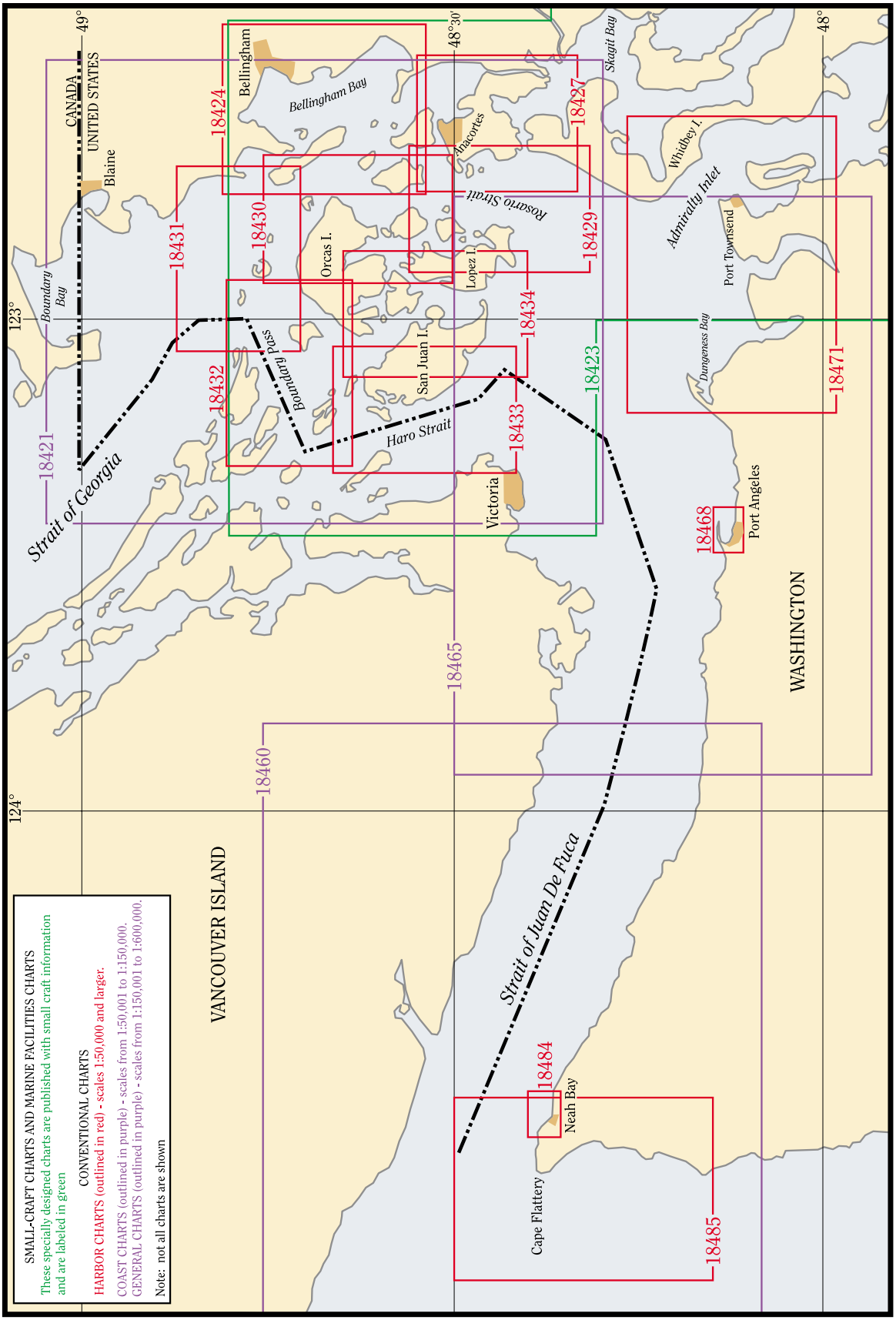

SMALL-CRAFT CHARTS AND MARINE FACILITIES CHARTS
These specially designed charts are published with small craft information and are labeled in green
CONVENTIONAL CHARTS
HARBOR CHARTS (outlined in red) - scales 1:50,000 and larger.
COAST CHARTS (outlined in purple) - scales from 1:50,001 to 1:150,000.
GENERAL CHARTS (outlined in purple) - scales from 1:150,001 to 1:600,000.
Note: not all charts are shown
VANCOUVER ISLAND
Strait of Georgia
Boundary Bay
CANADA
UNITED STATES
Blaine
Bellingham
Bellingham Bay
Boundary Pass
Orcas I.
San Juan I.
Haro Strait
Victoria
Anacortes
Rosario Strait
Lopez I.
Skagit Bay
Whidbey I.
Admiralty Inlet
Port Townsend
Dungeness Bay
Port Angeles
WASHINGTON
Strait of Juan De Fuca
Neah Bay
Cape Flattery
18421
18423
18424
18427
18429
18430
18431
18432
18433
18434
18460
18465
18468
18471
18484
18485
123°
124°
49°
48°30'
48°

Strait of Juan De Fuca and Georgia, Washington

Chart 18400

(1) This chapter includes the Strait of Juan de Fuca, Sequim Bay, Port Discovery, the San Juan Islands and its various passages and straits, Deception Pass, Fidalgo Island, Skagit and Similk Bays, Swinomish Channel, Fidalgo, Padilla, and Bellingham Bays, Lummi Bay, Semiahmoo Bay and Drayton Harbor, and the Strait of Georgia as far N as Burrard Inlet. The more important U.S. harbors described are Neah Bay, Port Angeles, Friday Harbor, La Connor, Anacortes, Bellingham, and Blaine Harbor. Deep-draft vessels use the harbors at Port Angeles, Anacortes, and Bellingham, the principal cities in the area. The Canadian coasts are only briefly described. (See Pub. 154, Sailing Directions (Enroute) for British Columbia, published by the National Geospatial-Intelligence Agency, and the Sailing Directions, British Columbia Coast, (South Portion) Vol. 1, published by the Canadian Hydrographic Service, for detailed information on Canadian waters.)

(2) **Strait of Juan de Fuca** separates the S shore of Vancouver Island, Canada, from the N coast of the State of Washington. The entrance to the strait lies between parallels 48°23'N., and 48°36'N., on the meridian of 124°45'W. This important body of water is the connecting channel between the ocean and the interisland passages extending S to Puget Sound and N to the inland waters of British Columbia and southeastern Alaska.

(3) The commerce of this region is extensive, both foreign and domestic. Vast quantities of lumber, fish, grain, and general merchandise are exported, while the manufacturing and shipbuilding industries are important. Several transcontinental railroads have their terminals on Puget Sound. There are many steamer lines, foreign and domestic, operating from this area to places across the Pacific or through the Panama Canal, in addition to the coastal vessels.

(4) At its entrance and for 50 miles E to Race Rocks, the strait is about 11 miles wide and then widens to about 16 miles for 30 miles E to Whidbey Island, its E boundary. The waters as a rule are deep until near the shore with few outlying dangers, most of which are in the E part. The shores on both sides are heavily wooded, rising rapidly to elevations of considerable height, and, except in a few places, are bold and rugged.

(5) The navigation of these waters is relatively simple in clear weather. The aids to navigation are numerous. In thick weather, because of strong and irregular currents, extreme caution and vigilance must be exercised. Strangers should take a pilot.

COLREGS Demarcation Lines

(6) The International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) apply on all the waters of the Strait of Juan de Fuca, Haro Strait, and Strait of Georgia. (See 80.1385 and 80.1390, chapter 2.)

Traffic Separation Scheme

(7) The **Strait of Juan de Fuca Traffic Separation Scheme** has been established in the Strait of Juan de Fuca. The separation scheme consists of five sets of traffic lanes: the **Western Approach** and the **Southwestern Approach** from the ocean; the **Western Lanes** in the Strait; the **Southern Lanes** to Port Angeles; the **Northern Lanes** to Victoria; and two precautionary areas, one NNW of Cape Flattery and the other N of Port Angeles. Each set of lanes consists of **inbound** and **outbound traffic lanes** with **separation zones**. Each precautionary area is marked by lighted yellow buoys. The lighted buoy marking the precautionary area NNW of Cape Flattery is equipped with a racon. The purpose of these buoys is to assist in the separation of inbound and outbound vessels transiting the Strait of Juan de Fuca to eliminate as much as possible the cross vessel traffic that now occurs between the entrance to the Strait of Juan de Fuca at Cape Flattery and the pilot stations at Port Angeles and Victoria, B.C. It is recommended that all vessels navigate so as to leave these buoys to port.

(8) The **Haro Strait and Strait of Georgia Traffic Separation Scheme**, consisting of **inbound** and **outbound traffic lanes** with **separation zones**, continues E from the Victoria Approach segment of **Strait of Juan de Fuca Traffic Separation Scheme** to Victoria, B.C., thence through Haro Strait, Boundary Pass, and the Strait of Georgia, to Vancouver, B.C.

(9) Two abbreviated traffic separation schemes, also consisting of inbound and outbound traffic separation lanes, with separation zones, connect the Haro Strait and Strait of Georgia Scheme with the **Puget Sound Traffic Service** (described later in this chapter.) One leads NW from the precautionary area E of Hein Bank into Haro Strait, and the other leads NW from the precautionary area S of Alden Bank into the Strait of Georgia. These abbreviated schemes are voluntary. (See **167.1 through 167.15 and 167.1300 through 167.1332**, chapter 2, for additional information.)

(10) Vessels so desiring, may while transiting the Strait of Juan de Fuca, contact the Puget Sound Vessel Traffic Service by calling SEATTLE TRAFFIC on VHF-FM channel 5A to receive desired information on known traffic, aids to navigation discrepancies, and locally hazardous weather conditions. VHF-FM channel 13 should be used to make passing arrangements in U.S. waters and in Seattle Traffic's secondary frequency, however because channel 13 is not used in Canadian waters as the primary bridge-to-bridge radiotelephone channel, vessels are encouraged to use channel 5A to make passing arrangements in the Strait of Juan de Fuca. Preliminary calls to SEATTLE TRAFFIC on VHF-FM channel 16 are not required or desired. (See Traffic Separation Schemes, chapter 1, for additional information.)

(11) The Canadian Government recommends that ships conduct themselves in accordance with the navigational procedures set forth in the Ship Routing Regulations when navigating in or near the traffic separation scheme in Canadian waters. Mariners are advised that the Canadian Ship Routing Regulations are based upon the International Maritime Organization's "General Principles of Ships' Routing", except for a relaxation that permits vessels engaged in fishing to proceed in any direction in or near traffic lanes and on the high seas. (Canadian Ship Routing Regulations are published in the Annual Edition of Canadian Notices to Mariners.)

(12) The Canadian waters SE and E of Vancouver Island are a **Vessel Traffic Management Zone**.

(13) Complete details of the traffic separation schemes and the vessel traffic management and information system for the coastal waters of southern British Columbia are given in Pub. No. 152, Sailing Directions, Planning Guide for the North Pacific Ocean, published by the National Geospatial-Intelligence Agency, Sailing Directions, British Columbia Coast (South Portion), Volume 1, published by the Canadian Hydrographic Service, and the Annual Edition of Canadian Notices to Mariners, published by the Canadian Coast Guard.

Vessel Traffic Service

(14) **Puget Sound Vessel Traffic Service**, operated by the U.S. Coast Guard, has been established in the Strait of Juan de Fuca (E of Port Angeles) and in the waters of Rosario Strait, Admiralty Inlet, Puget Sound, and navigable waters adjacent to these areas. The System is designed to prevent collisions and groundings and to protect the navigable waters concerned from environmental harm resulting from such collisions and groundings.

(15) The **Puget Sound Vessel Traffic Service** comprises three major components: a Traffic Separation Scheme, a Vessel Movement Reporting System, and radar surveillance. The Traffic Separation Scheme comprises a network of one-way traffic lanes, separation zones in between, and precautionary areas. Most traffic lanes are 1,000 yards wide and are separated by 500-yard-wide separation zones.

(16) The Vessel Movement Reporting System is based upon a VHF-FM communications network maintained continuously by the Coast Guard Vessel Traffic Center in Seattle. This center will process information received from vessels in required and voluntary reports, and will, in turn, disseminate navigational safety information to vessels participating in the service. The mariner is cautioned that information provided by the vessel traffic center is, with the exception of radar information, largely generated from these reports by vessels and can be no more accurate than that received. Additionally, the Coast Guard may not have first-hand knowledge of hazardous circumstances existing in the Vessel Traffic Service Area, and unreported hazards may confront the mariner at any time. The Vessel Traffic Service is shown on the appropriate nautical charts of the area.

(17) The rules governing vessels operating in the Vessel Traffic Service are given in **161.1 through 161.23 and 161.55**, chapter 2. In addition, the proper operating procedures are contained in the Puget Sound Vessel Traffic Service User Manual, available at no charge from Commanding Officer, U.S. Coast Guard, Puget Sound Vessel Traffic Service, 1519 Alaskan Way S., Seattle, Wash. 98134-1192.

(18) A **Cooperative Vessel Traffic Service (CVTS)** has been established in the Strait of Juan de Fuca region, based on an agreement between the United States and Canada. Operated by the U.S. Coast Guard and the Canadian Coast Guard, the system is intended to enhance safe and expeditious vessel movement, and to minimize risk of pollution to the marine environment; the system is **mandatory**. The rules governing vessels operating in the Cooperative Vessel Traffic Service (CVTS) are given in **161.1 through 161.23**, and **161.55**, chapter 2. In addition, a CVTS Users Manual, which contains

useful information for operating in the CVTS area, is available from Commanding Officer, USCG Vessel Traffic Service, 1519 Alaskan Way South, Seattle, WA 98134-1192.

(19) Mariners are advised that **Ferry Routes** may differ from the established Vessel Traffic Services, Traffic Separation Schemes, and Cooperative Vessel Traffic Management Systems for the entire Strait of Juan de Fuca and Puget Sound area.

Vessel Arrival Reports

(20) All vessels 300 gross tons or greater, including tug and tows, must submit an advance report at least 24 hours prior to entering the territorial waters of Canada or the United States. An Advance Report, jointly created by the Canadian and United States Coast Guards and Washington State Department of Ecology, is a voluntary service designed to reduce the reporting burden on ships transiting these waters. This one report will satisfy all west coast offshore Canadian and U.S. regulatory reporting requirements including the Canadian VTS Offshore Report (WESTREG), the U.S. Coast Guard Advance Notice of Arrival (ANA) Report, and the Washington State Department of Ecology Advance Notice of Entry (ANE) Report. By complying with this voluntary service, vessels inbound to the Strait of Juan de Fuca/west coast of Canada are not required to make any other Notice of Arrival Report other than their initial check-in with the respective VTS. If this voluntary service is not used, it is the responsibility of vessels to file all the required reports in accordance with Canadian, United States, and Washington State regulations. For voyages less than 24 hours, report prior to departure. Also, report again if an ETA changes by more than 6 hours. Vessels should send reports via one of the following methods:

(21) INMARSAT telex 04352586 “CGTC VAS VCR”;

(22) Any Canadian Coast Guard MCTS Centre, free of charge;

(23) Directly to CVTS Offshore by FAX: 604-666-8453, or;

(24) E-mail: **rmic-pacific@pac.dfo-mpo.gc.ca**

(25) Reports shall be submitted in the following format:

(26) ALPHA Vessel name, call sign, flag and IMO International number (Lloyds Register No.).

(27) BRAVO Current date and time (UTC).

(28) CHARLIE Current position.

(29) ECHO True course.

(30) FOXTROT Speed in knots.

(31) GOLF Last port of call.

(32) HOTEL ETA to Buoy “J” at the entrance to Juan de Fuca Strait (if applicable).

(33) INDIA Destination and ETA to port of destination.

(34) OSCAR Maximum present static draft.

(35) PAPA (1) If inbound for a Canadian port, dangerous or pollutant cargo by name, UN number, or IMDG Code number, if applicable.

(36) (2) If bound for a U.S. port, name and UN number or IMDG Code number of certain dangerous cargoes as defined in 33 CFR 160.203. (The vessel must also report the items required in 33 CFR 160.211 (a)(1) through (a)(8) and (b) when applicable).

(37) QUEBEC Any defects or deficiencies in charts, publications, hull, steering gear, propulsion machinery, navigation equipment, anchors or cables, required radio communications equipment, incomplete complement of officers and crew as required by flag state, or any other hazardous conditions.

(38) SIERRA On scene weather, if severe.

(39) TANGO Agent name.

(40) UNIFORM Vessel gross tonnage.

(41) XRAY (1) If bound for a Canadian port, expiration date of:

(42) (a) International Oil Pollution Prevention Certificate, or Certificate of Compliance;

(43) (b) International Noxious Liquid Substance Certificate, or Certificate of Compliance;

(44) (c) Certificate of Fitness (Chemical tankers).

(45) (2) If bound for a U.S. port:

(46) (a) Indicate intention to transfer fuel and/or lube oil. If yes, specify type and amount;

(47) (b) Indicate all Federal/State response plan(s) and expiration date(s).

(48) The **Washington State Department of Ecology** also requires owners and operators of vessels to submit Safety Reports when a vessel experiences an unusual circumstance. A Safety Report is required for any of the following conditions:

(49) a. Any abnormality or malfunction of any steering, propulsion, or safety system, or navigation systems required by federal or international law or regulation;

(50) b. A breach of hull or the integrity of a cargo or bunker tank that causes or that may reasonably be expected to cause an oil spill or loss of stability;

(51) c. Damage from fire or explosion;

(52) d. An incomplete engineering or deck complement under United States law or regulation under the requirements of the vessel’s country of registry; or

(53) e. Any condition that could adversely affect the safety of a vessel, bridge, structure, shore area, or the environment.

(54) A Safety Report must be submitted with an Advance Notice of Entry, or, if the condition occurs after submittal of an ANE the Department must be notified immediately by phone or facsimile of the condition. To inquire or submit vessel information, vessel owners or operators may contact the Washington State Department of Ecology by calling 24 hours, 503-790-4868

(Columbia River and Grays Harbor) or 360-956-8378 (Strait of Juan de Fuca and Puget Sound). Facsimile Safety Reports should be sent to 1-800-664-9184 or 360-407-7288. Cargo, passenger, fishing and tank vessels are subject to boarding by Washington State Department of Ecology inspectors when in port. Tank vessels are required to have a Tank Vessel Oil Spill Prevention Plan on file with Ecology or must obtain a waiver prior to entering Washington State waters. Washington State also has safe bunkering procedures that must be followed during fuel transfers. For more information contact Ecology by calling 24 hours, 503-790-4868 (Columbia River and Grays Harbor) or 360-956-8378 (Strait of Juan de Fuca and Puget Sound). **To report an oil spill call 1-800-258-5990**.

(55) All vessels 30 meters or greater, including tug and tows, when inbound and crossing longitude 127°W, latitude 48°N, or within 50 nautical miles of Vancouver Island, whichever occurs first, are requested to contact **Tofino Traffic** on VHF-FM Channel 74.

(56) In accordance with the Cooperative Vessel Traffic Service, the United States and Canada, in cooperation with industry and the British Columbia Coast Pilots have established a **Standard of Care (SOC)** at the intersection of Haro Strait and Boundary Pass in the vicinity of Turn Point Light (48°41'18"N., 123°14'12"W.). This special area will help reduce the risk of incidents between both commercial and recreational vessels transiting the boundary waters of Haro Strait and Boundary Pass. The **Turn Point SOC Area** consists of those Canadian and United States waters contained within a four sided area connected by the following coordinates:

(57) (1) 48°41'18"N., 123°14'12"W. (Turn Point Light);

(58) (2) 48°42'24"N., 123°13'54"W.;

(59) (3) 48°41'06"N., 123°17'30"W. (Arachne Reef Light);

(60) (4) 48°39'45"N., 123°16'20"W. (Tom Point Light).

(61) The **Turn Point SOC** applies to participating vessels of **100 meters/328 feet or longer** operating within or approaching the **Turn Point SOC area** from Boundary Pass, southbound for Haro Strait, northbound for Boundary Pass or Swanson Channel. These vessels are requested not to enter the **Turn Point SOC area** when another VTS participant of 100 meters or more in length is already located in the area, unless:

(62) (a) When following astern, maintain a minimum of 0.5 mile separation with the vessel ahead.

(63) (b) When overtaking in the **SOC area**, with the concurrence of Victoria Traffic that there is no opposing traffic and a Closest Point of Approach (CPA) of at least 0.5 mile is maintained.

(64) (c) If outbound from Boundary Pass and meeting an inbound vessel from Haro Strait already in the **SOC area**, enter only after the outbound vessel is past the heading of the inbound vessel engaged in the turn and maintain at least a 0.5 mile CPA.

(65) (d) If inbound from Haro Strait and meeting an outbound vessel from Boundary Pass already in the **SOC area**, enter only after the outbound vessel has crossed a bearing line between Turn Point and Arachne Reef and maintain at least a 0.5 mile CPA.

(66) All vessels should maintain a distance of at least 0.3 mile off Turn Point. Special circumstances are considered to exist when more than two vessels, greater than 100 meters or more, are interacting around the **SOC area** at the same time. All 100 meter vessels in a special circumstance should maintain a CPA of at least 0.5 mile, continuing to maintain a distance of 0.3 mile off Turn Point.

(67) All VTS participants will verbally communicate with Victoria Traffic on VHF-FM channel 11 (156.55 MHz) when 3 miles from Turn Point. VTS participants are expected to make safe arrangements with other VTS participants within or near the **SOC area**.

Regulated navigation area

(68) Due to heavy vessel concentrations, the waters of the Strait of Juan de Fuca, the San Juan Islands, the Strait of Georgia, and Puget Sound, and all adjacent waters, are a regulated navigation area. (See **165.1 through 165.13 and 165.1301**, chapter 2, for regulations.)

Caution

(69) Since logging is one of the main industries of the region, free-floating logs and submerged deadheads or sinkers are a constant source of danger in the Strait of Juan de Fuca and Puget Sound. The danger is increased during freshets, after storms, and unusually high tides. **Deadheads** or **sinkers** are logs which have become adrift from rafts or booms, have become waterlogged, and float in a vertical position with one end just awash, rising and falling with the tide.

Currents, Cape Flattery to Race Rocks

(70) The currents may attain velocities of 2 to 4 knots, varying with the range of tide, and are influenced by strong winds. E of Race Rocks, in the wider portion of the strait, the velocity is considerably less. At Race Rocks and Discovery Island the velocity may be 6 knots or more.

(71) The **flood current** entering the Strait of Juan de Fuca sets with considerable velocity over Duncan and Duntze Rocks, but, instead of running in the direction of the channel, it has a continued set toward the Vancouver Island shore which is experienced as far as Race Rocks. The flood current velocity is greater on the N shore of the strait than on the S.

(72) The **ebb current** is felt most along the S shore of the strait, and between New Dungeness Light and Crescent Bay there is a decided set S and W, especially during large tides. With the wind and swell against the current, a short choppy sea is raised near the entrance to the strait.

(73) The current movement is complicated by a large daily inequality. The Tidal Current Tables should be consulted for times and velocities.

(74) **Tide rips** occur off the prominent points and in the vicinity of the banks. These are particularly heavy off Cape Flattery, Race Rocks, Dungeness Spit, and Point Wilson, at times becoming dangerous to small vessels.

Weather (Winds and visibility), Straits of Juan De Fuca and Georgia

(75) Winds are strongest from October through March. This results from the numerous winter storms that move through these waters; this is also an area where storms tend to intensify. As low-pressure systems approach the coast, winds strengthen and back to the SE quadrant, sometimes reaching gale force. After the storm passes, winds veer to the SW or NW. Gales usually last less than 1 day whereas the interval between storms normally varies from 1 to 5 days or up to 2 weeks when a strong high-pressure system settles in. These systems can also present local wind problems in the Georgia Strait. The mountainous terrain of this region plays an important part in determining the direction and speed of the wind. There are normally two wind seasons; winter lasts from October through March, while a summer regime covers the other 6 months.

(76) From October through March, winds at the Pacific entrance to the Strait of Juan de Fuca blow mostly out of the SE through SW. Gales blow on 4 to 6 days per month. They can come from any direction, however, SE winds are consistently the strongest, averaging about 18 knots. Strong SE winds raise dangerous confused seas off Cape Flattery, when they meet the long, rolling SW swells that frequent these waters. The frequent strong winds from a S quarter make the Vancouver coast between Cape Cook and Port San Juan a dangerous lee shore. When gales blow from the SW through W, it is usually safer inside the Strait than out. In general, winds are strongest and gales more frequent in the W end of the Strait. In the open water of the middle of the Strait, winter winds blow mostly out of the E through SE. Gales occur on about 2 to 4 days per month in the E half. The S shore is protected from the SE gales; Port Angeles provides good shelter. An approaching storm often sets up strong E winds in the central part of the Strait. This, in turn, sets up a drainage of air from the Georgia Strait, so that winds near the E entrance are frequently from the N through NE. As the storm moves inland, it produces a reversal of this flow. Winds blow from the W through most of the strait, backing to the SW in the E. Winds near the W entrance have reached 65 knots with gusts to 90 knots. In the strait, 50-knot winds and 80-knot gusts have been reported.

(77) Summer winds at sea blow mainly from the SW through NW around the subtropical Pacific high. Heating of the North American continent helps draw air into the Strait of Juan de Fuca. This sea breeze reinforces the prevailing flow and results in winds up to 30 knots in the late afternoon. The land breeze opposes the normal flow, and calms are often the rule in early morning. SW through W winds are most frequent in the Strait of Juan de Fuca.

(78) In few parts of the world is the vigilance of the mariner more called upon than when entering the Strait of Juan de Fuca from the Pacific in fog. Sea fog is the most common type, and it is at its worst from about July through October. Local land fog extends the visibility hazard into the winter. Fog is most frequent at the W end of the Strait. Here, visibilities drop to less than 0.75 mile (1.4km) on about 55 days annually, compared to about 35 days in the E end. Dense fog sometimes hangs over the ocean entrance to the Strait for days at a time; this is most likely during calms or light breezes. It gives the appearance of a wall, and ships entering often run into clear, bright weather before they pass Tatoosh Island. Often the fog is carried E on the W sea breeze. When this happens, the fog usually penetrates farther E along the S shore. It is much more likely to reach Port Angeles or Port Townsend than Victoria. In spring, the E penetration of an infrequent fog is usually limited to Crescent or Freshwater Bays. Often when thick weather prevails in the Strait of Juan de Fuca, skies are clear N of Race Rocks.

Pilotage, Strait of Juan de Fuca and Puget Sound

(79) Pilotage is compulsory for all foreign vessels and U.S. vessels engaged in foreign trade. Pilotage is optional for U.S. vessels engaged in the coastwise trade with a federally licensed pilot on board.

(80) Puget Sound Pilots serve all U.S. ports and places E of 123°24'W., including Port Angeles, Puget Sound, and adjacent inland waters. The office address is: Puget Sound Pilots, 101 Stewart Street, Suite 900, Seattle, Washington 98101; telephone, 206-448-4455 (24 hours), 206-728-6400; Fax 206-448-3405. Pilot station address is: 305 Ediz Hook Road, P.O. Box 788, Port Angeles, Washington 98362; telephone, 800-221-0234, 360-457-7944; fax 360-452-8566.

(81) Port Angeles has been designated as the pilotage station for all vessels enroute to or from the sea. The

pilot station is located on Ediz Hook about 0.7 mile W of Ediz Hook Light (see chart 18468). There are two pilot boats, both are 22 meters in length with white hulls and orange houses. The standard day and night signals are displayed. The pilot station and pilot boats are equipped with radar to locate and track vessels, radio communication can be made by calling "Puget Sound Pilots" on VHF-FM channel 13.

(82) Pilotage should be arranged between 0800 and 1700 at least 24 hours in advance of inbound ETA through the vessel's agent, by direct telephone communication with Puget Sound Pilots at the previously mentioned telephone numbers; or indirectly through radio station KLB, Everett, WA, addressed to Puget Sound Pilots or the Marine Exchange of Puget Sound (telephone: 206-443-3830 or Telex 6734358 "MAREX"). If subsequent conditions make it necessary, an amended estimated time of arrival should be made. Inbound vessels are requested to reaffirm their estimated time of arrival to the pilot boarding station when they are passing Cape Flattery, and again when they are one hour away.

(83) Vessels desiring a pilot should proceed to the pilot boarding area at 48°09'39.8"N., 123°23'17.9"W., about 1.4 miles NNE of the E end of Ediz Hook. A pilot ladder should be rigged in compliance with SOLAS regulations on the leeward side about 1 meter above the water. When approaching the boarding area, vessels are requested to monitor VHF-FM channel 13, and maintain a steady course and speed of about 6 knots when the pilot boat comes alongside.

Towage

(84) Tugs are stationed at Port Angeles. Arrangements are usually made in advance through ships' agents.

Quarantine, customs, immigration, and agricultural quarantine.

(85) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

Quarantine

(86) Quarantine is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Charts 18480, 18460

Strait of Juan de Fuca, N shore (Canada)

(87) Carmanah Point is described in the previous chapter. **Bonilla Point**, the N entrance point at the W end of the strait, is about 1.8 miles ESE from Carmanah Light. Bonilla Point is marked by a light. Inland of Bonilla Point, which slopes gradually to the sea, the mountains attain heights of over 3,500 feet and are heavily wooded. A reef extends 0.5 mile off the point, and the shores should be given a berth of at least 1.5 miles.

(88) From Bonilla Point the coast trends in a SE direction for 9.5 miles to Owen Point. It is nearly straight, rocky, and bluff, with high mountains rising immediately behind it; all are heavily wooded.

(89) **Port San Juan** offers the first anchorage on the N shore within the entrance to the Strait of Juan de Fuca. The port is conspicuous from seaward, appearing as a deep gap between two mountain ranges.

(90) The entrance between **Owen Point** and **San Juan Point,** 1.7 miles wide and 3.5 miles long, is 13 miles NE of Cape Flattery Light. It is marked by a lighted whistle buoy. San Juan Point is marked by a light.

(91) The port is open to SW winds, and a heavy sea rolls in when a moderate gale is blowing from that direction. Though it is possible that a vessel with good ground tackle could ride out a gale if anchored in the most sheltered part, it is recommended that with any indication of SW gales a vessel should weigh anchor immediately and, if the vessel's draft is 16 feet or less, seek shelter in Neah Bay; vessels of deeper draft should proceed to Port Angeles.

(92) Anchorage may be had in 6 to 9 fathoms anywhere in Port San Juan; a good position is in 5½ fathoms about 1 mile from the beach at the head of the port.

(93) **Cerantes Rocks**, about 300 yards SW from San Juan Point, include several high pinnacle rocks with a few trees growing on them. About 800 yards N of these rocks and 300 yards from shore is another reef partly uncovered.

(94) **Port Renfrew** is a settlement on the SE side of Port San Juan, about 2 miles NE of San Juan Point. A T-head pier has depths of 15 feet alongside.

(95) From Port San Juan the coast trends SE for 23.5 miles to Sheringham Point. This stretch of coast presents no prominent features. The country is thickly wooded, and the land rises to a considerable elevation. The points, some of which are bare on their extremities, are not prominent nor are they easily identified, except from close inshore.

(96) A Canadian Armed Forces **firing** and **practice exercise area** is established in the vicinity of Sheringham Point and San Simon Point about 8 miles to the W. (See Annual Edition of Canadian Notices to Mariners for area limits, types of practices, warning signals, etc.)

(97) Between Port San Juan and Race Rocks, fish traps and broken piles are reported to extend 0.5 mile offshore in places.

Chart 18465

(98) **Sheringham Point** is marked by a light. Victoria marine radio station VAK is at Sheringham Point.

(99) From Sheringham Point the coast continues in a series of bays and inlets for 16.5 miles to Race Rocks.

(100) **Beechey Head**, 11.5 miles ESE of Sheringham Point, is bold, wooded, and steep-to. Vessels bound up the strait and passing outside Race Rocks should give Beechey Head a berth of 2 miles.

(101) **Race Rocks**, 5 miles E of Beechey Head, are a cluster of bare low rocks from 0.5 mile to almost 1.5 miles from shore. Foul ground extends for 0.5 mile in all directions from the light; dangerous overfalls and races occur during bad weather. A light and fog signal are on the largest rock of the group, and a lighted buoy marks the SE rock of the group. The tidal currents in Race Passage and in the vicinity of Race Rocks attain a velocity of 4 to 6 knots at times, and dangerous tide rips are formed.

(102) **Firing practice** and **exercise areas** of the Canadian Armed Forces are E of Race Rocks in the approaches to Esquimalt and Victoria Harbors. (See the Annual Edition of Canadian Notices to Mariners.)

(103) Foul ground, due to dumping of heavy steel wire mesh material, is 3.2 miles W from Race Rocks Light.

(104) E of Race Rocks the Strait of Juan de Fuca expands to a width of about 16 miles, and extends for 30 miles ENE to the entrance to Admiralty Inlet on the S and Rosario Strait on the N.

(105) A 25-fathom bank lies 8.5 miles SE of Race Rocks along the steamer track from Race Rocks Light to Point Wilson Light. The W edge of this bank is sometimes sharply defined by a line of ripples with glassy calm water to the E.

(106) **Bentinck Island**, 1 mile NW of Race Rocks Light, is fringed with kelp on its S and E sides. **Pedder Bay, Parry Bay**, and **Royal Roads**, separated by William Head and **Albert Head**, form the coast between Bentinck Island and the W entrance to Esquimalt Harbor.

(107) A **027°43'–207°43' measured nautical mile** has been established on the NW shore of Parry Bay. Range beacons, consisting of fluorescent orange diamond-shaped daymarks, mark the NE and SW ends of the measured course.

(108) A **prohibited area** has been established in Parry Bay by the Canadian Government. No vessel may anchor in the area without permission.

(109) **William Head** is a comparatively low promontory extending about 0.5 mile NE of **Ned Point**. It is marked by a light and fog signal. Close W of William Head is **Quarantine Cove**, on the E shore of which are the conspicuous red brick buildings of the former quarantine station, now used as a penitentiary. Unauthorized vessels should not approach William Head within 200 yards.

(110) Anchorage affording protection from W weather may be had in 7 fathoms about 0.5 mile N of William Head and about 1,200 yards from the mainland.

(111) **Constance Bank**, 6.8 miles E of William Head Light, has general depths of 8 to 13 fathoms. It is about 2 miles long and 1 mile wide, within the 20-fathom curve. The bottom is rocky, and tide rips form in this vicinity. Vessels should not attempt to anchor on the bank.

(112) **Albert Head**, 3.3 miles NE of William Head, is marked by a light. **Fisgard Island**, on the W side of the entrance to Esquimalt Harbor, is marked by a light. Its red sector covers **Scroggs Rocks** off the E entrance point. Scroggs Rocks are marked by a light.

(113) **Esquimalt Harbor**, about 3 miles NNE of Albert Head, affords safe and ample anchorage and can be entered at any time. The entrance channel has general depths of 8 fathoms. Depths within the entrance gradually decrease for 1.5 miles N to **Cole Island**, above which the head of the harbor dries.

(114) **Victoria Harbor**, landlocked and well protected, is about 2 miles ESE of Esquimalt Harbor, and can accommodate large vessels. A U.S. Immigration station is in Victoria.

(115) Victoria Harbor is entered between **Macaulay Point** on the W and the breakwater extending from **Ogden Point** on the E; the breakwater is marked by a light with a fog signal. Vessels requiring a pilot are requested to notify **"Pilots Victoria"** by radio station **VAK** at least 6 hours in advance of their estimated time of arrival. The harbor extends for more than 0.5 mile N to **Shoal Point** on the E side, and thence trends E to **James Bay**. From the N part of James Bay, the upper harbor, which is crossed by three bridges, extends about 0.8 mile NNW to **Selkirk Water**, the W extremity of which is connected to **Portage Inlet**.

(116) **Brotchie Ledge**, the only outlying danger, about 200 yards long within the 5-fathom curve, lies 0.6 mile S of Ogden Point. The ledge has a least depth of 12 feet, and is marked by a light.

(117) **Clover Point**, 2 miles ESE of the entrance to Victoria Harbor, is low, bare of trees, and steep-to. Strong tide rips form off the point.

(118) **Trial Islands**, 4 miles E of Victoria Harbor, are bare and rocky; from most directions the two islands appear as one. The islands are marked by a light. The S and larger island is 80 feet high, and from **Staines Point**, its S extremity, a rocky ledge that uncovers 2 feet extends about 100 yards. Severe tide rips form off Staines Point, especially on the flood tidal current, which attains a velocity of 3 to 6 knots during large tides. The point should be given a wide berth.

(119) **Discovery Island**, 2 miles ENE of **Gonzales Point**, lies off the junction of Haro Strait and the Strait of Juan de Fuca. The island is wooded, and near its SE tip, **Pandora Hill** attains a height of about 125 feet. The island is marked by a light on the E side. The shores on all sides of the island are fringed with rocks in some places extending as far as 600 yards offshore.

Charts 18465, 18421, 18429

Strait of Juan de Fuca, E end

(120) **Hein Bank**, with a least depth of 2¼ fathoms, lies 8.5 miles SE of Discovery Island; it is about 2 miles long in a N direction, within the 10-fathom curve, and 0.8 mile wide. The shoalest part of the bank is covered with thick kelp in the summer. It is marked by two lighted buoys, the northernmost is equipped with a racon.

(121) **Smith Island**, 5 miles W of Whidbey Island and 8 miles ESE of Hein Bank, is irregular in shape and about 0.5 mile long. The E end is low, but rises abruptly to an elevation of 55 feet at its W end, terminating in a white perpendicular cliff composed of sand and gravel. Kelp extends about 1.5 miles W of the island, with a width of about 1.5 miles over depths of 4 to 6 fathoms; a rock covered 3½ fathoms lies about 1.8 miles W of the light. A rock that bares at lowest tides is about 0.3 mile W of the light. Strong currents set in and around the shoal area, especially on the flood, and deep-draft vessels should keep well outside the 10-fathom curve to avoid being set into danger. **Smith Island Light** (48°19'06"N., 122°50'38"W.), 97 feet above the water is shown from a 45-foot skeleton tower near the W extremity of the island.

(122) A **restricted area** of an air-to-surface weapon range is W of Smith Island. (See **334.1180**, chapter 2, for limits and regulations.)

(123) **Minor Island**, small, low, and rocky, lies 1 mile NE of Smith Island, and at lowest tide is connected with it by a gravel and boulder spit. A light is on the island.

(124) The northernmost part of the western shore of **Whidbey Island** forms the E end of the Strait of Juan de Fuca. This part of the island has a uniform sandy shore backed by low and rolling upland of farm and wooded areas.

(125) **Naval restricted areas** are adjacent to the northernmost part of the W shore of Whidby Island. (See **334.1200**, chapter 2, for limits and regulations.)

(126) The aerolight (48°20.9'N., 122°40.2'W.) at Ault Field is conspicuous.

Charts 18485, 18484

(127) On the S side of the Strait of Juan de Fuca the coast trends E for 4 miles from Cape Flattery to **Koitlah Point**, the W point of Neah Bay. The shores are rugged, and the country is heavily timbered.

(128) **Neah Bay**, about 5 miles E of Cape Flattery, is used extensively by small vessels as a harbor of refuge in foul weather. Its proximity to Cape Flattery and ease of access at any time make the anchorage very useful. It is protected from all but E weather.

(129) **Baada (Baadah) Point**, the E entrance point to Neah Bay, is rocky and grass-covered for some distance back from the shore. **Waadah Island**, 0.3 mile N of Baada Point, is 0.5 mile long, high, and wooded. A rubblestone breakwater extends from the W side of the bay to about the middle of Waadah Island. A reef and foul ground extend 0.2 mile from the SW side of the island. A wharf, used by the Coast Guard, is on the S end of the island. A light and fog signal are at each end of the island. A reef that bares, marked by a lighted bell buoy, extends 500 yards NW from **Dtokoah Point**, SE of the entrance.

(130) The buildings of **Neah Bay Coast Guard Station**, 0.4 mile SW of Baada Point, are prominent from the entrance.

(131) The entrance to the bay is between Waadah Island and Baada Point. A depth of 17 feet can be carried into the bay. Anchorage is in 20 to 35 feet, mud bottom.

(132) The W shore of Neah Bay is high and precipitous, and bordered by craggy rock outcroppings. The shore E of the village of Neah Bay is a low sand beach to Baada Point. Unmarked sunken wrecks are in the W part of the bay in about 48°22'22"N., 124°37'15"W., and in the NE corner of the bay in about 48°22'39"N., 124°36'20"W. Caution is advised when anchoring in the vicinity of the wrecks.

(133) The Indian village of **Neah Bay**, on the SW shore of the bay, is the site of considerable sport fishing.

(134) Neah Bay is a **customs port of entry**. The customs officer also performs **immigration** duties.

(135) The Makah Indian T-head pier with a 300-foot face, and the ruins of a T-head pier no longer visible, are about 375 and 500 yards SW of Baada Point. Caution is advised in the vicinity of the pier in ruins, as submerged piles may exist. The Coast Guard pier is 0.5 mile SW of Baada Point.

(136) Two cooperative fish piers, 1 mile and 1.2 miles SW of Baada Point, have facilities for icing and supplying fishing boats. Limited berthage, electricity, gasoline, diesel fuel, water, and ice are available. Both piers have reported depths of 12 feet off the ends. There are many small-craft floats extending along the S shore of the bay. Neah Bay has no public haulout or repair facilities.

(137) A paved highway extends along the Strait of Juan de Fuca to Port Angeles; telephone service is available.

Chart 18460

(138) From Neah Bay to Clallam Bay, the coast for more than 14 miles is rugged and the back country high and heavily wooded.

(139) **Seal Rock** and **Sail Rock**, about 2 miles E of Neah Bay and about 600 yards offshore, are very prominent. Seal Rock, the W one, is 100 feet high with a flat top showing E, and light in color. Sail Rock, 0.2 mile E of Seal Rock, is lower and more pointed. Covered rocks extend from Seal Rock to shore, and there are patches of kelp in this area.

(140) The wreck of the steamer ANDALUCIA, once partially visible but now completely covered, is just off Seal and Sail Rocks.

(141) A marina is along the shore near Sail Rock. Berths, gasoline, water, ice provisions, and a 3-ton lift are available. Mariners are advised to exercise caution in approaching the marinas because of the numerous rocks and ledges. The floats at the marina bare at low water. **Sail River** empties near Seal and Sail Rocks. **Sekiu River**, about 6.5 miles SE of Sail River, has some logging operations. The bridge over the river shows prominently through the trees.

(142) **Clallam Bay**, about 15 miles SE of Neah Bay, is a broad open bight about 2 miles long and 1 mile wide. It affords anchorage in 6 to 10 fathoms, sandy bottom, and is used to some extent in S or thick weather.

(143) **Slip Point**, the E point of the bight, is high and wooded; there is a light-colored streak like a landslip down its face, which is visible for a long distance. A reef, extending 0.2 mile W of the point, is marked by a bell buoy.

(144) **Sekiu** is a resort and sport fishing town on the W end of Clallam Bay and S of Sekiu Point. The town has berths, gasoline, water, ice, launching ramps and limited marine supplies. A marine railway that can handle craft to 24 feet long is at the town. **Clallam Bay**, a small town on the E side of Clallam Bay, has no waterfront facilities.

(145) In entering Clallam Bay, give Slip Point a berth of more than 0.2 mile to avoid the reef projecting W of it. Storm-bound vessels generally anchor abreast the rocky point near the middle of the long semicircular beach on the S shore of the bay.

(146) **Pillar Point**, 6.7 miles ESE of Slip Point, is bold, 700 feet high, wooded up to its summit, with a dark pillar-shaped rock more than 100 feet high lying close under its E face. The rock shows prominently from W. Good anchorage may be had in 9 to 12 fathoms, sticky bottom, about 0.8 mile SE of Pillar Point. This anchorage offers good shelter from the heavy W swell, but gives no protection from the brisk E and NE winds that prevail in winter.

(147) **Twin Rivers** are two small streams that flow into the strait about 7 miles E of Pillar Point. An earthfilled barge-loading facility, 0.3 mile W of West Twin River, has a reported depth of 15 feet alongside. The facility is owned by a cement company and used for barging clay to Seattle.

Chart 18465

(148) Shoal water makes out a considerable distance from **Low Point** (48°09.6'N., 123°49.5'W.), 5 miles E of Twin Rivers, and vessels should not approach this point closer than 0.8 mile. Many boulders that uncover are W of the point. A salmon pen, about 2.4 miles W of the point and 0.6 mile from the nearest shore, is marked by two private lighted buoys.

(149) **Agate Bay**, 3.5 miles E of Low Point, is clear and deep; 10 fathoms can be carried to within 0.2 mile of the shore.

(150) **Crescent Bay**, 4.2 miles E of Low Point, is a small semicircular bight 1 mile in diameter. The E part is shoal and near the W shore the remains of a wharf should be avoided. This is not a good landing place in N weather. The anchorage is of limited extent and suitable only for small vessels. **Crescent Rock**, covered ¼ fathom and marked by a buoy, is 0.4 mile N of the W entrance point of Crescent Bay. The rock extends 0.4 mile in E direction, with a narrow channel between it and the point. The channel has a reported depth of 10 fathoms and is not recommended without local knowledge. A reef extends about 400 yards NW from **Tongue Point**, the E entrance point of Crescent Bay. A shoal, covered 1¼ fathoms, is about 0.3 mile W of Tongue Point. Except for crabs and fish, the 1¼-fathom shoal is a marine sanctuary for other shellfish and sealife. A wreck is off the entrance about 0.3 miles N of Tongue Point.

(151) **Observatory Point** is 3 miles E of Tongue Point. Between these points is a wooded ridge which, because of the lower land behind it, makes this area appear as an island when raised from E or W. The ridge attains an elevation of 1,135 feet, and is known as **Striped Peak**. A rock, 20 feet high, is close off Observatory Point; the rock and the point are almost joined at low water.

(152) **Freshwater Bay**,about 4 miles E of Crescent Bay, is a broad open bight, affording anchorage in 6 to 10 fathoms. The bay and adjacent waters are designated as an **emergency explosives anchorage**. (See **110.1 and 110.230 (a)(1) and (b)**, chapter 2, for limits and

regulations.) A park with a launching ramp is along the SW shore of Freshwater Bay.

(153) **Angeles Point**, on the E side of Freshwater Bay, is low, sandy, and covered with alders. The **Elwha River** empties into the strait at this point.

(154) A microwave tower, marked by aircraft warning lights and a good landmark by day and night, is on Angeles Point.

Caution

(155) The U.S. Navy advises that the precautionary area, located within a 1 mile radius centered around a point in about 48°15'36"N., 123°15'48"W., approximately 9 miles NNE of Ediz Hook, is used by naval vessels to conduct equipment calibration tests. Surface vessels or submerged submarines will occasionally be maneuvering in circles in this area for several hours or days. When these operations are in progress, the test facility located on the east end of Ediz Hook will be manned and reference lights consisting of a lazy "T" bar, 1 sec flashing yellow, 2/sec flashing red, and a high intensity spot will be lit. The group of lights is visible from the N side of Ediz Hook with the "T" bar to the W and spot light to the E. The naval vessels will be participating in the Seattle Vessel Traffic System on VHF-FM channel 5A. The Navy Test Facility Port Angeles will monitor VHF-FM channels 16 and 69. Mariners transiting this area are requested to proceed with caution.

(156) A **Vessel Traffic Service** has been established in the Strait of Juan de Fuca, E of Port Angeles, and in the adjacent waters. (See **161.1 through 161.55**, chapter 2, for regulations, and the beginning of this chapter for additional information.)

Chart 18468

(157) **Port Angeles**, 6.5 miles E of Freshwater Bay and 56 miles from Cape Flattery, is entered between **Ediz Hook**, a low and narrow sandspit 3 miles long, and the main shore to the S. The harbor, about 2.5 miles long, is easy of access by the largest vessels, which frequently use it when refueling, making topside repairs, waiting for orders or a tug, and when weather-bound.

(158) The harbor is protected from all except E winds, which occasionally blow during the winter. During SE winter gales, the wind is not usually felt but some swells roll in. The depths are greatest on the N shore and decrease from 30 to 15 fathoms in the middle of the harbor; from the middle, the depths decrease regularly to the S shore, where the 3-fathom curve in some places in the E part is nearly 0.2 mile from the beach. A rock covered 19 feet is reported in the approach to the harbor in about 48°07'25"N., 123°23'00"W. A depth of 25 feet is off the easternmost pier on the waterfront, and a shoal with a least depth of 3 fathoms lies 350 yards NW of the NW corner of the pier. A buoy is 225 yards off the NW corner of the pier.

(159) Extra caution in navigating the waters inside Ediz Hook should be exercised because of the large number of submerged deadheads or sinkers in the area. Deadheads or sinkers are logs that have become adrift from rafts or booms, have become waterlogged, and float in a vertical position with one end just awash, rising and falling with the tide.

Anchorage

(160) The best **anchorage** is off the wharves, in 7 to 12 fathoms, sticky bottom.

(161) A **nonanchorage area** has been established in the E part of Port Angeles Harbor. (See **110.1 and 110.229**, chapter 2, for limits and regulations.)

(162) Extensive log booming grounds in the N part of the harbor extend more than 1 mile from the W shore. Care must be taken when anchoring at night to avoid the rafted logs; the booming grounds are charted.

(163) **Ediz Hook Light** (48°08'25"N., 123°24'08"W.), 50 feet above the water, is shown from a skeleton tower, 0.3 mile W of the E extremity of Ediz Hook; a fog signal is at the light. A 170-foot Coast Guard VTS radar tower is about 0.1 mile WSW of the light. Shoals extend to about 75 yards E of the E extremity of Ediz Hook. A lighted buoy is about 150 yards E of the outer limits of the shoals. Coast Guard radio station **NOW** is at the air station. A shoal, with a least depth of 7 fathoms and marked by a lighted buoy, is about 3.4 miles WNW of Ediz Hook Light. An aquaculture site, marked by private lights, is off the S side of Ediz Hook about 800 yards WSW of the light.

(164) **Port Angeles** is on the S shore of the harbor. Logs, lumber, plywood, newsprint, pulp, shakes and shingles, and petroleum products are the principal commodities handled.

Pilotage, Port Angeles

(165) Pilotage is compulsory for all vessels except those under enrollment or engaged exclusively in the coasting trade on the W coast of the continental United States (including Alaska) and/or British Columbia. Pilotage for Port Angeles is provided by the Puget Sound Pilots. They monitor VHF-FM channel 13. (See Pilotage, Strait of Juan de Fuca and Puget Sound, indexed as such, early this chapter.) The pilot station is about 0.7 mile W from Ediz Hook Light. A pier for berthage of the pilot boats is on the S side of Ediz Hook, adjacent to the pilot station.

Towage

(166) Tugs to 1,200 hp are stationed at Port Angeles, and tugs to 5,000 hp are available from Seattle with advance notice.

Quarantine, customs, immigration, and agricultural quarantine

(167) (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) Port Angeles is a **customs port of entry**.

Coast Guard

(170) Port Angeles Coast Guard Air Station is on Ediz Hook, about 0.3 mile W of the E extremity.

Harbor regulations

(171) The Port of Port Angeles Terminal Manager's office is in Port Angeles at the foot of Cedar Street.

Wharves

(172) The major piers described, both private and port operated, extend along the S and W sides of the harbor. For a complete description of the port facilities refer to Port Series No. 37, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths of the facilities described are reported depths. (For information on the latest depths contact the port authorities or the private operators.)

Port-operated facilities:

(173) Port Terminal No. 1 (48°07'30"N., 123°26'24"W.): 956-foot berthing space on N side with an additional 425 feet to dolphins; 610 foot berthing space on S side, 42 feet at the end; deck height, 17 feet; 17,000 square feet covered storage; 96,000 square feet open storage; shipment of general cargo, lumber, logs, pulp, and other forest products; berthing space for top side repair of large ocean going vessels.

(174) Port of Port Angeles, Terminal No. 3 (W of Port Terminal 1): 480-foot berthing space; 41 to 45 feet alongside; deck height, 17 feet; receipt and shipment of general cargo, shipment of logs and lumber.

Privately operated facilities:

(175) Black Ball Ferry Transport (48°07'21"N., 123°25'45"W.): Terminus of passenger and automobile ferry connecting Port Angeles and Victoria, B.C.; ferry makes two trips daily from March to May and October to January. From May to October it makes 4 trips daily. Visit "www.northolympic.com/coho" for the current schedule. Operated by Black Ball Transport, Inc.

(176) Diashowa America, Port Angeles Mill Dock (48°07'57"N., 123°27'33"W.): 640-foot total berthing space with dolphins; 28 feet alongside; deck height, 10 feet; shipment of lumber; owned and operated by Merrill and Ring, Inc. **Note:** Vessels moor portside-to at this wharf; a tug is recommended for both docking and undocking.

(177) Diashowa America, Port Angeles Barge Dock (48°08'08"N., 123°27'37"W.): 570-foot berthing space with dolphins; 36 to 40 feet alongside; deck height, 17½ feet; approximately 28,000 square feet covered storage; receipt of fuel oil for plant consumption; shipment of paper products; owned by Diashowa; operated by Diashowa America and BP Marine Americas. A 25-foot shoal is charted about 100 feet E of the face of the Wharf; a tug is recommended when undocking.

(178) In addition to the facilities mentioned, there are several small piers and wharves at which tugs and other floating equipment moor. Many log dumps are in the harbor.

Supplies

(179) Water, ice, and marine supplies are available. Groceries are nearby. Diesel oil and gasoline are available at the port boat haven. Bunkering is available by barge.

Repairs

(180) Port Angeles has several companies and facilities to perform major topside repairs to large oceangoing vessels; the nearest drydocking facilities are in Seattle/Tacoma, WA.

Small-craft facilities

(181) **Port Angeles Boat Haven**, operated by the port, is a large, well-equipped small-craft basin in the SW part of the harbor that can accommodate a large fleet of fishing boats and pleasure craft. The basin is marked by lights. In February 2002, a reported controlling depth of 20 feet was in the entrance, and a depth of 15 feet was in the basin and alongside the berths. About 660 berths, electricity, gasoline, diesel fuel, water, ice, a pump-out station, launching ramps, marine supplies, and winter wet storage are available. A boatyard at the E end of the basin has a marine railway that can handle craft to 100 tons; a 225-ton lift is also available. Hull and engine repairs can be made at the yard, and electronic repair work can be arranged. The **harbormaster** controls the moorings in the basin.

(182) A **121°16'-301°16'** 200-yard **measured course** is in the SW part of the harbor close N of Port Angeles Boat Haven.

Communications

(183) Port Angeles is served by a U.S. highway. It is connected by ferry to Victoria, B.C. The airport is 2.5 miles W of the city.

Charts 18465, 18471

(184) From Port Angeles the coast trends E for 13 miles to the end of **Dungeness Spit**, which borders the W side of **Dungeness Bay**. This bay affords shelter in W winds, but is open E; in N weather, the protection afforded is only fair. It is a dangerous place in winter gales, especially from the SE. The bay is formed by a sandspit extending NE 4 miles and forming, in addition to Dungeness Bay, a small lagoon at the head of the harbor that can be entered by light-draft vessels with local knowledge.

(185) A **075°–255° measured nautical mile** has been established on the strait side of Dungeness Spit; the range markers are in the small lagoon at the head of the harbor.

(186) **New Dungeness Light** (48°10.9'N., 123°06.6'W.), 67 feet above the water, is shown from a 63-foot white conical tower on a dwelling on the outer end of the spit.

(187) From the end of the spit a shoal extends NE for 0.8 mile from the light. This has been reported as extending farther N, and it should be passed with caution. A lighted bell buoy marks the shoal but it may be submerging during periods of strong current; vessels should not pass between the buoy and the light. A shoal makes out about 1 mile from the S side of the bay.

(188) The best anchorage is in 5 to 9 fathoms, sticky bottom, about 1 mile SE of the light, clear of the cable area.

(189) **Dungeness** is a small town on the S shore of the bay. The ruins of a former wharf extend about 1,000 yards out across the flats.

(190) **Sequim Bay**, 6 miles SE of Dungeness Bay, is a landlocked bay 3.8 mile long. The bay is separated from the Straits by **Travis Spit**, a sandspit that extends W from the NE corner of the bay almost to the W shore. A long, narrow channel marked by lighted and unlighted buoys leads around Travis Spit and W of a shoal area called The Middle Ground into the bay. Depths of about 9 feet are available with local knowledge in the marked channel. The area between the lighted buoy at the entrance and Gibson Spit on the W shore reportedly bares at minus tide and several groundings are known to occur. Caution is advised. Strong currents that tend to follows the channel have also been reported. Inside is a good anchorage anywhere in 6 to 21 fathoms, muddy bottom. A marina with lights at the NE ends of the entrance breakwaters is in the small cove just N of **Pitship Point** on the W side of the bay. Berths with electricity, gasoline, diesel fuel, water, ice, marine supplies, restaurant, provisions, a launching ramp and a pump-out station. A marine research center of the Battelle Memorial Institute, is on the W side of the entrance to the harbor abreast the sandspit. Some log rafts are made up in the bay. **Sequim Bay State Park** is at the SW end of the bay. A seasonal mooring float is at the park.

(191) **Protection Island**, a prominent feature in approaching Discovery Bay, is 200 feet high near its W extremity, 1.5 miles long and sparsely wooded; its N shore consists of bare, light bluffs. The E end and S shore are clear of dangers, but off **Kanem Point**, its SW end, a shoal extends SW for over 0.2 mile, and depths of 5 fathoms and less are found 0.5 mile W of the point. This shoal is marked by a buoy. **Dallas Bank** extends N from Protection Island; the 10-fathom curve lies about 2.5 miles from the N point. N of the 10-fathom curve the bank drops off abruptly to depths of over 20 fathoms. **Miller Peninsula**, about 6 miles long and 3 to 5 miles wide, separates Sequim Bay and Discovery Bay.

(192) **Discovery Bay** is 2 miles SSE of Protection Island. George Vancouver, the English explorer, anchored and refitted his ships here for his exploration of these regions in 1792. The bay trends in a SE direction for about 8 miles. The entrance is masked from seaward by Protection Island, which protects it from NW winds. There are no outlying dangers, and the depths are great. A marina, located at **Cape George**, the E entrance point of Discovery Bay, has water, electricity, and a boat launching ramp. The entrance has a reported maintained depth of 3½ feet. The entrance jetty is marked by a light.

(193) A dangerous sunken wreck is on the W side of the bay about 300 yards S of Mill Point in 48°00'53"N., 122°51'27"W.

(194) In August 1980, a sunken wreck was reported on the E side of the bay in about 48°03'17"N., 122°51'12"W.

(195) **Diamond Point** is the W point at the entrance to Discovery Bay. A wharf in ruins is just inside the point.

(196) The shore from Cape George for 3 miles to **McCurdy Point**, consists of high, bare, clay bluffs, sparsely wooded on top, attaining a height of 400 feet near the NE end. A shoal covered 2 fathoms extends 0.6 mile NW of McCurdy Point; it is marked by a buoy. Vessels are cautioned not to pass between the buoy and the point.

(197) From McCurdy Point, the shore trends E for 3.5 miles to **Point Wilson**, the W point at the entrance to Admiralty Inlet, and consists of high, bare, clay bluffs, sparsely wooded on top, decreasing in height near McCurdy Point, and ending abruptly close W to Point Wilson.

(198) **Point Wilson Light** (48°08'39"N., 122°45'17"W.), 51 feet above the water, is shown from a white octagonal tower on a building on the E extremity of the low point. A fog signal is at the light.

(199) Shoals extend 0.5 mile NW of Point Wilson to the 5-fathom curve over irregular bottom; these are generally indicated by kelp. The E edge of the shoals rises rather abruptly from deep water. Heavy tide rips extend N of these shoals, being especially heavy with a W wind and ebb current. A lighted buoy marking the shoals is about 0.7 mile NW of Point Wilson Light.

(200) In approaching Point Wilson in thick or foggy weather, especially if the fog signal is not heard, soundings should be taken continuously.

(201) **Point Partridge**, the Westernmost point of Whidbey Island, has a yellow face and is prominent from the N or S; it is rounding and not easily identified from the W. A light is on the point. A rocky ledge, marked by a lighted bell buoy, extends 0.5 mile W from the point. In the summer, the ledge is usually marked by kelp.

(202) The W shore of Whidbey Island, between Admiralty Head and Point Partridge, is mostly a sandy beach rising sharply to bluffs 100 to 250 feet high, backed by pine trees. The shoreline is generally strewn by logs.

(203) **Admiralty Head**, 80 feet high, on Whidbey Island, is the E entrance point of Admiralty Inlet and the SE extremity of a succession of light bare bluffs which extend N of Point Partridge, where they attain their highest elevation. About 0.5 mile N of Admiralty Head an abandoned lighthouse tower 39 feet high stands on top of a bluff.

(204) From Point Partridge the NW coast of Whidbey Island extends NNE for 11.5 miles to Deception Pass. It is free of offlying dangers, but should not be approached closer than 1 mile.

(205) **Partridge Bank**, within the 10-fathom curve, is about 3 miles long and 1.5 miles wide; the SE end reaches within 2 miles of Point Partridge. The N and E sides fall off abruptly to 20 and 30 fathoms. The shoalest part, 2¼ fathoms, is near the N side about midway between the ends; it is marked by a buoy. A lighted bell buoy is about 0.6 mile SSE of the 2¼-fathom spot. A considerable part of the bank is covered with kelp, which is usually drawn under by currents. The kelp generally extends to the 7-fathom curve, except toward the E end where the shoal narrows, and no kelp exists beyond a depth of 4 fathoms.

Charts 18421, 18432, 18433, 18434

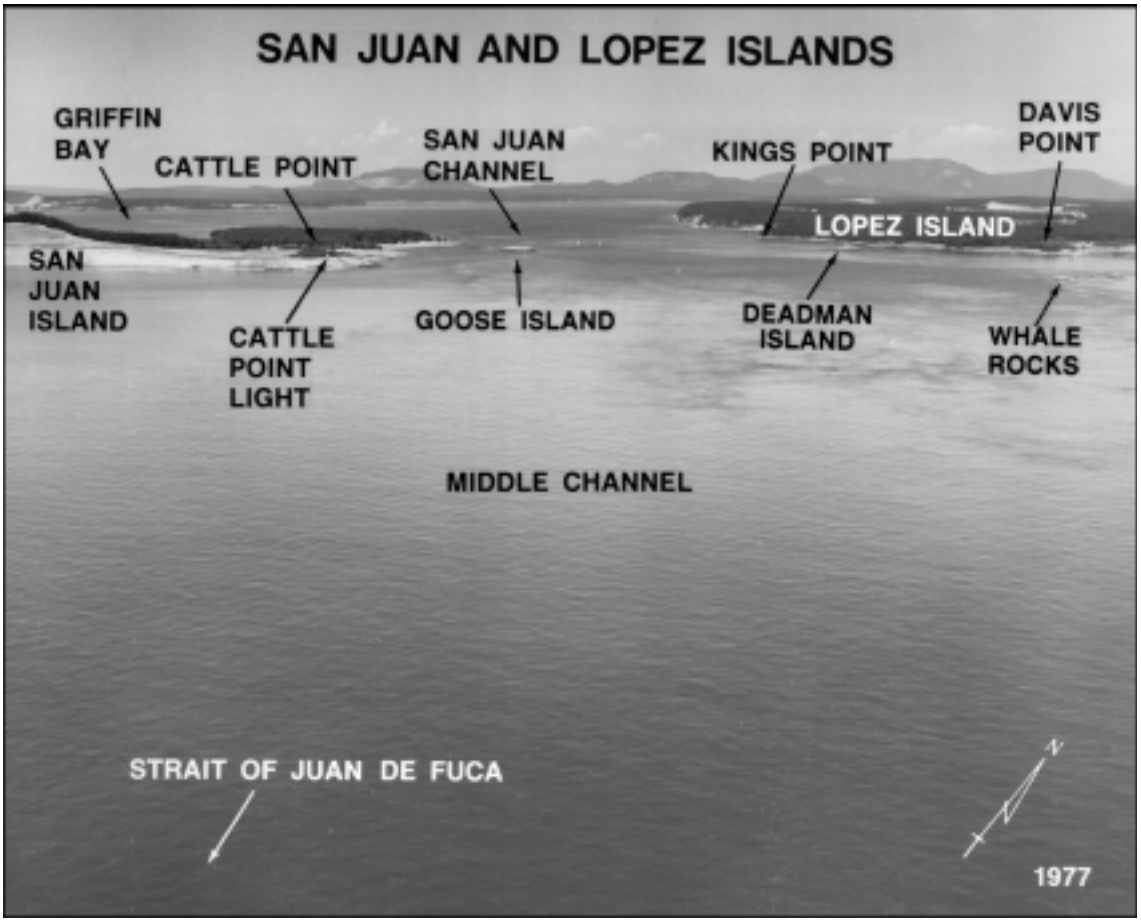
(206) The waters of the **San Juan Islands** embrace the passages and bays N of the E end of the Strait of Juan de Fuca. These passages are used extensively by pleasure craft, especially in July, August, and September. Some tugs and barges use the larger passes. Automobile ferries, operated by the State of Washington, are on regular round-trip runs from Anacortes through Thatcher Pass, Harney Channel, Wasp Passage, San Juan Channel, Spieden Channel, and across Haro Strait to Sidney, B.C. The island ferry landings are at Upright Head, Lopez Island; on the E side of the entrance to Blind Bay, Shaw Island; Orcas, Orcas Island; and Friday Harbor, San Juan Island. Oceangoing vessels normally use Haro and Rosario Straits and do not run the channels and passes in the San Juan Islands. Many resorts and communities have supplies and moorage available for the numerous pleasure craft cruising in these waters. Well-sheltered anchorages are numerous.

(207) The directions which follow are intended for use only in clear weather; in thick weather or at night strangers should take a pilot for large vessels. Small craft should not attempt navigation under these conditions without local knowledge. Sailing craft should not attempt the passages against the current unless the wind is fair and fresh. A reliable auxiliary engine for sailboats is an absolute necessity. The tidal currents have great velocity in places, causing heavy tide rips that are dangerous. Because of the variable direction and velocity of the currents, compass courses are of little value, and, where followed, allowance must be made for the set of the current.

(208) **Haro Strait** and **Boundary Pass** form the westernmost of the three main channels leading from the Strait of Juan de Fuca to the SE end of the Strait of Georgia; it is the one most generally used. Vessels bound from the W to ports in Alaska or British Columbia should use the Haro Strait/Boundary Pass channel, as it is the widest channel and is well marked. Vessels bound N from Puget Sound may use Rosario Strait or Haro Strait; the use of San Juan Channel by deep-draft vessels is not recommended.

(209) A **Vessel Traffic Service** has been established in the Strait of Juan de Fuca, E of Port Angeles, and in the adjacent waters. (See **161.1 through 161.55**, chapter 2, for regulations, and the beginning of this chapter for additional information.)

(210) Haro Strait extends N from the S end of San Juan Island for about 18 miles to Turn Point Light on Stuart Island, thence Boundary Pass leads NE for 13 miles to its junction with the Strait of Georgia between East Point, the E end of Saturna Island, B.C., and the W end of Patos Island, the small United States island; both of which are marked by lights. These waterways have widths from 1.5 to 5 miles, and the depths are generally great.



(211) No difficulty will be experienced in navigating Haro Strait and Boundary Pass in clear weather; strangers should take a pilot in thick weather.

(212) The E shore of the passage will be described in detail, with only a brief general description of the W shore. More complete detail of the W shore is contained in Pub. 154, Sailing Directions (Enroute) for British Columbia, published by the National Geospatial-Intelligence Agency Hydrographic/Topographic Center, and the Sailing Directions, British Columbia Coast (South Portion) Vol. 1, published by the Canadian Hydrographic Service.

(213) The International Boundary between the United States and Canada passes through Haro Strait and Boundary Pass.

(214) In accordance with the Cooperative Vessel Traffic Service, the United States and Canada, in cooperation with industry and the British Columbia Coast Pilots have established a **Standard of Care** at the intersection of Haro Strait and Boundary Pass in the vicinity of Turn Point Light (48°41'18"N., 123°14'12"W.). This special area will help reduce the risk of incidents between both commercial and recreational vessels transiting the boundary waters of Haro Strait and Boundary Pass. For the boundaries and rules regarding the **Standard of Care**, see **Cooperative Vessel Traffic Service (CVTS)** at the beginning of this chapter.

Tidal currents

(215) In Haro Strait and Boundary Pass, the flood current sets N; the ebb current sets in the opposite direction. The ebb usually runs longer and has a greater velocity. At the N entrance to Boundary Pass, the flood sets E along the N and S sides of Sucia Islands and across Alden Bank; the velocity is about 1 to 2 knots. The Current has moderate velocity between Sucia and Orcas Islands. There is a large, daily inequality in the current (see Tidal current Tables for predicted times and velocities). Heavy, dangerous tide rips occur between East Point on Saturna Island and Patos Island, and for two miles N in the Strait of Georgia. Tide rips also occur on the ebb between Henry Island and Turn Point, as well as around Turn Point where the ebb may attain a velocity of 6 knots during large tides. The flood current sets E from Discovery Island across the S end of Haro Strait until close to San Juan Island. This E set especially noticeable during the first half of the flood. Heavy tide rips occur N of Middle Bank as well as on the Bank and around Discovery Island.

(216) Rocky **Middle Bank**, with a least depth of 10 fathoms, is in the S approach to Haro Strait. The bank is about 3.5 miles long, and the least depth is in its NE part and 5.7 miles SW of Cattle Point Light on the southernmost tip of San Juan Islands. Heavy tide rips, dangerous to small craft, form in the vicinity of this bank in bad weather.

(217) Beaumont shoal, covered 9 fathoms, lies 3 miles NW of the NW corner of Middle Bank and is marked by a lighted buoy. A second small bank with a least depth of 7 fathoms lies 1 mile to the north. In bad weather, heavy tide rips form over these banks.

(218) **San Juan Island**, the largest of the group, is about 13 miles long, rugged, and partly wooded. **Mount Dallas**, the highest of several hills on the island, rises abruptly from the middle of the W side to a height of 1,080 feet. In most places the shores are free of outlying dangers. The N end of the island is indented by several small bays that, with the exception of Roche Harbor, are shoal and of no commercial importance.

(219) From **Eagle Point**, the W shore of San Juan Island trends NW and forms the E side of Haro Strait. This shore is steep-to and rocky, and beyond 400 yards offshore it is free of danger; however, the depths off this shore are too great for anchoring.

(220) **Kanaka Bay**, a small cove used by fishing boats, is 2.5 miles NW of Eagle Point.

(221) **Lime Kiln Light** (48°31.0'N., 123°09.2'W.), 55 feet above the water, is shown from a 38-foot white octagonal tower attached to a building on the W side of San Juan Island. Two dwellings are about 150 yards SE of the light. Rocks awash lie close inshore about 1 mile SE of the light.

Local magnetic disturbance

(222) Differences from the normal variation of as much as 4° have been observed in the vicinity of **Bellevue Point**, 1 mile N of Lime Kiln Light.

(223) During the June-October fishing season, many purse seiners operate in this area. At night these vessels anchor close inshore, generally between Cattle Point and Pile Point.

(224) **Hanbury Point** (48°34.7'N., 123°10.3'W.), 3.8 miles N of Lime Kiln Light, is the N entrance point to **Mitchell Bay**, one of a series of well-sheltered bays on the NW coast of the island. A small islet 3 feet high is in the center of the bay about 350 yards SE of the entrance. A rock about 100 yards W of the islet uncovers 6 feet. The only safe passage into the bay is N of the islet. **Snug Harbor**, a resort and yacht haven on the S side of Mitchell Bay, has about 90 berths with electricity, gasoline, water, ice, and limited marine supplies. A launching ramp is available; engine repairs can be made to small craft. **Mosquito Pass**, available only to small craft with local knowledge, leads N from Hanbury Point to **Garrison Bay, Westcott Bay**, and Roche Harbor.

(225) A large aquaculture facility, covered 3 feet and consisting of clam beds and suspended oyster racks, is in the middle of Westcott Bay about 1 mile above the entrance. Mariners should use caution in the area.

(226) **Henry Island** is close W of the N point of San Juan Island, from which it is separated by Mosquito Pass and Roche Harbor.

(227) **Kellett Bluff**, at the S end of Henry Island, is steep and rocky and prominent from either S or N. It is marked by a light. **Open Bay**, E of Kellett Bluff, offers good holding ground and protection for small boats from N and E weather.

(228) **Roche Harbor** has its main entrance between the N end of Henry Island and the W end of **Pearl Island**, which is marked by a light. Sandspits covered 17 and 18 feet extend into the channel from the islands on each side of the entrance. Entrance to the harbor can also be made from the S through Mosquito Pass between Henry Island and Bazalgette Point. The harbor has depths of 4 to 9 fathoms. It affords good anchorage and in the summer is used extensively by yachts.

(229) A large resort is on the E side of Roche Harbor. The resort operates a wharf with shed, floats with berths for about 300 craft, including 150 transient berths, a hotel, cabins, a general store, and a restaurant. Electricity, gasoline, diesel fuel, water, ice, a launching ramp, pump-out station, and marine supplies are available. A **customs office** is on the W side of the wharf. A customs officer is here full time in the summer and on call from Friday Harbor in the winter to inspect visiting Canadian yachts. The customs officer also performs **immigration** and **agricultural quarantine** inspections. Weekend and after-hours custom service can be obtained from Blaine; a toll-free phone number is posted. Roche Harbor has a paved and lighted airstrip; daily air service is available year-round to Seattle. A paved road leads to Friday Harbor.

(230) The resort here was the largest lime works W of the Mississippi for many years. A fleet of company-owned sailing ships hauled barreled lime from the works. The company had its own barrel-stave mill on the point E of Pearl Island. The present resort's hotel was built by the lime company in 1886. A ferry operated from here, and a customhouse was in the harbor. The quarry tunnels and the ruins of the old mill are still prominent.

(231) **Battleship Island**, small and 30 feet high, is about 0.2 mile WNW of McCracken Point, the N extremity of Henry Island, and is the W point in the approaches to Roche Harbor.

(232) **Danger Shoal**, with a least depth of 1 fathom, is in the fairway to Spieden Channel about midway between

Battleship Island and Spieden Bluff. A lighted horn buoy is close SW of the shoal, which is marked by kelp.

(233) A rock, marked by kelp with 1¾ fathoms over it, is about 200 yards NW of **Barren Island**, 0.7 mile E of McCracken Point; it is marked by a buoy. Another rock, marked by kelp and covered 1½ fathoms, is about 350 yards E.

(234) **Spieden Channel** leads E between Spieden Island on the N and Battleship, Henry, and San Juan Islands on the S; the channel leads from Haro Strait to President Channel and San Juan Channel. The E entrance, the narrowest part, is 0.6 mile wide, and for 2 miles W of it the channel is free of danger. However, in the W entrance, which has an irregular bottom, are several dangers, but the fairway is deep throughout. The meeting of the flood currents, which flow E from Haro Strait and W from San Juan Channel, cause heavy tide rips and eddies. This channel is not recommended for sailing craft.

(235) **Spieden Island** lies with **Spieden Bluff**, its NW end, 1.6 miles NNE of Battleship Island. The island is 2.5 miles long in an E direction with an extreme width of 0.5 mile. **Green Point**, the E end of which is marked by a light, is low and grassy. The S side of the island has few trees, but the N face is well wooded.

(236) There are several dangers SE of Spieden Bluff. **Center Reef**, which bares, is 0.7 mile S of the bluff; it is marked off its SW side by a buoy. **Sentinel Rock** and **Sentinel Island** are closer inshore; a rock midway between them is covered ¾ fathom.

Charts 18421, 18431, 18432, 18433, 18434

(237) **Stuart Island**, NW of Spieden Island, two prominent hills 640 feet high near the middle. **Turn Point**, the W extremity, is bold, steep-to, and marked by a light.

(238) **Reid Harbor** indents the SE shore of Stuart Island and trends NW about 1.5 miles. The harbor, which is landlocked and 400 yards wide, affords good anchorage in 4 to 5 fathoms, soft bottom. The State Parks and Recreation Commission maintains a small-craft pier and floats here. The harbor is free of danger, but from the E entrance point foul ground extends about halfway across the entrance. Enter in midchannel and anchor anywhere in the middle of the wider portion of the harbor. In February 1996, a visible wreck was reported at about 700 yards ENE from the harbor entrance at about 48°40'12"N., 123°11'19"W.

(239) **Prevost Harbor**, on the N shore of Stuart Island about 1.5 miles E of Turn Point, affords good shelter and anchorage. A pier used by the Coast Guard and the county is on the W shore of the harbor. Mail is delivered to the island by air. The State Parks and Recreation Commission maintains a float landing for small boats.

(240) **Satellite Island** lies within Prevost Harbor, with reefs and shoals extending off its SE extremity. Vessels should not pass E of the island. Enter in midchannel W of Satellite Island and anchor in 6 to 7 fathoms, muddy bottom, in the middle of the wider portion just within the entrance, keeping clear of a rock that uncovers 6 feet, 200 yards off the S shore.

(241) **Johns Pass**, between Stuart Island and **Johns Island** close E, is much used by fishing vessels and small boats. At the S end of the pass foul ground extends about 0.6 mile SE from Stuart Island.

(242) **Waldron Island**, 6.5 miles E of Turn Point, is steep and rocky on the E side, but flat with sandy beaches on the N and W sides. It is irregular in shape and 3 miles long. The highest point, 612 feet, is near **Point Disney**, its S end. On the N and E sides of the island is a high yellow sand bluff, terminating abruptly in **Point Hammond**.

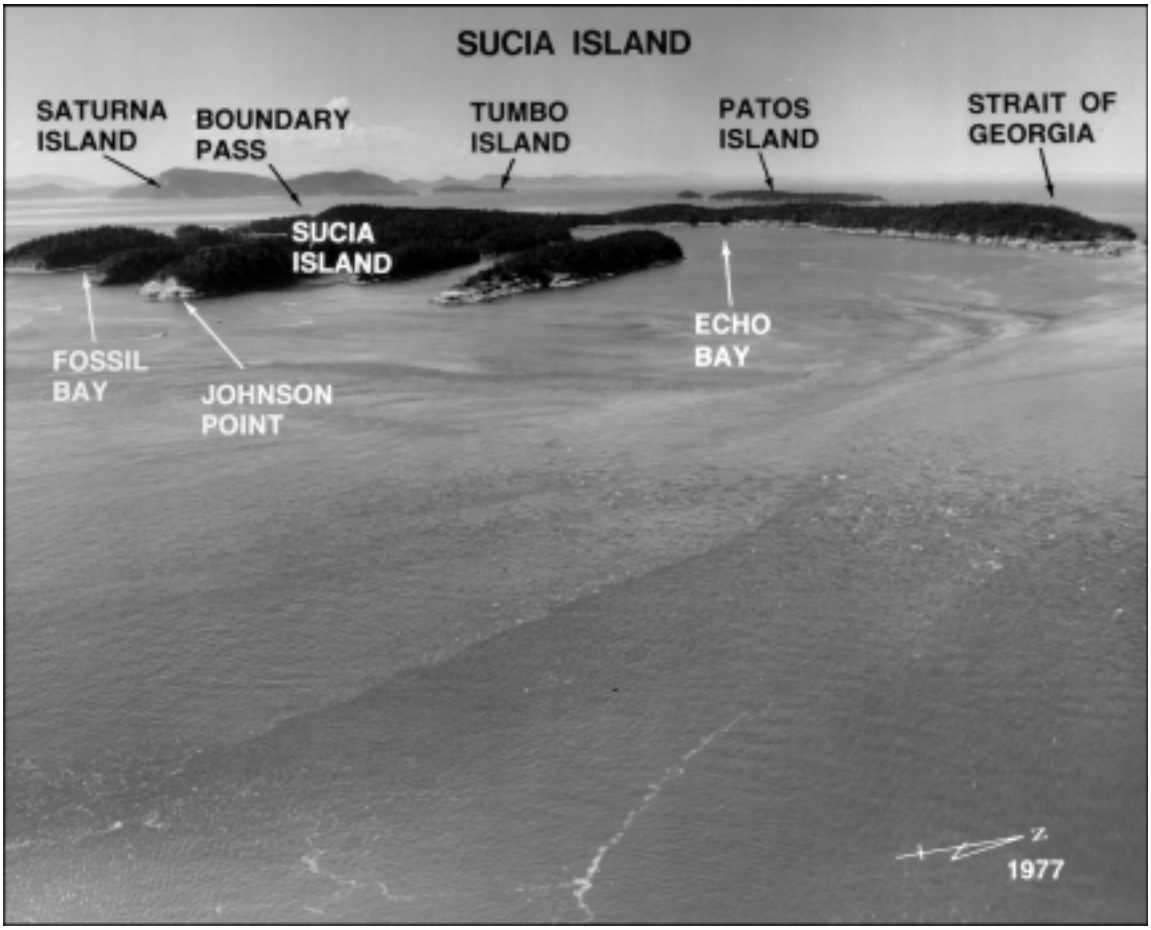
(243) **Cowlitz Bay**, which indents the SW shore of Waldron Island, is a broad, open bight affording anchorage in fair weather. Shoal water extends 0.5 mile S of **Sandy Point**, the W end of the island. **Mouatt Reef**, with a least depth of ½ fathom and marked by kelp, is 0.4 mile offshore and 0.5 mile N of Point Disney. A wharf built out to a depth of 7 feet, is on the shore NE of Mouatt Reef.

(244) **Bare Island**, small, grassy, and bare of trees, is 0.5 mile NNW of Point Hammond, and **Skipjack Island**, 120 feet high and wooded, is about 1.2 miles NW of Point Hammond. The passage between them should be avoided because of its high current velocity. A small, bare rock is off the E end of Skipjack Island, and a group of rocks awash, are about midway between it and Bare Island. A light is on the NW side of Skipjack Island.

(245) A rocky shoal with a least depth of 6 fathoms is about 2 miles NNE of Skipjack Island and is marked by an isolated danger lighted bell buoy.

(246) **Patos Island**, 4.3 miles NNE of Point Hammond, is 60 feet high and wooded except at its W end toward which it gradually decreases in height. **Active Cove**, at the SW extremity of the Island, is reported to be a good anchorage for small vessels with local knowledge. **Patos Island Light** (48°47'20"N., 122°58'17"W.), 52 feet above the water, is shown from a 38-foot white square frame tower on **Alden Point**, the W point of the island; a fog signal is at the light.

(247) **Sucia Islands**, consisting of one large and several smaller islands, are SE of Patos Island and 2.5 miles N of Orcas Island. The large island, 200 feet high and heavily wooded, is horseshoe-shaped; its W side is a series of steep, wooded cliffs. It is a state park. **Echo Bay** indents the E side of the island. In W weather small



vessels with local knowledge can find good anchorage in 4 to 5 fathoms near the head of the bay. At the head of **Fossil Bay**, on the S side of **Sucia Island**, there is a State Parks and Recreation Commission small-craft anchorage and float pier; water is available.

(248) Reefs extend about 1.5 miles W of Sucia Islands to **West Bank**, which has a minimum depth of 1¼ fathoms. It is unwise to pass between the bank and the islands.

(249) **Clements Reef**, 0.5 mile N of Sucia Islands, is about 1.2 miles long and 0.3 mile wide. The NW end and the SE end of the reef are marked by buoys.

(250) The tidal currents are particularly strong and dangerous between Patos Island and East Point on Saturna Island, B. C., and for 2 miles N in the Strait of Georgia. The passage between Patos Island and Sucia Islands is almost free of tide rips, and the tidal currents set more fairly through it and are less strong and more regular than in Boundary Pass.

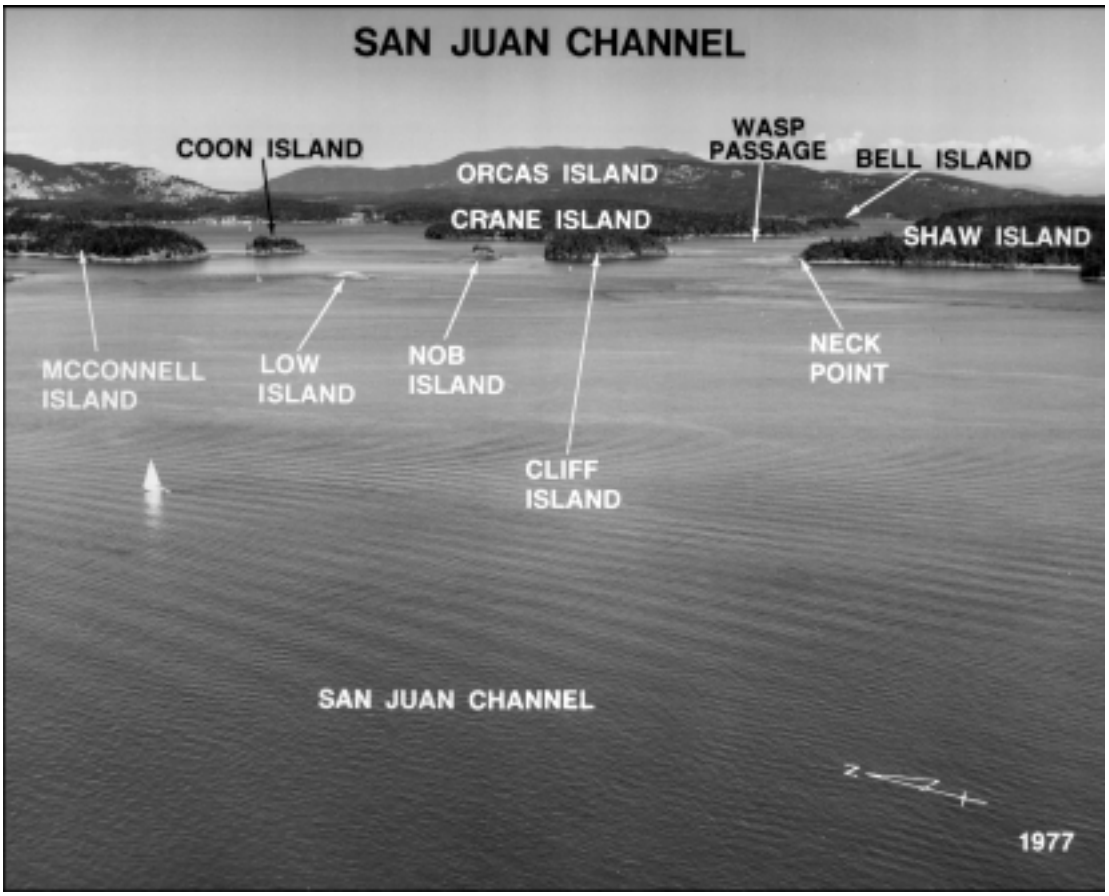
Haro Strait, SW approach (Canada)

(251) The several channels and passages leading between the islands and dangers off the coast of British Columbia from Gonzales Point to **Cadboro Point**, 2.8 miles NNE, constitute the SW approach to Haro Strait. These passages and channels should be used only by vessels with local knowledge.

(252) The side of Haro Strait W of the international line is bordered by several islands and reefs, the most important of which are, from S to N: **Kelp Reefs**, marked by a light, about 7 miles N of Discovery Island; **Sidney Island** with a radiobeacon on the NW part, about 3 miles NW of the light on Kelp Reefs; **Moresby Island**, marked by a light, about 16 miles N of Baynes Channel and Discovery Island, and the smaller islands and reefs in between.

(253) **Swanson Channel,** used sometimes as an alternate route by vessels bound for Alaska points, extends NW between Moresby Island and the **Pender Islands**, and connects ultimately with Active Pass to reach the Strait of Georgia in 48°53'N.

(254) **Active Pass** is deep but tortuous and in its narrowest part is about 600 yards wide. The dangers do not extend over 200 yards from shore. Vessels should enter the pass at slack water, if possible, but a vessel with a speed of 10 knots can always get through. A vessel with local knowledge can take advantage of the eddies and variations of the tidal currents, but others should keep in midchannel. Great care should be taken to avoid the shoals on either side of the N entrance to the pass.



(255) **Enterprise Reef**, in the S approach to Active Pass, consists of two rocky heads about 400 yards apart. The W head uncovers 3 feet, and the E head is awash. Foul ground extends between the heads and 200 yards W of the W head. A light is on the W head, and a buoy marks the E head.

(256) **South Pender Island**, 3 miles N of Stuart Island, is marked by a light on **Gowlland Point**, its SE extremity. The last of the Canadian lights in this stretch is on **East Point**, the E point of **Saturna Island**, 6.2 miles ENE of Gowlland Point.

(257) **Rosenfeld Rock**, 1.2 miles NNE of East Point, is marked by a lighted buoy. The rock is covered by 1¼ fathoms, and rocks that bare are within 900 yards of it. Close E of the rock, overfalls and dangerous tide rips are formed.

(258) (See Pub. 154, Sailing Directions (Enroute) for British Columbia, published by the National Geospatial-Intelligence Agency, and Sailing Directions, British Columbia Coast, (South Portion) Vol. 1, published by the Canadian Hydrographic Service for more details of the islands and features on the Canadian side.)

(259) **San Juan Channel**, the middle one of three principal channels leading from the Strait of Juan de Fuca to the Strait of Georgia, separates San Juan Island from the islands E. It is 13 miles long from its S end to its junction with President Channel at the N end. San Juan Channel is deep throughout and, except near its S entrance, has few off-lying dangers.

Currents

(260) In the S end of San Juan Channel, between Goose Island and Deadman Island, the average current velocity is 2.6 knots on the flood and ebb, however, maximum flood currents of 5 knots or more cause severe rips and eddies. Daily current predictions for this location may be obtained from the Tidal Current Tables.

(261) **Cattle Point**, marked by a light, is the SE extremity of San Juan Island and forms the W point at the S entrance to San Juan Channel. Cattle were once loaded here for shipment to and from Victoria.

(262) **Salmon Bank**, S of Cattle Point and on the W side of **Middle Channel**, is an extensive shoal covered 1½ to 3 fathoms; it is marked by a lighted gong buoy. Kelp grows on the rocks. **Whale Rocks**, two dark rocks about 5 feet high, are on the E side of Middle Channel 0.6 mile W of Long Island. There are 2¼-fathom spots nearby.

(263) **Long Island**, 1.5 miles NW of Iceberg Point, is the largest of a group of islands on the E side of the entrance to San Juan Channel.

(264) **Lopez Island** is the southeasternmost one of the San Juan Islands; **Lopez Hill**, 488 feet high, is near the S midsection of the island. **Iceberg Point**, 3.3 miles SE of Cattle Point, is at the W extremity of the S part of Lopez Island and is marked by a light.

(265) **Richardson** is a small settlement on the N shore of the cove N of Iceberg Point, and close N of **Charles Island**. Five fuel tanks are prominent from seaward. A wharf directly below the fuel tanks has a face 120 feet long and extends over rocks to a depth of 17 feet. Gasoline and diesel fuel may be obtained.

(266) **Mackaye Harbor**, N of Iceberg Point, has several private piers used by seafood company vessels. The harbor affords good shelter in 5 to 6 fathoms, soft mud; small craft with local knowledge can obtain excellent shelter in **Barlow Bay**, on the S side of the harbor. Vessels approaching Mackaye Harbor or Richardson should pass at least 0.3 mile S and E of the off-lying islands and islets. Local vessels, by keeping close to the N shore to avoid rocks near midchannel, use a small passage between Lopez and Charles Islands, but this should not be attempted without local knowledge. **Twin Rocks**, in midchannel of this small passage, are marked by a daybeacon.

(267) **Davis Point**, the SW end of Lopez Island, is on the E side of the S entrance to San Juan Channel. **Deadman Island** is close off the E side of the entrance, and several rocks are within 600 yards N of the island. **Goose Island**, small and low, is about 0.5 mile N of Cattle Point and close off the W side of the entrance to San Juan Channel.

(268) **Shark Reef**, awash, is over a mile N of Deadman Island and close off some white cliffs on the E side of San Juan Channel.

(269) From Goose Island N to **Pear Point**, the W side of San Juan Channel is foul with many rocks covered and awash within 0.7 mile of the shore. However, good anchorage for small vessels can be had W of **Harbor Rock**, at the S end, between the 10 and 20-fathom curves.

(270) **North Bay** is entered between Pear Point and **Dinner Island**. Gravel is barged from pits on the NW shore of the bay to Vancouver Island. **Little Island**, at the head of North Bay, is connected to the mainland by a narrow spit. Just N of Little Island, on the W side of the spit, is a park with a launching ramp. A small cannery is on Little Island, and the shores of the island have been bulkheaded. The bay affords fair anchorage in 7 to 10 fathoms, about 800 yards N of Dinner Island. Two dangers are in the approaches to the bay; a rocky shoal covered ¾ fathom 0.7 mile E of Dinner Island, and another rock shoal covered ¾ fathom 0.4 mile SE of Dinner Island. In 2005, a shoal with a depth of 7 feet was reported inside the bay in about 48°31'01"N., 123°00'08"W. The passage W of Dinner Island should not be attempted.

(271) **Fisherman Bay**, on the E side of San Juan Channel abreast North Bay, is a shallow lagoon entered by a marked, narrow, and tortuous channel. A rock awash is on the E side of the channel at the mouth of the bay. Good anchorage with shelter from all winds may be had in 10 to 12 feet, soft bottom, for small craft with local knowledge. The tidal currents have considerable velocity. **Lopez** is a small village at the entrance. A resort in the bay has a pier and floats with berths for about 45 craft. Electricity, gasoline, water, ice, restaurant, and overnight facilities are available. A marina is adjacent to the resort; water, electricity, marine supplies, and a 15-ton lift is available.

Charts 18433, 18434

(272) At **Turn Island**, off the E side of San Juan Island, San Juan Channel turns NW for about 7.5 miles and connects at its N end with Spieden Channel and President Channel.

(273) **Turn Rock**, about 0.2 mile E of Turn Island, is a ledge bare at half tide; it should be given a berth of at least 100 yards. A light is on the rock. **Reid Rock**, 1.4 miles NW of Turn Rock, is in midchannel off the entrance to Friday Harbor. The rock, covered 2¼ fathoms, rises abruptly from deep water. It is marked by a lighted bell buoy.

(274) **Friday Harbor**, 1.4 miles W of Turn Island, is a small cove about 1 mile long and nearly as wide. **Brown Island**, locally known as Friday Island because of the housing development here, occupies the middle of the harbor, with shoals nearly 200 yards wide off both its E and S shores. A shoal, covered 3¼ fathoms and marked by a buoy, extends nearly into midchannel from the W shore of the island. Shoals off the SE end of the island are marked by a daybeacon. The harbor may be entered either E or W of Brown Island. Anchorage may be had off the wharves in 6 to 7 fathoms, and city floats provide berthing space for pleasure craft.

(275) **Friday Harbor**, the town on the W shore of the cove, is the county seat and the population center of San Juan Island, which has some farming and cattle and sheep raising. It is headquarters for the gill net fishing fleet operating through the W part of the islands.

(276) The University of Washington maintains a marine biological laboratory 0.4 mile NNW of the N end of Brown Island. The E pier, a high structure cantilevered about 35 feet out from shore, makes a prominent landmark in entering Friday Harbor. Near the main building is the landing wharf with a 32-foot face and depths of 11 to 13 feet alongside. The wharf is exposed to winds from the NE, but is easily approached. It is marked by private lights.

(277) Friday Harbor is a **customs port of entry**. The customs office is about 75 yards W of the port's office, at the yacht club building. The customs officer also performs **immigration** and **agricultural quarantine** inspections.

(278) The Interisland Medical Center at Friday Harbor is the only complete medical facility in the San Juan Islands. In addition, Orcas and Lopez Islands have small clinics with resident physicians and paramedics. Air ambulance service to Seattle, Anacortes, or Bellingham is available on all the larger islands.

(279) The Port of Friday Harbor small-craft harbor, protected on the S and E sides by a long floating breakwater is marked at the N end by a light. Berths with electricity for over 475 craft are available. At least 150 of this total capacity is used for transient berthing. Water and pump-out station are available. **Note:** Vessels should not anchor within 100 yards of the floating breakwater because of the danger of fouling with the breakwater's anchor cables. A seaplane float is near the customs float at the port's small-craft harbor. There are three amber strobe signal lights in the harbor. They are located at the NE end of the Port of Friday Harbor Docks, on the University of Washington Laboratory shore, and at the NW end of Brown Island, respectively. It is reported that when activated, these strobe lights signal the takeoff or landing of seaplanes in the harbor. Water, ice, and some marine supplies are available at Friday Harbor. SE of the Port of Friday Harbor are a charter dock and ferry slip. SE of the ferry slip are condominiums with private docks.

(280) A shipyard is at the S end of Friday Harbor. A 35-ton lift is available; complete hull and engine repairs can be made.

(281) Freight and passengers reach Friday Harbor by airplane or by State ferry. The town has an airport with surfaced and lighted runways; twin-engine aircraft can be accommodated. Mail is transported by air.

(282) **Point George**, the W point at the entrance to **Parks Bay**, is across the channel from Friday Harbor. Good anchorage for small craft in 6 to 8 fathoms, soft bottom, can be had in this bay. The head of the bay, however, is foul.

(283) **Wasp Islands** are in the W approach to West Sound between **Neck Point**, the NW tip of Shaw Island, and **Steep Point**, the SW extremity of Orcas Island. Several narrow channels lead between the islands; the channels in general use are the North and Pole Passes, close under the Orcas Island shore. The tidal currents have considerable velocity in the channels, which should be attempted only by vessels with local knowledge.

(284) **North Pass**, between Steep Point on Orcas Island and the Wasp Islands, leads E from San Juan Channel to Deer Harbor and into Pole Pass. The pass is about 0.2 mile wide between Steep Point and **Reef Island**, and is free of outlying dangers, except for a rock covered by 1¾ fathoms 0.3 mile E of the N end of Reef Island.

(285) **Deer Harbor**, E of Steep Point, has good anchorage in 6 to 7 fathoms about 0.2 mile from the head. **Fawn Island** is near the entrance of the harbor and about 200 yards from the W shore; vessels may pass on either side. The E shore of Deer Harbor should be given a berth of at least 300 yards because of a shoal which in some places extends more than 200 yards off.

(286) **Deer Harbor**, on the E side of the harbor, is a village with stores, a marina, and an inn. Pleasure boats call here frequently in the summer. About 60 transient berths, electricity, gasoline, diesel fuel, water, ice, pump-out facility, and a 2-ton lift are available at the harbar.

(287) A private light is on the end of a pier about 0.8 mile SSE of the town of Deer Harbor.

(288) **Crane Island** is off the entrance to Deer Harbor and about 1 mile SE of Steep Point. The N shore of the island is foul with bare and covered rocks within 250 yards of it. A shoal covered ½ fathom is 350 yards N of the center of the N side of the island, and a rock that uncovers 5 feet is 200 yards off the E point, with foul ground between it and the shore.

(289) **Pole Pass** leads from North Pass to West Sound and separates Crane Island from Orcas Island; the fairway is 75 yards wide in its narrowest part. Pole Pass should not be attempted without local knowledge. A light is on the NE side of the pass at its narrowest part.

(290) **Wasp Passage** leads from San Juan Channel to West Sound and separates Crane Island from the N shore of Shaw Island. A light is on the rock 300 yards E of Bell Island at the E end of the pass, and on Cliff Island and **Shirt Tail Reef**, at the W end of the pass.

(291) **Bell Island**,.small and wooded, is about 0.3 mile E of Crane Island. Vessels using Pole pass Bell Island close-to in order to avoid reefs and shoals extending from the Orcas Island shore.

(292) **Cliff Island**, the southernmost of the Wasp Islands, is 0.4 mile SW of Crane Island, and is marked by a light on its S side. **Low Island**, small and 10 feet high, is about 700 yards W of Cliff Island, and **Nob Island**, 40 feet high, is close-to and NW of Cliff Island. Local vessels bound from Friday Harbor to Deer Harbor use a clear deep channel about 70 yards wide through the rocks and shoals lying between Cliff Island and Low Island.

(293) **Yellow Island**, the westernmost of the Wasp Islands, is about 0.8 mile WNW of Neck Point and about 3.5 miles NNW of Friday Harbor. The island is small, grassy, and nearly bare of trees. A shoal extends 300 yards W of the island and terminates in a rock that uncovers 3 feet and is marked by kelp. This island should be given a berth of not less than 0.5 mile. **McConnell**

Island, NE of Yellow Island, is the largest of the group. **Coon Island**, is close to and SE of McConnell Island. **Bird Rock**, which uncovers, is between McConnell and Crane Islands, and is marked by a light.

(294) **Jones Island**, 2 miles N of Wasp Passage, is on the E side of the N entrance to San Juan Channel; the island is wooded. Small pleasure craft anchor in the bights in the N and S shores. A State marine park in the bight in the N shore has mooring facilities; limited water is available.

(295) **Spring Passage** separates Jones Island from the SW part of Orcas Island. A daybeacon with the words "Danger-Rocks" is on the NW side of the passage near Jones Island. In general, the passage is free of danger.

(296) **Rocky Bay** is an open bight in the E side of San Juan Island. **O'Neal Island**, surrounded by a shoal, is almost in the middle of the bay.

(297) **Limestone Point**, about 1.2 miles NNW of O'Neal Island forms the W point of the N entrance to San Juan Channel, and is the NE portion of San Juan Island. Heavy tide rips and eddies form off Limestone Point and Green Point on Spieden Island, 0.7 mile N.

(298) **Lonesome Cove**, 0.2 mile W of Limestone Point, has a resort with cabins. Limited berthage and gasoline are available.

(299) **Flattop Island**, prominent in the N approaches to San Juan Channel, is 1 mile NE of the E end of Spieden Island. It is about 174 feet high, flat on top, and sparsely covered with underbrush and trees. **Gull Rock**, 33 feet high and bare, is about 0.3 mile NW of the NW shore of the island.

Charts 18421, 18431, 18432

(300) **White Rock**, 35 feet high, is about 2.7 miles N of the junction of Spieden and San Juan Channels and about midway between Flattop and Waldron Islands. Rocks, bare and covered, marked by kelp, extend nearly 0.3 miles NW from White Rock. **Danger Rock**, covered 3 feet and marked by kelp, is 0.3 mile SE of White Rock.

(301) The NW approach to San Juan Channel from Boundary Pass extends between Waldron Island on the E and Stuart Island and its dangers on the W.

(302) **President Channel**, between Waldron and Orcas Islands, is about 5 miles long. Depths are generally great, and the passage is free of dangers. The tidal currents have a velocity of 2 to 5 knots, and heavy swirls and tide rips, especially with an adverse wind, are off the N point of Waldron Island and between Waldron and Patos Islands. The rips are generally heaviest with the ebb current. Rips and swirls are also heavy off Limestone Point and the E end of Spieden Island.

(303) **Orcas Island** is wooded and mountainous. **Mount Constitution**, a 2,454-foot peak on the island's E side, is marked by a stone lookout tower and a lighted radio tower. **Turtleback Mountain (Turtle Back Range)** and **Orcas Knob**, conical, and bare on the summit, in the W part of the island, are prominent and easily recognized.

(304) **Point Doughty**, the NW tip of Orcas Island, is bare and terminates in a small knob on its outer end. A resort in the bight, 1.5 miles SSW of Point Doughty, has floats with about 40 berths, gasoline, water, ice, a concrete launching ramp, and some marine supplies. In 1973, a depth of 4 feet was reported at the floats.

Local magnetic disturbances

(305) Differences from the normal variation of 2° or more have been observed in the vicinity of Point Doughty.

(306) **Parker Reef,** marked by a light, is about 0.7 mile off the N shore of Orcas Island and uncovers. The rocky reef extends about 110 yards in all directions from the light, except on the E side, where it extends about 160 yards from the light. Kelp covers the reef and the area between it and the shore. There are several shoal spots of 1¾ to 2¾ fathoms in the area within the 10-fathom curve SSW and W of Parker Reef.

(307) A passage between Sucia Islands on the N and Orcas Island on the S connects the N end of President Channel with the junction of the Strait of Georgia and Rosario Strait.

Chart 18434

Minor passages, San Juan Islands

(308) **Upright Channel**, between Lopez Island and Shaw Island, is about 3 miles long. **Canoe Island**, off **Flat Point**,.constricts the passage to a width of less than 400 yards. Flat Point is marked by a light. General depths in the channel range from 20 to 25 fathoms. A shoal, covered 7½ fathoms, is 700 yards SSW, and a rock awash is 250 yards SW of the SW end of Canoe Island. Anchorages for small craft may be had in **Indian Cove**, W of Canoe Island, in 4 to 7 fathoms, soft bottom.

(309) **Harney Channel**, between Shaw and Orcas Islands, is the approach to West Sound from the E. General depths in the channel range from 11 to 30 fathoms with a 9-fathom shoal 700 yards E of Broken Point, the northernmost extremity of Shaw Island.

(310) **Orcas**, the settlement on the N shore in a cove at the W end of Harney Channel, is a summer resort. Several stores are at the settlement. An oil company distributor has a wharf with about 9 feet at its face; gasoline and diesel fuel are available. Five white tanks

are near the back of the wharf. Water, ice, and some marine supplies are available. The ferry slip just E of the wharf serves the interisland ferry that operates from Anacortes. A rock, covered 2½ fathoms, is about 125 yards S of the wharf; deep water is between the rock and the shore.

(311) **Blind Bay**, a small cove indenting Shaw Island just opposite Orcas, is shoal and in it there are several reefs. **Blind Island** is in the entrance. A private daybeacon marks a rock that uncovers 3 feet on the E side of the entrance. **Shaw Island**, a village at the E entrance, is served by the ferry. **Broken Point**, 1.6 miles W of the Shaw Island landing, projects some 0.3 mile N from the N side of the island. It is quite prominent.

(312) **West Sound** indents the W part of the S shore of Orcas Island for about 2.8 miles. **Massacre Bay** is in the N part. The depths range from 7 to 20 fathoms. Anchorage in 7 to 12 fathoms may be had anywhere N of **Double Island**. which consists of two small islands connected at low water; it is close to the W shore near the entrance.

(313) **West Sound**, a settlement on the E shore about 2 miles inside the entrance, has a wharf with 10 feet off its end. Only a few piling remain of an old sawmill wharf. Care should be taken when leaving the wharf to avoid some submerged piling about 100 feet SW of it. Gasoline, diesel fuel, water, a pump-out station, 30-ton travel lift and marine supplies are available at West Sound.

(314) **Picnic Island**, is a low islet in the S part of the cove, close S from West Sound settlement. A shoal extends about 150 yards W from the island. In the bight E of the island is a marina with berths for about 80 small craft. An 11-ton hoist here can handle craft to 36 feet for hull and engine repairs. Marine supplies and a salvage and retrieval tug are available. In 1969, a channel with a depth of 1½ feet was reported to exist between Picnic Island and Orcas Island; local knowledge is advised.

(315) **Harbor Rock**, 4 feet high, lies in midchannel about 1.9 miles above the entrance to the sound; it is just inside Massacre Bay. The rocky patch marked by a daybeacon, is of small extent and is surrounded by depths of 1¾ to 10 fathoms.

Charts 18421, 18429, 18430

(316) **East Sound** indents Orcas Island NNW for about 6 miles. Depths vary from 15 fathoms at the entrance to 9 fathoms less than 0.2 mile from the head. There are no outlying dangers, and the shores may be approached to within 0.2 mile; however, a shoal covered less than 5 fathoms extends some 700 yards off the W shore, 0.8 mile inside the entrance. Anchorage may be had anywhere in the sound.

Local magnetic disturbance

(317) Differences from the normal variation of about 2° have been reported in the upper end of East Sound.

(318) **Olga** is a summer resort on the W shore of **Buck Bay**, a small cove on the E shore of the sound just inside the entrance.

(319) **Cascade Bay**, a small cove on the E side of the sound, about 3 miles N of the entrance, is the site of a large resort with floats having berths with electricity for about 60 craft. Gasoline, diesel fuel, water, ice, and a restaurant are available. Depths of 15 feet are reported alongside the floats. The large white resort hotel on **Rosario Point,** the W point of the bay, is conspicuous.

(320) **Eastsound**, a summer resort in the W of two small adjoining coves at the head of the sound, is the second largest village in the islands. The wharf is built out to a depth of 7½ feet; gasoline and water are available. A medical clinic is at Eastsound; air ambulance service to Anacortes, Bellingham, or Seattle is available.

(321) **Obstruction Pass**, with a least width of 350 yards, separates **Obstruction Island** from Orcas Island, and leads W from Rosario Strait to the inner passages and sounds of the San Juan Islands. A launching ramp and float are on the N side of the pass about 0.6 mile NW of Deer Point; depths alongside the float are about 4 feet. Caution is advised because of the numerous private pilings and moorings in the area. Obstruction Pass is marked by lights on the N side of Obstruction Island.

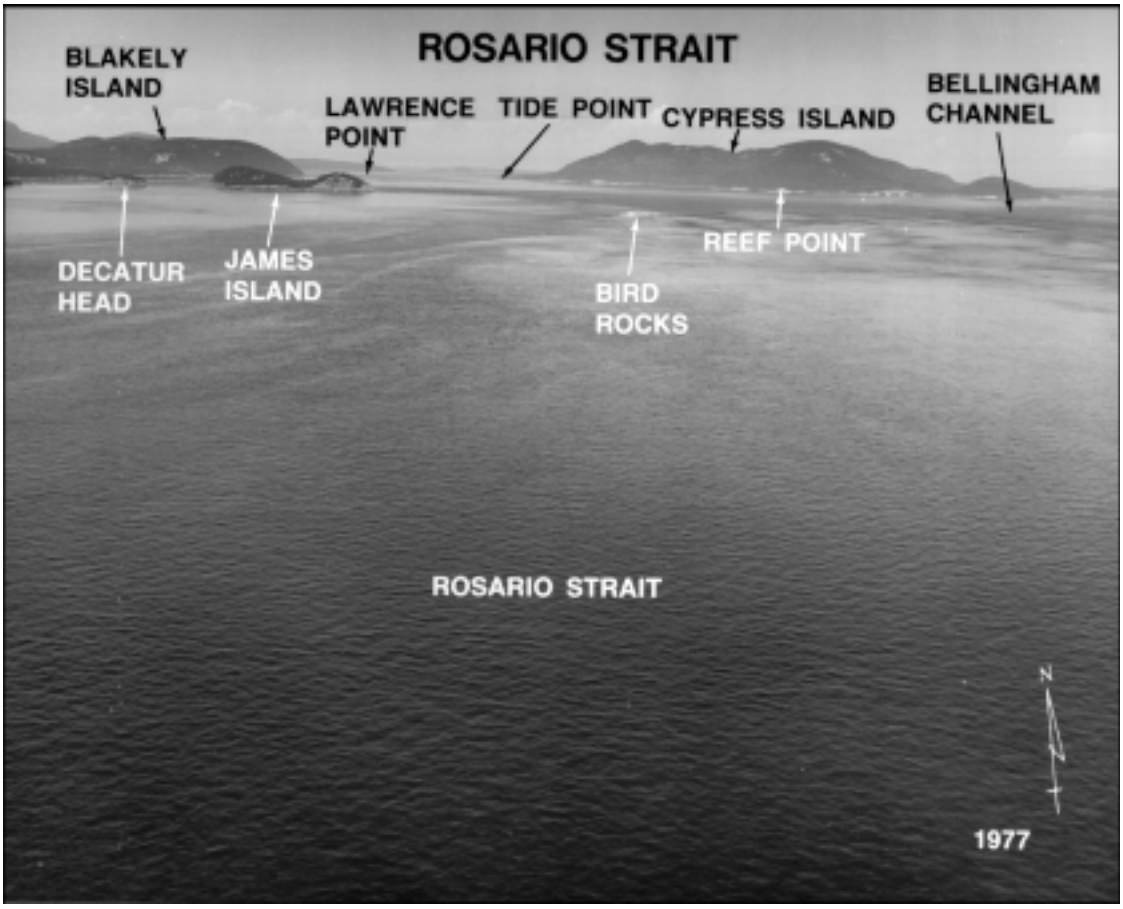
(322) **Peavine Pass**, safer and straighter than Obstruction Pass, separates Blakely Island from Obstruction Island. The pass is a little over 200 yards wide at its narrowest part, and in midchannel the least depth is 6 fathoms. Peavine Pass Light 1, on the SW point of Obstruction Island, marks the W entrance to the pass. A group of bare rocks, marked by a daybeacon, lie about 0.2 mile offshore from Blakely Island at the E entrance to Peavine Pass.

Currents

(323) The currents through Obstruction and Peavine Passes have estimated velocities of 5.5 to 6.5 knots at times. Heavy tide rips occur E of Obstruction Island.

(324) **Blakely Island Shoal**, rocky and covered 1¾ fathoms, is 0.5 mile off the W side of Blakely Island and is marked on its S side by a lighted buoy. The passage between the shoal and Blakely Island is deep and clear.

(325) **Blakely Island**, E of Lopez and Shaw Islands, is privately owned and maintained but open to the public. At its N end, bordering on Peavine Pass, is a small-craft



basin and channel. About 65 berths are at the cove dock and inside the basin. An airplane landing strip and lodging are nearby. Gasoline, diesel fuel, water, ice, and some marine supplies are available.

(326) **Thatcher Pass**, between Blakely Island and **Decatur Island**, is about 0.5 mile wide in its narrowest part. The pass is deep and free of danger, except for **Lawson Rock**, marked by a daybeacon in the center and a lighted buoy on the E side, in midchannel 700 yards N of Fauntleroy Point. The S point of Blakely Island is marked by a light.

(327) **Fauntleroy Point**, the NE end of Decatur Island, is marked by a light. With a S wind and ebb current, heavy rips will be encountered off the E entrance to Thatcher Pass.

(328) **Leo Reef**, in the entrance to **Swifts Bay** on the NE end of Lopez Island, uncovers and is marked by a light.

(329) In 1981, a rock covered 3 feet was reported about 350 yards WNW of Leo Reef Light. **Port Stanley** is a small village on the shores of Swifts Bay.

(330) **Upright Head**, the northernmost point of Lopez Island, is a narrow peninsula that attains an elevation of 260 feet. A ferry slip is in the small cove at the tip of this peninsula. A private light is 50 yards out from the slip. There is daily ferry service with the other islands and the mainland.

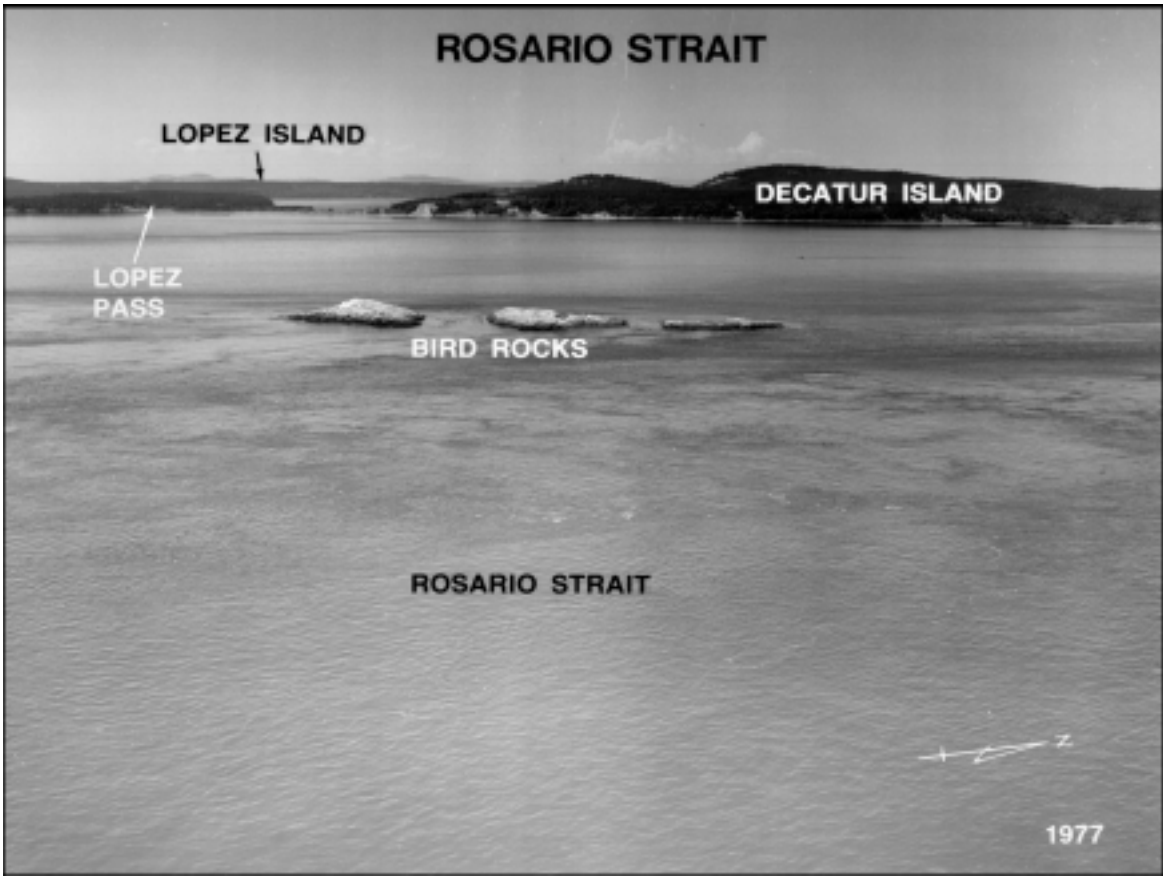
(331) **Lopez Sound**, on the E side of Lopez Island, may be entered from Rosario Strait by Thatcher Pass. The depths in the greater part of the sound are 3 to 5 fathoms, muddy bottom, but a narrow and deeper channel is along the E shore.

(332) Fair protection in SE weather can be had in the area W of Decatur Island and N of **Center Island** in 3 to 5 fathoms, mud bottom. Strong winds blow across the low neck at the S end of Decatur Island and may make the area W uncomfortable for small craft. Good anchorage in W weather can be had in the large bight on the W side of the sound.

(333) **Decatur** is a small village on the W side of Decatur Island. A wharf with depths of 8 feet at its end is here.

(334) **Lopez Pass**, S of Decatur Island, leads from Rosario Strait into Lopez Sound. The pass has depths of 9 to 12 fathoms, but is very narrow and little used. A light is at the S end of Decatur Island.

(335) **Rosario Strait**, the easternmost of the three main channels leading from the Strait of Juan de Fuca to the Strait of Georgia, is 20 miles long and from 1.5 to 5 miles wide. The water is deep, and the most important dangers are marked. A bank with a least depth of 7 fathoms is located 0.3 mile E of Orcas Island and one mile WSW of Strawberry Island at about 48°33'19.4"N., 122°45'39.6"W.



(336) The strait is in constant use by vessels bound to Bellingham, Anacortes, and the San Juan Islands. Vessels bound for British Columbia or Alaska also frequently use it in preference to the passages farther W, when greater advantage can be taken of the tidal currents.

(337) A **Vessel Traffic Service** has been established in the Strait of Juan de Fuca, E of Port Angeles, and in the adjacent waters. (See **161.101 through 161.187**, chapter 2, for regulations, and the beginning of this chapter for additional information.)

Tides and Currents

(338) For times and velocities of current in Rosario Strait and vicinity, the Tidal Current Tables should be consulted. The currents in Lopez, Thatcher, and Obstruction Passes are reported to attain velocities of 3 to 7 knots. This should be kept in mind when proceeding through Rosario Strait, particularly at night or in thick weather. On the ebb of a large tide off the entrance to the passes, a S wind causes tide rips that are dangerous to small craft.

(339) Small craft can get good protection from W and S weather by anchoring near the head of **Watmough Bay**, at the extreme SE end of Lopez Island.

(340) **Colville Island**, 64 feet high, small and bare of trees, is off the SE end of Lopez Island. Heavy kelp extends W of Colville Island. **Davidson Rock**, 0.3 mile E of Colville Island, bares and is marked by a light. Mariners should give Colville Island and Davidson Rock a good berth. The southbound lane of the Traffic Separation Scheme is close S and E of Davidson Rock.

(341) **Aleck Bay**, the W and largest of three small bays on the S shore of Lopez Island, affords good anchorage except in heavy SE winds for small vessels in 4 to 7 fathoms, mud bottom. Rocks, awash and covered, and reefs abound in these waters, and caution is essential.

(342) A bank covered 10 to 20 fathoms extends across the S entrance to Rosario Strait. A shoal in the W part of the bank, 1.6 miles E of Davidson Rock, is covered 4 fathoms and marked by a lighted bell buoy. **Lawson Reef**, 0.6 by 0.3 mile in extent, in the E part of the bank, is 1.7 miles W of Deception Island. The reef has a least depth of 2.2 fathoms and is marked by a lighted bell buoy.

Charts 18427, 18429, 18421

(343) **Deception Pass**, the impressive 2-mile passage between Whidbey Island and **Fidalgo Island**, provides a

challenging route that connects the N end of Skagit Bay with the S end of Rosario Strait. Near its middle the width is reduced to 150 yards by **Pass Island**. A fixed highway bridge over the pass between Pass Island and Whidbey Island has a clearance of 144 feet at the center and 104 feet elsewhere. Overhead telephone and power cables 50 yards and 0.2 mile E of the bridge have a minimum clearance of 220 feet.

(344) Deception Pass is used frequently by local boats bound from Seattle to Anacortes, Bellingham, and the San Juan Islands. The pass should be negotiated at the time of slack, since the velocity of the stream at other times makes it prohibitive to some craft. However, many fast boats run it at all stages of the tide. The pass is also used by log tows from the N bound to Everett or Seattle, which prefer this route to avoid the rough weather W of Whidbey Island.

(345) Currents in the narrows of Deception Pass attain velocities in excess of 8 knots at times and cause strong eddies along the shores. With W weather, heavy swells and tide rips form and make passage dangerous to all small craft. (See the Tidal Current Tables for daily predictions.)

(346) **Canoe Pass**, N of Pass Island, is not recommended except for small craft with local knowledge.

(347) **Deception Island**, 1 mile W of Pass Island, is 0.4 mile NW of **West Point**, the NW end of Whidbey Island. A shoal which bares at low water extends 175 yards (160 meters) S of Deception Island. Foul ground extends 262 yards (240 meters) NW of West Point. The passage between these two hazards is 200 yards (183 meters) wide with a least depth of 2.5 fathoms and great care should be taken when navigating in this area. **Northwest Pass**, N of Deception Island, is the preferred route. The Northwest Pass channel is deeper, but narrows and follows close to **Lighthouse Point**.

(348) **Strawberry Island** lies almost in the middle of Deception Pass, 0.4 mile E of Pass Island. **Ben Ure Island** is 0.2 mile S of Strawberry Island at the entrance to Cornet Bay; a light is at the NE end of the island.

(349) **Cornet Bay**, shallow and suitable for small craft only, indents the N end of Whidbey Island, in Deception Pass. A marina with a privately dredged entrance channel and mooring basin is in the bay; the channel is marked by private daybeacons. The marina has about 85 open and covered berths at the floats, and electricity, water, ice, and marine supplies are available. Two marine service and repair facilities are W of the marina. A public small-craft facility with berthing and a launching ramp is E of the marina.

Routes

(350) From W the best water through Deception Pass will be found 0.3 mile W of **Rosario Head**, a point 0.5 mile N of Deception Island. Steer a SE course to pass about 100 yards SW of the light on Lighthouse Point; then follow an E course through the middle of the pass, being careful to guard against sets from the current when running partly across it. After passing under the bridge, favor slightly the N shore so as to avoid the pinnacle rocks and ledges making out from the S shore. After leaving Pass Island, steer to pass about midway between Ben Ure and Strawberry Islands. Strawberry Island should not be approached within 125 yards because a reef, marked by kelp, extends S of the island. From a position off Ben Ure Island Light 2, steer a NE course to pass about midway between **Hoypus Point** and **Yokeko Point**. The flood current N and W of Strawberry Island sets NE and should be guarded against.

(351) **Bowman (Reservation) Bay**, a small bight between **Reservation Head** and Rosario Head, offers anchorage for small craft in 2¼ fathoms, mud bottom. **Northwest Island** between Rosario Head and Sares Head, is 28 feet high and grass-covered. **Sares Head**, 1 mile N of Deception Island, is steep-to and 480 feet high.

(352) **Burrows Bay** indents the W shore of Fidalgo Island between **Biz Point** and **Fidalgo Head**. Burrows Bay is a broad open bight affording anchorage in the N part, in 15 to 16 fathoms, soft bottom. Protection from W and N is afforded by **Burrows Island** and **Allan Island**, but the bay is exposed to S weather. In the SE part, the depths are less than 6 fathoms, and in places shoals extend almost 0.4 mile off the E and S shores of the bay. E of the passage between Allan and Burrows Islands is a middle ground with a least depth of 5 fathoms. Small craft using Deception Pass, bound to or from points in the islands or from Bellingham Bay, pass through Burrows Bay and the passage N of Burrows Island.

(353) **Burrows Island Light** (48°28'41"N., 122°42'49"W.), 57 feet above the water, is shown from a 34-foot white square tower on a building at the W end of the island; a fog signal is at the station.

Local magnetic disturbance

(354) Differences from normal variation of 4° have been observed on the E shore of Burrows Bay.

(355) **Williamson Rocks**, a group of small, grass-covered islets and rocks, are 0.5 mile S of Allan Island and are marked on the S side by a lighted gong buoy. **Dennis Shoal**, 500 yards off the S shore of Allan Island and 0.6 mile NW of Williamson Rocks, bares and is marked on its W side by a buoy.

(356) **Flounder Bay**, a well-sheltered basin and popular yachting harbor at the N end of Burrows Bay, is the site of a large marina. The entrance channel is protected by jetties and marked by private lights. The E side of the

entrance to the marina is subject to shoaling. The W side of the entrance had reported depths of 8 to 14 feet in 1997. In 2002, it was reported that lesser depths may exist in the W side of the entrance to the marina; local knowledge is encouraged prior to entering the channel. Gasoline, diesel fuel, water, ice, about 250 berths with electricity, transient berths, dry storage facilities, two 1½-ton hoists, a 24-ton lift, and marine supplies are available at the marina. Hull, engine, and electronic repairs can be made. A private company located at the W end of the marina provides heavy transport service to the islands. A road connects the bay with a highway, providing access to the State ferry terminal in Ship Harbor, the Anacortes airport, and the city of Anacortes.

Charts 18421, 18424, 18429, 18430, 18431

(357) **Bird Rocks**, consisting of three rocks close together, are near the middle of Rosario Strait, about 2 miles WNW of Burrows Island Light. The southernmost and largest is 37 feet high. There is deep water close-to, and passage may be made on either side of the rocks.

(358) **Belle Rock**, bare at extreme low water and marked by a light, is about 0.5 mile NE of Bird Rocks. Belle Rock can be passed about 0.6 mile to the E by keeping **Tide Point**, the W extremity of Cypress Island, and **Lawrence Point**, the E end of Orcas Island, in range on a bearing of about 359°.

(359) Rosario Strait is generally clear, with great depths, except for the following principal offshore dangers:

(360) **Kellett Ledge**, 2 miles N of Point Colville, extends 700 yards off **Cape St. Mary**, on the SE part of Lopez Island. The ledge is marked by kelp and a buoy, and uncovers at the lowest tides. In March 2000, two shoal spots were reported E of the ledge. The first shoal was about 550 yards E in about 48°26'58"N., 122°47'13"W. with a depth of about 7 fathoms. The second shoal about 700 yards E in about 48°26'57"N., 122°47'05"W. with a depth of about 8 fathoms.

(361) **James Island** is close off **Decatur Head,** the E end of Decatur Island, and between the two is a deep but narrow passage; on the island are two hills with heights of 260 and 219 feet.

(362) **Pointer Island**, 16 feet high, is 0.3 mile off the SE shore of Blakely Island, and **Black Rock**, 4 feet high and marked by a light, is 0.5 mile off the E shore of the island.

(363) **Cypress Island**, 1,530 feet high, steep on the lower slopes and gently rounding at the top, is on the E side of Rosario Strait and opposite Blakely Island. From S the island appears to lie in the middle of Rosario Strait.

(364) A shoal extends about 0.4 mile S from **Reef Point**, the SW tip of Cypress Island. A lighted buoy is about 0.7 mile S of Reef Point. Vessels rounding the point should not attempt to pass between the buoy and the point as submerged piles and heavy kelp may exist in that area.

(365) **Strawberry Island**, small, low, and wooded, is about 400 yards off the W shore of Cypress Island. Passage E of it is not recommended. An indifferent anchorage may be had in **Strawberry Bay** in 7 fathoms; it is seldom used.

(366) **Lydia Shoal**, a patch covered 3¾ fathoms and marked on its S side by a lighted gong buoy, is 1 mile E of Obstruction Pass Light. **Peapod Rocks**, marked by a light on the largest rock of the group at the N end, are 1 mile S of Lawrence Point on Orcas Island. This group of islands extends about 1 mile in a NE direction, some 0.5 mile from the Orcas Island shore, which is fringed with rocks and reefs.

(367) **Buckeye Shoal**, with a least depth of 3½ fathoms, is 1.2 miles SSE from **North Peapod**, and is marked by a lighted bell buoy. Between this and the N end of Cypress Island are **Cypress Reef**, a dangerous rocky patch marked by a daybeacon, and **Towhead Island**, 0.3 mile to the SE and about 400 yards N of the N end of Cypress Island. The passage between the two is used by local vessels, especially those plying between Obstruction Pass and Bellingham Bay.

(368) **Doe Bay** indents the SE shore of Orcas Island abreast Peapod Rocks. **Doe Bay (Doebay)**, a village on the bay, has a wharf with 12 feet at its end; during strong S winds the wharf should not be approached. Doe Island, 0.6 mile SSW of Doe Bay, is a State park.

(369) **Sinclair Island**, N of Cypress Island, is wooded and comparatively low in places; dangerous reefs extend 0.8 mile off the N shore. Portions of **Boulder Reef**, the outermost danger, uncover at half tide; kelp marking the reef is frequently drawn under by the current. The outer end of the reef is marked by a lighted bell buoy. **Urban**, a village at the SW end of the island, has a pier with depths of 12 feet at the end.

(370) **Lummi Island**, wooded and about 8 miles long, forms the E side of the N end of Rosario Strait, opposite Orcas Island. The N part is low, but in the S part **Lummi Peak** attains an elevation of over 1,600 feet.

(371) **Lummi Rocks** are off the SW shore of Lummi Island about 3 miles NW of **Carter Point**, the S tip. They are marked by a light.

(372) Shoals extend over 0.5 mile from **Point Migley**, the NW extremity of Lummi Island; the NW edge of the shoals is marked by a lighted buoy. **Village Point** on the NW side of Lummi Island is marked by a light. **Legoe Bay** is an open bight SE of Village Point.

(373) **Clark Island** and **Barnes Island**, and the several adjacent rocks and islets, lie almost in the middle of

Rosario Strait, about 2.5 miles NNW of Lawrence Point on Orcas Island. These islands may be passed on either side, giving them a berth of 0.5 mile.

(374) **Matia Island**, a wildlife refuge about 4 miles W of Point Migley, is 120 feet high and wooded. The mooring float of a State marine park is in the small cove on the NW side of the island; water is available. **Puffin Island**, 40 feet high, is about 0.2 mile E of Matia Island. A reef, marked at its SE extremity by a light, extends E from the SE end of Matia Island to a point about 0.2 E of Puffin Island. Mariners should not attempt to pass between the islands.

(375) **Alden Bank**, 3 miles N of Matia Island, within the 10-fathom curve is about 3 miles long in a SE direction. The shoalest part, on which are patches of 2¾ and 3 fathoms, covering a considerable area, is near the SE part of the bank. The bank is marked by a lighted gong buoy off its NW end, a lighted bell buoy off its SE end, and by a buoy on its E edge.

Chart 18427

(376) **Skagit Bay**, N part, between the N part of Whidbey Island and the mainland, is entered from the N through Deception Pass and from the S through Saratoga Passage. Skagit River, described in chapter 13, empties into the SE part of the bay.

(377) The greater portion of Skagit Bay is filled with flats, bare at low water. Shoals extend 100 to 300 yards off the Whidbey Island shore.

(378) Along the shore of Whidbey Island, between it and the edge of the flats, is a natural channel varying in width from 0.2 to 0.5 mile, except at Hope Island, where it narrows to 150 yards. The channel is marked with lights and buoys from Deception Pass to the N entrance of Saratoga Passage. The main channel from Deception Pass S through Skagit Bay has depths of 6 fathoms or more.

(379) Velocity and direction of the current vary throughout this channel. The flood current enters through Deception Pass and sets in a generally S direction. The ebb flows in a general N direction. SW of Hope Island, the velocity is 2.3 knots on the flood and 2.0 knots on the ebb. S of Goat Island the velocity is 1.8 knots on the flood and 1.4 knots on the ebb. N of Rocky Point the velocity is 0.6 knot on the flood and 1.0 knot on the ebb. (See the Tidal Current Tables for predictions.)

(380) **Similk Bay**, at the N end of Skagit Bay, is used for log-rafting operations and is unsafe for navigation. **Skagit Island** and **Kiket Island**, 111 feet and 194 feet high, respectively, are just S of Similk Bay opposite the E entrance to Deception Pass. **Hope Island**, 1 mile S of Skagit Island, is fringed with rocks off its E side, and marked by a light on its W point. An aquiculture site, marked by private lights, is 0.4 mile NNE of Hope Island in about 48°24'28"N., 122°33'33"W. **Ben Ure Spit**, across the channel from Hope Island, is a low projecting point within a shoal extending about 350 yards E.

(381) Good anchorage may be had in **Kiket Bay**, N of Hope Island, and vessels at times make use of this anchorage area while waiting for slack water in Deception Pass.

(382) The narrow channel E of Hope Island is used by small craft with local knowledge. This channel, with a controlling depth of 5 fathoms, passes 130 yards off the Hope Island shore. The bottom is rocky and very irregular, and numerous dangers marked by heavy kelp are between the channel and the Fidalgo Island shore. A summer anchorage for pleasure craft is S of **Snee-oosh (Hunot) Point**.

(383) **Seal Rocks**, 1.4 miles S of Hope Island, are on the E side of the main channel. They are marked by a light.

(384) **Swinomish Channel** is a dredged channel that connects the waters of Skagit Bay with those of Padilla Bay, about 10 miles to the N. The entrance channel from Skagit Bay leads ENE between two jetties, thence N of **Goat Island**, which is rocky, steep, and timber covered, thence through **Hole in the Wall**, in the S part of Fidalgo Island, and thence N to Padilla Bay. The S jetty, submerged except for a small section near Goat Island, extends about 0.6 mile W of Goat Island and is marked by daybeacons; the N jetty, submerged and marked by a light off its W end, extends W about 1.1 miles from the S end of Fidalgo Island. A **072°–252° lighted range** marks the entrance channel from Skagit Bay, and other navigational aids mark the channel to Padilla Bay. In March 2003-March 2004, the midchannel controlling depth was 6.8 feet in the channel from Skagit Bay to Padilla Bay.

(385) Several bridges and overhead power and telephone cables cross Swinomish Channel; minimum clearance of the power cables is 72 feet. Just S of La Conner, the highway fixed bridge has a clearance of 75 feet for a center width of 275 feet. At the Padilla Bay entrance, the railroad swing bridge has a clearance of 5 feet; the span is left in the open position until a train approaches. Twin fixed highway bridges 0.2 mile S of the swing bridge have a clearance of 75 feet.

(386) Most of the yachts going between Bellingham and Seattle prefer Swinomish Channel to Deception Pass because of the calmer water and shorter run. The channel is used extensively for towing logs. Two floats and a launching ramp are under the E end of the highway bridge at the N end of Swinomish Channel.

(387) **La Conner**, near the S end of Swinomish Channel, is the center of a rich agricultural district, and has several fish canneries. Many commercial fishing boats

operate from here. Piers, wharves, and mooring floats are along the entire waterfront, much of which is obulkheaded. The S basin at La Conner, along the E side of the channel about 0.6 mile N of the highway fixed bridge, has over 460 covered and uncovered berths with electricity and water. A marina in the S basin can provide berths, gasoline, diesel fuel, electricity, water, ice, marine supplies, wet and dry storage, a launching ramp, and a 55-ton hoist; complete hull and engine repairs can be made. The entrance to the basin is constricted by pilings that extend from the N side. A firm, on the E side of the channel at the S end of town, builds fiberglass boats and does limited hull repair work. A tug company, just N of the S basin, has tugs up to 2,400 hp available. An extensive log storage and sorting yard is on the W side of the channel opposite the tug company. Logs are moored along both sides of the channel near the storage yard.

(388) **Guemes Channel**, between Guemes Island on the N and Fidalgo Island on the S, leads E from Rosario Strait to Padilla Bay. The channel, which is about 3 miles long and 0.5 mile wide at its narrowest point, has depths of 8 to 18 fathoms. Lighted buoys mark the channel at the W end.

Local magnetic disturbance

(389) Differences from normal variation of as much as 14° have been observed off the SE point of Guemes Island.

(390) **Shannon Point**, the S point at the W entrance of Guemes Channel, is low and rounding, and marked by a light and fog signal. A shoal extends 200 yards N from the point.

(391) The current velocity in Guemes Channel exceeds 5 knots at times. It is reported that the flood (E current) is accompanied by an eddy between the E end of Guemes Island and Cap Sante with the W countercurrent extending about 200 yards from the shore along the N side of Fidalgo Island. (See the Tidal Current Tables for predictions.)

(392) **Ship Harbor** is a bight close E of Shannon Point, at the W entrance to Guemes Channel. Washington State ferries to the San Juan Islands and Sydney, B.C. depart frequently from facilities on the W side of the bight. Vessels anchoring here in heavy weather should be cautious of dragging anchor because the bottom is not good holding ground.

(393) **City of Seattle Rock**, covered 1½ fathoms, is 200 yards offshore on the S side of the channel, 2 miles E of Shannon Point.

(394) **Anacortes**, is on the S shore of Guemes Channel. The port is incorporated as the **Port of Anacortes**. Commerce includes logs and petroleum products.

(395) **Cap Sante Waterway,** a dredged channel leading to the E waterfront of Anacortes, is marked by daybeacons and lights. The ends of the breakwaters forming the boat haven are marked by lights. In April 2001, the centerline controlling depth was 11.4 feet in the entrance channel, thence depths of 8 to 11 feet in the basin with lesser depths along the E edge and in the vicinity of the breakwaters. Vessels should give the S breakwater a berth of at least 40 feet to stay in good water. The Port of Anacortes controls the boat haven. There are berths, with electricity and water, for about 1,100 craft; transient berths and a pump-out station are available. A **harbormaster** assigns berths, and can be contacted on VHF-FM channel 66a. A business at the basin operates a fuel dock at which gasoline and diesel fuel are available. Water, ice, supplies, a 4-ton lift, and a 5-ton lift capable of handling vessels to 55 feet long are available, along with hull, engine, and electronic repairs.

(396) A dredged channel, marked by lights and buoys, extends about 0.7 mile SW from the entrance of Cape Sante Waterway to the waterfront area of Anacortes Industrial Park. In April 2001, the controlling depth was 15.6 feet in the channel except for shoaling to 14.8 feet in the W side of the channel along the waterfront. A marina is at the N end of the industrial waterfront area. Private berthing with water, electricity, storage boxes, and telephone connections are available. No transient moorage is available. In 1982, a reported depth of 11 feet was in the marina and alongside the berths. A haul out and repair yard with a 35-ton lift is at the S end of the marina.

Anchorage

(397) General Anchorages have been established off Anacortes. (See **33 CFR §110.1** and **§110.230**, chapter 2, for limits and regulations.)

Tides

(398) The mean range of tide at Anacortes is 4.8 feet, and the diurnal range of tide is 8.2 feet.

Pilotage, Anacortes

(399) Pilotage is compulsory for all vessels except those under enrollment or engaged exclusively in the coasting trade on the W coast of the continental United States (including Alaska) and/or British Columbia. Pilotage is available from the Puget Sound Pilots. See Pilotage, Strait of Juan de Fuca and Puget Sound, indexed as such, early this chapter.

Towage

(400) Tugs may be arranged through the marine exchange, which monitors radiotelephone VHF-FM channels 9 and 20.

Quarantine, customs, immigration, and agricultural quarantine

(401) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(402) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(403) Anacortes is a **customs port of entry**,

Harbor regulations

(404) The port is controlled by a port commission and a manager, whose office is on the port wharf at the foot of Commercial Avenue.

Wharves

(405) The Port of Anacortes operates three deep-draft wharves. For a complete description of the port facilities refer to Port Series No. 37, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths are reported depths. (For information on the latest depths contact the port authorities.) Water is available at the three port wharves.

(406) **Port of Anacortes, Pier No. 1** (48°31'20"N., 122°36'40"W.): wooden pilings, 540-foot berthing space; 33 feet alongside; deck height, 16 feet; forklifts; receipt and shipment of general cargo.

(407) **Port of Anacortes, Pier No. 2** (48°31'20"N., 122°36'24"W.): concrete piling with concrete surface, 1,113-foot berthing space with dolphins; 44 feet reported alongside; deck height, 16 feet; 13½ acres open storage; shipment of petroleum coke and logs; mooring vessels. The wharf is marked on each end by a private light.

(408) **Port of Anacortes, Curtis Wharf** (48°31'20"N., 122°37'00"W): steel piling with concrete surface, 313-foot berthing with dolphins; 28 feet reported alongside; deck height, 16 feet; one acre of unpaved open storage.

(409) **Note:** Considerable current sets along the faces of these wharves (E flood, W ebb); it is advisable to dock against the current.

Supplies

(410) Gasoline, diesel fuel, and other small-craft supplies may be obtained at the port boat haven. Ice and marine supplies are available in the city.

Repairs

(411) The largest repair facility in the area is just W of the port's log handling wharf. The yard has a 5,000-ton capacity lift; a 314-foot drydock with a 9,000 metric ton capacity, and a marine railway with a loading rate of 600 tons. Machine and carpentry shops are available at the yard, and complete hull and engine repairs can be made. A marina on the E waterfront of Anacortes has a mobile lift of 25 tons or 55 feet capacity for complete hull and engine repairs. A repair facility about 1.5 miles E of Shannon Point has a 2,000-ton marine railway.

Communications

(412) The port has an airport about five miles W of the city center. A private automobile ferry provides regular service to Guemes Island. Washington State Ferries provide service to the San Juan Islands and Sydney, B.C. from facilities at Ship Harbor Bight.

(413) **Fidalgo Bay**, a shallow arm of Padilla Bay, extends S from the E end of Guemes Channel.

(414) **Padilla Bay**, between the mainland and the N part of Fidalgo Island, is largely occupied by drying flats, but deep water is E of Anacortes and Guemes Island. Entrance to the bay from Rosario Strait is through Guemes Channel; a passage E of Guemes Island leads into Padilla Bay from the N.

(415) **March Point** is a low peninsula between Fidalgo and Padilla Bays. The two long Tesoro and Shell Refinery piers extend N to deep water from the N end of the point. The W pier, owned by Shell Oil, has a 7,150-foot approach trestle, deck height of 22 feet, and is marked at the E and W ends by private lights. The N side of the pier has 1,130 feet of berthing space with dolphins and depths of 45 feet alongside; the S side of the pier has 735 feet of berthing space with dolphins and depths of 45 feet reported alongside.

(416) The Tesoro Pier, 0.5 mile E of the Shell Pier, has a 3,466-foot approach trestle, deck height of 22 feet, and is marked at the E end by a private light and at the W end by a private light and fog signal. The N side of the pier has 974 feet of berthing space with dolphins and a depth of 45 feet reported alongside; the S side of the pier has 820 feet of berthing space with dolphins and a depth of 38 feet reported alongside.

(417) About 200 yards from the Tesoro Pier, when making a starboard landing, a vessel is set by the current onto the pier and great care must be taken to avoid being set hard onto the pier. The use of an anchor in docking is advisable. The current is at times pronounced when docking at the inside berth, and care must be taken to avoid being set onto the shoal to the S. Range markers facilitate docking. Less current is generally experienced at the Tesoro Pier; however, the use of an anchor is recommended when making a starboard landing.

Local magnetic disturbance

(418) Differences from normal variation of 2° have been observed in the vicinity of March Point.

(419) **Bay View**, a village across the flats of Padilla Bay ESE from March Point, has no facilities except for a small boat repair shop.

Chart 18424

(420) **William Point**, 100 feet high, is the W point of **Samish Island**, which forms the N side of Padilla Bay. The point is wooded and, because of the low land E of it, appears as an island although it is connected with the mainland. It is marked by a light.

(421) **Bellingham Channel**, deep between Cypress and Guemes Island, is the most direct route to Bellingham Bay from S. Between Cypress, Guemes, and Sinclair Islands the tidal currents have considerable velocity, but between Sinclair and Vendovi Islands the velocities are considerably less. **Cone Islands**, a group of five islets on the W side of Bellingham Channel, are 0.4 mile E of the NE of Cypress Island.

(422) In July 1983, Bellingham Channel Lighted Buoy 6, about 300 yards NW of Clark Point, was reported to submerge during periods of strong currents.

(423) Lighted buoys mark the E side of Bellingham Channel. A light is on the W side of Bellingham Channel off the E side of Cypress Island. In May 1999, a submerged wreck with 3¾ fathoms over it was reported about 780 yards S of Bellingham Channel Lighted Bell Buoy 4 in about 48°31'48.4"N., 120°40'12.3"W.

(424) **Clark Point**, on the E side of Bellingham Channel, is a steep bluff forming the N point of Guemes Island. A reef extends 300 yards N from the point. A marina, about 1.6 miles SE of Clark Point, has gasoline. A launching ramp and a hoist that can handle small craft to 18 feet is available. **Vendovi Island** is 1.8 miles NE of Clark Point. Shoaling to 4 fathoms, 0.4 mile SW of Vendovi Island, is marked by a buoy. A light marks the E side of the island. A private light is in a small cove on the NW side of Vendovi Island.

(425) Deep-draft vessels approaching Bellingham Bay from N use the channel between Lummi and Sinclair Islands. With the exception of Viti Rocks and the dangers N of Sinclair Islands, this channel is free of danger. The fairway is deep and has a width of 0.6 mile at its narrowest part, between **Viti Rocks** and **Carter Point**, the S tip of Lummi Island. The northwesternmost Viti Rock is 35 feet high, 200 yards long, and marked by a light. A lighted bell buoy marks the shoal extending SSE from the southernmost rock.

(426) **Hale Passage**, 6 miles long, separates Lummi Island from the mainland to the NE. Depths in the passage vary from 2 fathoms on the bar near the NW end to 20 fathoms in the SE end of the channel.

(427) **Lane Spit**, on the W side of Hale Passage 1.5 miles SE of Point Migley, is marked by a lighted buoy. A light is on the E side of Lummi Island 3 miles SE of Lane Spit.

(428) **Lummi Island**, a village on the W side of Hale Passage, is 1 mile S of Lane Spit. The village and island are linked to the mainland at **Gooseberry Point** by an automobile ferry. The ferry dock at Lummi Island is marked by a private light. A pier, adjacent to the ferry slip at Gooseberry Point, has a 6-ton hoist that can handle craft 28 feet long; gasoline, water, ice, marine supplies, and hull and engine repairs are available. Depths of 4 feet are reported off the end of the pier at the hoist.

(429) From **Point Francis**, the rounded high bluff at the SE entrance of Hale Passage, a shoal and broken ground extend SSE to Eliza Island. The depths range from 5 to less than 1½ fathoms about midway between the point and the island. A lighted buoy is about 300 yards S of the 1½ fathom spot.

(430) **Bellingham Bay**, from William Point to the head, is about 12 miles long and 3 miles wide. Anchorage may be obtained almost anywhere in the bay S of the flats; the depths, over the greater portion, range from 6 to 15 fathoms. Because of the mud bottom, vessels are apt to drag anchor in heavy weather.

(431) **Samish Bay**, separated from Padilla Bay by Samish Island, with flats bare for a considerable distance at low water, forms the SE part of Bellingham Bay. Extensive oyster culture is carried on in the E portion of the bay.

(432) **Eliza Island**, low and partly wooded, is 1 mile NE of Carter Point. Shoals fringe most of the island, which should not be approached closer than about 400 yards. A rock covered 1 fathom is some 500 yards N of the W tip of the island.

(433) Vessels anchoring between Lummi Island and Eliza Island during heavy weather should be cautious of dragging anchor because of the poor holding ground.

(434) **Eliza Rock**, marked by a light, is off the S end of Eliza Island.

(435) **Chuckanut Bay** which indents the E shore of Bellingham Bay, is a cove affording shelter to small craft. A rock ledge, covered 3 feet, is reported just S of **Chuckanut Island** in about 48°40.5'N., 122°30.1'W. The small-craft launching ramp of **Larabee State Park** is at **Wildcat Cove**, 0.6 mile SE of **Governors Point** at the SW entrance to Chuckanut Bay.

(436) **Post Point**, on the NE side of Bellingham Bay, is 1.5 miles NNW of the N entrance point of Chuckanut Bay. A shoal, marked by a lighted bell buoy, extends about 450 yards W from the point. **Starr Rock**, covered 1 fathom, is about 200 yards offshore, 0.5 mile SSW of Whatcom Waterway Light 2; it is marked by a buoy. Vessels should not pass inside the buoy.

(437) A **037°06'–217°06' measured course**, 3,038 feet long, is about 1 mile NE of Post Point off the entrance to Whatcom Creek Waterway. The N and S front markers are 500 yards E and 700 yards S, respectively, of Starr Rock, and the rear markers are about 20 yards SE of the front markers. All are yellow wooden triangular daymarkers with a black stripe.

(438) **Bellingham** is at the head of Bellingham Bay on the E shore. Wood and wood products including pulp, aluminum, chemicals, and general cargo are shipped out; salt, alumina, and general cargo are imported. A large pulpmill is just NE of the port wharves at Bellingham, and an aluminum smelter is at Ferndale. These mills have their own wharves, but use the port facilities to ship and receive some of their material.

(439) The S terminal of the Port of Bellingham, a cannery, a boatbuilding plant, and the Alaska State Ferry Terminal Dock are on the N side of Post Point at **South Bellingham**. A seafood plant is on the I and J Street Waterway; fishing boats unload at its wharf. The areas on both sides of the waterway channel are used for log storage. There are several other seafood wharves, oil docks, and other commercial facilities around the harbor.

(440) **Whatcom Creek Waterway** at the SE end of Bellingham Harbor, **Squalicum Creek Waterway** at the NW end of the harbor, and **I and J Street Waterway** in between, provide dredged channel access to the port facilities at Bellingham. Bellingham Yacht Harbor is adjacent to and SE of Squalicum Creek Waterway; the yacht harbor is described later in this chapter.

Prominent features

(441) Particularly prominent at night is the lighted sign HERALD on the newspaper building and the lighted sign ICE on the Bellingham Cold Storage building. Also prominent are the water tank on top of the tall B & B Furniture Co. building, the stack at the cement plant 1.9 miles NW of Whatcom Creek Waterway Light 2 and the stack 0.3 mile to the E, and the church spire near the Bellingham waterfront.

Channels

(442) A Federal project provides for a depth of 30 feet in Whatcom Creek Waterway Outer and Middle Reaches; thence 18 feet through the Inner Reach, 26 feet in Squalicum Creek Waterway, and 18 feet in I and J Street Waterway. Depths in Whatcom Creek Waterway are usually near project depth to the port wharf; the controlling depth for Middle and Inner Reach of this waterway may be considerably less than project depth. The controlling depth for Squalicum Creek Waterway and I and J Street Waterway may also be considerably less than project depth. (See Notice to Mariners and latest editions of the chart for controlling depths.)

(443) Squalicum Creek Waterway is marked by lighted buoys and a lighted range. I and J Street Waterway is marked by lights and buoys. Whatcom Creek Waterway is marked by a light and a lighted range. The **Port of Bellingham** assists the Federal Government in dredging and maintaining channel depths. The port authority maintains depths of more than 30 feet alongside the Whatcom Creek Waterway port wharf, and also dredges the small-craft basin.

Anchorages

(444) The bottom mud is a thin accumulation over hardpan, and is not good holding ground in heavy weather. A **general anchorage** and an **explosives anchorage** are in the bay. (See **110.1 and 110.230**, chapter 2, for limits and regulations.)

Tides

(445) The mean range of the tide at Bellingham is 5.2 feet, and the diurnal range of tide is 8.6 feet. A range of about 14 feet may occur at the time of maximum tides.

Pilotage, Bellingham

(446) Pilotage is compulsory for all vessels except those under enrollment or engaged exclusively in the coasting trade on the W coast of the continental United States (including Alaska) and/or British Columbia. Pilotage for Bellingham is provided by the Puget Sound Pilots. (See Pilotage, Strait of Juan de Fuca and Puget Sound, indexed as such, early this chapter.

Towage

(447) Tugs to 4,000 hp are available at Bellingham, and larger tugs at Seattle. Arrangements for tugs should be made in advance through ships' agents. Tugs monitor and use as a working frequency VHF-FM channel 7.

Quarantine, customs, immigration, and agricultural quarantine

(448) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(449) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(450) Bellingham is a **customs port of entry**.

Coast Guard

(451) Bellingham Coast Guard Station is at Squalicum small-boat harbor.

Harbor regulations

(452) The city fire chief is responsible for the prevention of hazardous fire conditions in the harbor. The Port of Bellingham directs the operation of the North Terminal on Whatcom Creek Waterway, the South Terminal at Post Point, and the yacht harbor E of Squalicum Creek Waterway. The port's general offices are at the North Terminal.

Wharves

(453) The Port of Bellingham operates two deep-draft terminals, one at South Bellingham and one on Whatcom Creek Waterway. In addition, there are several privately owned deep-draft piers and wharves on Whatcom Creek Waterway and numerous medium-draft piers and wharves used for loading or offloading petroleum products, logs, sand and gravel, or fish, or for mooring vessels. Only the deep-draft facilities are described. For a complete description of the port facilities refer to Port Series No. 37, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths of the facilities described are reported depths. (Contact the Port of Bellingham or the private operator for the latest depths.)

(454) **Port of Bellingham, Whatcom International Shipping Terminal, Liquid Chemical Pier** (48°44'35"N., 122°29'35"W.): berthing space, 195 feet (S side) and 400 feet (N side); depth alongside, 26 feet (N and S sides); deck height, 14 feet; overhead pipelines lead to storage tank farm at rear of facility with a capacity of 1¼ million gallons of caustic soda; shipment of caustic soda; owned and operated by Port of Bellingham.

(455) **Port of Bellingham, Whatcom International Shipping Terminal, Main Wharf** (48°44'43"N., 122°29'39"W.): berthing space, 1,370 feet; depth alongside, 31 feet; deck height, 15½ feet; two electric belt conveyors with rates of 700 tons and 400 tons per hour; open storage for 40,000 tons of salt; an additional 11 acres of open storage is available with four of those used for wood chips; receipt and shipment of conventional general cargo; receipt of salt and wood chips; shipment of aluminum ingots, wood pulp, logs, and lumber; owned by Port of Bellingham and operated by Port of Bellingham and Bellingham Stevedoring Co.

(456) **Note:** If a tug is not furnished, the use of anchor in docking is recommended when winds prevail. Vessels backing out of the Whatcom Creek Waterway channel must stay in the axis of the channel until abeam of Starr Rock Buoy to avoid shoal water on either side.

(457) **Georgia-Pacific West, Bellingham Operations Wharf** (48°44'56"N., 122°29'19"W.): berthing space, 1,400 feet; depth alongside, 36 feet (outer side), 18 feet (inner side); deck height, 16 feet, one fixed revolving crane and three mobile cranes up to 35 tons; conveyor system with a rate of 40,000 cubic feet per hour; four storage bins for wood chips with total capacity of 200 tons; two storage bins for hogged fuel with a total capacity of 100 tons; pipelines extend to storage tanks with 400,000 and 8 million gallon capacity; receipt of wood chips and hogged fuel; shipment of wood pulp, alcohol, and lignosite; owned and operated by Georgia Pacific West, Inc.

(458) **Note:** Vessels docking with the assistance of a tug should use an anchor. Shoal water is at the NE end of the wharf.

(459) **Port of Bellingham, South Terminal Barge Dock** (48°43'18"N., 122°30'34"W.): berthing space, 120 feet; depth alongside, 12 to 18 feet; deck height, 15 feet; handling supplies and equipment; owned and operated by Port of Bellingham.

(460) A large cold storage plant and several seafood facilities are on the E side of Squalicum Creek Waterway. Fishing boats and an occasional ship unload fish in the area. A plywood mill is on the W side of the waterway.

Supplies

(461) Complete marine supplies are available for small craft, and some for large vessels. Fuel oil is available by barge from Seattle.

Repairs

(462) Two floating drydocks, 1,600-ton and 3,000-ton capacities, and a 700-ton marine railway are available for ship repairs. Other facilities for oceangoing vessel repair are located in Seattle, WA and Vancouver, B.C. Complete repair facilities are available for small craft. A propeller works, several machine shops, engine and deck-gear suppliers, and an electronic repair company are along the Bellingham waterfront. The larger of two repair yards is just W of the Port of Bellingham South Terminal. This yard has a machine shop and a marine railway that can handle vessels up to 700 tons, 120 feet long or 34 feet wide for hull repairs. Another repair yard, at Squalicum Boat Harbor has a marine railway that can handle vessels up to 290 tons, 125 feet long or 24 feet wide for hull repairs. Several local machine shops in the area do engine repair work for the two repair yards.

(463) **Squalicum Boat Harbor**, adjacent to and SE of the Squalicum Creek Waterway, is protected by breakwaters on its SE and SW sides. The harbor can be entered from the SE between the two breakwaters, or from the NW from the Squalicum Creek Waterway. The channelward ends of the breakwaters at the SE entrance are marked by lights; a fog signal is sounded from the southernmost light. The entrance from the

Squalicum Creek Waterway is also marked by two lights. Depths inside the harbor are 10 to 15 feet.

(464) Berths for about 2,200 pleasure craft and fishing boats are in the harbor. A guest float is maintained near the **harbormaster's** office on the NE side of the harbor. Gasoline, diesel fuel, electricity, water, ice, and marine supplies are available. Several marine equipment repair and fishing supply firms are in the area N of the SE entrance to the harbor.

(465) A small-craft basin, protected by a breakwater on its S side, is N of I & J Street Waterway. The basin can be entered from I & J Street Waterway. Depths of 9 to 12 feet are in the basin.

Communications

(466) Bellingham is served directly by one major railway and has connections to another. It is on U.S. Interstate Highway 5 and is a hub for three State highways. The airport is about 2.5 miles NW of the city.

Chart 18400

(467) The **Strait of Georgia** extends some 115 miles NW from its S end, in the vicinity of Alden Bank, and is bordered on the W by Vancouver Island, B.C., and on the E by the mainland of Canada. General depths are great and in many places exceed 200 fathoms.

(468) Vessels bound to the Strait of Georgia from Puget Sound should give the SW shore, between Boundary and Active Passes, a berth of at least 2 miles because it is fringed with dangers. Point Roberts, on the N shore, affords an excellent landmark.

(469) A **Vessel Traffic Service** has been established in the Strait of Juan de Fuca, E of Port Angeles, and in the adjacent waters. (See **161.1 through 161.55**, chapter 2, for regulations, and the beginning of this chapter for additional information.)

Currents

(470) The tidal currents in the Strait of Georgia are not nearly as strong as those in the channels leading to it from the Strait of Juan de Fuca. The currents in the Strait of Georgia attain a velocity of 3 knots at times, particularly during the freshets of the summer, when the Fraser River discharges a large volume of freshwater. This freshwater, which has a peculiar milky color, flows across the banks at the mouth of the river and almost directly toward Active Pass. Frequently this water extends entirely across the strait and at times reaches into the inner channels along the shore of Vancouver Island; at other times, it reaches only to the middle of the strait and forms a striking contrast with the deep blue water of the Strait of Georgia.

(471) In the middle of the strait N of Patos and Saturna Islands, the velocity of the current varies from 1 to 3 knots, seldom exceeding the latter. The velocity is still less NW of the mouth of the Fraser River, where the strait is about 15 miles wide. The tidal currents SE of the mouth of Fraser River are slightly stronger off the S shore than off the N shore. The currents within a line joining Point Roberts and Sandy Point are scarcely felt, and vessels can take advantage of this, especially since good anchorage can be obtained in this vicinity.

(472) The tidal currents are stronger close to the S shore which is swept by the rapid currents out of Active, Porlier, and Gabriola Passes. The south-going tidal current in the Strait of Georgia sets strongly SW into Active Pass.

Weather, Georgia Strait and vicinity

(473) In the open waters of the Georgia Strait, winds are usually either northwesterlies or southeasterlies. Southeasterlies are more frequent from October through March. Close to the British Columbia coast, they are often deflected and become easterlies. While the Georgia Strait is somewhat sheltered from the sea by the mountains of Vancouver Island, gales still occur three or four times per month. While some are associated with the intense storms of winter, particularly dangerous gales occur in clear weather. These are locally known as **Squamish winds**. They occur periodically in most of the main inlets in winter. They come up suddenly and may exceed 50 knots. Squamishes occur when a vast pool of very cold air accumulates on the interior plateau of British Columbia. A pressure fall at sea will trigger a movement of this air toward the coast. This flow is intensified by the direction and narrowness of the inlets. As the air reaches the mouths of these inlets, it spreads out over the strait and wind speed diminish. Winds rarely remain strong 15 to 20 miles away. Howe Sound, Jervis, Toba, and Bute Inlets all experience squamishes each winter.

(474) In summer, winds in the Rosario and Haro Straits are usually southwesterlies. Summer breezes are variable and baffling in the San Juan Islands. N of Point Roberts, in the middle of the Georgia Strait, the prevailing winds are northwesterlies. Gales are uncommon, particularly in mid-summer, when storm activity reaches a lull.

(475) Georgia Strait is more affected by land fogs than sea fogs. These fogs form on cool nights under clear skies and light winds, and usually dissipate by early afternoon. These conditions are most prevalent from September through February. During prolonged periods of cold, clear, calm weather, these fogs may persist for several days at a time. Land fog is more local than sea fog. Visibilities fall below 0.75 mile (1.4 km) on

about 20 days annually, but this can increase to 60 days in preferred locations like the flat land in the delta of the Fraser River where the low water temperatures of the river help produce the fog.

Charts 18421, 18424, 18431

(476) **Sandy Point**, about 2.5 miles N of Lummi Island and at the NW side of **Lummi Bay**, is the site of an extensive housing development fronting a privately dredged basin.

(477) Between Sandy Point and **Cherry Point**, about 4.5 miles NW, the shore of the mainland forms a bight in which there are no off-lying dangers. The piers of two large oil refineries and an aluminum smelter are in the bight. A **general anchorage** is off Cherry Point. (See **110.1 and 110.230**, chapter 2, for limits and regulations.)

(478) The 1,800-foot pier of the Tosco Refining Co. (formerly British Petroleum Co.) is at **Ferndale**, 2.4 miles N of Sandy Point. The L-shaped pier has 883 feet of berthing space and reported depths of 42 to 53 feet at the outer face, and 722 feet of berthing space and depths of 35 feet at the inner face. Deck height is 18 feet. The pier is used for the receipt of crude oil and shipment of petroleum products, and for bunkering vessels. The pier is marked by private lights and a fog signal. An oil refinery tower 0.8 mile inshore is prominent. **Note:** A portside-to landing is preferred when docking at the outer berth during S winds and a flood tide; the use of an anchor is advisable.

(479) The long loading wharf and pier of the Intalco Aluminum Corp. is 0.8 mile N of the Tosco Refining Co. pier and 3.2 miles N of Sandy Point. The wharf has 950 feet of berthing space with dolphins and depths of 36 feet alongside. Deck height is 22 feet. The wharf is used for the receipt of alumina and liquified petroleum gas. Private lights and a fog signal are on the wharf, and two private lighted mooring buoys are just off the wharf. **Note:** Vessels normally dock starboardside-to; however, a portside-to landing is required for vessels having their bridge forward of a cargo hold and with less than 30 feet between the hold and the rear of the pilothouse.

(480) The BP/Amoco pier (formerly Atlantic Richfield Co.) with a 2,400-foot angular approach trestle is at Cherry Point, about 4.5 miles NNW of Sandy Point. The pier has 1,000 feet of berthing space at the face with dolphins, and reported depths of 65 feet alongside. Deck height is 22 feet. The dolphins are marked by private lights. The facility is used for receipt of crude oil, shipment of petroleum products, and bunkering vessels. **Note:** The pier has rigid loading arms for the transfer of liquid cargo; chicksan rigs are not required on vessels. Some vessels prefer to drag an anchor in approaching the pier; however, tugs are available on advance notice from Bellingham. Three oil boom deployment buoys are off the face of the pier, one on either end and one 600 feet off the center of the face of the pier. Water and electrical shore power connections are available. A special gangway is provided in lieu of the ship's gangway.

(481) **Point Whitehorn**, about 2.8 miles NW of Cherry Point, is a conspicuous, bold bluff about 150 feet high; its seaward face is a steep cliff of white clay.

(482) **Birch Bay**, on the E side of the Strait of Georgia between Point Whitehorn and **Birch Point**, is an open bight. It affords some protection, in 4 to 5 fathoms, from N, but is open to the SW. Flats that bare occupy a considerable area at the head of the bay. A number of resorts are along the shore. A mooring basin and private marina are on the N side of the bay; the basin entrance is marked by lights and daybeacons.

(483) The **International Boundary** between the United States and Canada is marked by three sets of range lights where it crosses Semiahmoo and Boundary Bays. One set is in the E part of Semiahmoo Bay, and the other two sets are N of Point Roberts on the W side of Boundary Bay.

(484) The **Peace Monument** on the boundary is a white masonry arch, facing N and S, about 28 feet above the ground. It is a distinctive landmark as it stands alone and shows offshore against a background of dark trees.

Caution

(485) The International Navigation Rules govern in all Canadian waters.

(486) **Point Roberts** is the prominent feature in approaching from either N or S. The E face is about 180 feet high and is composed of white, vertical bluffs. The point is well wooded, and because of the low land behind it, is usually made as an island, especially from S. The SW extremity of the point is marked by a light. Extensive night drift-fishing in the area from Point Roberts to Blaine makes night navigation difficult.

(487) Point Roberts is a **customs port of entry**.

(488) Temporary anchorage may be obtained W of Point Roberts in 8 fathoms, good holding ground, about 1 mile 321° from Point Roberts Light. The position is about 0.3 mile from the edge of Roberts Bank; vessels should not anchor any farther N.

(489) **Semiahmoo Bay** has its entrance between Birch Point and Kwomais Point, about 5 miles NNW. It is connected with Drayton Harbor by a narrow channel. The E part of the bay is shoal with extensive sand flats in the SE part. Anchorage may be had in the bay in 3½ to 9

fathoms on the NW side of Semiahmoo Spit, affording protection from S and SE storms.

(490) **Drayton Harbor** is a small cove formed by **Semiahmoo Spit**, the extension of a sandspit N of Birch Point. It is about 2 miles long, but flats that bare at low water occupy a large area in the E and S parts of the harbor. A light and a buoy about 700 yards to the WSW are near the N end of the extensive sand flats off the NW side of Semiahmoo Spit.

(491) The channel from Semiahmoo Bay to the cannery wharf on Semiahmoo Spit and to Blaine Harbor, E of the cannery wharf, has a controlling depth of about 21 feet; greater depths are possible with local knowledge. The 15-foot spot about 130 yards N of the cannery wharf, and the 9-foot spot about 300 yards E of the E end of the wharf should be avoided.

(492) **Blaine Harbor**, at Blaine, is a large and well-equipped small-boat basin near the entrance on the N shore of Drayton Harbor. The harbor is an active fishing center operated by the Port of Bellingham. A light marks the outer end of the breakwater that protects the basin on the S side. In September 1981, depths through the entrance and in the basin were 11 feet except for shoaling along the edges. In July 1999, the channel was reported as not being maintained. The harbor has berths for about 400 boats; 200 additional berths are being planned by the Port of Bellingham. A **harbormaster** is on duty in the harbor. Fish-processing plants and a fish reduction plant are in operation. Gasoline, diesel fuel, electricity, water, ice, launching ramp, dry storage facilities, and marine supplies are available in the harbor. A repair yard with a marine railway that can handle vessels to 300 tons, 80 feet long, or 21 feet wide is also available; hull repairs can be made. A depth of 2 feet has been reported at the entrance to the marine railway.

(493) **Blaine,** a small town on the NE shore of Drayton Harbor, is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine

(494) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(495) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(496) The United States-Canadian boundary line passes through the N edge of town. The Burlington Northern Railroad serves the town.

Tides and currents

(497) The mean range of **tide** at Blaine is 5.9 feet, and the diurnal range of tide is 9.5 feet.

(498) The average velocity of the **current** in Drayton Harbor entrance is 1.0 knot. The flood sets SE and the ebb NW.

(499) Several buildings, an elevated tank, and a small-boat basin, constituting the town of **Semiahmoo**, are at the N end of the sandspit.

(500) To enter Drayton Harbor and Blaine Harbor from Semiahmoo Bay, pass about 300 yards N of Semiahmoo Bay Light, and steer a course about midway between the cannery wharf and the Blaine Harbor boat basin taking care to avoid the 15-foot spot about 130 yards N of the cannery wharf. After passing the cannery wharf, favor the N side of the channel to avoid the 9-foot spot E of the E end of the cannery wharf, and the spit ESE of the cannery, and make Blaine Harbor or anchor as convenient in Drayton Harbor. Anchoring in the shoal water of Drayton Harbor is not recommended because the floating debris and vegetation may clog a vessel's underwater intakes.

(501) The depths in Drayton Harbor and its entrance are subject to change.

Chart 18400

Strait of Georgia, E shore (Canada)

(502) **Boundary Bay** indents the mainland between **Kwomais Point**, the N entrance point of Semiahmoo Bay, and Point Roberts. The greater portion of the bay is filled with flats, bare at low water.

(503) Anchorage in 5 fathoms with good holding bottom is available about 1 mile ENE of the SE point of Point Roberts, affording protection from W and NW storms.

(504) Except for **English Bluff** about 1.5 miles N of **Boundary Bluff**, the coast N to Point Grey is low, featureless, and barely discernible from the Strait of Georgia.

(505) A causeway extends about 1.8 miles SW from English Bluff and terminates in a ferry landing; a light and fog signal are at the landing. A breakwater, about 0.2 mile long and marked by a light at its W end, is just S of the ferry landing. Just NW of the ferry landing are the long pier and facilities used for bulk loading and export of coal by bulk carriers. These facilities, although operated by private interests, are owned by the Port of Vancouver.

(506) **Roberts Bank** and **Sturgeon Bank** are formed by the alluvial deposits of the Fraser River. These banks dry in patches, and in places extend 4.5 miles offshore. They are steep-to: soundings of 50 fathoms will be found very close to the edge of the bank. Vessels proceeding along the edge of Roberts Bank should not bring the S extremity of Point Roberts to bear more than 114°.

(507) The cooperation of ships' masters is requested to avoid navigating their vessels between the charted traffic separation scheme and Sturgeon Bank. This is in the interest of the fishing industry and the reduction of damage to nets and fishing vessels by ships passing close to the fishing ground.

(508) **Fraser River** enters the Strait of Georgia about 10 miles NW of Point Roberts.

Caution

(509) The channels in Fraser River are constantly changing, and the aids to navigation that mark them are moved accordingly.

(510) **Pilotage** for the Fraser River is discussed at the beginning of this chapter.

(511) The main entrance to Fraser River is between the two lighted buoys W of Sand Heads Light, which is near the outer end of Steveston Jetty; a shorter jetty is on the S side of the main entrance. (See the Sailing Directions, British Columbia Coast (South Portion), Vol. 1, and British Columbia Small Craft Guide, Vol. 2, for detailed information on Fraser River and other local Canadian waters.)

(512) **Steveston** on **Lulu Island**, about 1.0 mile N of **Pelly Point**, the S entrance point to Fraser River, extends along the bank of the river for about 1 mile. Several canneries and wharves are here.

(513) The tidal **currents** in Fraser River are affected by the weather in the Strait of Georgia, the rains, and the amount of water in the river. In the channel above Pelly Point during freshets, the flow, which may be checked by the rise of the tide, is almost continuously toward the mouth of the river. During the freshets the greatest velocity occurs 2 to 3 hours before low water and may amount to 5.5 knots. After the freshets are over, the greater velocity occurs on the average about 1½ hours before low water and is reduced to 3 or 4 knots. During the low stage of the river there is a flood and ebb on all the larger tides; the flood begins soon after high water and commences first along the bottom.

(514) At New Westminster the flood current is unable to reverse the river current except in the autumn. The river is seldom frozen over here; loose pieces of ice, which do no damage to shipping, occasionally come down the river.

(515) **New Westminster** is on the N bank about 20 miles above the entrance. Several canneries and sawmills are here, and a conspicuous grain elevator stands about 1 mile below the city, which now has grown into the expanded Vancouver suburbs. New Westminster Harbor is a major Canadian port. The port is mainly used by bulkcarriers and cargo vessels. The principal exports are lumber, plywood, general cargo, concentrates, wheat, zinc, lead, fertilizer, paper products, and salmon. There are many wharves; most of them have warehouses and rail connections. Depths alongside range from 25 to 35 feet.

(516) New Westminster is a **Canadian customs port of entry**.

(517) **North Arm** of Fraser River is entered 0.5 mile SW of Point Grey. Depths of 15 feet are maintained from the mouth to the NE extremity of Sea Island, and 10 feet from this point to Poplar Island. From Poplar Island (49°12'N., 122°56'W.), to the main river channel the depth is again 15 feet.

(518) **Point Grey**, the S entrance point of **Burrard Inlet**, is a rounded bluff forming the W termination of a wooded promontory. The point is very conspicuous from S. The buildings of the University of British Columbia are conspicuous on the high land above the point. **Point Atkinson**, the N entrance point of Burrard Inlet, is comparatively steep-to. It is marked by a light.

(519) Tide rips occur frequently off Point Atkinson, caused by the meeting of the tidal currents from Burrard Inlet and Howe Sound.

(520) **Spanish Bank** extends 0.6 mile N from the W half of the promontory terminating in Point Grey. The bank, which dries, is composed of hard sand and is steep-to. It is marked by lights. W winds when it is marked by a line of small breakers.

(521) **Vancouver Harbor** includes all the tidal waters in Burrard Inlet E of a line drawn from Point Grey to Point Atkinson. A secure, deep harbor, easily entered by the largest vessel, is formed between First and Second Narrows, and on its shores is the city of Vancouver, the third largest city of Canada and the commercial metropolis of British Columbia. A U.S. Immigration station is in the city. Vancouver is a **Canadian customs port of entry**. Complete marine supplies, repair facilities, and services for small craft and the largest ships are available.

(522) The three principal anchorages in Vancouver Harbor are English Bay, the outer anchorage; Vancouver, above the first narrows; and in Indian Arm.

Chart 18421

(523) **Strait of Georgia**, W shore (Canada). The coast between East Point and Active Pass should be given a berth of at least 2 miles because it is fringed with dangers.

(524) **Belle Chain Islets** is a narrow rocky ridge 2 miles long lying parallel with several islets and drying rocks along the NE shore of **Samuel Island**. Foul ground extends about 0.3 mile SE from **Edith Point,** the NE extremity of **Mayne Island**. A rocky patch with two heads,

each of which covers 4 feet, is about midway between Edith Point and the NW end of Belle Chain Islets.

Chart 18400

(525) **Salamanca Point**, on the SE side of **Galiano Island**, is conspicuous from both SE and NW. The point is rocky, and the trees on it grow down nearly to the highwater mark.

(526) **Porlier Pass**, 12 miles NW of Salamanca Point, separates Galiano Island and **Valdes Island** and connects **Trincomali Channel** with the Strait of Georgia. The pass has a minimum width of about 800 yards, but the navigable channel is narrow and the tidal currents attain velocities up to 9 knots. Current predictions may be obtained from the Tidal Current Tables. It is advisable to employ a pilot on the first visit to this pass.

(527) **Gabriola Pass** is between the NW end of Valdes Island and Gabriola Island, connecting the NW end of **Pylades Channel** to the Strait of Georgia. This pass is not recommended for general navigation, but only for those with local knowledge. The velocity of the current in the pass is 4.0 knots, setting E on the flood and W on the ebb. The current may attain a velocity of 8 knots. (See the Tidal Current Tables for predictions.)

(528) The outermost danger off Gabriola Pass, **Thrasher Rock**, a detached steep-to rock that dries, is 2.3 miles NE of the pass entrance. A light is on the rock. Shoreward of it are many rocks and reefs, including **Gabriola Reefs**; caution is essential.

(529) **Entrance Island**, 0.4 mile N of Orlebar Point, the NE point of Gabriola Island, is marked by a light. It is the guide to the entrance to **Nanaimo**, a Canadian port of entry. **Fairway Channel**, the easternmost of the channels in the N approach to Nanaimo, is deep and has a navigable width of 0.8 mile.

(530) Off the entrance to **Nanoose Harbor**, 13 miles WNW of Entrance Island, there are many islets and reefs and, unless making for Nanoose, the navigator should keep 3 miles offshore until he raises the **Ballenas Islands** 5.5 miles NW of the Nanoose Harbor entrance.

(531) Details of local Canadian ports and features are given in Pub. No. 154, Sailing Directions (Enroute) for British Columbia, published by the National Geospatial -Intelligence Agency, and the Sailing Directions, British Columbia Coast, (South Portion) Vol. 1, and British Columbia Small Craft Guides, Vol. 1 and 2, published by the Canadian Hydrographic Service.