on its SW side, is 0.2 mile NW from **Point Stephens,** the S point of the entrance. **Tee Harbor Light** (58°25.7'N., 134°46.0'W.), 33 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the N point of the entrance.

(233) A private marina at the head of the S arm of Tee Harbor operates on a seasonal basis. A private buoy marks a **slow no-wake** speed zone in the approach to the marina. The marina can accommodate about 120 small craft at the floats. Gasoline, diesel fuel, lubricating oils, greases, limited supplies, ice, and a boat-launching ramp are available.

(234) **Cohen Island** is about 0.9 mile NNW from Point Stephens. It is timbered on the N end, bare and rocky on the S end, and has two rocks awash, close to the NW shore.

(235) **Aaron Island,** 1 mile E of the middle of Shelter Island and 2 miles NW of Tee Harbor, is wooded. **Aaron Island Light 2** (58°26.3'N., 134°49.6'W.), 20 feet above the water, is shown from a skeleton tower with a triangular red daymark on the NW side of the island. A grass-covered rock, 35 feet high, is 200 yards N from Aaron Island to which it is connected by a reef at low water. A shelving ledge, largely covered at half tide, extends 0.2 mile S from the S end of Aaron Island.

(236) **Cohen Reef,** awash at high water, is about 0.6 mile ESE of the S end of Aaron Island. A daybeacon is on the W side of the reef.

(237) **Eagle Reef,** about 1.2 miles N of Aaron Island, is awash at highest tides. A rock, 7 feet high, is on the N end of the reef.

(238) **Bird Island,** 2.2 miles E of the N extremity of Shelter Island, is wooded.

(239) **Gull Island,** about 0.8 mile NNW of Bird Island, is wooded. Reefs extend off the S point and the SW shore for about 250 yards and for about 100 yards off the E shore. A small islet is close to the N end of Gull Island.

(240) **Amalga Harbor,** a small landlocked cove about 1.9 miles E of Bird Island, affords good small-craft anchorage in 3 to 4 fathoms, rocky bottom. The harbor has a State-maintained surfaced boat-launching ramp.

(241) **Eagle Harbor,** immediately N of Amalga Harbor, affords anchorage in moderate weather. Good holding ground is found in depths of 14 fathoms near midharbor.

10. CHATHAM STRAIT

(1) This chapter describes Chatham Strait and its tributaries. Also described are the settlements of Baranof, Angoon, Tenakee Springs, and Port Alexander, including the various logging camps in the bays, inlets, and coves along the strait.

(2) **Chart 16016.–Chatham Strait** is the most extensive of the inland passages of southeastern Alaska. It is about 18 miles wide at its entrance between Cape Ommaney and Coronation Island and about 13.5 miles between the cape and the W shore of Kuiu Island, with a length of 138 miles from Coronation Island N to Rocky Island. The main strait is clear, open, and deep throughout, but some of the bays and bights are foul. In the winter, ice forms in many of the bays and inlets, particularly those into which large freshwater streams empty and which have narrow entrances. The W shore as far as Point Augusta is high, bluff, and rugged, and free from hidden dangers in the way of navigation from point to point, except in the vicinity of the E entrance to Peril Strait. The water is shoaler on the E side, and the reefs extend out farther, but in most cases they are in the bights and bays, and in no case do they extend beyond a line drawn 0.5 mile off from point to point, except a ledge about 1 mile offshore at Point Crowley.

(3) Soundings are not a sufficient guide in these waters in thick weather; 20 and 30 fathoms are frequently found within a few yards of the shore, while 0.2 mile from the shore, 100 to 200 fathoms are not at all unusual. An almost universal feature is the occurrence of flats, with one or more small streams, at the head of all bights and inlets. The slope, from 8 to 10 fathoms to a few feet, is abrupt, and in approaching the head of an inlet at high water, exercise care in anchoring to give the flats a sufficient berth to avoid grounding at low water.

(4) **Currents.**–The flood current enters Chatham Strait at the S entrance between Cape Ommaney and Cape Decision and sets N entering Frederick Sound, Peril Strait, and other bodies of water. The flood from the N enters the strait from Icy Strait. The two meet in the vicinity of Point Hayes and South Passage Point. On the ebb, the directions are reversed. The average velocity of the current is between 1.0 and 2.0 knots with an estimated maximum velocity of 3.5 knots. Strong tide rips are found around the various points, sometimes extending 1 mile or more into the strait when the current is strong. These are dangerous for small, open boats, especially at points surrounded by broken ground. Sometimes they will be encountered well offshore without apparent cause.

(5) Along the E shore from Cape Decision to Point Crowley, a strong NW set has been noted during the flood. During the ebb the current in the opposite direction is weak, and very often there is a NW eddy. The current seems to travel along the shore in definite streams. The outer limit of the current stream is marked by drifting material, and the difference in current on either side can be noted. It appears that the flood current travels from the sea toward and up the E shore of the strait and that the ebb is strongest on the W side.

(6) (See the Tidal Current Tables for daily predictions of places in Chatham Strait.)

(7) **Weather.**–The wind generally draws through Chatham Strait parallel to its axis, but, if from NE, will come down Frederick Sound and be felt in heavy squalls through the divides in the mountains on the E side. It sometimes draws through Tenakee Inlet and Peril Strait if blowing strong NW outside. Most of the W shore is so high and bluff that the strong SW winds cannot blow down into the strait, but draw around Cape Ommaney and N through the strait, usually bringing fog and rain as far as Point Gardner.

(8) **Chart 17320.**–In the approach to Chatham Strait from seaward, Hazy Islands are distinctive from their position and form a good landmark when they can be seen. They are also sometimes useful for fixing the position when it is thick inshore. The passage between them and Coronation Island is clear. Cape Ommaney is high and an important landmark. The summit back of the cape appears as a rounded knob with gentle sloping shoulders that drop steeply to the water's edge. In the approach from the W in thick stormy weather, there is a possibility of mistaking the high land NW of Larch Bay for that edge of the cape.

(9) From Sumner Strait, vessels enter Chatham Strait between Cape Decision and the Spanish Islands. At times the S part of Sumner Strait has had very dense fog that extended about 1 mile to the W of Cape Decision, beyond which it was clear. Approaching from the S, make Coronation Island and pass between it and Hazy Islands. In thick weather, should Coronation Island not be sighted, a sharp lookout should be kept for Hazy Islands. Whistle echoes along the Coronation Island coast on either side of Windy Bay have usually been sharp and distinct. The current sets NW along the coast, with an estimated velocity of 1 knot, depending on the wind, and, should Coronation Island not be sighted, a vessel may be set toward Cape Ommaney. There are several dangers off the N side of Coronation Island. Once in Chatham Strait the navigation is easy, for it is wide and comparatively clear, with fair anchorages at short distances.

(10) To vessels equipped with a radio direction finder, the Cape Decision radiobeacon will be of great assistance in making the entrance to Chatham Strait.

(11) The high rugged coastlines of Cape Ommaney and Coronation Island, and the peaks of the Hazy Islands reportedly make good radar targets when approaching Chatham Strait from the W and S.

(12) **Hazy Islands** form two distinctive groups about 8 miles W of Coronation Island and are separated by a channel 1.2 miles wide with depths of 25 to 40 fathoms. The NW group consists of three prominent islets; the largest is **Big Hazy Islet,** 258 feet high and conical. The second largest of this group, about 0.3 mile NW, has three sharp, well-defined summits. The smallest of the group consists of two jagged rocks that are connected at low water, but appear as one islet with two summits.

(13) The SE group is low. The N islet of this group has two grassy knobs and a very sharp pillar-shaped knob. Off the SE side of this islet are two rocks, close-to. The S islet of this group is a very low rocky reef with a breaker about 300 yards off the S end of the islet.

(14) Hazy Islands are a National Wildlife Refuge under the jurisdiction of the U.S. Fish and Wildlife Service.

(15) In thick weather, the N group of islets can usually be seen in time to avoid trouble, but the S group is dangerous. Although the fathometer gives evidence of shoaling, it is very slight until within less than 0.5 mile of the islets.

(16) Currents are irregular. The coastal currents near the islands appear to set NW with a velocity of about 1 knot,

but in the vicinity of the islets the currents seem to be modified by the branch from Chatham Strait. Currents with a N set and a velocity of about 1 knot were found 5 miles N of the Hazy Islands.

(17) **Cape Ommaney,** the W point at the entrance to Chatham Strait, is a remarkable promontory terminating in Ommaney Peak, a bluff, rugged, rocky 2,005-foot-high mountain, detached from the higher land N by a low depression running through from Port Conclusion. **Wooden Island,** sparsely wooded, is close SE of Cape Ommaney.

(18) **Cape Ommaney Light** (56°09.6'N., 134°39.7'W.), 168 feet above the water, is shown from a post on Wooden Island. This light, together with Helm Point Light, Point Crowley Light 2, and Cape Decision Light, marks the approach to Chatham Strait.

(19) **Chart 17402.**–From Helm Point to Windy Bay the shoreline of Coronation Island is rugged and rocky, with steep brown and yellow cliffs. In the bight W of Helm Point is a rock awash. Between Helm Point and Windy Bay are off-lying rocky islets, the outermost is 40 feet high and 1.3 miles W from Helm Point and about 0.5 mile offshore. It is of grayish color, without vegetation, with deep water close-to, and is generally visible in moderately thick weather. A reef with rocks awash at half tide is 1 mile SW of Helm Point.

(20) **Windy Bay,** on the W side of the island, is well protected from the sea by rocks and reefs that extend from the N shore of the entrance to within 0.3 mile of the S shore. A line of breakers usually shows on the reefs.

(21) The shoreline of the bay is generally rocky. The head of the bay has a sand beach about 350 yards long, and a deposit of sand is near the mouth of the stream on the S side of the bay.

(22) The depression in which the bay lies is readily distinguished from offshore, although the surrounding peaks are high. From offshore, Windy Peak is a good landmark. The entrance is S of the reefs. Follow the general trend of the S shore about 0.2 mile off. When approaching the S inner point where the bay narrows, change course so as to pass about 220 yards off the point; beyond, the bay is clear. Depths of 12 to 20 fathoms are carried through the channel.

(23) Anchorage may be had in 22 fathoms, mud and sand bottom, off the stream on the S side of the bay or near the head, but swinging room is restricted. The stream may be identified by the grassy area near its mouth. Fishing boats and other small craft may anchor in shoaler water closer in. During SE gales the wind is felt with considerable force, and the depths throughout the bay, averaging about 30 fathoms, mud bottom, are too great for secure anchorage.

(24) From Windy Bay to Nation Point, the NW point of the island, the shoreline is rocky and rugged. Off the rounding point, about 1.8 miles to the SW of Nation Point, are two rocks about 300 yards offshore; the S rock shows breakers in moderate weather, the N rock bares. A rock, which uncovers about 4 feet, is 0.3 mile N of the two rocks.

(25) **Nation Point,** at the NW end of Coronation Island, is rocky, with breakers close-to on the W side. Depths of 14 to 39 fathoms were obtained 0.3 mile from the point. The land rises rather steeply at first, then with a gradual slope to Pin Peak.

(26) From Nation Point to Cora Point, the shoreline is cut up by numerous bays and inlets; the principal ones are Egg Harbor and Aats Bay, both affording anchorage. **Aats Point,** about 2.3 miles to the E of Nation Point, is a prominent rocky point. The land rises in a timbered ridge of moderate slope.

(27) **Local magnetic disturbance.**–Differences of as much as 3° from normal variations have been observed at Aats Point.

(28) **Egg Harbor** is on the E side of Nation Point, directly under Pin Peak. It is a secure anchorage, except from N winds. The shoreline halfway to the head of the bay is rocky, then beyond it is sandy. About 0.5 mile within the entrance, on the W shore, are caves about 30 feet high, two shacks, and a white boulder beach that can usually be seen at night. A trail leads from this place to near the summit of Pin Peak, where mining has ceased.

(29) A rock, which bares, is 0.1 mile off the W shore at the entrance. Kelp extends from the shore to about 20 yards beyond the rock. In entering the bay at night this rock is the main danger, as it can seldom be picked up and usually does not show as a breaker.

(30) Off the E point of the entrance is a rock about 10 feet high. About 160 yards to the NW of this rock is a rock awash at high water.

(31) The channel between the rocks off the point is about 500 yards wide, and a midchannel course leads to safe anchorage in 5 to 7 fathoms, sand bottom. During SE gales, williwaws sweep down with considerable force and heavy ground tackle is necessary to prevent dragging. On the E side of the bay, halfway to the head, is a small bight used by fishing craft, as it affords better protection. Near this place is a low portage to the bay to the E.

(32) **Alikula Bay,** E of Egg Harbor, is free of dangers, and anchorage can be selected according to size of vessel in either the outer or inner part of the bay.

(33) **Aats Bay,** E of Aats Point, has two arms. The W arm is too deep for secure anchorage; the E arm affords anchorage in 6 to 8 fathoms, sand and mud bottom. The entrance of the E arm has a 1½-fathom rock marked by kelp. At times there is a kelp patch about 200 yards to the S of the rock. Favor the E shore in entering. During severe SE gales, williwaws are felt with considerable force, and heavy ground tackle is necessary to prevent dragging. The bay is exposed to N weather.

(34) **Gish Bay** is about 1 mile E of Aats Bay; and rocks, which uncover about 3 feet, are midway between the entrance points. The bay is full of kelp and has depths of 3 to 7 fathoms; shoal water extends 0.3 mile from its head. It is not suitable as an anchorage. **Channel Island,** a small island with a few trees, is 0.5 mile offshore and marks the entrance to the bay. The island shows up well from E and W. During moderately thick weather it is a good landmark.

(35) From Aats Bay to Cora Point the shoreline is irregular. Near Cora Point, on the N shore, is **Shrub Islet,** a small rocky islet with a few trees on it. S of the islet isa small cove where small launches anchor in 5 to 10 fathoms.

(36) **Dangers.**–The rocks off the S end of Coronation Island are described under Helm Point. The most important dangers off the N coast are as follows: A 2-fathom spot, which during heavy weather shows as a breaker, is 2.3 miles NNE from Nation Point; it is not marked by kelp. A rock that uncovers 8 feet is 1.1 miles NNW from Aats Point. A very heavy breaker 0.2 mile SE of the rock was occasionally observed during a severe gale, but the shoalest depths found were 7½ fathoms. A 6- to 8-fathom patch, marked by kelp during the summer, is 0.4 mile W of the rock. A rock awash at extreme low water is 0.5 mile NE of Aats Point.

(37) The channel between Coronation Island and the Hazy Islands is clear. Spanish Island and Cape Decision are described in chapter 7.

(38) **Chart 17386.–Point Howard** (56°04.2'N., 134°14.0'W.), on the E side of Chatham Strait about 5 miles

NW of Cape Decision, consists of a detached rocky ledge back of which is a group of several bare mountain peaks, including **Mount McArthur.**

(39) **Howard Cove,** between Cape Decision and Point Howard, is open to the W and is not considered a secure anchorage. The temporary use of the cove is recommended only for small craft of not over 6-foot draft with local knowledge.

(40) **Crowley Bight,** a fair-weather anchorage, is an indentation in the shoreline between Point Howard and Point Crowley. It is exposed and affords poor holding ground.

(41) **Point Crowley** is a prominent headland on the E shore 8 miles NW of Cape Decision. Most of the higher peaks in this vicinity are bare. A group of rocks, which uncover about 5 feet and on which the sea breaks at practically all stages of the tide, is about 1 mile SW from the point. The passage between the rocks and the point may be used to take advantage of the prevailing N current when northbound.

(42) **Point Crowley Light** (56°07.2'N., 134°15.5'W.), 45 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point.

(43) The N entrance point of **Table Bay,** about 2 miles N of Point Crowley, consists of an island close to a tongue of lowland, which affords some shelter from the swell in the N arm of the bay. Temporary anchorage may be had in 13 to 16 fathoms, mud bottom. Favor the SE shore and take care not to anchor too close to the rocks, awash at high water, off the N shore of the arm. In the northernmost part of the N arm is a good place to beach a vessel in case of emergency. Fishing vessels generally anchor in the SE arm of the bay. At high water small craft can enter the land-locked cove on the W side of the N arm by passing between the wooded island on the N side of the cove and the rocky islet S of this island. At low water this entrance has bare rocks.

(44) The entrance to Table Bay is marked on each side by bold, rocky bluffs that are very distinctive in color; those on the N side are dark, and those on the S side are light and show prominently when in the sun. The low gap at the E end of the bay is prominent in contrast with the high land on either side.

(45) **Charts 17376, 17320.–Port Malmesbury** is on the E side of Chatham Strait, 17 miles N of Cape Decision. On the SE side of the port are two arms; one about 1.7 miles inside the entrance and the other near the head. The NW side has a short arm about halfway between the entrance and the head of the port.

(46) **Point Harris,** the N entrance point to Port Malmesbury, is a bare rocky platform, 40 to 50 feet high, that extends 0.2 mile out from the tree line. **Point Harris Light** (56°17.4'N., 134°18.0'W.), 32 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point. Back of the point the land rises gradually at first and then more abruptly, to form a prominent detached peak. This mountain has a dark green growth of timber on the W slope and a large yellow landslide on the S slope.

(47) One-half mile E of Point Harris is another prominent point. Its face is a steep bluff of light gray rock. The land rises abruptly here to form a small knob; the low land back of the knob rises uniformly to the first-mentioned peak. The knob is prominent from the NW direction and is visible over Point Harris.

(48) A reef extends about 350 yards off the point on the N side of the port about 1.5 miles E of Point Harris. The bight W of this reef affords fair-weather anchorage, protected from N winds, in 15 fathoms, soft bottom.

(49) The small arm on the NW side has a narrow entrance channel with dangers on both sides. Vessels entering should favor the S shore in the narrow entrance. Good anchorage is inside the arm in 7 to 10 fathoms, mud bottom.

(50) The shore near the S entrance point of the port is irregular and foul. The head of the first arm on the S side affords anchorage in 12 fathoms. Favor the SW side near the head to avoid the 3¼-fathom shoal shown on the chart.

(51) In the second arm on the S side, anchorage may be had in 7 to 17 fathoms, mud bottom. The channel to the basin at the head of this arm is narrow with 3¼ fathoms at its entrance, but can be entered by small vessels with safety.

(52) **Harris Cove,** between Port Malmesbury and Gedney Harbor and about 1.3 miles N of Point Harris, extends to the basin at the NW end of Port Malmesbury, with low land between. This bight is used by small craft for anchorage in all but W weather.

(53) **Point Cosmos** is about 3.5 miles N of Point Harris. It rises by several broad terraces to a bare-topped mountain. At Point Cosmos the shore trends NE for about 2 miles to the entrance of Gedney Harbor.

(54) **Gedney Harbor,** about 23 miles N of Cape Decision, has its entrance on the E side of Chatham Strait 2 miles NE of Point Cosmos. The harbor is a horseshoe-shaped cove, averaging about 0.2 mile in width, that surrounds a wooded island that is about 1 mile long. The passage E of the island is blocked at its N end by rocks and reefs.

(55) The entrance to the harbor is on either side of a ledge about 400 yards long, about 0.2 mile W of the island. The NW and SE ends of the ledge are bare heads that show only a few feet above the highest tides. The channels on each side of the ledge are clear in midchannel. About 0.3 mile SE of the ledge the passage SW of the island is narrowed to a width of about 200 yards by a sharp point projecting from Kuiu Island. Kelp and shoal water extend about 50 yards off the point.

(56) The harbor is used extensively by fishermen during the season. Anchorage is available in most parts of the harbor in 6 to 12 fathoms, mud bottom.

(57) A fish-buying scow is usually anchored in the harbor during the summer. Water, ice, gasoline, diesel fuel, limited provisions, and fishing supplies are available on the scow.

(58) **Tebenkof Bay** is on the E side of Chatham Strait N of Gedney Harbor. Its entrance is between Point Ellis on the N and **Swaine Point** on the S. The bay extends inland for about 7 miles and branches into three arms of irregular shape. The high regions N and S of the entrance merge into the low-lying hills that cover the entrance islands and the long projecting points of the bay. The islands inside the bay and the E shore of Chatham Strait are low and a distinctive feature of the locality.

(59) **Windfall Islands** are three islands from 1 to 2 miles N of Swaine Point. **Troller Islands** are six islands just NE of Windfall Islands. They are separated from Kuiu Island by **Helianthus Passage,** a narrow passage obstructed by a 2-fathom rock near midchannel at its S entrance. This passage has strong currents during spring tides. **Troller Point** is the most N point of the Troller Island group.

(60) From some distance offshore in Chatham Strait, Windfall Islands and Troller Islands appear as a continuous stretch of shoreline.

(61) **Davis Rock** is a bare rock in the entrance to Tebenkof Bay, about 0.9 mile NW from Troller Point. It forms an excellent landmark for entering the bay. SW from the rock are a number of shoals and submerged pinnacle rocks as shown on the chart. A rock, 15 feet high, similar to Davis Rock in appearance, is off Troller Point.

(62) **Explorer Basin** is between Kuiu Island and the offlying Windfall Islands and Troller Islands. It affords fair anchorage during S weather. The entrance is obstructed by shoals off Swaine Point and the southernmost Windfall Island.

(63) **Thetis Bay,** the S arm of Tebenkof Bay, affords excellent anchorage near its head in 9 to 10 fathoms, mud bottom.

(64) **Local magnetic disturbance.**–Differences of as much as 4° from normal variations have been observed on the W shore of Thetis Bay at 56°25.7′N., 134°10.3′W.

(65) The entrance to **Petrof Bay,** the SE arm, is endangered by numerous reefs and shoals. The N side of the entrance channel is marked by **Tebenkof Bay Light 1** (56°27.0′N., 134°08.3′W.), 14 feet above water, shown from a small house with a square green daymark on a small island on the E side of the entrance. A daybeacon is on a rock awash, 1.7 miles SE from the light.

(66) Good anchorage can be selected in various parts of Petrof Bay; the chart is the best guide.

(67) **Piledriver Cove** is a small cove on the N side of Tebenkof Bay, about 4 miles ESE of Point Ellis.

(68) **Happy Cove,** on the N side of the bay 3 miles SE from Piledriver Cove, is well sheltered. Its entrance is marked by one bare and one wooded island. The inner cove, separated from the lower part by a narrow channel, has sand bottom and beach.

(69) **Gap Point** is the southernmost extremity on the N shore of Tebenkof Bay about 1.2 miles SE from Happy Cove. From the entrance to Tebenkof Bay, it is distinguished by the gap between the islet S of it and the point.

(70) **Elena Bay,** the N arm, affords good anchorage at various places.

(71) **Routes.**–The entrance to Tebenkof Bay N of Davis Rock is clear and may be navigated easily with the aid of the chart. In approaching this entrance from S, take care to avoid the dangers SW of Davis Rock. Small craft can enter the bay via Explorer Basin and Helianthus Passage.

(72) **Charts 17370, 17320.**–The Bay of Pillars and Rowan Bay, on the E side of Chatham Strait, share a common entrance about 38 miles N of Cape Decision. The bight that forms the entrance between Point Ellis and Point Sullivan is about 7.2 miles wide and indents the coast 2.5 miles in its main part. The two bays have secure anchorages. The bight has many islands, rocks, and reefs, especially between the two arms, but a deep channel leads into each arm.

(73) **Point Ellis** (56°33.8′N., 134°19.2′W.), the S point of Bay of Pillars, is 16.5 miles N of Point Harris. The point is low and rocky. Rising steep and bluff back of it is a high wooded ridge with two prominent landslides on its S face; the E one is inverted "V" in shape. These slides are bare and can be seen for a long distance from S or SW. A rock, covered 1¾ fathoms, is about 0.3 mile WSW of the point in about 56°33′40″N., 134°19′40″W. A bare reef is 0.4 mile WNW of Point Ellis. The reef is marked by **Point Ellis Light** (56°34.0′N., 134°20.0′W.), 30 feet above the water, shown from a skeleton tower with a red and white diamond-shaped daymark. Kelp is between the reef and the point, and also extends about 0.5 mile N from the reef. A rock awash is about 0.3 mile N of the reef in 56°34′22″N., 134°19′39″W.

(74) Islands, islets, reefs, and bare and covered rocks are on the N side of the entrance to Bay of Pillars; kelp is in the area.

(75) **Bay of Pillars** extends about 10 miles NE from Point Ellis and is comparatively clear for 4.5 miles. Above this the bay is foul and must be navigated with caution.

(76) The best approach to the bay is on a SE course passing about 0.9 mile N of Point Ellis Light 8, then following a midchannel course on about 068° into the bay.

(77) Temporary anchorage for small boats can be had in a cove about 2.1 miles NE of Point Ellis in 10 to 20 fathoms, mud and shell bottom.

(78) The ruins of a cannery wharf and a saltery wharf are on the SE side of Bay of Pillars, about 3.5 miles above Point Ellis. The area around the wharves is foul with submerged pilings and debris, and should be avoided or navigated with extreme caution. In 1981, the NOAA Ship DAVIDSON found secure anchorage in 70 knot SW winds, 1 mile NNE of the cannery in 15 to 20 fathoms, mud bottom.

(79) A rock awash is on the S side of the bay about 0.5 mile NE of the cannery wharf in about 56°36′18″N., 134°14′00″W.

(80) Four small islands are on the SE side of the bay, about 4.5 miles above Point Ellis. Secure anchorage for small vessels can be found about 400 yards E of the islands and the same distance from the shore, in 10 to 11 fathoms. It is safer for a stranger to enter at low water. The channel is about 150 yards wide between the N end of the islands and the reef to the N. The channel N of the reef is about 150 yards wide and is the most direct route to the upper parts of the bay.

(81) About 6 miles above the entrance a narrow foul channel leads into the inner bay, which is clear and deep. The narrow entrance to the inner bay has strong tidal currents and should only be entered at slack water or with local knowledge. A rock awash is at midchannel at the W end of the narrow entrance in about 56°38′00″N., 134°11′03″W. Two rocks, covered ¾ fathom and 1¼ fathoms, are about 160 yards and 250 yards ENE of the rock awash, respectively.

(82) Anchorage can be found in the cove to the SW corner of the inner bay in 4 to 10 fathoms, mud bottom. A 1½-fathom spot is near the center of the cove. Good anchorage in 2 to 7 fathoms, mud bottom, is found in any part of the arm leading S at the head of the bay.

(83) **Rowan Bay** has a very irregular bottom and much kelp and is suitable only for small vessels. Strangers should preferably enter at low water and exercise care, because there are many charted and uncharted shoals in the bay and at its entrance.

(84) A rock awash, with deep water around it, is about 0.8 mile SW of the narrow entrance to Rowan Bay. It is marked by kelp. In 1975, a rock, covered about 2½ fathoms, was reported in about 56°37.5′N., 134°20.1′W., about 1.2 miles SW of the rock awash. Another danger spot, covered 1½ fathoms, is about 300 yards NW of the 2½-fathoms covered rock in about 56°37.6′N., 134°20.3′W. Mariners are advised to exercise caution in this area.

(85) The entrance to Rowan Bay, 5 miles N of Point Ellis, has depths of 10 to 20 fathoms, however, uncharted shoals from 3 to 1½ fathoms are reported; local knowledge is advised. The shores at the entrance are foul. At 1.2 miles within the entrance there is an island in the middle. The deep channel follows the SW and SE sides of the island at a distance of about 200 yards. The passage N of the island is narrow and bordered on both sides by foul ground, but it is preferred because a nearly straight approach is possible.

(86) E of the island, the bay has a NE direction with depths of 3 to 12 fathoms, and is a secure anchorage. A rock, covered 2 fathoms, is about 0.3 mile ENE from the island in the middle of the bay in about 56°39′34″N., 134°15′05″W. A rock, covered 1¾ fathoms, is about 300 yards NE of the 2-fathom rock. Two large streams enter the

head, and an extensive flat borders the entire N shore between them to a distance of over 0.5 mile, but the shoaling is gradual up to 3 fathoms.

(87) In 1981, a logging camp was operating in Rowan Bay on the NW shore on both sides of the point about 0.6 mile NNE of the island. A small-craft and seaplane float is about 0.2 mile W of the point. A log storage area and log booms are in the N part of the bay. Gasoline and a machine shop are available in an emergency only. Radiotelephone communications are maintained with other parts of Alaska, and with other States.

(88) **Point Sullivan,** about 7.2 miles N of Point Ellis, is low and wooded. The land rises gradually back to a ridge. A chain of islands, bare and submerged rocks, and kelp extend about 1.2 miles SSE from the point. E of these islands is a bight, open to the S, where temporary anchorage can be found in 13 to 20 fathoms.

(89) **Washington Bay** is on the E side of Chatham Strait, about 45 miles N of Cape Decision and about 2.5 miles N of Point Sullivan. The bay is deep and has high, steep sides; its entrance is not visible far from shore. **Washington Bay Light** (56°43.1'N., 134°23.7'W.), 33 feet above the water, is shown from a square frame with a red and white diamond-shaped daymark on the point on the S side of the entrance. A 5½-fathom spot is about 0.5 mile S of Washington Bay entrance in about 56°42'30"N., 134°23'25"W. Rocks and kelp extend off the N point of the entrance. Submerged pilings extend about 50 yards off the N shore, about 0.5 mile from the head of the bay; caution is advised in the area. Temporary anchorage can be had in the middle of the bay about 0.7 mile from the head.

(90) The head of the bay is not recommended as an anchorage, because of insufficient swinging room. In the winter, violent SE winds draw down the N side of the head of the bay. Mariners should follow a midchannel course when entering the bay.

(91) **Chart 17320.–Kingsmill Point** is on the E side of Chatham Strait at its junction with Frederick Sound. It is marked by **Kingsmill Point Light** (56°50.6'N., 134°25.2'W.), 25 feet above the water and shown from a small house with a red and white diamond-shaped daymark. Frederick Sound is described in chapter 8.

(92) **Charts 17331, 17320.–Breakfast Rock** is about 0.3 mile off the W shore of Chatham Strait, about 4 miles NNE of Cape Ommaney and about 0.9 mile SSE of Port Alexander Light. It is 5 feet high, small in extent, and bare, and has deep water close-to. Small boats with local knowledge use a passage between this rock and the reef that extends out from the shore.

(93) **Port Alexander,** indenting the W shore of the strait about 5 miles N of Cape Ommaney, is a small-boat harbor with an entrance 150 yards wide.

(94) **Port Alexander Light** (56°14.4'N., 134°39.0'W.), 68 feet above the water, is shown from a small house on a skeleton tower with a red and white diamond-shaped daymark on the high bare rocky point at the S side of the entrance.

(95) A Federal project provides for a 150-foot-wide channel, 15 feet deep, that leads through ledge rock at the main entrance and a 40-foot-wide channel that is 6 feet deep at the entrance to the inner harbor. In June 1976, the reported controlling depth in the main entrance channel was 15 feet. The channel to the inner harbor is no longer maintained, and local knowledge is necessary for safe entry.

(96) A lighted **334°** range leads through the center of the entrance channel and close SW of a buoy that marks the SE end of a shoal with rocks awash.

(97) A submerged pipeline crosses the channel about 50 yards N of the 334° rear range marker. The pipeline is marked by two orange floats at each end. Vessels are cautioned not to anchor in this area.

(98) A **speed limit** of 3 miles per hour is prescribed for certain vessels in Port Alexander. (See **162.250,** chapter 2, for regulations.)

(99) **Port Alexander,** a fishing settlement with a general store, is on the E side of the harbor. It has a public wharf and two State-maintained small-craft floats. The public wharf is in the outer harbor at the S end of the settlement. In 1976, depths of 12 feet were reported along the face. Just N of the public wharf is one of the two State floats. The 412-foot-long float, with a seaplane float at its N end, can accommodate craft on both sides; depths of 10 to 20 feet were reported alongside in 1976. The second small-craft float is on the E side of the inner harbor, about 500 yards N of the public wharf. The 250-foot-long float can accommodate craft on both sides. In 1976, depths of 10 to 20 feet were reported alongside.

(100) Limited amounts of gasoline, diesel fuel, water, and provisions can be obtained in the summer at the general store. Ice is available in the summer from a fish-buying station.

(101) A 48-foot grid is immediately W of the approach pier to the small-craft float on the E side of the inner harbor.

(102) The settlement maintains radiotelephone communications with other parts of Alaska and with other States.

(103) **Point Conclusion,** 6.5 miles N of Cape Ommaney, is low, flat, and wooded. The point is the N extremity of a comparatively low peninsula between Port Alexander and Port Conclusion. A small island is close off the point. **Graveyard Cove** is an open bight on the SE side of the point. **Flotsam Islet** is in the SE part of the cove.

(104) **Port Conclusion** has its entrance W of Point Conclusion. The soundings are deep and somewhat irregular, but the port and approaches have been found clear of dangers. On the SE shore of the port, 0.3 mile SSW of Point Conclusion, is a cove about 0.2 mile long with a sandy beach at its head. About 0.9 mile farther SW, on the same shore, is **Ship Cove** where Vancouver (English navigator and discoverer) moored his vessels. A few piles on the SE side of the cove mark the site of a former saltery. A line of dolphins in an E-W direction is about in the middle of the entrance to the cove. A marker is on the NE and SW sides of the entrance to the cove. The cove affords protected anchorage for small craft in 2½ to 4 fathoms. The only ship anchorage in Port Conclusion is in midchannel, about 0.3 mile N of Ship Cove and S of the 5¾-fathom spot, in 13 to 20 fathoms, rocky and uneven bottom. The holding ground is poor, and its use is not recommended. **John Bay,** on the W side opposite Point Conclusion, is a deep bight of no importance.

(105) Ruins of two saltery wharves are on the W side of Port Conclusion at its head. In 1976, the N wharf was pile ruins, and the S wharf had loose outer piles and an unstable deck. Caution is advised.

(106) **Port Armstrong** is 1.5 miles N of Point Conclusion. From **Point Eliza,** the S point at the entrance, a narrow ledge, which uncovers shortly after high water, extends E for about 200 yards in a continuation of the point. Vessels should keep about 0.5 mile offshore until abreast of the entrance.

(107) About 0.3 mile W of Point Eliza is the narrowest part of the channel with bold shores, leading to the inner landlocked basin of Port Armstrong. This basin affords the best anchorage in the vicinity. The anchorage is in the W end of the basin in 11 to 20 fathoms, soft bottom. A midchannel course carries in safely. All dangers are shown on the chart.

(108) The ruins of a wharf are on the N side of the basin at Port Armstrong, just above the narrows. In 1976, there were stub piles at the outer end and most of the decking was gone. Pile ruins of another pier are about 75 yards NE of the wharf ruins.

(109) **Miner Cove,** about 0.8 mile N of Port Armstrong entrance, is an open bight that might afford temporary anchorage for small craft.

(110) **Charts 17333, 17320.–Port Lucy** has its entrance on the W shore about 10.5 miles N of Cape Ommaney. The anchorage for large vessels is near the head, abreast a deep gulch on the NW side, in about 20 fathoms. Small vessels can go farther in and anchor in about 10 fathoms. From the head of the port low land extends through to the W side of Baranof Island at Puffin Bay, and winds from those quarters may draw through in consequence, but without any sea. The port is easy of access and apparently has no dangers.

(111) **Toledo Harbor** is a small, horseshoe-shaped bay with depths of 3¼ to 8 fathoms, mud bottom, which is 12.7 miles N of Cape Ommaney and about 0.9 mile S of Port Walter Light 5. It is used considerably by small local fishing craft. It has an entrance about 75 yards wide with a midchannel depth of 5 fathoms. The NE part of the harbor is shoal.

(112) **Port Walter** has its entrance about 14 miles N of Cape Ommaney and 9 miles S of Patterson Point. **Port Walter Light** (56°23.2'N., 134°38.2'W.), 20 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark, is on the S point at the entrance. Near the head of Port Walter, a little S of midchannel, is a wooded islet. A high-water rocky islet, from which a reef extends in a N direction into the channel, is 50 yards N of the wooded islet. Anchorage in 11 to 14 fathoms, sandy bottom, can be had between the islet and the N shore.

(113) **Little Port Walter,** W of the S entrance point, consists of an inner and outer harbor with a narrow connecting channel. A flat, grass-covered rock and two wooded islets are on the W side of the entrance. The National Marine Fisheries Service Laboratory on the NW side of the port 0.5 mile SW of Port Walter Light 5 is prominent at the entrance to the port. This building and another nearby dwelling appear as one large white building. A small bridge that crosses the stream at the head of the port is also prominent.

(114) The narrow channel, connecting the inner and outer harbors, has a width of about 30 yards with a depth of 3¼ fathoms and is subject to shoaling. Vessels should enter the port between half and high tide only and preferably on a rising tide. They should pass along the SE side of the channel and make a slow turn to enter the inner harbor. Too sharp a turn may throw the stern into shoal water.

(115) Good protected anchorage for small craft can be had in the inner harbor in 6 to 8 fathoms, mud bottom. The current in the entrance to the outer harbor is estimated to be 1 knot. SW winds draw down the creek at the head of the inner harbor, but no other winds are felt. A 47-foot warehouse dock is near the tip of the small point about 300 yards SW of the narrow connecting channel. A 90-foot float with an incubation pen at its outer end extends SW from a small point about 100 yards NE of the previously mentioned point.

(116) Radiotelephone communication is maintained with other parts of Alaska and with other States.

(117) **New Port Walter** is at the head of a small cove on the N side and about 0.8 mile from the entrance to Port Walter. A stream, with a flat at its entrance, is at the head of the cove. A rock, bare at extreme tide, is close to the E entrance point to the cove. A rock, bare at high water, is off the W point of the cove, with a reef that extends part way from the shore.

(118) **Big Port Walter,** a basin with depths 22 to 55 fathoms, is entered through a narrow passage 0.4 mile long leading from the anchorage W of the wooded islet. The passage is almost straight, with a depth of 34 fathoms in midchannel at its narrowest part. The maximum current in the entrance is estimated to be 2 knots. A large stream enters in the N part, and two streams empty in the SW part of the bay. One of the latter is a cascade from a lake about 800 feet high. The shores are steep-to, and there are apparently no dangers. The basin is too deep for good anchorage and freezes in winter. With an accumulation of snow, the ice becomes 8 to 10 feet thick during severe winters and lasts almost until spring.

(119) The ruins of a wharf are at the head of Big Port Walter; caution is advised.

(120) **Port Herbert** has its entrance about 16.5 miles N of Cape Ommaney and 6.5 miles S of Patterson Point. The water is too deep for anchorage, and there are apparently no dangers. There are no islets or rocks at its entrance, which distinguishes it from Port Walter.

(121) **Charts 17335, 17320.**–About 4 miles N of Port Herbert and 2.3 miles S of Patterson Point is a small bight used for anchorage by local fishing craft during the summer.

(122) **Patterson Point** (56°32.4' N., 134°38.2'W), on the W side of Chatham Strait 23 miles N of Cape Ommaney, is the E point at the entrance to Patterson Bay. It is high, bluff, bold, and extends N to a series of high rugged peaks, and is the S end of a high mountain ridge between Patterson Bay and Chatham Strait. The point is conspicuous from the S. Patterson Bay shows as a deep gulch in the high rugged mountains.

(123) **Patterson Point Light** (56°32.4'N., 134°38.3'W.), 50 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the S end of Patterson Point.

(124) **Mist Cove,** about 1.4 miles SW from Patterson Point, is an open bight too deep for anchorage. A waterfall on the SW side of the cove is visible from well N in Chatham Strait.

(125) **Deep Cove** has its entrance 1.1 miles W of Patterson Point. A narrow peninsula makes out from the N shore about 2.4 miles within the entrance. A stream with a flat at its mouth empties at the base of the peninsula on its N side. Another stream with a waterfall empties at the head of Deep Cove. Anchorage can be made near the small flat below this waterfall in 20 to 25 fathoms, soft bottom. The water in the cove is otherwise too deep for anchorage.

(126) **Patterson Bay** has its entrance W of Patterson Point. Constricted anchorage in 22 to 24 fathoms can be made below the wooded islet at the head and abreast a small green point on the W side formed by the debris from the cliffs above it. Several streams enter the bay. No directions are necessary, and there are apparently no dangers in the bay.

(127) **Charts 17336, 17320.–Gut Bay** is on the W side of Chatham Strait, about 34.5 miles N of Cape Ommaney. At 0.3 mile E of the narrow entrance and 300 yards from the S side is a rocky patch with 4½ fathoms; vessels should pass N of it. The entrance is about 100 yards wide with bold shores. The sides are bluff, bold, and rocky, in some places almost perpendicular. On the S side, 2.5 miles from the entrance, is the narrow opening of a little bay, between high ridges, with a depth of ¾ fathom. Small craft can enter this bay at high water and anchor in about 3 fathoms.

(128) The water in the main bay is deep, but a temporary anchorage can be had on the S side 0.5 mile within the entrance, off a rocky ledge and small stream, in about 20 fathoms. This anchorage is not good, because the bottom is rocky, and the wind draws through. A fair anchorage can be had near the head in 10 to 20 fathoms.

(129) **Hoggatt Bay** is about 2 miles N of Gut Bay and extends back into the mountains of Baranof Island. The sides are steep and bold and the water deep, over 100 fathoms through the middle. **Hoggatt Bay Light** (56°45.9'N., 134°39.3'W.), 40 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the S side of the entrance to the bay.

(130) **Red Bluff Bay** is 4.5 miles N of Hoggatt Bay and 10 miles W of Kingsmill Point, and is named from the prominent rocky red hill N that come down to a low point on the N side of the entrance. The small islands in the entrance to the bay almost close it. The bay extends back into the mountains. About the middle it chokes to about 100 yards between high cliffs, but the channel is good. On the S side at the head of the bay is a large stream; a flat extends about 0.4 mile from the head and 0.3 mile E from the mouth of the stream.

(131) **Local magnetic disturbance.**–Differences of 5° from normal variation may be expected in the channel entering Red Bluff Bay.

(132) There are channels on both sides of the westernmost island in the entrance, but the S channel, being straight, is considered safer for long vessels than the wider rounding channel E of the island. Great care should be taken to stay at midchannel.

(133) A small vessel may anchor just inside the entrance in the channel between the islands and the S shore. An anchorage can be had 1.8 miles from the entrance, where the bay begins to narrow, in 8 to 14 fathoms about in midchannel. The bottom is rocky. The wind draws through strongly when it is blowing in the strait. At the head, favoring the N shore and NNE of the flat at the mouth of the stream, is a good anchorage in 12 to 16 fathoms with soft bottom and perfect protection.

(134) A reef extends from the NE shore of the bay for about 75 yards, at about 1 mile NW of the northwesternmost island in the entrance. The outer end of the reef is bare at almost all stages of the tide and should be given a berth of at least 50 yards. The bay is reported to ice up from the head to the entrance islands during the winter.

(135) **Chart 17320.**–Between Red Bluff Bay and Cascade Bay, 11 miles N, are four small bays where small craft may find a depth suitable for anchorage in smooth weather, but only one, Nelson Bay, has protection. None of the bays is important.

(136) **Nelson Bay,** about 6.8 miles N of Red Bluff Bay, is an open bight at the head of which is a circular cove having two islets across the entrance. The entrance to the cove is between the N islet and the point N of it, and is 75 yards wide with a depth of 5 fathoms. The cove is 250 yards in diameter between the 10-fathom curves, and the general depth is 15 fathoms, soft bottom. This cove is suitable only for small craft.

(137) **Cascade Bay** is on the W side of Chatham Strait, about 4.5 miles W of Point Gardner (57°01'N., 137°37'W.). It has deep water, rocky bottom, and no good anchorage. Temporary anchorage can be had in the middle of the bay in 26 fathoms. At its head is a prominent cascade seen from a distance in Frederick Sound.

(138) A waterfall, about 300 feet high, which shows well in Frederick Sound is 1.8 miles S of Cascade Bay.

(139) **Charts 17337.–Warm Spring Bay** is on the W side of Chatham Strait, about 56 miles N of Cape Ommaney and 7 miles NW of Point Gardner. The bay has good anchorage for small craft, but the anchorage for large vessels is indifferent.

(140) **Warm Spring Bay Light** (57°04.8'N., 134°46.5'W.), 27 feet above the water, is shown from a red and white diamond-shaped daymark on the S point of the entrance. A microwave tower, about 1 mile WNW of the light on a knob along the N shore, is prominent at the entrance to the bay. Two billboard reflectors, one along the S shore and the other at the head, are prominent in the bay. At the head of the bay is a waterfall, visible from Chatham Strait, and near the waterfall are several warm mineral springs.

(141) Warm Spring Bay is of easy access, and with the chart as a guide no trouble should be experienced in entering. Midchannel courses are recommended.

(142) Two small bights in the S shore afford anchorage for small craft. The W one is preferable, because of shoaler water, from 12 to 15 fathoms.

(143) The only anchorage in the bay for large vessels is off the W bight in 25 fathoms, but the bottom is rocky and the current from the cascade usually sets out, making a vessel lie broadside to SE winds that draw into the bay.

(144) A shoal with a depth of 6¼ fathoms is about 200 yards offshore and about 230 yards E of Warm Spring Bay Light 15. There may be less water, so it should be avoided when entering the bay. Care should be taken to avoid the reef that makes out 60 yards from the N shore at a point about 200 yards E of Baranof.

(145) **Baranof** is a village with a general store on the N side of Warm Spring Bay at the head. Warm spring baths may be had here. The village has a small approach pier with a seaplane float at its end and a small-craft float that extends ESE from near its outer end. The 250-foot-long small-craft float can accommodate craft on both sides; in 1976, depths of 12 to 20 feet were reported alongside. Water is available on the 250-foot float, and limited amounts of provisions can be had at the general store close W of the small approach pier. A 40-foot grid is close E of the small approach pier. Baranof maintains radiotelephone communications with other parts of Alaska, and with other States. A State-owned radiotelephone is at the general store. Charter seaplane service from Sitka and Juneau is available.

(146) **Takatz Bay** has its entrance on the W side of Chatham Strait about 10.5 miles NW of Point Gardner and 16 miles S of Point Thatcher. It terminates in a flat about 0.4 mile in extent, formed by a mountain stream emptying as a waterfall.

(147) **Point Turbot,** the N point at the entrance to Takatz Bay, is marked by **White Rock,** a large white rock about 50 yards off. A high waterfall about 2 miles N of Point Turbot is visible from N a considerable distance.

(148) The S point at the entrance to Takatz Bay is the N point of a high wooded promontory forming the SE side of the bay.

(149) The entrance of Takatz Bay is not visible until close S of Point Turbot. Give Point Turbot a berth of not less than 0.2 mile when E of it and pass in midchannel between Point Turbot and the outer bare rocks off the S point at the entrance. Leave the two inner bare rocks off the S point at the entrance about 150 yards to the S, and favor the S shore for about 0.5 mile to avoid a submerged rock in midchannel. Then follow a midchannel course.

(150) The bay affords secure anchorage about 1.8 miles within its entrance in 15 to 18 fathoms, soft bottom, in the basin that opens out just before reaching the narrows.

(151) Small craft may pass through the narrows in midchannel and anchor 0.2 to 0.4 mile beyond them, but should not pass the largest islet 0.5 mile beyond the narrows, as the flat at the head begins there. All known dangers in the bay are charted.

(152) The promontory on the SE shore of the bay also forms the N shore of a bight, with the **Takatz Islands,** a group of islands on the S side. The bight has no anchorage; the water is very deep and the bottom irregular.

(153) **Kasnyku Bay,** on the W side of Chatham Strait about 14 miles NW of Point Gardner, has deep water and no secure anchorage. A small white house structure of a discontinued light is on the SE end of the island at the head of the bay.

(154) The entrance to the bay is between **North Point** and **Round Island,** and its surrounding group of small wooded islets, off the S point of the entrance.

(155) **Cosmos Cove** is on the W side of Chatham Strait about 5.5 miles N of Takatz Bay and 2 miles S of Kelp Bay. The cove affords anchorage with good shelter in 10 to 15 fathoms, soft bottom, for small vessels. The head of the cove is shoal for a distance of about 0.8 mile.

(156) **Kelp Bay** (57°17′N., 134°51′W.), a large indentation in the NE coasts of Baranof Island, is 10.5 miles S of the E entrance of Peril Strait and 17.5 miles NNW of Point Gardner. Its entrance is between **North Point** the S extremity of Catherine Island, and **South Point** on Baranof Island. The bay has no known commercial activity.

(157) The main bay extends about 3.5 miles NW where it divides into three arms. **Middle Arm** extends in a W direction. **South Arm** extends in a general SW direction. **The Basin,** in the S part of the bay, is bordered on the E by two groups of islands that include **Pond Island, Crow Island,** and other adjacent islands. **Portage Arm,** which extends in a NW direction, is reported to connect with Hanus Bay, in Peril Strait, by an overgrown portage.

(158) **Anchorages.**–Anchorages in the bay are few, the best being in the SE corner of The Basin. Another is in Middle Arm about 0.8 mile from its head in 22 to 25 fathoms, soft bottom. A small vessel can find temporary anchorage in Portage Arm about 2.7 miles above the entrance in midchannel, in 10 fathoms, but this anchorage has scant swinging room and is exposed to SE winds that draw through the arm.

(159) **Dangers.**–The survey of the bay is old and incomplete, and dangers may exist in addition to those shown on the chart. The known dangers include shoal water that extends 0.4 mile S of North Point; ledges that extend off South Point; extensive shoals and dangerous rocks in the cove on the SE side of Pond Island; **Yellow Rock** and the shoals SE, S, and WNW of it; **Plover Rock,** with surrounding shoals and rocks that uncover; several detached shoals and a rock awash from about 0.3 to 0.9 mile S of Plover Rock; **Zubof Rock** in the middle of the entrance to The Basin, and extensive shoal areas with depths as little as 1 fathom in the E and SE parts of The Basin.

(160) **Catherine Island** is a large high island off the NE end of Baranof Island. Mountains take up the greater part of the island. **Point Lull,** the SE extremity of Catherine Island, forms the E side of **Echo Cove,** a narrow bight, which extends in a NNW direction. Thecove is open to the S and affords temporary anchorage for small craft only. A submerged reef, marked by kelp, extends 0.6 mile S of Point Lull. Vessels transiting Echo Cove and The Basin in Kelp Bay should use caution or seek local knowledge.

(161) **Point Lull Light** (57°18.6′N., 134°48.4′W.), 50 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the E side of Point Lull.

(162) **Chart 17320.–Point Thatcher** (57°25′N., 134°50′W.) is the NE extremity of Catherine Island and the S point at the E entrance to Peril Strait. Peril Strait and Sitkoh Bay are described in chapter 13.

(163) **Wilson Cove,** on the E side of Chatham Strait, is an open bight in the W coast of **Admiralty Island,** about 8 miles N of Point Gardner. Two small wooded islands and foul ground with kelp extend 0.4 mile off the S shore. The entrance has an extensive reef covered at highest tides. Wilson Cove should be avoided, as it affords no protection as an anchorage, except from E winds. The bottom of the cove is foul with depths of 4 to 8 fathoms in places. But should it be necessary to enter the cove, stand in parallel to the S shore, pass S of the reef in the mouth of the cove, keep clear of the kelp on both sides, and anchor in 8 fathoms.

(164) **Table Mountain,** on the S shore of Whitewater Bay, is peculiarly eroded near the summit. It is the first prominent peak N of Point Gardner.

(165) **Local magnetic disturbance.**–Differences of as much as 6° from the normal variation have been reported in Chatham Strait in midchannel between 57°15′N., and 57°23′N.

(166) **Charts 17341, 17320.–Whitewater Bay** has its entrance on the E side of Chatham Strait between Point Caution and Woody Point, 15 miles N of Point Gardner and 13 miles S of Killisnoo Island. The bay at the head connects by a narrow passage with a lagoon, bare at low water. Secure anchorage can be had near the head of the bay.

(167) **Caution.**–No recent surveys have been made of the bay. The bottom is very irregular, and there is no certainty that all dangers are charted. In 1975, a 1½-fathom spot was reported in the entrance to the bay, about 0.6 mile E of Lone Tree Islet, in about 57°15′11″N., 134°37′06″W.

(168) **Point Caution** is marked by **Lone Tree Islet,** which is 350 yards off the point. Foul ground and kelp extend over 0.9 mile W and 0.9 mile N from the point.

(169) **Healy Rock,** about 0.2 mile N of **Flag Point,** on the S shore of the bay and 1.3 miles SE of Point Caution, is low, bare, and surrounded by ledges marked by kelp. **Sand Point,** named from its formation, is on the N shore about 0.8 mile NE of Healy Rock and marks the entrance to the anchorage. A shoal with a submerged rock, dangerous to navigation, at its end extends 300 yards SE from Sand Point. **North Island,** low and wooded, is close to the N shore, 0.5 mile E of Sand Point.

(170) Anchorage may be had in 10 fathoms, soft bottom, 0.2 mile SW of North Island with Black Point and Sand Point in line.

(171) **Woody Point,** the N point at the entrance, has a small, rocky, wooded islet about 100 yards NW from it.

(172) Foul ground marked by kelp extends about 0.3 mile from the N shore of the bay for a distance of 1.3 miles S of Woody Point. The most projecting is a bare ledge that extends 0.3 mile W from the first point SSE of Woody Point. Kelp surrounds the ledge to a distance of 250 yards.

(173) **Russian Reef** is the N end of shoal water and broken ground that extends 1.2 miles N of Woody Point. The reef is about 0.4 mile in extent in a NW direction and rises abruptly from very deep water on three sides, bares in places, and is marked by kelp. Tide rips form off the reef.

(174) **Chaik Bay** is on the E side of Chatham Strait about 19 miles N of Point Gardner. About 2 miles from the entrance it divides into two arms. The N arm extends NE, and the S arm extends E, where it terminates in a long flat at the mouth of a stream.

(175) The N arm has good anchorage in 12 fathoms, sticky bottom, but is open SW. The S arm has considerable foul ground and should be avoided by strangers.

(176) **Caution.**–Numerous uncharted rocks have been reported in Chaik Bay. A submerged rock has been reported on the bar across the entrance to the S arm midway between the two small islets. The chart is the guide in entering the bay.

(177) A bare islet is 0.8 mile NW of **Rocky Point,** the S point at the entrance, and a ledge covered at half tide extends 0.3 mile NW from the islet. A bare ledge is about 0.3 mile from the N shore of the bay inside **Village Point.** A kelp-marked patch with 4¼ fathoms is 0.3 mile NW of the wooded island in the middle of the bay 1.5 miles within the entrance.

(178) **Charts 17339, 17320.–Distant Point,** about 23 miles N of Point Gardner, is the S point at the entrance to Hood Bay. Directly behind it are two mountains which are between Chaik Bay and Hood Bay. The larger mountain is rounded on top, 2.8 miles S of Distant Point, and a spur of this mountain runs toward the water and terminates in a whitish cliff.

(179) **Hood Bay** has its entrance on the E side of Chatham Strait, between Distant Point and Killisnoo Island. It has a general SE direction from its entrance, curving to about E and then divides. The bay is about 7 miles long from the entrance to the junction with both arms. **North Arm** has a flat 0.5 mile wide at its head. **South Arm** is free from midchannel dangers inside its entrance. Anchorage is available in each arm for large vessels in suitable depths. Small craft find anchorage at the head of each arm in 5 to 10 fathoms, mud bottom.

(180) A rock with 2 fathoms over it and 1.2 miles NE of Distant Point is marked by a lighted buoy. A buoy marks a rock with 2½ fathoms over it 1.4 miles NW of **House Point.**

(181) **Cabin Point,** about 3.5 miles SE of the entrance buoys, extends 0.4 mile from the NE shore of the bay. The cove W of the point is foul; the cove NE of the point is shoal, but offers anchorage for small craft and shelter from N weather in 4 to 10 fathoms, hard sand bottom. Shoal water extends about 0.5 mile S from the point.

(182) A shoal extends about 0.4 mile W from the point on the N shore about 1.7 miles E of Cabin Point. Winds of considerable force are reported in the North Arm.

(183) **Ice** in South Arm makes navigation unsafe and quite often impossible during the winter. Ice also forms in North Arm from its head to within 0.3 mile of the entrance to the arm.

(184) Pile ruins of two wharves are on the N side of the entrance to North Arm. Caution is advised.

(185) **Killisnoo Harbor** is on the E side of Chatham Strait, 27.5 miles N of Point Gardner, and on the N side of the entrance to Hood Bay.

(186) **Killisnoo Harbor Light 7** (57°28.3'N., 134°34.1'W.), 16 feet above the water, is shown from a small house on a skeleton structure with a green square daymark on a concrete pier on a rock off the NE point of Killisnoo Island.

(187) **Channels.**–The S channel leads between Table Island and Killisnoo Island and between the SE end of Killisnoo Island and about 150 yards NW of the daybeacon marking Lone Rock.

(188) The N channel leads between Killisnoo Island and Kenasnow Rocks and between Killisnoo Island and Admiralty Island. In summer kelp extends entirely across the channel. The kelp is useful in defining the channel. The least depth in both channels is about 4 fathoms.

(189) A 9-foot spot, marked on its S side by a lighted buoy, is in the NW part of the harbor in about 57°28'19"N., 134°33'37"W. The chart is the guide for both channels.

(190) The anchorage is in midharbor off the E end of Killisnoo Island, in 14 to 15 fathoms. The harbor is somewhat exposed to SE gales, but no considerable sea makes into the anchorage.

(191) The tidal currents at Killisnoo Harbor are irregular, but the averages show that the current on the last half of the falling tide and the first part of the rising tide sets from Hood Bay W through the harbor and N channel, and that the current on the second half of the rising tide and first half of the falling tide sets E through the N channel and the harbor into Hood Bay. (See the Tidal Current Tables for daily predictions.)

(192) The current follows the channel, and the velocity is not important except in the narrow part of the N entrance.

(193) An Alaska State Ferry Terminal, with 26 feet reported alongside, is on the NW shore of Killisnoo Harbor, about 0.15 mile NE of Killisnoo Harbor Light 7. A steel transfer bridge, with 24 feet reported alongside, is immediately NE of the terminal. A small-craft grid is immediately N of the steel transfer bridge. The steel transfer bridge, with dolphins, will accommodate a 235-foot ferry loading and unloading passengers and vehicles. A highway connects Killisnoo Harbor with Angoon about 1.9 miles to the NNW.

(194) **Killisnoo Island** is wooded; **Point Samuel** is its W end. A ledge, well bare at low water, extends about 125 yards off the SE end of Killisnoo Island. A buoy marks the reef off the N side of the W end of Killisnoo Island.

(195) **Table Island,** about 30 feet high, sandy, and grass covered, is about 0.5 mile S of Killisnoo Island. It is surrounded by reefs to a distance of about 0.3 mile. On its N side the 3-fathom curve is fairly close to the island, but kelp extends out about 300 yards into 6 and 8 fathoms. A shoal, marked at its outer end by a lighted buoy, extends NE from the island. A small islet is 0.1 mile SW of the island.

(196) **Sand Island,** 1.1 miles SE of Table Island, is about 10 feet high and is the NW end of a chain of reefs 1.9 miles long parallel to the E shore of Hood Bay. A straight but narrow channel is between these reefs and the E shore. A bar with 4½ to 10 fathoms over it is between Sand Island and Table Island.

(197) **Lone Rock,** which bares, is 0.3 mile SE of the SE end of Killisnoo Island. It is surrounded by kelp and is marked by a daybeacon. The bottom is foul, and considerable kelp is between the rock and the SE shore and no safe channel between.

(198) **Kootznahoo Roads** is on the N side of Killisnoo Island and forms part of the N channel leading to Killisnoo Harbor.

(199) **Kenasnow Rocks** is an extensive ledge about 0.6 mile offshore SW of Angoon, and marked on the N side by a lighted buoy. Portions of the ledge are always above water, and it is surrounded by heavy kelp, especially on its inshore side. There is a channel between it and the shore, the latter being fringed with kelp for some distance. The S end of the ledge is about 0.8 mile N of Killisnoo Island.

(200) **Angoon,** about 1.8 miles N of Killisnoo Island, is a village with a general store, a seasonal hotel, and bordered on its W and E sides by Chatham Strait and Kootznahoo Inlet, respectively. At Angoon, an antenna, a microwave tower, and a small green tank farm are prominent from Chatham Strait. Angoon has a health center, with a nurse in attendance every other month.

(201) **Weather.**–Located in the more sheltered recesses of Chatham Strait, Angoon has a slightly more continental influence than more exposed locales. Average maximum temperatures range from 32°F in January to 62°F in July, with 111 days of freezing temperatures and 4 days of 70°F or above, on average. While precipitation is frequent, falling on about 110 days annually, amounts are on the light side with 47 inches annually, compared to an average of 169 inches at Port Alexander. Precipitation is most likely from September through February. Snow totals 77 inches in an average year with highest amounts occurring in December, January, and February.

(202) The village pier, a 525-foot-long T-headed pier with a 48-foot outer face, extends into Chatham Strait. In 1992, depths of 40 feet were reported along the outer face. The **harbormaster** assigns berths and can be contacted by telephone (907-788-3630) or VHF-FM channel 1 or 16. Gasoline, diesel fuel, lube oil, distillates, greases, electricity, and water (during summer) are available at the pier. Limited amounts of provisions and lodging are available in town.

(203) A small-craft float, operated by the village, and a seaplane float are in Kootznahoo Inlet; these facilities are described later in this chapter. Radiotelephone and telephone communications are maintained. A highway connects Angoon with Killisnoo Harbor about 1.9 miles SSE. A freight boat from Seattle calls monthly. Seaplanes call daily from Juneau in the summer.

(204) **Danger Point,** on the E shore of Chatham Strait, 30 miles N of Point Gardner and 2.5 miles N of Point Samuel, the W extremity of Killisnoo Island, forms the S point at the entrance to Kootznahoo Inlet. **Danger Point Light** (57°30.9'N., 134°36.4'W.), 30 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a concrete pier near the end of the reef that extends about 0.2 mile N from the point.

(205) **Kootznahoo Inlet** is an intricate group of narrow passages, lagoons, and bays on the E shore of Chatham Strait 2.8 miles NE of Killisnoo Island. It is full of rocks and reefs, and through the narrow passages the tidal currents rush with great velocity. The navigation of Kootznahoo Inlet is such that it should not be attempted except by small craft of short length and ready turning qualities, and then only at slack water and with local knowledge. Fishing vessels are the only ones that navigate the inlet.

(206) The entrance is between Danger Point and **Kootznahoo Head,** and it extends SE to **Turn Point,** where it divides into three arms. The southernmost arm continues in a SE direction to Favorite Bay; the northernmost extends NE to Mitchell Bay; the middle arm, also extending E, leads among the islands, is obstructed at its entrance, and is navigable only by small craft. The lagoons between the islands are full of rocks and reefs, and are not navigable except by small craft.

(207) From its entrance the inlet is free from obstructions until Village Rock is reached. **Village Rock,** marked by a light, is a large low-water ledge that extends toward Turn Point halfway across from the village of Angoon on the SW side. Large swirls occur here, caused by the great velocity of the tidal currents.

(208) SE of Village Rock, the S shore is clear for about 0.5 mile. The N side is obstructed by a ledge marked by kelp at slack water and terminates in Rose Rock, which is reported to be about 6 feet high. A red triangular daymark on a pipe is shown from the shore SW of Rose Rock and about 600 yards SE of the light on Village Rock.

(209) **Currents.**–The tidal currents have great velocity in Kootznahoo Inlet, and the inlet should be navigated at slack water, the safest condition being low water slack. In September 1975, however, a small boat from the Coast Guard Cutter CLOVER was able to transit the inlet as far as Buoy 6, about 1.4 miles above the mouth, at high water slack without difficulty. They did encounter erratic, sometimes strong, currents. (See the Tidal Current Tables for times of predictions.) The flood current at the entrance sets in almost parallel to the NE shore, and so continues until it reaches Village Rock, where it divides, one part going NE around Turn Point and the other continuing SE around Rose Rock, where it again divides. One part continues SE into Favorite Bay, while the other turns short around the rock and divides again, one part going NE and the other following the N channel.

(210) Vessels rounding Rose Rock at slack water can carry slack water all the way to Mitchell Bay.

(211) At Village Rock, the currents have a velocity of 5 to 8 knots; at Point Bridge, as high as 10 knots; and at Passage Island, as high as 7 knots. Rapids begin at Village Rock and continue until well past Rose Rock.

(212) From Pillsbury Point to Point Bridge the current is very swift, probably reaching 10 knots, with much boiling and swirling, the worst place being at Point Bridge. This can be passed only at slack water, which lasts only a few minutes.

(213) Through all the narrow channels leading into the various bays the currents have great velocity, and they should not be attempted in any kind of a boat except at slack water. (See the Tidal Current Tables for daily predictions.)

(214) **Caution.**–The navigation of Kootznahoo Inlet should not be attempted by strangers. A guide can be obtained at Angoon, Petersburg, and Sitka.

(215) A seaplane float is in the small cove about 600 yards SE of the daybeacon W of Rose Rock. The village of Angoon maintains small-craft floats about 600 yards SE of the seaplane float. Berthing is on both sides of the floats. In 1976, a least depth of 10 feet was reported along the floats. The **harbormaster** assigns berths. A tidal drydock is available. A 72-foot-long grid is on the SE side of the approach pier to the small-craft floats. Water and electricity are at the small-craft floats. Supplies and communications facilities are available at Angoon, about 0.8 mile NW.

(216) **Favorite Bay** has anchorage in 10 to 17 fathoms near the SW shore anywhere NW of a high bluff marking the end of the flat that extends 1 mile from its head. The bay is used as a fishing ground for herring.

(217) The passage to Favorite Bay is obstructed at its NW end by a series of rocks that bare. A buoy marks a 1½-fathom rocky shoal on the W side of the entrance. There are deep passages among these rocks. The SE end of the passage is obstructed by a rock in midchannel about 0.2 mile NW of the NW end of Favorite Bay.

(218) From E of Rose Rock, the N channel turns sharply NW along the NW side of the reef making out from **Channel Point.** Between this ledge and another extensive ledge on the N side of the channel the distance to Stillwater Anchorage is about 0.3 mile.

(219) **Stillwater Anchorage** is about 1.3 miles long from Turn Point NE to Pillsbury Point, and 300 to 600 yards wide, with general depths of 16 to 24 fathoms. W of Pillsbury Point a short arm makes NE about 0.5 mile.

(220) From Stillwater Anchorage the channel leads close to an islet on the S side, between it and a ledge that extends about 200 yards SW of **Pillsbury Point.** The channel then narrows to about 140 yards, with reefs on both sides, and extends NE for 0.5 mile to **Point Bridge** where it passes between a reef on the N side and a bold bank on the S side. The channel then has a NE direction for about 0.8 mile,

with a width of less than 200 yards and bold shores, and then widens to 0.2 mile and continues in the same direction for 1.6 miles to **Hemlock Point.** Then the channel turns E for 1 mile to **North Point,** E of which is Mitchell Bay. Extensive ledges on the N side extend SW from North Point.

(221) **Mitchell Bay** is connected at its W end with a lagoon full of rocks, reefs, and shallow water. Several islands are in the bay 1 mile from its W end, and the water is foul between them and the W end of the bay. From its entrance at North Point, the channel follows the N shore for 1 mile, where it passes between it and **Diamond Island,** the northernmost island in the W part of the bay. Beyond Diamond Island, Mitchell Bay is clear and has general depths of 12 to 20 fathoms near Diamond Island, decreasing to 10 fathoms at its E end.

(222) **Davis Creek** extends SW from Mitchell Bay and then widens into Kanalku Bay. **Lighter Creek** makes WSW from Davis Creek about 0.7 mile from its N end, and has depths of 1½ to 4½ fathoms. Davis Creek is foul. At its N entrance a ledge, which partly bares, extends E from the W shore, enclosing **Passage Island** and almost closing the channel. At the S end of Davis Creek is **Stone Island;** an extensive ledge crosses the channel at this point, with a narrow passage through.

(223) **Kanalku Bay** is a clear open basin with depths of 6 to 10 fathoms. In the bay are two islands, and at its head two large streams and a flat, 0.5 mile wide. On the S side are extensive coal croppings and a deposit of marble.

(224) **Chart 17300.**–The bight on the N side of **Point Hepburn** (57°56.4′ N., 134°45.0′W.), about 26 miles N of Kootznahoo Head (chart 17320), affords anchorage for small craft in 5 fathoms with shelter from SE winds. A stream enters the head of the bight. A logging camp is at the base of the stream. Deadheads and floating logs were reported in the area.

(225) **Square Cove,** on the E side of Chatham Strait, 2 miles N of Point Hepburn and 7 miles SE of Point Augusta, is on the N side of **Cube Point.** It affords anchorage for small craft with protection from SE winds. The cove is about 500 yards long and about half that wide. It has a depth of about 3 fathoms within 200 yards of its head and deeper water farther out. There are no dangers. A stream enters at each end of the sand beach at its head; the E one forms a cascade.

(226) **Charts 17338, 17320.–Point Hayes** (57°28.8′N., 134°50.6′W.) is the N point of the E entrance to Peril Strait. A lighted bell buoy marks the SE extremity of Morris Reef, which is off Point Hayes. Point Craven is about 1.2 miles SW of Point Hayes.

(227) **Peninsular Point,** about 1.5 miles N of Point Hayes, is formed by a wooded hill that is off the general trend of the shore, and to which it is connected by a low, narrow valley.

(228) **White Rock** is a prominent light-colored rock off the edge of a flat at the mouth of a stream about 4 miles N of Point Hayes. A prominent valley extends inshore W of White Rock.

(229) **Basket Bay,** on the W side of Chatham Strait, 11 miles N of Point Hayes, narrows slightly at its head. At the mouth of a large stream is a flat that extends about 400 yards into the head of the bay. The bay is exposed to the SE, has a rocky bottom and depths of 12 to 40 fathoms, and is not recommended as an anchorage. The midchannel course up the bay is clear.

(230) **Charts 17300, 17320.–Tenakee Inlet** is on the W side of Chatham Strait, 97 miles N of Cape Ommaney. The entrance is between South Passage Point and East Point, and is 2.5 miles wide. It has a general W direction for 10 miles and then WNW for 25 miles, narrowing near its head to about 0.3 mile. At its head is a flat 0.8 mile in extent, and on the S shore 4 to 7 miles from its head are three bights filled by flats. At 1.8 miles from the head of the inlet is a steep portage connecting with Port Frederick in Icy Strait. The depths in the inlet are great, and the dangers easily avoided. A number of bays on the S side afford anchorage.

(231) Anchorage may be made at the head of Tenakee Inlet near the sand flat in 7 to 10 fathom; hard gravel and shell bottom.

(232) **Currents.**–In Tenakee Inlet, S of Tenakee Springs, the current velocity is about 1 knot.

(233) **Tenakee Inlet Entrance Light 1** (57°46.3′N., 134°56.1′W.), 33 feet above the water, is shown from a spindle with a square green daymark on a rock awash about 0.5 mile N of **South Passage Point,** the S entrance point to the inlet. A 4¼-fathom shoal is about 500 yards E of the light.

(234) A 2¼-fathom shoal is in **Trap Bay** about 3 miles WSW from Tenakee Inlet Entrance Light 1.

(235) A 2½-fathom shoal is on the S side of Tenakee Inlet about 5.2 miles W of Tenakee Inlet Entrance Light 1 in about 57°45′41″N., 135°05′30″W. A 3-foot shoal is about 0.4 mile SE of the 2½-fathom shoal.

(236) **East Point,** the N point at the entrance to Tenakee Inlet, can be identified by a grassy knoll at its outer end. A 1¾-fathom spot extends about 0.4 miles S of East Point.

(237) **Cannery Point** is on the N side of the inlet 4.5 miles W of Tenakee Inlet Entrance Light 1.

(238) **Local magnetic disturbance.**–Differences of as much as 3° from the normal variation have been observed in the vicinity of Cannery Point.

(239) A daybeacon marks a rock awash about 2.2 miles W of Cannery Point. A 3 ¼-fathom shoal is about 250 yards S of the rock.

(240) In 1980, a logging camp was operating on the W side of Corner Bay, about 6.9 miles W of Tenakee Inlet Entrance Light 1. A log storage area is on the E side of the bay. The camp has a 60-foot small-craft and seaplane float, and, also mooring buoys. Radiotelephone communication is available at the camp.

(241) **Tenakee Springs,** on the N side of Tenakee Inlet about 9 miles inside the entrance, is a community with a general store and warm springs.

(242) A light marks the small islet close to the N shore about 0.6 mile ESE of Tenakee Springs.

(243) **Tenakee Reef,** about 0.7 mile SSW of Tenakee Springs, is two separate rocks and marked by a light at the S end. The northerly rock is covered at high water. A rock, marked by a daybeacon, is 0.4 mile NW of Tenakee Reef.

(244) The community maintains a pier which accommodates passenger ferries. A marine fuel facility and an inactive crab cannery are at the outer end. The pier has a 64-foot face; 184 feet with dolphins. In 1980, depths of 20 feet were reported alongside. A 3-fathom shoal is about 170 yards S of the pier.

(245) Gasoline, diesel fuel, and water (during the summer) are available at the fuel facility, and limited amounts of provisions and fishing supplies can be obtained from the general store. Meals and lodging are available in the community. A 51-foot grid is on the E side of the approach pier to the small-craft floats.

(246) State-maintained small-craft floats are about 0.5 mile E of the city pier at Tenakee Springs. The floats can accommodate craft on both sides, and are protected by two floating breakwaters. In 1980, depths of 10 to 25 feet were reported alongside the floats. A seaplane float and heliport are about 80 yards E of the city pier.

(247) Tenakee Springs has scheduled seaplane service three times a week to Juneau. Ferry connections with Juneau and Sitka are available. Telephone and radiotelephone communications are available at the general store.

(248) **Kadashan Bay,** on the S side of Tenakee Inlet opposite Tenakee Springs, is filled with a flat that bares.

(249) **Crab Bay,** 4 miles SW of Tenakee Springs, is on the S side of the inlet. The bay is navigable for vessels up to 100 feet long. The S side and the head of the bay have streams and mudflat areas. The N side of the bay is deep, with steep banks. Anchorage is available in the bay in 5 to 25 fathoms. A wooden, stone-filled logging jetty and a private seasonal mooring buoy are at the S side of the entrance to the bay. A 2½-fathom spot is immediately E of the mooring buoy.

(250) **Saltery Bay,** 3 miles NW of Crab Bay, is navigable for vessels up to 80 feet long. The entrance is narrow but deep. Near the head, the bay opens into a small basin with depths ranging from 5 to 15 fathoms. A mudflat extends 1.2 miles from the head of the bay. Anchorage is available in the basin area in a soft mud and gravel bottom. A 4-fathom shoal is on the N side of the entrance to Saltery Bay in 57°47.0′N., 135°22.0′W.

(251) Two small rocks, covered at half tide and marked by a daybeacon, are 0.7 mile from the NE shore of Tenakee Inlet and 7.5 miles NW of Tenakee Springs. In passing them, favor the S shore somewhat. A reef was reported to extend between these rocks and the NE shore.

(252) **Seal Bay** is on the S side of the inlet 10 miles WNW of Tenakee Springs. A 6¾-fathom shoal and a 1 ½-fathom shoal are in the entrance to Seal Bay in about 57°50′52″N., 135°28′51″W., and 57°50′48″N., 135°29′44″W., respectively. A 5¾-fathom shoal is E of the 6¾-fathom shoal in about 57°50′57″N., 135°28′09″W. A flat extends 0.8 mile from its head, and a rock, covered at high water, is near the middle of the bay 1.5 miles inside the entrance. The depths are 19 to 29 fathoms, soft bottom, between the rock and the flat, a distance of about 0.8 mile.

(253) **Long Bay** is on the SW side 2.5 miles NW of Seal Bay. From the NW point at the entrance a reef, covered at half tide, extends E about 0.5 mile. A 3½-fathom spot is in about the middle of the entrance to Long Bay in about 57°52′31″N., 135°33′59″W. The bay has depths of 5 to 15 fathoms, mud bottom, affording secure anchorage. A mudflat extends 0.6 mile from the head.

(254) Upper Tenakee Inlet above Long Bay is navigable to within 1 mile of the head. A portage, on the N shore of upper Tenakee Inlet, provides a connection to Port Frederick in Icy Straits for boats small enough to be carried 300 yards over land.

(255) **Chart 17300.–Freshwater Bay,** about 4 miles N of Tenakee Inlet Entrance Light 1 (57°46.3′N., 134°56.1′W.), has its entrance on the W side of Chatham Strait between East Point and North Passage Point. It extends 11 miles NW, terminating in a sand flat with a large stream. **Heide Rock,** a bare rock about 8 feet high and about 0.5 mile from the N shore, is 3.5 miles inside North Passage Point. A 3-foot shoal is about 0.5 mile NW of the rock. **Redcliff Islands** are in the middle of the bay about 5.9 miles inside North Passage Point. A rock covered 13 feet is about 0.7 mile NNE of the E end of the easternmost island. A rock awash, marked by a daybeacon, is about 0.5 mile NW of the westernmost island; two submerged rocks covered 5 feet and 8 feet are close W and SW, respectively, of the daybeacon. The main bay has no anchorages, but small vessels may find temporary anchorage at the head of the bay or off the flats at mouths of streams, of which there are several.

(256) **North Passage Point,** the N point at the entrance to Freshwater Bay, is long, low, level, wooded, and distinctive from other points in the vicinity. Kelp usually extends for more than 100 yards off the end of the point.

(257) **Wachusett Cove** is a small bight on the SW side of Freshwater Bay, 2 miles NW of East Point. The cove is almost filled with a flat and has a small stream at its head. A fair-weather anchorage may be made between the points at the entrance to the cove in 4 to 10 fathoms.

(258) **Pavlof Harbor** is 1.5 miles NW of Wachusett Cove. A large stream enters the SW part of the harbor. A reef, covered at half tide, extends about 100 yards from the E point at the entrance, and the entire E side of the bay is bordered by a flat 250 yards wide. A pinnacle rock, covered at half tide, is 200 yards from the W side halfway up the bay. Anchorage may be made outside the rock in about 15 fathoms and in the middle between the rock and the SE shore. The clear anchorage is 350 yards wide in 5 to 12 fathoms, sand and rock bottom. The shelter is good, and the harbor is easily entered, though in strong W or N weather the wind draws down the bay with considerable force.

(259) **Cedar Cove,** on the S side of Freshwater Bay 1.2 miles NW of Pavlof Harbor, affords good shelter for small craft drawing less than 10 feet, but its entrances are very narrow and foul.

(260) **Iyoukeen Cove** is close N of the entrance to Freshwater Bay, from which it is separated by a long, narrow, wooded peninsula, terminating in North Passage Point. It does not afford shelter except from offshore winds, but can be used temporarily by anchoring about 0.5 mile from the S shore in 23 fathoms.

(261) **False Bay,** 5 miles N of Iyoukeen Cove, is an open bight with deep water. Fair emergency anchorage for small craft may be found in its S part in 3 to 5 fathoms, rocky bottom.

(262) **Point Augusta,** on the W side of Chatham Strait at its junction with Icy Strait, is marked by **Point Augusta Light** (58°02.4′N., 134°57.1′W.), 48 feet above the water and shown from a square frame with red and white diamond-shaped daymark on the point.

(263) **Point Marsden** is on the E side of Chatham Strait opposite Point Augusta.

(264) **Charts 17316, 17300.–Hawk Inlet** has its entrance on the E side of Chatham Strait 10 miles SE of Rocky Island Light 13 (58°10.6′N., 135°03.1′W.). It has a N direction for a distance of 5 miles from its mouth. It then contracts and changes to a NE direction, terminating in a basin about 1 mile in diameter.

(265) A foul area, marked by kelp and bare at low water, extends about 0.35 mile S of **Hawk Point.** The entrance to the inlet is marked by lighted and unlighted buoys.

(266) **Piledriver Cove,** which dries, is on the S side of the inlet at the entrance. Two small islets are on the W side of the entrance to the cove; submerged pilings are in the entrance in about 58°05′11″N., 134°46′21″W. Another small cove, about 0.6 mile SW of Piledriver Cove, offers good anchorage for small craft in all but NW winds in 9 to 13 fathoms. A ledge extends 0.2 mile NW from the SW entrance point; another ledge, bare at half tide, is in the middle of the entrance. A deep channel is on each side of the ledge in the middle of the entrance, but the channel on the NE

side is better. The anchorage is in the middle of the cove, about 300 yards SE of the ledge.

(267) Two streams enter Hawk Inlet on its E side about 0.8 mile above the entrance, and form an extensive flat extending two-thirds of the way across the inlet; the W edge is marked by a light. The channel between the light and the W shore is about 100 yards wide with 6 fathoms in the middle. A N-S shoal with a least depth of 2 fathoms extends from about 0.25 to about 0.65 mile NNE of the light. The light should be given a berth of about 125 yards, then the W shore favored for about 0.7 mile.

(268) Ruins of a cannery are on the E side of Hawk Inlet about 1.4 miles N of the light.

(269) An abandoned fuel pier (58°07′35″N., 134°45′15″W.), with a 45-foot face, has 10 feet alongside. A small-craft and seaplane float with 4 feet alongside is about 300 yards S of the pier. During summer, water and the use of a radiotelephone are available from a caretaker in an emergency.

(270) Anchorage for shallow-draft vessels can be had in 4 to 6 fathoms in the basin at the head of the inlet. Extensive mud flats surround the anchorage. The channel leading to the basin has a least depth of 2½ fathoms. To make the channel, keep off the E shore by about 0.1 mile. The channel is winding with strong currents and should not be attempted without local knowledge.

(271) **Currents.**–Tide rips and currents of considerable velocity are reported in the entrance, E and SE of the entrance buoy. The maximum flood and ebb is at the light marking the flat, and is estimated to at least 4 knots. Mariners with deep-draft vessels should make transits during slack water. The ebb current at the fuel pier has very little velocity; the flood is reported to set slightly toward the pier.

11. LYNN CANAL

(1) This chapter describes the waters of Lynn Canal, and Chilkat, Chilkoot, Lutak, and Taiya Inlets. Also discussed are the port facilities at Port Chilkoot, Haines, Skagway, and in Lutak Inlet.

(2) **Chart 17300.–Lynn Canal** extends from the junction of Chatham Strait and Icy Strait, at Hanus Reef, in a NNW direction for about 58 miles to Seduction Point, where it divides into two arms, called Chilkat Inlet and Chilkoot Inlet; the latter inlet extends 25 miles farther N from Seduction Point. At Rocky Island, the canal is 5 miles wide; from Point Howard to Ralston Island about 3 miles wide; thence it averages 6 miles wide to Seduction Point. The canal is nearly free of dangers, and the water is generally very deep. The shores as a rule are very high and wooded, with many bare mountain peaks and small glaciers in nearly every ravine. It is reported that in the winter N winds in the canal often attain a maximum speed of about 70 knots.

(3) **Anchorage** can be had in Funter Bay, William Henry Bay, W of Sullivan Island, Portage Cove (Chilkoot Inlet), and Lutak Inlet. Temporary anchorage can also be had in St. James Bay, Berners Bay, and at Skagway. Small craft can find anchorage in several coves.

(4) **Currents** in Lynn Canal have a velocity of 0.3 to 1 knot in the S part, diminishing in velocity toward the head. From Point Whidbey to Point Sherman the currents are quite regular and apparently tidal. Off Berners Bay, rips and eddies are noted and sets across the channel occur. From Point Sherman to Chilkoot Inlet currents are quite regular and of moderate strength. Off the mouth of the Endicott River, at times, the river water extends a considerable distance offshore, where its limits are often well defined. In the vicinity of the Chilkat Islands the currents are moderate and no peculiarities were noted. In Chilkoot Inlet, the currents are regular and apparently tidal. South of the Katzehin River much freshwater is noticeable. In the constricted channel, between the bar and the W shore, the currents are strong, but not irregular. In the vicinity of Indian Rock, an E set across the channel has been noted. The current in Taiya Inlet is moderate and regular. (See the Tidal Current Tables for daily predictions.)

(5) **Weather.**–The high shores of Lynn Canal tend to guide winds along its axis while the narrowing to N intensifies winds blowing from S or SE. Southerlies often reach 16 knots or more. In winter, winds from N have been reported to 70 knots along the canal. The sheltering effect of these shores allows a relatively wide swing in temperatures. Average maximums range from about 30°F in January to the low 60's in July with minimums running about 8° to 12° colder. On average, temperatures drop to freezing or below on 115 days, while about 10 days see readings climb to 70°F or more. Extremes range from about –14°F to 83°F. Precipitation is most likely from September through January; an average of 9 to 19 inches of snow per month falls from December through March.

(6) **Chart 17316.–Hanus Reef** is a dangerous reef that is at the junction of Chatham Strait, Icy Strait, and Lynn Canal. The highest part of the reef, awash at half tide, is marked by **Hanus Reef Light** (58°07.8'N., 135°00.0'W.), 25 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark on a concrete pier. The light marks the entrance to Lynn Canal. At times the tidal current attains a velocity of 2 to 3 knots over the reef.

(7) **Rocky Island,** grass covered and marked by a light, is 3.2 miles NW of Hanus Reef. The water is deep to within 250 yards of the island. As the currents are erratic in the channel between Rocky Island and Point Couverden, the slight saving in distance this channel offers does not warrant its use; however, if used, vessels should favor Rocky Island, as shoal water extends from Point Couverden.

(8) **Swanson Harbor** is formed by a group of islands and reefs off the extreme SE point of the mainland at the junction of Icy Strait with Chatham Strait and Lynn Canal. It affords good anchorage and shelter. The NE side of the harbor is formed by Couverden Island and a small island between its NW end and the mainland, all connected at low water. The SW side is formed by Ansley Island and **Entrance Island .**

(9) **Swanson Harbor Entrance Light 2** (58°11.6'N., 135°04.7'W.), 21 feet above the water, is shown from a skeleton tower with a red triangular daymark on the SW side of Couverden Island.

(10) **Sharp Ledge** extends SE from the SE end of Entrance Island. This ledge is covered at half tide and marked by kelp. In May 1983, it was reported that Sharp Ledge extends farther S and E than shown on the chart. Extreme caution is advised.

(11) **No Use Ledge,** which uncovers 12 feet, is about 0.4 mile NW of the NW end of Couverden Island. A small narrow channel, marked by piles between the small island N of Couverden Island and No Use Ledge, leads E from Swanson Harbor to a cove on the N side of Couverden Island; this channel should only be used by small craft at high water.

(12) To enter Swanson Harbor, bring Rocky Island astern on a NW course and follow the SW shore of Couverden Island at a distance of about 250 yards until Entrance Island is passed. Then steer a midchannel course until up with the NW end of Couverden Island. Then follow the shore of Ansley Island at a distance of about 250 yards to the anchorage. Anchor with the NE side of Entrance Island just open from the E side of Ansley Island, and with the NW end of Ansley Island bearing S, distant 0.3 mile, in 14 to 16 fathoms, soft bottom. Small vessels anchor close in the head of the bay or to the E side of the head behind No Use Ledge.

(13) **Couverden Island** and the islands close by appear from most points of view as a long, low, wooded point, the SE extremity being **Point Couverden**. The State of Alaska has a floating pier at the NW end of Couverden Island.

(14) **Couverden Rock** is 2.4 miles NNE of Rocky Island and should not be approached closer than 200 yards. It is the outer one of the group of islands and rocks that extends 4 miles SE from the W shore of Lynn Canal.

(15) **Funter Bay,** the best and most convenient anchorage in the vicinity, is on the E side of Chatham Strait at its junction with Lynn Canal, about 10.5 miles S of Point Retreat and 5.5 miles NE of Rocky Island.

(16) Near the S point at the entrance are several small islands with a clear channel between. **Station Island,** the largest and wooded, is joined to two small islets S at low water. **Rat Island,** bare, is 0.2 mile NE of Station Island; a ledge that bares extends 0.1 mile NW from it.

(17) **Funter Bay Entrance Light 1** (58°14.5'N., 134°55.0'W.), shown 16 feet above the water from a pedestal

on a house with a green square daymark on **Clear Point,** marks the N side of the entrance to Funter Bay.

(18) Four islets are in Funter Bay between Clear Point and the head. **Bare Island** is the first from Clear Point. A 1-fathom shoal is about 100 yards SE of Bare Island. **Curlew Ledge,** bare at low water, is 200 yards S of Bare Island. A shoal, with 1¾ fathoms over it, extends 100 yards S from the ledge and is marked at its SE end by a buoy. **Gauge Island,** the second islet, is wooded and surrounded by ledges. **Star Rock,** a small pinnacle, bare at lowest tides, is 120 yards N of Gauge Island. **Ledge Island,** the third islet, is surrounded by bare ledges. The fourth islet, and the largest, is at the head of the bay and is connected with the main shore at low water.

(19) **Coot Cove,** at the NW end of the bay, has extensive beaches at its head. **Crab Cove,** with depths of 3¾ fathoms to 12 fathoms, is at the NE end of the bay.

(20) The ruins of a cannery wharf are on the N side of the bay, between Coot Cove and Crab Cove. In 1976, the SE face of the wharf had fallen in and dangerous stubs protruded. A State-maintained 100-foot small-craft float with a seaplane float at the SE end extends E from the head of the wharf in ruins. In 1976, 15 to 20 feet was reported alongside the float. Water is available in the summer. Radiotelephone communications are available at a private residence. A rock ledge is off the SE side of the wharf. Caution is advised.

(21) A State-maintained 150-foot-long small-craft float is on the SE side of the bay E of Funter Bay Entrance Light 1. In 1976, 10 to 20 feet was reported along the outside and 5 feet was reported along the inside of the float. Water is available in the summer. Only a few buildings mark the sites of the stamp mill and smelter that once stood in this area.

(22) Anchorage in Funter Bay can be made about 0.2 mile SW of the cannery ruins. Small craft can find protected anchorage in Coot Cove or Crab Cove. The channel to the W of Bare Island is frequently used by boats proceeding to the inner harbor float.

(23) **The Kittens,** two small wooded islands 0.2 mile offshore, are 0.6 mile NW of Clear Point.

(24) **Naked Island** is 1.1 miles NW of Clear Point and 0.5 mile offshore, with deep water between. **Naked Island Light** (58°15.3′N., 134°56.7′W.), 44 feet above the water, is shown from a square frame with a red and white diamond-shaped daymark on the highest part of the island. A rock awash is 160 yards from the Mansfield Peninsula shore and about 900 yards NE of the light. **North Ledge,** awash at high water, is 0.1 mile NW of Naked Island. A rock awash at high water, is 0.1 mile E of the SE tip of the ledge.

(25) **Point Howard,** on the W side of Lynn Canal, is about 6.8 miles N of Rocky Island. A ledge that bares is about 0.2 mile S of the point. Good anchorage in 15 to 25 fathoms, soft bottom, may be found in **Howard Bay** NW of Point Howard. Anchor with the tip of Point Howard ESE at a distance of about 0.7 mile.

(26) **False Point Retreat,** on the E side of the canal 7 miles N of Naked Island, is marked by a light.

(27) **Point Retreat,** the N extremity of Admiralty Island, is at the turning point from Lynn Canal to Saginaw Channel. Ledges, awash at half tide, extend about 300 yards N from Point Retreat, and about the same distance off its W side for 0.5 mile S. **Point Retreat Light** (58°24.7′N., 134°57.3′W.), 63 feet above the water, is shown from a white square concrete tower on a building. Several white buildings and a radio tower are prominent.

(28) **Hump Island,** at the junction of Saginaw Channel with Lynn Canal, is wooded. A reef extends 300 to 400 yards offshore.

(29) **Lincoln Island** is separated from the NW end of Shelter Island by a narrow navigable channel about 0.2 mile wide. The island is wooded and has three summits, one at each end and one in the middle separated by low divides. On the S shore at the base of the middle knob are some prominent boulders.

(30) **Ralston Island,** close to the NW end of Lincoln Island, is wooded. **Little Island,** grass covered and marked by a light, is about 0.3 mile N of Ralston Island. A rocky ledge extends about 0.3 mile N. A detached 2¾-fathom shoal is about 700 yards NW of the island.

(31) **Lynn Sisters** are two wooded islands, close to the W shore of Lynn Canal, about 3.5 miles SW of Little Island. They are connected with each other and with the shore at low water.

(32) **Poundstone Rock,** about 3.8 miles ESE of Little Island and 1.1 miles S of Sentinel Island, has 2¾ fathoms over it and is marked on its NW side by a lighted bell buoy. From Poundstone Rock, a ridge extends 3 miles toward Vanderbilt Reef with depths of 5¼ and 7 fathoms at about 1.4 miles NW of the rock.

(33) **Sentinel Island,** about 3.5 miles N from the N extremity of Shelter Island, is marked by **Sentinel Island Light** (58°32.8′N., 134°55.4′W.), 86 feet above the water and shown from a white square tower on a building. A fog signal is at the light. A white building on a dock at the SE end of the island is prominent. A shelving ledge extends about 0.2 mile in a NW direction from the N end of the island.

(34) **Benjamin Island,** about 0.8 mile NE of Sentinel Island, is timbered and has a white shore in the middle section below the tree line. A small wooded islet is close to the S point of the island, and a small grassy islet is 0.2 mile NE of the N point of Benjamin Island; rocks that bare extend 0.3 mile N.

(35) Temporary anchorage, with protection against severe winds, may be had in the bight in the S side of Benjamin Island.

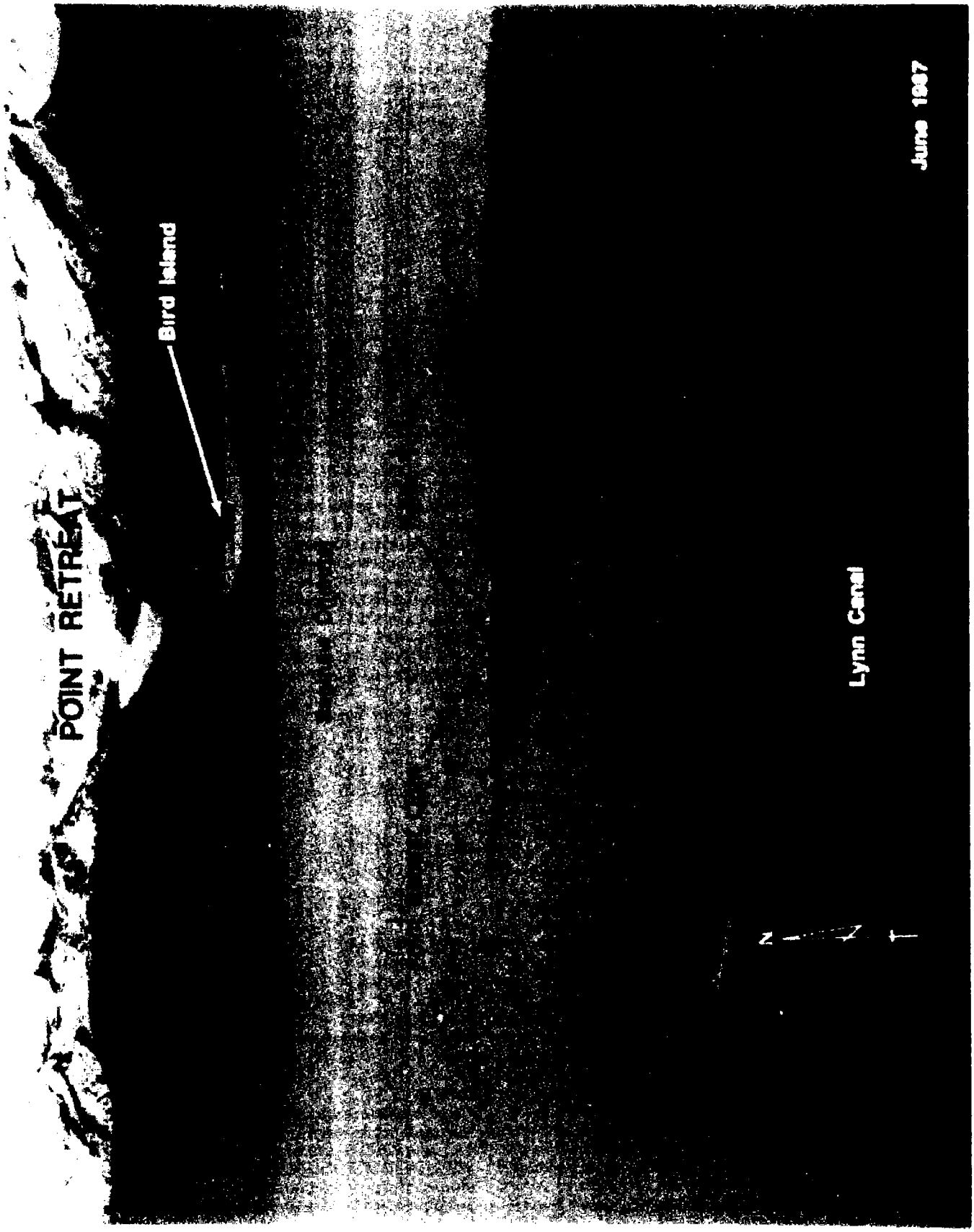
(36) **North Island** is wooded, and is separated from the end of Benjamin Island by a narrow shallow channel with strong currents. A shoal with 3¼ fathoms over it is 0.1 mile SW of North Island.

(37) **Vanderbilt Reef,** about 4 miles NW of Sentinel Island Light, is a rock that uncovers 12 feet. It is marked by **Vanderbilt Reef Light** (58°35.5′N., 135°01.0′W.), 36 feet above the water and shown from a skeleton structure on a concrete pier with a red and white diamond-shaped daymark.

(38) **Yankee Cove,** a small bight on the E shore of Lynn Canal, is 1.2 miles NE of North Island. **Bessie Creek** empties into the head of the cove.

(39) **Bridget Cove,** about 3.2 miles NE of Vanderbilt Reef, is behind **Mab Island,** affording anchorage for small craft in 4 to 7 fathoms, with scant swinging room. Small boats may secure better protection by anchoring inside the cove opposite the N end of Mab Island; the beach makes out about 100 yards at low water. A well-defined trail crosses to the river mouth on the S side of Berners Bay.

(40) **St. James Bay** is on the W side of Lynn Canal, inside of **Point Whidbey,** the E point of the entrance, about 11.5 miles NNW of Point Retreat. This bay extends about 4.5 miles in a N direction to its head, where a large stream enters, forming extensive mud flats. A temporary anchorage, in 20 fathoms, soft bottom, may be selected on the E side of the bay, 2 miles N of Point Whidbey. The anchorage is open to SE winds.


POINT RETREAT
Bird Island
Lynn Canal
June 1987

(41) The **Lynn Brothers** are a chain of islands parallel to the W shore of St. James Bay. Small boats can enter the basin W of the islands by a 5-fathom channel through the reefs at the S end of the islands.

(42) From Point Whidbey the W shore of Lynn Canal extends in a NNW direction, with some indentations and rocky shoreline, about 3.6 miles to a narrow inlet leading into **Boat Harbor,** a basin with depths up to 14 fathoms. It can be entered by small craft only because of its contracted entrance, which is about 100 feet wide in its narrowest part, has a controlling depth of 2¾ fathoms, and apparently is clear, though the turns are sharp. The currents have considerable velocity through the entrance. From just N of Boat Harbor to Danger Point, for about 3.2 miles, brown rocky bluffs are visible along the W shore of Lynn Canal.

(43) **William Henry Bay** is on the W side of Lynn Canal, 9 miles N of Point Whidbey. It is easy of access and is the best anchorage from S weather in this vicinity. According to local reports, N winds are felt with considerable force. Enter in midchannel, and when the second waterfall on the W shore of the bay is abeam, anchor in 14 fathoms, soft bottom, about 0.4 mile from the head. The shores are high and bold. **Beardslee River** enters at the head, where there is a flat 350 yards wide. Pile ruins of an 80-foot wharf on the E side of the bay are no longer visible. The face of the wharf extended into 20 feet of water.

(44) **Endicott River,** about 4 miles N of William Henry Bay, flows from the W through a narrow, deep gorge in the mountains. A broad shoal makes out from the mouth of the river nearly 0.7 mile. A narrow channel follows close around the cliff on the S side. Small craft may enter the lagoon at half tide in the flats just NE of the river's mouth.

(45) **Berners Bay** is a large indentation on the E side of Lynn Canal between **Point Bridget** and **Point St. Mary.** From Point Bridget it has a N direction for 6 miles to the extensive flats at the head where several large streams make in. The bay is open to S winds, but in fine weather temporary anchorage in 16 to 25 fathoms may be selected near the head; the chart should be the guide.

(46) E of Point Bridget are two bights. The westernmost is filled by flats, and the water is shoal for over 0.3 mile offshore. **Echo Cove,** the E bight, has its entrance 2 miles E of Point Bridget. A highway connects Echo Cove to Juneau about 39 miles SSE. The entrance is nearly blocked by a flat making out from the W point, leaving a very narrow channel that follows the E shore at a distance of 150 yards and has a controlling depth of 2¾ fathoms. Inside, the depths are 4½ to 10 fathoms, and small vessels using caution can enter and find secure anchorage.

(47) **Point Sherman,** on the E side of Lynn Canal, about 9 miles NNW of Berners Bay, is prominent. **Point Sherman Light** (58°51.3'N., 135°09.1'W.), 47 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark. Temporary fair-weather anchorage may be had in 14 fathoms, mud bottom, in the bight N of Point Sherman. In approaching from S give the point a wide berth. A ledge, with 2 fathoms at its end, extends 0.3 mile NW from Point Sherman; it bares a considerable distance from the point.

(48) **Sherman Rock,** 0.5 mile SW of Point Sherman, has about 1 fathom over it.

(49) **Chart 17317.–Sullivan Island,** on the W side of Lynn Canal about 6 miles NW of Point Sherman, is timbered. It has several knobs on the S end; the highest is separated by a saddle from the ridge at the N end of the island. **Sullivan Rock,** wooded and marked by a light, is off the S end of the narrow wooded island S of Sullivan Island.

(50) Anchorage may be had in 18 fathoms, sticky bottom, in the bight in the W shore, W of the S end of Sullivan Island. Vessels entering from the S should favor the islands. Entering from the N the only dangers to be avoided are the rocks awash, and the rock with ¾ fathom over it, 0.4 mile off the W shore in about the middle of the island. This rocky area is marked at its N end by a daybeacon.

(51) Anchorage for small boats, with protection against N winds, may be had in the small bight on the E shore of Sullivan Island near the SE end. In entering avoid the reef that extends about 0.2 mile off the NE entrance point.

(52) **Eldred Rock,** about 7.3 miles NNW from Point Sherman and 1.4 miles from the E shore of Lynn Canal, is marked by **Eldred Rock Light** (58°58.3'N., 135°13.2'W.), 91 feet above the water, shown from a white octagonal tower on a building. The white buildings on the rock are also prominent. A ledge extends about 300 yards NW from Eldred Rock, and a rock with ¾ fathom over it is 0.3 mile 325° from Eldred Rock Light. A submerged wreck is about 150 yards SE of the ¾-fathom sounding.

(53) **Chilkat Islands,** a chain of four wooded islands, extend 5 miles in a SSE direction from Seduction Point. **Kataguni Island,** the southernmost, is about 2.5 miles NNW of Eldred Rock. **Shikosi Island,** N of Kataguni Island, has a bight in its N side that affords anchorage for small craft with shelter from moderate S winds. A shoal with depths of as little as 1 fathom, and terminating with a rock that bares, extends over 0.2 mile N from the E point of the bight. Favor the W point of the bight in entering. **Talsani Island Light** (59°04.7'N., 135°16.4'W.), 16 feet above the water and shown from a square frame with a red and white diamond-shaped daymark, marks the NE point of **Talsani Island,** the northernmost of the Chilkat Islands.

(54) **Chilkat Inlet,** the W arm at the head of Lynn Canal, is 9 miles long in a NW direction, from Seduction Point to McClellan Flats at the mouth of Chilkat River. The arm is narrowed to 0.8 mile by Glacier Point, 2.5 miles from Seduction Point; it then expands to 2.5 miles and maintains this width for some distance, narrowing to 2 miles at its head.

(55) **Local magnetic disturbances.**–Differences of as much as 20° from normal variation have been observed in Chilkat Inlet and Chilkoot Inlet.

(56) **Seduction Point** is the SE extremity of **Chilkat Peninsula,** which separates Chilkoot Inlet and Chilkat Inlet. Near the end is a knob, then a depression and a gradual rise to another knob, 2.5 miles from the point. **Dalasuga Island,** small and wooded, is about 0.4 mile to the NW of the point. A rock that bares 3 feet is 1 mile NW of Seduction Point.

(57) The E shore of Chilkat Inlet is very irregular. The shoreline consists of gravel and boulder beaches with short, rocky sections. There are several bights that furnish fair weather anchorage for small boats.

(58) **Glacier Point,** on the W side of the entrance to Chilkat Inlet, is the wooded and grassy moraine of **Davidson Glacier,** which slopes uniformly back from the moraine. A flat that bares and is about 0.2 mile wide borders the W shore for 2 miles S and the same distance W of Glacier Point, but at the point it is only 200 yards wide. From the point to **McClellan Flats** the W shore is rocky, and partly a boulder beach.

(59) A ledge that bares extends 0.2 mile S from the point on the E shore of **Kalhagu Cove.**

(60) **Kochu Island,** about 2.3 miles N of Glacier Point, is low, small, and thickly wooded. The passage between the island and the E shore is obstructed by a ½-fathom spot in midchannel and by a reef that extends about 0.3 mile from

the E shore in the direction of the ledge that extends 0.4 mile off the SE end of Kochu Island. **Lehunua Island,** small and wooded, is E of the center of Kochu Island, close to the E shore of the passage. A rock, awash at half tide, is close to the NW end of Lehunua Island.

(61) **Letnikof Cove,** on the E shore of Chilkat Inlet, about 1.6 miles N of Kochu Island, affords anchorage for small craft, exposed to NW winds near the head of the cove, in 6 to 10 fathoms.

(62) The W entrance point to the cove is marked by **Letnikof Cove Light 2** (59°10.4'N., 135°24.0'W.), 25 feet above the water, shown from a small house with a red triangular daymark.

(63) The wharf of a storage and fish buying facility is on the S side of the cove near the head. In 1976, 25 to 28 feet was reported alongside the 98-foot wharf face. Gasoline, diesel fuel, fishing supplies, provisions, and a small machine shop are available to fishing boats during the fishing season. The facility operates a marine railway that can handle fishing vessels up to 40 feet for repairs. It has a 2-ton hand-powered hoist and two 1-ton forklifts for handling supplies. Radiotelephone communications are maintained. A highway connects the facility to Haines, 5 miles NW, and Flat Bay, 2 miles SE.

(64) The State-maintained seasonal small-craft floats are across the cove from the support facility. The 500 feet of floats have a 4-day limit, and a surfaced boat-launching ramp is 55 yards NW of the floats.

(65) **Jenkins Rock,** with 1¾ fathoms over it, is 0.2 mile from the NE shore, 1 mile NW from the entrance to Letnikof Cove. Less water than is charted has been reported on this rock.

(66) **Pyramid Harbor** is the bight in the W shore of Chilkat Inlet, about 5.5 miles NW from Glacier Point and opposite Letnikof Cove. The bight appears to have shoaled considerably, and anchorage is not recommended. **Pyramid Island,** midway across Chilkat Inlet from Pyramid Harbor, is grass covered, and has rocky shelving beaches; a spit, bare at lowest tides, connects the island with the shore about 0.7 mile to the NE. The edge of McClellan Flats, in the mouth of Chilkat River, appears to have moved out to enclose both the harbor and the island.

(67) **Chilkat River** is a shallow stream about 50 miles long, flowing in a general SE direction, and is about 2 miles wide at its mouth. The mouth is so choked with sandbars as to be practically closed for anything except canoes, and the bar at low water appears as if dry clear across. The village of **Klukwan** is 26 miles above Seduction Point. A highway follows the river from Haines.

(68) **Chilkoot Inlet,** the E arm at the head of Lynn Canal, extends 12.6 miles in a N direction from Seduction Point, and then divides; the E and principal arm, called **Taiya Inlet,** trends N for about 13 miles. Chilkoot Inlet has on its E side, and Taiya Inlet on both sides, lofty mountain glaciers in their gorges. The midchannel depths are great throughout. Katzehin River Flat and Indian Rock are the only dangers in Chilkoot Inlet. It is reported that in the winter N winds often attain a maximum speed of about 70 knots in Chilkoot Inlet and Taiya Inlet.

(69) **Local magnetic disturbances.**–Differences of as much as 20° from normal variation have been observed in Chilkat Inlet and Chilkoot Inlet.

(70) **Mud Bay** is a small cove, on the W shore about 4 miles NNW of Seduction Point, from which low land extends across the peninsula to Letnikof Cove, and is connected with Haines by a gravel road.

(71) **Katzehin River** enters Chilkoot Inlet through a deep valley on the E side of Chilkoot Inlet, 14 miles above Eldred Rock Light. From the mouth of the river a flat, which bares to its outer edge, extends two-thirds of the distance across the inlet, and alongshore for 1.5 miles on either side of the mouth. The W edge of the flat is marked by a lighted bell buoy moored in 13 fathoms. The buoy is reported to heel over because of ice during the winter. Caution is advised in transitting the area W of the flat during the fishing season, because of the heavy fishing boat traffic.

(72) **Battery Point,** marked by a light, is on the W side of Chilkoot Inlet, 7.8 miles N of Seduction Point. **Johnson Rock,** awash and unmarked, is about 0.1 mile S of the S extremity of the point. **Kelgaya Bay** is a small cove on the N side of Battery Point.

(73) **Portage Cove,** on the W shore about 2.5 miles NW of Battery Point, affords the best anchorage and shelter in Chilkoot Inlet. The anchorage is about 0.2 mile off the wharf in 12 to 15 fathoms, soft bottom. N winds blow home and bring in some sea. From the anchorage the water shoals gradually to a gravel and boulder beach, which bares some distance out, and the water is shoal 200 yards offshore. An unlighted buoy marks a 3-foot spot about 325 yards NE of **Nukdik Point,** the N entrance point.

(74) **Haines** is a city with several hotels, motels, machine shops, and general stores on the W side of Portage Cove. It is 950 miles from Seattle and 88 miles from Juneau, and is at the S end of a highway running along the Chilkat River and Klehini River through the Porcupine Mining District and connecting with the Alaska Highway.

(75) **Prominent features.**–The two tank farms in Haines and a tank farm at Tanani Point, about 2.4 miles N of Haines, are conspicuous.

(76) **Weather.**–Haines has a predominantly maritime climate. This area receives abundant precipitation year round with very heavy accumulation of snowfall during the winter. Measurable precipitation falls on just slightly less than half of the days of the year. The area experiences considerable cloudiness, and only about 1 day in 5 can be classified as clear. Differences between daily maximum and minimum temperature readings average about 15° during all months of the year.

(77) The prevailing winds at Haines are from the W and SE. Lynn Canal provides a funneling effect to produce the SE winds; the narrowing canal often tends to intensify winds moving from the S or SE direction. The relatively low passageway from the W provides a channel through which winds reach Haines from that direction. (See page T–3 for **Haines climatological table.**)

(78) **Pilotage.**–Except for certain exempted vessels, pilotage is compulsory for all vessels navigating the inside waters of the State of Alaska. (See Pilotage, chapter 3, for details.)

(79) Vessels en route Haines meet the pilot boat about 1 mile NW of Point Retreat Light (58°24.7'N., 134°57.3'W.).

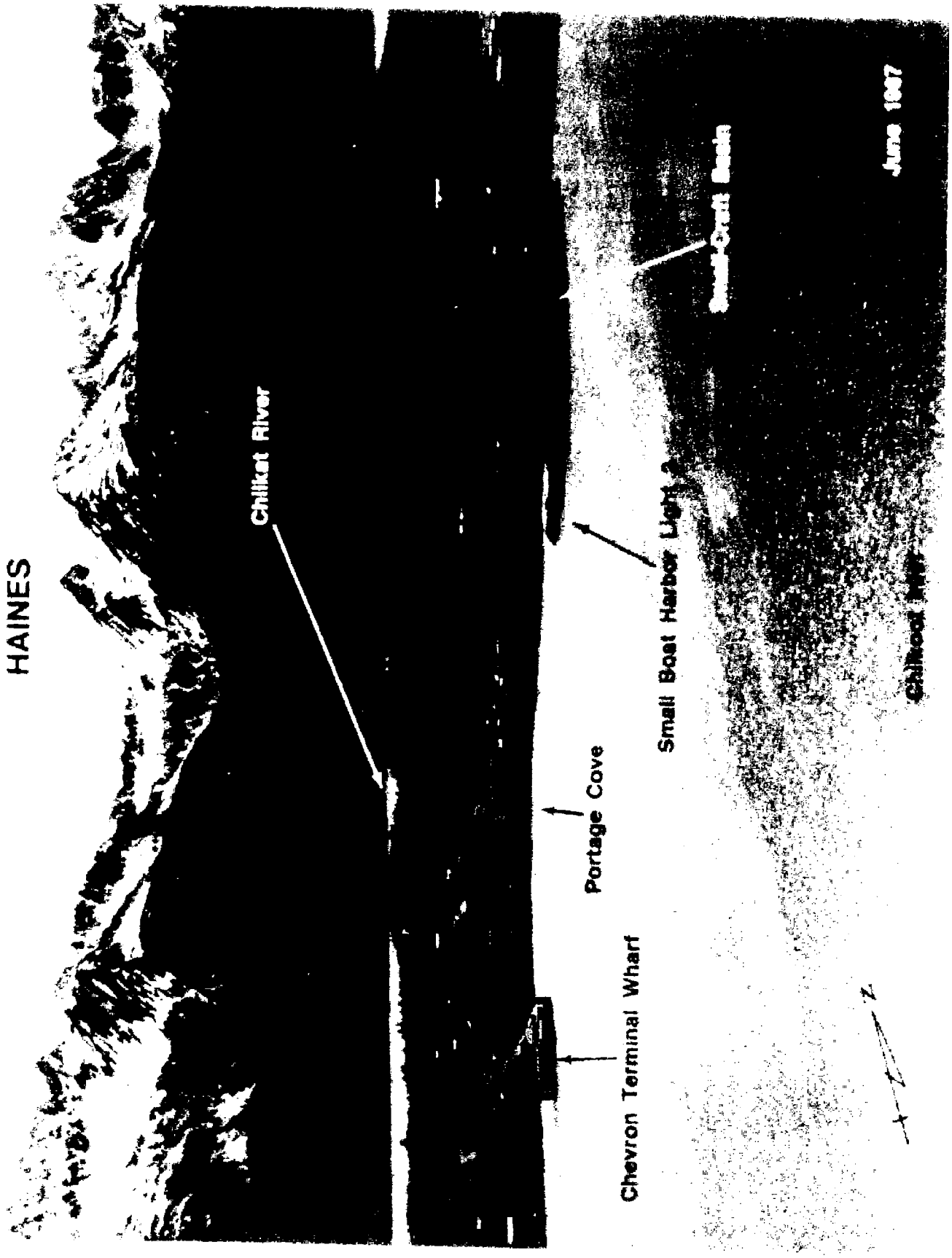
(80) The pilot boat, a crewboat, can be contacted by calling "HAINES PILOT BOAT" on VHF-FM channels 16, 13, or 12.

(81) **Towage.**–Tugs up to 600 hp operating out of Haines and 800 hp operating out of Skagway are available for docking and undocking. The tugs are equipped with VHF-FM channels 12, 13, and 16. Arrangements must be made well in advance.

(82) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(83) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(84) **Customs.**–Haines is a **customs station.**


HAINES
Chilkat River
Portage Cove
Small Boat Harbor Light
Chevron Terminal Wharf
June 1967

(85) **Wharves.**–The piers and wharves at Haines are on the W and SW shores of Portage Cove and on the S shore of Lutak Inlet.

(86) Northwest Terminals Ltd. Dock (59°13′42″N., 135°25′53″W.): SW shore of Portage Cove; offshore mooring platform with 220 feet of berthing space; 33 feet reported alongside; pipelines extend to storage tanks on shore; receipt of petroleum products; owned and operated by Northwest Terminals Ltd.

(87) Chevron U.S.A., Haines Terminal Wharf (59°13′47″N., 135°26′04″W.): NW of Northwest Terminals Ltd. Dock; 252-foot NE face; 25 feet reported alongside; pipelines extend to storage tanks on shore; receipt of petroleum products; owned by The White Pass and Yukon Corp., Ltd. and operated by Chevron U.S.A., Inc.

(88) Haines Terminal P.O.L. Dock (59°16′48″N., 135°27′01″W.): on S shore of Lutak Inlet about 1.7 miles WNW of Indian Rock Light; 200-foot face with 1,200 feet of berthing space with dolphins; 38 feet alongside; water and electricity; pipelines extend to tank farm in rear; receipt and shipment of petroleum products; owned by the U.S. Government and operated by the U.S. Army.

(89) Lutak Dock and Transfer Bridge (59°17′01″N., 135°27′55″W.): NW of P.O.L. Dock; 750-foot face; 23 feet alongside; water and electricity; 7 acres open storage; receipt and shipment of general cargo, logs, and lumber; owned by the city of Haines and operated by Southeast Stevedoring Corp. and the city of Haines.

(90) Alaska Marine Highway System, Haines Ferry Terminal: E 250 feet of the Lutak Dock and Transfer Bridge; 23 to 25 feet alongside; 35-ton adjustable transfer bridge; passengers and vehicles; operated by the State of Alaska. In June 1979, a shoal with a least depth of 7½ feet was just off the W side of the terminal ramp.

(91) Chilkoot Lumber Co. Wharf (59°17′10″., 135°28′31″W.): NW of Lutak Dock and Transfer Bridge; 640 feet berthing space; 28 feet alongside; two 10-ton front-end loaders; one pneumatic chip loader, capacity 350 tons per hour; 40 acres open storage with 4 acres staging area; shipment of wood chips and logs; owned and operated by Chilkoot Lumber Company.

(92) **Supplies.**–Provisions, fishing supplies, and limited marine supplies can be had at Haines. Gasoline and diesel fuel may be had by tank truck at the approach pier in the small-craft basin. There is no provision for bunkering large vessels.

(93) **Repairs.**–There are no drydocking or major facilities for larger vessels in Haines or Southeast Alaska. The nearest facilities are in British Columbia and the State of Washington. A 65-foot grid is in the NW part of the small-craft basin. A marine railway, which can handle vessels up to 40 feet, is at Letnikof Cove. Machine shops in Haines are available to small craft for minor hull and engine repairs.

(94) **Communications.**–The Alaska Marine Highway System has daily scheduled ferry service to Skagway, Juneau, Petersburg, Wrangell, Ketchikan, Sitka, and Prince Rupert, B.C., and weekly service to Hoonah, Kake, and Seattle. This service is less frequent during winter. The ferry terminal is on the SE side of Lutak Inlet, about 3.5 miles N of Haines. Scheduled and chartered airlines serve the city. The airport is about 2.6 miles W of Haines. Telephone and radiotelephone communications are maintained.

(95) **Small-craft facilities.**–The city of Haines operates a small-craft basin that is protected on its N side by a breakwater and on its E side by a detached breakwater. The S end of the detached breakwater is marked by a light. The basin is entered through a dredged channel SW of the detached breakwater. In August 1989, the controlling depth was 15 feet in the entrance channel with 9½ to 12 feet available in the basin. The **harbormaster** controls the use of the grid and makes berthing assignments. The harbormaster's office, at the small-craft basin, monitors VHF-FM channel 16. The harbormaster can be contacted by telephone (907-776-2448 or 907-766-2760). A surfaced ramp is immediately E of the grid in the NW part of the basin. Water in the summer and electricity are available at the floats.

(96) **Low Point,** on the E side of Chilkoot Inlet, is 2.8 miles NE of Haines and about 1 mile SE of Indian Rock Light.

(97) **Indian Rock,** about 1 mile NW of Low Point, is a dangerous reef about 0.2 mile long E and W; at the eastern end is a pinnacle rock, awash at lowest tides. **Indian Rock Light** (59°16.4′N., 135°24.0′W.), 26 feet above the water, is shown from a pile structure with a red and white diamond-shaped daymark on the rock.

(98) **Lutak Inlet,** the W arm of Chilkoot Inlet, is 5 miles long. **Taiya Point** is the NE entrance point, and **Tanani Point,** the SW. At its head it receives **Chilkoot River,** a short stream that drains **Chilkoot Lake;** at the mouth of the river is a flat nearly 0.5 mile wide. A fixed highway bridge with a 40-foot span and a clearance of 8 feet crosses the mouth of the river. Anchorage with good holding ground for large vessels can be had in a depth of 40 fathoms about 2.5 miles from the head of the inlet, to 20 fathoms about 0.8 mile from the head. In winter, Lutak Inlet offers the only good protection on Lynn Canal from N winds, although small boats will experience icing.

(99) The waters of Lutak Inlet in the vicinity of the U.S. Army POL Dock and the Army Dry Cargo Wharf have been prescribed as a restricted area. (See **334.1310,** chapter 2, for limits and regulations.)

(100) **Taiyasanka Harbor,** about 5.8 miles N of Battery Point, is a small harbor at the foot of the **Ferebee River** valley. The harbor has a narrow entrance that is protected from S, but exposed to winter winds drawing down the **Ferebee Glacier.** There is 12 fathoms in the narrow entrance, which is 100 yards wide and close to the W side. A rock spit extends over halfway across the entrance from the W end of the narrow neck of land, which is the bare part of the moraine that almost closes the entrance. The tidal currents have an estimated velocity of 3 knots in the entrance. Log storage takes up the SE end of the basin. Small craft tie up to the booms for moorage. Icing is experienced in the harbor in winter.

(101) A prominent waterfall, locally called Cavanaugh Falls, is on the E side of Taiya Inlet, about 1.5 miles N of Low Point. **Nahku Bay** is the narrow bay between Skagway and the head of **Taiya Inlet.** Good anchorage is available in midchannel in 30 fathoms about 0.5 mile from the head. The bottom is sticky mud; it shoals gradually. During the summer with prevailing S winds, there is little protection from the short choppy seas coming in from Taiya Inlet.

(102) **Taiya River,** at the head of Taiya Inlet, is navigable for small boats and canoes as far as high water can be carried, a short distance above the mud flats. Canoes can be poled or towed by line for a greater distance.

(103) **Skagway,** a city on the delta formed by the Skagway River at the N terminus of the Inside Passage to Alaska, is essentially a transfer point between water and rail shipping routes. It is the ocean terminus of the White Pass and Yukon Route Railway, the Alaska Marine Highway System from Seattle to Skagway, and a branch of the Canol pipeline. Skagway is also a popular port of call for the numerous

cruise ships that sail the Inside Passage. The principal commodities handled at the port include petroleum products, zinc and lead ore concentrates, building and construction materials, asbestos, and general cargo. The deepest draft of any commercial vessel calling at the port in 1976 was 39 feet.

(104) The **Skagway River** originates in White Pass at the boundary between British Columbia and Alaska, and flows SW for 14 miles. Because of its shallow depths and swift currents, the river is not navigable.

(105) **Skagway Breakwater Light 2** (59°26.9'N., 135°19.4'W.), 19 feet above the water, is shown from a skeleton tower with a red triangular daymark on the NW end of the breakwater protecting the Skagway Small-Boat Basin, on the SE side of the harbor.

(106) **Prominent features.**–The warehouse and elevator of the ore terminal SW of Skagway, the gold cupola of a hotel, and the oil tanks at the ferry terminal and at the railway wharf are conspicuous from seaward.

(107) **Channels.**–The approach to Skagway is clear and deep; the chart is the best guide.

(108) **Anchorages.**–There is no safe anchorage for large vessels at Skagway. The anchorage in the NE part of the harbor off the railway wharf is small, being limited by the cable area. The wind draws through the valley and anchorage. With N gales a vessel is liable to drag anchor because of the steep pitch of the bottom, and under such conditions a safer berth can be had at the wharf. Protection from the N can be had in Nahku Bay, for vessels under 200 feet long. Large vessels can anchor in Lutak Inlet.

(109) **Tides.**–The mean range of tide at Skagway is 14.1 feet, and the diurnal range is 16.7 feet.

(110) **Currents.**–The velocity of the tidal current ranges from 0.3 knot on the flood to 0.7 knot on the ebb. During the ebb, the current sets toward the railway wharf, so that vessels departing from the N half of the wharf have difficulty clearing another vessel moored at the S end. (See the Tidal Current Tables for daily predictions.)

(111) **Weather.**–The prevailing wind direction is S from March through November and reverses to N during December, January, and February. Fog occurs only about 2 percent of the time and is most frequent during August, September, and October. Snow totals 35 inches on about 19 days a year, but there is precipitation on about 115 days a year.

(112) **Pilotage,** except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska. (See Pilotage, chapter 3, for details.)

(113) Vessels en route Skagway meet the pilot boat about 1 mile NW of Point Retreat Light (58°24.7'N., 134°57.3'W.)

(114) The pilot boat, a crewboat, can be contacted by calling "SKAGWAY PILOT BOAT" on VHF-FM channels 16, 13, or 12.

(115) **Towage.**–An 800-hp tug is available at Skagway for assisting in docking and undocking from May to October. Other commercial towboats are available from Haines or Juneau year round. The tug and towboats are equipped with VHF-FM channels 16, 13, and 12. Arrangements for towboats and tug should be made well in advance through ship's agents.

(116) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(117) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(118) Skagway is a **customs port of entry.**

(119) **Wharves.**–The wharves at Skagway are on the E side of Taiya Inlet at the S end of the city.

(120) White Pass and Yukon Corp. Wharf (59°26'49"N., 135°19'17"W.); 1,200 feet usable berthing space; 19 to 41 feet alongside; two 30-ton straddle carriers, two 10-ton forklifts; 2 acres open storage; pipelines extend to tank farm in rear; storage capacity for 213,000 barrels; containerized and general cargo, cruise ship traffic, and receipt of petroleum products; owned and operated by White Pass and Yukon Corp., Ltd.

(121) Alaska Marine Highway System, Skagway Ferry Terminal (59°26'57"N., 135°19'25"W.): 250 yards NW of Railway Wharf; 160-foot face, 385 feet with dolphins; 17 feet alongside; passenger and vehicle traffic; owned and operated by the State of Alaska.

(122) Skagway Terminal Co. Pier (59°27'03"N., 135°19'29"W.): 200 yards NW of the Ferry Terminal; 175-foot T-head pier; 1,300 feet berthing space with dolphins; 37 feet alongside; 108,000 square feet covered storage and 10 acres open storage; conveyor and elevator with 1,200-ton-per-hour capacity; shipment of bulk lead and zinc ore; owned and operated by Skagway Terminal Co.

(123) Broadway Dock (59°27'02"N., 135°19'28"W.); 120 yards SE of Skagway Terminal Co. Pier; 240-foot face, 970 feet with dolphins; 22 feet alongside.

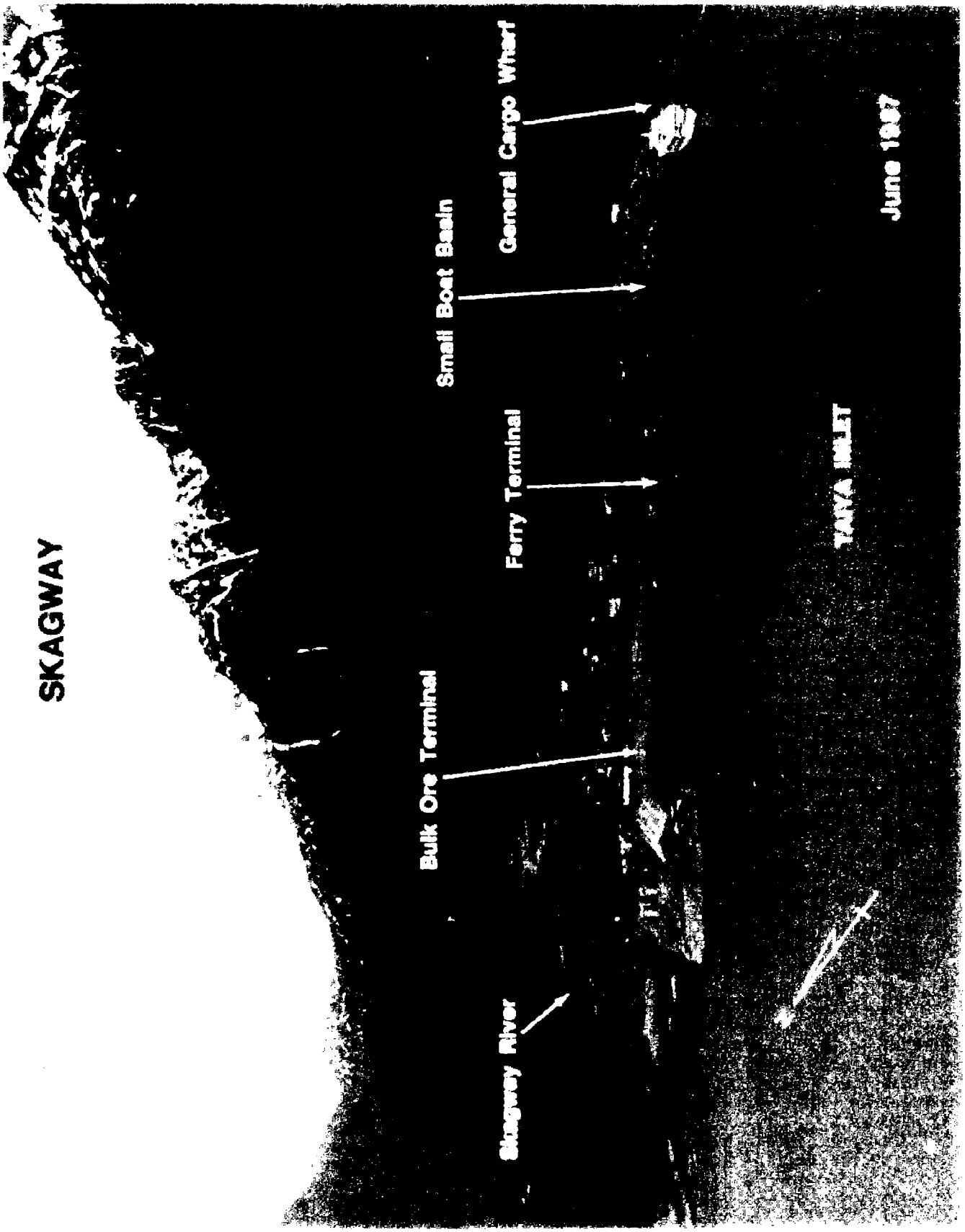
(124) **Supplies.**–Arrangements can be made to truck gasoline and diesel fuel to the Railway Wharf. Gasoline is available in the small-craft basin. Water is available at the Railway Wharf and at the floats of the small-craft basin. Limited amounts of provisions and marine supplies can be had at the general stores.

(125) **Repairs.**–The White Pass and Yukon Route railway operates a fully equipped machine shop; these facilities are available to marine interests for emergency repairs. A 60-foot small-craft grid is in the E corner of the small-craft basin.

(126) **Small-craft facilities.**–The Skagway Small-Boat Basin, protected by a breakwater marked by a light, is just northward of the White Pass and Yukon Route railway wharf. A Federal project provides for an 8-foot entrance channel. Local interests have expanded and deepened the basin. In 1983, the controlling depth was 8 feet in the entrance channel, thence 11 to 15 feet in the basin. Silting encroaches the NE basin limits between dredgings. The **harbormaster** assigns berths and can be contacted by telephone (907-983-2628) and on VHF-FM channel 16. The harbor capacity is about 165 boats. A launching ramp, grid, and seaplane float are in the basin. Water (during summer), electricity, and gasoline are available at the floats.

(127) **Communications.**–The White Pass and Yukon Route is a railway of 3-foot gage, 111 miles long, that extends from tidewater up the Skagway Valley to White Pass and across the international boundary to Whitehorse, the head of navigation on the Yukon River. The railway maintains daily service with Whitehorse from May to September.

(128) The Alaska Marine Highway System has daily ferry service to other southeastern Alaska ports and Prince Rupert, B.C., with weekly service to Seattle. Scheduled and chartered airlines operate from Skagway airport on the NW side of the city. Telephone and radiotelephone communications are maintained. Skagway has highway connections with the Alaska Highway.


SKAGWAY
Bulk Ore Terminal
Ferry Terminal
Small Boat Basin
General Cargo Wharf
Skagway River
TAIYA INLET
June 1987

12. WEST COAST OF BARANOF ISLAND

(1) This chapter describes the W coast of Baranof Island, the coasts of Kruzof Island and Sitka Sound, and the city and port of Sitka. The E coast of Baranof Island has been described with Chatham Strait in chapter 10.

(2) **Chart 17320.–Baranof Island,** about 90 miles long with a greatest width of about 22 miles, forms about one-third of the outer coastline of southeastern Alaska between Cape Muzon and Cape Spencer. The W coast from Cape Ommaney at Chatham Strait to Point Kakul at Peril Strait is about 80 miles. **Mt. Katlian,** 4,303 feet high, is in the N part of the island. The greater elevations are on the S part of the island.

(3) **Prominent features.**–Vessels making the land at Cape Edgecumbe in thick rainy weather may be aided in their determination of position by the color of the rocks. The rocks and cliffs N of Cape Edgecumbe are decidedly black as far as Cape Georgiana, and the rocks S of Cape Edgecumbe are a whitish gray from Biorka Island to Whale Bay. The shore for 3 miles N of Cape Edgecumbe rises in a precipitous cliff of dark brown lava about 200 feet high and forms a prominent landmark. Numerous large caves or blowholes can be seen in this lava cliff.

(4) From Cape Ommaney, the W coast of Baranof Island trends NW to Biorka Island, a distance of 50 miles. For a distance of about 20 miles from the cape, the shoreline has numerous inlets and indentations, which, as anchorages, furnish poor protection except to very small craft. The shore is of gray, storm-swept rock. From the headlands and points along the coast, the land rises to peaks and ridges in the interior of the island. The lower slopes are timbered; the ridges and summits are snow-covered until well into the summer. The shoreline to the N of Biorka Island has the same general features, but is less forbidding. During foggy weather along the coast, it is often clear in Chatham Strait.

(5) **Weather.**–This coast is exposed to the weather from the Gulf of Alaska with some protection afforded in the N by Kruzof Island. However, from October through March, the area is pounded by gales, which blow about 10 percent of the time in open waters, and by waves which reach 8 feet or more up to 30 percent of the time. Wind waves and swells from distant storms also find their way into many of the bays and inlets. Strongest winds are usually out of the N, E, and SE. Along the coast, strong southeasterlies trigger williwaws in many areas. Precipitation is frequent year round; in winter, up to one-third of it falls as snow. Visibilities are worst during June, July, and August as warm air blows over still-cool waters.

(6) **Charts 17330, 17320.–Cape Ommaney,** the S extremity of Baranof Island, is a remarkable promontory terminating in Ommaney Peak, a bluff, rugged, rocky mountain, detached from the higher land N by a low depression running through from Port Conclusion. Wooden Island, close SE of the cape, is marked by **Cape Ommaney Light** (56°09.6′N., 134°39.7′W.). (See chapter 10, for descriptions of the island and light.)

(7) **Ommaney Bay** is an open bight on the W side of Cape Ommaney and is of no importance to navigation. **Eagle Rocks** are a group of bare rocks close off the first point W of Cape Ommaney.

(8) **Bobrovoi Point,** about 1.8 miles NW of Cape Ommaney, is the SE point at the entrance to Larch Bay. It terminates in a wooded hummock that may be mistaken for Wooden Island during an approach from NW.

(9) **Larch Bay** is a large open bay with an arm that extends in a NE direction. Anchorage may be found in about 20 fathoms in this arm. Small launches use this arm during the fishing season when fair weather prevails. Rocks extend about 500 yards off the W point of the entrance to the bay. There are low depressions between the bay and Chatham Strait.

(10) **Little Puffin Bay,** about 5.8 miles NW of Cape Ommaney, has depths of 21 fathoms at the entrance, decreasing to 7 fathoms about 0.3 mile from the head, and then shoals rapidly. At the head of the bay are a stream and a gravel beach with outcropping rocks. Exposed anchorage for small vessels may be had in 6 to 7 fathoms, hard bottom. In entering, favor the N shore to avoid rocks awash and breakers off the S shore near the entrance.

(11) **Sealion Rocks** (56°15.1′ N., 134°50.0′W.) are a cluster of four dark rocks about 7.5 miles above Cape Ommaney and directly off the entrance to Puffin Bay. Several smaller outlying rocks are close-to. The central rock is pyramidal in appearance with steep sides; the others are somewhat more massive. The depths are good on all sides of the rocks, but it is better to pass S of them in entering Puffin Bay.

(12) **Puffin Bay** is about 7.2 miles NW of Cape Ommaney. On the NW shore near the entrance is a massive patch of white rock. Depths in the bay range from 90 fathoms near the entrance to 23 fathoms close to the head. A small bight in the NW shore, 1 mile within the bay, furnishes temporary anchorage with limited swinging room for small craft. The entrance to the anchorage has a depth of 11 fathoms in a channel about 60 yards wide between shoals that extend from both points of the entrance. The cove furnishes little protection from S. The small cove in the SE shore near the head of the bay furnishes anchorage for small craft in 5 to 8 fathoms in the middle of the cove. The very narrow entrance channel has depths of 12 fathoms. Williwaws blow with considerable force during SE gales.

(13) **Driftwood Cove** is a little bay 1.2 miles N of Sealion Rocks; its entrance is obstructed by reefs marked by kelp patches. The cove is exposed.

(14) **Big Branch Rock** is a massive, dark, round-topped rock, about 1.8 miles NNW of Sealion Rocks and about 1.6 miles SE of Redfish Point.

(15) **Redfish Cape** is a narrow peninsula appearing as a comparatively low, wooded ridge, parallel to the coast; it is the only apparent low ridge in the vicinity. From N a short distance above Redfish Cape, a white conspicuous cliff is seen in the midst of the timber. A chain of barely separated wooded islets extends 0.5 mile S from the end of the cape; the southernmost one terminates in **Redfish Point** (58°18.1′N., 134°52.5′W.). Between Redfish Point and Big Branch Rock are the entrances to Little Branch Bay, Big Branch Bay, and Redfish Bay.

(16) **Redfish Breaker,** awash at low water, is 0.1 mile S of the outer rocks S of Redfish Point. It breaks except in calm weather. A rocky patch with a least-found depth of 3½ fathoms is about 0.5 mile SE from the same point. A shoal covered 7 fathoms is about 0.6 mile S of the point.

(17) **Little Branch Bay** is about 1.9 miles long to the narrows, which are barely 75 yards wide, and widens into a basin. About 0.4 mile SSW of the narrows is an island, separated from the E shore by a channel 50 to 100 yards wide. Midchannel depths in the bay range from 81 fathoms near the entrance to 21 fathoms off the island, 12 fathoms in the narrows, and 17 fathoms in the middle of the basin at the head. About 0.8 mile within the entrance, a narrow channel in the SE shore, entered only at high water, leads to a lagoon that has depths of 1 to 7½ fathoms.

(18) **Little Branch Bay Light** (56°18.2'N., 134°50.7'W.), 109 feet above the water, shown from a skeleton tower with a red and white diamond-shaped daymark, marks the entrance to Little Branch Bay and Big Branch Bay.

(19) **Big Branch Bay,** separated from Little Branch Bay by a high narrow neck of land, extends in a NNE direction and narrows in width 2.5 miles from the entrance, then widens again. An arm indenting the W shore about 0.9 mile from the W entrance point has depths from 9 to 20 fathoms, where small boats can find good shelter. About 2 miles from the entrance to Big Branch Bay is an islet close to the W shore. The bight on the E shore E of this islet affords indifferent anchorage in 23 fathoms. Depths up to 66 fathoms are found above the narrows.

(20) **Redfish Bay** has its entrance between Redfish Cape and **Beavertail Island.** From its entrance the bay extends in a general N direction, narrowing in places to about 100 yards and in one place to about 80 feet. The channels are probably safe, but too narrow for safe steering; there is no certainty that dangers do not exist. The use of the bay by vessels other than small craft is not recommended.

(21) **Tenfathom Anchorage,** within the entrance of Redfish Bay, about 0.6 mile E of Redfish Cape, furnishes secure anchorage for small craft. The entrance is about 75 yards wide.

(22) The small bay 2.6 miles NNW of Redfish Cape furnishes good shelter for small boats, but the entrance is so narrow and the turns so sharp that a vessel of any size cannot enter, especially if there is any swell.

(23) **Byron Bay** is 4.3 miles N of Redfish Cape and is apparently clear, but too deep for secure anchorage. Indifferent, temporary anchorage may be obtained in about 22 fathoms close to the W shore about 0.8 mile within the entrance. Close to the W shore, near the head, is a small island above which small craft can find anchorage. A thin, high waterfall, visible from offshore, empties into a lake NNW of the bay. A flat over 100 yards wide is at the head of the bay. In entering, favor the E shore, which is bold and steep-to.

(24) **Kekur Point** (56°23.1'N., 134°57.0'W.), a rounded point backed by a flat-topped ridge, is about 4.5 miles NNW of Redfish Cape. **First Kekur,** a group of black rocks, is off the S extremity of this point. A breaker over a least-found depth of 2¾ fathoms, surrounded by deep water, is about 0.4 mile NW from the First Kekur.

(25) **Charts 17328, 17320.–Snipe Bay,** indenting the W coast of Baranof Island, has its entrance about 18 miles NW of Cape Ommaney and 1.8 miles N of Kekur Point. The bay is deep and clear except for the rocks close to the shore at the entrance. The islets off the SE entrance point are wooded. A group of islets is close to the NW entrance point. About 1.4 miles within the entrance in the SE shore is a sheltered bight with 35 fathoms in the middle. At the head of Snipe Bay are two short branches. A conspicuous waterfall empties into the head of the N branch. Depths of 31 fathoms were obtained in the small bight S of the NE branch.

(26) **Snipe Head,** the NW entrance point of Snipe Bay, is a conspicuous straight-topped headland.

(27) **Sandy Bay,** 3 miles N of Snipe Bay, extends in a NNE direction and divides into two arms 0.8 mile from the entrance; a long narrow arm extends N and a second arm extends E.

(28) Good anchorage may be had in 22 to 24 fathoms at the NE head of the E arm off the waterfall. About 0.8 mile within the arm a group of islets extends off the N shore. Pass well S of these to avoid a 1½-fathom spot, not marked by kelp or showing any surface indication, which is about 0.1 mile S of the islands. Anchorage may be had either in the bight W of the islands or in the arm that extends NW from the E arm.

(29) A 7½-fathom spot in the middle of the entrance causes the seas to pile up dangerously in SE weather.

(30) The **Third Kekur,** a conspicuous conical rock islet, is 1.6 miles NNW of the NW entrance point of Sandy Bay.

(31) **Close Bay** consists of an open bight and a lagoon that can only be entered on the flood. Several breakers are off the NW point of the entrance.

(32) **Whale Bay** has its entrance between Point Lauder and North Cape. It extends in a NE direction for about 4 miles, where it divides into two arms, Great Arm and Small Arm.

(33) **Point Lauder,** low and wooded, about 15 miles NNW of Redfish Cape, is the SE point of the entrance to Whale Bay.

(34) **North Cape** (56°36'N., 135°08'W.), the NW point of the entrance to Whale Bay, 4 miles NW of Point Lauder, is an island close to shore with three hills on it. The middle hill is the highest.

(35) **Still Harbor,** at the entrance to Whale Bay, is about 1.5 miles N of Point Lauder. The entrance, about 0.1 mile wide, is N of **Tikhaia Islands,** the chain of rocky islets that extend NNW from the point NE of Point Lauder. The NE shore at the entrance is foul.

(36) About 1 mile above the entrance to Still Harbor, a group of islets and rocks extend from the SW shore, restricting the channel to about 150 yards. A rocky ledge extends about 250 yards from the NE shore toward the north point of the 30-foot island that is close to the SW shore, about 1.2 miles from the entrance. The only anchorage is at the head of the harbor, and even there the swell is felt in heavy weather; this anchorage is not recommended.

(37) **Port Banks** has its entrance about 2.7 miles NE of Still Harbor. A submerged rock on which there is a depth of 1 ¾ fathoms is about 0.5 mile N off the W point of the entrance; it is reported to break in a moderate swell. Deep water surrounds this rock.

(38) It is recommended that vessels bound for Port Banks steer midchannel courses until clear of the off-lying dangers, then head into Port Banks, favoring the E shore. The Makhnati Islands can usually be identified in thick weather; they furnish a good leading mark for clearing the off-lying 1¾-fathom rock. It is reported that breakers extend from this rock to the SW point of the entrance during very heavy weather; under such conditions it is probably better to make Rakovoi Bay. After the 50-foot islet at the entrance to Port Banks is passed, the only obstruction is the small rocky islet, 6-foot high, 1.1 mile from the entrance. Pass to the E of this islet. About 0.4 mile beyond, the bay widens and forms a basin that has depths of about 15 fathoms. Good anchorage in depths from 8 to 20 fathoms, mud bottom, may be had in Port Banks which is used extensively during the fishing season.

(39) **Kritoi Basin,** used extensively during the fishing season, is between Port Banks and Rakovoi Bay. The bay affords excellent shelter, but is used mostly by small craft, because of its narrow entrance, about 75 yards wide. The entrance between **Finger Point** and **Krishka Island** is deep and clear except for a depth of 2¼ fathoms about 0.3 mile inside the entrance in 56°35.9'N., 135°00.0'W. Good anchorage in desired depths from 5 to 20 fathoms, mud bottom, can be had in the basin.

(40) **Rakovoi Bay** is 1.2 miles E of Port Banks. An island close to the E point makes the channel about 275 yards wide. The channel E of the island is foul and suitable only for small boats. Anchorage may be found S of the island at the entrance in about 18 fathoms or farther up the bay in 20 fathoms.

(41) **Great Arm,** the NE arm of Whale Bay NNE of Rakovoi Bay, narrows to less than 0.3 mile at a distance of 5.3 miles from the entrance. A small bay indents the SE shore 3.5 miles from the entrance, and another bay is at the narrows. Both bays have depths of over 30 fathoms. Great Arm is clear. An excellent anchorage with sand and mud bottom is in the small bay on the E side of the arm about 3.5 miles above the entrance to the arm. However, in the arm proper depths are too great for anchorage. **Kakovo Island** is off the N entrance point to Great Arm.

(42) **Small Arm** extends in a NNE direction from the NW side of Whale Bay. At its head it turns E for 0.6 mile. **Makhnati Islands,** a group of wooded islands, are off the entrance to Small Arm. Anchorage may be found among them, but it is exposed and not recommended. The depths in Small Arm are too great to afford anchorage. If the W shore is favored when passing the Makhnati Islands, no obstructions will be encountered throughout the length of the arm.

(43) **Necker Bay,** about 35 miles NW of Cape Ommaney and 3.5 miles N of North Cape, has its entrance between the Yamani Islets and the Guibert Islets. **Yamani Islets,** a group of wooded islets about 4 miles N from North Cape, form the NW entrance point of Necker Bay. Good anchorage for small craft can be had N of the islets in Yamani Cove.

(44) **Guibert Islets,** consisting of three low, bare, rocky islets and several small rocks, are about 3 miles N of North Cape and 0.5 mile off the SE point at the entrance to Necker Bay. A rocky patch where 10 fathoms were found is about 0.5 mile N of the northernmost of the Guibert Islets in the middle of the bay; it is reported to break in extremely heavy weather. Except for the dangers previously described, deep water is found throughout the bay. About 5.6 miles from the entrance the bay widens and anchorage can be found in 30 fathoms on the E side of the bay.

(45) Two remarkable headlands are about 2 miles NE of the Guibert Islets, one on either side of Necker Bay. The rocky outcrop shows well offshore and makes a good landmark.

(46) **Toy Harbor,** on the SE shore of Necker Bay, about 5 miles above the entrance, is reported to afford shelter for small boats.

(47) **Dorothy Cove,** N of Toy Harbor and about 6 miles above the entrance to Necker Bay, affords excellent anchorage for small craft in depths of about 6 to 10 fathoms E of the largest islet near the head of the cove. The entrance to the anchorage, S of this islet, is about 125 yards wide.

(48) **Secluded Bay** is separated from the N part of Necker Bay by a large island. The S entrance is extremely narrow, 30 yards at one place, with least known depth of 6½ fathoms. The N entrance, N of the island, is wider, but is obstructed by a ledge that extends NE about 100 yards from the N point of the island, leaving a clear channel of about 100 yards with a depth of 3½ fathoms. A large stream enters the N part of the bay, and an extensive flat strewn with boulders makes off the mouth of this stream. Anchorage may be found in 17 fathoms in the N part of the bay off this flat, and small craft can find anchorage in 6 fathoms in the S part of the bay.

(49) A small bay extends from the head of Necker Bay where anchorage may be found in 20 fathoms, soft bottom.

(50) **Slate Islets,** a group of rocky islets, parallel the shore between Necker Bay and Walker Channel. One of the SE islets has a few trees on it. Between the islets and the main shore is deep water, but many rocks make navigation dangerous without local knowledge.

(51) **Charts 17326, 17320.–Crawfish Inlets,** with entrances 6.5 to 11.5 miles NW of North Cape (56°36'N., 135°08'W.), consist of two principal arms connected about 5 miles inland by Cedar Pass. The inlets and entrances are generally deep and clear, but between the two principal entrances are off-lying dangers.

(52) **Walker Channel** is the SE entrance to Crawfish Inlet, and **Aspid Cape,** low and wooded, forms the SE point at the entrance.

(53) **Jamboree Bay,** with a depth of 5½ fathoms in the entrance, extends SE from the head of Walker Channel. In entering, keep in midchannel, and anchor near the head of the bay in 10 to 17 fathoms with good holding ground. SE winds sweep through the anchorage with considerable force.

(54) **Rakof Islands** are a group of wooded islands between Walker Channel and the entrance to West Crawfish Inlet. **Beauchamp Island,** the largest island of the group, forms the NW side of Walker Channel. **Scow Island,** the SW island of the group, is W of Beauchamp Island.

(55) **Scow Bay** indents the W shore of Beauchamp Island and is much used by local fishermen as an anchorage. Favor the SE shore when entering the bay, passing S of all the islands near the entrance. It is reported that the safe channel in the narrows leading to a basin at the head of the bay is very close to the S shore. There is good anchorage off the point about 0.8 mile above the entrance on the N shore of the bay in 10 fathoms, mud bottom; also in the basin in 2½ to 3 ¼ fathoms, mud bottom.

(56) **Middle Channel** is a passage leading to Crawfish Inlet from the sea, midway between Walker Channel and West Crawfish Inlet. Setting a course from SW, to pass close to the NW side of Scow Island, then adjusting course as necessary to clear the island, islets, and rocks N of Scow Island will lead clear of the dangers up to this entrance. One mile inside this entrance, near midchannel, is a submerged rock with 1½ fathoms over it and marked by kelp, which should preferably be passed to the S.

(57) **Biali Rock,** bare and white, is the extreme W islet of a chain of bare islets that extend W from Rakof Islands. Foul ground extends for about 1 mile S and E of the rock. **South Rocks** are a group of rocks, awash at high water, near the SE limit of the foul ground.

(58) An inside passage furnishes protection for small craft bound for Sitka. Pass E of Scow Island, avoiding the rock in midchannel, and through **Cameron Pass.** Favor the SE shore of Middle Channel until up to **Second Narrows.** Pass E of a large rock off the point, then favor the S shore, and take a midchannel course through the narrows. A shoal of 2½ fathoms is in Second Narrows. Head N until up to an opening leading NW. Favor the NE shore of this opening, passing a rock near the shore and avoiding a submerged rock in the center. Then head NE for about 0.6 mile and turn W around a point, passing in midchannel through **First**

Narrows. Cross West Crawfish Inlet and enter Windy Passage.

(59) **Crawfish Inlet** is deep and clear except for a rock that uncovers 3 feet in midchannel, about 3.5 miles from its junction with Walker Channel, Middle Channel, and Cedar Pass. The inlet can be entered from seaward through Walker Channel or Middle Channel; the former is safer.

(60) **Cedar Pass,** connecting Crawfish Inlet with West Crawfish Inlet, is suitable only for small craft. In using the pass, favor the W shore up to the narrows, then keep a midchannel course. **Lodge Island** is the large island that forms the W side of Cedar Pass.

(61) **West Crawfish Inlet** extends NE for about 8 miles where it divides into two arms. The N arm, opposite Cedar Pass, is clear in midchannel except for a landslide shoal with 4½ fathoms over it, which is off the W shore about 0.8 mile from the entrance. **Shamrock Bay** leads E from a point near the head of the inlet. The inlet and bays are too deep for good anchorage.

(62) **Necker Islands** are a group of low, wooded islands that extend NW from the entrance to West Crawfish Inlet. Between the islands are many passages. An inside passage for small craft leads through Windy Passage, Dorothy Narrows, and Hot Springs Bay, which are between the islands and Baranof Island.

(63) The most prominent landmark in the Necker Islands is **The Beehive** (56°46.9'N., 135°24.0'W.), a knob 430 feet high at the SW end of **Golf Island,** the long narrow island W of Gornoi Island.

(64) **Rachek Island** is the fairly large wooded island at the S end of the Necker Island group. It has high light-gray cliffs on its seaward side. There is clear water to the SW of this island.

(65) **North Rock** is an isolated black rock, block-shaped, and awash in a heavy sea, 1.4 miles W of Rachek Island. Fishermen are known to trawl S of this rock.

(66) **John Rock** is the large light-gray rock, 2 miles NW of North Rock. Broken ground, with several isolated breaking shoals, is between North Rock and John Rock.

(67) **Windy Passage** is the S approach to Hot Springs Bay from West Crawfish Inlet. A midchannel course is clear.

(68) **President Bay** is at the SE end of Windy Passage. By keeping in midchannel, entrance to the bay can be made on either side of the wooded islands in the entrance. Good anchorage, with mud bottom, is afforded small craft well toward the head of the bay. A basin at the head of the bay is accessible only to skiffs.

(69) **Sevenfathom Bay,** 0.7 mile N of President Bay, affords better anchorage than President Bay. When entering, keep in midchannel until near the head of the bay. A ledge that uncovers 8 feet is off the S shore about 0.2 mile from the head of the bay. This ledge, which bares, has a sand flat 100 yards wide. Good anchorage for small craft in 5½ to 8 fathoms, mud bottom, can be found in the bay.

(70) **Big Bay,** at the NW end of Windy Passage, is narrow at the entrance, with greatly increased width inside. Anchorage is good in 5 to 10 fathoms, mud bottom, 0.3 mile off the stream at the SE end of the bay.

(71) **Dorothy Narrows,** between Windy Passage and Hot Springs Bay, has ½ fathom of water at lowest tides. Elovoi Island Rock uncovers 3 feet in midchannel N of the narrowest part, and is marked by a daybeacon. Coming from the S, keep midchannel through the narrowest part, then swing right to avoid the rock. When past Elovoi Island Rock, swing left to avoid a rock awash at half tide, 250 yards NE of the daybeacon. Local knowledge is essential.

(72) The passage between **Gornoi Island** and the group of islands SE of it is clear except for a rocky islet and two rocks awash off the SE side of Gornoi island. To avoid this danger, favor the SE side of the passage. Do not use this passage to reach the outside because of offshore rocks.

(73) The passage between Gornoi Island and Golf Island is very foul and should not be used.

(74) The passage along the W shore of Golf Island, between this island and the **Jackknife Islands,** has good water close along the shore of Golf Island. A foul area extends NE of the Jackknife Islands. The shoals W of the S end of Golf Island break in a slight swell.

(75) The passage between the Jackknife Islands and **Elovoi Island** is clear if vessels keep close to Elovoi Island, passing W and N of the wooded islet 0.3 mile W of the N end of Golf Island.

(76) The passage between **Legma Island** on the E and **Maid Island** and **Tava Island** on the W is clear in midchannel. Small craft can pass between Maid Island and Tava Island with local knowledge.

(77) The passage between **Torsar Island** and **Fragrant Island** is dangerous and should not be used except with local knowledge.

(78) These passages are for small craft only and should be used with caution. The only ship route into Windy Passage is through West Crawfish Inlet.

(79) The best route into Hot Springs Bay from the S or SW is to pass 0.4 mile E of North Rock in a N direction, passing W of Elovoi Island and the three small wooded islands about 400 yards off its shore and E of Fragrant Island. Keep midway between visible objects.

(80) **Herring Bay** indents Elovoi Island. The approach W of Kirbas Island is impassable. In entering by the approach E of **Kirbas Island,** pass W of a bare 20-foot rock off the E point of the entrance and follow midchannel. Excellent anchorage can be had for small craft in 3 to 4 fathoms, mud bottom.

(81) **Biorka Island** is the most westerly and largest of the Necker group. **Point Woodhouse,** the S point of the island, is moderately high and wooded. Rocks and small islands are close to the point. Three of the small islands are named **Kaiuchali Island, Terbilon Island,** and **Impassable Island.**

(82) **Little Biorka Island** is NW and close to Biorka Island with a narrow passage between. This pass is foul, but in good weather small boats can use it with local knowledge. The S neck is a bare, rugged rock cliff. The W and N sides are bare rock cliff. This island is wooded in its center. A bare islet is at the S point.

(83) **Vasilief Rock,** awash at high water, is about 1 mile S of Point Woodhouse. Breakers are reported visible in this section in rough weather.

(84) **Golovni Island,** about 2.4 miles SE of Point Woodhouse, has two parts. The inshore half is high and wooded; the outer half is a high, bare, gray rock, rounded on top, with a perpendicular S face.

(85) **Jacob Rock,** about 0.8 mile S of Golovni Island, is a large, outstanding, dark-gray rock.

(86) **Biorka Channel,** SE of Biorka Island, furnishes a short route into Sitka Sound from the SW. The towers of the aero radio range on Biorka Island are prominent when making Biorka Channel from N or S; flashing red lights mark these towers at night. Vessels should keep between the 50-fathom curves on entering from S until past the N end of Wrangell Island, then head N. This channel is clear except for rocks and shoals as shown on the chart. The velocity of the current is about 0.4 knot. (See the Tidal Current Tables for predictions.)

(87) **Gunboat Rock,** about 1.2 miles NE of Vasilief Rock, has two pinnacles and looks like a gunboat when seen from certain directions. The rock is a good landmark. A small

reef awash, which breaks in all but dead calm weather at high water, is 0.45 mile 198° from Gunboat Rock. Depths of 3¾ and 8½ fathoms are 0.6 and 0.7 mile SE and on the opposite side of the channel from Gunboat Rock. Broken ground with rocks awash extend about 0.3 mile N of Gunboat Rock.

(88) **Symonds Bay** is the E cove indenting the N side of Biorka Island, and is sometimes a convenient anchorage for small vessels deterred from entering the sound by thick weather. **Entrance Islet** is N of and close to the W point of the entrance.

(89) **Hanus Islet** is N of and close to the E point of the entrance. The depths range from 20 fathoms at the entrance to 4½ to 6¼ fathoms at the anchorage near the head of Symonds Bay. The chart shows the dangers in the bay.

(90) The bay is open N, but affords anchorage with shelter from S winds, sand and shell bottom. The best shelter is near the head inside the ¼-fathom rock in 4½ to 6¼ fathoms, but it is suitable only for small craft. Large vessels should anchor in midchannel just inside the entrance in 12 to 13 fathoms.

(91) A U.S. Government wharf, a mooring buoy, and a seaplane float are on the W side near the head of Symonds Bay. The wharf, 178 feet long and with a 16-foot face, had a reported depth of 6 feet alongside in 1976. Biorka Island maintains telephone communication with Sitka. Water is available on the island.

(92) **Biorka Reef** is 1.2 miles 283° from the southernmost point of Little Biorka Island. The reef is a rock awash, with deep water around it, and breaks in moderate weather; it has no kelp. The channel between the reef and Little Biorka Island is about 1 mile wide, clear, and practicable for vessels of any size.

(93) **Hot Springs Bay** (56°50′ N., 135°23′W.) is between Elovoi Island and Baranof Island. **Torsar Island** marks the NW point of the entrance to the bay. **Fragrant Island** is the large island SE of Torsar Island. **Kolosh Island** is the large island on the N side of the bay.

(94) The hot springs on the NE side of the bay have a temperature of about 145°F., and the water contains chlorine, iron, magnesia, and sulphur.

(95) **Chart 17320.–Sitka Sound** has its entrance from the sea between Biorka Island and Cape Edgecumbe. It extends in a N direction about 16 miles, with a width E and W of 5 to 10 miles. The E and N shores are fringed with numerous islands and rocks and indented by bays and inlets. At its N end, the sound connects with several bays and estuaries that extend N, and with Olga Strait, which is part of a navigable inland passage connecting Sitka Sound, through Neva Strait and Peril Strait, with Chatham Strait. The shores are wooded, rendering it difficult to distinguish them from the wooded islets at a distance. Land along the shore usually rises rapidly a short distance from the sea, culminating in broken mountains. The islands are mostly small, low, and sparsely wooded.

(96) **Charts 17325, 17320.–Cape Edgecumbe,** about 64 miles NW of Cape Ommaney, is the SW extremity of **Kruzof Island.** The cape is formed by a cliff of black lava, about 100 feet high. Foul ground extends 400 yards off the shore of the cape, and there are banks with depths of 8 to 9 fathoms, about 0.8 mile S of the cape, on which the sea breaks in very heavy weather. The rocks and cliffs N of Cape Edgecumbe are decidedly black as far as Cape Georgiana, whereas those S of Cape Edgecumbe, from Biorka Island to Whale Bay, are whitish-gray. These color characteristics are of considerable assistance in identifying the locality in thick weather.

(97) **Cape Edgecumbe Light** (56°59.9′N., 135°51.4′W.), 100 feet above the water and shown from a square frame with a red and white diamond-shaped daymark, marks the N side of the entrance to Sitka Sound. A 19-fathom bank about 4.6 miles SW from Cape Edgecumbe is on the range with St. Lazaria Islands, slightly open of Shoals Point.

(98) **Sitka Point** is about 1 mile SE of Cape Edgecumbe Light. Foul ground extends about 0.3 mile S from the point and about 0.2 mile W of Cape Edgecumbe Light. The water is clear outside these reefs. Fishing vessels frequently anchor on the E side of Sitka Point close inshore and N of the reef, marked by kelp, that extends 300 yards off the E side of the point. This anchorage is exposed in E or S weather.

(99) **Mount Edgecumbe,** on Kruzof Island, is the prominent landmark for Sitka Sound. From any point seaward, it is easily distinguished by its isolated position, its flat top, it peculiar streaked appearance, and its reddishness. The upper part is a bare volcanic cone, usually snow-covered. Extending down the sides of the cone are numerous deep gullies or ravines, in which the snow lies until late in the summer, giving it a peculiar appearance. The crater is 300 to 400 feet deep.

(100) **St. Lazaria Islands,** about 1 mile off the S shore of Kruzof Island, form the St. Lazaria National Wildlife Refuge. These islands are of a peculiar volcanic formation and are frequently visited by tourists. Deep water is close-to on all sides of the islands except for a reef that extends about 125 yards off the NE point of the easternmost island. Small craft frequently anchor close inshore in 8 to 10 fathoms, rocky bottom, on the N side of the island, which affords protection in moderate S weather.

(101) **Low Island** is a bare flat island, surrounded by a large area of shoals and breakers marked by kelp, which extends to Shoals Point. The highest part of the island is only 7 feet above high water and is swept by heavy seas in S storms. The island is of lava formation partly covered by sand and shells and is difficult to identify at a distance.

(102) **Charts 17326, 17320.–Vitskari Island,** about 10 miles E of Cape Edgecumbe, is a bare rock about 20 feet high. It is marked by **Vitskari Island Light** (57°00.0′N., 135°32.7′W.), 50 feet above the water, and shown from a skeleton tower with a red and white diamond-shaped daymark. A racon is at the light.

(103) **Vitskari Rocks** are a group of bare rocks and rocks awash NW of Vitskari Island. Between the rocks and Low Island is a channel 1 mile wide; however, the channel between the island and Kulichkof Rock is always used by vessels bound for Sitka.

(104) **Camel Mountain** (56°52.2′ N., 135°20.0′W.), on the SE side of Sitka Sound, is a prominent landmark with two humps at its summit. When seen from W it shows a perfect cone-shaped outline.

(105) **Peisar Island** is about 2.5 miles NE of Biorka Island. Rocks are 0.2 to 0.5 mile offshore.

(106) **Viesokoi Rock** is about 0.7 mile SE from the S extremity of Peisar Island.

(107) The entrance to **Kanga Bay** is about 1.9 miles E of Peisar Island, and the inner bay has depths of 10 to 21 fathoms. The channel passes NE of the small islet about midway between the entrance and the head of the bay. Foul ground extends 0.2 mile in a NW direction from the S point of the entrance to the bay.

(108) **Redoubt Bay** is NE of Kanga Bay. The head of the bay has two arms, which are deep. **Redoubt Lake** empties into the E arm. The entrance to Redoubt Lake is not navigable by any type craft, because the entrance has the remains of a rock dam across it and the lake level is about 9 feet above high water level of the bay. The entrance to the lake has very steep rapids. A boat lift has been built along the N side of the entrance so that small boats up to 16 feet can be lifted into the lake. The U.S. Forest Service maintains the boat lift.

(109) **Islet Passage,** in which depths of 11 to 29 fathoms are found, leads from Kanga Bay to Redoubt Bay. **Fankuda Islet** is at the N end of the passage. Soundings of 18 fathoms were found W of the islet and 13 fathoms in the channel to the E. Various channels lead into Redoubt Bay and Kanga Bay through the numerous wooded islands off the entrances; these are shown on the chart. A daybeacon on a rock awash, about 0.4 mile W of **Round Island,** marks the W side of **Koka Island Passage,** which is part of the inside route for small vessels between Sitka and Hot Springs Bay. **Kita Island** is the outermost of the larger islands of the group off **Povorotni Point** (56°57.2'N., 135°24.0'W.), which is low and wooded.

(110) Many islets and rocks are offshore between Povorotni Point and Cape Burunof. Submerged rocks extend about 0.4 mile W of Cape Burunof; many isolated rocks are even further offshore. The entire area of rocks and islets should be navigated with caution. Use latest edition of the chart.

(111) **Vasilief Bank,** marked by two rocks that uncover 10 feet, about 0.5 mile apart and awash at high water, is about 1.5 miles W of Povorotni Point.

(112) **Local magnetic disturbance.**–Differences of as much as 4° from normal variation have been observed on **Obsechki Island,** which is about 1.2 miles NW of Povorotni Point.

(113) **Kulichkof Rock,** steep–to and bare, is about 2.2 miles N of Vasilief Bank. It is a prominent landmark. A small group of rocks, awash at high water, is about 0.2 mile N of the rock, and 0.2 mile WNW is a rock covered 1 foot that breaks in a moderate swell. Rocky patches, usually marked by some kelp at low water, are charted E. A lighted bell buoy, about 0.5 mile NNW from the rock, marks the E side of the main channel to Sitka.

(114) **Zenobia Rock,** with 2¼ fathoms over it, is about 2 miles ENE of Kulichkof Rock and about 1 mile WSW of **Liar Rock,** the westernmost rock of The Eckholms.

(115) The shoreline from **Caution Island** (56°56.2'N., 135°21.6'W.) N to Deep Inlet is rocky with heavy spruce timber growing to the storm high-water line. Many off-lying islets, and rocks, awash and submerged, are found along this coast, making it dangerous to traverse without local knowledge. A pass, carrying 1 fathom at low water, is used by small boats and fishing craft between Povorotni Point and the islets off it, but should not be attempted without local knowledge.

(116) **Three Entrance Bay,** the long narrow shallow bay S of Cape Burunof with three entrances, is a protected anchorage for small boats, but is seldom used. The N entrance is the best and will carry 1¼ fathoms. In W weather, all entrances are exposed to the open sound. Do not use this bay without local knowledge.

(117) **Pirate Cove,** the first cove NE of Cape Burunof, is a protected anchorage at the head, but is constricted and shoal. Two to three small boats can anchor.

(118) **Samsing Cove,** the second cove E of Cape Burunof, is a well-protected anchorage for small boats with easy access from the W side and good holding ground of mud and sand in 2 to 8½ fathoms.

(119) **Sandy Cove,** the cove E of Samsing Cove and SW of the entrance to Deep Inlet, is a protected anchorage for small craft in 5¼ to 9¼ fathoms, mud and sand bottom.

(120) **The Eckholms** are a small group of islets and bare rocks at the entrance to Eastern Channel, about 1.8 miles NNE of Cape Burunof; the easternmost islets are wooded. **The Eckholms Light** (57°00.6'N., 135°21.5'W.), 33 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark, marks the islets. The **Belknap Islands** are close SE of The Eckholms.

(121) **Deep Inlet,** which has a narrow entrance SE of The Eckholms, has no anchorage. A large flat rock with ¼ fathom over it is on the S side and partly blocks the entrance.

(122) **Aleutkina Bay,** N of the entrance to Deep Inlet, offers fair anchorage in 15 to 17 fathoms, mud bottom. The bay has two entrances. The W entrance, between **Emgeten Island** and **Error Island ,** is clear, and a midchannel course will lead to the anchorage. The E entrance is between **Fassett Island** and **Silver Point,** and a midchannel course will likewise lead safely to the anchorage.

(123) **Leesoffskaia Bay,** joined with Aleutkina Bay to the SW by a narrow passage, affords anchorage for small vessels in any desired depth. The entrance is about 250 yards wide. Vessels desiring to make use of this well-sheltered anchorage should follow the N shores close-to in order to avoid the extensive sand and mudflats bordering the S shores. The bottom is mud in the middle of the bay, but rocky near the shores.

(124) **Camp Coogan Bay,** on the SE side of Eastern Channel, about 3.5 miles E of The Eckholms Light, has a narrow, but clear, entrance, and a landlocked anchorage inside for small vessels in 6¾ to 14 fathoms, mud bottom. Several streams enter at its head, where a flat makes out about 0.2 mile.

(125) **No Thorofare Bay,** N of Camp Coogan Bay, is composed of two landlocked bodies of water connected by narrow, shallow channels. Only small boats can enter and then only at high-water slack, because of strong currents in the outer narrows. High water is ¾ hour later than high water at Sitka; low water is 2½ hours later; for high-water heights subtract 3.8 feet from the high-water height at Sitka. Shoal depths of ¼ fathom are off the entrance and in the outer narrows, and a rock awash at high water is on the S side of the outer narrows near the inner end.

(126) **Birdsnest Bay** is a small shoal bay between Camp Coogan Bay and No Thorofare Bay. A small foul passage connects with Camp Coogan Bay, but can be used only by small boats at half tide or more. Use this passage only with local knowledge.

(127) **Silver Bay,** at the E end of Eastern Channel, extends in a NE direction for 0.8 mile, then SE about 4.4 miles. A light on **Entry Point** on the W side, marks the entrance to the bay. Unlighted log rafts, moored close to shore, extend about 2.2 miles from Sugarloaf Point. On the opposite side of the bay log rafts extend from Herring Cove to Bear Cove. Smoke from the pulpmill in Sawmill Cove can be seen in the bay.

(128) **Sawmill Cove,** at the N end of Silver Bay, about 1 mile above the entrance, is the site of a large pulpmill with wharves on the W side of the cove. The facilities for Sawmill Cove are described later in this chapter under wharves for Sitka.

(129) **Herring Cove** is on the N side of Silver Bay, about 1.5 miles within the entrance. In 1976, the entire bay was used for log storage. At times, small craft can tie up to the log storage booms. Mariners should pass with caution the 1½-fathom spot in the middle of the entrance.

(130) **Bear Cove** is on the E side of Silver Bay, halfway up the SE arm. Most of this cove, in 1976, was used for log storage, and like Herring Cove, small craft at times can tie up to the log storage booms.

(131) **Arguello Island** is a small island on the S side at the head of Silver Bay. Anchorage in 15 fathoms can be had W of the island. Enter to the W of the island, because a 1¼-fathom shoal is in the middle of the passage S of the island. Small vessels can anchor in 8 fathoms, with a constricted swinging area, about 0.2 mile SSE of the island. During NE and S winds, anchorage is poor in the SE end of Silver Bay.

(132) **Charts 17327, 17320.–Sitka Harbor and approaches.**–The greater part of the approaches to Sitka Harbor covers the NE side of Sitka Sound. The area is reef studded, with numerous wooded islands and isolated shoals. These are charted and need no detailed description because they lack outstanding or prominent features. Lights mark the principal islands in the approaches or at the turns in channels; buoys mark the reefs and shoals in way of the channels. The harbor is easy to approach, and with due attention to the chart and by following the aids, the navigator should have little difficulty in entering in clear weather.

(133) **Japonski Island,** wooded, is the largest island in the approaches to Sitka. There is a wharf along its E side. **Sealing Cove,** a shallow basin off the SE end of the island, is formed by **Charcoal Island** and **Alice Island** on its SW and S sides, and by **Harbor Island** on its E side. The entrance to the basin is marked by a light and daybeacons. The submerged ruins of a pier are on the SW side of the entrance and extend more than half way across the entrance. These islands are connected to Japonski Island by landfills. The runway of the Sitka airport extends SE along the SW side of Japonski Island, thence over a landfill to the S end of Charcoal Island, (locally called **Fruit Island**). An aerolight is shown from near the NW end of Japonski Island.

(134) **Mount Edgecumbe** is an unincorporated community on Japonski Island. The State of Alaska maintains a large school with the necessary housing for students and staff on the island.

(135) **Channel Rock Light 8** (57°03.6'N., 135°22.1'W.), 26 feet above the water, is shown from a skeleton tower with a triangular red daymark, on the rock that is almost in midchannel at the NW entrance to Sitka Harbor.

(136) **Sitka,** the site of an early Russian settlement and once the capital of Alaska, is a major fishing port on the E side of Sitka Sound. Sitka is the main distribution point for the settlements in the NW section of SE Alaska. Two oil companies, a large pulpmill, and several seafood processing plants are here. Sitka also has a National Military Cemetery, a National Monument, and the Alaska Pioneer Home. The deepest draft of vessels calling at the port in 1976 was 30 feet.

(137) **Prominent features.**–The white building of the Indian Health Service Hospital, at the NW side of Mount Edgecumbe, on Japonski Island, the lighted towers of Sitka-Mount Edgecumbe (John O'Connell) Bridge, a grey cement silo on the NW side of Jamestown Bay, and the aerolight at the airport, on the W side of Japonski Island, are the most prominent objects when approaching the harbor.

(138) **Channels.**–From the sea, three natural channels lead to Sitka among islands and reefs on the NE side of Sitka Sound. **Eastern Channel** is the widest and main entrance; the principal dangers are marked by buoys. **Middle Channel** has its entrance between Kayak Islands and Passage Islands; it is not recommended. **Western Channel** is used by vessels that enter from the sea and wish to go alongside a wharf heading SE; the channel has its entrance W of Makhnati Island.

(139) A Federal project provides for a channel 22 feet deep and 150 feet wide on the E side of Harbor Rock. The channel marked by lighted buoys on the W side of Harbor Rock has a controlling depth of about 26 feet and a width of about 120 feet.

(140) In 1962–1966, vessels have reported striking submerged objects in the channel W of Harbor Rock between Lighted Buoys 9 and 11. In 1966, shoaling also was reported in the same area; extent of shoaling is unknown. Caution is advised in transiting this area.

(141) **Anchorages.**–Anchorage in 7 to 20 fathoms, mud bottom, can be had at the **Eastern Anchorage** about 0.4 mile SW of the entrance to Jamestown Bay. The swell from outside makes this anchorage uneasy in S weather.

(142) Anchorage can also be had at the **Western Anchorage,** E of Channel Rock, but it is not very convenient, because of its distance from the landing.

(143) During the winter NE gales sometimes sweep across the Eastern Anchorage with considerable force and make it rather unsafe. In S gales the sea is felt considerably at both the Eastern and Western Anchorages.

(144) **Whiting Harbor,** W of Japonski Island, affords anchorage in about 12 fathoms, mud bottom, with Japonski Island Aero Light (57°03'14"N., 135°21'52"W.) bearing 040°, distant 0.4 mile. This anchorage is exposed to W and NW winds and swells and is seldom used, because most vessels prefer the Eastern Anchorage at Sitka.

(145) **Jamestown Bay,** about 1.5 miles E of Sitka, affords anchorage in 9 to 12 fathoms, mud bottom, about 400 yards offshore and 300 yards W of the rocks, awash at high water, in the NE part of the bay.

(146) Other anchorages may be used by large ships, and many others are suitable for small fishing vessels and other small craft, provided local knowledge is obtained regarding off-lying rocks and dangers. One of the best ship anchorages is just off the channel courses for the NW approach to Sitka. The average depth is 8 fathoms, mud bottom, with Channel Rock Light 8 bearing 289°, distant about 0.2 to 0.3 mile.

(147) **Dangers.**–There are numerous rocks, reefs, and shoals in the approaches to Sitka Harbor, all of which are charted; most are unmarked, but the principal ones adjacent to or in the three channels are marked.

(148) Passage N of Simpson Rock and Tsaritsa Rock should be avoided, because of the numerous obstructions S of Kayak Islands, Whale Island, and **Bamdoroshni Island.**

(149) In September 1987, a 9-fathom shoal spot was reported about 1.1 miles NE of Bamdoroshni Island, 300 yards N of Rocky Patch in about 57°01'57.5"N., 135°17'53"W.

(150) Middle Channel has numerous shoals and dangers and should be used only by small vessels with thorough local knowledge. The passage between Kayak Islands and Whale Island is foul and the bottom very irregular. A ¾-fathom depth is near the center of this passage.

(151) **Harbor Rock,** marked by a daybeacon, is in the NW part of Sitka Harbor in about 57°03'14"N., 135°20'47"W. Boulders with 3 fathoms and 2¼ fathoms are about 140 yards 125°, and 250 yards 135°, respectively, from Harbor Rock. These boulders are close to and E of the courses followed by ships; caution is advised.

(152) **Bridges.**–The Sitka–Mount Edgecumbe (John O'Connell) Bridge is a fixed highway bridge with a clearance of 52 feet and crosses the S entrance to Sitka Harbor from Harbor Island to the vicinity of Castle Hill in Sitka.

(153) **Tides.**–(See the Tide Tables for predictions at Sitka.)

(154) **Currents.**–In the open sound the tidal currents are weak and somewhat rotary turning clockwise. Stronger currents may be expected among the islands.

(155) In Sitka Harbor the flood sets NW and the ebb SE. Velocities are small. In midchannel off the wharves velocities of 0.5 knot were observed. (See the Tidal Current Tables for daily predictions.)

(156) **Weather.**–Winter is the most difficult season. With temperatures around the freezing mark, E and SE winds blow more than 50 percent of the time from October through February; southeasterlies average 10 knots or more. Calms occur 14 to 18 percent of the time, compared to 20 to 25 percent from May through September when NW winds are frequent. Visibilities are worst in winter and summer; precipitation is most frequent in fall. Snow falls from November through April. (See page T–3 for **Sitka climatological table.**)

(157) **Pilotage.**–Except for certain exempted vessels, pilotage is compulsory for all vessels navigating the inside waters of the State of Alaska. (See Pilotage, chapter 3, for details.)

(158) Vessels en route Sitka meet the pilot boat about 0.25 mile N of The Eckholms Light (57°00.6′N., 135°21.5′W.).

(159) The pilot boat, a tugboat, can be contacted by calling "SITKA PILOT BOAT" on VHF-FM channels 16, 13, or 12.

(160) **Towage.**–Tugs up to 2,200 hp are available 24 hours a day at Sitka for assistance in docking and undocking. They are equipped with VHF-FM channels 16, 13, and 12. Arrangements for tugs should be made well in advance through ships' agents.

(161) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(162) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) The Indian Health Service maintains a large, well-staffed hospital on Japonski Island; it is available to the public in emergency cases. Sitka also has a community hospital.

(163) Sitka is a **customs port of entry.**

(164) **Coast Guard.–Sitka Coast Guard Air Station** is at Sitka Airport on the NW part of Japonski Island. A Coast Guard vessel is stationed at Sitka.

(165) **Wharves.**–The wharves for Sitka are on the W side of Sawmill Cove, in Sitka Harbor, and in Starrigavan Bay. All wharves except the U.S. Coast Guard Wharf and the Alaska State Ferry Terminal are privately owned and operated.

(166) Alaska Lumber and Pulp Company Dock (57°02′44″N., 135°13′44″W.): on W side of Sawmill Cove; 500-foot face; depth alongside, 28 feet; deck height, 20 feet; water and electrical connections are available; four 8-ton forklift trucks are available; 78,490 square feet of covered storage is available; pulpmill machine shop can be used in an emergency; shipment of pulp; owned and operated by Alaska Lumber and Pulp Company, Inc.

(167) Alaska Lumber and Pulp Company Transfer Bridge and Chlorine Dock (57°02′48″N., 135°13′40″W.): 268 feet with dolphins; 15 feet alongside; rail connections to the pulpmill; receipt of chemicals; owned and operated by Alaska Lumber and Pulp Company, Inc.

(168) Alaska Lumber and Pulp Company Utility Dock (57°02′52″N., 135°13′39″W.): 170-foot face; 35 feet alongside; pipelines extend to tank farm in rear; special purpose crane is on dock; receipt of wood chips; owned and operated by Alaska Lumber and Pulp Company, Inc.

(169) Chevron U.S.A. Wharf (57°02′55″N., 135°20′20″W.): most S wharf on the E side of Sitka Harbor, about 75 yards N of the Sitka-Mount Edgecumbe Bridge; 150-foot face; depth alongside, 30 feet; deck height, 25 feet; pipelines extend to tank farm in rear; receipt of petroleum products by barge; owned and operated by Chevron U.S.A., Inc.

(170) Sitka Sound Seafoods Wharf (57°03′06″N., 135°20′33″W.): about 475 yards NW of the bridge on the E side of the harbor; 195-foot SW face, SE side 440 feet long, NW side 365 feet long; 36 feet alongside the face; 22 feet along the SE and NW sides; water is available; SE side of wharf used to berth tugs; seafood processing and freezing plant at rear; six hoists to ¾-ton, and one 2- and three 1-ton forklifts are available; receipt and occasional shipment of seafood; mooring, fueling, and icing fishing vessels; owned and operated by Sitka Seafoods, Inc.

(171) Fresh Fish Co. Wharf (57°03′11″N., 135°20′38″W.): about 670 yards NW of the bridge on the E side of the harbor; 110-foot face with 15 feet alongside; deck height, 17 feet; receipt of seafood, mooring fishing boats and small craft; operated by Fresh Fish Co.

(172) Seafood Producers Cooperative Wharf (57°13′15″N., 135°20′42.5″W.): 228-foot face; depth alongside, 16 feet; deck height, 20 feet; four 1½-ton hoists, and three 1- to 3-ton capacity forklifts; receipt and occasional shipment of seafood, icing fishing vessels; owned and operated by Seafood Producers Cooperative.

(173) Sitka City Dock (57°03′18″N., 135°20′49″W.): 350-foot face; depth alongside, 18 feet; deck height, 20 feet; shipment of fish, and mooring of vessels; owned and operated by the City of Sitka.

(174) Sitka Fuel Dock (57°03′19″N., 135°20′50″W.): about 350 yards NW of Sitka City Dock; offshore steel float with 60-foot face; depth alongside, 12 feet; receipt of petroleum products, bunkering vessels; pipelines extend to storage tanks at rear, total capacity 13,000 barrels; one 4- and two 2-inch pipelines extend to metered pumps on float; owned and operated by Sitka Fuels, Inc.

(175) U.S. Coast Guard Wharf (57°03′01″N., 135°20′37″W.): about 340 yards NW of the bridge on the W side of the harbor; 223-foot face; 42 feet alongside; deck height, 25 feet; water and electrical connections are available; berthing for U.S. Coast Guard and other Government vessels; owned and operated by U.S. Government.

(176) Darrin Barge Landing (57°07′01″N., 135°23′30″W.): about 4.8 miles N of the bridge at the S side of an unnamed cove; 343 feet of berthage, with dolphins; 10 feet alongside; three 15-ton hand winches are available; 2 acres open storage; one 25-ton forklift; a 12-foot and a 16-foot steel ramp; receipt and shipment of containerized cargo; operated by Foss Alaska Line and owned by Dorothy Darrin.

(177) Alaska State Ferry Terminal (57°07′47″N., 135°22′50″W.): about 5.6 miles N of the bridge, on the S side of Starrigavan Bay; 450 feet of berthing, with dolphins; 30 feet alongside; 35-ton transfer bridge; transport passengers and vehicles; bus transportation to Sitka is available from the terminal; owned and operated by the State of Alaska, Division of Marine Transportation.

(178) Sampson Tug and Barge Company Dock (57°07′47″N., 135°22′36″W.): about 5.8 miles above the bridge, 300 yards E of the ferry terminal on the S side of Starrigavan Bay; 190-foot face; 30 feet alongside; receipt and shipment of containerized general cargo and moorage and repairs to company tugs; owned and operated by Sampson Tug and Barge Company.

(179) **Supplies.**–Provisions, fishing supplies, and limited amounts of marine supplies are available in Sitka. Diesel fuel, gasoline, distillates, lubricating oils, and greases can be obtained at the wharves of the oil companies. All of the wharves have water; and ice for fishing vessels can be obtained at the Conway Corporation Wharf.

(180) **Repairs.**–There are no drydocking or major repair facilities for large vessels in Sitka or in southeastern Alaska. The nearest facilities are in British Columbia and the State of Washington. A marine railway is on the NW side of Jamestown Bay, about 1.6 miles E of Sitka. The railway can handle craft up to 80 feet long, 28-foot beam, and draft not exceeding 8 feet, for self repairs.

(181) A boatyard immediately W has a 50–foot bulkhead with 18 feet alongside, and a 236–foot float and a 46–foot float for craft being repaired. A 3–ton hoist and a 12-ton forklift can handle boats up to 26 feet long for repairs to fiberglas hulls and engines. Marine supplies and dry storage are available.

(182) The city–operated grids, 80 feet and 96 feet long, are close NE of the City Float and 0.2 mile N of the bridge. Water, in summer, and electricity are available. There is a 72-hour limit on the grids.

(183) A privately owned and operated repair facility for tugs is on the S side of Starrigavan Bay. A grid inshore handles craft up to 500 tons and 110 feet long for a 3-hour maximum time limit, for hull repairs. This grid is available for public use only in an emergency. Also at the facility is an independent machine shop that can do limited shaft repairs and complete diesel engine repairs. Several machine shops and an electronic repair shop are available at the Sitka waterfront for minor repairs.

(184) **Small-craft facilities.**–The city operates four small-boat basins and two grids at Sitka. A fourth basin is operated by the U.S. Forest Service. These facilities are on the E side of the harbor, except for the city-operated small-boat basins in Crescent Bay and Sealing Cove. The city **harbormaster** with an office at the City Float enforces a 3-knot **speed limit** and a no-wake law in the city basins and a 5-knot **speed limit** in the main harbor channel makes berth assignments in the city basins, and controls the use of the grids. The harbormaster can be contacted on VHF-FM channel 16 (156.80 MHz) and by telephone (907-747-3439).

(185) The Crescent Bay Boat Basin, on the N side of Crescent Bay is about 0.35 mile ENE of the E end of Sitka-Mount Edgecumbe Highway Bridge. A Federal project provides for a 10-foot depth in the basin. In May 1987, the controlling depth was 10 feet in the entrance channel and basin. A 4½-foot shoal spot is on the S edge of the entrance channel about 45 yards NW of the W breakwater light. The 10-foot project depth was reported to be alongside the floats in the basin in 1976. The basin is entered at the SW end between two breakwaters, which have their ends marked by lights. A shoal, marked by a buoy, is about 100 yards S of the W breakwater light. The floats can accommodate 500 small craft. Electricity is available, but water can be had only in the summer. No transient moorage is available. A boat-launching ramp is at the SW end of the basin.

(186) Sealing Cove Boat Basin is at the SE end of Japonski Island between Mount Edgecumbe and Alice Island. In May 1987, the controlling depth was 8 feet in the entrance channel; a light and daybeacons mark the entrance channel. Transient berths, electricity, water, and a launching ramp are available in the basin.

(187) A 50-foot small-craft fuel float with a depth of 12 feet alongside is on the NW side of the Standard Oil Company Wharf.

(188) The U.S. Forest Service Basin is the most southerly on the E side of the harbor just N of the Standard Oil Company Wharf. A Federal project provides for a 10-foot deep basin. In 1977, the basin was at project depth. The basin is used by vessels of the U.S. Forest Service and other Government agencies in the area.

(189) The City Float, a divided basin with a N and S section, each with its own entrance, is on the E side of the harbor directly opposite the Government Wharf on Japonski Island. The basin is protected on the channel side by a log boom breakwater. In 1976, a depth of 6 feet was reported in the entrance channels and alongside the floats. There are 97 berths and 10 transient berths at the floats. Water and electricity are available.

(190) A 90-foot small-craft fuel float is on the NW side of the Sitka Sound Seafoods Wharf.

(191) Thomsen Harbor (Thomsen Boat Harbor), protected by an L-shaped floating breakwater, is the most northerly basin on the E side of Sitka Harbor, about 330 yards NNW of Harbor Rock Daybeacon. In 1976, depths in the basin were reported to range from about 30 feet in the entrance and the W part of the basin to about 6 feet along the E side of the basin. About 260 craft can be accommodated alongside the floats where water and electricity are available. Transient berths are available. A boat-launching ramp is at the S end of the harbor.

(192) In July 1987, a wreck was reported just W of the entrance to the basin in about 57°03′21″N., 135°20′59″W.

(193) **Communications.**–Sitka has regular passenger, express, and freight service to Puget Sound ports, British Columbia, and other Alaska ports and towns by water and air. The Alaska Marine Highway System, operating from Starrigavan Bay, about 5 miles N of the city, has daily ferry service during the summer to Juneau, Haines, Skagway, Petersburg, Wrangell, Ketchikan, and Prince Rupert, B.C., and weekly service to Kake, Hoonah, and Seattle. The schedule is less frequent during the winter. In addition to the scheduled airlines, other air services operate from Sitka on a charter basis. Radiotelephone and telephone communications are maintained with the other States and other parts of Alaska.

(194) The **National Military Cemetery** is about 0.3 mile N of Crescent Bay.

(195) **Sitka National Historical Park,** 57 acres in area, is E and W of the entrance to Indian River. It is the site of the Indian stockade where the Tlingit Tribe made their last stand against the Russian settlers.

(196) **Charts 17324, 17320.–Watson Point** (57°04.0′N., 135°21.8′W.) is on the E side of the NW approach to Sitka Harbor, about 0.9 mile NW of Harbor Rock. A rocky ledge extends about 150 yards off the point. When approaching Sitka Harbor from the NW, exercise care to give this point a berth of about 300 yards, and pass about 50 yards W of the lighted buoy about 350 yards S of the point.

(197) **Kasiana Islands** are a group of islands on the W side of the NW approach to Sitka Harbor. A reef, well marked by kelp, extends about 0.6 mile SE of the easternmost island and terminates in a rock awash. The rock awash is on a line from the E tangent of the islands to the middle of Battery Island, and is almost midway between them.

(198) **Halibut Point,** on the E side of the channel, is about 2.4 miles NW of Watson Point.

(199) **Old Sitka Rocks** are a group of rocks that bare at all stages of the tide and extend 0.5 mile from the E shore. The N and largest one has two or three scraggy trees, and the rest are bare. The westernmost rock of the group covers only at highest tides and is marked by **Old Sitka Rocks Light 2** (57°06.9′N., 135°24.7&′W.), 30 feet above the water and shown from a skeleton tower with a red triangular daymark. The main channel is W of Old Sitka Rocks, but a narrow channel is between them and an island near the shore. The shore from Old Sitka Rocks to Western Anchorage should not be approached closer than 300 yards.

(200) The channel passing W of Old Sitka Rocks and E of Middle Island and Kasiana Islands is the main channel for all vessels southbound for Sitka via the inside route. This route contains deep water and the only danger is a 5-foot rocky shoal, marked by a buoy on its E side, about 0.6 mile SW of Halibut Point.

(201) **Starrigavan Bay** is a bight, open W, on the E side about 1.5 miles N of Old Sitka Rocks, and just S of the entrance to Katlian Bay. "Old Sitka," now a State Historical Monument, is on the point dividing the two coves on the E side of the bay. In 1799, the Russian fort of St. Michael stood on this point. The N cove is filled by a flat, and a rock that bares is 150 yards off the N shore W of the end of the flat. The anchorage is abreast the S cove, about 400 yards from shore, in 18 to 20 fathoms, soft bottom. W winds and some sea have a fair sweep into this bay. State-owned and operated fish pens are anchored on the NE side of the bay; mariners are advised to use caution in this area.

(202) The Alaska State Ferry Terminal is on the S shore of Starrigavan Bay. In 1976, depths of 30 feet were reported alongside the terminal. Bus transportation between the terminal and Sitka is available.

(203) A private barge facility with a 12-foot and a 16-foot steel ramp is on the SW shore of the small cove, about 0.7 mile ENE of Old Sitka Rocks Light 2 and about 0.5 mile S of Starrigavan Bay. Containerized cargo is handled at the facility. (See wharves at Sitka for a detailed description of the facilities in this area.)

(204) **Katlian Bay** has its entrance about 2 miles NNE of Old Sitka Rocks and extends in a NE direction, curving E near its head. There are no dangers except a flat that extends about 0.2 mile from the head of the bay. At 2.5 miles within the entrance to the bay an arm extends NW; fair anchorage can be had in this arm NW of the group of islands on the N side in 11 to 20 fathoms, and very small vessels can anchor in **Cedar Cove,** the narrow part at the head of this arm, in 4¼ to 7 fathoms.

(205) **Promisla Bay,** on the NW side of Sitka Sound about 1.3 miles W from **Siginaka Islands,** indents the SE shore of Krestof Island. There is a small wooded island in its entrance with a bare rock about 0.2 mile E of the island. The depths in the bay are 15 to 21 fathoms, and a fair anchorage can probably be had near its head in 16 fathoms, mud bottom, with good protection in almost any weather.

(206) **Olga Strait,** between **Krestof Island** and **Halleck Island,** is 4 miles long in a NW direction, with an average width of 0.2 mile, and forms a part of the inside route from Sitka to Salisbury Sound. It is in general clear, with a controlling depth of 4 fathoms in midchannel. On both sides of the channel are small flats where streams empty and the shores are fringed with kelp except off these flats. In Olga Strait the current sets NW on the flood and SE on the ebb. Off **Creek Point** the velocity is 1.6 knots on the flood and 1.2 knots on the ebb. (See the Tidal Current Tables for daily predictions.) About 100 yards off Eastern Point is a rock with a least depth of 5 feet. About 0.8 mile within the SE entrance is a shoal about 300 yards across with a least depth of 20 feet, marked by a light. It extends about two-thirds of the way across the channel from the SW shore. Scattered kelp grows all over the shoal.

(207) **Middle Shoal** is 2.2 miles from the SE entrance to Olga Strait, midchannel between two small streams, one on each side. It is 400 yards long in the direction of the channel, with lumps having 18 to 22 feet over them. At the N end of the shoal is a lighted buoy, and a daybeacon is at the S end. Kelp grows all over the shoal, but usually shows only at slack water.

(208) **Nakwasina Sound** separates the E side of Halleck Island from Baranof Island. It extends from the S entrance of Olga Strait in a general NE direction and connects with Nakwasina Passage. The sound is contracted at its S end to about 0.2 mile by **Crosswise Islands** and **Beehive Island.** Small vessels can anchor in the cove W of Beehive Island in 5 to 6 fathoms.

(209) **Nakwasina Passage** separates the N side of Halleck Island from Baranof Island. It has a NE direction for about 1.9 miles from the N entrance of Olga Strait, then it takes an E trend for about 3 miles to where it joins Nakwasina Sound. The W part of the passage is about 0.8 mile wide, with about 15 to 20 fathoms, affording anchorage. The navigable channel is winding and constricted in places to 30 yards by extensive flats. The limits of the channel are distinguishable at low water. The controlling depth in the best channel is about 10 feet; this passage is suitable only for small craft. In Nakwasina Passage the currents are, in general, too weak or variable to be predicted. However, in the channel about 1.5 miles W of **Allan Point,** the current velocity is 2.0 knots on the flood and 1.6 knots on the ebb. (See the Tidal Current Tables for daily predictions.)

(210) **Krestof Sound** is W of Krestof Island and connects Neva Strait with Sitka Sound, through Hayward Strait. **Sound Islands** are at the NE part of the sound. The sound is out of the line of travel and is of no commercial value. At its NW end the sound connects by a high-water passage with Sukoi Inlet. At its S end the sound is filled by **Magoun Islands,** with a narrow channel E and W of them and a boat channel through them. **East Channel** is clear in midchannel; the dangers are shown on the chart. **West Channel** should not be attempted except by small craft.

(211) **De Groff Bay** opens N of East Channel; its entrance is narrow, has a depth of 3¾ fathoms, is overgrown with kelp, and should only be attempted by small craft. **Port Krestof** is a broad bight on the S side of West Channel; an anchorage can be had in 6 to 13 fathoms, taking care at high water not to get on the flat that fills the S end of the port to a distance of about 0.5 mile out to an islet 12 feet high. A better anchorage can be had in **Mud Bay,** W of the Magoun Islands, taking care to avoid the 3-foot shoal about 130 yards off the SE point of the bay. Two private mooring buoys are in Mud Bay. **Hayward Strait,** connecting East Channel with Sitka Sound, has a good channel through it, but the shores are fringed with rocks and reefs, especially at its S entrance, where they extend almost to midchannel from the W side, and well off from the shore on the NE side.

(212) A microwave tower, that can be seen from Hayward Strait and Sitka Sound, is on a hill about 2.6 miles W of the N entrance to Hayward Strait.

(213) **Currents.**–The flood current enters Krestof Sound from Sitka Sound through Hayward Strait and from Salisbury Sound through Neva Strait and, when the water has risen high enough, through Sukoi Inlet. They meet somewhere in the sound. (See the Tidal Current Tables for daily predictions of places in the entrance to the sound from Hayward Strait.)

(214) **Neva Point Reef** extends about 75 yards S from Neva Point on the E side of the S entrance to Neva Strait. It is marked by **Neva Point Reef Light 12** (57°14.1'N., 135°33.1'W.), 17 feet above the water, with a red triangular daymark on a pile off the point.

(215) **Neva Strait** between Baranof Island and **Partofshikof Island,** together with Olga Strait, is the inside route between Salisbury Sound and Sitka Sound. The strait is narrow throughout and foul and requires careful piloting especially in **Whitestone Narrows.**

(216) A Federal project provides for a channel dredged to a depth of 24 feet through ledge rock in Whitestone Narrows. In February 1988, the controlling depth was 14 feet (24 feet at midchannel). The channel is marked by a light, lighted and unlighted buoys, and a **345°** lighted range.

(217) In Neva Strait the flood current sets generally S and ebb current N. The current velocity is about 1.4 knots. (See the Tidal Current Tables for daily predictions.)

(218) **Whitestone Cove,** NE of **Whitestone Point,** is a good anchorage with depths from 5 to 7 fathoms.

(219) The limits of the channel in Neva Strait are well marked with thick kelp that shows when the current is weak. At low water the limits are best defined by bare rocks and kelp. The dangers in the strait are charted and well marked by aids.

(220) **Columbine Rock,** about 3 feet high and marked by a daybeacon, is close to the W shore about midway through the strait. A shoal, covered 2 feet, on the opposite side of the channel, is marked by a lighted buoy. **Wyvill Reef,** covered at high water, and marked by a lighted buoy, is about midway between Columbine Rock and Highwater Island.

(221) **Highwater Island,** wooded and prominent, is connected with the E shore at low water. Anchorage for small craft is found SE of Highwater Island in 8 fathoms. A rock, with 3½ fathoms over it and marked by a lighted buoy, is midway between the W side of Highwater Island and the W shore. The main channel between the island and the buoy is about 125 yards wide.

(222) **Entrance Island,** small and wooded, is close to **Zeal Point. Entrance Island Light 24** (57°17.5'N., 135°36.3'W.), 30 feet above the water and shown from a skeleton tower with a red triangular daymark on the SW point of the island, marks the N entrance to Neva Strait.

(223) **St. John Baptist Bay** is to the E of Entrance Island. The NE shore is clear and bold for 1 mile, then is irregular with two small bights that are flats at low water. The SW shore from Entrance Island to where the bay narrows is irregular with deep water close by the points. A timbered islet is 200 yards off the SW shore and 0.6 mile SE of Entrance Island, with rock ledges that are covered at high water and extend to the next point. S of the islet the bight is clear, furnishing good anchorage for small craft in 7 fathoms. After this point is passed, the SE shore is clear except for flats from small streams.

(224) Anchorages for moderate-sized vessels are near the center of the narrow part of the bay in 11 to 15 fathoms, and on the N side just NW of the narrow part in 19 fathoms. This bay is open to the sea through Salisbury Sound, which gives prevailing NW winds a clear sweep to the anchorages. In SE weather the bay is said to be subject to severe williwaws that make the anchorages undesirable.

(225) **Gilmer Cove** is on the SW shore 1.2 miles NW of Entrance Island. It is 250 yards long by 75 yards wide, with a flat 150 yards wide at the head, and is a fit anchorage only for small craft in 7 fathoms.

(226) **Kane Islands** are two low and wooded islands with several rocks and reefs close-to, except on the SE side, where they extend 300 to 400 yards in a direction parallel to the channel. They are surrounded with kelp and have good water close to their edges. The rocks on the SE side of the easternmost island are covered with grass. The channel is good on either side of the islands, but the NE side is always used, because it is more direct.

(227) **Kane Islands Light 25** (57°19.4'N., 135°39.8'W.), 40 feet above the water and shown from a square frame structure with a green square daymark on the E side of the E Kane Islands, marks the NE channel.

(228) **Sukoi Inlet** has its N entrance about 0.8 mile W of Kane Islands and affords good anchorage. At its head it connects at high water by a canoe passage with Krestof Sound. The inlet is comparatively clear until near its head, but the shores are foul. Anchorage may be selected in any place desired, according to depths of water and swinging room required. The best anchorage is about 2.5 miles inside the entrance, opposite a small stream and flat on the W side, in 7 to 10 fathoms. Only small craft should go into the narrow part of the inlet beyond this point.

(229) **Scraggy Islands** are 1.8 miles NW of Kane Islands Light 25 and 0.5 mile from the SW shore. The largest island is scantily wooded with two clumps of trees. Ledges with bare heads extend 0.4 mile SSE from the island. The channel SW of the island is not recommended. The island is surrounded by ledges that bare to a distance of 100 to 200 yards.

(230) **Charts 17325, 17320.**–The W coast of Kruzof Island trends N and is indented by Shelikof Bay and Gilmer Bay. Mount Edgecumbe occupies the S third of Kruzof Island and is an unmistakable landmark for this part of the coast. There are no hidden outlying dangers until Cape Georgiana is reached. Submerged rocks do exist in the bays and bights along this coast. The 100-fathom curve is 8 miles from shore abreast Cape Edgecumbe, 12 miles abreast Cape Georgiana, and the soundings decrease regularly to the coast.

(231) The shore from Cape Edgecumbe to Neva Bay rises in a precipitous cliff of brown lava and forms a prominent landmark. Numerous large caves or blowholes are to be seen in this lava cliff. From Neva Bay to Beaver Point the shore is lower and rises in gradual wooded slopes. The shore between Cape Edgecumbe and Beaver Point is fringed with ledges that extend 0.1 to 0.5 mile offshore, and shoal water, marked by thick kelp, extends from 0.2 to 0.5 mile offshore. The bottom slopes regularly out to beyond the 50-fathom curve and is uniformly rocky. There are no dangers more than 0.5 mile offshore.

(232) **Neva Bay,** 2.5 miles N of Cape Edgecumbe, is open to the sea and the entrance is choked with kelp; it is of no importance to navigation.

(233) **Beaver Point,** 5.5 miles N from Cape Edgecumbe, is low and wooded and forms the S point to Shelikof Bay. A reef, marked by thick kelp and having numerous rocks that bare, extends for 0.8 mile N of Beaver Point. The open bight, close E of the point, is full of rocks and kelp.

(234) **Shelikof Bay,** with depths ranging from 10 to 20 fathoms, is open W, and is not recommended as an anchorage. Off Beaver Point and along the S shore kelp grows thick out to 6 and 10 fathoms. In the SE corner is a sand beach 1.5 miles long. The N side of Shelikof Bay is foul with numerous rocky islets and ledges that extend 0.3 to 1 mile offshore.

(235) **Port Mary,** at the head of Shelikof Bay, has general depths of 3 to 5 fathoms except at its N end where it is shoaler. A large rock, about 20 feet high, is off the S entrance point. The only known danger in Port Mary is a rock awash 300 yards off the SE shore and 0.7 mile NE of the S entrance point. Small craft can find protected anchorage in S weather in the small bight, with a high rock in its center, on the SE side of the port.

(236) Small vessels can find partially protected anchorage in the bight called **Cuvacan Cove,** on the N side of Shelikof Bay, about 1.6 miles E of Slaughter Island, and E of a group of islands and W of a bold, wooded point. To enter the cove, pass S and E of the group of islands and anchor in 3 to 4 fathoms, sand bottom.

(237) **Goleta Cove** is on the N side of Shelikof Bay, about 1.1 miles E of Slaughter Island. The cove affords protected anchorage for small craft and is much used by local fishermen. A large bare rock is in the middle of the entrance, and the passage E of the rock is choked with other rocks and kelp. A rock that bares at half tide is in the middle of the W passage. To enter, pass very close W of the large bare rock and E of the rock that bares at half tide.

(238) **Point Mary,** the N point at the entrance to Shelikof Bay, is high and wooded. **Slaughter Island,** off Point Mary, is grass-covered and connected with the shore at extreme low water. Rocks that bare at various stages of the tide are off the E, SW, and W sides of the island.

(239) **Point Amelia** (57°13.5′N., 135°52.4′W.), 13.7 miles N of Cape Edgecumbe, is the NW point at the entrance to Gilmer Bay, and is the most prominent point between Cape Edgecumbe and Cape Georgiana. The point is the terminus of a peninsula. Two small knolls are at the seaward end; the inner one is wooded and the outer one a cone-shaped rock. Rocks bare at half tide are about 200 yards offshore. In the bight 2 miles NNE of Point Amelia is a conspicuous sand beach 0.4 mile long.

(240) **Gilmer Bay** is on the SE side of Point Amelia. About 1 mile inside Point Amelia the bay contracts to 0.6 mile wide; it then expands to 1 mile, and terminates in a narrow arm.

(241) The anchorage for large vessels is in midchannel, halfway up the narrow arm in about 15 fathoms, sticky bottom. In summer the swell does not come much beyond the entrance of the arm, but there is no record of the value of the anchorage in winter gales. The bight on the SE side of the bay affords the best anchorage for craft up to 150 feet long. An anchorage, E of the reef, has depths of 5 to 6 fathoms, hard bottom.

(242) A submerged rock is on the E side in the approach to the bay, on line from Point Amelia to a white rocky islet about 58 feet high and close to the E shore. The rock is about 0.4 mile from the islet, has 3½ fathoms over it, and shows a breaker at low water with a moderate swell.

(243) Approaching from S, give the E shore a berth of over 0.8 mile to clear the submerged rock off Slaughter Island and the submerged rock described above. Otherwise, there are no dangers and a midchannel course leads safely through the bay.

(244) **Sealion Islands** are 3.5 miles N of Point Amelia. They are five in number, the easternmost about 0.8 mile from shore. The two largest are grass covered, the E one has a number of dead trees. The easternmost of the group is partially covered with grass; the remaining two are bare rocks.

(245) **Eagle Rock** is about 1.6 miles N of the westernmost Sealion Islands and 1.4 miles SSW of Cape Georgiana. It is dome-shaped and bare.

(246) **Sealion Cove** is a small cove about 2 miles SSE of Cape Georgiana. A sand beach at the head is almost 1 mile long. A small peninsula forms its S point.

13. SALISBURY SOUND AND PERIL STRAIT

(1) This chapter describes Salisbury Sound, Hoonah Sound and Peril Strait, the inside passage from Chatham Strait to Sitka, via Neva Strait and Olga Strait.

(2) **Chart 17320.**–Weekly scheduled mail and passenger vessels bound from Wrangell, Petersburg, Juneau, or Skagway to Sitka pass through Peril Strait and Salisbury Sound and then proceed S through Neva Strait and Olga Strait. Under adverse conditions, when coming S from Juneau or Skagway, they sometimes pass through Icy Strait and Cross Sound, then outside to Salisbury Sound before entering Neva Strait. Sergius Narrows in Peril Strait is a difficult passage to make under any conditions, because of its narrowness and strong tidal currents and eddies. Passage through Sergius Narrows should only be attempted at slack water and preferably at high-water slack, and with local knowledge. Small craft, barge, and ship traffic is heavy through the narrows; caution is advised.

(3) **Weather.**–Salisbury Sound is open to prevailing wind and sea from the Gulf of Alaska, whereas Peril Strait is sheltered somewhat by Chichagof Island. In the sound, SW swells frequently roll in and break along the N shore, sometimes reaching Baranof Island. Winds often draw through Salisbury Sound and into Peril Strait, which, because of its orientation, is susceptible to both strong southeasterlies and northerlies. These winds are most likely from October through February. Heavy fog sometimes moves into the sound but frequently disappears at the mouths of Fish Bay and Neva Strait. Occasionally, the fog reaches Peril Strait as far as Sergius Narrows and sometimes fills the strait N of the narrows.

(4) **Chart 17323.–Salisbury Sound** has its entrance from the sea 200 miles NW of Dixon Entrance and connects Peril Strait and Neva Strait with the Pacific Ocean between Cape Georgiana and Klokachef Island. About 1.8 miles from the E end, the channel is contracted to 1 mile by Goloi Islands on the N side and Sinitsin Island on the S. Vessels bound for Sitka from Cross Island, Yakutat Bay, and the coast W commonly enter through Salisbury Sound, as the distance is less than by way of Cape Edgecumbe and that route puts them sooner into smooth water.

(5) The shores of the sound are foul, especially the N side, which is studded with islands, rocks, and reefs with some kelp. It is open to the prevailing wind and sea, and generally a SW swell rolls in and breaks along the N shore, sometimes reaching Baranof Island. There are no dangers through the middle of the sound, but the depths are irregular and the bottom rocky; banks with depths of 6 to 20 fathoms have been found in the middle of the entrance.

(6) The country back of the N shore is steep and rugged. The S shore is more undulating, though quite high near the ocean, and is covered with trees from the top to the water's edge.

(7) Approaching Salisbury Sound from seaward, especially from W, it is sometimes difficult for a stranger to recognize the entrance until close-to. The bare, rugged mountains on the N side of the sound are prominent, and the sand beach at the head of Sealion Cove (see also chart 17325), 2 miles S of Cape Georgiana, is at times useful in identifying the cape.

(8) **Currents.**–The current from the sea sets E on the flood into Salisbury Sound, Peril Strait, and Neva Strait. The ebb current sets W. The current velocity is 1 to 1.5 knots. (See the Tidal Current Tables for daily predictions.)

(9) **Cape Georgiana** is the S point at the entrance to Salisbury Sound. **Mount Georgiana,** 1,383 feet high, is a rounded hill, about 0.7 mile E of the cape. About 2 miles SE from the cape is the first prominent peak that, from S and W, seems to rise gradually from the low point by a series of steps. This is a prominent landmark from SW for Salisbury Sound.

(10) **Sea Rock** is an irregular, bare ledge, about 6 feet high, 0.6 mile NW of Cape Georgiana. **Morskoi Rock,** 0.6 mile W of Sea Rock, has 1 fathom over it, is not marked by kelp, and has the sea usually breaking over it. The rock is marked on its NW side by a seasonal buoy.

(11) A deep channel is between these two rocks, and between Sea Rock and the cape, but neither is recommended. Strong tide rips are found around the cape and these two rocks when the wind is from NW or NE, whereas with S winds the rips are more prevalent around **Point Leo,** on the N side of the entrance to the sound.

(12) **Klokachef Island,** on the N side at the entrance to Salisbury Sound, is of triangular shape. On its S side, bare cliffs, 900 feet high, have the appearance of the N half of a crater and are prominent from well out to sea to the SW. Bare reefs extend from the S and W sides of the island. At the E point are several bare rocks and **Vincent Reef** that extends about 0.4 mile S and generally has the sea breaking over it. From the NW point of the island the **Fortuna Reefs** extend as a partially submerged reef for 600 yards NW to two bare rocks; and thence from these rocks for 0.5 mile W as a submerged reef, showing some kelp and always a breaking sea. Klokachef Point, the S point of Klokachef Island, is the N point at the entrance to Salisbury Sound and is marked by **Klokachef Island Light** (57°24.2'N., 135°54.3'W.), 85 feet above the water and shown from a square frame with a red and white diamond-shaped daymark.

(13) **Olga Rock,** about 1.2 miles W of Klokachef Point, on line with Klokachef Point and the N shore of Salisbury Sound, has ½ fathom over it and, except at high water and a very smooth sea, always shows a breaker. Deep water is between Klokachef Island and the rock.

(14) **Kalinin Bay,** on the S side of Salisbury Sound 2.5 miles inside the entrance, has anchorage near its head that is used by fishing craft, but its narrow entrance is obstructed by rocks. Large craft should favor the SW shore in approaching the entrance in order to avoid a 3¼-fathom kelp-marked shoal off the entrance. Favor the W shore in entering until up to the first bend, then steer midchannel courses. A large rock awash is about 100 yards off the E shore at the narrowest part of the channel, just before the bay widens to form the main anchorage. Another rock awash is close E.

(15) A submerged rock with 1 fathom over it, and usually marked by a halibut float during the summer, is 100 yards off the W shore and about 100 yards NW of the large rock awash. Also marking this site is the ruins of a building with stub piling that extends 10 yards offshore. Strangers should enter at half tide or low water, passing about 30 yards W of the large rock. Well-protected anchorage in any weather can be found near the head of the bay in 4 to 5 fathoms, soft mud bottom.

(16) **Sinitsin Island,** low and wooded, is about 0.8 mile E of the entrance to Kalinin Bay, and is the farthest projection

on the S side of Salisbury Sound. It should not be approached closer than 0.2 mile on its N side and 0.5 mile on its W side. Deep water extends close up to the E side of the island. Small craft sometimes pass between the island and Kruzof Island, but strangers should use this passage with extreme care.

(17) **Sinitsin Cove,** on the S side of Salisbury Sound 1 mile SE of Sinitsin Island, has deep water, an irregular, rocky bottom; its shores are fringed with ledges. In bad weather the swell rolls heavily into this cove.

(18) **Goloi Islands,** about 5.9 miles E of Klokachef Point and 0.5 mile off the N shore, are two in number and bushy; the N one is divided at high water; the S one has the appearance of a flattened cone. There are a number of other islands along and close to the N shore, but these and **Krugloi Islands,** 0.5 mile E, are the most prominent. These islands are surrounded by kelp rather close-to, and there is deep water close to the edge of the kelp on their S sides.

(19) **Round Island,** about 0.9 mile E of Goloi Islands, is wooded and close to the N shore of Salisbury Sound at the entrance to Peril Strait.

(20) **Chart 17320.–Peril Strait** is important as affording a frequently used passage from Salisbury Sound, and the waters S to Chatham Strait. Its total length is about 39 miles. From Salisbury Sound it extends in a general NE direction for 11.5 miles through Kakul Narrows, Sergius Narrows, and either Rose Channel or Adams Channel to Povorotni Island; this part of the strait is narrow, has frequent changes in direction, and strong tidal currents, and strangers, other than small craft, are advised to take a pilot. From Povorotni Island the strait has a general NE direction for about 4.5 miles to Otstoia Island, where it turns SE for 16 miles to Lindenberg Head, and then E for about 7 miles to Chatham Strait. Some of the more serious dangers are marked by buoys or lights. A pilot may sometimes be acquired at Sitka, Juneau, or Ketchikan.

(21) **Fog** from Salisbury Sound occasionally makes into Peril Strait as far as Sergius Narrows, and at times fills the strait N of the narrows.

(22) **Currents.**–The flood current from Salisbury Sound sets NE through Sergius Narrows and Adams Channel and meets the flood from Chatham Strait in the broad part of Peril Strait between Povorotni Island and Otstoia Island; the ebb current sets in the opposite direction. In Peril Strait the strongest currents are in Sergius Narrows, where the velocity is 5.9 knots on the flood and 5.5 knots on the ebb. For other places in the strait, the velocity of the current is between 1.4 and 2.5 knots. (See the Tidal Current Tables for daily predictions.)

(23) **Chart 17323.–Point Kakul,** the SE point at the entrance to Peril Strait from Salisbury Sound, is bold and wooded. **Kakul Rock,** with 2 fathoms over it and marked by kelp, is 275 yards W from the point. A lighted buoy marks the W side of the rock.

(24) **Kakul Narrows** forms the entrance to Peril Strait from Salisbury Sound. The narrows are deep, the dangers are marked by aids, and they are easily navigated. The narrows have been found clear as shown on the chart.

(25) **Salmonberry Cove** is a small bight on the NW side of Kakul Narrows where small craft can find indifferent and partially protected anchorage.

(26) **Brad Rock,** with about 1 fathom over it and marked by a buoy, is 175 yards from the NW side of Kakul Narrows, and about 0.2 mile W of the outer Channel Rock. There are heavy tide swirls through this narrow part of the strait. The buoy tows under when currents are strong.

(27) **Channel Rocks** extend 250 yards N from the S point at the N end of Kakul Narrows. The largest rock is about 3 feet high and close-to; N of it are two rocks that cover only at the highest tides. **Kakul Narrows Light 4** (57°22.4′N., 135°41.0′W.), 27 feet above the water, is shown from a skeleton tower with a red triangular daymark. A rock that bares is close N of the light. There is thick kelp close-to, N and E of these rocks.

(28) **Fish Bay** has its entrance on the E shore S of Sergius Narrows. Sand and gravel beaches show along the shores at low water, and at its head is a flat nearly 0.5 mile in extent. In 1976, a log storage was on this flat. The easternmost of the **Haley Rocks** in the entrance, are covered 4 feet and they are surrounded by kelp. A rock awash is 250 yards W of Haley Rocks. **Haley Anchorage** , 300 yards from the S shore and about 0.3 mile W of Haley Point, has depths of 18 to 20 fathoms, sand bottom, and affords fair shelter in S weather. **Haley Point** is a sand flat terminating in a high-water island.

(29) **Schulze Cove** is on the N side of Fish Bay. **Piper Island,** low and wooded, is in the entrance; the navigable channel, about 0.2 mile wide, is between it and the W shore; the channel on the E side of the island should not be attempted. The only danger in the approach to the cove is Haley Rocks. It is reported that SE winds draw through the cove with considerable force.

(30) In 1983, a log storage area occupied most of the cove. The log storage rafts are not easily discernible during periods of darkness or when visibility is reduced; caution is advised.

(31) **Suloia Bay,** W of the S entrance to Sergius Narrows, has anchorage for small craft near its head in 18 to 22 fathoms, rocky bottom. The shores are foul near the anchorage, contracting it somewhat, and it is not recommended. Swirls make well into the bay. **Suloia Point** , the S entrance point to the bay, is marked by a light. **Suloia Islet,** wooded, is in the bay 0.2 mile from the S side with rocks between. **Suloia Rock,** bare at low water, is 400 yards N of Suloia Islet.

(32) **Sergius Channel** is a 24-foot-deep and 450-foot-wide dredged channel that leads through Sergius Narrows. In January 1990, the controlling depth was 20 feet, except for 16 feet in the S outside quarter. The channel is marked by two buoys on the S side; one buoy marks a rock, covered 16 feet, and the other marks the N side of Wayanda Ledge, which makes into the S side of the channel. The channel between the buoys and the N project limits is about 300 feet wide. Mariners are advised to use caution. Vessels should pass through the narrows only at or near slack water, especially with the large tides, and preferably at high-water slack. At the strength of the current it is not safe for any vessel bound either way, especially long ones, between Francis Rocks and Liesnoi Shoal. With the smallest tides those with local knowledge pass through at all stages of the current.

(33) Mariners are advised to be on hand at least one-half hour before the predicted times of slack water in case abnormal conditions cause slack water to occur earlier than the stated times. If the current tables are not available, tide tables may be used. In Sergius Narrows the current turns N to S about 2 hours before the time of high water at Sitka and from S to N about 1 ¾ hours before the time of low water at Sitka. These are average times and do not take into consideration variations due to tidal inequalities as do the current table predictions.

(34) At the strength of the current the water is very much disturbed, heaving up over West Francis Rock, Prolewy Rock, and Wayanda Ledge in the middle and boiling and swirling in the channel, especially at the end where the

water is passing out. The channel is so narrow and the current so variable in direction that if a vessel gets a sheer she may be carried onto the ledges or shore before she can be straightened out. With a strong N flowing current a sharp deflection occurs at Shoal Point, which is dangerous, especially to long vessels bound S, as it sheers the bow E in the direction of Wayanda Ledge, and there is little room to straighten out again on the proper channel line. With a strong S-flowing current a similar sharp deflection occurs W of West Francis Rock, which is dangerous, especially to long vessels, bound either way, as it sheers the bow in toward the cove on the W side. (See the Tidal Current Tables for daily predictions in Sergius Narrows.)

(35) Vessels awaiting slack water at Sergius Narrows usually slow down before reaching it. If anchorage is desired when N of the narrows, Bear Bay is convenient for small vessels. Deep Bay is a much better anchorage, but its entrance is narrow.

(36) A small-craft channel that passes S of East Francis Rock and Rapids Island is narrow. The channel is used extensively by local fishermen and should only be used with local knowledge. The current is reported to be weaker in this channel than in the Sergius Narrows channel.

(37) **Rapids Island** is a small wooded island near the middle of Sergius Narrows. **East Francis Rock,** 350 yards SW of the SW point of Rapids Island, has a least depth of 1½ fathoms. **West Francis Rock,** marked by a lighted buoy, 400 yards WNW of the W point of Rapids Island, has leaf kelp that only shows at slack water. West Francis Rock and the immediate area surrounding the rock has a least depth of 21 feet. Mariners are urged to exercise caution in the area. Vessels pass NW of the rock. In this vicinity the swirls and whirlpools are very strong while the current runs S.

(38) **Prolewy Rock,** 0.1 mile N of the middle of the N side of Rapids Island, uncovers 8 feet. **Wayanda Ledge,** within the 4-fathom curve, extends about 150 yards N of Prolewy Rock into the S side of the channel about 180 feet; the NNE side of the ledge is marked by a buoy.

(39) **Sergius Narrows Light 9** (57°24.5′N., 135°37.9′W.), 17 feet above the water and shown from a skeleton tower with a green square daymark, is on the N side of the narrows.

(40) **Liesnoi Shoal,** about in midchannel 300 yards S of Midway Rock, has a least depth of 1¼ fathoms and is marked by a lighted buoy close to the edge of the kelp between the shoal and **Mountain Head,** and 400 yards from the latter. **Midway Rock,** grass covered, is awash at highest tides.

(41) **Point Siroi Island,** marked by a light, is about 0.8 mile NE of Mountain Head.

(42) **Bear Bay,** on the SE shore, has anchorage for small vessels only, but is convenient if awaiting slack water in Sergius Narrows. Enter in midchannel and anchor with **Arthur Island** in line with the SW side of **Bear Bay Island,** bearing N, in 13 to 18 fathoms, soft bottom. Vessels should not go above the range given to avoid swinging onto the ledge on the S side of the bay.

(43) **Deep Bay,** on the NW side of the strait between Big Island and Little Island, is a good anchorage, and the most convenient for large vessels N of Sergius Narrows while awaiting slack water in the narrows. **Grasstop Rock,** about 5 feet high, is midway between Big Island and Little Island, and is marked by a daybeacon. The best passage into the bay is between the rock and Big Island.

(44) To enter, keep the S side of Big Island aboard at a distance of 100 yards in passing Grasstop Rock, then follow a midchannel course into the bay and anchor 0.2 to 0.8 mile beyond the wooded islet on the N side, W of Big Island in 10 to 12 fathoms, soft bottom. A rock about 10 feet high, is 100 yards SE of Big Island, and kelp-marked rocks extend 100 yards SE of the rock.

(45) **Middle Point Rock,** marked by a light, is 300 yards W of **Middle Point** with a narrow channel between. The rock is covered at half tide. A ledge with 2 fathoms over it is 350 yards SSE of Arthur Island.

(46) **Yellow Point,** marked by a light, is about 0.6 mile N of Middle Point. A rock, bare at half tide and marked by a daybeacon, is 150 yards offshore, 0.3 mile E of Yellow Point.

(47) Wooded **Big Rose Island** and **Little Rose Island** are in midchannel 3 miles S from Pogibshi Point. **Adams Channel** is the passage E of them; **Rose Channel** is the passage W.

(48) **Rose Island Rock,** bare and marked by a light, is 200 yards off a bight on the E side of Big Rose Island. A light is 350 yards to the N.

(49) **Rose Channel Rock,** marked by a daybeacon, is 250 yards NW of Little Rose Island and 400 yards from the W shore. It is awash at highest tides and is a danger only when using Rose Channel.

(50) **Povorotni Island,** low and wooded, is 500 yards NNW of **Pogibshi Point** and is marked by a light on the NW end of the island. The island shows against a wooded highland in coming from N and is not readily seen until fairly close-to. A bare ledge is between the island and Pogibshi Point; the narrow passage between this ledge and the point is suitable only for small craft.

(51) **Poison Cove** has its entrance W of Povorotni Island. In 1976, a log storage area occupied most of the cove. Small craft desiring moorage can tie up to the log booms, although they are moved often.

(52) From Pogibshi Point the shoreline trends in a NE direction for about 5.5 miles to Nismeni Point, about 1 mile beyond Otstoia Island. (See also chart 17338.) **Deadman Reach** is the stretch of water off the flat between Otstoia Island and Pogibshi Point, about 2.2 miles from the latter. Anchorage may be made in several places along the shore.

(53) **Pogibshi Anchorage,** in about 20 fathoms, soft bottom, is in Goose Cove on the NE side of Pogibshi Point off the entrance to a small lagoon. **Favorite Anchorage,** in 17 fathoms, is about 1.2 miles SW of Otstoia Island and 0.2 mile from shore. Anchorage may also be made 0.4 mile SW of Otstoia Island.

(54) **Emmons Island** is about 5 miles N of Povorotni Island. A bar, which bares, extends W from the westernmost point of Emmons Island 0.3 mile into the channel between Emmons Island and Chichagof Island. Passage can be made in 9 to 15 fathoms by holding a midchannel course to within 0.5 mile of the westernmost point of Emmons Island; the course should then be shaped so as to hold the Chichagof Island shore aboard at about 300 yards while passing the bar.

(55) **Ushk Bay** has its entrance on the W side about 2.5 miles SW of Emmons Island. Secure anchorage may be found in the bay, in 18 to 20 fathoms, soft bottom. Log storage areas are near the head of the bay and along the S shore. Caution is advised during the periods of reduced visibility.

(56) **Hoggatt Reefs** are about 2.7 miles NE of Povorotni Island and 1.2 miles from the E shore. The largest and highest part of the reef at the E end is **Hoggatt Island,** a grass and sand islet covered only at highest tides. Ledges, covered at about half tide, are W of the island; and rocks, covered at ordinary high water, are S of it. The S end of the reef is marked by a light.

(57) **Dolph Rock,** which bares, is about 0.8 mile off the W shore at the entrance to Ushk Bay and 1.2 miles W of Hoggatt Island. In 1976, it was reported that the rock was only visible on extreme low tides.

(58) **Ford Rock,** which bares only at lowest tides, is about 0.8 mile N of Hoggatt Island and 1.5 miles W of Krugloi Islet, about in line between it and the N point at the entrance to Ushk Bay.

(59) **Otstoia Island,** low and wooded, with dead trees standing at its NE end, is 4.5 miles NE of Povorotni Island. **Otstoia Island Light** (57°33.7'N., 135°27.0'W.), 17 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the S end of the island.

(60) **Elovoi Islet,** small and wooded and marked by a light, and **Krugloi Islet,** small with a clump of trees in the middle, are close together about 0.6 mile W of Otstoia Island.

(61) **Charts 17323, 17338.**–A flat extends about 300 yards off the **Duffield Peninsula** shore constricting the channel between it and Otstoia Island to a clear width of about 150 yards. A lighted buoy, about 200 yards S of Otstoia Island Light, marks the edge of the flat. The channel has a depth of about 7¼ fathoms.

(62) **Cozian Reef,** with ¼ to 10 fathoms over it, extends about 0.7 mile NE of the NE end of Otstoia Island. The reef is marked near its E extremity by a lighted bell buoy.

(63) **Nismeni Point** is low and wooded and is about 1.1 miles E of Otstoia Island. A submerged rock is 200 yards from the shore and 0.5 mile W of Nismeni Point. A reef extends 0.4 mile E of the point.

(64) **Charts 17323, 17320.–Hoonah Sound** is the prolongation of Peril Strait NW of Emmons Island (57°36.0'N., 135°32.5'W.). **Vixen Islands,** a group of small islands, is about 0.5 mile to the NW of Emmons Island. They consist of two wooded islands; the northernmost island has an isthmus in the center almost dividing it from its low rocky NE side. A bar extends about 0.1 mile SW from the southernmost island. A midchannel reef, baring 5 feet, obstructs the passage between Emmons Island and the Vixen Islands. Ledges and shoal areas fringe the NW shore of Emmons Island. Small craft may make the passage in 3 to 10 fathoms by holding the wooded Vixen Islands close aboard at about 200 yards and staying well clear of the ledge that extends about 150 yards NE of the wooded and rocky northernmost island. **Moser Island,** about 2.5 miles NW of Emmons Island, divides Hoonah Sound into two arms, connected at high water at the NW end of Moser Island.

(65) **North Arm** is comparatively clear to within 2 miles of its head, where a rock, covered 3 feet, is midchannel surrounded by a shoal. The shoal extends for 0.6 mile SSE from an island on the N side of the arm. There is no safe passage between the island and the N shore of the arm. A restricted passage, usable by small craft, is available along the S shore of the island. To make the passage in 7 to 12 fathoms, keep the S shore of the island aboard at about 200 yards and 0.2 mile off the N shore of the arm until well past the island and rock. Passage may also be made in 30 to 35 fathoms along the S shore. Care should be taken to avoid the gravel bar, projecting 0.3 mile from the tree line, at the mouth of a stream on the S shore of the arm SSE of the island. A flat extends 0.5 mile from the head of the North Arm; a wooded island, with a ledge that extends about 0.2 mile E from its E shore, is near the center of the flat. The tidal flat is W of a N-S line through the middle of the ledge; anchorage may be made E of this line in 15 to 25 fathoms.

(66) **South Arm** extends NW about 5.5 miles along the S shore of Moser Island. On the S side of the arm, 1 mile within its entrance and just W of a wooded islet, is **Fick Cove;** the head and W edge of the cove are shoal. A rock quay projects from the S shore near the head, but is surrounded by a shoal that bares. Anchorage with minimum depths of 15 fathoms is found within the cove, E of a line running NW from the cabins on its E edge. A shoal extends 0.4 mile into the arm 1.5 miles NW of Fick Cove. Just to the N of the shoal the South Arm divides into two branches, Patterson Bay leading WSW and another small branch leading NNW.

(67) The N branch of the South Arm is clear to within about 1 mile of its head; a flat extends about 0.8 mile from the head. In the middle, about 1.8 miles within the entrance, is a rock that bares 9½ feet. Clear passage may be gained by staying about 200 yards off either shore when passing the rock; a ledge extends about 250 yards offshore from a point N of the head. Anchorage can be made 300 to 500 yards N of the rock in 13 to 16 fathoms. The N branch connects to the North Arm during tides greater than 12 feet, when the passage can be made by skiff.

(68) **Patterson Bay,** the S branch of the South Arm, has shoals fringing its NW side and a flat at its head. Near its entrance on the N, adjacent to Point Reynard, is a small, NW trending inlet (57°40.7'N., 135°42.9'W.), about 0.3 mile long, that offers anchorage for small craft in 3 to 8 fathoms in its center. **Douglass Bay** (57°41.0'N., 135°44.0'W.), just to the W around Point Reynard, affords anchorage in 5 to 12 fathoms. To enter, keep the E shore aboard at a distance of 200 yards to avoid the reef to the W, and anchor in the middle of the bay about 0.4 mile from the head. Near the center of the branch, opposite Douglass Bay is a 4-fathom pinnacle, the only obstruction in the central channel of Patterson Bay. Anchorage may be made near the head in 24 fathoms, but care should be taken to avoid the extensive tidal flats that extend 0.5 mile from the head.

(69) **Chart 17338.–Broad Island,** 200 feet high and wooded, is 2.1 miles NE of Otstoia Island and 0.5 mile off the N shore at the entrance to Hoonah Sound. **Broad Island Light** (57°35.1'N., 135°23.6'W.), 14 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the W side of the island. Passage may be made between Broad Island and Chichagof Island to the N. Midchannel depths range from 40 to 60 fathoms; a shoal extends 0.2 mile NE from Broad Island, and a bar extends 0.2 mile out from the tree line on Chichagof Island into the channel.

(70) On the N shore of Peril Strait, 2.5 miles E of Broad Island, a large landslide extends up the mountain side for several hundred feet.

(71) **Nismeni Cove,** on the E side of Nismeni Point, affords anchorage for small craft, with protection from S winds. To enter, keep the S shore aboard at a distance of about 200 yards to avoid the reef off Nismeni Point, and anchor in the middle of the cove about 0.3 mile from the head, in 6 fathoms, fair holding ground.

(72) **Peschani Point** is a low wooded point on the S side 2.8 miles NW of Rodman Bay. The point is marked by a light.

(73) **Rodman Bay,** on the S side 6 miles SE of Nismeni Point, offers good anchorage at its head. The wide mouth of the bay contains several shoal areas: **Rodman Rock,** with 1 fathom over it and marked by a buoy, is in the bay about 0.5 mile NW of the E point at the entrance; depths of 3 fathoms are found on an extensive shoal 0.9 mile W of Rodman Rock; shoals with depths of 1¾ fathoms extend out to 0.5

mile from the W shore about 0.7 mile S of Point Elizabeth, and from the S shore about 0.3 mile W of the entrance to Appleton Cove. Safe passage to the head of the bay may be gained by passing 0.2 mile to the N and W of Rodman Rock Buoy 1 until SW of the buoy; continuing, stay 0.6 mile off the S shore until S of Point Elizabeth, and follow a midchannel course up the narrow part of the bay to its head.

(74) **Point Benham** and **Point Elizabeth,** rounded wooded points, are, respectively, E and W of the entrance to Rodman Bay. Point Benham is marked by **Point Benham Light** (57°29.0'N., 135°11.9'W.), 19 feet above the water and shown from a square frame structure with a red and white diamond-shaped daymark.

(75) **Lauf Islands** are on the E side near the head of Rodman Bay. The anchorage is 0.2 to 0.3 mile SW of Lauf Islands in 14 to 15 fathoms, soft bottom. A midchannel course leads safely to the anchorage. Flats extend 0.5 mile from the mouth of streams that enter the SE and SW corners of the head of the bay. SW winds blow with considerable force through the pass at the head of Rodman Bay.

(76) **Appleton Cove,** about 1.5 miles inside Rodman Bay on the S shore, affords good anchorage and lee from seas for small craft though winds may be quite strong. The entrance channel is deepest E of center, about 0.1 mile off the E shore. Care should be taken to avoid a reef and foul area about 0.2 mile S of the SE corner of **Prince Island.**

(77) **False Island,** small and wooded, is connected to Chichagof Island by a rocky isthmus that covers only on extreme high waters. A log storage area occupies most of a small cove formed by False Island and the mainland. The cove opens to the NW and has depths ranging from 2 to 6 fathoms and offers protection for small boats from storms from all but the NW. Care should be given to avoid the submerged ledge that extends about 100 yards NW from the NW tip of the island.

(78) **Saook Bay** has its entrance on the S side of Peril Strait, 4 miles SE of Rodman Bay. **Paradise Flats** extend about 0.8 mile from its head. The bay affords a good and convenient anchorage with shelter from all winds. Water can be had from small streams.

(79) **Saook Point** and **Point Kennedy** are the N and S points of the entrance to Saook Bay. A depth of 2½ fathoms exists 0.4 mile off shore and 0.5 mile E of Point Kennedy.

(80) To enter, take a midchannel course until approaching the small islands on the SE side. Keep the islands and the SE shore at a distance of 150 yards to avoid two 2½-fathom shoals about 0.3 and 0.4 mile NW and WNW of the largest islands, and a sand and gravel flat that extends to midchannel from a small stream coming from a ravine in the W shore. The anchorage is in midchannel 0.6 mile S of this ravine, in 18 fathoms, mud bottom. There is a log raft storage buoy S of the anchorage, about 0.3 mile N of the flats in midchannel.

(81) **False Lindenberg Head,** steep and wooded, is on the N side of the strait, 2.3 miles NE of the entrance to Saook Bay.

(82) A bight is on the N shore of Peril Strait, about 1.5 miles ESE of False Lindenberg Head and about 0.8 mile NW of Lindenberg Head. A rock, covered 2¼ fathoms, is in, and slightly E of, the entrance to the bight.

(83) **Lindenberg Head** is a wooded knoll on a point projecting from the NE shore 2.2 miles E of False Lindenberg Head.

(84) **Lindenberg Harbor** is a small cove on the W side of Lindenberg Head and affords protection from N and E. The anchorage is in the middle of the cove in 12 to 15 fathoms, with indifferent holding ground. A private mooring buoy is in the W side of the harbor. In 1976, a log storage area was occupying most of the N side of the harbor.

(85) **Local magnetic disturbance.**–Differences of as much as 4° from the normal variation have been observed in Peril Strait from McClellan Rock to Point Thatcher.

(86) **McClellan Rock,** about 200 yards off Lindenberg Head, with no safe passage between, covers at highest tides. It is marked by **McClellan Rock Light** (57°27.2'N., 135°01.6'W.), 17 feet above the water, shown from a cylindrical pier with a red and white diamond-shaped daymark.

(87) **Hanus Bay** is a broad open bight in the S shore S of Lindenberg Head. At the W end of the bay are two coves; the S one almost bares, the N one has anchorage for small craft. Ledges that bare are about 200 yards off the N point of this cove and about 300 yards off the S point. Hanus Bay is not recommended for large vessels, because of its irregular bottom and exposed situation. A temporary anchorage might be made in its entrance. Small craft frequently anchor in the cove at the SE side of the bay in 3 fathoms, mud bottom. The anchorage is approached through the entrance E of **Dead Tree Island.** It offers no shelter during SE weather as strong winds draw through Portage Arm and are known to have blown small vessels out of the bay. The area is used for storage of log rafts. Care should be given to avoid a 1-fathom shoal 0.4 mile NNW of the N tip of Dead Tree Island.

(88) **Eva Islands,** close to the S shore and about 1.6 miles E of **Point Hanus,** have broken ground on all sides. A bare rock is about 400 yards N of the small wooded islet NW of Eva Islands, and a submerged rock is 600 yards NE of the same wooded islet. **Svenson Rock,** submerged and sparsely marked by kelp, is 0.5 mile W of the same wooded islet.

(89) **Fairway Island,** wooded and marked by a light, is about 2 miles NW of Point Thatcher. Submerged ledges with 1 to 2 fathoms over them exist at 0.6 mile and at 0.4 mile W of Fairway Island. Ledges, which are bare at low tide, extend 400 yards E of the island. S of Fairway Island the bottom is very irregular and there are several shoal areas.

(90) **Midway Reef** is about 0.4 mile long in a N direction. A rock awash is near the N end of the reef about 0.8 miles E of Fairway Island.

(91) **Traders Islands,** low and wooded, are 0.5 mile S of Fairway Island. **Thatcher Channel** is the narrow channel S of Traders Islands. A shoal sounding of 4¼ fathoms is in midchannel, 1.85 miles WNW of Point Thatcher. The Traders Islands and Catherine Island should be given a 250-yard berth when going through Thatcher Channel. The chart is the guide.

(92) **Local magnetic disturbance.**–Differences of as much as 4° from the normal variation have been observed in Peril Strait from McClellan Rock to Point Thatcher.

(93) **Point Thatcher,** the S point at the E entrance to Peril Strait, is low and wooded, and terminates in a ledge 250 yards long, with three bare heads. A rock with 2¼ fathoms over it is 0.6 mile N of Point Thatcher, and a submerged feature of 6½ fathoms is 0.7 mile NW of the point.

(94) **Point Craven,** the S point at the entrance to Sitkoh Bay, is 1.4 miles N from Fairway Island. **Point Craven Light** (57°27.8'N., 134°52.0'W.), 35 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the outer of two bushy islets off the point.

(95) **Point Hayes,** the N point at the entrance from Chatham Strait, is moderately high, but is low at the extremity. Two wooded islets, about 60 feet high, and a bare rock are close to the point.

(96) **Morris Reef** is a dangerous group of ledges and submerged rocks surrounding Point Hayes to a distance of 0.9 mile to the E, 1.1 miles to the S, and 0.8 mile to the W. The SE extension of the reef is broken ground with patches of kelp and depths of 2 feet to 7 fathoms, and is marked at its SE extremity by a lighted bell buoy that is 1.5 miles SE of Point Hayes. On a line between the buoy and Peninsular Point, 1.5 miles N of Point Hayes, is an extensive reef, marked by kelp, which partly bares.

(97) **Sitkoh Bay** has its entrance between Point Craven and Point Hayes. The bay is deep throughout in midchannel, but there are several flats at the mouths of streams, and an extensive one, 1 mile wide, at its head.

(98) **Chatham,** on the SW side of Sitkoh Bay, about 2.1 miles inside the entrance, is the site of a privately-owned inactive cannery. The cannery wharf has a face of 200 feet with 30 feet reported alongside in 1976. A rock awash and a seasonal seaplane float is off the SE end. A pier close NW of the cannery wharf had 20 feet reported at its outer end in 1976. Access to the cannery wharf may be intermittently blocked during the winter when Sitkoh Bay has 2 to 3 inches of ice as far as 3 miles down from the head. Icebreakers visit the area on an irregular schedule.

(99) Anchorage can be made 0.2 to 0.4 mile from the head of the bight on the N shore 2 miles from Point Hayes, in 15 to 20 fathoms, soft bottom, sheltered except from SE winds. Secure anchorage can be had near the flat at the head of the bay about 1.4 miles above the cannery in 17 to 22 fathoms, soft bottom. Care should be taken to avoid the extensive tidal flat that extends 1.1 miles from the tree line at the head. A bar surrounding a small island extends 0.2 mile into the bay from the S shore, 1.8 miles from the head. A private mooring buoy is on the NE side of Sitkoh Bay about 0.4 mile NE of Chatham.

(100) Entering Sitkoh Bay, keep the Point Craven shore aboard distant about 0.3 mile to clear Morris Reef, and then keep in midchannel. The chart is the guide.

14. WEST COAST OF CHICHAGOF ISLAND AND YAKOBI ISLAND

(1) This chapter describes the W coast of Chichagof Island and Yakobi Island from Fortuna Strait to Cape Bingham. Also discussed are the numerous bays and coves, and an inside passage for small vessels that extends along the greater part of this coast.

(2) **Weather.**–While these coasts are exposed to the rigors of the Gulf of Alaska, the climate is tempered somewhat by the maritime location. From October through February, winds and waves pound the shoreline creating a hazard to navigation. Swells from distant storms often arrive from SW while heavy seas are more often out of S and SE. Gales are encountered about 10 percent of the time in open waters. The maritime influence is evident in the average maximum temperatures which run in the mid 30s (°F) in winter and minimums which are only about 5° to 7° colder. In winter, temperatures drop to freezing or below on about 80 to 85 days and in summer usually remain below 70°F. Extremes range from just below 0°F to about 80°F. Precipitation is plentiful year round, particularly in October, November, and December. Reduced visibilities are a problem in June, July, and August and also in winter; poor visibilities in winter often occur in snow.

(3) **Chart 16016.**–The W coast of Chichagof Island has a general NW direction for about 38 miles from the W end of Klokachef Island to Cape Cross, and then the coast trends N for 10 miles to Yakobi Rock. The main shore is formed by **Chichagof Island,** which has numerous mountain peaks. From Klokachef Island to Khaz Bay the 100-fathom curve is about 13 miles offshore. The 50-fathom curve is about 6 miles offshore, and inside of that distance the soundings are irregular and less than 50 fathoms, except a narrow pocket with depths of 50 to 101 fathoms, which extends about 5.5 miles SW from Khaz Bay entrance. From the entrance of Khaz Bay to Cape Edward, the coast is formed by numerous islets, rocks, and breakers, that prevent a close approach to the shore.

(4) An inside passage for small vessels extends along the greater part of this coast. From Salisbury Sound this route leads N through Fortuna Strait and then outside to Khaz Bay. Small craft sometimes enter Slocum Arm through Piehle Passage, which is close W of Khaz Head. From Khaz Bay the route leads through Ogden Passage and Surveyor Passage to Portlock Harbor, thence through Imperial Passage to the outside coast. Small craft can take the shorter route from Khaz Bay, passing through Ogden Passage and Kukkan Passage and Bay. Small craft with local knowledge can leave Portlock Harbor by Dry Pass. From Portlock Harbor to Lisianski Strait the route leads outside, thence through Lisianski Strait and Inlet to Cross Sound.

(5) This entire coast has been surveyed and is shown on a series of large-scale charts; all known dangers are charted.

(6) **Chart 17323.–Fortuna Strait** separates Klokachef Island from Chichagof Island. The SE entrance is between ledges that extend W from Chichagof Island and **Vincent Reef,** which extends S from the E end of Klokachef Island. A shoal marked by kelp, with a least depth of 2¼ fathoms, is 0.5 mile N from the E end of Klokachef Island. A rock, with ½ fathom over it and marked by kelp, is about 600 yards from the N shore on the W side at the entrance to Leo Anchorage.

(7) Fortuna Strait is used, especially by small craft, when bound to Khaz Bay from Salisbury Sound.

(8) **Leo Anchorage,** on the NE side of Fortuna Strait, narrows at the head, where there is a stream and small flat. The anchorage affords a fair shelter from N winds, but it is not recommended in S weather. With S winds there is less swell near the W side. The anchorage is near the middle in 15 to 20 fathoms, or for small craft near the head in 5 to 7 fathoms. The bottom is hard with sticky patches.

(9) **Point Slocum** is about 3.5 miles NNW of Klokachef Island. A bare, flat rock, about 30 feet high, is about 200 yards SSW of the point; inside the rock a boat landing can be made in ordinary weather. A breaker is about 0.5 mile W of Point Slocum. An isolated breaker is about 0.6 mile S from this point.

(10) **Chart 17322.–Khaz Head,** a bold, bluff headland, particularly noticeable from SW, is about 7 miles NW of Klokachef Island (chart 17323), and about 4 miles NNW of Point Slocum (57°27.9'N., 135°58.0'W.). It is the NW end of **Khaz Peninsula,** a rugged peninsula between Slocum Arm of Khaz Bay and the sea.

(11) **Khaz Point,** the SW point of Khaz Head, shows from the SE as a conical hill. It is about 2.8 miles NW of Point Slocum. The shore between these points forms a shallow bight in which there is much foul ground as well as numerous breakers. Breakers extend about 0.8 mile W of Khaz Point. A rock, awash at high water, at the end of the reef that extends S from the point, is used as a landmark by local motorboats that keep close inshore. The surf shows on this rock at all times.

(12) **Piehle Passage** is entered close-to, W of Khaz Point, and leads among the rocks and islets W of Khaz Head to Slocum Arm. This passage is extensively used by small craft with local knowledge, but is difficult for strangers. The entrance at Khaz Point is closed by breakers in heavy weather. Good protected anchorage for small craft can be had in the bight at the NW end of Khaz Head on the SE side of Piehle Passage. Anchorage can be selected at the head of the bight in 8 to 10 fathoms, mud and gravel bottom.

(13) From Khaz Head a chain of numerous islands, rocks, and reefs, some wooded and all generally low, extend about 3.4 miles NW to Ramp Island and Deuce Island, at the entrance of Khaz Bay.

(14) **Middle Breaker** is on a bare rock about 2 miles WNW of Khaz Point and almost 1 mile from the nearest islet to the E.

(15) **Khaz Breakers,** marked by a lighted whistle buoy off the W side, are the outer dangers in approaching Khaz Bay from S, and are on a reef about 1.4 miles W of Middle Breaker.

(16) **Outer Rocks** are the southernmost bare rocks on the W side of the entrance to Khaz Bay. They are two in number, about 250 yards apart. Outer Rocks are distinctly darker than the rocks to the N, moundlike in appearance, and can easily be identified by strangers.

(17) **Black Island** is the highest of a group of small islands about 3.2 miles NW of Outer Rocks. It is the only wooded island of the group and forms an easily distinguishable landmark. Two bare rocks are about 0.8 mile W of Black Island. A group of bare islets and rocks extends 0.8 mile S of Black Island. Breakers extend 2 miles W of the island.

(18) **White Sisters** are two outlying large white rock islets, about 2.2 miles NNW of Black Island.

(19) Inside the lines joining Outer Rocks, Black Island, White Sisters, and Cape Edward are numerous bare rocks and reefs, but the four mentioned are the most prominent and easily recognized.

(20) **Khaz Bay,** about 11 miles NW of Klokachef Island, is 2.2 miles wide at its entrance between Ramp Island (57°33.7'N., 136°05.2'W.) and Outer Rocks, and extends N about 2 miles to Quit Point. Here it divides into an extensive system of inland passages that extend E, N, and W, and connects with the sea NW of Cape Edward, through Kukkan Bay and Portlock Harbor.

(21) The entrance, marked by a lighted whistle buoy off Khaz Breakers, is wide and has deep water, but is difficult to recognize because of the many islets and bare rocks. In the entrance are a number of breakers that show except at high water with an exceptionally smooth sea, and help shape the course in daylight and clear weather. Once in the entrance, vessels should have no difficulty in going into Slocum Arm or through Ogden Passage to Kimshan Cove. Klag Bay is difficult except for small vessels at slack water.

(22) **Black Rock,** about 1.1 miles NE of Outer Rocks, covers at high water and is generally marked by a heavy breaker.

(23) **Ramp Island,** small, about 100 feet high, and scantily wooded, is the westernmost of the islands on the E side of Khaz Bay.

(24) **Deuce Island** is the northwesternmost wooded island on the E side of Khaz Bay, and is about 0.5 mile N of Ramp Island. At its NW end is a round bald knob. **Ninefoot Shoal,** about 0.5 mile NNW of Deuce Island, is marked by a buoy.

(25) **Quit Point** is the S end of the southernmost of the low wooded islands on the N side in the entrance to Khaz Bay, and is about 1.2 miles NW of Deuce Island. The end of the point is bare, and at the timber line is about 90 feet high. This island is somewhat higher than others near it, and from most points shows as two knobs. The S knob is the larger and higher, with a saddle between. A bare, rocky islet is about 0.3 mile W of Quit Point, and there is foul ground, generally marked by breakers, between this islet, Quit Point, and **Gray Rock** about 0.4 mile SW of the point.

(26) **Rough Channel,** W of Quit Point and Gray Rock, is an entrance to Ogden Passage from Khaz Bay. Its N end has rocks above and under water that contract the channel to about 200 yards. Because it generally has heavy swell, the channel should be avoided except possibly at low water with a smooth sea. Smooth Channel is the better entrance to Ogden Passage.

(27) **Guide Rock,** bare and 15 feet high, is about 0.3 mile ENE of Quit Point, and is the easternmost of the bare rocks that extend 0.2 mile E from the island. It is an important mark for entering any of the arms.

(28) **Smooth Channel,** the best entrance to Ogden Passage, is protected from the ocean swell by a chain of wooded islands and ledges. From N of Guide Rock it extends in a NW direction, with depths of 7 to 33 fathoms. Smooth Channel also forms the approach to Klag Bay and connecting bodies of water. S of **Vorota Island** in 20 to 25 fathoms is an excellent anchorage for vessels up to 250 feet long. With heavy SW swells some of the turbulence enters the anchorage, but not enough to make it unsafe.

(29) **Doolth Mountain,** 7 miles N of the entrance to Khaz Bay, is wooded. It stands out from the higher mountains farther inland and is the most prominent one near the coast.

(30) **Slocum Arm** extends SE from Khaz Bay. Its SW side is formed by the mountainous Khaz Peninsula terminating W at Khaz Head, and by the chain of wooded islands that extends 3.4 miles NW from that head to Deuce Island. The arm is free from dangers, with the exception of a rock, bare at half tide, 300 yards from the NE shore.

(31) **Ford Arm,** NE of Khaz Head, extends NE from Slocum Arm and is constricted in places by islands and rocks. At its head is an expansion about 0.8 mile in diameter, from which arms extend SE and NW. The SE arm has some islets and a flat at its head; there is anchorage for vessels NW of the islets in desired depths up to 15 fathoms. The NW arm has anchorage for small craft at its head in 6 to 15 fathoms. Small craft can also anchor in **Elf Cove,** the cove N of the N point at the entrance to the NW arm, in 5 to 8 fathoms; a ledge bare at half tide is close to the N side of the cove.

(32) The entrance to Ford Arm is marked on the SE side by a group of small wooded islands that should not be approached closely. Two miles inside the entrance on the SE shore is a projecting point.

(33) **Falcon Arm,** 1.4 miles SE of Ford Arm, extends NE and narrows to 350 yards at its head. A rock with 1 foot over it is 0.4 mile inside the bay, in the middle. Favor the NW shore for 0.5 mile from the entrance to avoid this rock and then keep in midchannel. The depths in the wide part of the arm are 22 to 25 fathoms. A good anchorage is in an expansion above a point on the NW side 1.5 miles from the entrance in 11 to 14 fathoms, soft bottom.

(34) **Waterfall Cove,** about 1.8 miles SE of Falcon Arm, is identified by a large waterfall about 1 mile above its head. Two bights are at the head; the E one dries and the W one, which has 4 to 11 fathoms, affords anchorage for small craft.

(35) **Island Cove,** about 4.5 miles SE of Falcon Arm, has several islands in it near the shore. The anchorage is in the SE end of the cove in about 16 fathoms. Favor the SE point of the cove when entering and avoid a flat that extends about 300 yards from the N shore of the anchorage.

(36) On the SW shore of Slocum Arm, opposite Island Cove, is a small point with a wooded knoll 80 feet high. Anchorage for small craft is in the cove W of this point in 6 to 10 fathoms.

(37) **Flat Cove,** on the NE side 6 miles SE of Falcon Arm, has depths of 12 to 32 fathoms to the flat that extends 700 yards from its head.

(38) Good anchorage is 0.5 to 0.6 mile from the head of Slocum Arm in 16 to 18 fathoms. A flat extends about 0.2 mile from its head.

(39) **Klag Bay,** at the head of Khaz Bay, is cluttered with islands, and the shores are foul especially on the E side behind the islands in the bay. The two entrances to the bay lead through narrow crooked channels, with foul shores and strong currents, which are difficult except for small vessels at slack water. Strangers should enter at low water slack when the dangers will show above water or be indicated by kelp.

(40) The main entrance is through **The Gate,** which has its entrance 1 mile N of Guide Rock. It has a depth of 4 ¼ fathoms and a width of 50 yards at its narrowest part, between a daybeacon on the E side of Vorota Island and a rocky 1-fathom shoal 20 yards off a sparsely wooded islet on the E side of the entrance. A **008°** unlighted range marking the centerline of the channel clears the 1-fathom shoal.

(41) **Elbow Passage** is the W entrance to Klag Bay. The W part of this passage has a midchannel depth of 2¾ fathoms and is constricted in places to a width of about 75 yards by kelp-marked shoals.

(42) The two entrance channels merge N of The Gate and the channel then continues through Elbow Passage around the S and E sides of **Klag Island.** The pass W of Klag Island is almost blocked at the N end and is suitable only for small boats and launches. N of Klag Island the bay is comparatively clear, though there are a number of islands in it.

(43) Anchorage can be found in the bay above Klag Island in depths of from 3 to 20 fathoms.

(44) **Currents.**–It is reported that the currents in Elbow Passage, S of Klag Island, are strong and the passage is navigable only near the time of slack water.

(45) **Ice** forms in Klag Bay early in January and is a hazard to navigation through February and most of March.

(46) **Caution.**–The last of the ebb sets out of Elbow Passage W with great velocity through the W entrance, forming heavy swirls, and passage should be attempted only at slack water, preferably low-water slack.

(47) **Lake Anna** has its entrance through a narrow channel from the E side of the N end of Elbow Passage. There is anchorage at the S end of the lake in 6 to 15 fathoms. About 1.1 miles NE of the entrance a ledge with bare heads extends to midchannel from the E side; the channel is NW of it. At the N end of the lake is an anchorage in 5 to 12 fathoms. Lake Anna should only be entered by those with local knowledge because of its narrow entrance and extreme currents, except at slack water.

(48) **Sister Lake** is joined to the NE end of Lake Anna by a narrow, foul passage 0.5 mile long. Passage should be made at slack water only. It is reported that slack water occurs about 2½ hours after slack water at Sitka, and that the currents reach a maximum strength of about 12 knots. The S end of this lake is only 200 yards from Ford Arm and about 300 yards from **Double Cove,** a small bay at the NE end of Khaz Bay, with low land between. The lake is reported to be deep, with good anchorage in the coves. The lake should be navigated with caution.

(49) Khaz Bay is connected with Portlock Harbor by Ogden Passage and Surveyor Passage, and is a navigable route for small vessels. Another route, partially protected, leads from Ogden Passage through Kukkan Passage and Bay to South Passage, which is the S entrance to Portlock Harbor. This route is recommended for small craft only. Rough Channel and Smooth Channel have been described previously in this chapter.

(50) **Ogden Passage** is entered from Khaz Bay through Rough Channel or Smooth Channel, the latter being the best. From Klag Bay it can be entered through the W part of Elbow Passage. The depths in Ogden Passage are generally good and the dangers are charted, but several narrow passages and sharp turns make its navigation difficult for large vessels. The bottom is generally rocky, and the only good anchorage is in Kimshan Cove.

(51) **Frog Rock** is a steep, grassy rock, about 35 feet high, and is the outermost of a small group of islets in the E side of the passage.

(52) **Snipe Rock,** about 0.6 mile SW of Frog Rock, is a flat, grassy rock about 10 feet high and is part of a long submerged ledge. It is marked by a daybeacon and is in the entrance to Kukkan Passage which leads through Kukkan Bay to the sea, N of Cape Edward.

(53) **Fitz Island, Dippy Island ,** and **Port Island** are wooded islets that are at the junction of Ogden Passage and Surveyor Passage. A daybeacon marks a reef with ½ fathom over it, which is on the NW side of the channel between Fitz Island and Dippy Island. Boats passing between the daybeacon and Fitz Island should give the daybeacon a berth of at least 75 yards to avoid the reef. A submerged rock is in the middle of the channel W of Port Island, making it unsafe.

(54) **Kimshan Cove,** E of Fitz Island, has depths of 6 to 11 fathoms. Anchorage can be selected anywhere in the cove, being careful to avoid the pile ruins of a wharf on the SE side of the cove.

(55) **Chart 17321.–Surveyor Passage** is the passage that extends from Portlock Harbor to Ogden Passage NW of Kimshan Cove. Many submerged rocks are in the passage. A daybeacon marks a reef, that uncovers about 7 feet, on the NE side of the passage 0.4 mile SE of Lydonia Island. A rock awash is 50 yards off the NE shore in the narrow part of the passage about 0.5 mile SE of the daybeacon. **Lydonia Island** is a wooded island in the NW end of Surveyor Passage. The channel W and S of the island is foul, and large vessels always use the E channel.

(56) **Minnie Reef,** marked by a daybeacon and which uncovers about 5 feet, is in the main channel N of Lydonia Island. The area between the reef and the island is very foul.

(57) **Black Bay** extends for 1.2 miles E from Surveyor Passage, and has two islands obstructing its entrance. The best passage into the bay is between Point Lydonia and the northernmost of these islands, although small boats can pass between them. The shoreline is steep and rocky except at the head where there is a large sand and gravel flat. Strong winds draw through the bay from the head, and it is not recommended for shelter.

(58) The currents in Surveyor Passage are small. The flood enters the passage from both ends and meets in the vicinity of the entrance to Black Bay.

(59) **Chart 17322.–Kukkan Bay** is between Edward Islands and Herbert Graves Island, and immediately N of Pole Point (57°39.6'N., 136°13.8'W.). It is poorly protected and is used only as a passage into Ogden Passage through Kukkan Passage. The principal entrance is N of Edward Islands, but vessels can also enter S of these islands. Kukkan Bay is connected with Ogden Passage by **Kukkan Passage** and is used by fish packers of about 12-foot draft at all stages of the tide; however, the spot shown as 2 fathoms, on the N end of the shoal area off Pole Point, breaks in heavy weather and may have less than 2 fathoms on it. It should be avoided by all vessels. **Pole Point,** on the S side of the bay, is a bare, bluff point with high, wooded land behind it. **Ittar Rock** is a bare rock 12 feet high in the middle of the entrance to Kukkan Passage.

(60) **Tawak Passage** extends S from the NW end of Kukkan Passage, and affords a protected, although intricate, passage for small boats along the coast. The N end of the passage is foul and should not be used without local knowledge. The islands W of Tawak Passage are called the **Myriad Islands. Gig Pass** is a deep, narrow passage leading from the S end of Tawak Passage to Ogden Passage.

(61) **Edward Islands** are two groups of prominent, wooded islands, on the W side of Kukkan Bay, about 0.8 mile S of Cape Edward. Foul ground extends for over 0.5 mile W of these islands. A brown, bare rock, 16 feet high, is 1 mile SSW from Edward Islands.

(62) **Cape Edward,** on the W point of **Elkugu Island,** is about 2.6 miles N of White Sisters. A rock, bare at high tide, is about 0.5 mile WSW of the cape, and there are submerged rocks 300 yards N and 500 yards ESE of this rock. **Elkugu Bay,** on the E side of Cape Edward, is exposed to the S and is of no importance.

(63) **Chart 17321.–Portlock Harbor** is formed on its seaward side by Hogan Island and Hill Island. **Hogan Island** is

almost flat-topped and timbered with scrubby growth. The shoreline is very steep and rocky, with practically no sand beach except for small coves, which are unfit for beaching any size boat. **Hill Island** is well timbered except in the NW section, which is almost a flat plateau sparsely wooded with scrub spruce. The highest point of the island is near the center. **Herbert Graves Island,** on the S side of the harbor, is sparsely wooded except for a high, wooded hill on the E part, which is a prominent landmark. The W half of the island is low and rolling with numerous small lakes and swampy areas. **Mount Lydonia,** on Chicagof Island E of the harbor, is a prominent landmark and the highest mountain in the vicinity.

(64) Portlock Harbor is used chiefly by boats going through the inside waters to Ogden Passage. It has three entrances from the sea: South Passage, Imperial Passage, and Dry Pass. Imperial Passage is used by most vessels, although South Passage is equally good. Dry Pass is foul and is used only by small boats.

(65) **South Passage** is between Cape Edward and **Point Hogan,** which is the S point on Hogan Island. Reefs extend for 0.3 mile S from Point Hogan.

(66) **Imperial Passage,** between Hogan Island and Hill Island, is the main entrance into Portlock Harbor. The group of islands off the NW side of Hogan Island form a good landmark; the outer ones are grass covered and the inner ones have a few trees. Two reefs, awash, are 500 yards W of the center of the outer islands. The N side of Imperial Passage is marked by **Hill Island Light** (57°43.7'N., 136°16.6'W.), 60 feet above water, and shown from a square frame with a red and white diamond-shaped daymark on the S end of Hill Island.

(67) **Peer Island,** a bare rock 20 feet high, is in the passage about 500 yards E of the light, and there is a shoal that extends 150 yards S of this rock, with a least depth of 1¾ fathoms. Several shoal areas are off the entrance to the passage where a heavy sea will break.

(68) Anchorage can be found in Portlock Harbor about 300 yards NE of **Sholin Island,** in 7 to 18 fathoms, rocky bottom. Anchorage can also be had at the junction of Goulding Harbor and Dry Pass in 15 to 18 fathoms. Most of the bays making off from Portlock Harbor are too deep for good anchorage.

(69) **Didrickson Bay** has its entrance on the E side of Portlock Harbor 0.7 mile NNE of **Lock Island.** Between submerged rocks and reefs on each side, the entrance is deep and clear. A 6-foot waterfall at the head of the bay can be seen from the entrance. Good anchorage can be had near the head of the bay in 5 to 16 fathoms, mud bottom.

(70) **Pinta Bay** extends N for 2.1 miles from Portlock Harbor. Two small, wooded islands on the W side of the entrance are joined by a reef that bares. E of these islands the entrance is clear.

(71) **Goulding Harbor,** at the NW end of Portlock Harbor, has two branches. **Baker Cove** is the N branch. The NE branch terminates in a shallow cove, bordered with sand and gravel flats. With local knowledge it is possible to take launches of 4 feet or less draft to the head of the cove where a large stream empties into the bay. Small craft can anchor near the flat at the head of the cove. Soundings taken at the entrance to the NE branch show a depth of 1 fathom on a reef of considerable size that extends from the S point of the entrance to the arm.

(72) **Dry Pass,** the N passage from Portlock Harbor to the Pacific Ocean, is N of Hill Island. For 0.4 mile from the W end, the pass is less than 0.1 mile wide and is foul. A narrow channel with depths ranging from 3 to 10 feet passes between rocks at the entrance and to the S of a rock in midchannel, 0.1 mile from the W end and to the S of a small rocky islet near the N shore, 0.1 mile from the E end of this section. The pass then expands into a basin, with a group of islets at the SW end.

(73) Anchorage in Dry Pass is reported in the cove on the N shore back of a large island in 6 fathoms, sticky bottom, and also in the cove on the SE shore in 4 to 7 fathoms.

(74) From the NE side of the basin the pass continues in a NE direction for about 0.5 mile and then turns SE to Portlock Harbor.

(75) The coast from Imperial Passage to Lisianski Strait is very irregular and characterized mainly by bold cliffs, rocky beaches, and many small islands, inlets, and bays. The immediate shoreline and larger islands are well wooded, but the rolling country back from the beach are stretches of open marsh with lakes or tidal lagoons. Two or three miles inland the mountains rise to elevations of 2,000 to 3,000 feet and are generally bare above 1,200 feet. **North Mountain,** about 1.8 miles to the N of Mirror Harbor, which is 4.3 miles N of Hill Island Light, is timbered to an elevation of about 1,600 feet and appears dark against the peaks beyond. As seen from the S it shows cone-shaped with a shoulder 220 feet lower that extends to E. **Mount Douglas,** a rounded double peak, is about 1.5 miles E from Mirror Harbor.

(76) **Dangers.**–There are many outlying rocks and breakers along this coast and many rocks and shoals extend N from Cape Dearborn. Several rocks are S of Skinner Island, and several submerged rocks are S from Porcupine Islands.

(77) **Cape Dearborn,** the W extremity of Hill Island, is a bold bluff about 80 feet high and has several small rocky islets close-to.

(78) **Little Bay** is 1.5 miles NNE from Cape Dearborn. **Point Weigle,** the N point of the entrance, is 1.5 miles N from Cape Dearborn. The entrance to the bay is wide and clear, except near the shores, and has a depth of about 11 fathoms decreasing to 2½ fathoms near the head of the bay where it is foul.

(79) **Cormorant Island, Shag Rock, Grace Island, Middle Island,** and **Snag Island** form a group about 1.7 miles N from Cape Dearborn. **Fern Rock, Gull Rock,** and a rock awash midway between the two, are 270 yards N of Grace Island. **Davison Bay,** the bight E and NE of this group, has depths of 3½ to 15 fathoms.

(80) **Fleming Island** is 2 miles N of Cape Dearborn. **Mirror Harbor** is N of Fleming Island and has depths of 3 to 4 fathoms in the middle. In 1972, the harbor was reported to be a good anchorage for small craft with excellent protection and holding qualities, soft bottom. The channel leading to the harbor is between Fleming Island and the group to the W. It is intricate, narrows to about 10 yards, and in places has depths of about 1 fathom. Local knowledge is required for safe passage.

(81) **Point Shultz** is the S point of Fleming Island, and **Fairway Rock** is 275 yards SW from Point Shultz. In 1972, a ledge reportedly covered about 10 feet was reported to extend E about 200 yards from Fairway Rock. Passage W of the rock was recommended. **West Arm,** N of **Pluma Island,** is foul, but limited anchorage for small craft is available.

(82) **Skinner Island** is the largest of the outer islands of the group on the W side of the entrance to Mirror Harbor. A rocky islet is 300 yards W and breakers and foul ground extend 0.8 mile SW.

(83) **Caution Pass** is close E of Skinner Island. It is used by small local launches going to Bertha Bay.

(84) **Bertha Bay,** an open bight about 0.9 mile wide at the entrance, extends in a N direction from Skinner Island. The bay is rocky at the head and is very foul; it affords little protection from the ocean swell. Even small boats must keep over 600 yards from the shore to avoid rocks and reefs. **White Sulphur Springs** and two U.S. Forest Service buildings are on the NE side of the bight. Small craft usually anchor in West Arm, and users of the White Sulphur Springs follow a trail, about 0.5 mile long, to the springs. Local knowledge is advised.

(85) **Porcupine Rock** is a prominent bare rock, about 1.4 miles W of **Beric Island,** the westernmost of the Porcupine Islands.

(86) **Porcupine Islands,** so named from the shape of the outer one, are about 1.2 miles W of the entrance to Bertha Bay, and about 1 mile offshore. Extensive bare ledges prolonged by breakers extend 0.5 mile S from the islands. **Winifred Island** is the largest of the group. Two rocky islets are about 0.5 mile N of Porcupine Islands. A submerged rock with 2½ fathoms over it and showing a breaker in a moderate sea is about 300 yards NW of the rocky islets.

(87) **Islas Bay** extends N from Porcupine Islands. On its NW side are numerous inlets, most of which have shoal water and rocks at the entrances. Ilin Bay and Porcupine Bay branch off from the N end.

(88) **Porcupine Bay** is about 0.3 mile in diameter and has general depths of 8 to 12 fathoms. A wooded island, 90 feet high, is in the W part of the entrance. The entrance SE of this island is clear. The entrance NW is shoaler and narrower. A waterfall at the E end of the bay shows from the entrance. The harbor affords protected anchorage.

(89) **Ilin Bay,** narrow, rocky, and suitable for small craft only, has its entrance 0.5 mile W of the entrance to Porcupine Bay. An anchorage in 8 fathoms, mud bottom, is in the upper half of the bay, but this anchorage is exposed to the S. A more protected anchorage is in **Zhilo Cove,** behind the islands, on the E side of the bay in 3 to 4 fathoms, mud bottom. The S and W entrances between the islands leading to this anchorage are foul, but the N entrance at the head of the bay is clear.

(90) **Chart 17303.–Lisianski Strait,** between Yakobi Island and Chichagof Island, about 11 miles long and from 0.2 to 0.8 mile wide, follows a general NNE direction and connects Lisianski Inlet with the Pacific Ocean. The waters throughout the strait are generally deep, but the SW entrance is foul. From the SW end NNE, the strait is clear until 1.2 miles to the SW of the junction with Lisianski Inlet, where there are two small islands; the N is grass covered with a lone tree on it, and the S is rocky and wooded, with several rocks close-to. A light is about 100 yards S of the S island. Kelp extends from the islands to the Chichagof Island shore.

(91) From the SW entrance the land presents a succession of low, wooded hills, gradually rising to sharp rocky peaks.

(92) The S entrance channel to Lisianski Strait is about 125 yards wide, with a reef on the E side with 2½ fathoms over it, and rocks on the W side. Favor the W side, especially if the current is ebbing, because there is a SE set then.

(93) **Currents.**–Outside the rocks and reefs at the S entrance the current floods to the N and ebbs to the S. Near the entrance among the rocks, on the ebb, a set to the SE has been experienced. Tide rips are encountered here, with an ebb current against the wind. Swirls are formed in the vicinity of Esther Island, and the current has been reported to exceed 3 knots at times. From Esther Island to about 0.5 mile to the S of the islands near the N entrance the current is slight; swirls and eddies are formed 0.5 mile to the S of the islets. Along the islets a current of 0.5 to 2 knots floods to the N and ebbs to the S. N of the islets the current is small. In the vicinity of Miner Island currents are 0.5 to 2 knots. Eddies and swirls occur between Miner Island and Chichagof Island. The currents from Cross Sound and Lisianski Strait appear to meet in the vicinity of Miner Island. An ebb current of 0.5 knot from Stag Bay has been experienced.

(94) **Point Theodore,** on the W side of the S entrance, is low and wooded, with a background of high mountains. Two wooded islands are within the entrance close to the point. Rocks and reefs, bare at various stages of the tide, extend for 0.5 mile in a S direction from the point.

(95) **Star Rock,** about 1 mile S of Point Theodore, is awash at high water; a seasonal bell buoy is moored about 200 yards SW of the rock.

(96) **Point Urey,** the E point of the S entrance to Lisianski Strait, is low, flat, and timbered; it has a small sharp knob near the S end. Rocks and foul ground extend about 1.4 miles off the point; the most prominent is Porcupine Rock. Submerged rocks and rocks awash at high water are about midway between Porcupine Rock and Point Urey. **Threenob Rock,** a conspicuous triple-headed rock, is 0.4 mile SW from the point.

(97) **Urey Rocks,** about 0.8 mile W from Point Urey, are two bare rocks; the E rock is longer and wider. Small rocks and foul ground practically surround Urey Rocks. Kelp extends to the shores of Chichagof Island and Esther Island.

(98) **Esther Island,** just within the entrance, is heavily timbered. Near the middle of the island on the E side is a bight that almost cuts the island into two parts, and during storm tides the seas almost wash across. The E shore of Esther Island is on the W side of what is known locally as the **Inside Passage.** Rocks extend for about 0.5 mile NNE of the N end of Esther Island. **Lisianski Strait Light 2** (57°50.7'N., 136°26.1'W.), 53 feet above the water, is shown from a square frame with a red triangular daymark on Esther Island. The light, most brilliant on the bearing 044° and diminishing in intensity around the remainder of the horizon, marks the SW entrance to the strait.

(99) **Lumber Cove** is a small-boat anchorage NW of Point Urey. Midway in the entrance is a small steep island that is covered with trees. In entering, pass close to the island, leaving it to S. When clear of the island, pass in midchannel and anchor near the head of the cove in 5 to 6 fathoms, sticky bottom.

(100) **Canoe Cove,** about 1.4 miles N of Point Urey, furnishes anchorage for small boats in 4 to 5 fathoms, sticky bottom. The anchorage is small, about 250 yards wide. It has two entrances, known locally as the **North Pass** and the **West Pass;** both are narrow. At low water North Pass bares for a short distance while West Pass has about 1 foot at its shoalest part. At the seaward end of West Pass is a heavy growth of kelp. A good supply of water will be found on the E side of the cove. Lumber Cove and Canoe Cove are connected at high water by narrow **Canoe Pass.**

(101) **Lost Cove,** about 1 mile above the light on Esther Island, affords anchorage for small vessels in 11 to 17 fathoms, mud bottom. The anchorage is about 300 yards wide. Midway between the entrance points is a rock that uncovers 5 feet and is marked by kelp during the summer and fall. Water may be had at the head of the arm near the end of the cove.

(102) **Stag Bay** is on the E side of Lisianski Strait, 6 miles from the S entrance. The shores are steep and precipitous, the land rising rapidly on each side. The slopes are timbered to an elevation of about 600 feet, and to an elevation of about 1,000 feet with a scrub growth, above that the entire

country is generally barren. About 2.5 miles from the entrance on the S side is **Cub Mountain,** a prominent peak, which from the entrance shows steep on the N side near the summit, with a shoulder on the S side. At the head of the bay is an extensive tide flat, the greater part of it bares at lowest tides and the approach is very steep. Depths within the bay at the center range from 27 fathoms at the entrance to 41 to 73 fathoms inside.

(103) Along each shore are mountain streams at the mouths of which banks have been formed that extend offshore for 100 to 150 yards. In entering follow midchannel courses. There is an anchorage at the head of the bay off the flats in 40 fathoms, with restricted swinging room; this anchorage is not recommended.

(104) A nickel exploration camp is at the mouth of **Bohemia Creek,** on the W side of Lisianski Strait, about 1.6 miles SW of its junction with Lisianski Inlet. The camp consists of three prominent buildings and a small-boat float about 60 feet long. In 1976, a depth of 6 feet was reported alongside the float. A shoal at the mouth of the creek is marked by a daybeacon.

(105) **Rock Point,** at the S side of the junction of Lisianski Strait and Lisianski Inlet, is marked by a light.

(106) **Miner Island,** at the junction of Lisianski Strait and Lisianski Inlet, is separated from Yakobi Island at high water by a channel about 100 yards wide. It is heavily wooded and surrounded by kelp.

(107) **Junction Island,** a small wooded island marked by a light, is in Lisianski Inlet about 0.5 mile off the Chichagof Island shore, and 0.9 mile SE of Miner Island.

(108) A rocky ledge extends about 200 yards N from Junction Island; kelp extends about 50 yards beyond this. Two rocks, each covered ¼ fathom and marked by kelp, are about 0.2 mile and 0.5 mile N of Junction Island

(109) **Yakobi Island** is densely wooded in its lower part, but contains many high, bare, mountain peaks. The S and N parts of the island are low; the interior and E parts are high. The W coast of the island is broken by many islands and offlying rocks into numerous bays and bights, forming frequent shelter for small craft.

(110) **Greentop Island,** about 1 mile NW of Point Theodore, is the outermost and largest of the numerous small islands, mostly wooded, that are between Point Theodore and Squid Bay. The island is marked on its SE side by **Greentop Island Light** (57°51.3′N., 136°29.0′W.), 79 feet above the water and shown from a small house with a red and white diamond-shaped daymark. Close-to NE of Greentop Island is **Greentop Harbor,** which extends in a NE direction. Enter the harbor N of Greentop Island, passing N of the two large islands and the small elbow-shaped island. Favor the N shore of the harbor, being careful to avoid the rock near the N shore.

(111) Secure anchorage may be had in the harbor in 4 to 7 fathoms, mud bottom, about 0.3 mile from the head. A large anchorage is on the E side of the harbor. This anchorage has a depth of 5 to 8 fathoms, mud bottom, but there are rocks that bare in the entrance, and caution is required in entering. The other passages among the islands are foul and should not be attempted except by very small craft with local knowledge.

(112) **Squid Bay** is about 2.5 miles NW of Point Theodore and about 1.3 miles N of Greentop Island. The anchorage here in 5 to 17 fathoms, soft bottom, is exposed to S. The entrance is clear and is bounded to SE by the high, wooded shoreline, and to the NW by a large area of foul ground that extends to Point Satchrun. All vessels should keep well away from this foul area. In entering, favor the SE shore.

(113) **Point Satchrun,** bold and wooded, is on the SE side of the entrance to Takanis Bay, about 3 miles NNW of Greentop Island. The point can be identified by a prominent cross of white quartz in the dark basalt that forms the point. This cross is about 40 feet above the waterline and close below the tree line.

(114) **Takanis Bay** has its entrance close W of Point Satchrun. Several narrow arms make off from the bay in various directions. The bay is exposed to the S, but small craft can usually find protected anchorage in its branches. The long narrow arm at the head of the bay is clear, but has too limited swinging room for anchorage. The W half of Takanis Bay is foul and should be avoided.

(115) The usual anchorage for small craft is in the NW branch, which contains a small, wooded island near its head. There is ample swinging room S of this island in 6½ fathoms, mud and rock bottom. Very small craft anchor N of this island, which affords more protection but limited swinging room, the best approach being E of the island.

(116) Small craft with local knowledge sometimes anchor in the lagoon E of the upper end of Takanis Bay. The entrance is in the E shore of the bay, about 1.2 miles N of Point Satchrun, and is through a long, narrow arm about 25 yards wide, between bold cliffs. The tidal currents through this arm are very swift, and this passage should not be attempted except at high-water slack and with good local knowledge. Anchorage exposed to the S can be found in the middle of the bay in 8 fathoms, mud and rock bottom, about 0.5 mile above the large flat rock on the E side of the bay just inside the entrance.

(117) **Cape Cross,** the southwesternmost extremity of **Takanis Peninsula,** is about 5.2 miles NW of Point Theodore. The point is comparatively low and wooded and identified by a high, rocky islet 0.2 mile off the cape, on which is a prominent clump of trees. Two large, bare islets are N of this islet and are connected at extreme low water. Foul ground extends for 500 yards W and for 300 yards S of the islet.

(118) Between Takanis Bay and Cape Cross are numerous small islands, some of which are wooded. With local knowledge small boats can pass among these islands, but there is much foul ground and there are no protected anchorages. **White Crag Island,** the outermost island about midway between Cape Cross and Point Satchrun, is bare, and has a conspicuous white top which forms a prominent landmark. Foul ground and breakers extend almost 1 mile S of the cape.

(119) Between Cape Cross and Surge Bay the coast is rocky and broken with numerous large rocks close to shore. The 20-fathom curve follows the coast at a distance of about 0.5 mile, outside of which there are no dangers. Off Surge Bay, however, the 20-fathom curve extends for more than 2 miles offshore, and there are several 8- and 9-fathom spots from 1 to 1.8 miles offshore; but there are no dangers more than 1 mile off the general coastline. Two miles N of Cape Cross is a large bight. Considerable kelp is found here, and there is no protected anchorage even for small boats in the main part of the bight. A rock with less than 2 fathoms over it is reported in the SW part of the bight in about 57°56′18″N., 136°34′14″W. A seasonal bell buoy is about 0.2 mile SW of the rock. In the S part of the bight, E of the large wooded island, is an inner bight called **Deer Harbor.** It is entered only on the upper half of the tide. Vessels should pass S of the large wooded island. Sheltered anchorage may be had in either the N or S arm of Deer Harbor in 4 to 7 fathoms, mud bottom.

(120) **Surge Bay,** about 4.1 miles N of Cape Cross, is an open bight with numerous rocks, and is suitable only for

small vessels with local knowledge. The small bights on the E side of the bay are open W. The only protected anchorage for larger vessels is at the extreme N end of the bay, the passage to which leads among numerous small islands and rocks. In about the center of the bay is a high rocky islet, with two grass-covered knolls on it, which is the best mark for the bay. The best entrance to the bay is S and E of the islet; the entrance NNW of it is through kelp, and in W weather breakers extend clear across the entrance.

(121) **Surge Bay Entrance Light** (57°58.6'N., 136°33.7'W.), 65 feet above the water, is shown from a steel post with a red and white diamond-shaped daymark on a small islet marking the S entrance to Surge Bay.

(122) From Surge Bay to Cape Bingham (58°05.5'N., 136°32.5'W.), the coast is very broken with many off-lying rocks and islets. Most of the coves among these islets are foul, and there are no protected anchorages for large vessels. There are no dangers that extend more than 0.5 mile off the outermost islets.

(123) **Yakobi Rock** is about 0.6 mile W of Cape Bingham and is the farthest offshore of the numerous rocky islets in the vicinity.

(124) **Hoktaheen Cove,** a small, open, and exposed cove about 1.2 miles S of Cape Bingham, is suitable only for small craft, and local knowledge is required for its entry. A small timbered knob is about 0.3 mile S of the S shore of the cove, and two somewhat sharp knobs are 1.5 miles S of the cove.

(125) **Bingham Cove,** requiring local knowledge to enter, is on the S side of Cape Bingham. The cove is open to the W, but has a well-sheltered S arm. It is reported that local fishing boats use Bingham Cove as a foul weather anchorage.

15. CROSS SOUND AND ICY STRAIT

(1) This chapter describes Cross Sound and Icy Strait, which are the northernmost sea connections for the inland passages of southeastern Alaska. Also described are the tributary waterways and the various communities in the area, such as Pelican, Elfin Cove, Gustavus, and Hoonah.

(2) **Chart 17300.**–Cross Sound and Icy Strait are the northernmost sea connections for the inland passages of southeastern Alaska, separating the mainland between Cape Spencer and Point Couverden, and from Yakobi Island and Chichagof Island between Cape Bingham and Point Augusta. The waterway is about 61 miles long from Cape Spencer at the W entrance to Point Augusta, at its junction with Chatham Strait. It averages 4 to 8 miles wide, but in places this is reduced by islands.

(3) **Currents.**–The current from the sea sets NE on the flood into Cross Sound and Icy Strait and meets the flood current in Chatham Strait S of Point Augusta. The ebb current sets in the opposite direction. The velocity varies with the range of tide and width of passage. The ebb velocity is stronger than the flood.

(4) In the wide parts of Cross Sound, the estimated velocity of the current is 1.2 knots on the flood and 2 knots on the ebb.

(5) Between Inian Islands and Point Wimbledon, the current has a velocity of 2.9 knots on the flood and 5.1 knots on the ebb. When the current is strongest, heavy swirls occur NW of the Inian Islands. Daily predictions for times of slack water and velocity of the current in North Inian Pass are given in the Tidal Current Tables.

(6) S of the Inian Islands, in the narrowest part of the passage between them and Point Lavinia, the velocity of the ebb current is 6 knots, and heavy dangerous rips and swirls occur, especially with an ebb current and W or SW winds.

(7) In North Passage and South Passage of Icy Strait, the estimated velocity of the ebb current is 3.6 to 4.1 knots. There are swirls and tide rips at times off the entrance to Glacier Bay. At Point Augusta the tidal currents usually have little velocity. (See the Tidal Current Tables for daily predictions for places in Cross Sound and Icy Strait.)

(8) Strong tide rips occur at the entrance to Swanson Harbor with a slight S breeze.

(9) On the S side of Icy Strait between Point Sophia and Point Augusta very little current is encountered. Occasionally, when weather indicates a SE storm along the outer coast in the vicinity of the entrance to Chatham Strait, a current of 2 or 3 knots may be noted, flowing in a W direction along the shore in this locality. Its direction seems to be unaffected by the stage of the tide.

(10) **Weather.**–While Cross Sound is exposed to wind and weather off the Gulf of Alaska, its orientation lessens the effect of the strong southeasterlies and northerlies of fall and winter. It is more exposed to winds and seas from SW through NW. These winds are most frequent in summer and fall; fall conditions are roughest. Swells from distant storms often arrive from SW from October through March. Poor visibilities are most frequent in summer and winter. During July and August, warm air moving across the still-cool waters results in fog. Poor winter visibilities often result from rain and snow and are usually worst from Gustavus westward.

(11) Cross Sound weather is mostly maritime while Icy Strait reflects some continental influences. Average maximums in Cross Sound range from the mid 30's (°F) in winter to the mid 50's in summer with a 7° to 9° drop to minimum. In Icy Strait, the range is from around freezing to the mid 60's with a 10° to 15° drop to minimum. At Cape Spencer, the extreme low is –1°F compared to –25°F at Gustavus. Cape Spencer receives about twice as much precipitation as Gustavus, on average. Both locations show a peak during October, November, and December.

(12) **Glacial ice** in varying quantities is prevalent in Icy Strait and Cross Sound throughout the year. The ice comes from Glacier Bay, and most of it is usually found at Glacier Bay entrance and from there to Inian Islands. It is quite thick in Cross Sound, and ice has been seen 10 to 15 miles seaward of Cape Spencer and as far E as Point Augusta. The pieces are large enough to make them dangerous to navigation. Ice at times piles up heavily along the shore from Point Adolphus to Eagle Point.

(13) **Chart 17302.–Cross Sound** is that part of the passage SW of the Inian Islands. Icy Strait is that part E of Inian Islands.

(14) The N shores of the sound are mostly high, formed by the slopes of the Fairweather range. The S side, formed by the Chichagof group, is comparatively low.

(15) **Caution.**–From Cross Sound to Excursion Inlet, shoalings amounting to as much as 6 feet in several critical areas were disclosed during 1959. It is probable that these shoalings and others not yet discovered were due to the major earthquake of July 10, 1958. Accordingly, mariners are urged to use caution in navigating over or near critical depths.

(16) **Chart 17303.–Cape Bingham,** the NW extremity of Yakobi Island and the SE point at the entrance to Cross Sound, is a low, irregular, rounding, wooded point with a gradual rise for about 1 mile to the interior. Numerous open glades occur in the vicinity. Low timbered islets and points extend offshore for a distance of about 0.4 mile.

(17) From Cape Bingham to Soapstone Point the shoreline is of a very irregular and broken character and presents an almost continuous line of perpendicular cliffs with numerous indentations and inlets, at the heads of which are gradual sand beaches. Numerous columnlike pinnacle rocks and small rocky islets mark the entire shoreline.

(18) **Soapstone Point,** on the W side of the entrance to Lisianski Inlet, is the extremity of a neck of land of bold appearance with a shoreline of steep cliffs. W is a small cove open and exposed and with depths of 8 to 9 fathoms at the entrance. E is **Soapstone Cove,** a narrow inlet that has at its head a valley with a stream. Depths shoal rapidly from 25 fathoms at the entrance to less than 1 fathom 0.5 mile within Soapstone Cove. In October 1978, an 8-fathom shoal was reported off the entrance to the cove, about 0.5 mile ENE from Soapstone Point. From the shoreline in the vicinity of the point the land rises rapidly and is generally timbered to elevations of about 1,500 feet. The bottom is very irregular for a distance of about 1 mile in a NW direction from this point. Rocks and kelp extend off the point.

(19) **Chart 17301.–Cape Spencer,** the NW entrance point to Cross Sound, is a conspicuous headland. Extending from

the cape for about 1.2 miles in a S direction is a large shoal area in which there are rocky islets, some of the inner ones wooded, and rocks, the outer ones usually showing as breakers. From the shoreline the cape rises rapidly to timbered ridges.

(20) **Cape Spencer Light** (58°11.9'N., 136°38.4'W.), 105 feet above the water, is shown from a white square concrete tower on a rectangular concrete building on the outermost large, rocky islet S from Cape Spencer. A fog signal and radiobeacon are at the light.

(21) **Dicks Arm,** about 1 mile N of Cape Spencer Light, is a narrow inlet less than 200 yards wide in places that extends in a N direction for about 2 miles. From the head of the arm is a gradually rising valley, passing over a saddle to Taylor Bay. A narrow channel, with depths of 2½ to 12 fathoms leads E of **Zip Rock,** 20 feet high and bare, through the off-lying rocks and islets to the inlet. Depths of ¾ to 8 fathoms are found in the inlet to within 0.5 mile of the head, where it is shoal.

(22) **Chart 17302.–Taylor Bay,** on the NW side of Cross Sound has its entrance about 6 miles NE of Cape Spencer. The bay is open to the SE. **Brady Glacier,** at the head of the bay, has a face about 2 miles long, about 400 feet high, and presents a broken, ragged appearance, with dark streaks. Off the face of the glacier there is an extensive flat that drops off rapidly to 10 to 12 fathoms. The flat at the face of the glacier is extending rapidly down the bay. Vessels proceeding up the bay should use caution and keep sounding. Extensive shoaling has been reported in the upper half of the bay with bare spots in some places. The bottom is mud. The SW side of the bay is shoal for 0.5 mile offshore. At the entrance to Taylor Bay a rock that exposes at low water is about 0.75 mile off the SW shore.

(23) **Taylor Island,** high and hummocky, forms the NE side of the bay for 1.9 miles from the entrance with a bare rock 0.3 mile off the S end of the island and small rocky islets closer inshore. From Taylor Island a chain of small islets extend NW. There is no navigable channel between the islets and the shore.

(24) **Fern Harbor,** the inlet on the E side of Taylor Island, extends about 1 mile in a NW direction and is about 0.3 mile wide. Depths of 25 fathoms were found at the entrance and depths of 9 to 11 fathoms, sticky bottom, within the cove. A boulder reef closes the head of the bay except a narrow high-water channel near the Taylor Island shore. The harbor affords anchorage for small craft.

(25) **Chart 17303.–Lisianski Inlet** follows a general SE direction for about 21.5 miles. There is temporary anchorage for vessels up to 150 feet long off the E side of Miner Island in 20 fathoms, rocky bottom, poor holding ground. The vessel swings to the current, and the effects of wind drawing through the channel are felt. Good anchorage and shelter may be had at the head of Lisianski Inlet in 15 fathoms, soft, sticky bottom. Small boats anchor alongshore where the depths are not too great, particularly in Mite Cove, off Miner Island, and off the flats alongshore.

(26) **Currents** in Lisianski Inlet are reported slight and set fair with the channel.

(27) In entering, favor the SW shore until inside the entrance then follow midchannel courses. The chart is the guide.

(28) If bound for Lisianski Strait, round Miner Island at a distance of about 300 yards. This passes close to an 8-fathom spot surrounded by deep water.

(29) If bound for the head of the inlet, pass NE of Miner Island and Junction Island, follow midchannel courses for about 3 miles beyond Junction Island, then favor the SW shore until well past the flats off the NE shore at Pelican and the 5-foot rock almost in midchannel about 0.6 mile beyond. Follow midchannel courses until near the head of the inlet, then favor the SW shore through the narrows and proceed in midchannel to anchorage.

(30) In November 1989, a rock, covered 9¾ fathoms, was reported about 0.3 miles SE of the 5-foot rock in about 57°56'24.2"N., 136°12'16.1"W.

(31) **Column Point,** the NE headland of Lisianski Inlet, receives its name from the columnlike masses of rock that extend from its shores. The shoreline is rough and broken and is marked by steep cliffs 20 to 100 feet high. The land E rises rapidly and is timbered to elevations of about 1,500 feet. Small rocky islets and rocks awash, marked by kelp, extend about 0.4 mile offshore, just inside the entrance to Lisianski Inlet. The W extremity of the foul area is marked by a seasonal buoy.

(32) The SW shore of Lisianski Inlet is bold, but broken by a number of small bights. **Mite Cove,** 2.5 miles from the entrance, is the best anchorage for small craft. **Mite Island** is off the NW point of the entrance. Kelp and rocks extend for about 50 yards offshore of the island. Depths of 13 to 20 fathoms were obtained in the channel SE of the island, while to the S depths of 5 and 6 fathoms were found. Protected anchorage may be had in 11 to 12 fathoms, soft bottom, in the center of the cove. There are several freshwater streams, and at the head of the cove and on each side are sand and gravel beaches. **Mite Head,** the SE point of the entrance, is marked by a light.

(33) A rock awash, marked by a daybeacon, is 350 yards off the SW shore about 3 miles above Mite Head. There is deep water between it and the SW shore.

(34) **Basalt Knob,** on the NE shore about 4 miles above Mite Head, is marked by a light.

(35) The NE shore of Lisianski Inlet from inside the entrance to opposite Miner Island is clear. The beach is rocky, and the land rises rapidly to mountain ridges, timbered to an elevation of about 1,500 feet. To the head of the inlet the shoreline is generally rocky with several islands and points with flats extending short distances offshore. The slopes of the ridges are moderate and heavily wooded. On the SW side the slopes are steep and the peaks are bare.

(36) **Pelican,** on the NE shore of Lisianski Inlet about 4.5 miles SE of Miner Island, is a community with a cold storage plant, a general store, and a restaurant. Lodging is also available in this community.

(37) **Pelican Entrance Light** (57°57.3'N., 136°13.8'W.), 17 feet above the water and shown from a post with a red and white diamond-shaped daymark, is about 190 yards off the end of the breakwater.

(38) **Dangers.**–The dangers in the immediate area are two rocky islets and rocks awash S of the light and off the flat that extend from the shore S of the breakwater. A 2½-fathom shoal and a rock, covered 1½ fathoms, are in the entrance to Pelican Harbor in about 57°57'27.8"N., 136°13'53.9"W., and 57°57'24.9"N., 136°13'47.7"W., respectively.

(39) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(40) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) Pelican is a **customs station.**

(41) **Wharves.**–The wharves at Pelican are privately owned and operated, except for a State ferry terminal on the NW side of the breakwater. The wharves and the small-craft

floats are partially protected from SE winds by the breakwater and the rocky islets.

(42) Pelican Cold Storage Wharf (57°57'36"N., 136°13'47"W.): 125-foot face; 20 feet reported alongside; shipment of freight, ice, and receipt and shipment of fish at the face; owned and operated by Pelican Seafoods, Inc.

(43) Pelican Crab Cannery Wharf (57°57'36"N., 136°13'43"W.): about 45 yards E of the Seafoods Wharf; 95-foot face; 15 feet reported alongside; 1½-ton hoists; receipt and shipment of crabs; owned and operated by Pelican Seafoods, Inc.

(44) Pelican Fuel Pier (57°57'37"N., 136°13'40"W.): about 35 yards NE of the SE corner of the Crab Cannery Wharf; 60-foot face; 12 feet reported alongside; receipt and sale of petroleum products; owned and operated by Pelican Seafoods, Inc.

(45) Alaska State Ferry Terminal (57°57'28.5"N., 136°13'34"W.): on the NW side of the breakwater; 20 feet reported alongside; owned and operated by the State of Alaska.

(46) **Supplies.**–Provisions and fishing supplies can be obtained at the general store; gasoline, diesel fuel, lubricating oils, greases, aviation fuel, and water at the fuel pier; and ice for fishing vessels and water at the cold storage wharf.

(47) **Repairs.**–Vessels up to 75 feet long can be handled at one of the city-operated grids in the mudflats E of the fuel pier. Two other city-operated grids, capable of servicing three vessels, are between the fuel pier and small-boat basin. A nearby machine shop is available to small craft for minor engine repairs.

(48) **Small-craft facilities.**–A Federal project provides for a small-boat basin dredged to a depth of 12 feet between the wharves on the N and a breakwater 1,000 feet long on the S. The city-operated small-craft floats close SE of the fuel pier provide about 3,600 feet of float space. In August 1991, 12 feet was reported alongside the floats except for lesser depths along the floats on the N and E outer parts of the harbor. A seaplane float is at the W end of the second float E of the fuel pier. Water and electricity are available at the floats.

(49) A 60-foot small-craft float, with 10 feet alongside, is about 25 yards NE of the E corner of Pelican Seafoods Wharf. An 800-pound hoist for transferring supplies for the general store is on the float. Another small-craft float, with 6 to 8 feet alongside, is on the N side of the Pelican Fuel Pier.

(50) **Communications.**–Pelican has scheduled year-round seaplane service to Juneau and Sitka. A supply boat calls monthly from Seattle. Telephone and radiotelephone services are maintained with other parts of Alaska and with other States.

(51) About 1.5 miles from the head, Lisianski Inlet is narrowed to a width of about 330 yards by **Soloma Point,** a grassy point projecting from the NE shore. Beyond this the inlet widens to about 0.5 mile. At the head of the inlet is a flat that bares for about 0.5 mile. Two streams empty here. The N stream is about 60 yards wide and of considerable volume; the current is swift, but the water is shoal. Beyond the flat is a grass-covered area, the W end of a large valley.

(52) **Chart 17302.–Port Althorp,** on the SE side of Cross Sound, between Point Lucan and Point Lavinia, with Three Hill Island and George Islands across the entrance, narrows to an inlet about 0.3 mile wide near the head. Three passes lead to Port Althorp.

(53) **Point Lucan,** 3 miles NE of Column Point, is a prominent wooded headland. From Column Point to Point Lucan the shoreline consists of almost unbroken precipitous cliffs 50 to 100 feet high, with the exception of a narrow strip of sand beach 0.5 mile SSW of Point Lucan. Heavy masses of kelp extend offshore for 0.2 to 0.5 mile. A small rocky islet is 0.4 mile offshore about 1.2 miles NNE of Column Point. From the shore the land rises rapidly and the slopes are heavily timbered.

(54) **Three Hill Island,** NW of Point Lucan, has three prominent wooded hills separated by low saddles; the SE summit is somewhat flat; the NW summit appears conical. The SW shore is fringed with rocks and rocky islets. Off the SE extremity of the island are two small rocky islets close together, about 25 feet high. **Three Hill Island Light** (58°09.2'N., 136°23.0'W.), 80 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the W islet. Between the light and the rocky islet off Point Lucan is a deepwater channel 0.2 mile wide.

(55) **George Islands** a group of four islands at the entrance of Port Althorp, are about 8 miles NE of Cape Bingham. The larger islands are sparsely wooded. The two N islands are small with off-lying rocks that extend about 0.1 mile in a N direction. A light is on an islet off the northeasternmost island.

(56) The westernmost and largest of the George Islands is irregular in shape with a deep indentation. **Granite Cove,** on its S side is open to the S. The sides of the cove are irregular cliffs, and the head is a shingle beach. A shoal point extends for about 150 yards from the rock off the point on the W shore of the cove where the shoreline turns W.

(57) **Local magnetic disturbances.**–Differences of as much as 3° from normal variations have been observed on George Islands at the head of Granite Cove.

(58) From a low depression in the center of the island, at the head of Granite Cove, the land rises to the S to an elevation of about 300 feet, steep and with rocky cliffs on the S side; N of the depression the land rises less steeply to an elevation of over 200 feet. The W and S shores are fringed with rocks and kelp.

(59) The easternmost island, separated from the W island by a narrow channel with a depth of 3¼ fathoms, rises to an elevation of over 100 feet; the shores are fringed with kelp and rocks, and kelp is off the S end, close-to. On the S side of the island is a white gravestone 4 feet high and 30 feet above water cemented to the bare rock outcrop.

(60) **Gaff Rock** is about 0.4 mile W of the SW end of the W George Islands. There is no safe passage between the rock and the island; kelp surrounds the rock, and there is a kelp patch to the E.

(61) **Currents.**–Current observations in the entrance E of George Islands indicate that the current usually flows N with a varying velocity that reaches a strength of about 2 knots 2¼ hours before flood strength in North Inian Pass. (See the Tidal Current Tables for daily predictions.)

(62) **Point Lavinia,** about 10 miles E of Cape Spencer, is the N headland at the entrance to Port Althorp. The point appears to form a little bluff at its extremity with rather low land behind it, rising in a SE direction. It is wooded, and depths of 2¼ to 5 ¼ fathoms extend 200 yards off the point. The point is marked by **Point Lavinia Light** (58°13.3'N., 136°21.3'W.), 60 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

(63) **Elfin Cove** is a narrow inlet in the NE shore of Port Althorp E of the E George Islands. A large islet with several smaller ones close N is in the middle of the entrance to the cove; channels are on either side of the islet. A light marks the northernmost of the smaller islets.

(64) The main entrance channel to the cove, SW of the large islet, is marked by **Elfin Cove Entrance Light 2** (58°11.7'N., 136°21.1'W.), 48 feet above the water, shown from a small house with a red triangular daymark on the S entrance point. The channel then leads SE between rock ledges and through a narrow cut into the inner harbor.

(65) **Channels.**–A Federal project provides for two dredged sections in the main channel; a 9-foot section just N of Elfin Cove Entrance Light 2, and an 8-foot section through the narrow cut that leads into the inner harbor. In 1991, the channels were reported to be at project depths.

(66) **Anchorages.**-The harbor affords protected anchorage in either of the two basins in the inner harbor and is extensively used by small fishing vessels. Care should be taken when anchoring in the lower basin of the inner harbor; numerous vessels have been reported dragging anchor and often going aground on the eastern shore.

(67) **Dangers.**-The principal danger in the approach to the cove is a 1¼-fathom rock, marked by kelp, about 500 yards NNW of Elfin Cove Entrance Light 2. The rocky ledges on the sides of the entrance channel are marked by daybeacons.

(68) **Elfin Cove,** a fishing settlement on the NE side of the harbor, has a small hotel, restaurant, electronic shop, and laundromat open from May through September. A general store maintains limited supplies year round.

(69) A fuel float with a 250-foot face is in the outer harbor, about 240 yards E of Elfin Cove Entrance Light 2. In 1991, 9 feet was alongside the float. Gasoline, diesel fuel, lubricating oils, and greases can be obtained from the float. Water and limited provisions are available in the summer. On the S side of the SW corner of the float, a fish-buying scow, with ice and a limited amount of provisions and fishing supplies, is docked in the summer.

(70) The settlement of Elfin Cove operates small-craft floats in both the inner and outer harbors. A 203-foot float with a capacity for 12 boats with 21 feet on the NW end and 9 feet on the inshore side in 1991, is just E of the fuel float. A 34-foot seaplane float is at the NW end of the 203-foot float. The floats at the N end of the inner harbor provide 46 berths for small craft with depths of 13 to 18 feet alongside in 1991. Water is available at the gangway. There is a private float landing on the E shore of the inner harbor.

(71) A community-operated grid that can handle craft up to 60 feet in length is in the inner harbor W of the small-craft floats. A nearby machine shop is available for minor engine repairs.

(72) Elfin Cove has scheduled seaplane service with Juneau. Telephone and radiotelephone communications are maintained with other parts of Alaska, and with other states.

(73) **Althorp Rock,** about 15 feet high and marked by a light, is in the middle of Port Althorp, about 0.5 mile E of Three Hill Island. Several rocks that cover are close-to. A group of rocks, several of which show at high water, are W of Althorp Rock; kelp usually marks the rocks. Deep water is found between the patches, but the use of these channels is not recommended.

(74) On the NE shore of Port Althorp, about 5 miles SSE of Point Lavinia, is a cove with a small island near the N shore and a small islet with rocks close-to near the E shore. Depths of 18 fathoms near the head to 29 fathoms in the middle were obtained. From the N part of the cove an inlet extends E for about 0.3 mile to a bight about 0.3 mile in diameter; flats extend for a considerable distance off the N shore. Depths of 1 fathom were found in the bight and in the channel.

(75) The ruins of a pier are on the SW side of Port Althorp, about 1.5 miles SE of Point Lucan. Anchorage may be had in 15 to 20 fathoms, mud bottom, at the head of Port Althorp. Small craft anchor closer in, near the head in 5 fathoms, soft bottom. In 1992, local fisherman reported that cable remnants were pulled up in the vicinity of 58°08'12"N., 139°19'18"W. In entering, the channel E of the islet is preferred. At the head of the bay is a flat with a stream emptying into the SE corner.

(76) The **Inian Islands,** consisting of five principal islands, five smaller islets, and a few rocks, are between Point Wimbledon and Point Lavinia and separate Cross Sound from Icy Strait. They are close together, mountainous, and wooded. The NW island rises to a conical peak with a shoulder on the SE side. **North Inian Pass Light** (58°16.3'N., 136°24.1'W.), 64 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the NW point of the NW island.

(77) **South Inian Pass** connects Cross Sound and Icy Strait S of the Inian Islands. Two shoal spots are off the point on the S side of the pass at the E entrance; the N one, a rock awash, is marked by a lighted bell buoy; the S spot is covered by 2 fathoms at low water.

(78) **South Rock,** at the entrance to the bight in the S side of the pass, and **Dad Rock,** at the entrance to the irregular indentation in the N side of the pass, both bare and are marked by kelp. There are no dangers in South Inian Pass proper and no anchorages.

(79) The current is stronger than in North Inian Pass, approaching 9 knots on the ebb at times. The flood is considerably weaker. Severe tide rips and swirls occur, especially at the W entrance, with an ebb current and W or SW wind.

(80) Coming from the E and rounding into Port Althorp, Point Lavinia should be given a berth of not less than 250 yards to avoid a rock, exposed 3 feet at MLLW, NW of the point. Ice is occasionally encountered.

(81) **Earl Cove** is the indentation about 400 yards wide in the E side of Inian Islands. It is clear, and a small vessel may anchor here temporarily in 8 to 16 fathoms, but it is exposed E and generally has considerable ice.

(82) **North Inian Pass** is between the N coasts of the Inian Islands and Point Wimbledon. A dangerous rock awash is about 0.6 mile ENE from the NE entrance point of Inian Cove, and about 0.2 mile offshore; a bare rock is between this shoal spot and the shore.

(83) **Point Wimbledon,** about 3 miles E from the S extremity of Taylor Island, is a bold headland rising sharply to about 0.8 mile off the beach, then with less slope to higher peaks to the NW. It is thickly wooded and presents a continuous shoreline of gray cliffs about 50 feet high. In the bight between Taylor Island and Point Wimbledon is a rather prominent headland off which a shoal extends for about 0.6 mile. Ice from Glacier Bay is frequently encountered.

(84) **Inian Cove,** on the N side of Inian Islands, is a secure anchorage with a clear width of about 600 yards. Its entrance is about 0.8 mile E of the NE point of the westernmost Inian Island. A small grassy islet with steep rocky sides is off the N point of the entrance. Kelp grows in deep water on both sides in the entrance. Ice drifts into the cove, usually along the SW side, but is not considered dangerous to vessels at anchor.

(85) Approaching from E, pass N of foul ground that extends 0.2 mile off Inian Islands, 0.7 mile ENE of the entrance to the cove. From W the approach is clear. Enter in midchannel and steer E so as to keep the NE shore aboard, distant 100 yards, in the narrowest part of the cove. Anchor in the wide part of the cove in 7 to 9 fathoms, soft bottom.

(86) **Chart 17300.–Icy Strait** extends from Inian Islands in an E direction for about 16 miles to Point Adolphus, where it takes a SE direction for about 27 miles to its junction with Chatham Strait. It averages 6.5 miles wide, but in places this is reduced by islands.

(87) Glacial ice from Glacier Bay may be found in the strait in small quantities mainly in the winter. Some of these isolated bergs are dangerous to small- and medium-sized vessels.

(88) **Chart 17302.–Point Dundas,** the E point of the entrance to Dundas Bay, on the NW shore of Icy Strait to the N of Inian Islands, is bold, steep, and wooded. There is deep water close to the point, the 50-fathom curve is less than 0.2 mile offshore.

(89) **Dundas Bay** has its entrance on the NW side of Icy Strait, N of Inian Islands. The main bay is about 2 miles wide and 4 miles long in a N direction. The N end of the main bay is filled by flats to a distance of about 1.3 miles from its head. Between the flats is a channel of very deep water leading N toward the mouth of the **Dundas River.** SW of the flats is a channel along the SW shore of the bay leading into the narrow crooked inlet that extends 5 miles in a NW direction, and then turning abruptly S and reaches to within 1 mile of Taylor Bay, with low land between. Numerous deadheads have been observed in the bay.

(90) Ice begins to form in November in the N and SW arms of the bay and may linger into May if colder weather prevails.

(91) Anchorage in 8 to 12 fathoms, sticky bottom, can be had about 0.3 mile off the SW shore, opposite a wooded islet, about 3 miles N of Point Wimbledon. The only danger is the flat about 0.8 mile NE of the islet. The anchorage is exposed to the SE, and heavy ice drifting with the current is sometimes troublesome. At the anchorage the tidal currents have an estimated velocity of 2.5 knots.

(92) **Idaho Inlet** has its entrance on the S shore SE of Inian Islands. A shoal extends about 0.2 mile W from the E point at the entrance to Idaho Inlet. Anchorage can be made in 15 fathoms in the entrance to **Gull Cove,** on the E shore of the inlet just S of this point. At low water a small vessel can select an anchorage closer in, with better shelter from N winds in depths of 15 fathoms.

(93) **Shaw Islands,** two in number and wooded, are on the W side about 1.8 miles inside the entrance. The islands are connected by a ledge, but a good channel is on each side of them. A midchannel course leads safely to the head of the inlet, where there is anchorage in 18 fathoms, mud bottom, in the middle about 0.4 to 0.5 mile WNW of a wooded islet. Container barges often use this anchorage during foul weather. Small craft find anchorage closer to the head of the bay in 5 to 10 fathoms. A marker at the head of the bay marks a trail that extends inland for about 8 miles to the head to Tenakee Inlet. The trail is maintained by the U.S. Forest Service.

(94) **Lemesurier Island** is in the middle of Icy Strait, 4 miles E of the Inian Islands. **Lemesurier Island Light** (58°19.1'N., 136°02.6'W.), 42 feet above water, is shown from a small house with a red and whitle diamond-shaped daymark on the NE point of the island. **South Passage Light** (58°15.5'N., 136°06.9'W.) marks the SW point of the Lemesurier Island. The island is heavily timbered and has several summits. A small wooded island is about 200 yards off the NW shore. A shoal extends 0.4 mile offshore from the E side of the island and about 0.9 mile SSE from the light; a reef extends about 0.2 mile from the SE point of the island. Tide rips occur off this reef, off **Jacks Cove**, and about 1 mile E of South Passage Light. **Willoughby Cove** on the SE side of Lemesurier Island, affords anchorage in 8 to 10 fathoms in the E part of the cove about 0.2 mile off the beach; a strong eddy occasionally sweeps in a small iceberg.

(95) **North Passage** and **South Passage** lead N and S of Lemesurier Island, respectively. North Passage is more often used, furnishing a more direct passage to sea. A 5¼-fathom reef is in the entrance to North Passage, 2.3 miles 033° from Lemesurier Island Light 4. South Passage is clear, but the S shore should be given a berth of at least 0.8 mile to avoid the reef and submerged rocks off Goose Island.

(96) **Local magnetic disturbance.**–Differences of as much as 7° from the normal variations have been observed in North Passage.

(97) From the E point at the entrance to Idaho Inlet (58°13.2'N., 136°09.6'W.), the shoreline is low and wooded and trends to the E for 4 miles to **Mud Bay. Mud Bay River** empties through the sandspits at the head of the bay, where flats extend for a considerable distance. The three wooded islands on the W side of the bay are separated from the mainland by a narrow channel that bares. Foul ground, bare in places, extends 0.5 mile offshore from the N side of **Goose Island,** the largest of the wooded islands. There is a depth of 5 fathoms about 1.8 miles ENE of **Quartz Point,** the NE point of Goose Island.

(98) Anchorage may be had in 5 to 9 fathoms, 1 mile from the head of Mud Bay, but is exposed from W to NE, and at times ice is encountered. In entering from the W, give the N shore of Goose Island a berth of at least 0.8 mile and Quartz Point a berth of 0.5 mile.

(99) **Point Adolphus,** the northernmost point of Chichagof Island, is marked by **Point Adolphus Light** (58°17.1'N., 135°47.1'W.), 20 feet above the water and shown from a small house with a red and white diamond-shaped daymark. It is a bold prominent point covered with timber and rising to a rounded summit. Tide rips occur N of the point. About 1 mile SW is another rounded peak. The shoreline between Mud Bay and Point Adolphus is fairly regular. **Pinta Cove,** the bight on the E side of Point Adolphus, has been used as a temporary anchorage, but is not recommended. A ½-fathom rock is near the center of the cove.

(100) **Flynn Cove** is on the S side of Icy Strait, about 7 miles SE of Point Adolphus and about 1.7 miles SE of **Eagle Point.** A shoal extends 300 yards NW from the NW extremity of **Burger Point,** the high wooded peninsula forming the NE side of the cove. **Harry Island,** small and wooded, is in the entrance 600 yards NW of this point. An islet is 0.3 mile W of Harry Island. A submerged rock is reported to be about 50 yards SE of Harry Island. A 2 3/4-fathom spot was reported to be about 800 yards NNW of the island in about 58°13'23.2"N., 135°36'16.7"W.

(101) **Pleasant Island,** on the N side of Icy Strait about 4.5 miles NE of Point Adolphus, is comparatively low. **The Knob,** near the middle of the S shore, is a prominent wooded knob. **Noon Point** is the E extremity of Pleasant Island. Rocks and kelp extend 0.6 mile off the point.

(102) **Icy Passage Light 2** (58°23.2'N., 135°37.7'W.), 22 feet above the water, is shown from a skeleton tower with a red triangular daymark off the N shore of Pleasant Island, marks the S side of Icy Passage, the channel between Pleasant Island and the N shore. Mudflats extend off the N shore to within 0.8 mile of the N shore of Pleasant Island. The shallow cove on the N shore of Pleasant Island, SE of the light, offers fair shelter in 1 to 8 fathoms, mud bottom.

(103) **Gustavus** is a community with an airport on the N shore of Icy Passage at the mouth of **Salmon River.** A

lighted buoy, about 3.7 miles W of Icy Passage Light 2, marks the river entrance. Prominent from offshore is the silver tank farm SE of the community. A State-maintained T-head pier, with a 48-foot face and 10 feet reported alongside in 1976, is about 0.3 mile E of the entrance to Salmon River. A seasonal 100-foot small-craft float extends E off the NE corner of the T-head pier. A W swell makes the pier and float a poor moorage for small craft. Freight boats call during the summer. A highway connects Gustavus and the airport with the headquarters of the U.S. National Park Rangers and a lodge at Bartlett Cove. Upon advance notice bus service is available from the airport to Bartlett Cove, which is part of the Glacier Bay National Monument. Gustavus is served by a scheduled airline from Juneau in the summer. Radiotelephone and telephone communications are maintained with other parts of Alaska, and with other States.

(104) **Weather.**–Gustavus is somewhat protected from the harsh winds of fall and winter by its inside location. Gales are rare while winds of 17 to 27 knots blow about 4 to 7 percent of the time from October through April. The best weather conditions are likely on May through September afternoons, when, on an average of 20 times per month, surface winds range between 4 and 10 knots, temperatures are 33° to 87°F, and no precipitation occurs. Poor visibilities are most likely in summer and autumn, falling below 0.5 mile on 2 to 3 days per month from July through September and again from December through March. During the summer, visibilities are worst in the early morning because of fog, while winter shows less of a diurnal variation since both fog and snow are responsible. Snow is most likely from November through March, averaging 66 inches annually. Precipitation is most frequent during October through February. Temperatures drop to freezing or below on an average of 144 days annually and climb to 70°F or above on about 12 days. Extremes range from –25°F to 87°F.

(105) **Pleasant Island Reef** is an extensive reef, 1 mile S of Pleasant Island. The reef is marked by a lighted bell buoy. Between the reef and the S shore of Pleasant Island is a ¾-fathom rock (58°19′23.7″N., 135°38′06.4″W.); between this rock and the reef is a narrow channel with depths of 20 to 30 fathoms.

(106) **Charts 17302, 17316, 17318.–Porpoise Islands,** a group of four islands, are near the E end of Icy Passage, about 2 miles E of Noon Point, Pleasant Island. The southernmost and largest island is high and wooded, and has a prominent yellow cliff about 370 feet high on the S side. The NW end of the island is a long low point, terminating in a clump, beyond which a sandspit extends almost to the next island.

(107) Foul ground extends off the islands in places for almost 0.3 mile. A 13 ½-fathom spot is 0.6 mile NW of the northernmost island in about 58°20′57.4″N., 135°30′09.6″W. Anchorage may be had in 10 to 17 fathoms, clay and sand bottom, good holding ground, off the W side of the largest island, with the tangents of the largest island bearing 031° and 125°. The strong current and SE exposure make this area a poor anchorage.

(108) **Excursion Inlet,** a deep, clear, narrow inlet in the N shore of Icy Strait, has its entrance N of Porpoise Islands. About 2.5 miles NE of the W entrance point is an extensive area of low land on the E side of the inlet. The inlet divides into two arms 4.5 miles inside the entrance.

(109) Vessels will find indifferent anchorage near the head of the E arm, 0.2 mile from the E shore, in about 30 fathoms. Small craft can select anchorage in about 10 fathoms in the coves at the head of the W arm.

(110) **Excursion Inlet,** a small settlement on the E shore about 3.3 miles above the entrance, is the site of a cannery. A wharf at the cannery has a 130-foot face. A seaplane float and a seasonal small-craft float are just N of the wharf. In 1976, 10 feet was reported alongside the small-craft float. Vessels usually stem the current, making either a port or starboard landing at the cannery wharf. The flood current is reported to set about parallel with the face of the wharf; the ebb sets off the wharf, particularly during the first part of the ebb. At low water, large vessels will ground at the bilge keel next to the wharf in soft mud, but will have 25 to 30 feet at the keel line, the shoalest water being at the S corner of the wharf. The oil wharf, 165 feet S of the cannery wharf, has a least depth of about 20 feet at the face and a length of 40 feet. During the fishing season provisions and fishing supplies can be obtained at the cannery general store, water and ice at the cannery wharf, and gasoline, diesel fuel, distillates, lubricating oils, and greases at the oil wharf.

(111) The cannery maintains radiotelephone communication. Scheduled seaplane service, daily in the summer and weekly in the winter, is maintained with Juneau.

(112) A caretaker is in charge of the cannery when it is not in operation.

(113) **Point Carolus,** the W point at the entrance to Glacier Bay, is a low gravel and boulder point, back of which it is low and timbered; high land is W and N.

(114) An extensive reef and several rocks are off the point. Vessels rounding Point Carolus should give it a berth of over 1 mile in order to stay outside the dangers. A small cove, into which a stream empties, is about 1 mile SW from the point.

(115) **Point Gustavus** (58°23′N., 135°55′W.), the E entrance point to Glacier Bay, is low and wooded and does not exceed 200 feet in elevation. The beach is of gravel and boulders. It is advisable for all vessels to stay well outside Ancon Rock when rounding Point Gustavus. Old pilings of fish-traps are in the area E of the point. A shoal bare at low water is 1 mile N of the point; the bottom in this locality is broken and uneven.

(116) **Ancon Rock,** which uncovers 1 foot, is about 0.4 mile SSW of Point Gustavus and is marked by a buoy 0.3 mile to the W. A rock that uncovers 3 feet is 0.2 mile NW of Ancon Rock. Broken ground with depths of 3 to 5¼ fathoms and a possibility of less, extends 1.2 miles S of Point Gustavus; it should be avoided.

(117) **Glacier Bay** has its entrance on the N side of Icy Strait between Point Gustavus and Point Carolus. It is about 50 miles long to the head of Muir Inlet, 54 miles to the head of John Hopkins Inlet, and 62 miles to the head of Tarr Inlet, its NW arm, near the Canadian border. From Point Gustavus to Willoughby Island, the E shore, including Beardslee Islands, is low and quite shelving, and the W shore is low for a short distance back; above Willoughby Island both shores of the bay are steep and foul, and should be avoided. All the shoals of less than 6-fathom depth are covered with kelp part of the year, but this kelp cannot be depended upon to indicate the dangers as the strong current tows the kelp under most of the time.

(118) **Glacier Bay National Park and Preserve,** 4,400 square miles in area, comprises all of Glacier Bay. It has over 20 tremendous glaciers and many others almost equally impressive. They illustrate all stages, from actively moving ice masses to those that are nearly stagnant and slowly dying.

(119) Humpback whales frequent Glacier Bay. The U.S. National Park Service advises that Glacier Bay National Park and Preserve is involved in a management program to

minimize the impact of motor vessels on the whales. All motor vessels are prohibited from pursuing or approaching within 0.5 mile of humpback whales. In the period June 1 through August 31, all mariners, except commercial fishermen, are required to have advance permission from the Superintendent, Glacier Bay National Park and Preserve, to enter Glacier Bay past a line extending from Point Carolus to Point Gustavus. A 10 knot speed limit and mid-channel travel requirements are in effect in the lower bay during the summer whale use season.

(120) Requests for entry authorization are submitted to the ranger station in Bartlett Cove, addressed to Superintendent, Glacier Bay National Park and Preserve, U.S. Park Service, Bartlett Cove, Gustavus, Alaska 99826, or by telephone (907) 697-2268 or by VHF-FM radiotelephone. The ranger station, call sign, KWM-20, monitors VHF-FM channel 16, from 0800 to 1600 daily.

(121) **(See 36 CFR 13.1 through 13.31 and 13.65b,** chapter 2, for regulations governing Glacier Bay National Park and Preserve.) For current regulations and information, mariners are encouraged to read the information board at the Park Service information station at Bartlett Cove or contact the station by telephone or radiotelephone.

(122) A lodge at Bartlett Cove, with accommodations, is open during the summer season. Cruise ships enter the bay frequently during the summer season.

(123) **Currents.**–The tidal currents from Point Gustavus to Willoughby Island at times attain a velocity of 6 knots or more. Heavy tide rips and swirls occur abreast Beardslee Islands, especially off the channel SE of the NW island of the group. From this channel the ebb current sets across the bay and meeting the direct current coming down on either side of Willoughby Island produces heavy swirls and rips during large tides. Above Willoughby Island the currents have little velocity. (See the Tidal Current Tables for daily predictions of times and velocities of the current.)

(124) **Ice.**–Numerous discharging glaciers enter the bay, and glacial ice is always present, sometimes in enormous quantities in Muir Inlet, Tarr Inlet, and Johns Hopkins Inlet. The quantity of ice discharged into Glacier Bay varies from year to year and is greatly affected by seismic activity and local weather. Variations in ice conditions throughout the bay follow no absolutely predictable pattern. Water circulation near the glaciers is very erratic as freshwater enters at all depths. Swirls and eddies are common and cause the ice to move slowly in all directions. After a dry spell, rain causes calving and dense ice packs. When the ice falls from the faces of the glaciers, it may create waves 30 feet high. Therefore, small boats should not approach closer than 0.5 mile to active glaciers. Icebergs are unstable and should not be approached closely because, if disturbed by swell from the small boat passing, they may roll over or break apart at any time.

(125) Beginning in January, Glacier Bay is at times frozen in its upper reaches and in the bays and inlets where much freshwater is discharged. In the upper end of all bays and inlets, the ice never gets thick during the winter freeze-over, and it either thaws or is broken by the wind and waves. The greatest amount of float ice is found in the spring, and it lessens as the season advances. In June the ice in front of the glaciers, as seen from mountains farther down, appears to be solid at the head of the bay. More ice comes down the bay on the large tides than the small, and winds also exert a marked influence on the ice movements.

(126) Occasionally in the winter the great mass of ice from Muir Glacier is congested in Muir Inlet as far S as Wachusett Inlet, and in the summer as far S as Muir Point. Icebergs are frequently in Glacier Bay off Tlingit Point, and occasionally a few small bergs are S of Willoughby Island.

(127) The ice from Lamplugh Glacier and Reid Glacier is so scattered that vessels usually have little difficulty in passing. Tarr Inlet almost never has a dense ice pack except at the face of Margerie Glacier and Grand Pacific Glacier. Usually ice cover in Johns Hopkins Inlet is dense in the winter as far E as Lamplugh Glacier. It covers only the SW leg of the inlet in the summer. Ice may occasionally be thick as far SE as Drake Island. Fog is frequently in the bay, particularly in late summer.

(128) **Caution.**–The navigation of Glacier Bay outside of the main channels is not considered safe without local knowledge. The shoals are occasionally marked by grounded ice.

(129) Ocean liners and other vessels that cruise the bay are advised to watch for kayaks and canoes in the area.

(130) Vessels are advised to carry extra propellers aboard when navigating Glacier Bay, and single-screw vessels should not attempt to navigate the bay at all.

(131) **Bartlett Cove,** 4 miles N of Point Gustavus, formed by the mainland on the SE and **Lester Island** on the NW, is large and affords good anchorage. It is open to the SW, but the holding ground is good. The best anchorage in the cove is about 0.2 mile off the SE side in 7 to 10 fathoms, mud bottom. Take care not to approach too close to the head of the cove. In S weather small boats can anchor close inshore on the SE side of the cove. The water on the NW side of the cove is deeper; anchorage for large vessels is recommended in the center of the cove in 8 to 16 fathoms.

(132) To enter Bartlett Cove, follow the E shore of Glacier Bay at a distance of 1 to 1.5 miles offshore for 4 miles from Point Gustavus to the entrance of the cove, and enter in midchannel. No dangers exist that are not connected with the shore except at the head of the cove and off the E and W entrance points. The reef making off the E entrance point is particularly dangerous. Foul ground extends for about the same distance off the W point of the entrance and is marked at times by kelp.

(133) The 300-foot T-head pier of the U.S. National Park Service is on the SE side of Bartlett Cove. In 1976, 11 feet was reported alongside the 115-foot head with a dolphin 30 feet off the NE end. It has been reported that strong currents run parallel along the face of the pier with a W set on the ebb. Mooring facilities alongside the pier are limited and available on a first-come-first-served basis up to 2 hours. Mariners are encouraged to anchor out and use skiffs to land. Government vessels have priority alongside the pier. A 100-foot mooring float with 13 feet reported alongside and a seaplane float at the end are on the NE side of the pier. Close NE of the pier is a seaplane takeoff/landing area marked by private seasonal buoys and used from May 15 to September 30. Anchoring is prohibited. Warning signs are posted on the T-head pier. Close to the pier, the U.S. National Park Service maintains a headquarters and a ranger station throughout the year. A lodge, close to the ranger station, is available on a seasonal basis for food, showers and laundry. Gasoline, diesel fuel, stove oil, and water are available at the pier during the summer. Water can also be obtained at the mouth of the stream that empties into the head of the cove. A U.S. Park Service Ranger, at headquarters, controls the use of a grid that can handle vessels 80 feet long inshore of the SW side of the T-head pier.

(134) The U.S. National Park Service at Bartlett Cove maintains radiotelephone and telephone communications. A

road connects with Gustavus and the airport. Bartlett Cove is serviced from Juneau by scheduled and charter seaplanes, and by a scheduled airline at Gustavus airport in the summer.

(135) **Beardslee Islands,** low, hilly, and sandy, 5 miles above Point Gustavus, extend N along the E shore of Glacier Bay and should be given a good berth. The SW and W sides are quite shelving, and there are detached shoals N of them for a considerable distance. Beyond these islands the E side of the bay has shoals and sand dunes formed by the glacial debris from the head of the bay; many of these shoals show only at low water.

(136) **Beardslee Entrance** about 7.5 miles above Point Gustavus and on the SE side of Strawberry Island, is the approach to the area among the Beardslee Islands. The shoals at the entrance, although they have comparatively deep water over them, cause numerous swirls and the tide rips. Among the islands are a number of anchorages, but local knowledge is necessary for their approach.

(137) **Sita Reef** is about 0.5 mile N of the N side of **Strawberry Island.** A rocky area, about 2 miles N of Strawberry Island, is in the E half of the channel up Glacier Bay.

(138) A group of reefs about 5.5 miles N of Strawberry Island consists of coarse gravel and scattered boulders and is considered the N extremity of the Beardslee Islands. The tidal currents in Sitakaday Narrows between **Rush Point** (58°28.0'N., 136°04.5' W.) and the Beardslee Islands at times reach an estimated velocity of 5 knots.

(139) **Berg Bay** is on the SW side of Glacier Bay, 10 miles above the entrance. Two channels enter the bay. The passage N of Netland Island is not recommended, because rocks constrict the Glacier Bay end and low water the Berg Bay end of the channel. The controlling depth is 5 feet. The main entrance is between **Lars Island,** on the SE side of the entrance, and **Netland Island,** on the NW side. A shoal, reported to uncover, obstructs the channel at the Glacier Bay end. In entering Berg Bay, a vessel should pass midway between the ¾-fathom spot and the low-water line on the N side of the channel. The controlling depth is 22 feet. Care should be taken until past the shoal area making out from the S shore. It is advisable to make passage at or near high water. Kelp grows in about 6 fathoms, but the strong currents make the kelp tow under most of the time except during slack water.

(140) A narrow, tortuous channel leads into the SE arm of Berg Bay but its use is not recommended, because the bottom is rocky with many boulders. The currents are strong except for a short time immediately preceding and following high water. Below half tide there is a divided gradient between Berg Bay and the water in this arm.

(141) In the approach to Berg Bay from SE, Lars Island, on the SE side at the entrance, shows as detached from the shore and is readily identified.

(142) Anchorage is good in about 18 fathoms about 1 mile inside the entrance. Small craft can anchor farther inshore for protection from S winds. Good anchorage, with protection from N winds, can be had in the N arm. Small craft also have good anchorage in the W arm.

(143) **Willoughby Island,** about 12.5 miles above Point Gustavus, is a densely wooded mountain, and three small islets are close to its N end. **Johnson Cove,** the small indentation at the NE extremity of Willoughby Island, is partially protected from wind and waves by the small islets and affords some protection for small boats in all but SE weather.

(144) The main channel of Glacier Bay passes about 1 mile E of the Willoughby Island shore. **Whidbey Passage,** a well-defined and deep channel, separates Willoughby Island from the mainland to the W.

(145) **Francis Island** is a densely wooded islet, 1.6 miles NW of Willoughby Island, with a deep channel between. **Drake Island,** like Willoughby Island, is densely wooded. The shores are rocky and steep, with short stretches of gravel beach; a depth of 8 fathoms is about 2.6 miles 062° from the NE end of Drake Island.

(146) **Marble Islands,** high and sparsely forested, and weathered to a slate color, are 1.4 miles apart; the S one is 3 miles NE of Willoughby Island. Just off the S end of South Marble Island are some rocks awash, and relatively shoal water extends in a narrow ridge some 750 yards SE. A shoal, reported to uncover and marked by kelp, is midway between **North Marble Island** and **South Marble Island** and makes passage dangerous between them. Shallow water extends NW from the N end of North Marble Island. Near the N extremity of the shoal, 470 yards from the island, is a rock that uncovers about 6 feet.

(147) **Leland Islands,** the two islands about 1.7 miles E of the Marble Islands, are low, thickly wooded, and have an extensive area of shoal water surrounding them and a large reef to the S. The channel between these islands and the Marble Islands is navigable, but caution is necessary.

(148) **Beartrack Cove,** which indents the E shore of Glacier Bay about 13 miles N of Point Gustavus, is very deep throughout, and the bottom slopes steeply from the shore. **Beartrack River,** a stream of considerable size, empties into the upper end of the cove. To anchor in 20 fathoms or less a vessel must lie about 175 yards off the low-water line. Strong W winds bring swells into the cove.

(149) A deep channel passes N between the Leland Islands and the mainland, and then between North Marble Island and Sturgess Island. It affords good passage from Beartrack Cove to Sandy Cove and Muir Inlet.

(150) **Spokane Cove** is 6.5 miles NW of Beartrack Cove. In entering, care must be taken to pass S of the rock off the N shore and to avoid the boulders which fringe the shore of the mainland. The entrance channel has a depth of 10 fathoms. This cove is used by fishing boats with local knowledge but is open to winds from the NW. Anchorage can be had in 5 to 8 fathoms, mud and sand bottom.

(151) There are two rocks 0.5 mile off the S entrance point. The S one uncovers 12 feet and the N one 2½ feet.

(152) **Sturgess Island** is 3 miles N of North Marble Island. Sturgess Island has a longitudinal ridge that rises from the water with an even slope. A chain of islets extends SE from Sturgess Island. A 5-fathom shoal is about 0.5 mile SW of Sturgess Island. There are shoal areas in the W half of the strait between Sturgess Island and the large island to the E, but deep water is found if the E shore is favored.

(153) Good holding ground for larger vessels can be found 0.25 mile S of Sturgess Island in 15 fathoms.

(154) **North Sandy Cove,** between the mainland and the two islands about 1.2 miles E of Sturgess Island, affords anchorage in 4 to 6 fathoms, good holding ground, and good protection from winds from any quarter. Ice rarely drifts into the cove. Two channels lead into North Sandy Cove. The N channel on the E side of **Puffin Island,** the N island, has a depth of 29 fathoms and is preferred. The S channel that leads between the two islands has a controlling depth of 5 fathoms and is used to some extent by local fishing vessels.

(155) **South Sandy Cove,** immediately S of North Sandy Cove, is used by fishing vessels with local knowledge. Excellent anchorage can be had any place in the cove, including the bight at the SE side of the head, in 5 to 8 fathoms, mud and sand bottom. This anchorage is almost always free of ice, but is open to winds from the SW. In entering, take care to pass S of the rock about 250 yards S of the small islet on the N side of the entrance, and to avoid the boulders that

fringe the SE shore. The entrance channel has a depth of 10 fathoms. There are two rocks 0.5 mile W of the S entrance point. The S one uncovers 12 feet, and the N one 2 feet. Do not attempt passage between the rocks and the point.

(156) **Muir Inlet** extends N then W for a distance of over 24 miles from the N side of Glacier Bay. At its entrance the shores are steep and timbered, but in the area of Wachusett Inlet the E shore is an area of terminal moraine with gently sloping beaches. N of Sealers Island the W shore is barren and steep and continues as described to the head of the inlet. The E shore becomes barren and steep near Riggs Glacier and remains so to the terminus of Muir Glacier. Numerous shifting glacial streams line the moraines, and a number of glaciers empty into the inlet. Good depth is found in midchannel.

(157) **Muir Glacier,** at the head of Muir Inlet, discharges bergs continuously, and the ice makes navigation precarious.

(158) **Tlingit Point,** on the W side of the entrance, is rock outcrop. **Sebree Island,** close to the W shore, at the entrance to the inlet, is heavily wooded, and is connected to the mainland by gravel and mud flats. Small vessels can anchor in **Sebree Cove,** between Tlingit Point and the S part of Sebree Island; the holding ground is good. The cove is exposed to S winds, but ice seldom drifts in. An unnamed islet is in the entrance to the cove, about 0.5 mile S of Tlingit Point.

(159) **Caroline Shoal,** on the W side of Muir Inlet 2 miles above Tlingit Point, is a gravelly spit that is barely awash at high water. The N side of the shoal is occasionally marked by grounded icebergs.

(160) **Garforth Island,** 85 feet high and densely wooded except at the N end, is on the E side of Muir Inlet, about 2.8 miles NE of Sebree Island. The channel between the island and the E shore of the inlet has a controlling depth of 6 fathoms. The shoal part of the channel usually has a considerable amount of kelp. A good anchorage for vessels too large for most anchorages in the upper reaches of the bay is reported to be about 0.25 mile N of Garforth Island.

(161) **Adams Inlet,** on the lower E shore of Muir Inlet, is deep at the entrance. However, the remainder of the inlet is dangerous to enter without local knowledge. Strong tidal currents (especially in the entrance) and shoals exist throughout all branches leading to the bays of the inlet. A large rock marks the narrowest part of the entrance channel. It is N of the centerline of the entrance, about 2.7 miles from the mouth. Passage to the N of the shoal is preferred; give equal berth to the shoal and N shoreline of the entrance channel. Controlling depth is 3 fathoms.

(162) During periods of ebb and flood, the tidal velocity is greatly increased in the vicinity of this rock, because of the constriction in the channel. White water dashes about the rock, and large whirlpools are shed from its sides.

(163) No glaciers discharge ice into the inlet, and only occasionally will ice be found within the inlet. A large island is in the center of the inlet just past the entrance channel. Channels lead around the N and S sides of the island to large bays at the E and SW sections of the inlet. Controlling depths are 1¼ fathoms for the N channel and 3½ fathoms for the S channel. The waters are very muddy, and submerged shoals cannot be seen except for those marked by turbulent currents.

(164) **Hunter Cove** on the W side of Muir Inlet, 9 miles above the entrance, is a bight formed by the recession of **Plateau Glacier;** the cove is a good temporary anchorage. When using this bight, take care to avoid two rocks, which uncover 2 feet, close E of the bold point at the N entrance.

(165) **Wachusett Inlet** is on the W side of Muir Inlet about 6 miles NW of Adams Inlet. A shoal (58°56.8′N., 136°08.0′W.) with a depth of 3½ fathoms is near the middle of the entrance; large icebergs frequently ground on this shoal. A berth of 0.25 mile should be given this shoal, because it slopes gently to the deeper depths. A reef, which uncovers 9 feet, is about 1 mile from the entrance of the inlet and about 500 yards from the S shore. Vessels should favor the N shore.

(166) Wachusett Inlet extends over 9 miles from its entrance, W to the terminus of Plateau Glacier. The mouth and inward to the narrowest part of the inlet have depths ranging from 34 to 42 fathoms at midchannel. The next few miles deepen to over 100 fathoms then gently slope upward to the face of the glacier and a depth of about 29 fathoms midchannel. The N shore of the inlet is mostly glacial moraine left by the recession of Burroughs and Plateau Glaciers. The S shore is more steep than the N shore; barren rock is interspersed with pebble beaches formed from alluvial fans.

(167) **Sealers Island,** a small rocky island with steep sides, is close to the E shore of Muir Inlet and about 7 miles N of Adams Inlet. Small fishing vessels can anchor in **Goose Cove,** the small cove E of the island. The cove is narrow and shoal, but generally free from ice during the summer.

(168) The NW arm of Glacier Bay has a NW direction, with a width of 2 to 5 miles, and a precipitous shoreline with depths greater than 20 fathoms within 200 yards of the shore. **Lone Island** has a rocky, precipitous shoreline and is in midchannel about 3.4 miles NW of Drake Island. A rock is reported to be about 0.3 mile S of the island in about 58°43′00″N., 136°17′28″W. **Geikie Rock,** 6 feet high, is off **Geikie Inlet,** 1.8 miles S of Lone Island. The occasional grounding of ice in the vicinity indicates a shoal of some extent. A large rock, which uncovers 11 feet, is 900 yards 042° from Geikie Rock.

(169) Geikie Inlet extends 8 miles SW from the S shore of Glacier Bay. Midchannel depths range from 40 to 80 fathoms with unobstructed depths greater than 10 fathoms that extend to within 200 yards of shore.

(170) **Shag Cove** is 1 mile within the entrance to Geikie Inlet on the S shore. Depths in the 2-mile-long cove range from 1½ to 6 fathoms to within 100 yards of the shore with the exception of two areas: 3 fathoms, 300 yards off the W shore, 0.8 mile within the entrance, and 7 fathoms, midchannel, 0.6 mile within the entrance. These shoals are not a hazard to navigation for any size vessel likely to operate in the cove; however, passage may be made in 10 to 40 fathoms by staying 250 yards off the E shore. An area foul with rocks extends 300 yards offshore from the point and small island at the SW entrance to the cove. This foul area extends toward the large island 0.2 mile to the NNE. Passage may be made by small craft by staying within 100 yards of the large island. Protected anchorage may be had in 5 to 20 fathoms at the head of the cove, soft bottom.

(171) **Tyndall Cove** is 2 miles SW of Shag Cove. Unobstructed midchannel depths range from 10 to 40 fathoms with depths greater than 10 fathoms within 100 yards of the shore. A gravel bar extends 400 yards offshore from the large stream on the W shore at the entrance to the cove. Anchorage may be made in 10 to 20 fathoms at the head of the cove, soft bottom.

(172) An island is 0.4 mile off the SE shore of Geikie Inlet, midway between Tyndall Cove and Shag Cove. A shoal surrounds the island, which should not be passed closer than 500 yards. A wide berth should be given to a rock awash (58°38.1′N., 136°23.1′W.), 600 yards off the SE shore, 0.6

mile SSW of the island, directly N of the E side of the entrance to Tyndall Cove.

(173) A foul area (58°44.3'N., 136°24.2'W.), awash at low water, is 0.7 mile off the SW shore of the W arm of Glacier Bay and 3.5 miles WNW of Lone Island. A 1½-fathom shoal (58°44.5'N., 136°25.9'W.) is 800 yards off the S shore and 1 mile W of the foul area. Safe passage may be had into **Hugh Miller Inlet** by staying 100 to 600 yards off the S shore, from the prominent point 3.5 miles NW of Geikie Rock to a small unnamed cove on the S shore just within the mouth of the inlet. Unobstructed depths greater than 5 fathoms extend to within 100 yards of the shore; a gravel bar at the mouth of the stream near the middle of the cove extends 250 yards offshore from the apparent shoreline and should be avoided. Anchorage may be had in 5 to 35 fathoms in the cove, soft bottom.

(174) Two unnamed islands 5.6 miles NW of Lone Island separate Hugh Miller Inlet from **Blue Mouse Cove** to the N. Passage should not be attempted from the SW or SE into Blue Mouse Cove. Midchannel depths in Hugh Miller Inlet range from 30 to 57 fathoms. **Division Island** (58°46.2'N., 136°32.5'W.) separates **Charpentier Inlet** and upper Hugh Miller Inlet. No attempt should be made to enter the head of Hugh Miller Inlet between Division Island and Gilbert Peninsula without local knowledge; numerous rocks and foul areas exist in this area. The SW shore of Hugh Miller Inlet between the unnamed cove and Division Island should be kept at least 500 yards to port when passing from the unnamed cove to the NW part of Charpentier Inlet. A rock (58°45.4'N., 136°29.9'W.) is 250 yards offshore 0.7 miles NW of the NW entrance point of the unnamed cove. A 3-fathom shoal is 300 yards NE of a low grassy island just off the prominent point 0.6 mile NW of the NW entrance point of the unnamed cove, and a 3½-fathom shoal is 450 yards N of the same island.

(175) To pass through Hugh Miller Inlet into Charpentier Inlet, follow a midchannel course until the N and westernmost low rocky island is abeam to port and then follow a SW course so as to pass midchannel between the SE end of Division Island and the rocky island about 500 yards S of the southeast point of Division Island. Take care to pass well clear of the islands, which are fringed by reefs and shoal areas. Midchannel depths are 4 to 30 fathoms between the rocky islands and Division Island. Rocks and foul areas extend SSE from the westernmost rocky island to shore, and the area should be avoided.

(176) **Charpentier Inlet** extends about 6 miles SSE from the SSW end of Division Island. Depths in the inlet are 40 to 83 fathoms with unobstructed depths greater than 10 fathoms 100 yards offshore. Two rocks (58°44.9'N., 136°31.4'W.) are 100 yards N of the prominent point on the E shore at the entrance to the SE arm of the inlet. Anchorage may be had in soft bottom anywhere in the inlet. The SE arm is navigable to its head where anchorage may be had in 10 to 20 fathoms.

(177) A small 0.5-mile diameter tidal basin (cove), 1.3 miles W of Division Island, is separated from the N arm of Charpentier Inlet by a high flat gravel island. The cove is 15 fathoms deep at its center, but is separated from the inlet by a bar at low water; passage may be made into the cove by skiff through a 0.7-mile-long NW-trending channel originating near the center of the gravel bar at the NW end of Charpentier Inlet and passing N of the flat gravel island.

(178) **Scidmore Bay** is SE of **Scidmore Glacier,** NW of Charpentier Inlet and W of **Gilbert Peninsula.** Depths are 20 to 46 fathoms with depths greater than 5 fathoms within 200 yards of the shore. Two unnamed islands are near the center of the bay. Two rocks (58°48.6'N., 136°37.2'W.) are 100 yards off the N shore of the E island, and a reef is 200 yards W of the NW point of the E island. A rock (58°48.2'N., 136°37.5'W.) is 30 yards off the SW shore of the W island. A submerged rock (58°48.0'N., 136°37.6'W.) is 500 yards SW of the S end of the W island. Strong NW and SE winds blow through the bay, and best anchorage is made in 10 to 20 fathoms in the lee of the islands, soft bottom. To enter Scidmore Bay, hold a midchannel course from Charpentier Inlet.

(179) **Blue Mouse Cove,** 3 miles SW of Tidal Inlet, is at the SE end of Gilbert Peninsula. Unobstructed depths greater than 5 fathoms extend to within 150 yards of the shore, with central depths from 15 to 30 fathoms, good holding ground. During the summer, the U.S. National Park Service maintains a ranger station at Blue Mouse Cove. A patrol boat is at the station. The patrol boat and ranger station monitor VHF-FM channel 16 (156.80 MHz).

(180) **Tidal Inlet,** about 3 miles ENE of Gilbert Peninsula, is 4 miles long, with central depths of 26 to 130 fathoms and unobstructed depths greater than 10 fathoms within 150 yards of the shore. An 8¼-fathom shoal is 450 yards ESE of the prominent point on the W side of the entrance to the inlet. Anchorage is best in 5 to 20 fathoms off the S shore, 2.6 miles from the entrance, and 100 yards NW of a prominent reef 100 yards from the apparent shoreline; anchorage in other areas is difficult, because of excessive depths.

(181) **Composite Island** is 6 miles NW of Tidal Inlet between Rendu Inlet and Queen Inlet. Clear passage may be made on all sides of the island in depths of 60 to 140 fathoms. Unobstructed depths greater than 10 fathoms extend to within 100 yards of the shore. Anchorage may be had 200 yards off the NW shore in 20 fathoms.

(182) **Rendu Inlet,** 7 miles long, is NW of Composite Island; central depths are 40 to 98 fathoms, with unobstructed depths greater than 20 fathoms within 100 yards of the shore.

(183) **Queen Inlet** is N of Composite Island; central depths are 30 to 80 fathoms, with unobstructed depths greater than 20 fathoms within 200 yards of the shore. **Triangle Island** is at the head of the inlet and is surrounded by tidal mud flats. In 1992, Triangle Island was reported to be covered by sand and silt.

(184) Neither Rendu Inlet nor Queen Inlet offers safe anchorage, because of the steeply sloping bottom and excessive depths. Take care to avoid the rapidly building bars at the heads of these inlets.

(185) Glacier Bay continues NW from the Gilbert Peninsula and Composite Island to Russell Island. The principal channel passes to the S of Russell Island with central depths of 120 to 220 fathoms.

(186) A group of small rocky islets are 1.8 miles E of the SE point of Russell Island. The largest islet at the SE end of the group has a prominent, dome-shaped peak that is about 36 feet above mean sea level. Reefs and foul ground extend for 900 yards NW from the dome for an area 300 yards wide. The SE end is steep-to.

(187) A single rocky islet is 1 mile N of the SE point of Russell Island. A reef extends 500 yards from the SE end of the islet. A 4-fathom shoal (58°55.6'N., 136°45.3'W.) is 0.6 mile E of the islet.

(188) **Russell Island** has two rocky peaks and is covered with alderbrush on the lower slopes and moraine areas. The S, NE, and N slopes are rocky and steep at sea level. The SW and W sides are gently sloping.

(189) Along the NE side of Russell Island are several islets and rocks awash, all within 400 yards of the mean high-water line. Bare and submerged rocks extend out 400 yards from the SE point of the island.

(190) The N shore of Glacier Bay from Rendu Inlet to Russell Island is steep with gravel and boulder beaches. A large glacial outwash area is N of Russell Island. A small natural basin with a controlling depth of 1 fathom at the entrance is on the far E flank of the outwash, 2 miles N of the SE point of Russell Island.

(191) Anchorage may also be found in 15 to 25 fathoms in an area 0.3 miles S of the basin. The anchorage is N of a line running from the NE corner of Russell Island, SE, through the islets and reefs to the domed islet 1.8 miles E of the SE point of Russell Island. Approach is made by following the N shore, keeping midway between the shore and the line of islets and reefs. The offshore side of the channel should be favored to avoid the 4-fathom shoal. Anchorage is in mud with gravel and cobbles anywhere from the islet due N of the easternmost point of Russell Island up to the northeasternmost point of Russell Island.

(192) To continue through the passage around the N side of the island, stay midchannel, but favor the island side until abeam of the first rocky point on the NW side of the outwash. Then favor the mainland side, passing about 250 yards off the second rocky point on the N shore. Then steer WNW into Tarr Inlet, avoiding the 2¾-fathom ridge (58°57.1'N., 136°51.3'W.), 650 yards NW of the N point of Russell Island. This course will also avoid a 2-fathom submerged rocky ridge (58°57.6'N., 136°52.4'W.) that extends 300 yards off the next rocky point on the mainland (third point from the outwash and 1 mile NW of the N point of Russell Island). Passage is recommended only for vessels with draft sufficiently small to clear the charted shoals.

(193) Anchorage may be found on the NW side of Russell Island between the northernmost and the westernmost points, about 0.4 mile offshore. Depths are 5 to 20 fathoms in mud bottom with gravel and cobbles. There is a 4½-fathom shoal (58°56.9'N., 136°52.2'W.) 0.7 mile W of the northernmost point of Russell Island and a 4-fathom rock (58°56.5'N., 136°52.1'W.) 500 yards NW of the westernmost point of the island. The 5-fathom depth curve is from 200 to 500 yards offshore from the N point around to midway along the SW shore of Russell Island. Ice coming here from Tarr Inlet grounds, melts and deposits gravel, cobbles, and occasional boulders on the bottom.

(194) The S shore of Glacier Bay from the Gilbert Peninsula to Johns Hopkins Inlet is steep and rocky with occasional outwash areas. A rocky reef (58°53.0'N., 136°50.3'W.), 1.4 miles WNW of Ibach Point, is 200 yards offshore. Numerous rocks are awash less than 100 yards offshore along the S shore.

(195) **Ibach Point,** 1.7 miles S of the SE point of Russell Island, marks the E side of the entrance to **Reid Inlet.** The entrance, 0.5 miles SW of Ibach Point, is partially blocked by gravel bars that extend 500 yards off the E shore and 200 yards off the W shore. The entrance controlling depth is 3 fathoms for a width of 200 yards. The inlet extends S for about 2 miles to the face of Reid Glacier. Anchorage may be had in 10 to 20 fathoms 500 yards past the entrance to either the NE or SW. Several abandoned wooded structures of an ore processing operation are on the W side of the entrance.

(196) To enter Reid Inlet, go W past the entrance; turn and steer 135° parallel to and about 300 yards off the shoreline NW of the entrance. Approach is best made at low tide when the channel is well marked by the bars on either side.

(197) **Johns Hopkins Inlet** leads W and then SW from Russell Island for about 9 miles to the terminus of **Johns Hopkins Glacier. Lamplugh Glacier** is on the S side of the entrance to the inlet. Several smaller glaciers feed into the inlet at various places. Depths range from 200 to 43 fathoms as one proceeds into the inlet. Both shores are steep-to with very few offshore rocks, all of which are within 50 yards of shore. Both shores are mountainous with extremely steep bare rock slopes. Rock and ice falls are very common along the SE shore in the lower section of the inlet. The inlet has no anchorages.

(198) **Tarr Inlet** leads NW from Russell Island for about 9 miles to **Grand Pacific Glacier,** the largest glacier entering Glacier Bay. The glacier has advanced slowly for the past few years, and the face was 0.7 mile SE of the United States-Canadian border in 1972. **Margerie Glacier** is on the SW shore of the inlet and adjacent to Grand Pacific. The NE shore has several alluvial fans of gravel, cobbles, and boulders. The SW shore is steep bare rocks except for one gently sloping valley leading S from a cove about 7 miles NW of Russell Island. Depths in the cove slope gently offshore so that the 30-fathom line is 1,000 yards N of the high-water line at the head of the cove. Ice collects in the cove in sufficient quantity to interfere with small vessels attempting anchorage. Depths greater than 10 fathoms can be carried to within 200 yards of shore throughout Tarr Inlet. The exceptions to this are the cove described above and the NE shore at the entrance to the inlet. Depths range from 186 fathoms at the entrance to 127 fathoms 0.5 mile from the face of the glacier.

(199) **Chart 17302.–Port Frederick,** on the S side of Icy Strait between Crist Point and Point Sophia, has no known dangers other than those charted. It offers several very good anchorages with good holding ground and shelter.

(200) Small craft approaching from W use Gedney Channel. This channel is not recommended for large vessels, because of the unmarked dangers. Large vessels use midchannel courses between Point Sophia and Cannery Point to E, and Pinta Rock and Halibut Rock to W.

(201) If bound for Hoonah, give Cannery Point and the shore to E a berth of 200 yards or more. The approach is clear.

(202) **Crist Point,** the W point at the entrance, is marked by two islands about 0.7 mile off its N side. **Hoonah Island,** the NW and larger one, is 270 feet high and wooded; a reef with 2 fathoms over it extends about 0.3 mile N off the NW end of Hoonah Island. **Scraggy Island,** 40 feet high and sparsely wooded, is about 0.8 mile SE of Hoonah Island; a rock awash is midway between Hoonah Island and Scraggy Island. **Pinta Rock,** awash and marked by kelp for about two-thirds of its length, is about 0.8 mile SE of Scraggy Island. A lighted bell buoy marks the NE side of Pinta Rock. A 4¾-fathom shoal is about 0.9 mile NE of Pinta Rock.

(203) **Gedney Channel** is SW of Hoonah Island and Scraggy Island. Shoal spots are at the edge of the channel.

(204) **Halibut Island** on the W side, about 1 mile inside the entrance to the port, is wooded, and foul ground extends 0.3 mile E from it. **Halibut Rock,** which uncovers, is about 0.6 mile S of Halibut Island. There is kelp for a distance of about 100 yards NE to W of the rock, but none on its SE side. A ½-fathom rock is about midway between Halibut Island and the W shore.

(205) **Point Sophia** shows from E as a wooded hill, somewhat bluff at the water's edge; S of the hill is a V-shaped saddle, from which the hill rises to high land. From Point Sophia to Cannery Point, the shore is free of dangers.

(206) **Cannery Point,** on the SE side of the entrance to Port Frederick, 2 miles SW of Point Sophia, is similar in appearance to Point Sophia, but lower. **Port Frederick Light 3** (58°07.9'N., 135°27.9'W.), 26 feet above the water and shown from a skeleton tower with a green square daymark,

marks the entrance to Port Frederick. A support and storage facility for fishing vessels is a short distance inside of Cannery Point. The wharf for this facility is discussed later in this chapter, under wharves at Hoonah.

(207) **Hoonah Point,** 0.8 mile S of Cannery Point, is a rocky bluff, wooded on top, and appears detached from the hill nearby. About 0.6 mile S of Hoonah Point is **Pitt Island,** the northernmost of several islands near the E shore. The island is wooded.

(208) **Hoonah Harbor** is SE of Hoonah Point and between Pitt Island and the NE shore. The anchorage is between, or a little inside, the NW end of Pitt Island and the W end of the city of Hoonah, in 11 to 14 fathoms, soft bottom. The anchorage is not well protected from SW, but the holding ground is good. Broad gravel beaches extend from the N side of Pitt Island and off the village.

(209) **Hoonah,** a city on the NE shore of Hoonah Harbor, has three general stores, a motel, two restaurants, a medical clinic, a crab processing plant, a cold storage company, and a support and storage facility for fishing vessels.

(210) **Wharves.**–The wharves and floats at Hoonah are all on the NE shore of Hoonah Harbor, except the facility inside Cannery Point.

(211) Hoonah Cold Storage Dock (58°06.6′N., 135°26.7′W.): about 0.7 mile SE of Hoonah Point; 100-foot SW face; 19 feet alongside; water is available; a 1-ton hoist and two 1-ton forklifts are available; shipment of ice and supplies to fishing boats, receipt of fish; operated by Hoonah Cold Storage.

(212) A fuel float is on the NW face of the pier; water is available; receipt and sale of petroleum products; operated by the Kane Store at the head of the dock.

(213) Hoonah Seafoods Pier (58°06.8′N., 135°26.8′W): about 0.2 mile NW of the Hoonah Cold Storage; 100-foot NW face; 16 feet alongside; water and electricity are available; a 1½-ton forklift is available; shipment of fishing supplies; operated by Hoonah Seafoods.

(214) Chevron (Standard) Oil Company Berth: 40-foot face at the NW side of Hoonah Seafoods Pier; 16 feet alongside; water is available; receipt and sale of petroleum products; operated by Standard Oil Company.

(215) Hoonah City Dock (58°06.9′N., 135°27.1′W.): about 0.4 mile NW of the Hoonah Cold Storage Dock; 140 face, 250 feet of berthing space with dolphins; 23 feet alongside; 3,040 square feet covered storage is available; receipt of general cargo; owned and operated by the city of Hoonah.

(216) Alaska State Ferry Terminal (58°07.0′N., 135°27.4′W.): about 0.5 mile NW of the Hoonah Cold Storage Dock; 235 feet of berthing space with dolphins; 22 feet alongside; concrete pontoon transfer bridge is available; transfer of passengers and vehicles; owned and operated by the State of Alaska, Division of Marine Transportation.

(217) Excursion Inlet Packing Corporation Dock (58°07.8′N., 135°27.7′W.): about 1.3 miles NW of the Hoonah on the SW side of Cannery Point; dock has a 110-foot face; 30 feet is reported alongside; water and electricity are available; two 3-ton hoists are available; storage of fishing supplies and repairs to privately owned fishing vessels, with emergency repair available to others; owned and operated by Excursion Inlet Packing Corporation. This facility is only open in the summer.

(218) **Supplies.**–Limited amounts of provisions and fishing supplies can be obtained at the general stores in town and at Hoonah Seafoods Pier. Gasoline, diesel fuel, distillates, lubricating oils, greases, and water are available at the oil facilities. Ice for fishing vessels can be obtained at the Hoonah Cold Storage Dock.

(219) **Repairs.**–A grid that can handle vessels up to 100 feet is inside the Inner Harbor; another grid that can handle vessels up to 40 feet is on the S side of the approach pier to the city floats, about 120 yards N of the Hoonah Cold Storage Dock. Aluminum repairs, equipment storage, and fishing supplies are available at the Inner Harbor. No facilities are available for engine repairs; local mechanics may be found for hire.

(220) **Small-craft facilities.**–The city-operated small-craft floats are about 120 yards NNW of the Hoonah Cold Storage Dock. The over 650 feet of floats provide side mooring for 24-hour transient vessels; contact the harbormaster on VHF-FM channel 16 or telephone (907-945-3670). Depths alongside were reported at 12 feet in 1990. It is recommended that only small craft and skiffs moor on the inshore side of the float. A seaplane float extends from shore about 200 yards NW of the city float approach pier. In the winter, SW winds sometimes draw through with considerable force.

(221) Small-craft floats, with about 170 feet of berthing space, extend from the N corner of the Hoonah Cold Storage Dock. A fuel float for small craft is at the NW face of the dock. At Hoonah Seafoods Pier, a 50-foot small-craft float extends off the SE side with a 9-foot depth reported along its offshore side and 6 feet reported along the inshore side. The privately owned facility inside Cannery Point has small-craft floats, which are used only in the summer season. The floats extend off the NW and SE sides of the Excursion Inlet Packing Corporation Dock.

(222) A boat basin, known locally as the Inner Harbor, operated by the Hoonah **Harbormaster** is close S of Hoonah. The S and W boundaries are formed by a breakwater which connects the S end of Pitt Island to the shore. A second breakwater extends W 300 yards from Hoonah toward Pitt Island and is marked on its western extremity by a light. A short breakwater extends E from Pitt Island and is also marked by a light. The Inner Harbor is entered from the N by passing E of Pitt Island, close aboard the Hoonah Cold Storage Dock, and then turning SW between the two lighted breakwaters. In September 1991, the controlling depth was 12 feet (18 feet at midchannel) in the entrance channel with depths of 8 to 18 feet in the basin. Floats in the basin provide berthing for 260 boats up to 62 feet long; 600 feet of berthing is available for transients on both faces of the nothernmost float; vessels up to 100 feet long have been berthed. Electricity and water are available. The basin has 153 feet of float mooring for skiffs.

(223) At the E end of the southernmost breakwater is a fish pass 60 feet wide. Riprap bottom and strong currents make navigation in the pass dangerous. The waters S of the Inner Harbor and Pitt Island are shallow and foul with rock debris. This area, as well as the fish pass, should only be transitted by skiffs and small vessels with local knowledge.

(224) **Communications.**–Hoonah maintains daily seaplane and airplane communications with Juneau. A dirt landing strip is about 1.2 miles SE of the city. Three ferries a week stop at Hoonah, connecting this port with Angoon, Kake, Tenakee Springs, Pelican, Sitka, Juneau, and Haines. Telephone and radiotelephone communications are maintained with other cities in Alaska and with other States.

(225) SE of Hoonah is a small inlet, divided by a low wooded point. Mudflats, which uncover, and marsh grass fill the inlet. **False Point** is the low, wooded point S of **Pitt Island.** A rock, covered 5 feet, is 0.3 mile WSW of Pitt Island, and shoaling to 2 feet extends 0.2 mile SW of Pitt Island. **Long Island,** 0.6 mile SW of Pitt Island, is wooded, and connected with the E shore of the bay by flats that have islets and rocks. A reef, awash, and a rock, covered 3 feet, are

0.1 mile NW of Long Island. A small wooded island, with a reef that extends about 300 yards off its W end, is between Pitt Island and Long Island, 0.2 mile NNE of the latter. Local knowledge is required for safe navigation and anchorage between Pitt Island and Long Island. Strangers should stay well clear of this area.

(226) **Game Point,** about 2.8 miles SSW of Inner Point Sophia, is low and wooded. A narrow neck of land extends about 0.2 mile in a NE direction from which flats stretch to Long Island. **Game Creek,** a large salmon creek, empties into the flats.

(227) **Humpback Creek** empties into the N end of a bight filled by flats on the W shore, about 2.3 miles W of Game Point.

(228) From Game Point the shore trends in a SW direction for about 2.2 miles to a wooded point that extends about 0.4 mile in a N direction. In the small inlet, E of the point, are depths of 15 fathoms at the entrance, shoaling to 1 fathom near the head. Two submerged rocks are in the inlet.

(229) **Burnt Point,** 3.3 miles SW of Game Point, is wooded and rises rapidly to higher ground to the SE. **Grassy Rock,** a small grass-covered rock, is about 0.2 mile off Burnt Point. In the bight E of Grassy Rock are depths of 40 fathoms at the entrance to 13 fathoms near the head. Flats extend off the E side of the bight for 350 yards. **Seagull Creek,** about 1.8 miles S of Burnt Point, has flats that extend offshore about 0.5 mile from its mouth.

(230) **Chimney Rock,** about 2 miles SW of Burnt Point and about 0.5 mile E of the S point of the entrance to Neka Bay, is a small wooded islet. A reef extends from Chichagof Island shore almost to Chimney Rock, leaving a channel about 100 yards wide with a depth of ¾ fathom. This reef has a small islet. Rocks, covered and uncovered, are about 0.2 mile N of Chimney Rock in 58°01'34"N., 135°36'43"W.

(231) **Midway Island** (57°59.8' N., 135°36.5'W.), small and wooded, is about 3.3 miles SSW of Burnt Point. **Midway Rocks,** 0.5 mile WNW of Midway Island, are two rocks, about 0.1 mile apart, that uncover 4 feet. A reef extends from the W shore, inside the rocks, for a distance of about 200 yards. A 1-fathom shoal is close N of the rocks in about 58°00'09"N., 135°37'25"W.

(232) Anchorage may be had in 5½ to 12 fathoms in **Eight Fathom Bight,** which indents the N shore about 3 miles WNW of **The Narrows.** A logging camp with a small pier is on the W side of Eight Fathom Bight. The camp monitors VHF-FM channel 16.

(233) The head of Port Frederick is divided into two inlets by a low, wooded peninsula with rocks awash off its NE end that extend to **Bell Island,** which is low and wooded. Depths of 26 fathoms are found at the entrance to the N inlet, shoaling to 7½ fathoms near the head.

(234) The S inlet is long and narrow with several bends and has depths of 6 to 11 fathoms in the widest part, except near the shores. The channel to the two arms at the head of this inlet leads between the point and the rock and has depths of 5½ fathoms. Tide flats fill the NW arm, which extends to a canoe portage 70 yards wide to Tenakee Inlet. Depths of ½ fathom are found at its entrance. The SW arm has depths of 3 to 5 fathoms, sticky bottom.

(235) **Salt Lake Bay,** at the S end of Port Frederick, inside The Narrows, extends in a S direction, with depths of 43 fathoms at the entrance to 9 fathoms off the flats, which extend about 0.2 mile from the SE corner. The bay then extends SW to a lagoon, **Salt Chuck,** which is entered through an opening less than 150 yards wide and 0.2 mile long. The opening has depths of about 5 feet; a rock awash is on the E side. Salt Chuck has 8¼ fathoms in the middle. The opening to Salt Chuck has swift currents and riptides during maximum tides; local knowledge is advised.

(236) A logging camp with a small pier and a float is on the E side of the entrance to Salt Lake Bay.

(237) **Neka Bay,** on the W side of Port Frederick about 9 miles from the entrance, extends in a W direction. It is divided into three arms by two low, wooded peninsulas. **Neka Island** is 0.2 mile E from the extremity of the N peninsula. Two rocks, awash and unmarked, are in midchannel S of Neka Island. Rocks covered ¾ fathoms and 1½ fathoms are 0.2 mile SE and 0.1 mile N of Neka Island, respectively.

(238) From Neka Island, the N arm follows a WNW direction, narrowing to less than 0.3 mile, thence the arm follows a WSW direction, terminating in a large basin. The greater part of the basin is navigable at high water for vessels of 2- or 3-foot draft; it dries at low water. About 0.4 mile inside the entrance to the N arm are private mooring buoys, used for barge transfer. Tugboats from Seattle and southwestern Alaska exchange barges at this site and at times use the buoys for weather layover. On the S side of the channel, 0.3 mile from the entrance to the narrow part, is a small wooded island with a bight to the SSW. A depth of 2¾ fathoms was found in the S channel leading to the bight; a rock is in the W channel.

(239) **North Bight,** the middle arm of Neka Bay, with the entrance S of Neka Island, has depths of 6 to 12 fathoms, sticky bottom. A rocky spot, covered ½ fathom, is about 0.9 mile above the entrance in about 58°02'01"N., 135°39'46"W. At the head it narrows to a small, irregularly shaped bight, shoal except for a very narrow channel with depths of 3 to 6 fathoms.

(240) The entrance to **South Bight** is constricted to a width of about 100 yards by a long narrow point that projects from the S shore. A rock awash is off the N entrance point in about 58°01'34"N., 135°39'05"W.

(241) **Chart 17316.–The Sisters,** near the middle of Icy Strait, about 5 miles ENE from Point Sophia, consist of two islands connected by a sand beach. The N island is heavily wooded. The S island is very narrow, with a clump of trees at each end, giving the group the appearance of three islands. There is a 1¼-fathom spot 0.4 mile SSE from the SE end of the S island. **The Sisters Light** (58°10.3'N., 135°15.4"W.), 69 feet above the water, is shown from a skeleton tower at the S end of the N island. An aero radiobeacon is about 190 yards SSW of the light.

(242) **Sisters Reef,** 1.1 miles W of the N end of The Sisters, uncovers two heads and has no kelp. At times the tidal current has a velocity of 2 or 3 knots over the reef.

(243) **Spasski Island,** about 2.2 miles S of The Sisters, is marked on its N side by **Spasski Island Light 12** (58°08.0'N., 135°16.3'W.), 30 feet above the water, and shown from a small house with a red triangular daymark. The island is small and divided at high water; the larger part has several trees on it. A reef, showing well in places at low water, extends 0.4 mile S from it. A detached rock, bare at low water, is about 0.6 mile SE of the island. Shoal spots exist on the following distances and bearings from the light: 0.2 mile 310o, 3½ fathoms; 0.7 mile 301o, 4¼ fathoms; 0.5 mile 277o, 1 fathom; 0.8 mile 134o, 5¼ fathoms.

(244) **Spasski Bay** is on the S shore to the SW of Spasski Island. **Neck Point,** the N point at the entrance, is a high, rocky, wooded peninsula, connected with the main shore by a low narrow neck. Several submerged rocks are about 700 yards N of Neck Point; the least depth over the rocks is 1½ fathoms. Rocks, usually marked by kelp, extend E of Neck Point. A 1¼-fathom shoal is about 0.6 mile ESE of Neck Point. An opposing wind and current causes treacherous sea

conditions in the entrance to the bay; exercise caution when entering the bay. In the SE end of the bay are extensive sand flats, and behind the low point is a grassy flat covered at high water. **Pulizzi Island,** a small triangular wooded island, with rocks 0.1 mile off the NE end, is off the E end of the bay. The shores of the bight at the W end of the bay are wide sand and gravel beaches.

(245) The anchorage, exposed to the NE, is in 9 to 10 fathoms in the middle of the W end of the bay, with Neck Point bearing NE.

(246) The shore E of Point Sophia and the reef NW of Neck Point should be given a berth of 0.8 mile.

(247) **Chart 17300.–Whitestone Harbor** (58°04'N., 135°04'W.), on the S side of Icy Strait about 7 miles E of Pulizzi Island, is an inlet about 1 mile long in a W direction. The SW arm of the harbor is foul. The shores at the entrance are foul. Enter the harbor at midchannel, thence favor the N shore to avoid a reported boulder that bares just S of the center of the harbor. Anchorage for small craft is in the arm on the N side of the harbor, in sand and gravel bottom.

(248) Chatham Strait is described in chapter 10. Lynn Canal is described in chapter 11.

APPENDIX

(1) **Sales Information.**-National Ocean Service (NOS) and unclassified Defense Mapping Agency (DMA) publications and nautical charts are sold by NOS and its sales agents in many U.S. ports and in some foreign ports. Mail orders should be addressed to:

(2) National Ocean Service,

(3) Distribution Branch (N/CG33),

(4) 6501 Lafayette Avenue,

(5) Riverdale, MD 20737-1199, and accompanied by a check or money order 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 222 West 7th Street, Anchorage, AK 99513-7574.

(6) **National Ocean Service Offices**

(7) **Washington, DC** (Headquarters): Assistant Administrator, National Ocean Service, NOAA, Herbert C. Hoover Bldg., 14th Street and Constitution Avenue, NW, Washington, DC 20230-0001.

(8) **Rockville:** Director, Charting and Geodetic Services, National Ocean Service, NOAA, 6001 Executive Boulevard, Rockville, MD 20852-3806.

(9) **Norfolk:** Director, Atlantic Marine Center, National Ocean Service, NOAA, 439 West York Street, Norfolk, VA 23510-1114.

(10) **Seattle:** Director, Pacific Marine Center, National Ocean Service, NOAA, 1801 Fairview Avenue East, Seattle, WA 98102-3767.

(11) **Charts and Publications-National Ocean Service**

(12) **Nautical Charts** (See Chart Catalogs).

(13) United States Coastal and Intracoastal waters, and possessions.

(14) Great Lakes, Lake Champlain, New York State Canals, and the St. Lawrence River-St. Regis to Cornwall, Canada.

(15) **Publications** (See Chart Catalogs for latest editions and prices).

(16) **Pilot**

(17) U.S. Coast Pilot 1, Atlantic Coast, Eastport to Cape Cod.

(18) U.S. Coast Pilot 2, Atlantic Coast, Cape Cod to Sandy Hook.

(19) U.S. Coast Pilot 3, Atlantic Coast, Sandy Hook to Cape Henry.

(20) U.S. Coast Pilot 4, Atlantic Coast, Cape Henry to Key West.

(21) U.S. Coast Pilot 5, Atlantic Coast-Gulf of Mexico, Puerto Rico, and Virgin Islands.

(22) U.S. Coast Pilot 6, Great Lakes: Lakes Ontario, Erie, Huron, Michigan and Superior, and St. Lawrence River.

(23) U.S. Coast Pilot 7, Pacific Coast, California, Oregon, Washington, and Hawaii.

(24) U.S. Coast Pilot 8, Pacific Coast Alaska, Dixon Entrance to Cape Spencer.

(25) U.S. Coast Pilot 9, Pacific and Artic Coasts, Alaska–Cape Spencer to Beaufort Sea.

(26) **Distance Tables**

(27) Distances between United States Ports.

(28) **Tide Tables**

(29) Europe and West Coast of Africa, including the Mediterranean Sea.

(30) East Coast, North and South America, including Greenland.

(31) West Coast, North and South America, including the Hawaiian Islands.

(32) Central and Western Pacific Ocean and Indian Ocean.

(33) Supplemental Tidal Predictions–Anchorage, Nikishka, Seldovia, and Valdez, Alaska.

(34) **Tidal Current Tables**

(35) Atlantic Coast, North America.

(36) Pacific Coast, North America and Asia.

(37) **Tidal Current Charts**

(38) Boston Harbor.

(39) Narragansett Bay to Nantucket Sound.

(40) Narragansett Bay.

(41) Long Island Sound and Block Island Sound.

(42) Delaware Bay and River.

(43) Upper Chesapeake Bay.

(44) Charleston Harbor, S.C.

(45) Tampa Bay.

(46) Puget Sound, Northern Part.

(47) Puget Sound, Southern Part.

(48) **Tidal Current Diagrams**

(49) Boston Harbor.

(50) Long Island Sound and Block Island Sound.

(51) New York Harbor.

(52) Upper Chesapeake Bay.

(53) **Charts and Publications-Other U.S. Government Agencies**

(54) A partial list of publications and charts considered of navigational value is included for 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.

(55) **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, Mastercard or Choice by calling (202) 783-3238 during normal business hours.

(56) **Defense Mapping Agency Procurement Information.**-Unclassified publications and charts of the Defense Mapping Agency (DMA) are available from National Ocean Service Distribution Branch. (See Sales Information, beginning of this Appendix.) Classified DMA publications and charts are available to authorized users from Defense Mapping Agency Combat Support Center (Attn: PMSR), Washington, DC 20315-0020. DMA Customer Assistance Office may be contacted at 1-800-826-0342 or 287-2495 (Autovon).

(57) **Nautical Charts**

(58) U.S. Waters:

(59) Apalachicola, Chattahoochee and Flint Rivers Navigation Charts, Alabama River Charts, and Black Warrior-Tombigbee Rivers River Charts: Published and for sale by U.S. Army Engineer District Mobile, P.O. Box 2288, 109 St. Joseph Street, Mobile, Ala. 36628.

(60) Flood Control and Navigation Maps of the Mississippi River, Cairo, Ill. to the Gulf of Mexico: Published by Mississippi River Commission and for sale by U.S. Army Engineer District Vicksburg, P.O. Box 60, U.S. Post Office and Courthouse, Vicksburg, Miss. 39180.

(61) Upper Mississippi River Navigation Charts (Mississippi River, Cairo, Ill. to Minneapolis, Minn.): Published by U.S. Army Engineer North Central Division and for sale by U.S. Army Engineer District St. Louis, 210 N. Tucker Boulevard, St. Louis, Mo. 63101.

(62) Charts of the Illinois Waterway, from Mississippi River at Grafton, Ill. to Lake Michigan at Chicago and Calument Harbors: Published and for sale by U.S. Army Engineer District Rock Island, Clock Tower Bldg., Rock Island, Ill. 61201.

(63) Foreign Waters: Published by Defense Mapping Agency Hydrographic/Topographic Center (see Defense Mapping Agency Procurement Information above).

(64) **Marine Weather Services Chart:** Published by the National Weather Service; for sale by NOS Distribution Branch (see Sales Information above).

(65) **Publications**

(66) **Notices to Mariners:**

(67) The Local Notice to Mariners is available without charge upon application to the appropriate Coast Guard District Commander (see address further on). The Defense Mapping Agency Notice to Mariners is available without charge by operators of ocean-going vessels (see Defense Mapping Agency Procurement Information above).

(68) **Special Notice to Mariners** are published annually in Defense 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.

(69) **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.)

(70) **List of Lights (Foreign Countries)**: Published by Defense Mapping Agency Hydrographic/Topographic Center (see Defense Mapping Agency Procurement Information above).

(71) **Sailing Directions (Foreign Countries)**: Published by Defense Mapping Agency Hydrographic/Topographic Center (see Defense Mapping Agency Procurement Information above).

(72) **Radio Navigational Aids**, Pub. 117: Published by Defense Mapping Agency Hydrographic/Topographic Center (see Defense Mapping Agency Procurement Information above).

(73) 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.)

(74) **American Practical Navigator (Bowditch) (Pub. 9)**: Published by Defense Mapping Agency Hydrographic/Topographic Center (see Defense Mapping Agency Procurement Information above).

(75) **International Code of Signals (Pub. 102)**: Published by Defense Mapping Agency Hydrographic/Topographic Center (see Defense Mapping Agency Procurement Information above).

(76) **Selected Worldwide Marine Weather Broadcasts**: Published by National Weather Service; for sale by the Government Printing Office. (See Government Printing Office, early this appendix.)

(77) **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.)

(78) **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.)

(79) **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.

(80) **Maritime Radio Users Handbook:** Published and sold by Radio Technical Commission for Maritime Services, 655 Fifteenth Street, N.W., Suite 300, Washington, DC 20005-5701.

(81) **Corps of Engineers Offices**

(82) **Alaska District Office:** Bldg. 21–700, Elmendorf Air Force Base, Box 898, Anchorage, Alaska 99506-0898.

(83) The Alaska District includes the coastal and tributary waters of the State of Alaska.

(84) **Environmental Protection Agency (EPA) Offices.**–Regional offices and States in the EPA coastal regions:

(85) **Region I** (New Hampshire, Vermont, Maine, Massachusetts, Connecticut, Rhode Island): J.F. Kennedy Federal Bldg., Boston, MA 02203.

(86) **Region II** (New Jersey, New York, Puerto Rico, Virgin Islands): 26 Federal Plaza, New York, NY 10278.

(87) **Region III** (Delaware, Maryland, Virginia, District of Columbia, Pennsylvania): 841 Chestnut Street, Philadelphia, PA 19107.

(88) **Region IV** (Alabama, Florida, Georgia, Mississippi, South Carolina, North Carolina): 345 Courtland Street, NE., Atlanta, GA 30365.

(89) **Region V** (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin): 230 South Dearborn Street, Chicago, IL 60604.

(90) **Region VI** (Louisiana, Texas): 1445 Ross Avenue, Dallas, TX 75270.

(91) **Region IX** (California, Hawaii, Guam): 215 Fremont Street, San Francisco, CA 94105.

(92) **Region X** (Alaska, Oregon, Washington): 1200 Sixth Avenue, Seattle, WA 98101.

(93) **Coast Guard District Offices**

(94) Commander, Seventeenth Coast Guard District, Federal Bldg., Box 25517, Juneau, AK 99802-5517. The coastal and tributary waters of the State of Alaska.

(95) **Note:** A Marine Safety Office combines the functions of the Captain of the Port and Marine Inspection Office.

(96) The symbol (D) preceding an office indicates that a Documentation Office is at the same address.

(97) **Coast Guard Marine Safety Offices**

(98) Anchorage, Alaska: Federal Building and U.S. Courthouse, 222 West 7th Avenue 99513-7565.

(99) (D) Juneau, Alaska: 2760 Sherwood Lane 99801-8545.

(100) **Coast Guard Stations.**–Most of 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.

(101) **Alaska:**

(102) Juneau (58°17.9'N., 134°24.6'W.). On the NW side of the harbor at the U.S. Government Wharf (Subport).

(103) Ketchikan Base (55°19.9'N., 131°37.5'W.). On the NE side of Tongass Narrows about 0.6 mile SE of Ketchikan.

(104) Kodiak Support Center (57°44.3'N., 152°30.4'W.). On the N side of Womens Bay about 4.5 miles SW of Kodiak.

(105) Kodiak Air Station (57°44.3'N., 152°30.4'W.). At Kodiak Support Center.

(106) Sitka Air Station (57°03.2'N., 135°21.9'W.). On Japonski Island.

(107) **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:

(108) **Urgent and safety broadcasts:**

(109) (1) **By radiotelegraph:** (a) Upon receipt, except within 10 minutes of the next silent period, for urgent messages only; (b) during the last 15 seconds of the first silent period after receipt; (c) repeated at the end of the first silent period which occurs during the working hours of one-operator ships unless the original warning has been cancelled or superseded by a later warning message.

(110) (2) **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.

(111) (3) Urgent broadcasts are preceded by the urgent signal; XXX for radiotelegraph; PAN for radiotelephone. Both the urgent signal and message are transmitted on 500 kHz, 2182 kHz, and VHF-FM channel 16. Safety broadcasts are preceded by the safety signal; TTT for radiotelegraph; SECURITY for radiotelephone. After the preliminary signal on 500 kHz and 2182 kHz, the station shifts to its assigned working medium frequency for the radiotelegraph broadcast and 2670 kHz for the radiotelephone transmission. Those stations broadcasting on VHF will announce on channel 16, shifting to channel 22.

(112) **Scheduled broadcasts.**–The following Coast Guard radio stations make scheduled broadcasts, preceded by a preliminary call on 500 kHz and VHF-FM channel 16, at the times and frequencies indicated.

(113) **Radiotelegraph:**

(114) NOJ, Kodiak, Alaska, 470 kHz, 1100 and 2030 Ak.s.t.

(115) Adak, Alaska, 450 kHz, 1000 and 1930 H.A.s.t. (Remotely keyed by NOJ, Kodiak.)

(116) **Radiotelephone** (VHF-FM channel 22A; control stations are given, followed by remote antenna sites.):

(117) **NMJ-2,** Ketchikan, Alaska:

(118) Gravina Island (55°22'N., 131°48'W.), 0615 and 1815 Ak.s.t.

(119) Cape Decision (56°00'N., 134°08'W.), 0533 and 1733 Ak.s.t.

(120) Zarembo Island (56°21'N., 132°52'W.), 0515 and 1715 Ak.s.t.

(121) Sukkwan Island (55°06'N., 132°46'W.), 0515 and 1715 Ak.s.t.

(122) Mary Island (55°05'N., 131°10'W.), 0533 and 1733 Ak.s.t.

(123) **NOU,** Sitka, Alaska:

(124) Mud Bay (57°09'N., 135°39'W.), on Kruzof Island, 0003, 0450, 1203, and 1533 Ak.s.t.

(125) **NMJ-1,** Juneau, Alaska:

(126) Cape Fanshaw (57°12'N., 133°28'W.), 0503 and 1703 Ak.s.t.

(127) Mount Althorp (58°05'N., 136°24'W.), NE side of Lisianski Inlet, 0533 and 1903 Ak.s.t.

(128) Mount Robert Barron (58°14'N., 134°50'W.), 0603 and 1803 Ak.s.t.

(129) Yakutat (59°31'N., 139°46'W.), 0503 and 1703 Ak.s.t.

(130) **NMJ-3,** Valdez, Alaska:

(131) Cape Hinchinbrook (60°15'N., 146°39'W.), 1633 and 2233, Ak.s.t.

(132) Boswell Bay (60°25'N., 146°08'W.), 0415 and 1215, Ak.s.t.

(133) Naked Island (60°38'N., 147°20'W.), 0415 and 1215 Ak.s.t.

(134) Point Pigot (60°49'N., 148°22'W.), 0433 and 1233 Ak.s.t.

(135) Valdez (61°08'N., 146°16'W.), 1615 and 2215 Ak.s.t.

(136) **NOJ,** Kodiak, Alaska:

(137) Diamond Ridge (59°42'N., 151°34'W.), about 4.3 miles NW of Homer Airport, 0533 and 1633 Ak.s.t.

(138) Rugged Island (59°56'N., 149°24'W.), 0703 and 2033 Ak.s.t.

(139) Site Summit (61°15'N., 149°32'W.), about 9.5 miles ENE of Anchorage, 0903 and 1733 Ak.s.t.

(140) Narrow Cape (57°26'N., 152°25'W.), 0703 and 2033 Ak.s.t.

(141) Pillar Mountain (57°47'N., 152°27'W.), 0533 and 1633 Ak.s.t.

(142) Sitkinak Dome (56°33'N., 154°10'W.), 0903 and 1733 Ak.s.t.

(143) Cape Gull (58°09'N., 154°09'W.), 0533 and 1633 Ak.s.t.

(144) Tuklung Mountain (58°51'N., 159°27'W.) about 6 miles ENE of Kulukak Point, 0903 and 1733 Ak.s.t.

(145) **Rescue Coordination Centers.**–Listed below are the locations of the centers in Alaska; refer to the local telephone directory for numbers.

(146) Juneau, Alaska: U.S. Coast Guard Station.

(147) Anchorage, Alaska: Elmendorf Air Force Base.

(148) Kodiak, Alaska: U.S. Coast Guard Support Center.

(149) Adak, Alaska: Adak Naval Station.

(150) **Customs Ports of Entry and Stations**

(151) 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.

(152) **Pacific Region**

(153) Anchorage District:

(154) Ports of Entry: Anchorage, Dalton Cache (59°27.1'N., 136°21.6'W.), Juneau, Ketchikan, Sitka, Skagway, Valdez, Wrangell.

(155) Customs Stations: Barrow (supervised by Fairbanks port of entry); Dutch Harbor (supervised by Anchorage port of entry); Haines (supervised by Dalton Cache port of entry); Kaktovik (Barter Island) (supervised by Fairbanks port of entry); Kenai (Nikishka), Kodiak (supervised by Anchorage port of entry); Pelican (supervised by Juneau port of entry); Petersburg (supervised by Wrangell port of entry).

(156) **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.

(157) Anchorage, Alaska: International Airport; 632 6th Avenue.

(158) Annette, Alaska: Airport.

(159) Barrow, Alaska: Wiley Post-Will Rogers Field.

(160) Barter Island, Alaska: Airport.

(161) Bethel, Alaska: Airport.

(162) Cold Bay, Alaska: Airport.

(163) Homer, Alaska: Municipal Airport.

(164) Juneau, Alaska: Federal Office Bldg.

(165) King Salmon, Alaska: Airport.

(166) Kodiak, Alaska: Airport.

(167) Kotzebue, Alaska: Ralph Wein Memorial Airport.

(168) Nome, Alaska: Airport.

(169) St. Paul Island, Alaska: Airport.

(170) Unalakleet, Alaska: Airport.

(171) Valdez, Alaska: Coast Guard VTS Building.

(172) Yakutat, Alaska: State Airport.

(173) **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. These broadcasts usually are made several times a day; the transmission schedules are shown on the **Marine Weather Services Chart** for Alaskan Waters.

(174) The weather broadcasts schedules of Coast Guard radio stations are also listed in the descriptions of Coast Guard marine services found elsewhere in this appendix.

(175) The National Weather Service offices in Alaska broadcast marine forcasts and warnings for coastal waters on the frequencies and at the times (Alaskan standard time when the state is observing standard time, and Alaskan daylight saving time when the state is observing daylight saving time) indicated.

(176) KDG-58, Annette: 4125 kHz, 0700 and 1645;

(177) KDG-91, Yakutat: 4125 kHz, 0930 and 1930;

(178) KCI-98, King Salmon: 4125 kHz, 1100 and 1715; seasonal April 1 through October 15;

(179) KCI-95, Cold Bay: 2512 kHz (April 1 through October 15), 4125 kHz (October 16 through March 30), 1030 and 2030;

(180) WBH-29, Kodiak: 4125 kHz, 0800 and 1800;

(181) KCI-94, Nome: 4125 kHz, 1130 and 2130.

(182) **NOAA Weather Radio.**–National Weather Service VHF–FM radio stations provide mariners with continuous FM broadcasts, radar reports, and surface weather observations. These stations usually transmit on 162.55 or 162.40 MHz. Reception range is up to 40 miles from the antenna site, depending on the terrain, type of receiver, and the antenna used. The following VHF–FM radio stations with location of antenna are located in Alaska:

(183) WXJ–26, Ketchikan (55°22'N., 131°40'W.), 162.55 MHz.

(184) WXJ–83, Wrangell (56°28'N., 132°22'W.), 162.40 MHz.

(185) WXM–97, Haines (59°17'N., 135°27'W.), 162.40 MHz.

(186) WXJ–80, Sitka (57°03'N., 135°21'W.), 162.55 MHz.

(187) WXJ–25, Juneau (58°23'N., 134°46'W.), 162.55 MHz.

(188) WXK–69, Yakutat (59°30'N., 139°39'W.), 162.40 MHz.

(189) WXJ–79, Cordova (60°33'N., 145°45'W.), 162.55 MHz.

(190) **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 area of broadcast coverage are as follows:

(191) Juneau, Alaska: Southeast Alaska. Outside waters-Dixon Entrance to Cape Suckling, out 60 miles; inside waters-Dixon Entrance to Skagway including Lynn Canal-Glacier Bay, Icy Strait-Cross Sound, Chatham Strait, Stephens Passage, Frederick Sound, Sumner Strait, and Clarence Strait.

(192) **National Weather Service Port Meteorological Officers (PMOs).**–Port Meteorological Officers provide assistance on matters of weather chart interpretation, instruments, marine weather communications, and requirements affecting ship operations. (See National Weather Service, chapter 1, for further details.) The nearest PMO to the area covered by this Coast Pilot is at:

(193) Seattle, Wash.: 7600 Sand Point Way, NE 98115.

(194) Anchorage AK: 222 West 7th Avenue, 99513-7565.

(195) **Public Health Service Quarantine Stations.**–Stations where quarantine examinations are performed:

(196) Anchorage: Anchorage International Airport, U.S. Quarantine Station, Box 190083, Anchorage, Alaska 99519-0083.

(197) 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.

(198) **Food and Drug Administration (FDA) Regional Offices**

(199) **Northeast Region** (New York, Maine, Connecticut, New Hampshire, Vermont, Rhode Island): 830 Third Avenue, Brooklyn, NY 11232.

(200) **Mid-atlantic Region** (Delaware, Pennsylvania, Virginia, Maryland, Ohio, New Jersey): U.S. Customhouse, 2nd and Chestnut Streets, Philadelphia, PA 19106.

(201) **Southeast Region** (South Carolina, North Carolina, Georgia, Alabama, Louisiana, Mississippi, Florida, Puerto Rico): 60 Eight Street, N.E., Atlanta, GA 30309.

(202) **Midwest Region** (Illinois, Indiana, Michigan, Wisconsin): 20 N. Michigan Avenue, Chicago, IL 60602.

(203) **Southwest Region** (Texas): 3032 Bryan Street, Dallas, TX 75204.

(204) **Pacific Region** (California, Hawaii, Alaska, Washington, Oregon): 50 U.N. Plaza, San Francisco, CA 94102.

(205) **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.

(206) 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.

(207) **Alaska:**

(208) Anchorage: Anchorage International Airport; Box 6191, Annex Post Office, 99502.
(209) **Animal Import Centers:**
(210) Honolulu, Hawaii: P.O. Box 50001, 96850.
(211) Miami, Fla.: P.O. Box 523054, 33166.
(212) Rock Tavern, N.Y.: New York Animal Import Center, Stewart Airport, Rural Route 1, Box 74, 12575.

(213) **Immigration and Naturalization Service Offices**
(214) **Alaska:**
(215) Anchorage: Federal Bldg., 701 C Street, 99513.
(216) Haines: Mile 41 Haines Highway (Dalton's Cache), 99827-0506.
(217) Ketchikan: 111 Main Street, 99901.
(218) Skagway: P.O. Box 475, 99840.

(219) **Federal Communications Commission Offices**
(220) **District field offices:**
(221) Anchorage, Alaska: 6721 West Raspberry Road 99502.

(222) **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: "DH MEDICO". The following stations maintain a continuous guard on 500 kHz. (See Medical advice, chapter 1.)
(223) WKN, Ketchikan, Alaska, Alascom, Inc.
(224) WKQ, Point Lena, Juneau, Alaska, Alascom, Inc.
(225) NOJ, Kodiak, Alaska, U.S. Coast Guard.
(226) WKR, Nome, Alaska, Alascom, Inc.: 1000-1900 Ak.s.t. Monday-Friday; 1100-1500 Ak.s.t. Saturday; 1100-1200 Ak.s.t. Sunday and holidays.

CLIMATOLOGICAL TABLES

These tables were prepared by the National Environmental Satellite, Date, and Information Service. Station level pressure refers to the actual pressure taken at the elevation of the station. Where it has been reduced to sea level, the term sea level pressure is used. Time given is local standard time.

* means less than 0.5 percent.
** means less than 0.5 day.
t means trace (not measurable) of precipitation.

ANNETTE, AK (55°02'N., 131°34'W.) Elevation 110 ft. (33.5m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1011.0	1011.2	1012.1	1014.0	1016.7	1016.4	1018.1	1016.6	1014.7	1009.9	1009.7	1008.2	1013.2	26
TEMPERATURE (DEGREES F)														
Mean	33.5	36.7	38.3	42.8	49.4	54.6	57.8	58.3	54.0	46.9	39.9	35.9	45.7	30
Mean Daily Maximum	38.0	41.5	43.7	48.8	52.2	61.0	64.0	64.6	59.8	51.7	44.3	40.1	51.1	30
Mean Daily Minimum	29.0	31.8	32.8	36.7	42.6	48.1	51.6	51.9	48.1	42.1	35.5	31.6	40.1	30
Extreme Highest	61	63	62	72	88	89	86	90	80	71	67	62	90	15
Extreme Lowest	3	6	15	22	31	37	40	40	34	25	10	1	1	15
RELATIVE HUMIDITY														
Average Percentage (1000 l.s.t.)	77	79	74	73	72	75	77	79	80	81	79	78	77	15
Average Percentage (1600 l.s.t.)	73	73	67	66	64	68	68	71	72	77	76	77	71	15
CLOUD COVER														
Average Amount (Tenths)	7.8	8.1	8.0	7.8	7.7	8.1	7.8	7.8	7.8	8.7	8.4	8.5	8.0	28
Mean Number of Days with Clear Skies	5	3	4	4	4	2	4	4	4	2	2	3	42	28
Mean Number of Days with Cloudy Skies	22	21	23	20	21	21	21	21	20	25	24	24	263	28
PRECIPITATION														
Mean Amount (Inches)	10.42	9.27	9.15	8.77	6.20	5.05	5.42	7.15	10.01	17.85	12.87	12.14	114.30	30
Greatest Amount (Inches)	20.69	18.06	23.57	21.35	14.68	10.40	10.85	20.72	16.96	34.87	28.09	28.09	189.90	28
Least Amount (Inches)	0.77	0.73	3.00	1.23	1.57	1.15	0.56	0.71	2.52	8.82	3.61	4.38	80.84	28
Maximum in 24 hrs. (Inches)	4.65	5.58	4.02	4.75	4.29	3.78	2.63	4.68	5.04	7.59	5.19	5.20	7.59	28
Mean Amount of Snow (Inches)	16.0	12.8	10.8	2.7	0.2	0.0	0.0	0.0	0.0	0.2	3.6	13.1	59.4	28
Maximum Snowfall in 24 hrs. (Inches)	12.3	14.2	11.8	14.0	5.0	0.0	0.0	0.0	0.0	3.2	9.6	12.8	14.2	28
Mean Number of Days with Snow (One Inch or More)	5	4	3	1	t	0	0	0	0	1	2	3	18	28
0.01 Inch or More, Mean Number of Days	19	19	20	18	17	15	14	15	18	24	22	23	224	28
WIND														
Mean Wind Speed (Knots) (0700 l.s.t.)	11.0	10.5	9.6	9.0	7.4	7.2	6.4	6.3	7.6	10.6	11.4	11.3		29
Mean Wind Speed (Knots) (1300 l.s.t.)	11.6	11.2	11.2	11.2	9.8	9.6	8.8	8.7	9.6	11.8	12.0	11.4		29
Direction (Percentage of Obs.): 0700 l.s.t.														
North	8.9	8.4	7.2	6.4	4.0	2.8	5.1	4.4	5.2	3.4	6.7	6.8		29
North Northeast	5.3	2.0	3.3	2.8	1.3	0.9	09	0.9	2.1	2.5	4.1	3.4		29
Northeast	7.8	6.3	5.7	3.0	1.5	1.1	0.7	0.8	2.5	3.4	6.0	5.9		29
East Northeast	6.0	5.1	4.0	3.1	1.1	0.7	0.5	0.6	1.8	3.4	5.6	5.6		29
East	5.3	5.0	5.9	4.4	3.8	1.8	1.4	2.0	2.7	4.0	5.7	4.9		29
East Southeast	15.2	13.9	13.0	14.8	11.2	9.5	7.1	8.0	9.2	17.5	15.9	17.3		29
Southeast	12.9	11.5	13.9	13.6	15.3	16.4	16.4	18.0	18.1	16.7	15.1	12.0		29
South Southeast	8.0	9.4	7.1	10.1	11.3	14.3	14.1	11.3	12.4	11.3	9.0	9.6		29
South	5.8	7.0	6.5	7.2	7.1	8.4	7.2	7.5	6.7	9.4	6.9	7.2		29
South Southwest	2.8	3.3	3.1	2.9	2.5	3.7	2.3	2.6	2.3	3.8	3.6	4.1		29
Southwest	1.6	1.7	1.7	1.9	2.2	1.6	1.7	2.0	1.5	2.4	2.0	2.9		29
West Southwest	1.2	1.7	1.9	1.3	1.1	1.5	1.3	0.8	0.8	1.4	1.5	1.8		29
West	0.8	0.9	1.7	1.2	1.7	2.2	2.5	1.7	1.6	1.5	1.2	1.9		29
West Northwest	1.4	2.2	1.6	2.8	4.5	6.1	5.9	4.5	2.0	2.0	1.1	1.5		29
Northwest	2.6	4.7	4.5	5.3	8.0	9.9	10.2	9.0	7.4	3.7	3.3	2.7		29
North Northwest	7.1	11.2	11.5	10.0	12.9	10.5	10.6	12.5	11.6	6.5	6.3	6.3		29
Calm	7.3	5.8	7.5	9.2	10.5	8.8	12.0	13.5	12.2	7.0	6.0	6.2		29
Direction (Percentage of Obs.): at 1300 l.s.t.														
North	6.9	3.8	3.0	2.1	1.0	0.9	0.8	1.2	1.9	1.9	4.9	6.6		29
North Northeast	3.2	1.6	1.8	1.1	0.3	0.2	0.1	0.2	0.4	0.8	2.5	2.9		29
Northeast	6.4	4.3	2.9	1.2	0.6	0.3	*	0.3	1.2	2.4	3.6	4.3		29
East Northeast	6.3	3.7	3.7	3.0	0.7	0.4	0.2	0.3	0.9	2.5	5.3	6.1		29
East	4.3	3.8	4.8	2.2	1.3	0.6	0.2	0.9	1.5	3.3	4.8	4.6		29
East Southeast	13.7	13.2	11.3	7.9	4.1	3.4	3.0	3.5	6.0	13.5	16.6	13.9		29
Southeast	14.1	13.1	14.4	13.6	10.7	9.4	10.7	8.9	14.0	170	16.7	12.9		29
South Southeast	9.2	11.5	12.8	17.4	20.6	23.3	22.1	19.8	17.0	17.9	10.1	10.7		29
South	6.6	8.3	9.7	14.4	17.4	16.4	16.6	16.4	13.2	11.8	8.8	8.8		29
South Southwest	3.2	3.7	5.8	7.4	5.6	8.9	7.6	7.7	6.1	4.4	3.7	4.0		29
Southwest	2.0	3.4	3.5	3.5	4.2	4.7	4.3	4.1	3.2	2.7	2.4	3.6		29
West Southwest	1.8	2.3	2.7	2.7	2.6	3.7	4.0	3.0	2.0	2.7	2.0	2.5		29
West	1.8	2.9	3.1	3.5	5.2	5.2	6.0	5.4	4.8	2.8	2.0	2.0		29
West Northwest	1.8	4.4	4.6	8.1	10.3	8.9	8.9	9.7	6.9	4.2	1.8	1.4		29
Northwest	3.5	6.7	7.2	6.7	9.9	8.4	8.2	11.5	13.1	5.2	3.7	3.5		29
North Northwest	8.4	9.6	7.0	4.8	4.6	2.8	4.5	5.7	6.9	4.9	6.8	6.5		29
Calm	6.9	3.6	1.9	0.5	0.9	0.4	0.8	1.3	1.0	2.0	4.4	5.7		29
VISIBILITY														
Days with Visibility equal to or less than 1/4 mile	1	1	1	*	1	1	2	2	3	2	1	*	16	28

These tables were prepared by the National Environmental Satellite, Date, and information Service. Station level pressure refers to the actual pressure taken at the elevation of the station. Where it has been reduced to sea level, the term sea level pressure is used. Time given is local standard time.

* means less than 0.5 percent.
** means less than 0.5 day.
t means trace (not measurable) of precipitation.

KETCHIKAN, AK (55°21'N., 131°39'W.) Elevation 15 ft. (4.6m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
TEMPERATURE (DEGREES F)														
Mean	34	34	39	43	50	55	58	59	55	48	41	37	46	29
Mean Daily Maximum	39	41	45	50	57	62	64	66	61	53	46	41	52	29
Mean Daily Minimum	29	31	33	36	42	48	51	52	48	43	36	32	40	29
Mean Highest in Each Month	49	50	53	62	73	76	77	78	72	62	55	51	82	29
Mean Lowest in Each Month	14	16	22	28	34	41	44	46	39	31	22	18	8	29
RELATIVE HUMIDITY														
Average Percentage (0300 l.s.t.)	81	87	84	87	87	90	90	91	90	89	86	89	87	5
Average Percentage (1500 l.s.t.)	76	76	71	70	63	68	70	69	72	79	78	68	75	5
PRECIPITATION														
Mean Amount (Inches)	13.2	11.4	11.5	11.7	8.3	7.6	7.5	10.5	13.9	21.8	18.0	15.4	150.8	29
0.01 Inch or More, Mean Number of Days	21	18	20	20	17	16	18	15	19	25	24	23	236	25
WIND														
Maximum Wind Speed (Knots)	4.3	4.3	4.3	4.3	4.3	4.3	3.5	4.3	4.3	4.3	4.3	4.3	4.3	9
Prevailing Wind Direction	E	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	25
Direction (Percentage of Obs.)														
North	1	2	1	1	1	1	*	*	1	1	2	3	1	10
North Northeast	1	1	*	*	*	0	0	0	0	*	0	*	*	10
Northeast	3	4	2	2	1	1	1	2	3	3	4	5	3	10
East Northeast	1	2	1	*	*	*	*	*	*	*	1	1	1	10
East	9	10	9	7	6	3	3	4	4	9	12	11	7	10
East Southeast	5	3	2	3	4	3	3	2	3	5	4	5	4	10
Southeast	23	17	25	29	33	34	32	28	28	40	25	22	28	10
South Southeast	4	2	4	6	2	3	4	2	3	2	2	4	3	10
South	4	2	3	4	6	4	5	4	4	4	3	3	4	10
South Southwest	0	*	1	0	*	0	*	0	0	0	*	*	*	10
Southwest	*	*	1	1	1	1	1	1	1	*	2	2	1	10
West Southwest	*	0	*	1	*	*	*	*	*	*	*	0	*	10
West	2	5	5	5	6	5	7	6	4	3	2	1	4	10
West Northwest	*	1	1	1	1	1	1	1	2	1	1	*	1	10
Northwest	4	7	7	9	11	9	11	16	12	6	4	4	8	10
North Northwest	*	1	1	*	0	*	*	*	*	*	*	*	*	10
Calm	43	43	37	31	28	35	32	34	35	26	38	39	35	10
VISIBILITY														
Days with Visibility equal to or less than 1/4 mile	5.2	1.3	4.6	1.6	2.4	0.7	2.0	4.5	3.1	0.8	2.9	9.5	3.2	9

PETERSBURG, AK (56°49'N., 132°57'W.) Elevation 100 ft. (30.5m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
TEMPERATURE (DEGREES F)														
Mean	28.6	30.3	34.8	40.8	47.8	53.5	55.7	55.2	50.9	43.9	35.9	31.1	42.4	21
Mean Daily Maximum	34.0	36.2	41.4	48.7	56.7	62.2	63.5	63.4	58.1	49.8	41.1	35.8	49.2	21
Mean Daily Minimum	23.1	24.4	28.1	32.8	38.8	44.8	47.9	47.0	43.7	38.1	30.7	26.3	35.5	21
Extreme Highest	55	64	59	72	78	81	84	79	81	72	63	59	84	21
Extreme Lowest	—19	—7	0	10	27	29	37	32	26	19	4	—9	—19	21
PRECIPITATION														
Mean Amount (Inches)	9.73	7.09	7.18	6.98	5.60	4.71	5.44	7.49	11.48	16.97	12.31	10.10	105.08	21
Maximum in 24 Hrs. (Inches)	3.77	4.42	3.16	2.54	2.83	2.35	2.86	3.55	4.49	5.70	3.64	3.24	5.70	21
Mean Amount of Snow (Inches)	28.5	22.5	11.9	0.9	t	0.0	0.0	0.0	0.0	0.7	10.1	22.0	96.6	21
0.01 Inch or More, Mean Number of Days	20	17	19	19	17	15	17	16	19	23	22	22	226	21
WIND														
Prevailing Wind Direction	SW	SW	SW	SE	SE	E	E	E	E	SW	SW	SW	SW	19
Direction (Precentage of Obs.)														
North	3	2	4	4	6	12	8	5	4	2	3	2	4	9
North Northeast	1	2	1	2	2	2	4	3	*	1	1	1	1	9
Northeast	3	6	9	15	11	8	9	16	8	5	4	4	8	9
East Northeast	*	1	1	2	4	8	8	5	1	*	1	0	2	9
East	1	10	13	12	7	7	10	7	12	5	5	3	8	9
East Southeast	2	2	1	2	2	1	*	1	*	3	2	2	2	9
Southeast	6	9	8	9	14	5	3	3	3	8	4	7	7	9
South Southeast	*	*	2	1	1	0	0	*	0	1	3	1	1	9
South	2	1	1	1	2	1	1	1	*	2	2	1	1	9
South Southwest	1	*	1	1	1	1	1	1	1	1	1	1	1	9
Southwest	3	8	7	8	1	1	2	1	5	2	3	6	4	9
West Southwest	*	0	1	1	0	1	0	1	*	1	1	*	*	9
West	1	1	2	1	*	*	1	0	1	1	2	2	1	9
West Northwest	0	*	*	*	0	0	*	*	*	*	0	0	*	9
Northwest	4	1	1	1	3	2	*	4	2	2	1	1	2	9
North Northwest	1	*	*	0	0	1	0	*	*	*	0	*	*	9
Calm	72	57	48	40	46	50	53	52	63	66	67	69	58	9

CLIMATOLOGICAL TABLES

These tables were prepared by the National Environmental Satellite, Data, and Information Service. Station level pressure refers to the actual pressure taken at the elevation of the station. Where it has been reduced to sea level, the term sea level pressure is used. Time given is local standard time.

* means less than 0.5 percent.
** means less than 0.5 day.
t means trace (not measurable) of precipitation.

SITKA, AK (57°03'N., 135°20'W.) Elevation 67 ft. (20.4m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1009.3	1008.4	1010.5	1012.1	1015.7	1015.6	1017.7	1015.5	1012.5	1008.5	1008.4	1005.4		22
TEMPERATURE (DEGREES F)														
Mean	32	33	36	41	46	51	55	56	52	45	39	34	43	30
Mean Daily Maximum	38	40	43	48	54	59	61	62	59	52	44	40	50	63
Mean Daily Minimum	26	28	29	33	39	44	48	49	45	39	33	29	37	63
Extreme Highest	60	60	65	75	84	84	87	86	82	70	62	64	87	76
Extreme Lowest	—8	—4	—5	6	27	31	34	30	28	16	1	—6	—8	76
RELATIVE HUMIDITY														
Average Percentage	74.8	78.1	75.6	76.1	77.5	80.8	84.6	84.6	84.1	79.7	78.1	77.9		22
CLOUD COVER														
Equal to or Less than 2/8 Average Amount; Percent of Time	28.1	19.9	22.5	19.3	16.2	11.8	11.6	14.9	15.1	12.7	18.3	18.2		22
Mean Number of Days with Clear Skies	6	5	7	7	5	6	3	5	4	4	4	3	59	10
Mean Number of Days with Cloudy Skies	18	15	14	14	16	13	18	16	16	18	19	16	193	10
Equal to or More than 6/8 Average Amount; Percent of Time	61.4	69.9	65.6	67.7	70.1	75.7	76.6	73.0	73.0	75.2	70.2	71.9		22
PRECIPITATION														
Mean Amount (Inches)	7.77	6.38	6.95	5.35	4.66	3.46	5.20	7.86	11.49	15.27	12.01	10.17	96.57	30
Greatest Amount (Inches)	15.44	12.13	13.62	8.46	10.12	8.19	12.01	13.03	23.32	20.08	22.82	18.25	128.06	20
Least Amount (Inches)	2.64	1.83	3.57	1.36	1.38	0.53	1.85	0.52	6.03	7.01	3.59	4.93	59.43	20
Maximum in 24 hrs. (Inches)	2.24	3.40	2.43	2.96	2.17	1.58	4.42	4.23	3.82	4.43	3.34	3.69	4.43	10
Mean Amount of Snow (Inches)	11.1	9.4	9.5	3.2	0.1	0.0	0.0	0.0	0.0	0.1	3.1	10.9	47.4	52
0.01 Inch or More, Mean Number of Days	11	13	13	1'2	11	9	10	14	15	21	20	20	169	7
WIND														
Mean Wind Speed (Knots)	7.6	7.7	7.3	7.1	6.1	5.9	5.1	5.0	5.8	8.1	8.6	8.5		22
Direction (Percentage of Obs.)														
North	3.2	3.0	2.5	2.6	3.0	4.2	3.9	3.5	3.0	2.1	3.1	2.5		22
Northeast	5.1	3.1	3.3	2.2	2.1	1.1	1.2	1.8	1.7	2.4	3.4	4.0		22
East	20.0	13.0	14.4	11.5	8.7	4.8	4.6	6.3	7.8	14.3	17.2	21.3		22
Southeast	34.9	37.5	33.9	29.9	20.2	12.7	8.9	15.6	26.0	40.8	40.8	40.3		22
South	4.8	7.0	6.6	7.5	7.8	6.7	7.5	9.1	9.8	9.7	7.4	6.2		22
Southwest	2.5	3.4	4.3	7.4	11.8	12.8	13.8	11.7	7.1	4.6	3.2	2.5		22
West	3.2	4.5	4.7	6.1	8.3	11.6	11.0	7.7	5.0	3.2	3.3	3.2		22
Northwest	7.9	10.8	11.5	14.2	17.6	25.8	24.6	20.0	14.6	8.2	7.1	6.4		22
Calm	18.4	17.7	18.8	18.7	20.6	20.4	24.3	24.6	24.9	14.7	14.4	13.6		22
Direction (Mean Speed, Knots)														
North	7.5	6.8	7.1	6.6	6.3	6.6	6.0	6.1	5.9	6.0	5.9	7.2		22
Northeast	9.0	8.6	8.1	7.9	5.1	4.6	3.7	4.5	4.7	5.8	7.0	8.5		22
East	9.3	9.4	9.0	8.2	7.2	7.0	5.2	5.0	6.9	9.3	9.6	9.1		22
Southeast	10.3	10.4	10.2	10.4	9.2	8.8	6.9	7.4	8.8	10.6	11.2	10.8		22
South	9.5	9.4	8.1	8.3	8.0	7.0	6.7	6.5	8.2	10.0	10.6	10.0		22
Southwest	9.0	8.6	6.9	6.8	7.0	6.6	6.0	5.9	7.0	8.4	9.9	10.3		22
West	7.7	7.7	7.5	7.3	6.4	6.3	5.9	6.0	6.4	8.0	9.0	9.4		22
Northwest	6.9	7.4	7.6	8.0	7.8	8.1	7.8	7.7	7.3	6.8	7.5	7.8		22
VISIBILITY														
Days with Visibility equal to or less than 1/2 mile, Percent of Time	1.2	1.1	0.9	0.3	0.2	0.6	0.7	0.8	1.0	0.3	0.4	1.1		22

HAINES, AK (59°14'N., 135°26'W.) Elevation 100 ft. (30.5m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
TEMPERATURE (DEGREES F)														
Mean	23.2	25.4	31.6	39.3	48.4	55.3	57.6	56.1	50.2	41.2	31.3	25.0	40.4	28
Mean Daily Maximum	29.1	31.1	37.6	46.7	56.8	64.3	65.5	63.9	57.0	46.4	36.2	30.1	47.1	28
Mean Daily Minimum	17.3	19.7	25.5	31.8	39.9	46.2	49.7	48.2	43.4	35.9	26.3	19.8	33.6	28
Extreme Highest	54	53	63	70	83	88	90	86	76	65	58	57	90	28
Extreme Lowest	—15	—16	—6	6	26	30	35	32	24	8	—11	—14	—16	28
PRECIPITATION														
Mean Amount (Inches)	6.61	4.10	4.75	3.40	2.12	1.43	1.94	2.75	6.38	11.63	8.60	6.93	60.64	28
Maximum in 24 hrs (Inches)	3.62	2.95	2.63	2.72	1.62	2.07	2.10	2.75	3.60	5.64	3.92	3.68	5.64	28
Mean Amount of Snow (Inches)	34.8	21.9	17.9	3.0	0.4	0.0	0.0	0.0	t	4.0	19.9	30.7	132.6	27
0.01 Inch or More, Mean Number of Days	16	13	15	14	11	8	11	11	25	20	18	17	179	27
WIND														
Prevailing Wind Direction	W	W	W	SE	SE	SE	SE	SE	SSE	SE	W	W	SE	27

CLIMATOLOGICAL TABLES

These tables were prepared by the National Environmental Satellite, Date, and information Service. Station level pressure refers to the actual pressure taken at the elevation of the station. Where it has been reduced to sea level, the term sea level pressure is used. Time given is local standard time.

* means less than 0.5 percent.
** means less than 0.5 day.
t means trace (not measurable) of precipitation.

JUNEAU, AK (58°22'N., 134°35'W.) Elevation 12 ft. (3.7m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
SEA LEVEL PRESSURE														
Mean (Millibars)	1012.2	1010.1	1011.6	1012.4	1015.5	1014.	1016.8	1014.0	1012.6	1007.3	1008.0	1007.5	1012.0	22
TEMPERATURE (DEGREES F)														
Mean	23.5	28.0	31.9	38.9	46.8	53.2	55.7	54.3	49.2	41.8	32.5	27.3	40.3	30
Mean Daily Maximum	29.1	33.9	38.2	46.5	55.4	62.0	63.6	62.3	56.1	47.2	37.3	32.0	47.0	30
Mean Daily Minimum	17.8	22.1	25.6	31.3	38.2	44.4	47.7	46.2	42.3	36.4	27.6	22.5	33.5	30
Extreme Highest	57	50	55	71	82	86	90	83	72	61	56	54	90	32
Extreme Lowest	—22	—22	—15	6	25	31	36	27	23	12	—5	—21	—22	32
RELATIVE HUMIDITY														
Average Percentage (1000 l.s.t.)	79	81	79	75	74	75	81	84	87	87	85	82	81	32
Average Percentage (1600 l.s.t.)	76	75	69	64	63	64	70	74	77	80	82	81	73	32
CLOUD COVER														
Mean Number of Days with Clear Skies	6	4	4	3	4	3	3	4	3	2	4	4	44	32
Mean Number of Days with Cloudy Skies	22	21	24	23	23	22	23	23	24	27	243	26	282	32
PRECIPITATION														
Mean Amount (Inches)	3.94	3.44	3.57	2.99	3.31	2.93	4.69	5.00	6.90	7.85	5.53	4.52	54.67	30
Greatest Amount (Inches)	7.75	8.48	6.36	4.33	6.33	5.34	7.88	12.31	11.51	15.25	11.22	9.89	68.11	32
Least Amount (Inches)	0.94	0.68	1.15	0.27	1.25	1.08	1.15	1.11	2.34	2.71	1.46	1.90	37.80	32
Maximum in 24 hrs. (Inches)	2.74	2.37	1.81	1.57	1.39	1.92	1.88	2.62	3.17	4.66	3.34	3.56	4.66	32
Mean Amount of Snow (Inches)	26.0	21.4	19.0	5.0	0.1	t	0.0	0.0	t	1.3	12.0	24.3	109.1	32
Maximum Snowfall in 24 hrs. (Inches)	20.1	23.7	31.0	24.2	0.7	t	0.0	0.0	t	8.8	16.5	25.6	31.0	32
Mean Number of Days with Snow (One Inch or More)	7	6	5	1	0	0	0	0	0	**	4	6	30	32
0.01 Inch or More, Mean Number of Days	18	17	17	17	17	15	17	18	20	23	19	21	220	32
WIND														
Mean Wind Speed (Knots) (0700 l.s.t.)	7.0	7.5	6.8	6.6	5.7	5.4	5.6	5.6	6.2	7.9	7.9	8.1		22
Mean Wind Speed (Knots) (1300 l.s.t.)	7.4	8.1	9.4	10.3	9.9	8.6	8.1	8.1	8.7	9.5	8.7	8.6		22
Direction (Percentage of Obs.) at 0700 l.s.t.														
North	18.6	16.2	15.4	12.0	12.5	18.7	27.8	25.5	16.6	8.8	11.1	13.4		22
North Northeast	3.9	4.7	4.2	4.8	3.8	6.8	7.7	7.1	5.6	4.3	3.6	3.5		22
Northeast	3.6	3.0	2.9	2.7	2.8	2.3	1.8	2.8	2.6	2.4	2.7	2.9		22
East Northeast	6.3	5.8	6.0	5.2	4.2	5.4	5.4	7.2	6.2	5.9	5.4	6.6		22
East	16.9	19.5	18.6	15.0	13.1	14.4	14.2	13.8	17.2	19.2	16.5	19.4		22
East Southeast	20.3	21.2	17.0	21.2	17.8	12.4	10.3	13.4	16.8	26.3	26.8	25.5		22
Southeast	3.0	3.0	4.2	5.2	4.4	2.5	2.3	1.4	3.6	4.9	5.7	4.4		22
South Southeast	0.4	0.5	0.6	0.6	1.1	0.4	0.5	0.4	0.6	1.2	0.4	0.6		22
South	0.7	0.8	0.7	1.1	1.0	1.6	0.9	0.2	0.3	0.8	0.6	0.2		22
South Southwest	0.1	0.3	0.7	0.6	1.4	1.3	0.9	0.2	0.4	0.5	0.6	0.6		22
Southwest	0.4	0.7	0.6	0.8	2.4	2.8	0.7	0.1	0.6	1.2	0.1	0.3		22
West Southwest	0.4	0.7	1.0	0.9	1.4	1.6	0.8	0.3	0.7	0.7	0.5	0.3		22
West	0.4	1.1	1.0	0.6	1.6	1.9	1.2	0.8	0.7	0.7	0.9	0.7		22
West Northwest	1.2	1.4	2.0	1.2	1.7	1.4	0.7	0.9	0.9	0.8	1.3	1.2		22
Northwest	2.3	2.6	3.0	2.8	2.7	3.0	3.0	3.2	3.0	2.7	2.9	2.1		22
North Northwest	5.6	4.5	6.8	5.2	6.6	8.6	10.8	8.4	0.1	3.6	3.6	4.9		22
Calm	16.1	14.1	15.2	20.1	21.6	14.8	11.0	14.3	18.1	15.8	17.3	13.4		22
Direction (Percentage of Obs.): at 1300 l.s.t.														
North	13.4	4.9	1.8	1.9	1.7	2.8	5.5	5.0	2.9	3.9	6.5	10.4		22
North Northeast	2.6	1.2	1.4	1.1	1.3	0.9	1.9	1.6	1.4	1.9	1.5	2.5		22
Northeast	2.6	2.8	1.2	1.0	0.8	1.4	1.5	1.1	1.1	1.1	2.2	2.8		22
East Northeast	4.8	5.7	4.2	2.7	2.0	3.6	5.9	8.0	6.3	4.6	3.7	6.2		22
East	17.2	18.3	14.3	9.1	9.1	7.4	10.9	12.6	13.5	14.1	14.7	21.0		22
East Southeast	21.7	26.0	29.9	28.8	26.0	19.7	16.9	17.7	24.3	32.8	31.6	28.0		22
Southeast	6.0	5.6	7.1	10.2	8.2	5.0	4.3	4.4	5.6	8.7	8.3	6.4		22
South Southeast	0.9	1.1	1.7	2.0	1.9	1.4	1.2	0.8	1.3	1.6	1.6	1.1		22
South	0.8	2.2	3.3	4.0	3.7	2.5	2.6	2.9	3.8	3.2	1.3	0.4		22
South Southwest	0.7	2.0	8.4	10.9	10.4	8.0	8.1	10.9	12.7	4.8	1.7	0.8		22
Southwest	0.7	3.9	10.2	12.1	12.3	15.2	13.8	13.5	12.3	5.9	2.0	0.6		22
West Southwest	1.1	1.7	4.7	7.1	9.5	13.2	9.8	8.5	5.5	2.9	1.1	0.3		22
West	1.0	2.0	2.4	4.4	7.1	11.0	7.6	5.0	2.6	1.8	1.4	0.7		22
West Northwest	1.1	1.6	1.9	2.2	2.5	3.0	2.8	2.5	0.9	1.2	1.0	1.0		22
Northwest	2.3	2.5	0.9	1.1	0.8	1.5	2.3	1.1	0.5	1.5	2.5	2.9		22
North Northwest	5.0	3.6	1.1	0.7	1.4	2.1	3.5	2.6	2.0	1.8	3.6	4.0		22
Calm	18.0	14.8	5.4	0.7	1.4	1.2	1.3	1.7	3.0	8.2	15.1	11.0		22
VISIBILITY														
Days with Visibility equal to or less than 1/4 mile	2	2	2	1	1	*	*	1	3	3	3	2	22	32

METEOROLOGICAL TABLE FOR COASTAL AREA OFF VANCOUVER ISLAND, CANADA
Boundaries: 50°N. to 53°N., between 134°W. and the coast

Weather Elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Wind ≥ 34 knots (1)	10.4	6.0	6.8	1.8	0.5	1.3	0.7	0.4	1.5	4.9	8.3	10.9	3.9
Wave height ≥ 10 feet (1)	32.6	29.0	30.0	16.8	6.7	8.9	5.0	8.0	8.5	28.6	26.4	33.8	19.0
Visibility < 2 naut. mi. (1)	7.3	8.9	5.9	3.0	3.3	6.7	9.2	6.3	6.9	5.7	3.3	5.5	6.0
Precipitation (1)	26.0	27.7	22.5	19.7	13.2	15.0	12.7	13.7	17.7	26.1	25.7	30.4	20.0
Temperature ≥ 85°F (1)	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean Temperature (°F)	43.3	44.3	43.5	45.8	49.2	52.9	56.7	58.9	57.1	52.8	48.7	45.4	50.8
Temperature ≤ 32°F (1)	1.4	0	.3	0	0	0	0	0	0	0	0	0	0.9
Mean relative humidity (%)	84	85	81	82	82	84	86	86	86	83	83	85	84
Sky overcast or obscured (1)	45.6	50.2	39.0	36.1	38.3	50.7	47.3	45.6	38.7	39.5	46.8	48.4	43.7
Mean cloud cover (eighths)	6.1	6.3	5.9	5.4	5.7	6.5	6.1	6.2	5.6	6.2	6.2	6.2	6.0
Mean sea-level pressure (2)	1,011	1,013	1,013	1,015	1,018	1,017	1,019	1,018	1,017	1,012	1,011	1,010	1,015
Extreme max. sea-level pressure (2)	1,041	1,042	1,039	1,036	1,034	1,032	1,032	1,033	1,035	1,033	1,037	1,038	1,041
Extreme min. sea-level pressure (2)	979	979	984	992	996	995	995	997	986	981	983	981	979
Prevailing wind direction	SE	S	S	NW	NW	NW	NW	NW	NW	S	S	SE	NW
Thunder and lightning (1)	0	0	0	0	0.1	0.1	0	0.1	0.1	0	0.1	0	*

METEOROLOGICAL TABLE FOR COASTAL AREA OFF QUEEN CHARLOTTE
Boundaries: 53°N. to 56°N., between 135°W. and the coast

Weather Elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Wind ≥ 34 knots (1)	8.2	4.4	5.8	3.6	1.8	1.2	0.4	0.6	2.0	4.2	7.9	11.0	3.5
Wave height ≥ 10 feet(1)	11.2	14.5	16.0	13.2	4.2	7.2	1.0	1.7	9.3	18.5	15.9	19.4	10.7
Visibility < 2 naut. mi. (1)	9.4	6.2	3.6	2.7	2.7	7.2	7.3	15.8	3.6	4.5	3.5	5.3	6.1
Precipitation (1)	21.6	18.1	20.4	19.4	16.8	17.3	17.8	27.8	22.9	35.7	30.5	28.1	22.8
Temperature ≥ 85°F (1)	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean Temperature (°F)	38.5	41.6	39.9	43.9	49.3	53.2	56.4	56.9	54.7	50.0	44.4	41.3	49.3
Temperature ≤32°F(1)	18.9	0.6	4.7	0	0	0	0	0	0	0	1.2	6.7	1.6
Mean relative humidity (%)	85	85	84	80	83	85	88	88	87	85	85	85	85
Sky overcast or obscured (1)	51.0	51.8	39.2	36.0	42.3	49.9	55.8	49.0	44.9	51.6	54.2	52.8	48.2
Mean cloud cover (eighths)	6.0	6.4	5.7	5.0	5.7	6.1	6.3	6.1	6.0	6.3	6.4	6.5	6.0
Mean sea-level pressure (2)	1,012	1,011	1,011	1,014	1,017	1,017	1,018	1,016	1,013	1,008	1,007	1,008	1,013
Extreme max. sea-level pressure (2)	1,038	1,036	1,036	1,034	1,033	1,031	1,029	1,032	1,031	1,028	1,032	1,036	1,038
Extreme min. sea-level pressure (2)	983	987	980	987	995	998	1005	999	990	984	975	976	975
Prevailing wind direction	SE	SE	SE	SE	NW	SE	NW	SE	SE	SE	SE	SE	SE
Thunder and lightning (1)	0	0	0	0	0	0	0	0	0.2	0.1	0.5	0	0.1

METEOROLOGICAL TABLE FOR COASTAL AREA OFF SITKA
Boundaries: 56°N. and 60°N., from 140°W. to the coast

Weather Elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Wind ≥ 34 knots (1)	11.7	10.7	5.3	4.3	1.3	0.6	*	0.7	3.7	12.4	10.1	11.3	5.4
Wave height ≥ 10 feet(1)	22.2	31.0	13.3	15.9	8.9	4.2	1.2	4.4	7.6	26.8	14.2	18.0	13.1
Visibility < 2 naut. mi. (1)	6.9	7.6	8.5	1.8	4.1	12.3	10.6	11.8	3.9	3.5	4.5	8.2	7.4
Precipitation (1)	23.6	19.9	21.5	19.4	18.8	24.9	26.6	23.4	18.2	19.0	25.8	24.1	22.3
Temperature ≥ 85°F (1)	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean Temperature (°F)	35.7	39.2	38.5	41.4	46.1	51.8	55.2	56.5	54.0	47.3	41.2	39.1	46.6
Temperature ≤ 32°F (1)	20.3	7.1	8.6	0	0	0	0	0	0	0	6.6	10.2	4.0
Mean relative humidity (%)	87	87	85	81	84	84	85	87	87	84	85	86	85
Sky overcast or obscured (1)	48.3	50.4	47.7	39.0	48.1	55.7	60.4	57.2	45.1	43.7	49.9	55.2	50.7
Mean cloud cover (eighths)	5.6	6.1	5.7	5.2	6.0	6.5	6.8	6.6	6.0	6.0	6.2	6.3	6.1
Mean sea-level pressure (2)	1,009	1,010	1,011	1,011	1,016	1,015	1,017	1,015	1,012	1,004	1,005	1,007	1,012
Extreme max. sea-level pressure (2)	1,037	1,035	1,034	1,032	1,034	1,034	1,032	1,030	1,031	1,031	1,031	1,036	1,037
Extreme min. sea-level pressure (2)	982	980	980	985	998	995	1,000	992	987	974	974	978	974
Prevailing wind direction	E	E	SE	SE	SE	SE	SE	SE	SE	SE	SE	E	SE
Thunder and lightning (1)	0	0	0	0	0	0	*	0	*	0	*	0	*

(1) Percentage frequency
(2) Millibars
* 0.0–05%

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) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$	(T) °C	(D) $^{\circ}_{15}$
Ketchikan 55°20'N., 131°38'W.	44	5.2	21.0	5.1	21.6	5.4	21.8	6.4	21.7	8.9	20.6	12.2	19.1	13.8	18.5	14.0	18.3	12.0	18.7	9.5	18.5	7.2	18.5	5.8	19.9	8.8	19.8
Sitka 57°03'N., 135°20'W.	24	4.5	22.1	4.2	22.4	4.4	22.2	5.9	21.8	8.8	20.0	11.3	18.8	13.4	18.5	13.9	19.0	12.1	19.1	9.3	19.9	7.1	21.0	5.6	21.6	8.4	20.5
Juneau 58°18'N., 134°25'W.	29	2.2	21.2	2.1	21.8	2.8	21.9	4.5	20.9	7.6	15.2	10.3	10.7	11.0	9.3	10.6	10.0	9.1	11.7	6.6	14.4	4.6	18.0	3.2	20.4	6.2	16.3
Skagway 59°27'N., 135°19'W.	22	2.5	23.2	2.2	23.3	2.3	23.2	3.4	23.0	6.7	17.9	9.9	8.0	10.6	3.5	10.2	3.4	8.8	9.1	6.5	16.2	4.4	20.3	3.3	22.4	5.9	16.1
Yakutat 59°33'N., 139°44'W.	26	3.8	22.3	3.5	22.4	3.8	22.4	5.3	22.0	7.7	21.2	10.8	19.7	12.8	17.6	12.9	17.7	11.4	19.1	9.0	20.6	6.7	21.5	4.9	22.1	7.7	20.7
Cordova 60°33'N., 145°46'W.	14	2.9	23.3	2.7	23.3	2.6	23.4	4.0	23.3	6.0	22.8	8.3	21.7	10.2	20.5	11.2	19.4	10.0	19.8	7.8	21.0	6.2	22.5	4.7	22.8	6.4	22.0
Seward 60°06'N., 149°27'W.	35	3.4	22.2	3.1	22.1	3.2	22.1	4.5	21.3	7.3	16.5	10.5	9.8	12.2	6.5	12.2	9.2	10.7	13.3	8.1	17.5	5.9	19.9	4.5	21.5	7.1	16.8
Womens Bay 57°43'N., 152°31'W.	17	0.7	21.1	0.9	21.6	1.5	22.5	3.6	22.4	6.4	19.0	8.7	16.1	11.3	17.0	11.7	20.2	10.0	19.8	6.9	20.9	4.0	20.7	1.8	21.6	5.6	20.2
Anchorage 61°15'N., 149°53'W.	9	−0.9	14.3	−0.9	16.2	−0.4	16.6	0.9	16.3	6.1	15.4	11.4	11.4	14.2	6.2	13.6	4.9	11.2	5.9	5.9	7.8	0.8	9.9	−0.6	12.3	5.1	11.4
Massacre Bay 52°48'N., 173°10'W.	15	2.3	24.3	2.1	24.4	2.2	24.6	3.2	24.3	4.6	23.5	6.5	23.0	8.3	22.8	9.5	23.2	8.8	23.8	6.8	23.9	4.4	23.8	2.7	24.3	5.1	23.9
Unalaska 53°53'N., 166°32'W.	12	2.5	21.5	2.0	21.7	2.4	22.2	3.6	21.5	5.2	20.0	7.3	19.9	8.9	21.1	9.5	22.0	8.3	21.1	6.1	20.8	4.5	21.5	3.1	21.6	5.3	21.2
Sweeper Cove 51°51'N., 176°39'W.	23	2.8	23.2	2.6	22.9	3.12	2.5	3.5	22.1	4.6	22.4	6.2	23.2	7.2	23.5	7.6	23.7	7.4	23.4	5.9	23.4	4.6	23.4	3.4	23.4	4.9	23.1

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 ($^{\circ}_{t}$) where t = 15°C and $^{\circ}_{15} = (\rho_{15} - 1)\ 1000$. Thus, for $\rho_{15} = 1.0236$, $^{\circ}_{15} = 23.6$.

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

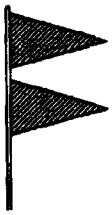
Inches	Millibars	Inches	Millibars	Inches	Millibars
28.44	963	29.32	993	30.21	1023
28.53	966	29.41	996	30.30	1026
28.62	969	29.50	999	30.39	1029
28.70	972	29.59	1002	30.48	1032
28.79	975	29.68	1005	30.56	1035
28.88	978	29.77	1008	30.65	1038
28.97	981	29.86	1011	30.74	1041
29.06	984	29.94	1014	30.83	1044
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.

PACIFIC OCEAN DISTANCES
(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: San Francisco, Calif., is 2,091 nautical miles from Honolulu, Hawaii.

PANAMA CANAL (Pac. Ent.) 8°53' 0"N., 79°31' 0"W.	San Diego, Calif. 32°43' 0"N., 117°10' 5"W.	Long Beach, Calif. 33°46' 2"N., 118°13' 3"W.	Los Angeles, Calif. 33°45' 0"N., 118°16' 2"W.	San Francisco, Calif. 37°48' 5"N., 122°24' 0"W.	Astoria, Oreg. 46°11' 7"N., 123°50' 0"W.	Portland, Oreg. 45°33' 0"N., 122°41' 7"W.	CAPE FLATTERY, WASH. 48°26' 0"N., 124°47' 0"W.	SWIFTSURE BANK, WASH. 48°31' 0"N., 125°00' 0"W.	Seattle, Wash. 47°36' 2"N., 122°20' 3"W.	Ketchikan, Alaska 55°20' 5"N., 131°38' 7"W.	Sitka, Alaska 57°03' 1"N., 135°20' 5"W.	CAPE SPENCER, ALASKA 58°10' 0"N., 136°38' 3"W.	Port Valdez, Alaska 61°06' 0"N., 146°24' 0"W.	Seward, Alaska 60°06' 0"N., 149°26' 0"W.	Anchorage, Alaska 61°14' 2"N., 149°53' 3"W.	Kodiak, Alaska 57°47' 1"N., 152°25' 1"W.	UNIMAK PASS, ALASKA 54°20' 0"N., 164°45' 0"W.	Kuluk Bay, Alaska 51°51' 6"N., 176°37' 6"W.	Hilo, Hawaii 19°44' 1"N., 155°03' 5"W.	Kawaihae, Hawaii 20°02' 3"N., 155°49' 9"W.	Kahului, Hawaii 20°54' 0"N., 156°28' 2"W.	Honolulu, Hawaii 21°18' 5"N., 157°52' 3"W.	Pearl Harbor, Hawaii 21°20' 0"N., 157°58' 3"W.	Nawiliwili, Hawaii 21°57' 4"N., 159°21' 5"W.	Port Allen, Hawaii 21°54' 1"N., 159°35' 6"W.	Midway Island 28°13' 0"N., 177°22' 0"W.
2867																													
2939	94																												
2939	95	3																											
3270	455	374	371																										
3803	989	908	904	567																									
3888	1074	992	989	652	85																								
3920	1104	1024	1020	683	153	238																							
—	—	—	—	—	—	—	10																						
4044	1228	1148	1144	807	278	362	124	134																					
4387	1575	1497	1493	1156	660	745	—	518	659*																				
4538	1723	1643	1639	1302	815	900	—	681	815	224																			
4603	1787	1707	1703	1366	883	968	—	739	976*	307	85																		
4984	2174	2092	2089	1745	1239	1324	—	1100	1234	713	479	400																	
4940	2124	2043	2040	1702	1242	1327	—	1100	1234	682	494	422	144																
5117	2303	2223	2220	1882	1435	1520	—	1294	1428	892	708	641	385	274															
4924	2115	2034	2031	1693	1261	1346	—	1124	1258	742	564	505	280	175	242														
5228	2412	2331	2328	1990	1626	1711	—	1510	1644	1193	1027	987	761	652	688	505													
5604	2806	2725	2722	2403	2071	2156	—	1973	2107	1656	1490	1450	1224	1115	1151	968	463												
4527	2175	2143	2140	2019	2214	2299	2260	—	2384	2398	2410	2447	2524	2439	2542	2296	2126	2198											
4594	2219	2183	2180	2051	2235	2320	2276	—	2400	2405	2412	2445	2513	2432	2535	2289	2110	2164	83										
4609	2212	2173	2170	2036	2207	2292	2245	—	2369	2361	2365	2398	2463	2377	2479	2233	2044	2099	121	85									
4685	2278	2236	2233	2091	2246	2331	2285	—	2409	2383	2385	2411	2468	2373	2477	2230	2028	2061	196	140	89								
4690	2283	2241	2238	2096	2251	2336	2290	—	2414	2388	2390	2416	2473	2378	2482	2235	2024	2057	201	145	94	9							
4767	2330	2284	2281	2128	2262	2347	2289	—	2413	2368	2361	2388	2429	2332	2440	2184	1963	1989	287	230	181	96	92						
4777	2347	2302	2299	2146	2281	2366	2308	—	2432	2387	2380	2407	2445	2351	2459	2203	1972	1990	297	240	193	106	102	21					
5707	3097	3034	3031	2792	2724	2809	2694	—	2818	2570	2481	2472	2386	2250	2305	2088	1680	1460	1338	1278	1232	1150	1146	1069	1042				

* Via inside passage

GULF OF ALASKA DISTANCES

(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: Anchorage is 385 nautical miles from Port Valdez.

	SWIFTSURE BANK 48°31. 0'N., 125°00. 0'W.	DIXON ENTRANCE 54°28. 0'N., 132°52. 0'W.	CAPE DECISION 55°59. 4'N., 134°08. 1'W.	Sitka 57°03. 1'N., 135°20. 5'W.	CAPE SPENCER 58°10. 0'N., 136°38. 3'W.	Yakutat 59°32. 9'N., 139°43. 9'W.	Cordova 60°33. 4'N., 145°45. 3'W.	Port Valdez 61°06. 0'N., 146°24. 0'W.	Whittier 60°46. 8'N., 148°39. 6'W.	Latouche 60°03. 3'N., 147°54. 1'W.	Seward 60°06. 0'N., 149°26. 0'W.	Seldovia 59°26. 5'N., 151°43. 0'W.	Homer 59°36. 0'N., 151°24. 0'W.	Anchorage 61°14. 2'N., 149°53. 3'W.	Kodiak 57°47. 1'N., 152°25. 1'W.	Uyak 57°38. 6'N., 154°00. 0'W.	Chignik 56°17. 8'N., 158°24. 0'W.	Unga 55°10. 6'N., 160°29. 8'W.	False Pass 54°51. 4'N., 163°24. 0'W.
DIXON ENTRANCE	500																		
CAPE DECISION	588	106																	
Sitka	681	192	95																
CAPE SPENCER	739	259	162	85															
Yakutat	869	402	295	231	141														
Cordova	1093	627	522	472	393	278													
Port Valdez	1100	634	529	479	400	265	78												
Whittier	1113	647	542	492	413	298	98	96											
Latouche	1076	617	527	467	395	286	85	83	64										
Seward	1100	642	553	494	422	312	146	144	125	61									
Seldovia	1167	718	636	580	514	411	260	257	239	172	147								
Homer	1178	729	647	591	525	422	270	267	249	183	158	16							
Anchorage	1294	845	763	708	641	538	387	385	367	300	274	139	143						
Kodiak	1124	687	613	564	505	414	282	280	261	201	175	115	126	242					
Uyak	1200	762	689	628	571	480	339	337	317	254	228	138	149	264	80				
Chignik	1301	874	811	772	717	636	503	501	481	418	392	302	313	428	245	180			
Unga	1394	953	892	865	811	730	597	595	574	511	485	395	406	521	338	273	122		
False Pass	1473	1084	1016	980	926	844	711	709	689	626	600	510	521	636	453	388	236	135	
UNIMAK PASS 54°20. 0'N., 164°45. 0'W.	1510	1120	1064	1027	987	897	763	761	742	678	652	562	573	688	505	440	289	187	86

INSIDE - PASSAGE DISTANCES

SEATTLE, WASH. TO CAPE SPENCER, ALASKA
(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: Ketchikan, Alaska, is 220 nautical miles from Juneau, Alaska.

Seattle, Wash. 47°36. 2'N., 122°20. 3'W.	Victoria, Canada 48°25. 0'N., 123°28. 5'W.	DIXON ENTRANCE, ALASKA 54°28. 0'N., 132°52. 0'W.	Hyder, Alaska 55°54. 2'N., 130°00. 6'W.	Cape Chacon, Alaska 54°40. 6'N., 131°59. 7'W.	Meiiakatla, Alaska 55°07. 8'N., 131°34. 2'W.	Ketchikan, Alaska 55°20. 5'N., 131°38. 7'W.	Craig, Alaska 55°28. 7'N., 133°09. 2'W.	Wrangell, Alaska 56°28. 2'N., 132°23. 2'W.	CAPE DECISION, ALASKA 55°59. 4'N., 134°08. 1'W.	Port Alexander, Alaska 56°14. 8'N., 134°38. 8'W.	Petersburg, Alaska 56°48. 9'N., 132°57. 8'W.	Sitka, Alaska 57°03. 1'N., 135°20. 5'W.	Pelican, Alaska 57°57. 6'N., 136°13. 8'W.	Juneau, Alaska 58°17. 9'N., 134°24. 7'W.	Haines, Alaska 59°13. 8'N., 135°26. 1'W.	Skagway, Alaska 59°26. 8'N., 135°19. 3'W.	Gustavus, Alaska 58°23. 3'N., 135°43. 6'W.	CAPE SPENCER, ALASKA 58°10. 0'N., 136°38. 3'W.
72																		
664	612																	
690	638	169																
640	588	34	136															
660	608	66	148	32														
659	608	79	144	45	16													
716	664	77	212	76	109	121												
749	697	157	234	123	104	89	111											
788	737	126	273	125	143	129	49	75										
812	761	150	297	149	167	153	73	99	24									
771	719	160	256	146	126	112	113	40	76	100								
883	832	221	368	220	238	224	144	170	95	82	159							
989	937	332	464	331	334	320	255	248	206	186	207	79						
879	827	288	364	254	235	220	206	148	157	140	108	162	123					
950	898	359	435	325	305	291	253	219	204	186	179	176	136	88				
962	910	371	447	337	317	303	264	231	215	198	191	187	148	100	14			
938	886	290	423	289	293	278	213	208	164	147	166	136	45	82	96	106		
976	924	319	451	318	321	307	242	235	193	173	195	85	18	110	124	136	32	

Distances to Sitka are partly outside.

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	56	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	66	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	58	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	158	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	56	66	77	88	99	110	121	132	143	154	165	176	188	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	166	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	2-8	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	9-8	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

Conversion Tables

INTERNATIONAL NAUTICAL MILES TO STATUTE MILES

1 nautical mile = 6,076.12 feet or 1,852 meters 1 statute mile = 5,280 feet or 1,609.35 meters

Nautical miles	0	1	2	3	4	5	6	7	8	9
0	0.000	1.151	2.302	3.452	4.603	5.754	6.905	8.055	9.206	10.357
10	11.508	12.659	13.809	14.960	16.111	17.262	18.412	19.563	20.714	21.865
20	23.016	24.166	25.317	26.468	27.619	28.769	29.920	31.071	32.222	33.373
30	34.523	35.674	36.825	37.976	39.126	40.277	41.428	42.579	43.730	44.880
40	46.031	47.182	48.333	49.483	50.634	51.785	52.936	54.087	55.237	56.388
50	57.539	58.690	59.840	60.991	62.142	63.293	64.444	65.594	66.745	67.896
60	69.047	70.197	71.348	72.499	73.650	74.801	75.951	77.102	78.253	79.404
70	80.554	81.705	82.856	84.007	85.158	86.308	87.459	88.610	89.761	90.911
80	92.062	93.213	94.364	95.515	96.665	97.816	98.967	100.118	101.268	102.419
90	103.570	104.721	105.871	107.022	108.173	109.324	110.475	111.625	112.776	113.927

STATUTE MILES TO INTERNATONAL NAUTICAL MILES

Statute miles	0	1	2	3	4	5	6	7	8	9
0	0.000	0.869	1.738	2.607	3.476	4.345	5.214	6.083	6.952	7.821
10	8.690	9.559	10.428	11.297	12.166	13.035	13.904	14.773	15.642	16.511
20	17.380	18.249	19.118	19.986	20.855	21.724	22.593	23.462	24.331	25.200
30	26.069	26.938	27.807	28.676	29.545	30.414	31.283	32.152	33.021	33.890
40	34.759	35.628	36.497	37.366	38.235	39.104	39.973	40.842	41.711	42.580
50	43.449	44.318	45.187	46.056	46.925	47.794	48.663	49.532	50.401	51.270
60	52.139	53.008	53.877	54.746	55.615	56.484	57.353	58.222	59.091	59.959
70	60.828	61.697	62.566	63.435	64.304	65.173	66.042	66.911	67.780	68.649
80	69.518	70.387	71.256	72.125	72.994	73.863	74.732	75.601	76.470	77.339
90	78.208	79.077	79.946	80.815	81.684	82.553	83.422	84.291	85.160	86.029

FEET TO METERS

Feet	0	1	2	3	4	5	6	7	8	9
0	0.00	0.30	0.61	0.91	1.22	1.52	1.83	2.13	2.44	2.74
10	3.05	3.35	3.66	3.96	4.27	4.57	4.88	5.18	5.49	5.79
20	6.10	6.40	6.71	7.01	7.32	7.62	7.92	8.23	8.53	8.84
30	9.14	9.45	9.75	10.06	10.36	10.67	10.97	11.28	11.58	11.89
40	12.19	12.50	12.80	13.11	13.41	13.72	14.02	14.33	14.63	14.93
50	15.24	15.54	15.85	16.15	16.46	16.76	17.07	17.37	17.68	17.98
60	18.29	18.59	18.90	19.20	19.51	19.81	20.12	20.42	20.73	21.03
70	21.34	21.64	21.95	22.25	22.55	22.86	23.16	23.47	23.77	24.08
80	24.38	24.69	24.99	25.30	25.60	25.91	26.21	26.52	26.82	27.13
90	27.43	27.74	28.04	28.35	28.65	28.96	29.26	29.57	29.87	30.17

METERS TO FEET

Meters	0	1	2	3	4	5	6	7	8	9
0	0.00	3.28	6.56	9.84	13.12	16.40	19.68	22.97	26.25	29.53
10	32.81	36.09	39.37	42.65	45.93	49.21	52.49	55.77	59.06	62.34
20	65.62	68.90	72.18	75.46	78.74	82.02	85.30	88.58	91.86	95.14
30	98.42	101.71	104.99	108.27	111.55	114.83	118.11	121.39	124.67	127.95
40	131.23	134.51	137.80	141.08	144.36	147.64	150.92	154.20	157.48	160.76
50	164.04	167.32	170.60	173.88	177.16	180.45	183.73	187.01	190.29	193.57
60	196.85	200.13	203.41	206.69	209.97	213.25	216.54	219.82	223.10	226.38
70	229.66	232.94	236.22	239.50	242.78	246.06	249.34	252.62	255.90	259.19
80	262.47	265.75	269.03	272.31	275.59	278.87	282.15	285.43	288.71	291.99
90	295.28	298.56	301.84	305.12	308.40	311.68	314.96	318.24	321.52	324.80

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 Defense Mapping Agency Hydrographic/Topographic Service are indicated by an asterisk.

	Page
Aaron Creek 17385	104
Aaron Island 17316	174
Aats Bay 17402	176
Aats Point 17402	176
Abbess Island 17405	120
Abraham Islands 17382	98
Abrejo Rocks 17406	123
Acceptable Vessel Watering Points	6
Adams Anchorage 17316	172
Adams Channel 17323	211
Adams Inlet 17318	230
Adams Point 17432	83
Admiralty Cove 17315	171
Admiralty Creek 17315	171
Admiralty Island 17320	182
Admiralty Lake 17315	171
Adrian Cove 17407	118
Affleck Canal 17386	135
Agriculture, Department of	2, 239
Agueda Point 17405	119
Aguirre Bay 17404	126
Aids to navigation	16, 54
Aiken Cove 17432	83
Aikens Rock 17403	129
Air Almanac	237
Aircraft procedures for directing surface craft to scene of distress incident	9
Ajax Reef 17435	86
Akusha Island 17360	156
Alaska	54
Alava Bay 17434	76
Alberto Islands 17405	120
Alberto Reef 17405	120
Alder Cove 17431	113
Aleutkina Bay 17326	202
Alice Island 17327	203
Alice Rocks 17402	133
Alikula Bay 17402	176
Allan Point 17324	206
Althorp Rock 17302	225
Althouse Point 17426	93
Alvin Bay 17360	137
Amalga Harbor 17316	174
Amelius Island 17386	136
Amelius Island Shoal 17386	136
American Bay 17409	115
AMVER	4
AMVER Reporting	4
Anan Bay 17385	102
Anan Creek 17385	102
Anchor Pass 17422	78
Anchor Point 17375	145
Anchorage Regulations	30
Anchorages	54
Ancon Rock 17318	227
Anderson Point 17436	85
Aneskett Point 17387	132
Angle Point Light 17428	70
Angoon 17339	183
Anguilla Bay 17404	126
Anguilla Island 17404	126
Animal and Plant Health Inspection Service	2
Animal and Plant Health Inspection Service (APHIS)	239
Animal Import Centers	240
Animas Island 17406	123
Anita Bay 17382	103
Anita Point 17382	103
Annette 17435	86
Annette Bay 17428	90
Annette Island 17434	87
Annette Point 17434	87
Annex Creek Power Station 17315	161
Appleton Cove 17338	213
Approach Point 17426	91
Aranzazu Point 17420	64
Arboles Islet 17406	123
Arcada Rock 17406	124
Arch Rock 17406	124
Arena Cove 17407	110
Arguello Island 17326	203
Arrecife Point 17406	122
Arriaga Passage 17404	125
Arthur Island 17323	211
Articulated daybeacons	17
Articulated lights	17
Aspid Cape 17326	199
Aston Island 17408	115
Astronomical Almanac	237
Astronomical Point 17427	67
Augustine Bay 17408	109
Auke Bay 17315	172
Aurora Basin 17315	170
Automated Mutual-assistance Vessel Rescue System (AMVER)	3
Avon Island 17360	97
Babe Islands 17436	85
Baby Island 17382	142
Back Channel 17385	103
Back Island 17422	80
Bactrian Point 17427	70
Badger Bay 17434	70
Baht Harbor 17382	143
Bailey Bay 17422	78
Bailey Rock 17428	90
Baird Glacier 17367	149
Baker Cove 17321	218
Baker Island 17406	118
Bakewell Arm 17424	76
Balandra Island 17405	120
Balandra Shoal 17405	120
Bald Mountain 17404	127
Baldy Bay 17408	116
Ballena Island Shoal 17405	120
Ballena Islands 17405	120
Bamdoroshni Island 17327	203
Band Cove 17368	152
Bar Harbor 17430	73
Bar Point Basin 17430	73
Baranof 17337	181
Baranof Island 17320	197
Barbara Rock 17431	112
Bare Island 17316	189
Barlow Cove 17316	172
Barlow Islands 17316	172
Barlow Point 17316	172
Barnacle Rock 17401	98
Barnes Lake 17382	99
Baron Island 17420	64
Barren Island 17434	64
Barren Island Light 17434	64
Barrie Island 17360	139
Barrier Islands 17386, 17387	138
Barrier Islands 17433	111
Bartlett Cove 17318	228
Bartlett Point 17336	153
Bartlett Point 17437	66
Basalt Knob 17303	223
Basin, The 17337	182
Basket Bay 17338	185
Bat Cove 17428	72
Bat Point 17428	72
Battery Islets 17375	144
Battery Point 17317	192
Battleship Island 17435	89

	Page
Bay Islands 17409	115
Bay of Pillars 17370	178
Bay Point 17367	149
Bay Point 17382	100
Bayou Point 17375	145
Beacon Island 17372	140
Beacon Point 17367	148
Beacon Rock 17360	158
Bean Island 17433	63
Bear Bay 17323	211
Bear Bay Island 17323	211
Bear Cove 17326	203
Bear Harbor 17386	136
Bear Mountain 17408	109
Bear River 17425	67
Beardslee Entrance 17318	229
Beardslee Islands 17318	229
Beardslee River 17316	191
Bearings	1
Beartrack Cove 17318	229
Beartrack River 17318	229
Beauchamp Island 17326	199
Beauclerc Island 17360	136
Beaver Creek 17434	87
Beaver Point 17325	207
Beavertail Island 17330	198
Beck Island 17372	140
Beck Island 17401	98
Beck Rock 17432	83
Bee Rocks 17434	85
Beecher Pass 17360	142
Beehive Island 17324	206
Beehive, The 17326	200
Behm Canal 17420	76
Behm Narrows 17422	78
Belknap Islands 17326	202
Bell Arm 17422	78
Bell Island 17302	234
Bell Island 17381	141
Bell Island 17422	78
Bell Island Hot Springs 17422	78
Belle Bay 17425	67
Benjamin Island 17316	189
Berg Bay 17318	229
Berg Bay 17385	104
Beric Island 17321	219
Berners Bay 17316	191
Berry Island 17372	140
Berry Island 17426	92
Bert Millar Cutoff 17433	63
Bertha Bay 17321	219
Bessie Creek 17316	189
Betton Head 17422	80
Betton Island 17422	80
Biali Rock 17326	199
Bibb Shoal 17368	152
Big Bay 17326	200
Big Branch Bay 17330	198
Big Branch Rock 17330	197
Big Harbor 17405	119
Big Hazy Islet 17320	175
Big John Bay 17372	140
Big Port Walter 17333	180
Big Rose Island 17323	211
Big Salt Lake 17405	122
Big Saltery Island 17360	142
Bill Point 17365	155
Bingham Cove 17303	221
Biorka Channel 17326	200
Biorka Island 17326	200
Biorka Reef 17326	201
Bird Island 17316	174
Bird Island 17434	69
Bird Rock 17365	155
Bird Rocks 17431	112
Birdsnest Bay 17326	202
Biscuit Lagoon 17433	112
Bishop Point 17315	160
Bittersweet Rock 17422	80
Black Bay 17321	217
Black Bear Creek 17423	101
Black Island 17322	215
Black Island 17422	78
Black Point 17432	83
Black Rock 17322	210
Black Rock 17402	134
Black Rock 17426	92
Black Rock 17433	111
Black Rock Light 17434	69
Blake Channel 17385	103
Blake Island 17385	104
Blanche Rock 17385	102
Blank Inlet 17428	90
Blank Islands 17428	90
Blanquizal Islands 17404	126
Blaquiere Point 17360	143
Blashke Islands 17382	99
Blind Pass 17422	78
Blind Point 17375	145
Blind River 17375	145
Blind Slough 17375	145
Blind Slough 17382	143
Block Island 17407	117
Blue Mouse Cove 17318	231
Bluff Island 17382	99
Bluff Island 17386, 17387	137
Bluff Point 17365	153
Bluff Point 17422	78
Bluff Point 17425	67
Bluff Point Light 17422	78
Blunt Point 17375	145
Boat Harbor 17316	191
Boat Harbor 17434	68
Boat Rock 17437	65
Boat Rock Light 17437	65
Boat Rocks 17433	111
Bobrovoi Point 17330	197
Bobs Bay 17407	110
Bobs Place 17404	126
Boca de Quadra 17434	69
Bocas de Finas 17404	127
Bocas Point 17407	118
Bock Bight 17367	149
Bohemia Creek 17303	220
Bold Island 17385	102
Bold Island 17428	70
Bolles Inlet 17409	115
Bolles Ledge 17428	75
Bond Bay 17422	80
Boot Point 17402	133
Boreas Point 17407	117
Borlase Rock 17402	133
Bostwick Inlet 17428	90
Bostwick Reef 17434	87
Boulder Point 17360	136
Boulder Point 17375	144
Bowditch	237
Bowie Seamount 531	62
Brad Rock 17323	210
Bradfield Canal 17385	102
Brady Glacier 17302	223
Breakfast Rock 17331, 17320	179
Breezy Bay 17407	117
Breezy Point 17425	67
Bridge and cable clearances	14
Bridge lights and clearance gages	17
Bridge-to-Bridge Radiotelephone Communication	25
Bridges	1
Bridget Cove 17316	189
Broad Island 17338	212
Brockman Island 17403	131
Broekman Pass 17403	131
Bronaugh Islands 17432	88
Brothers, The 17360	152
Brown Bear Head Island 17372	140
Brown Bear Rock 17433	63
Brown Cove 17360	148
Brown Glacier 17360	159
Brownson Bay 17433	63
Brownson Island 17385	101
Bucareli Bay 17400	118
Bug Island 17300	157
Bug Island 17422	79
Bullhead (Bull Head) Cove 17434	69
Buoys	17
Burger Point 17302	226
Burnett Inlet 17382	97
Burnt Island 17368	150
Burnt Island 17375	145
Burnt Island 17403	131

	Page
Burnt Island Reef 17375	145
Burnt Point 17302	234
Burroughs Bay 17424	78
Buschmann Pass 17433	111
Bush Islets 17386	135
Bush Islets 17407	118
Bush Rock 17401	99
Bush Top Island 17375	145
Bushtop Island 17404	127
Bushy Island 17382	100
Bushy Island 17408	115
Bushy Islands 17360	159
Bushy Point 17422	79
Bushy Point Cove 17422	79
Bushy Point Light 17422	79
Buster Bay 17360	140
Butler Peak 17314	160
Butler Rock 17400	107
Butterworth Island 17382	142
Button Island 17385	103
Byron Bay 17330	198
Caamano Point 17422	78, 80
Caamano Point 17422, 17420	93
Caamano Point Light 17422	80
Cabin Cove 17420	94
Cabin Point 17339	183
Cable clearances	14
Cable ferries	1
Cables	1
Cabras Islands 17406	119
Cache Island 17423	80
Cactus Point 17424	77
Calder Bay 17387	138
Calder Rocks 17386, 17387	138
California Cove 17428	71
California Head 17428	71
California Rock 17430	72
Cam Island 17368	151
Camel Mountain 17326	201
Cameron Pass 17326	199
Camp Coogan Bay 17326	202
Camp Cove 17408	109
Camp Island 17360	148
Camp Island 17408	109
Camp Point 17427	67
Canal Point 17406	119
Canal, Bradfield 17385	102
Candle Island 17424	77
Cannery Cove 17363	152
Cannery Cove 17432	84
Cannery Point 17300	185
Cannery Point 17302	232
Cannery Point 17382	97
Cannery Point 17432	84
Cannery Rock 17432	83
Canoe Cove 17303	219
Canoe Cove 17434	88
Canoe Pass 17303	219
Canoe Pass 17404	128
Canoe Passage 17385	101
Cap Island 17403	130, 131
Cape Addington 17406	124
Cape Augustine 17408	109
Cape Bartolome 17406	118
Cape Bendel 17368	150
Cape Bingham 17303	222
Cape Chacon 17433	63, 81
Cape Chirikof 17406	123
Cape Cross 17303	220
Cape Dearborn 17321	218
Cape Decision 17386, 17402	135
Cape Edgecumbe 17325, 17320	201
Cape Edward 17322	217
Cape Fanshaw 17365	155
Cape Fanshaw 17365, 17360	150
Cape Felix 17406	119
Cape Flores 17407	118
Cape Fox 17437	65, 68
Cape Georgiana 17323	209
Cape Horn Rocks 17400	107
Cape Knox 17400	62
Cape Lookout 17408	109
Cape Lynch Light 17404	127
Cape Muzon 17400	63
Cape Muzon Light 17400	63
Cape Ommaney 17320, 17330	176
Cape Ommaney 17330, 17320	197
Cape Ommaney Light 17320, 17330	176
Cape Pole 17402	134, 137
Cape Spencer 17301	222
Cape Strait 17367	148
Cape Suspiro 17405	120
Car Point 17425	67
Caracol Island 17406	123
Carlton Island 17423	96
Caroline Shoal 17318	230
Carp Island 17424	76
Carroll Inlet 17428	71
Carroll Island 17320	153
Carroll Point 17428	71
Cascade Bay 17320	181
Cascade Inlet 17428	70
Castle Islands 17360	143
Castle River 17360	143
Cat Island 17434	69
Cat Passage 17434	87
Catalina Island 17404	123
Catherine Island 17337	182
Caution Island 17326	202
Caution Pass 17321	218
Cayman Point 17407	117
Cedar Bight 17368	152
Cedar Cove 17300	186
Cedar Cove 17324	206
Cedar Island 17368	151
Cedar Island 17423	80
Cedar Pass 17326	200
Cedar Point 17434	88
Celestial Reef 17420	64
Center Island 17423	96
Center Island 17433	111
Center Islets 17424	77
Chaik Bay 17341	182
Change Island 17385	102
Channel Island 17385	104
Channel Island 17402	176
Channel Island 17408	109
Channel Island 17428	75
Channel Island Light 14 17428	75
Channel Islands 17408	115
Channel Islands 17424	77
Channel markers, caution	17
Channel Point 17339	184
Channel Rocks 17323	210
Chapel Island 17362	157
Chapin Bay 17336	153
Chapin Island 17404	128
Charcoal Island 17327	203
Charcoal Point 17430	75
Charpentier Inlet 17318	231
Chart Datum	14
Chart Numbering System	14
Chart symbols and abbreviations	14
Charts and Publications-National Ocean Service	236
Charts and Publications-Other U.S. Government Agencies	236
Chasina Anchorage 17436	84
Chasina Island 17436	84
Chasina Point 17436	84
Chatham 17338	214
Chatham Strait 16016	175
Checats Cove 17424	77
Checats Point 17424	77
Chichagof Bay 17432	82
Chichagof Island 16016	215
Chichagof Pass 17382	105
Chickamin River 17424	77
Chickwan Bight 17409	108
Chilkat Inlet 17317	191
Chilkat Islands 17317	191
Chilkat Peninsula 17317	191
Chilkat River 17317	192
Chilkoot Inlet 17317	192
Chilkoot Lake 17317	194
Chilkoot River 17317	194
Chimney Rock 17302	234
China Cove 17402	134
Cholmondeley Sound 17436	84
Christmas Island 17368	152

	Page
Chuck River 17363	156
Church Point 17362	157
Circle Bay 17382	105
Circle Point 17314	160
City of Topeka Rock 17384	105
Clam Cove 17403	131
Clam Cove 17431	112
Clam Island 17403	131
Clam Island 17405	121
Clam Island 17408	116
Clam Island 17422	79
Clare Island 17432	83
Clarence Strait 17420, 17360	81
Clark Bay 17426	93
Clarno Cove 17432	83
Clear Creek 17360	96
Clear Point 17316	189
Clear Point 17408	109
Cleft Island 17368	152
Cleva Bay 17431	116
Cleveland Passage 17365	155
Cleveland Peninsula 17420	93
Cliff Point 17425	67
Close Bay 17328	198
Clover Bay 17436	85
Clover Island 17422	80
Clover Pass 17422	80
Clover Passage 17422	80
Clover Passage Entrance Light 17422	80
Clover Point 17436	85
Club Rocks 17434	64
Clump Island 17403	130
Coal Bay 17426	93
Coast Guard	3
Coast Guard District Offices	237
Coast Guard droppable, floatable pumps	11
Coast Guard Marine Safety Offices	237
Coast Guard Radio Broadcasts	238
Coast Guard radio stations	11
Coast Guard Stations	237
Coast Guard vessels, warning signals	22
Coast Pilot	1
Cob Island 17404	128
Coco Harbor 17408	116
Cod Point 17423	80
Code of Signals, International	237
Coffman Cove 17401	98
Coffman Island 17401	98
Coghlan Island 17315	172
Cohen Island 17316	174
Cohen Reef 17316	174
Coho Cove 17428	71
Cole Island 17405	120
Colorado Reef 17375	145
COLREGS Demarcation Lines	30, 54
Colt Island 17315	171
Columbine Rock 17324	207
Column Point 17303	223
Communications	60
Compass roses on charts	15
Composite Island 17318	231
Conclusion Island 17360	139
Cone Bay 17404	127
Cone Island 17406	124
Cone Island 17428	71
Cone Mountain 17408	109
Cone Peak 17404	127
Cone Point 17428	71
Coney Island 17360	148
Coning Inlet 17409	110
Coning Point 17409	110
Control of shipping in time of emergency or war	24
Convenient Cove 17422	78
Coon Cove 17428	71
Coon Island 17428	71
Cooney Cove 17382	97
Cooper Point 17315	161
Coot Cove 17316	189
Coposo Island 17406	122
Copper Harbor 17431	113
Cora Island 17402	134
Cora Point 17402	134
Cordova Bay 17400	110
Corlies Islands 17407	117
Cormorant Island 17321	218
Cornwallis Point 17368	151
Coronados Islands 17405	120
Coronation Island 17402	134
Corps of Engineers	4
Corps of Engineers Offices	237
Cosmos Cove 17337	182
Cosmos Pass 17403	129
COSPAS-SARSAT system	20
Courses	1
Couverden Island 17316	188
Couverden Rock 17316	188
Cove Point 17300	160
Cow Island 17434	86
Cozian Reef 17323	212
Crab Bay 17300	186
Crab Bay 17434	87
Crab Cove 17316	189
Craig 17405	120
Craig Island Reef 17405	121
Craig Point 17382	143
Craig Rock 17437	65
Crawfish Inlet 17326	200
Crawfish Inlets 17326, 17320	199
Creek Point 17324	206
Creek Point 17435	86
Crist Point 17302	232
Cristina Island 17406	119
Cross Sound 17302	222
Crosswise Islands 17324	206
Crow Island 17337	182
Crow Island 17435	88
Crowley Bight 17386	177
Cruising schedules	11
Cruz Islands 17404	123
Cruz Pass 17404	123
Cub Mountain 17303	220
Cube Point 17300	185
Culebra Islands 17404	126
Curacao Reef 17404	126
Curlew Ledge 17316	189
Currents	1, 55
Customhouse Cove 17434	87
Customs Ports of Entry and Stations	238
Customs Service	2
Cutter Rocks 17428	71
Cuvacan Cove 17325	207
Cygnet Island 17427	70
Cyrus Cove 17403	130
Dad Rock 17302	225
Daisy Island 17426	92
Dalasuga Island 17317	191
Dall Bay 17432	88
Dall Head 17432	88
Dall Island 17400	107
Dall Ridge 17434	88
Danger Island 17381	141
Danger Passage 17434	69
Danger Point 17339	184
Danger Point 17375	145
Danger Point Ledge 17375	145
Danger signal	24
Dangers	55
Dark Point 17437	65
Dasani Islands 17404	128
Datzkoo Harbor 17409	114
Datzkoo Islands 17409	110
Davidson Creek 17315	161
Davidson Glacier 17317	191
Davidson Inlet 17403	129
Davis Creek 17339	185
Davis Rock 17376	177
Davison Bay 17321	218
Davison Mountain 17435	86
Dawes Glacier 17360	159
Daykoo Islands 17409	110
Daylight saving time	61
De Groff Bay 17324	206
De Long Islands 17434	68
Dead Island 17381	141
Dead Tree Island 17338	213
Dead Tree Point 17404	127
Deadman Island 17384	105
Deadman Island 17382	97
Deadman Reach 17323	211

	Page
Deception Point 17375	144
Decision Passage 17386, 17402	135
Deck officers	24
Deep Bay 17323	211
Deep Bay 17382	104
Deep Cove 17335	180
Deep Inlet 17326	202
Deepwater Point 17365	153
Deer Bay 17431	113
Deer Harbor 17303	220
Deer Island 17385	101
Defense Mapping Agency	2
Defense Mapping Agency Hydrographic/Topographic Center (DMAHTC)	5
Defense Mapping Agency Procurement Information	236
Deichman Island 17432	83
Deichman Rock 17382	99
Dell Island 17431	113
Department of Agriculture, Animal and Plant Health Inspection Service (APHIS) Offices	239
Depths	1
Desconocida Reef 17404	127
Destructive waves	21
Deuce Island 17322	216
Devil Island 17408	109
Devil Lake 17408	109
Devilfish Bay 17387	131
Devils Elbow 17372	140
Devils Rock 17435	89
Dew Point 17424	77
Dewey Anchorage 17423	96
Dewey Rocks 17433	111
Diamond Island 17339	185
Diamond Point 17405	119
Dickens Point 17427	66
Dickman Bay 17432	83
Dicks Arm 17301	223
Didrickson Bay 17321	218
Dippy Island 17322	217
Disposal areas	15
Disposal Sites	15, 54
Distance Tables	236
Distances	2
Distant Point 17339, 17320	183
Distress Assistance and Coordination Procedures	8
Distress Signals and Communication Procedures	7
Diver Bay 17407	110
Diver Islands 17407	110
Diver Rocks 17407	110
Divide Island 17387	138
Division Island 17318	231
Dixon Entrance 16016	62
Documentation	4
Dog Bay 17434	87
Dog Island 17434	87
Dogfish Island 17423	80
Dolgoi Island 17409	108
Dolomi Bay 17432	84
Dolph Rock 17323	212
Dome Islets 17404	127
Donkey Bay 17363	152
Doolth Mountain 17322	216
Dora Bay 17436	85
Dorn Island 17360, 17300	157
Dornin Rock 17315	171
Dorothy Cove 17328	199
Dorothy Narrows 17326	200
Dot Island 17403	131
Doty Cove 17300	160
Double Cove 17322	217
Double Island 17423	96
Double Islands 17434	87
Double Rock 17385	103
Douglas 17315	161
Douglas Bay 17360	141
Douglas Boat Harbor 17315	165
Douglas Island 17315	171
Douglass Bay 17323	212
Dova Bay 17431	112
Dove Island 17403	130
Drag Island 17382	104
Drake Island 17318	229
Dress Point 17422	78
Driest Point 17435	89
Driftwood Cove 17330	197
Dry Island 17360	143
Dry Pass 17321	218
Dry Pass 17387	130
Dry Strait 17360	143
Dry Strait Light 1 17360	143
Duck Islands 17434	69
Duck Point 17365	155
Duck Point 17385	102
Duffield Peninsula 17323	212
Duke Island 17434	64
Duke Point 17434	64
Dumping Grounds	15, 54
Dumping of dredged material	5
Dunbar Inlet 17408	116
Duncan Canal 17360	140, 142
Dundas Bay 17302	226
Dundas Island 17420	64
Dundas Islands 17420	64
Dundas River 17302	226
Dunira Island 17420	64
Dutch Harbor 17432	84
Eagle Glacier 17316	174
Eagle Harbor 17316	174
Eagle Harbor 17400	107
Eagle Island 17385	96
Eagle Island 17403	130
Eagle Point 17302	226
Eagle Point 17407	110
Eagle Point 17425	67
Eagle Reef 17316	174
Eagle Rock 17325	208
Eagle Rocks 17330	197
Earl Cove 17302	225
East Channel 17324	206
East Channel 17428	72
East Clump 17430	75
East Clump Light 7 17430	75
East Devil Rock 17434	64
East Francis Rock 17323	211
East Island 17382	99
East Island 17428	75
East Island 17434	64
East Pinta Rocks 17368	150
East Point 17300	185
East Point 17367	149
East Point 17382	105
East Rock 17378	139
East Sentinel Island 17426	92
East Spit 17365	155
Easterly Island 17385	101
Eastern Anchorage 17327	203
Eastern Channel 17327	203
Eastern Passage 17385	103
Eastern Passage Light 17384	105
Echo Cove 17316	191
Echo Cove 17337	182
Echo Island 17382	99
Echo soundings	15
Echoes	55
Eckholms, The 17326	202
Edith Point 17424	77
Edna Bay 17403	129
Edward Islands 17322	217
Edward Passage 17437	66
Edwards Island 17360	136
Eek Inlet 17431	113
Eek Point 17431	113
Egg Harbor 17402	176
Egg Islands 17432	83
Egg Passage 17433	111
Egg Rock 17433	111
Eight Fathom Bight 17302	234
El Capitan Island 17403	131
El Capitan Passage 17403	130
Elbow Bay 17431	112
Elbow Passage 17322	216
Eldred Rock 17317	191
Electronic navigation	54
Elena Bay 17376	178
Elephants Head 17367	149
Elephants Nose 17382	105
Elf Cove 17322	216
Elfin Cove 17302	224
Elghi Island 17403	129

	Page
Eliza Harbor 17365	153
Elkugu Bay 17322	217
Elkugu Island 17322	217
Ella Creek 17424	77
Ella Point 17424	77
Elliott Island 17363	152
Elovoi Island 17326	200
Elovoi Islet 17323	212
Emerald Bay 17385	101
Emerald Island 17404	127
Emergencies	61
Emgeten Island 17326	202
Emily Island 17360	142
Emmons Island 17323	211
Endicott Arm 17360	159
Endicott Arm 17360	159
Endicott River 17316	191
Entrance Island 17316	188
Entrance Island 17324	207
Entrance Island 17363	156
Entrance Island 17372	140
Entrance Island 17403	129
Entrance Island 17408	109, 116
Entrance Island 17424	77
Entrance Islet 17326	201
Entrance Point 17315	171
Entrance Point 17405	121
Entry Point 17326	202
Environmental Protection Agency (EPA)	5
Environmental Protection Agency (EPA) Offices	237
Eolus Point 17407	117
EPIRBs	18
Ernest Point 17385	96
Ernest Sound 17385	100
Error Island 17326	202
Escape Point 17422	79
Escurial Island 17404	126
Esquibel Island 17404	126
Essowah Harbor 17409	108
Essowah Lakes 17409	108
Essowah Point 17409	108
Esther Island 17303	219
Etolin Island 17360	96
Eureka Channel 17433	111
Eva Island 17368	151
Eva Islands 17338	213
Exchange Cove 17382	99
Exclusive Economic Zone of the United States	24
Excursion Inlet 17316	227
Excursion Inlet 17318	227
Explorer Basin 17376	178
Eye Opener, The 17360	141
Fair Island 17360	142
Fairhaven 17315	172
Fairway Island 17338	213
Fairway Island 17386	135
Fairway Rock 17321	218
Fake Pass 17403	129
Falcon Arm 17322	216
False Arden 17315	171
False Bay 17300	186
False Cove 17402	134
False Island 17338	213
False Lindenberg Head 17338	213
False Point 17302	233
False Point Pybus 17360	156
False Point Retreat 17316	189
Fankuda Islet 17326	202
Fanshaw Bay 17365	155
Far Point 17433	111
Farallon Bay 17407	117
Farm Island 17360	143
Farragut Bay 17367	149
Fassett Island 17326	202
Faust Island 17360, 17300	157
Faust Rock 17316	172
Favorita Island 17404	126
Favorite Anchorage 17323	211
Favorite Bay 17339	184
Favorite Channel 17316	174
Favorite Reef 17316	172
Fawn Island 17382	97
Feather Rock 17404	127
Federal Communications Commission	5
Federal Communications Commission Offices	240
Federal Requirements for Recreational Boats	237
Felice Strait 17434	86
Ferebee Glacier 17317	194
Ferebee River 17317	194
Fern Harbor 17302	223
Fern Point 17405	120
Fern Reef 17405	120
Fern Rock 17321	218
Fick Cove 17323	212
Figgins Point 17426	94
Fillmore Inlet 17437	66
Fillmore Island 17437	66
Fillmore Rock 17435	89
Finger Point 17328	199
Finger Shoal 17386, 17387	137
Fir Rock 17403	131
Fire Island 17382	99
Fire Point 17424	77
First Kekur 17330	198
First Narrows 17326	199
Fish Bay 17323	210
Fish Egg Island 17405	120
Fish Egg Reef 17405	120
Fish havens	5, 15
Fish Islands 17434	87
Fish Point 17424	77
Fisherman Chuck 17385	102
Fisherman Cove 17408	109
Fishermans Harbor 17402	137
Fishery Conservation Zone	25
Fishtrap areas	15
Fishtraps	5
Fitz Island 17322	217
Fitzgibbon Cove 17424	77
Five Finger Light 17360	155
Five Fingers, The 17360	155
Fivemile Island 17382	105
Flag Point 17341	182
Flag Point 17434	69
Flat Cove 17322	216
Flat Island 17368	151
Flat Island 17381	141
Flat Island 17403	131
Flat Point 17315	161
Flaw Point 17360	158
Fleming Island 17321	218
Flock Rock 17367	149
Flotsam Islet 17331	179
Flynn Cove 17302	226
Fog signal characteristics	2
Fog signals	17
Foggy Bay 17434	68
Foggy Point 17434	68
Fontaine Island 17387	138
Food and Drug Administration (FDA)	6
Food and Drug Administration (FDA) Regional Offices	239
Fool Inlet 17300	157
Fools Inlet 17385	102
Foot Island 17365	155
Ford Arm 17322	216
Ford Rock 17323	212
Fords Cove 17425	67
Fords Terror 17360	159
Foremost Rock 17382	142
Forrester Island 17400	63, 107
Forss Cove 17420	95
Forss Island 17422	79
Fort Islet 17407	117
Fort Point 17365	155
Fort Point 17437	65
Fortaleza Bay 17406	119
Fortuna Reefs 17323	209
Fortuna Strait 17323	215
Foul Bay 17407	109
Found Island 17385	102
Fox Island 17437	65
Fox Rock 17403	130
Fragrant Island 17326	200, 201
Francis Anchorage 17367	149
Francis Island 17318	229
Frederick Cove 17432	83
Frederick Point 17360	148
Frederick Sound 17320, 17360	148

	Page
French Harbor 17432	84
Frequency units	11
Freshwater Bay 17300	186
Fripo Island 17434	69
Fritter Cove 17382	104
Fritz Cove 17315	171
Frog Rock 17322	217
Frosty Bay 17385	102
Fruit Island 17327	203
Funter Bay 17316	188
Gaff Rock 17302	224
Gain Island 17362	157
Gambier Bay 17362	157
Game Creek 17302	234
Game Point 17302	234
Gannet Island 17434	70
Gaohi Islands 17404	128
Gap Point 17376	178
Garcia Cove 17404	126
Gardner Bay 17433	81
Garforth Island 17318	230
Garnet Point 17437	66
Gas Rock 17403	130
Gastineau Channel 17315	161
Gate Island 17408	109
Gate, The 17322	216
Gauge Island 17316	189
Gaviota Islets 17406	124
Gaviota Rock 17406	124
Gedney Channel 17302	232
Gedney Harbor 17376, 17320	177
Gedney Pass 17422	78
Geikie Inlet 17318	230
Geikie Rock 17318	230
Geographic range	16
George Inlet 17428	71
George Islands 17302	224
George Rock 17315	171
Gerard Point 17385	103
Giant Point 17434	69, 87
Gibbs Rock 17424	77
Gibby Rock 17315	172
Gig Pass 17322	217
Gilbert Bay 17313	160
Gilbert Peninsula 17318	231
Gilmer Bay 17325	208
Gilmer Cove 17324	207
Gish Bay 17402	176
Glacier Bay 17318	227
Glacier Bay National Park and Preserve 17318	227
Glacier Point 17317	191
Glacier Point 17425	67
Glass Peninsula 17360	157
Gnat Cove 17428	71
Goat Island 17407	114
Gold and Galligan Lagoon 17382	99
Gold Harbor 17408	108
Goleta Cove 17325	208
Golf Island 17326	200
Goloi Islands 17323	210
Golovni Island 17326	200
Good Island 17362	157
Goose Cove 17318	230
Goose Island 17302	226
Gooseneck Harbor 17408	108
Gornoi Island 17326	200
Gould Island 17431	113
Gould Passage 17431	113
Goulding Harbor 17321	218
Gourd Island 17408	108
Government Agencies	2
Government Printing Office	236
Grace Creek 17424	77
Grace Harbor 17408	115
Grace Island 17321	218
Graham Island 17400	62
Grand Island 17300	160
Grand Island 17408	115
Grand Pacific Glacier 17318	232
Grand Point 17367	149
Granite Cove 17302	224
Granite Point 17406	124
Grant Cove 17436	90
Grant Island 17423	80
Grant Island Light 17423	80
Grass Rock 17435	86
Grasstop Rock 17323	211
Grassy Rock 17302	234
Grave Island 17363	152
Grave Island 17368	150
Grave Point 17314	160
Grave Point 17433	112
Grave Point 17434	69
Graveyard Cove 17331	179
Graveyard Island 17403	131
Gravina Island 17432	87
Gray Rock 17322	216
Great Arm 17328	199
Greely Point 17315	161
Green Inlet 17408	116
Green Island 17403	129
Green Islets 17425	67
Green Point 17375	145
Green Rocks 17375	145
Greentop Harbor 17303	220
Greentop Island 17303	220
Grey Point 17435	86
Greys Island 17360	143
Grief Island 17360	142
Grindall Anchorage 17426	91
Grindall Island 17426	91
Grindall Passage 17426	91
Grindall Point 17426	91
Grouse Rock 17427	70
Guard Islands 17428	76
Guard Islands Light 17428	76
Guibert Islets 17328	199
Guide Island 17407	117
Guide Rock 17322	216
Guide Rocks 17433	111
Gulf of Esquibel 17404	125
Gull Cove 17302	226
Gull Island 17316	174
Gull Island 17404	127
Gull Island 17435	88
Gull Point 17423	96
Gull Rock 17321	218
Gull Rock 17401	98
Gunboat Rock 17326	200
Gusdagane Point 17433	112
Gustavus 17302	226
Gut Bay 17336, 17320	180
Hadley 17426	94
Haines 17317	192
Haley Anchorage 17323	210
Haley Point 17323	210
Haley Rocks 17323	210
Halibut Bay 17427	67
Halibut Harbor 17402	134
Halibut Island 17302	232
Halibut Nose 17407	117
Halibut Point 17324	205
Halibut Rock 17302	232
Halleck Harbor 17368	151
Halleck Island 17324	206
Ham Cove 17408	115
Ham Island 17385	104
Ham Island 17428	70
Ham Islands 17404	128
Hamilton Bay 17368	151
Hamilton Island 17368	150
Hamilton Island 17387	138
Hanus Bay 17338	213
Hanus Islet 17326	201
Hanus Reef 17316	188
Happy Cove 17376	178
Happy Harbor 17426	92
Harbor Island 17327	203
Harbor Island 17360	158
Harbor Island 17368	151
Harbor Point 17428	70
Harbor Rock 17327	203
Harbormasters	60
Harmony Islands 17404	127
Harrington Rock 17367	149
Harris Cove 17376	177
Harris Harbor 17315	170
Harris Island 17434	86

	Page
Harris River 17426	93
Harris River Bay 17426	93
Harrison Point 17427	66
Harry Bay 17437	65
Harry Island 17302	226
Harry Saddle 17437	65
Harvey Lake 17360	142
Hassiah Inlet 17431	113
Hassler Harbor 17428	70
Hassler Island 17422	78
Hassler Pass 17422	78
Hassler Point 17407	117
Hassler Reef 17434	64
Hat Island 17382	105
Hattie Island 17427	67
Hattie Island Light 17427	67
Hawk Inlet 17316, 17300	186
Hawk Point 17316	186
Haystack Island 17437	66
Hayward Strait 17324	206
Hazy Islands 17320	175
Healy Rock 17341	182
Heceta Island 17404	127
Heckman Point 17422	79
Heide Rock 17300	186
Heights	2
Helen Island 17431	113
Helianthus Passage 17376	177
Helicopter evacuation	10
Helm Bay 17422	79
Helm Bay Light 17422	79
Helm Point 17402	134
Helm Point 17422	79
Helm Rock 17378	139
Hemlock Island 17435	89
Hemlock Point 17339	185
Henrys Arm 17363	152
Herbert Glacier 17316	174
Herbert Graves Island 17321	218
Hermagos Islands 17404	126
Hermanos Islands 17404	123
Herring Bay 17326	200
Herring Bay 17336	153
Herring Bay 17428	71
Herring Cove 17326	202
Herring Cove 17428	71
Hessa Inlet 17433	111
Hessa Island 17433	111
Hessa Narrows 17433	111
Hetta Inlet 17431	113
Hetta Point 17431	113
Hid Reef 17434	88
Hidden Bay 17432	82
Hidden Inlet 17437	66
Hidden Island 17360	143, 148
Hidden Point 17437	66
High Island 17372	140
High Island 17426	91
High Point 17408	116
Highfield Anchorage 17384	105
Highwater Island 17324	207
Hill Island 17321	218
Hobart Bay 17363	156
Hog Rocks 17428	70
Hog Rocks Light 17428	70
Hogan Island 17321	217
Hoggatt Bay 17336	181
Hoggatt Island 17323	211
Hoggatt Reefs 17323	211
Hoktaheen Cove 17303	221
Hole in the Wall 17378	138
Hole in the Wall 17404	125
Hole in The Wall 17407	110
Hole-in-the-Wall 17428	71
Holidays	61
Holkham Bay 17360	158, 159
Holliday Island 17420	65
Holliday Island Light 17420	65
Hollis 17426	93
Hollis Anchorage 17426	93
Hood Bay 17339	183
Hook Arm 17408	109
Hoonah 17302	233
Hoonah Harbor 17302	233
Hoonah Island 17302	232
Hoonah Point 17302	233
Hoonah Sound 17323	212
Hoot Island 17403	130
Horse Island 17315	171
Horse Shoal 17315	171
Horseshoe Island 17372	140
Hose Point 17424	77
Hot Springs Bay 17326	201
Hotspur Island 17434	86
Hound Island 17368	151
Hour Islands 17405	120
Hourigan Point 17368	152
House Point 17339	183
House Rock 17434	69
Howard Bay 17316	189
Howard Cove 17386	177
Howkan Narrows 17409	114, 115
Howkan Reef 17409	115
Huaji Cliff 17433	81
Hub Rock 17403	131
Hub Rock 17435	89
Hugh Miller Inlet 17318	231
Hugh Smith Lake 17420	70
Hume Island 17428	71
Hump Island 17316	189
Hump Island 17422	80
Hump Island 17436	84
Humpback Creek 17302	234
Humpback Creek 17427	70
Humpy Point 17434	68
Hunter Bay 17433	112
Hunter Cove 17318	230
Hut Point 17424	77
Hydaburg 17407	114
Hyder 17425	67
Ibach Point 17318	232
Ice	58
Icy Point 17315	171
Icy Strait 17300	226
Idaho Inlet 17302	226
Idaho Rock 17430	72
Ideal Cove 17360	148
Ilin Bay 17321	219
Immersion hypothermia	57
Immigration and Naturalization Service	5
Immigration and Naturalization Service Offices	240
Impassable Island 17326	200
Imperial Passage 17321	218
Independence Island 17382	98
Indian Creek 17382	99
Indian Point 17315	172
Indian Point 17423	79
Indian Rock 17317	194
Indian Rock 17368	152
Indian Rock 17434	87
Ingraham Bay 17432	82
Ingraham Point 17432	82
Inian Cove 17302	225
Inian Islands 17302	225
Inland Waterways Navigation Regulations	37
Inner Point 17315	171
Inner Point 17432	84
Inside Passage 17303	219
Inside Passage 17428	76
Inside Route	59
International Code of Signals	237
International distress signals	7
Iphigenia Bay 17400	133
Island Bay 17408	116
Island Cove 17322	216
Island Point 17426	91
Island Point 17428	71
Island Point 17433	81
Island Point 17437	66
Islas Bay 17321	219
Islet Passage 17326	202
Ittar Rock 17322	217
Iyoukeen Cove 17300	186
Jackknife Islands 17326	200
Jackson Island 17431	112
Jackson Passage 17431	113
Jacob Rock 17326	200
Jadski Cove 17382	97

	Page
Jamboree Bay 17326	199
Jamestown Bay 17327	203
Japan Bay 17435	89
Japonski Island 17327	203
Jarvis Island 17426	93
Jaw Point 17315	161
Jenkins Rock 17317	192
Jinhi Bay 17403	129
Joe Island 17407	118
Joe Island 17422	80
Joe Mace Island 17378	139
John Bay 17331	179
John Rock 17326	200
Johns Hopkins Glacier 17318	232
Johns Hopkins Inlet 17318	232
Johnson Cove 17318	229
Johnson Cove 17382	98
Johnson Cove 17432	83
Johnson Rock 17317	192
Judd Harbor 17434	64
Juel Point 17408	109
Jumbo Island 17431	113
Junction Island 17303	220
Juneau 17315	165
Juneau Isle 17315	161
Kabanof Rock 17404	126
Kadashan Bay 17300	186
Kadin Island 17360	143
Kaguk Cove 17404	128
Kah Shakes Cove 17434	69
Kah Shakes Point 17434	69
Kah Sheets Bay 17382	141
Kahli Cove 17403	129
Kaigani 17409	110
Kaigani Point 17409	114
Kaigani Strait 17400	114
Kaiuchali Island 17326	200
Kake 17368	150
Kake Harbor 17368	150
Kakovo Island 17328	199
Kakul Narrows 17323	210
Kakul Rock 17323	210
Kalhagu Cove 17317	191
Kalinin Bay 17323	209
Kanagunut Island 17437	66
Kanalku Bay 17339	185
Kane Islands 17324	207
Kanga Bay 17326	201
Karheen Cove 17404	128
Karheen Passage 17404	128
Karta Bay 17426	93
Kasaan 17426	92
Kasaan Bay 17426	91
Kasaan Island 17426	92
Kasaan Point 17426	92
Kashevarof Islands 17382	99
Kashevarof Passage 17382	98
Kasiana Islands 17324	205
Kasnyku Bay 17337	182
Kasook Inlet 17431	116
Kassa Inlet 17431	112
Kassan Islands 17403	129
Kataguni Island 17317	191
Katakwa Point 17437	65
Katlian Bay 17324	206
Katzehin River 17317	192
Kauda Point 17404	128
Keete Inlet 17431	113
Keete Inlet 17431	113
Keete Island 17431	113
Keete Point 17431	113
Keg Point 17400	114
Keg Point 17401	99
Kegan Cove 17432	83
Kegan Creek 17432	83
Kegan Lake 17432	83
Keku Islands 17368	151
Keku Strait 17360	135
Keku Strait 17360, 17368	139
Keku Strait 17368	150
Kekur Point 17330	198
Kelgaya Bay 17317	192
Kell Bay 17386	135
Kelly Cove 17406	124
Kelp Bay 17337	182
Kelp Island 17434	64
Kelp Island Anchorage 17434	64
Kelp Passage 17433	111
Kelp Point 17360	96
Kelp Rocks 17435	88
Kenasnow Rocks 17339	183
Kendrick Bay 17433	82
Kendrick Islands 17433	82
Keski Island 17403	131
Kestrel Island 17434	70
Ketchikan 17430	72
Key Reef 17382	99
Key Reef Rock 17382	99
Khayyam Point 17426	92
Khaz Bay 17322	216
Khaz Breakers 17322	215
Khaz Head 17322	215
Khaz Peninsula 17322	215
Khaz Point 17322	215
Killisnoo Harbor 17339	183
Killisnoo Island 17339	183
Kimshan Cove 17322	217
Kina Cove 17426	93
Kindergarten Bay 17382	98
King George Bay 17382	104
King Island 17436	85
King Salmon Bay 17300	158
Kingsmill Point 17320	179
Kirbas Island 17326	200
Kirk Point 17434	68
Kita Island 17326	202
Kite Island 17434	70
Kitkun Bay 17436	85
Kittens, The 17316	189
Klag Bay 17322	216
Klag Island 17322	217
Klahini River 17424	78
Klakas Inlet 17431	112
Klakas Island 17431	112
Klawock 17405	121
Klawock Harbor 17405	121
Klawock Inlet 17405	120
Klawock Island 17405	121
Klawock Reef 17405	121
Klinau Island 17403	128
Klinkwan Cove 17433	112
Klokachef Island 17323	209
Klu Bay 17422	78
Klukwan 17317	192
Knob Island 17403	131
Knob, The 17302	226
Knudson Cove 17422	80
Kochu Island 17317	191
Koka Island Passage 17326	202
Kolosh Island 17326	201
Kootznahoo Head 17339	184
Kootznahoo Inlet 17339	184
Kootznahoo Roads 17339	183
Kosciusko Island 17402	134
Krestof Island 17324	206
Krestof Sound 17324	206
Krishka Island 17328	199
Kritoi Basin 17328	199
Krugloi Islands 17323	210
Krugloi Islet 17323	212
Kruzof Island 17325	201
Kuakan Point 17385	102
Kuiu Island 17360	150
Kukkan Bay 17322	217
Kukkan Passage 17322	217
Kulichkof Rock 17326	202
Kupreanof Island 17360	150
Kwain Bay 17434	87
Labandera Rock 17406	119
Labouchere Bay 17378	138
Lacey Island 17431	113
Ladrones Islands 17405	120
Lake Anna 17322	217
Lake Bay 17401	98
Lake Bay Creek 17401	99
Lake Fortaleza 17406	119
Lamplugh Glacier 17318	232
Lancaster Cove 17436	85

	Page
Lane Island 17434	69
Langara Island 17400	62
Langara Point Light 17400	63
Larch Bay 17330	197
Lars Island 17318	229
Larzatita Island 17404	123
Larzatita Island Reef 17404	123
Late Point 17300	158
Lauf Islands 17338	213
Launch Passage 17404	126
Lawson Creek 17315	165
Le Conte Bay 17360	148
Le Conte Glacier 17360	148
Leading Point 17433	111
Learmonth Bank 16016	62
Leask Cove 17428	72
Ledge Island 17316	189
Ledge Point 17424	77
Ledge Point 17437	65
Lee Rock 17420	94
Leesoffskaia Bay 17326	202
Legal public holidays	61
Legma Island 17326	200
Lehunua Island 17317	192
Leland Islands 17318	229
Lemesurier Island 17302	226
Lemesurier Point 17423	94
Lemly Rocks 17423	94
Lemon Point 17386	135
Lena Cove 17316	174
Leo Anchorage 17323	215
Lester Island 17318	228
Letnikof Cove 17317	192
Level Islands 17382	141
Lewis Island 17428	70
Lewis Point 17428	75
Lewis Reef 17428	75
Lewis Reef Light 11 17428	75
Liar Rock 17326	202
Liesnoi Island 17360	143
Liesnoi Island 17365	153
Liesnoi Shoal 17323	211
Light and fog signal characteristics	2
Light Lists	4, 237
Lighter Creek 17339	185
Lights	16
Lime Point 17431	113
Limestone Inlet 17314	160
Limestone Point 17403	129
Lincoln Channel 17437	66
Lincoln Island 17316	189
Lincoln Rock 17382	98
Lindenberg Harbor 17338	213
Lindenberg Head 17338	213
Linney Bay 17426	92
Lion Point 17425	67
Liscome Bay 17409	108
Lisianski Inlet 17303	223
Lisianski Strait 17303	219
Lisianski Strait Light 2 17303	219
List of Lights	237
Little Baht Harbor 17382	143
Little Bay 17321	218
Little Biorka Island 17326	200
Little Branch Bay 17330	198
Little Branch Bay Light 17330	198
Little Brownson Bay 17433	63
Little Daykoo Harbor 17409	110
Little Duncan Bay 17360	142
Little Island 17316	189
Little Naukati Bay 17403	128
Little Port Walter 17333	180
Little Puffin Bay 17330	197
Little Pybus Bay 17363	153
Little Rock 17434	69
Little Rose Island 17323	211
Little Skookum Chuck 17404	127
Lively Islands 17407	117
Lively Rock 17435	89
Local magnetic disturbance	55
Local magnetic disturbances	15
Local Notice to Mariners	2
Lock Island 17321	218
Lodge Island 17326	200
Logan Point 17427	67
Lone Island 17318	230
Lone Mountain 17316	172
Lone Rock 17339	183
Lone Tree Island (Lone Spruce Rock) 17407	114
Lone Tree Islet 17341	182
Long Arm 17423	80
Long Bay 17300	186
Long Island 17302	233
Long Island 17363	152
Long Island 17409	110
Lontana Point 17407	110
Lord Islands 17437	65
Lord Rock 17437	65
Loring 17423	80
Losa Island 17404	127
Lost Cove 17303	219
Louise Cove 17386	136
Low Island 17325	201
Low Point 17317	194
Low Point 17382	141
Low Rock 17408	109
Lowrie Island 17400	107
Loy Island 17426	93
Luck Point 17360	96
Lucky Cove 17428	70
Luke Point 17408	115
Lulu Island 17406	122
Lumber Cove 17303	219
Luminous range	16
Lung Island 17382	142
Lutak Inlet 17317	194
Lydonia Island 17321	217
Lyman Anchorage 17426	94
Lyman Point 17426	94
Lyman Rock 17426	94
Lynn Brothers 17316	191
Lynn Canal 17300	188
Lynn Sisters 17316	189
Mab Island 17316	189
Mabel Bay 17431	113
Mabel Island 17423	96
Mabel Island 17431	113
Macnamara Point 17382	100
Madan Bay 17385	104
Madre de Dios Island 17405	119
Magnetic disturbances	15, 55
Magnetic Point 17423	101
Magoun Islands 17324	206
Mahoney Bight 17428	71
Maid Island 17326	200
Makhnati Islands 17328	199
Male Point 17437	66
Mallard Bay 17433	81
Manhattan Arm 17408	109
Mansfield Peninsula 17316	172
Manzanita Bay 17424	77
Manzanita Island 17424	77
Maple Bay 17425	67
Marabilla Island 17406	125
Marble Island 17403	130
Marble Islands 17318	229
Marble Islet 17386	135
Marble Passage 17403	130
Marble Point 17382	97
Margerie Glacier 17318	232
Marguerite Bay 17422	79
Marine Broadcast Notices to Mariners	2
Marine Weather Services Chart	237, 239
Mariposa Reef 17360	137
Mariposa Rock 17382	98
Maritime Radio Users Handbook	237
Marmion Island 17315	161
Marmot Bay 17425	67
Marmot River 17425	67
Marsh Island 17382	98
Marten Arm 17427	70
Martin Rock 17435	89
Mary Island 17434	69
Mary Island Anchorage 17434	69
Mary Island Light 17434	69
Mastic Rock 17428	70
Maurelle Islands 17404	126
Max Cove 17431	112
Maybeso Creek 17426	93

	Page
McArthur Reef 17382	141
McClellan Flats 17317	191
McClellan Rock 17338	213
McCullock Rock 17420	64
McDonald Islands 17360	148
McDonald Rock 17360	156
McFarland Islands 17408	116
McHenry Anchorage 17360	97
McHenry Inlet 17382	97
McHenry Islet 17382	97
McHenry Ledge 17423	94
McKenzie Inlet 17426	92
McKenzie Rock 17426	92
McLean Arm 17433	81
McLean Point 17433	81
McLeod Bay 17409	110
McNairy Point 17365	155
Meadow Island 17360	139
Mean Low Water	14
Meares Island 17407	118
Meares Passage 17407	109
Medical advice	11
Medical advice and/or evacuation	10
MEDICO	11
Mellen Rock 17431	113
Melville Island 17420	64
Mendenhall Bar 17315	161, 165
Mendenhall Glacier 17315	172
Menefee Anchorage 17432	83
Menefee Inlet 17385	102
Menefee Islands 17432	83
Menefee Point 17385	102
Mercator projection	15
Merrifield Bay 17378	139
Meter Bight 17382	104
Metlakatla 17435	88
Mexico Point 17433	111
Midchannel Rock 17385	103
Middle Arm 17337	182
Middle Breaker 17322	215
Middle Channel 17326	199
Middle Channel 17327	203
Middle Island 17321	218
Middle Island 17382	99
Middle Island 17387	138
Middle Island 17408	109
Middle Island 17433	111
Middle Point 17315	171
Middle Point 17323	211
Middle Point Rock 17323	211
Middle Shoal 17324	206
Midway Island 17302	234
Midway Island 17407	117
Midway Islands 17300	159
Midway Islands 17363	152
Midway Point 17360	158
Midway Reef 17338	213
Midway Rock 17323	211
Midway Rock 17375	144
Midway Rocks 17302	234
Mike Point 17422	79
Mill Creek 17385	104
Mill Reef 17409	115
Millar Rocks 17407	110
Miner Cove 17331	180
Miner Island 17303	220
Minesweeper signals	22
Mink Bay 17427	70
Minnie Bay 17433	63
Minnie Cutoff 17433	111
Minnie Reef 17321	217
Mirror Harbor 17321	218
Misery Island 17423	94
Mission Cove 17409	115
Mist Cove 17335	180
Mist Island 17313	160
Mitchell Bay 17339	185
Mitchell Point 17382	141
Mite Cove 17303	223
Mite Head 17303	223
Mite Island 17303	223
Mitkof Island 17360	143
Moira Island 17432	83
Moira Sound 17432	83
Mole Harbor 17360	158
Monte Carlo Island 17372	139
Mop Point 17428	71
Morris Reef 17338	214
Morse Cove 17434	69
Morskoi Rock 17323	209
Moser Bay 17423	80
Moser Island 17323	212
Moser Island 17423	80
Mosman Inlet 17382	97
Mosquito Islands 17368	150
Moss Island 17360	141
Moss Point 17434	86
Moth Bay 17428	71
Mound Point 17426	93
Mount Calder 17387	138
Mount Dolly 17425	67
Mount Douglas 17321	218
Mount Edgecumbe 17325	201
Mount Edgecumbe 17327	203
Mount Georgiana 17323	209
Mount Henry 17420	64
Mount Lazaro 17434	64
Mount Lydonia 17321	218
Mount McArthur 17386	177
Mount Robert Barron 17316	172
Mount Woronkofski 17382	104
Mountain Head 17323	211
Mountain Point 17375	145
Mountain Point 17428	71
Mountain Point Light 17428	71
Mt. Katlian 17320	197
Mud Bay 17302	226
Mud Bay 17324	206
Mud Bay 17428	75
Mud Bay 17431	113
Mud Bay River 17302	226
Muffin Islands 17385	96
Muir Glacier 17318	230
Muir Inlet 17318	230
Mule Rock 17435	86
Murder Cove 17336	153
Murdo Island 17435	89
Myers Chuck 17423	94
Myers Island 17423	94
Myriad Islands 17322	217
Nagasay Cove 17404	126
Naha Bay 17423	79
Nahku Bay 17317	194
Nakat Bay 17437	65
Nakat Harbor 17437	65
Nakat Inlet 17437	65
Naked Island 17316	189
Nakwasina Passage 17324	206
Nakwasina Sound 17324	206
Narrow channels	24
Narrow Pass 17434	76
Narrow Point 17420	95
Narrows, The 17302	234
Narrows, The 17385	102, 104
Narrows, The 17433	111
Nation Point 17402	176
National Environmental Satellite, Data, and Information Service	7
National Forest, Tongass	54
National Historical Park, Sitka 17327	205
National Institute of Standards and Technology	12
National Military Cemetery 17327	205
National Ocean Service	3
National Ocean Service Offices	236
National Park and Preserve, Glacier Bay 17318	227
National Park System Units in Alaska	44
National Weather Service	6
National Weather Service Forecast Offices (WSFOs)	6, 239
National Weather Service Offices	6, 238
National Weather Service Port Meteorological Officers (PMOs)	6, 239
Natoma Bay 17409	110
Natoma Point 17409	111
Natzuhini Bay 17407	114
Naukati Bay 17403	128
Nautical Almanac	237
Nautical charts	3, 14
Nautical Charts	236
Navigation Rules	237

	Page
Navigation Safety Regulations	38
NAVTEX	12
NAVTEX Marine Information Broadcasts	12
Neck Point 17316	234
Necker Bay 17328	199
Necker Islands 17326	200
Needle Peak 17402	134
Neets Bay 17422	79
Nehenta Bay 17432	90
Neka Bay 17302	234
Neka Island 17302	234
Nellag Island 17408	109
Nelson Bay 17320	181
Nemo Point 17382	103
Neptune Island 17385	104
Nesbitt Reef 17382	100
Netland Island 17318	229
Neva Bay 17325	207
Neva Point Reef 17324	206
Neva Strait 17324	206
New Eddystone Islands 17424	77
New Eddystone Rock 17424	77
New Port Walter 17333	180
Niblack Anchorage 17432	83
Niblack Islands 17385	102
Niblack Point 17426	94
Nichin Cove 17403	128
Nichols Bay 17433	63
Nichols Islands 17407	117
Nichols Lake 17433	63
Nichols Passage 17432, 17434	87
Nina Cove 17409	110
Ninefoot Shoal 17322	216
Nipples, The 17387	138
Niquette Harbor 17434	87
Nismeni Cove 17338	212
Nismeni Point 17323	212
NIST Time and Frequency Dissemination Services, Special Publication 432	12
No Name Bay 17360	139
No Thorofare Bay 17326	202
No Thorofare Point 17375	144
No Use Ledge 17316	188
NOAA Weather Radio	6, 12, 239
Nominal range	16
Noon Point 17302	226
Norris Glacier 17315	161
North Arm 17323	212
North Arm 17339	183
North Arm 17432	83
North Bay 17407	117
North Bight 17302	234
North Burnett Island 17382	97
North Cape 17328	198
North Flat 17375	145
North Inian Pass 17302	225
North Island 17316	189
North Island 17341	182
North Island 17386	135
North Kaigani Harbor 17409	115
North Ledge 17316	189
North Ledge 17375	145
North Marble Island 17318	229
North Mountain 17321	218
North Pass 17303	219
North Pass 17407	114
North Passage 17302	226
North Passage 17365	153
North Passage Point 17300	186
North Point 17337	182
North Point 17339	185
North Point 17375	145
North Rock 17326	200
North Sandy Cove 17318	229
North Sawyer Glacier 17300	159
Northerly Island 17382	141
Nossuk Anchorage 17404	127
Nossuk Bay 17404	127
Notices to Mariners	2, 237
Nowiskay Cove 17432	83
Noyes Island 17406	124
Noyes Peak 17406	124
Nukdik Point 17317	192
Nundei Cove 17404	128
Nunez Point 17433	63
Nunez Rocks 17433	63
Nut Rock 17382	97
Nutkwa Falls 17431	113
Nutkwa Inlet 17431	113
Nutkwa Lagoon 17431	113
Nutkwa Point 17431	113
Obsechki Island 17326	202
Observation Island 17382	98
Observation Rock 17437	65
Obstructions	2
Ogden Passage 17322	217
Ohio Rock 17428	75
Oil Pollution	24
Oil Spills	61
Old Kasaan 17426	92
Old Kasaan Village Historical Area 17426	92
Old Sitka Rocks 17324	205
Olga Rock 17323	209
Olga Strait 17324	206
Olive Cove 17385	103
Oliver Inlet 17300	171
Olympic Mine 17360	142
Omega	21
Ommaney Bay 17330	197
One-Tree Island 17435	88
Onslow Island 17385	96
Onslow Point 17385	96
Open Bay 17436	90
Optical Phenomena	58
Orca Point 17434	70
Orr Island 17403	130
Ossipee Channel 17382	100
Otstoia Island 17323	212
Outer Point 17315	171
Outer Point 17406	124
Outer Point 17426	93
Outer Rocks 17322	215
Owl Island 17403	130
Pack Creek 17300	158
Palisade Island 17404	123
Palisade Point 17404	123
Paloma Pass 17406	122
Papkes Landing 17375	145
Paradise Flats 17338	213
Paralysis Point 17368	152
Parida Island 17405	120
Parida Island Reef 17405	120
Parrot Rock 17409	108
Partofshikof Island 17324	206
Passage Island 17339	185
Passage Rock 17437	65
Patterson Bay 17323	212
Patterson Bay 17335	180
Patterson Glacier 17367	149
Patterson Island 17426	91
Patterson Point 17335	180
Paul Bight 17426	92
Paul Lake 17432	84
Pavlof Harbor 17300	186
Payne Island 17368	150
Peacock Island 17426	92
Pearse Canal 17437	66
Pearse Canal Island Light 17437	66
Pearse Island 17437	66
Peep Rock 17404	128
Peer Island 17321	218
Peisar Island 17326	201
Pelican 17303	223
Pelican Entrance Light 17303	223
Pellett Point 17426	93
Peninsula Point 17428	75
Peninsular Point 17338	185
Pennock Island 17430	72
Pennock Reef 17430	72
Peratrovich Island 17405	121
Percy Islands 17434	85
Percy Point 17434	86
Peril Strait 17320	210
Peschani Point 17338	212
Petersburg 17375	145
Petersburg Creek 17375	145
Petersen Islands 17385	101
Petrel Island 17400	107

	Page
Petrof Bay 17376	178
Phipp Point 17437	66
Phocena Bay 17436, 17420	90
Phocena Rocks 17432	90
Piedras Island 17404	123
Piehle Passage 17322	215
Pigeon Island 17406	122
Piledriver Cove 17316	186
Piledriver Cove 17376	178
Pillsbury Point 17339	184
Pilot	236
Pilotage	59
Pin Peak 17402	134
Pine Point 17381	141
Pinta Bay 17321	218
Pinta Cove 17302	226
Pinta Rock 17302	232
Pinta Rocks 17360, 17368	150
Pipelaying barges	55
Piper Island 17323	210
Pirate Cove 17326	202
Pitt Island 17302	233
Pivot Mountain 17400	62
Plateau Glacier 17318	230
Pleasant Bay 17360	157
Pleasant Island 17302	226
Pleasant Island Reef 17302	227
Pluma Island 17321	218
Pocket Island 17360	143, 148
Pogibshi Anchorage 17323	211
Pogibshi Point 17323	211
Point Adolphus 17302	226
Point Agassiz 17367	148
Point Aguirre 17404	126
Point Alava 17434	76
Point Alexander 17382	143
Point Amargura 17405	120
Point Amelia 17325	208
Point Amelius 17386	136
Point Ancon 17382	105
Point Animas 17406	123
Point Anmer 17313	160
Point Arboleda 17406	119
Point Arden 17315	160
Point Arucenas 17406	119
Point Astley 17360	158
Point Augusta 17300	186
Point Baker 17360	137, 140
Point Baker 17378	138, 139
Point Barnes 17382	99
Point Barrie 17360	139
Point Barrigon 17406	119
Point Batan 17405	119
Point Benham 17338	213
Point Borlase 17402	133
Point Bridge 17339	184
Point Bridget 17316	191
Point Brightman 17336	153
Point Camden 17368	151
Point Cangrejo 17406	119
Point Carolus 17318	227
Point Caution 17341	182
Point Coke 17360	158
Point Colpoys 17382	100, 141
Point Conclusion 17331	179
Point Cornwallis 17409	108
Point Cosmos 17376	177
Point Couverden 17316	188
Point Craven 17338	213
Point Crowley 17386	177
Point Davison 17434	86
Point Delgada 17406	123
Point Desconocida 17404	127
Point Dundas 17302	226
Point Eliza 17331	179
Point Elizabeth 17338	213
Point Ellis 17370	178
Point Ellis Light 17370	178
Point Eugenia 17405	120
Point Eva 17424	77
Point Francis 17422	79
Point Fula 17406	119
Point Gambier 17362	157
Point Garcia 17404	126
Point Gardner 17336	153
Point Glass 17360	158
Point Gorda 17406	122
Point Gustavus 17318	227
Point Halliday 17432	83
Point Hamilton 17368	151
Point Hanus 17338	213
Point Hardscrabble 17402	137
Point Harrington 17382	98
Point Harris 17376	177
Point Hayes 17338	213
Point Hayes 17338, 17320	185
Point Hepburn 17300	185
Point Higgins 17428	76
Point Highfield 17384	105
Point Highland 17360	149
Point Hilda 17315	171
Point Hobart 17363	156
Point Hogan 17321	218
Point Howard 17316	189
Point Howard 17386	176
Point Howe 17382	143
Point Hugh 17360	157
Point Hugh Light 17360	158
Point Ildefonso 17404	123
Point Incarnation 17404	125
Point Iphigenia 17405	119
Point Isleta 17406	119
Point Kakul 17323	210
Point Kennedy 17338	213
Point Lauder 17328	198
Point Lavinia 17302	224
Point League 17360	156
Point Lees 17422	78
Point Lena 17316	174
Point Leo 17323	209
Point Lockwood 17375	144
Point Lockwood Rock 17375	144
Point Lomas 17405	119
Point Lookout 17360	157
Point Louisa 17315	172
Point Louise 17424	77
Point Lucan 17302	224
Point Lull 17337	182
Point Macartney 17368	150
Point Madan 17385	104
Point Mansfield 17437	65
Point Marsden 17300	186
Point Marsh 17433	63
Point Marsh Light 17433	63
Point Mary 17325	208
Point McCartey 17432	88
Point Miliflores 17405	119
Point Miraballes 17405	120
Point Napean 17365	153
Point Nesbitt 17382	100
Point Peters 17385	101
Point Providence 17405	119
Point Pybus 17363	152
Point Quemada 17406	119
Point Remedios 17406	119
Point Retreat 17316	189
Point Rosary 17406	119
Point Samuel 17339	183
Point San Francisco 17406	125
Point San Jose 17406	119
Point San Pasqual 17404	123
Point San Roque 17406	119
Point Santa Anna 17385	102
Point Santa Gertrudis 17406	123
Point Santa Lucia 17404	123
Point Santa Rosalia 17404	123
Point Santa Theresa 17406	124
Point Satchrun 17303	220
Point Shekesti 17384	105
Point Sherman 17316	191
Point Shultz 17321	218
Point Siroi Island 17323	211
Point Slocum 17323	215
Point Sophia 17302	232
Point St. Albans 17386	136
Point St. Albans Reef 17386	136
Point St. Isidor 17406	124
Point St. John 17382	141
Point St. Mary 17316	191
Point Stanhope 17382	98

	Page
Point Stephens 17316	174
Point Stephens Rock 17316	174
Point Styleman 17313	160
Point Sullivan 17370	179
Point Swift 17404	128
Point Swift Rock 17404	128
Point Sykes 17434	76
Point Tantallon 17315	171
Point Thatcher 17320	182
Point Thatcher 17338	213
Point Theodore 17303	219
Point Turbot 17337	181
Point Urey 17303	219
Point Vandeput 17367	149
Point Verde 17407	118
Point Walpole 17360	156
Point Warde 17385	102
Point Webster 17431	112
Point Weigle 17321	218
Point Whidbey 17316	189
Point White 17368	150
Point White 17434	85
Point Wimbledon 17302	225
Point Winslow 17434	69
Point Woodhouse 17326	200
Point Young 17315	171
Poison Cove 17323	211
Pole Anchorage 17402	137
Pole Point 17322	217
Polivnoi Rocks 17365	153
Polk Inlet 17426	92
Polk Island 17432	82
Polk Point 17384	105
Pond Bay 17409	115
Pond Bay 17434	87
Pond Island 17337	182
Pond Reef 17428	76
Pond Rock 17408	115
Porcupine Bay 17321	219
Porcupine Creek 17382	98
Porcupine Islands 17321	219
Porcupine Rock 17321	219
Porpoise Islands 17316	227
Port Alexander 17331	179
Port Alice 17403	129
Port Althorp 17302	224
Port Armstrong 17331	179
Port Asumcion 17406	119
Port Bagial 17405	120
Port Banks 17328	198
Port Bazan 17409	108
Port Beauclerc 17360	136
Port Caldera 17405	119
Port Camden 17368	151
Port Chester 17435	88
Port Conclusion 17331	179
Port Delores 17406	119
Port Estrella 17405	119
Port Frederick 17302	232
Port Herbert 17333	180
Port Houghton 17360	156
Port Island 17322	217
Port Johnson 17432	84
Port Krestof 17324	206
Port Lucy 17333	180
Port Malmesbury 17376, 17320	177
Port Mary 17325	207
Port Mayoral 17406	119
Port McArthur 17386	135
Port Protection 17378	138, 139
Port Real Marina 17406	122
Port Refugio 17407	118
Port San Antonio 17406	119
Port Santa Cruz 17406	119
Port Series of the United States	237
Port Snettisham 17313	159
Port St. Nicholas 17405	120
Port Stewart 17422	79
Port Tongass 17437	65
Port Walter 17333	180
Port Walter Light 17333	180
Portage Arm 17337	182
Portage Bay 17367	149
Portage Bay 17368	151
Portage Bay 17431	113
Portage Cove 17317	192
Portage Cove 17424	77
Portage Islets 17367	149
Portillo Channel 17406	123
Portland Canal 17427	66
Portland Inlet 17427	66
Portland Island 17316	172
Portlock Harbor 17321	217
Ports and Waterways Safety-General	31
Potter Rock 17430	72
Poundstone Rock 17316	189
Povorotni Island 17323	211
Povorotni Point 17326	202
Pow Island 17428	70
Preparations for being towed by Coast Guard	11
President Bay 17326	200
Price Island 17362	157
Prince Island 17338	213
Princesa Island 17404	126
Princess Bay 17424	76
Principal ports	59
Profit Island (Gui Kangulas) 17408	116
Prolewy Rock 17323	211
Prolewy Rocks 17375	145
Promisla Bay 17324	206
Protection Head 17378	138
Public Health Service	5
Public Health Service Quarantine Stations	239
Publications	236
Puffin Bay 17330	197
Puffin Island 17318	229
Pulizzi Island 17316	235
Punchbowl Cove 17424	77
Pup Island 17368	151
Pup Island 17422	80
Purple Mountain 17435	89
Pybus Bay 17363	152
Pyramid Harbor 17317	192
Pyramid Island 17317	192
Quadra Point 17434	69
Quarantine stations	239
Quarantine stations, human	239
Quarantine, Animal	2, 239
Quarantine, human	5, 239
Quarantine, Plant	2, 239
Quartz Point 17302	226
Quartz Rock 17360	97
Queen Inlet 17318	231
Quiet Harbor 17382	104
Quit Point 17322	216
Quitasueno Rock 17406	123
Race Point 17428	90
Rachek Island 17326	200
Racons	20
Radar	24
Radar beacons (Racons)	20
Radar reflectors on small craft	11
Radenbough Cove 17430	72
Radio aids to navigation	2
Radio bearings	18
Radio distress procedures	7
Radio navigation warnings and weather	11
Radio Navigational Aids	237
Radio shore stations providing medical advice	240
Radio Weather Broadcasts	239
Radiobeacons	18
Radiotelephone channels	25
Rakof Islands 17326	199
Rakovoi Bay 17328	199
Ralston Island 17316	189
Ramp Island 17322	216
Rana Reef 17406	122
Rancheria Island 17405	120
Range Island 17382	97
Range Islet 17381	141
Ranges	2
Rapids Island 17323	211
Raso Rock 17404	127
Rasp Ledge 17360	158
Rat Island 17316	188
Ratz Harbor 17423	95
Raven Island 17434	70
Ray Anchorage 17434	69

	Page
Raymond Cove 17422	79
Read Island 17367	149
Red Bay 17381	141
Red Bluff Bay 17336	181
Redcliff Islands 17300	186
Redfish Bay 17330	198
Redfish Breaker 17330	197
Redfish Cape 17330	197
Redfish Point 17330	197
Redoubt Bay 17326	202
Redoubt Lake 17326	202
Reef Harbor 17434	69
Reef Island 17427	66
Reef Island Light 17427	66
Reef Islands 17408	116
Reef Point 17382	104
Reef Point 17406	123
Reef Point 17408	116
Reef Point 17428	70
Refuge Cove 17428	75
Regina Cove 17437	66
Regulated Navigation Areas and Limited Access Areas	42
Reid Bay 17360	136
Reid Inlet 17318	232
Rendu Inlet 17318	231
Repairs	60
Reported information	2
Reports from ships	12
Rescue Coordination Centers	8, 238
Retaliation Point 17368	152
Reverdy Mountains 17425	67
Revillagigedo Channel 17420	68
Revillagigedo Island 17420	68
Ridge Island 17407	118
Rip Point 17432	82
River Point 17427	66
Roadstead Island 17368	151
Robert Islands 17360	156
Rock Point 17303	220
Rock Point 17360	159
Rocky Bay 17382	97
Rocky Cove 17403	131
Rocky Island 17316	188
Rocky Pass 17368	151
Rocky Pass 17372	140
Rocky Pass 17433	111
Rocky Point 17341	183
Rodman Bay 17338	212
Rodman Rock 17338	212
Roe Point 17434	76
Roller Bay 17406	124
Romp Island 17362	157
Rookery Islands 17382	100
Roosevelt Harbor 17382	104
Roosevelt Lagoon 17423	80
Rosa Reef 17428	76
Rosa Reef Light 15 17428	76
Rosary Island 17404	123
Rose Channel 17323	211
Rose Channel Rock 17323	211
Rose Inlet 17408	115
Rose Island 17382	99
Rose Island Rock 17323	211
Rose Rock 17382	99
Rough Channel 17322	216
Round Island 17323	210
Round Island 17326	202
Round Island 17337	182
Round Island 17382	100
Round Island 17407	117
Round Island 17426	92
Round Island 17428	70
Round Islands 17433	111
Round Islet 17360	159
Round Point 17382	104
Round Point 17431	113
Round Rock 17363	152
Rowan Bay 17370	178
Rudyerd Bay 17424	77
Rudyerd Island 17434	76
Ruins Point 17386, 17387	137
Rush Point 17318	229
Russell Island 17318	231
Russian Reef 17341	182
Ruth Cutoff 17431	112
Ruth Island 17367	149
Rynda Island 17360	143
Ryus Bay 17434	87
Sachem Island 17368	151
Safa Islands 17437	66
Safety Rock 17432	83
Saginaw Bay 17368	151
Saginaw Channel 17316	172
Sail Island 17360	156
Sailing Directions	237
Sakie Bay 17408	109
Sakie Point 17408	109
Saks Cove 17424	77
Sales agents	3
Sales Information	236
Salisbury Sound 17323	209
Salmon Bay 17382	100
Salmon Creek 17315	161
Salmon River 17302	226
Salmon River 17425	67
Salmonberry Cove 17323	210
Salt Chuck 17302	234
Salt Lagoon 17420	72
Salt Lake Bay 17302	234
Salt Lake Bay 17404	126
Salt Water Lagoon 17403	131
Saltchuck, The 17433	112
Saltery Bay 17300	186
Saltery Cove 17426	92
Saltery Point 17431	114
Samsing Cove 17326	202
San Adrian Island 17407	118
San Alberto Bay 17405	120
San Christoval Channel 17404	123
San Christoval Rock 17404	123
San Clemente Island 17406	123
San Fernando Island 17405	120
San Francisco Island 17406	125
San Island 17403	131
San Juan Bautista Island 17405	119
San Juan Islands 17363	152
San Juanito Island 17405	119
San Lorenzo Islands 17404	125
Sand Island 17339	183
Sand Islet 17360	97
Sand Point 17341	182
Sand Spit 17360	159
Sandborn Canal 17360	156
Sandfly Bay 17427	67
Sandy Bay 17328	198
Sandy Cove 17326	202
Sandy Point 17426	93
Sanford Cove 17360	159
Santa Anna Inlet 17385	102
Santa Rita Island 17406	122
Saook Bay 17338	213
Saook Point 17338	213
Sargent Bay 17424	77
Sarheen Cove 17387	131
Sarkar Cove 17403	131
Sarkar Point 17403	131
SATELLITE POSITION INDICATING RADIO BEACON (EPIRB)	18
Sawmill Cove 17326	202
Saxman 17430	72
Scenery Cove 17367	149
Schulze Cove 17323	210
Scidmore Bay 17318	231
Scidmore Glacier 17318	231
Scott Point 17432	82
Scow Bay 17326	199
Scow Bay 17375	145
Scow Cove 17315	161
Scow Island 17326	199
Scow Island 17403	131
Scrag Islands 17407	114
Scraggy Island 17302	232
Scraggy Islands 17324	207
Scraggy Point 17432	84
Screen Islands 17382	98
Scrub Islands 17435	89
Scull Island 17315	171
Sea Lion Rock 17400	107
Sea Otter Harbor 17408	109

	Page
Sea Otter Sound 17403	130
Sea Rock 17323	209
Seagull Creek 17302	234
Seal Bay 17300	186
Seal Cove 17428, 17434	90
Seal Cove Rock 17428	90
Seal Rock 17382	99
Sealed Passage 17434	85
Sealers Island 17318	230
Sealing Cove, 17327	203
Sealing Reef 17434	85
Sealion Cove 17325	208
Sealion Islands 17325	208
Sealion Rocks 17330	197
Search and Rescue	7
Searchlights	24
Sebree Cove 17318	230
Sebree Island 17318	230
Secluded Bay 17328	199
Seclusion Harbor 17360	139
Second Narrows 17326	199
Security Bay 17368	151
Security Cove 17409	108
Seduction Point 17317	191
Seiche	22
Seismic sea waves	21
Selected Worldwide Marine Weather Broadcasts	237
Sentinel Island 17316	189
Sentinels, The 17407	117
Sergief Island 17360	143
Sergius Channel 17323	210
Sevenfathom Bay 17326	200
Seward Passage 17385	102
Sextant Point 17434	86
Seymour Canal 17360, 17300	157
Shaft Rock 17406	124
Shag Cove 17318	230
Shag Rock 17321	218
Shakan Bay 17387	137
Shakan Island 17387	138
Shakan Strait 17387	138
Shaman Island 17315	171
Shamrock Bay 17326	200
Sharp Ledge 17316	188
Sharp Point 17365	153
Sharp Point 17424	76
Shaw Islands 17302	226
Sheep Creek Flat 17315	161
Shelikof Bay 17325	207
Shelter Cove 17405	121
Shelter Island 17316	172
Sherman Rock 17316	191
Shikosi Island 17317	191
Shinaku Inlet 17405	120
Shingle Island 17360	141
Ship Cove 17331	179
Ship Island 17426	94
Ship Islands 17431	112
Shipley Bay 17386, 17387	137
Shipwreck Point 17431	112
Shoal Cove 17428	71
Shoalwater Pass 17424	77
Shoe Inlet 17431	116
Shoe Island Light 17400	115
Shoe Rock 17431	112
Shoemaker Bay Boat Harbor 17384	106
Sholin Island 17321	218
Short Arm 17433	82
Short Bay 17422	78
Short Finger Bay 17300	158
Short Pass 17424	76
Short Point 17424	76
Shrimp Bay 17422	78
Shrub Islet 17402	176
Shrubby Island 17382	99
Siginaka Islands 17324	206
Siketi Point 17406	124
Siketi Sound 17406	124
Silver Bay 17326	202
Silver Point 17326	202
Silvester Point 17406	119
Simmons Point 17431	113
Simonton Point 17437	65
Singa Island 17403	131
Sinitsin Cove 17323	210
Sinitsin Island 17323	209
Sister Lake 17322	217
Sisters Reef 17316	234
Sisters, The 17316	234
Sita Reef 17318	229
Sitka 17327	203
Sitka Harbor 17327, 17320	203
Sitka National Historical Park 17327	205
Sitka Point 17325	201
Sitka Sound 17320	201
Sitklan Island 17437	65
Sitklan Passage 17437	65
Sitkoh Bay 17338	214
Skagway 17317	194
Skagway River 17317	195
Skiff Island 17372	139
Skin Island 17436	84
Skinner Island 17321	218
Skookum Chuck, The 17407	117
Skowl Arm 17426	92
Skowl Point 17426	92
Slab Hill 17420	64
Slag Point 17424	77
Slate Islands 17434	70
Slate Islands Light 17434	70
Slate Islets 17328	199
Slaughter Island 17325	208
Slim Island 17437	65
Slocum Arm 17322	216
Slocum Inlet 17314	160
Small Arm 17328	199
Small-craft facilities	61
Smeaton Bay 17424	76
Smith Cove 17426	92
Smooth Channel 17322	216
Smuggler Cove 17434	88
Smugglers Cove 17422	79
Snag Island 17321	218
Snail Point 17404	125
Snail Point 17406	123
Snail Point 17422	79
Snail Rock 17434	69
Snip Islands 17424	77
Snipe Bay 17328, 17320	198
Snipe Head 17328	198
Snipe Island 17428	71
Snipe Island 17435	87
Snipe Point 17422	78
Snipe Point Light 17422	78
Snipe Rock 17322	217
Snow Passage 17382	100
Snug Anchorage 17420	95
Snug Cove 17362	157
Soapstone Cove 17303	222
Soapstone Point 17303	222
Sockeye Creek 17420	70
Sockeye Islets 17360	148
Soda Bay 17407	117
Sokolof Island 17382	143
Sola Rock 17406	122
Soloma Point 17303	224
Sonora Island 17404	126
Sonora Passage 17404	125
Sore Finger Cove 17360	158
Sound Islands 17324	206
South Arm 17323	212
South Arm 17337	182
South Arm 17339	183
South Arm 17432	83
South Arm 17433	82
South Arm 17436	85
South Bight 17302	234
South Burnett Island 17382	97
South Craig Point 17382	104
South Flat 17375	145
South Inian Pass 17302	225
South Island 17300	159
South Island 17386	135
South Kaigani Harbor 17409	115
South Ledge 17375	145
South Marble Island 17318	229
South Pass 17407	114
South Passage 17302	226
South Passage 17321	218
South Passage 17365	153, 155

	Page
South Passage Light 17302	226
South Passage Point 17300, 17320	185
South Point 17337	182
South Quadra Mountain 17434	69
South Rock 17302	225
South Rock 17400	107
South Rocks 17326	199
South Rocks 17409	110
South Sandy Cove 17318	229
South Sawyer Glacier 17300	159
South Vallenar Point 17436	91
Southeast Cove 17385	102
Southerly Island 17382	141
Southwest Cove 17385	102
Southwest Islands 17363	152
Spacious Bay 17422	78
Spanberg Island 17403	131
Spanish Islands 17402	134
Spasski Bay 17316	234
Spasski Island 17316	234
Special Notice to Mariners	237
Special signals	22
Speel Arm 17313	159
Speel River 17313	160
Spike Rock 17375	144
Spire Island 17428	71
Spire Island Reef Light SI 17428	71
Spit Point 17427	66
Split Island 17423	96
Spoil areas	15
Spokane Cove 17318	229
Spray Island 17367	149
Spruce Island 17363	153
Spruce Point 17375	145
Spuhn Island 17315	172
Spuhn Point 17315	172
Spurt Point 17367	149
Square Cove 17300	185
Square Island 17408	115
Square Island 17422	78
Squid Bay 17303	220
St. Ignace Island 17406	119
St. Ignace Rock 17406	119
St. James Bay 17316	189
St. John Baptist Bay 17324	207
St. John Harbor 17382	141
St. Joseph Island 17404	125
St. Lazaria Islands 17325	201
St. Nicholas Channel 17406	124
St. Nicholas Point 17406	124
St. Philip Island 17404	126
Stack Island 17423	80
Stag Bay 17303	219
Standard Time	61
Staney Island 17403	128
Star Rock 17303	219
Star Rock 17316	189
Starrigavan Bay 17324	206
Station Island 17316	188
Station Island 17382	143
Station Island 17387	138
Station Point 17300	159
Staunch Point 17300	158
Steamboat Bay 17365	155
Steamboat Bay 17404	125
Steamboat Point 17404	125
Steamer Bay 17382	98
Steamer Point 17382	98
Steamer Rocks 17382	98
Stedman Cove 17372	140
Stephens Passage 16016	155
Stevenson Island 17401	98
Stewart 17425	67
Stewart Light 17425	67
Stewart Rock 17368	152
Stikine River 17360	143
Stikine Strait 17382	104
Still Harbor 17328	198
Stillwater Anchorage 17339	184
Stockade Point 17314	160
Stone Island 17339	185
Stone Islands 17385	96
Stone Rock 17433	81
Stone Rock Bay 17433	81
Stop Island 17367	149
Stopford Point 17427	67
Storm Islands 17365	155
Storm surge	22
Strait Island 17360	137
Strauss Rock 17316	172
Strawberry Island 17318	229
Streets Island 17426	94
Streets Lake 17382	97
Stripe Mountain 17409	108
Sturgess Island 17318	229
Submarine cables and submerged pipelines	15
Submarine emergency identification signals	22
Submerged pipelines	15
Suemez Island 17407	109
Sukkwan Island 17400	116
Sukkwan Narrows 17407	114
Sukkwan Strait 17431	113
Sukoi Inlet 17324	207
Sukoi Islets 17360	148
Sullivan Island 17317	191
Sullivan Rock 17317	191
Suloia Bay 17323	210
Suloia Islet 17323	210
Suloia Point 17323	210
Suloia Rock 17323	210
Sulzer Passage 17431	113
Sumdum Glacier 17300	159
Sumdum Island 17360	159
Summit Island 17372	140
Summit, The 17372	140
Sumner Island 17360	137
Sumner Strait 17360, 17400	133
Sun Rocks 17432	82
Sunny Bay 17385	102
Sunny Cove 17315	161
Sunny Cove 17436	85
Sunny Point 17430	75
Sunny Point 17436	85
Sunset Island 17363	156
Sunshine Island 17385	101
Superstructure Icing	57
Supplies	60
Surf Point 17403	129
Surf Point 17433	63
Surface ship procedures for assisting aircraft in distress	9
Surface ship procedures for assisting distressed surface vessels	8
Surge Bay 17303	220
Surprise Harbor 17336	154
Surprise Point 17437	65
Survey Point 17422	80
Survey Point 17435	86
Surveyor Passage 17321	217
Svenson Rock 17338	213
Swaine Point 17376	177
Swanson Harbor 17316	188
Sweetwater Lake 17382, 17360	99
Syble Point 17422	78
Sylburn Harbor 17435	89
Symonds Bay 17326	201
Symonds Point 17316	172
Table Bay 17386	177
Table Island 17339	183
Table Mountain 17320	182
Table Rock 17408	109
Tah Bay 17433	112
Tah Island 17433	112
Taiya Inlet 17317	192, 194
Taiya Point 17317	194
Taiya River 17317	194
Taiyasanka Harbor 17317	194
Takanis Bay 17303	220
Takanis Peninsula 17303	220
Takatz Bay 17337	181
Takatz Islands 17337	182
Taku Glacier 17315	161
Taku Harbor 17314	160
Taku Inlet 17315	160
Taku Mountain 17314	160
Taku Point 17315	161
Taku River 17315	161
Taku Winds	165
Talsani Island 17317	191
Tamgas Harbor 17435	86

	Page
Tamgas Reef 17434	87
Tanani Point 17317	194
Tarr Inlet 17318	232
Tatoosh Islands 17422	80
Tatoosh Rocks 17422	80
Tava Island 17326	200
Tawak Passage 17322	217
Taylor Bay 17302	223
Taylor Island 17302	223
Teal Island 17403	131
Tebenkof Bay 17376	177
Tee Harbor 17316	174
Tenakee Inlet 17300, 17320	185
Tenakee Inlet Entrance Light 1 17300	185
Tenakee Reef 17300	185
Tenakee Springs 17300	185
Tenass Island 17403	131
Tenass Pass 17403	131
Tenfathom Anchorage 17330	198
Terbilon Island 17326	200
Thane 17315	161
Thatcher Channel 17338	213
The Basin 17337	182
The Beehive 17326	200
The Brothers 17360	152
The Eckholms 17326	202
The Eye Opener 17360	141
The Five Fingers 17360	155
The Gate 17322	216
The Kittens 17316	189
The Knob 17302	226
The Narrows 17302	234
The Narrows 17385	102, 104
The Narrows 17433	111
The Nipples 17387	138
The Saltchuck 17433	112
The Sentinels 17407	117
The Sisters 17316	234
The Skookum Chuck 17407	117
The Summit 17372	140
The Triplets 17382	99
The Twins 17363	156
The Witnesses 17405	120
Thetis Bay 17376	178
Thimble Cove 17406	119
Third Kekur 17328	198
Thistle Ledge 17360	157
Thistle Rock 17437	65
Thomas Basin 17430	72
Thomas Bay 17367	148
Thomas Island 17422	79
Thompson Passage 17433	111
Thoms Place 17385	103
Thomsen Harbor (Thomsen Boat Harbor), 17327	205
Thorne Arm 17428	71
Thorne Bay 17420, 17423	95
Three Entrance Bay 17326	202
Three Hill Island 17302	224
Three Way Passage 17382	98
Threemile Arm 17360	139
Threenob Rock 17303	219
Thumb Point 17365	153
Thunder Mountain 17408	109
Tidal Current Charts	3, 236
Tidal Current Diagrams	3, 236
Tidal Current Tables	3, 236
Tidal currents	55
Tidal Inlet 17318	231
Tide Island 17382	100
Tide Tables	3, 236
Tides	55
Tiedeman Island 17360, 17300	157
Tikhaia Islands 17328	198
Timber Knob 17404	127
Timbered Island 17404	126
Time	2, 61
Time Signals	12
Tingberg Island 17437	65
Tlevak Narrows 17407	117
Tlevak Strait 17400	115
Tlingit Point 17318	230
Tokeen 17403	131
Tokeen Bay 17403	130
Tokeen Cove 17403	130
Toledo Harbor 17333, 17320	180
Tolstoi Bay 17423	95
Tolstoi Island 17420	95
Tolstoi Point 17420	95
Tombstone Bay 17425	67
Tongass Island 17437	65
Tongass Narrows 17428	68, 72
Tongass Narrows West Channel Light 4 17430	72
Tongass National Forest	54
Tongass Passage 17437	66
Tongass Reef 17437	65
Tongass Reef Daybeacon 17437	65
Tonina Island 17404	127
Tonowek Bay 17404	126
Tonowek Narrows 17404	127
Torsar Island 17326	200, 201
Totem Bay 17360	140
Totem Bight 17428	75
Toti Island 17405	120
Touchit Cove 17431	116
Tow Hill 17400	62
Towage	60
Toy Harbor 17328	199
Track Rock 17437	65
Tracy Arm 17300	159
Traders Islands 17338	213
Traffic Separation Schemes (Traffic Lanes)	23
Traitors Cove 17422	79
Tramp Point 17424	77
Tranquil Point 17405	119
Trap Bay 17300	185
Trap Point 17424	77
Trap Rock 17385	103
Tree Island 17362	157
Tree Point 17427	66
Tree Point 17434	68
Tree Point Light 17434	68
Triangle Island 17318	231
Trim Island 17404	128
Triplet Rocks 17431	112
Triplets, The 17382	99
Trocadero Bay 17405	119
Troller Islands 17376	177
Troller Point 17376	177
Trollers Cove 17426	92
Trouble Island 17360	139
Trunk Island 17422	79
Tsa Cove 17428	72
Tsunamis	21
Tsunamis (Seismic sea waves)	55
Tuft Rock 17404	123
Tunehean Creek 17372	140
Tunga Inlet 17403	131
Turn Island 17382	103
Turn Island 17433	112
Turn Point 17339	184
Turn Point 17375	145
Turn Point 17403	130
Turn Point 17407	117
Turn Point 17425	67
Turn Point 17433	112
Turn Rock 17407	114
Turnabout Island 17360, 17368	150
Turner Creek 17315	161
Turtle Island 17404	126
Tuxekan Island 17403	128
Tuxekan Narrows 17403	128
Tuxekan Passage 17403	128
Twelvemile Arm 17426	93
Twenty Fathom Bank 17426	91
Twin Islands 17403	131
Twin Islands 17404	126
Twin Islands 17434	69
Twin Peaks 17408	108
Twin Point 17300	159
Twin Rocks 17406	124
Twins, The 17363	156
Two Sisters 17435	89
Two Tree Island 17382	143
Twocrack Island 17404	127
Tyee 17336	153
Tyndall Cove 17318	230
U.S. Fishery Conservation Zone	25
U.S. Nautical Chart Numbering System	14
Ulitka Bay 17404	125

	Page
Ulloa Channel 17407	118
Ulloa Island 17407	118
Under-keel clearances	1
Uniform State Waterway Marking System	21
Union Bay 17423	101
Union Point 17423	101
Unuk River 17424	78
Urey Rocks 17303	219
Ursua Channel 17405	120
Ushk Bay 17323	211
Vallenar Bay 17436	91
Vallenar Point 17428	76
Vallenar Rock 17428	76
Van Sant Cove 17403	130
Vanderbilt Reef 17316	189
Vank Island 17382	143
Vasilief Bank 17326	202
Vasilief Rock 17326	200
Vegas Islands 17434	86
Verdure Point 17425	67
Very Inlet 17434	68
Vessel Arrival Inspection	60
Vessel Bridge-to-Bridge Radiotelephone Regulations	27
Vessel Traffic Management	34
Vessel Watering Points	6
Vesta Bay 17408	115
Vesta Point 17408	115
Veta Bay 17406	124
Veta Point 17406	124
Vexation Point 17375	145
Vichnefski Rock 17382	141
Viesokoi Rock 17326	201
View Cove 17408	116
Village Island 17434	87
Village Islands 17385	103
Village Islands Rock 17385	103
Village Point 17341	183
Village Point 17435	88
Village Rock 17339	184
Village Rock 17385	103
Village Rock 17403	129
Vincent Reef 17323	209, 215
Virginia Lake 17385	104
Vitskari Island 17326, 17320	201
Vitskari Rocks 17326	201
Vixen Bay 17434	70
Vixen Harbor 17423	101
Vixen Inlet 17385	101
Vixen Islands 17323	212
Vixen Point 17385	101
Vorota Island 17322	216
Wachusett Cove 17300	186
Wachusett Inlet 17318	230
Wadding Cove 17422	79
Wadleigh Island 17405	120
Wadleigh Rock 17405	120
Walden Point 17428	90
Walden Rocks 17428	90
Wales Harbour 17437	66
Wales Island 17437	66
Wales Passage 17437	66
Walker Channel 17326	199
Walker Cove 17424	77
Walker Island 17428	70
Walker Point 17336	153
Wallace Reef 17434	87
Wallace Rock 17433	112
Walter Island 17360	156
Warburton Island 17435	88
Ward Cove 17428	75
Warm Chuck Inlet 17404	126
Warm Spring Bay 17337	181
Warren Channel 17402	134, 137
Warren Cove 17402	133
Warren Island 17402	133
Warren Peak 17402	133
Wart Point 17424	77
Washington Bay 17370	179
Washington Monument Rock 17428	71
Wasp Cove 17424	76
Wasp Point 17424	76
Waterfall 17407	118
Waterfall Bay 17408	108
Waterfall Cove 17322	216
Watkins Point 17385	102
Watson Point 17324, 17320	205
Wayanda Ledge 17323	211
Weasel Cove 17434	70
Weather	55
Wedge Islands 17432	84
Wedge Point 17382	105
Welcome Cove 17408	109
Werlick Island 17434	86
West Arm 17321	218
West Arm 17432	83
West Arm 17433	82
West Arm 17436	84, 85
West Brother Island 17360	152
West Channel 17324	206
West Channel 17363	152
West Channel 17428	72
West Crawfish Inlet 17326	200
West Devil Rock 17434	64
West Francis Rock 17323	211
West Island 17382	99
West Mill Rock 17408	115
West Pass 17303	219
West Petersburg 17375	145
West Pinta Rocks 17368	150
West Point 17367	149
West Rock 17378	139
West Rock 17434	64
West Sentinel Island 17426	92
West Spit 17365	155
Westerly Island 17385	101
Western Anchorage 17327	203
Western Channel 17327	203
Whale Bay 17328	198
Whale Head 17403	129
Whale Head Island 17403	129
Whale Passage 17382	99
Whale Rock 17403	129
Whale Rock 17434	69
Whaletail Cove 17385	103
Whaletail Point 17385	103
Whidbey Passage 17318	229
Whisker Point 17407	114
Whisky Cove 17430	72
White Cliff 17404	127
White Cliff Island 17403	129, 130
White Cliff Passage 17403	130
White Crag Island 17303	220
White Point 17403	131
White Reef 17434	69
White Rock 17337	181
White Rock 17338	185
White Rock 17382	141
White Sisters 17322	216
White Sulphur Springs 17321	219
Whiterock Island 17432	83
Whitestone Cove 17324	207
Whitestone Harbor 17300	235
Whitestone Narrows 17324	206
Whitestone Point 17324	207
Whitewater Bay 17341, 17320	182
Whiting Harbor 17327	203
Whiting River 17313	160
Whitney Island 17365	155
Willard Inlet 17437	66
William Cove 17300	159
William Henry Bay 17316	191
Willoughby Cove 17302	226
Willoughby Island 17318	229
Wilson Arm 17424	76
Wilson Cove 17320	182
Wilson Islands 17382	143
Wind Chill	58
Windfall Harbor 17300	158
Windfall Harbor 17426	95
Windfall Island 17300	158
Windfall Islands 17376	177
Windham Bay 17363	156
Winds	2
Windy Bay 17402	176
Windy Cove 17408	116
Windy Passage 17326	200
Windy Peak 17402	134
Windy Point 17436	84

	Page
Winifred Island 17321	219
Winning Cove 17300	158
Winstanley Island 17424	77
Winter Inlet 17437	66
Witness Rocks 17405	120
Witnesses, The 17405	120
Woewodski Harbor 17365	153
Woewodski Island 17360	142
Wolf Rock 17400	107
Wolk Harbor 17409	108
Wolk Point 17409	108
Wood Cove 17400	107
Wood Islands 17404	126
Wood Point 17367	149
Wood Spit 17360	159
Wooden Island 17320	176
Wooden Wheel Cove 17378	139
Woodpecker Cove 17382	143
Woody Island 17375	145
Woody Point 17341	182
Woronkofski Island 17382	104
Woronkofski Point 17382	105
Wrangell 17384	105, 143
Wrangell Harbor 17384	105
Wrangell Narrows 17375	144
Wrangell Narrows 17375, 17382	143
Wyvill Reef 17324	207
Yahku Cove 17404	128
Yakobi Island 17303	220
Yakobi Rock 17303	221
Yamani Islets 17328	199
Yankee Cove 17316	189
Yasha Island 17320	154
Yellow Hill 17434	88
Yellow Point 17323	211
Yellow Point 17435	87
Yellow Rocks 17434	64
Yelnu Islets 17437	66
Yes Bay 17422	78
Young Bay 17315	171
Young Rock 17382	103
Zarembo Island 17382	100
Zayas Island 17420	64
Zayas Island Reef 17434	64
Zeal Point 17324	207
Zenobia Rock 17326	202
Zhilo Cove 17321	219
Zimovia Islets 17385	103
Zimovia Strait 17385	102
Zip Rock 17301	223

☆ U.S. GOVERNMENT PRINTING OFFICE:1993-341-834/84023