

PUB. 154
SAILING DIRECTIONS
(ENROUTE)



BRITISH COLUMBIA



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SIXTEENTH EDITION

Preface

Pub. 154, Sailing Directions (Enroute) British Columbia, Sixteenth Edition, 2022, is issued for use in conjunction with Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia. Companion volumes are Pubs. 153, 155, 156, 157, and 158.

Digital Nautical Chart 26 provides electronic chart coverage for the area covered by this publication.

This publication has been corrected to 22 January 2022, including Notice to Mariners No. 4 of 2022.

Explanatory Remarks

Sailing Directions are published by the National Geospatial-Intelligence Agency (NGA) under the authority of Department of Defense Directive 5105.60, dated 29 July 2009, and pursuant to the authority contained in U. S. Code Title 10, Chapter 22, Section 451 and Title 44, Section 1336. Sailing Directions, covering the harbors, coasts, and waters of the world, provide information that cannot be shown graphically on nautical charts and is not readily available elsewhere.

Sailing Directions (Enroute) include detailed coastal and port approach information which supplements the largest scale chart produced by the National Geospatial-Intelligence Agency. This publication is divided into geographic areas called "Sectors."

Bearings.—Bearings are true, and are expressed in degrees from 000° (north) to 360°, measured clockwise. General bearings are expressed by the initial letters of the points of the compass (e.g. N, NNE, NE, etc.). Adjective and adverb endings have been discarded. Wherever precise bearings are intended, degrees are used.

Charts.—Reference to charts made throughout this publication refer to both the paper chart and the Digital Nautical Chart (DNC).

Corrective Information.—Users should refer corrections, additions, and comments to NGA's Maritime Operations Desk, as follows:

NGA Maritime—Contact Information	
Maritime Operations Desk	
Toll free	1-800-362-6289
Commercial	571-557-5455
DSN	547-5455
E-mail	navsafety@nga.mil
Maritime Safety Office	
DNC web site	https://dnc.nga.mil
Maritime Domain web site	https://msi.nga.mil

NGA Maritime—Contact Information	
E-mail	MarHelp@nga.mil
Maritime Quality Feedback System (MQFS)	https://marhelp.nga.mil
Mailing address	Maritime Safety Office National Geospatial-Intelligence Agency Mail Stop N64-SFH 7500 Geoint Drive Springfield VA 22150-7500

New editions of Sailing Directions are corrected through the date of publication shown above. Important information to amend material in the publication is updated as needed and available as a downloadable corrected publication from the NGA Maritime Domain web site.

NGA Maritime Safety Office Web Site	
https://msi.nga.mil	

Courses.—Courses are true, and are expressed in the same manner as bearings. The directives "steer" and "make good" a course mean, without exception, to proceed from a point of origin along a track having the identical meridional angle as the designated course. Vessels following the directives must allow for every influence tending to cause deviation from such track, and navigate so that the designated course is continuously being made good.

Currents.—Current directions are the true directions toward which currents set.

Distances.—Distances are expressed in nautical miles of 1 minute of latitude. Distances of less than 1 mile are expressed in meters, or tenths of miles.

Geographic Names.—Geographic names are generally those used by the nation having sovereignty. Names in parentheses following another name are alternate names that may appear on some charts. In general, alternate names are quoted only in the principal description of the place. Diacritical marks, such as accents, cedillas, and circumflexes, which are related to specific letters in certain foreign languages, are not used in the interest of typographical simplicity.

Geographic names or their spellings do not necessarily reflect recognition of the political status of an area by the United States Government.

Heights.—Heights are referred to the plane of reference used for that purpose on the charts and are expressed in meters.

Internet Links.—This publication provides Internet links to web sites concerned with maritime navigational safety, including but not limited to, Federal government sites, foreign Hydrographic Offices, and foreign public/private port facilities. NGA makes no claims, promises, or guarantees concerning the

accuracy, completeness, or adequacy of the contents of these web sites and expressly disclaims any liability for errors and omissions in the contents of these web sites.

International Ship and Port Facility Security (ISPS) Code.—The ISPS Code is a comprehensive set of measures to enhance the security of ships and port facilities developed in response to the perceived threats to ships and port facilities in the wake of the 9/11 attacks in the United States. Information on the ISPS Code can be found at the International Maritime Organization web site:

International Maritime Organization Home Page

<http://www.imo.org>

Lights and Fog Signals.—Lights and fog signals are not described, and light sectors are not usually defined. The Light Lists should be consulted for complete information.

National Ocean Claims.—Information on national ocean claims and maritime boundary disputes, which have been compiled from the best available sources, is provided solely in the interest of the navigational safety of shipping and in no way constitutes legal recognition by the United States. These non-recognized claims and requirements may include, but are not limited to:

1. A requirement by a state for advance permission or notification for innocent passage of warships in the territorial sea.
2. Straight baseline, internal waters, or historic waters claims.
3. The establishment of a security zone, where a state claims to control activity beyond its territorial sea for security reasons unrelated to that state's police powers in its territory, including its territorial sea.

Radio Navigational Aids.—Radio navigational aids and radio weather services are not described in detail. Publication No. 117 Radio Navigational Aids and NOAA Publication, Selected Worldwide Marine Weather Broadcasts, should be consulted.

Soundings.—Soundings are referred to the datum of the charts and are expressed in meters.

Telephone and Facsimile Numbers.—Within this publication, the international telephone and facsimile numbers provided as contact information contain the minimum digits necessary to dial. Please note that these contact numbers do not include additional digits or special characters, such as (0) or (+), which may be required when dialing. The necessity of such digits and characters depend upon numerous factors and conditions, such as the user's geolocation and service provider. Mariners are advised to consult their communications equipment and service provider user manuals for guidance.

Time.—Time is normally expressed as local time unless specifically designated as Universal Coordinated Time (UTC).

Time Zone.—The Time Zone description(s), as well as information concerning the use of Daylight Savings Time, are included. The World Time Zone Chart is available on the Internet at the web site given below.

Standard Time Zone of the World Chart

<https://www.cia.gov/maps/world-regional>

U.S. Maritime Advisory System.—The U.S. Maritime Advisory System is a streamlined inter-agency approach to identifying and promulgating maritime security threats. The system replaces Special Warnings to Mariners (State Department), MARAD Advisories (Maritime Administration), and Marine Safety Information Bulletins (U.S. Coast Guard) and consists of the following items:

1. U.S. Maritime Alert—Provides basic information (location, incident, type, date/time) on reported maritime security threats to U.S. maritime industry interests. U.S. Maritime alerts do not contain policy or recommendations for specific courses of information.
2. U.S. Maritime Advisory—Provides more detailed information, when appropriate, through a “whole-of-government” response to an identified maritime threat.

Maritime Administration (MARAD)—U.S. Maritime Advisory System

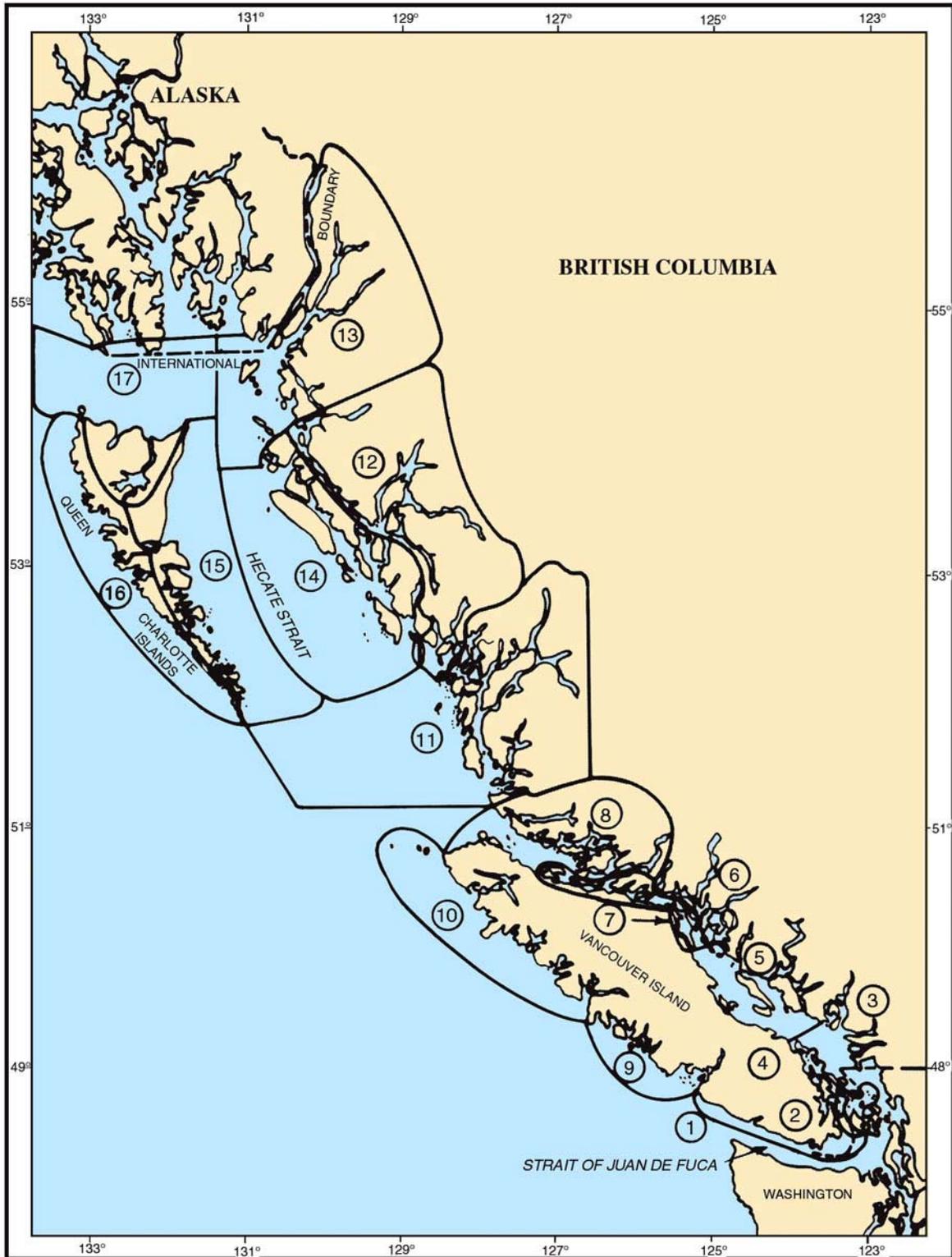
<https://www.marad.dot.gov/environment-and-safety/office-of-security/msci>

Winds.—Wind directions are the true directions from which winds blow.

Reference List

The principal sources examined in the preparation of this publication were:

- British Hydrographic Department Sailing Directions.
- Canadian Sailing Directions.
- Various port handbooks.
- Reports from United States Naval and merchant vessels and various shipping companies.
- Other U.S. Government publications, reports, and documents.
- Charts, light lists, tide and current tables, and other documents in possession of the Agency.



SECTOR LIMITS—PUB. 154

Conversion Tables

Feet to Meters

Feet	0	1	2	3	4	5	6	7	8	9
0	0.00	0.30	0.61	0.91	1.22	1.52	1.83	2.13	2.44	2.74
10	3.05	3.35	3.66	3.96	4.27	4.57	4.88	5.18	5.49	5.79
20	6.10	6.40	6.71	7.01	7.32	7.62	7.92	8.23	8.53	8.84
30	9.14	9.45	9.75	10.06	10.36	10.67	10.97	11.28	11.58	11.89
40	12.19	12.50	12.80	13.11	13.41	13.72	14.02	14.33	14.63	14.93
50	15.24	15.54	15.85	16.15	16.46	16.76	17.07	17.37	17.68	17.98
60	18.29	18.59	18.90	19.20	19.51	19.81	20.12	20.42	20.73	21.03
70	21.34	21.64	21.95	22.25	22.55	22.86	23.16	23.47	23.77	24.08
80	24.38	24.69	24.99	25.30	25.60	25.91	26.21	26.52	26.82	27.13
90	27.43	27.74	28.04	28.35	28.65	28.96	29.26	29.57	29.87	30.17

Fathoms to Meters

Fathoms	0	1	2	3	4	5	6	7	8	9
0	0.00	1.83	3.66	5.49	7.32	9.14	10.97	12.80	14.63	16.46
10	18.29	20.12	21.95	23.77	25.60	27.43	29.26	31.09	32.92	34.75
20	36.58	38.40	40.23	42.06	43.89	45.72	47.55	49.38	51.21	53.03
30	54.86	56.69	58.52	60.35	62.18	64.01	65.84	67.67	69.49	71.32
40	73.15	74.98	76.81	78.64	80.47	82.30	84.12	85.95	87.78	89.61
50	91.44	93.27	95.10	96.93	98.75	100.58	102.41	104.24	106.07	107.90
60	109.73	111.56	113.39	115.21	117.04	118.87	120.70	122.53	124.36	126.19
70	128.02	129.85	131.67	133.50	135.33	137.16	138.99	140.82	142.65	144.47
80	146.30	148.13	149.96	151.79	153.62	155.45	157.28	159.11	160.93	162.76
90	164.59	166.42	168.25	170.08	171.91	173.74	175.56	177.39	179.22	181.05

Meters to Feet

Meters	0	1	2	3	4	5	6	7	8	9
0	0.00	3.28	6.56	9.84	13.12	16.40	19.68	22.97	26.25	29.53
10	32.81	36.09	39.37	42.65	45.93	49.21	52.49	55.77	59.06	62.34
20	65.62	68.90	72.18	75.46	78.74	82.02	85.30	88.58	91.86	95.14
30	98.42	101.71	104.99	108.27	111.55	114.83	118.11	121.39	124.67	127.95
40	131.23	134.51	137.80	141.08	144.36	147.64	150.92	154.20	157.48	160.76
50	164.04	167.32	170.60	173.88	177.16	180.45	183.73	187.01	190.29	193.57
60	196.85	200.13	203.41	206.69	209.97	213.25	216.54	219.82	223.10	226.38
70	229.66	232.94	236.22	239.50	242.78	246.06	249.34	252.62	255.90	259.19
80	262.47	265.75	269.03	272.31	275.59	278.87	282.15	285.43	288.71	291.99
90	295.28	298.56	301.84	305.12	308.40	311.68	314.96	318.24	321.52	324.80

Meters to Fathoms

Meters	0	1	2	3	4	5	6	7	8	9
0	0.00	0.55	1.09	1.64	2.19	2.73	3.28	3.83	4.37	4.92
10	5.47	6.01	6.56	7.11	7.66	8.20	8.75	9.30	9.84	10.39
20	10.94	11.48	12.03	12.58	13.12	13.67	14.22	14.76	15.31	15.86
30	16.40	16.95	17.50	18.04	18.59	19.14	19.68	20.23	20.78	21.33
40	21.87	22.42	22.97	23.51	24.06	24.61	25.15	25.70	26.25	26.79
50	27.34	27.89	28.43	28.98	29.53	30.07	30.62	31.17	31.71	32.26
60	32.81	33.36	33.90	34.45	35.00	35.54	36.09	36.64	37.18	37.73
70	38.28	38.82	39.37	39.92	40.46	41.01	41.56	42.10	42.65	43.20
80	43.74	44.29	44.84	45.38	45.93	46.48	47.03	47.57	48.12	48.67
90	49.21	49.76	50.31	50.85	51.40	51.95	52.49	53.04	53.59	54.13

Abbreviations

The following abbreviations may be used in the text:

Units

°C	degree(s) Centigrade	km	kilometer(s)
cm	centimeter(s)	m	meter(s)
cu.m.	cubic meter(s)	mb	millibars
dwt	deadweight tons	MHz	megahertz
FEU	forty-foot equivalent units	mm	millimeter(s)
gt	gross tons	nt	net tons
kHz	kilohertz	TEU	twenty-foot equivalent units

Directions

N	north	S	south
NNE	northnortheast	SSW	southsouthwest
NE	northeast	SW	southwest
ENE	eastnortheast	WSW	westsouthwest
E	east	W	west
ESE	eastsoutheast	WNW	westnorthwest
SE	southeast	NW	northwest
SSE	southsoutheast	NNW	northnorthwest

Vessel types

LASH	Lighter Aboard Ship	Ro-ro	Roll-on Roll-off
LNG	Liquefied Natural Gas	ULCC	Ultra Large Crude Carrier
LPG	Liquefied Petroleum Gas	VLCC	Very Large Crude Carrier
OBO	Ore/Bulk/Oil	VLOC	Very Large Ore Carrier
Lo-lo	Lift-on Lift-off	FSO	Floating Storage and Offloading
NGL	Natural Gas Liquids	FSU	Floating Storage Unit
FSRU	Floating Storage and Regasification Unit	FPSO	Floating Production Storage and Offloading

Time

ETA	estimated time of arrival	GMT	Greenwich Mean Time
ETD	estimated time of departure	UTC	Coordinated Universal Time

Water level

MSL	mean sea level	LWS	low water springs
HW	high water	MHWN	mean high water neaps
LW	low water	MHWS	mean high water springs
MHW	mean high water	MLWN	mean low water neaps
MLW	mean low water	MLWS	mean low water springs
HWN	high water neaps	TFW	Tropical Fresh Water
HWS	high water springs	HAT	highest astronomical tide
LWN	low water neaps	LAT	lowest astronomical tide

Communications

D/F	direction finder	MF	medium frequency
R/T	radiotelephone	HF	high frequency
GMDSS	Global Maritime Distress and Safety System	VHF	very high frequency
LF	low frequency	UHF	ultra high frequency

Navigation

LANBY	Large Automatic Navigation Buoy	SBM	Single Buoy Mooring
NAVSAT	Navigation Satellite	SPM	Single Point Mooring
ODAS	Ocean Data Acquisition System	TSS	Traffic Separation Scheme
CBM	Conventional Buoy Mooring System	VTC	Vessel Traffic Center
MBM	Multi-Buoy Mooring System	VTS	Vessel Traffic Service
CALM	Catenary Anchor Leg Mooring		

VIII

The following abbreviations may be used in the text:

Miscellaneous

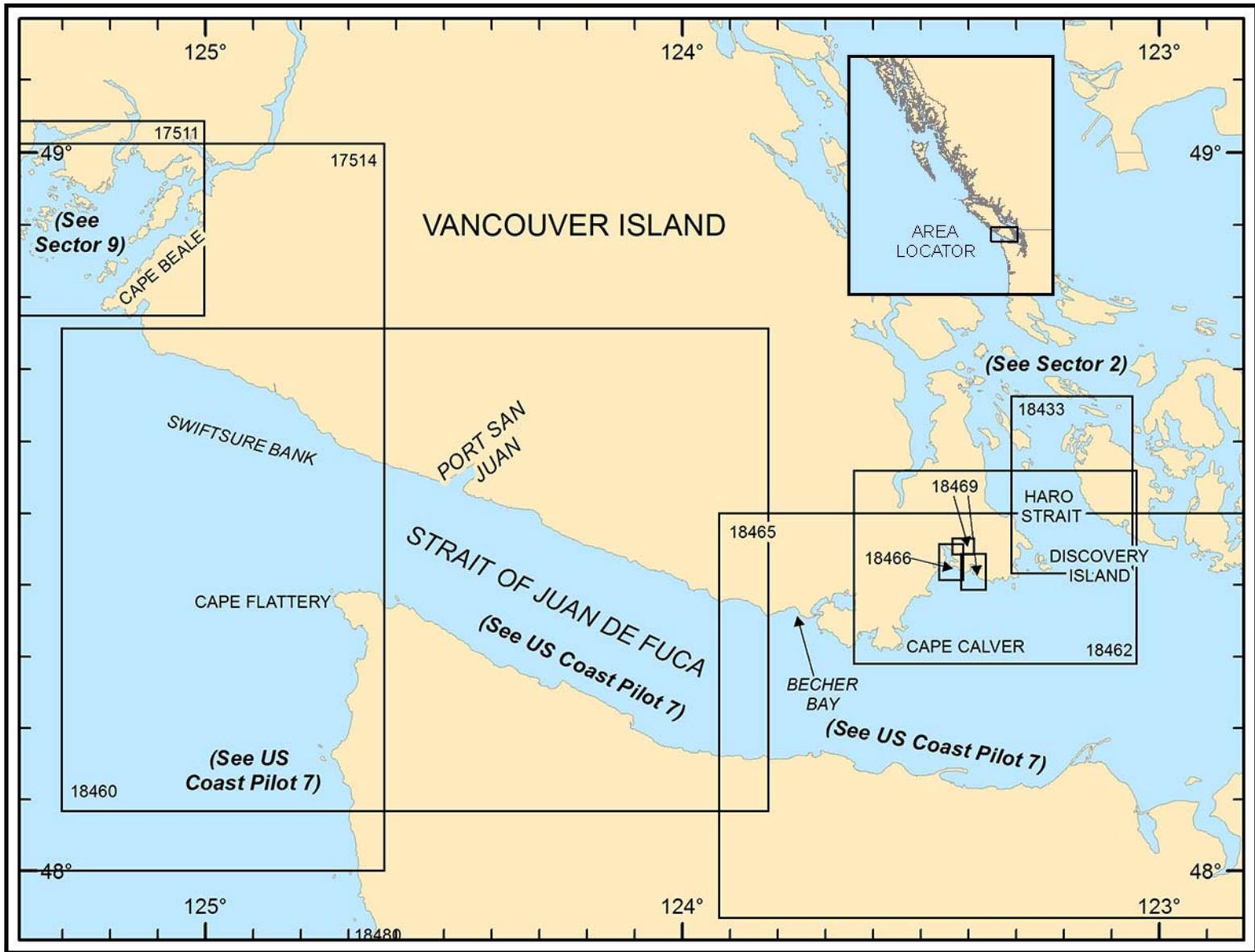
AIS	Automatic Identification System	MMSI	Maritime Mobile Service Identity Code
COLREGS	Collision Regulations	No./Nos.	Number/Numbers
IALA	International Association of Lighthouse Authorities	PA	Position approximate
IHO	International Hydrographic Organization	PD	Position doubtful
IMO	International Maritime Organization	Pub.	Publication
IMDG	International Maritime Dangerous Goods Code	SOLAS	International Convention for Safety of Life at Sea
LOA	length overall	St./Ste.	Saint/Sainte
UKC	Under keel clearance	ISPS	International Ship and Port facility Security
ITC	International Convention on the Tonnage Measurement of Ships (1969)	ECDIS	Electronic Chart Display and Information System

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Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).
SECTOR 1 — CHART INFORMATION

SECTOR 1

THE STRAIT OF JUAN DE FUCA

Plan.—This sector describes the N side of the Strait of Juan de Fuca and the S coast of Vancouver Island, from Cape Beale to Discovery Island.

General Remarks

1.1 The Strait of Juan de Fuca separates the S coast of Vancouver Island from the N coast of the State of Washington.

The entrance of the strait lies between Cape Flattery (48°23'N., 124°44'W.) and Carmanah Point (48°37'N., 124°45'W.). At the E end of the strait, several navigable passages lead N and NW to the Strait of Georgia and Queen Charlotte Sound.

The strait is deep and free of dangers in the fairway. The coasts are marked by lights; radiobeacons are situated at Cape Beale and Tatoosh Island. There are few dangers in the seaward approaches to the strait.

Cape Flattery, a bold and lofty headland, is reported to be radar conspicuous. An outer approach lighted buoy, equipped with a racon, is moored about 6 miles N of this cape.

The rocks, lying close off the cape, are marked by a lighted buoy moored about 0.3 mile NW. Tatoosh Island, lying close NW of Cape Flattery, is marked by a light.

Note.—The S coast of the strait and the adjacent waters of the State of Washington, along with the navigable channels leading S from the Strait of Juan de Fuca to Puget Sound, are described in U.S. Coast Pilot 10.

Winds—Weather.—Sea fog is sometimes very dense in the vicinity of the entrance of the strait and may last for days at a time. It is usually accompanied by calms or light airs from the NW.

The fog decreases, both in density and frequency, E along the strait. Occasionally, the fog stands before the entrance like a wall. Vessels entering the strait may run through it into clear weather, even before passing Cape Flattery. As a general rule, the fog is more likely to extend farther into the strait along the S shore than along the N shore. It may reach the W shore of Admiralty Inlet when the N shore of this wide part of the strait is clear.

Fog occurs with almost equal frequency over the strait from October through July. The greatest frequency is during August and September.

Occasionally, smoke from forest fires reduces visibility to less than 5 miles in the strait. The smoke is usually cleared by rain.

The wind often blows in or out of the strait following the contour of the coasts. It blows in if the open coastal winds are NW to SW, as most frequently happens in the summer months; and blows out during the SE gales of winter.

When the seas raised by the winds blowing out of the strait meet the SW swell at the entrance, heavy confused seas are the result. The neighboring coast of Vancouver Island, particularly between Carmanah Point and Port San Juan, becomes a hazardous lee shore for sailing vessels and small craft.

Fog is sometimes dense in the approaches to, and to a lesser extent within, the strait. Vessels approaching the strait in thick weather are advised to pass S of Swiftsure Bank, because of the numerous fishing craft, most of which cannot be detected by radar. Cape Flattery and the off-lying rocks should be passed at a distance of at least 3 miles, as strong tidal currents set towards the cape and there are dangerous tide rips in this area. A long, rolling swell often sets onto the coast to the S of the cape. In thick weather, vessels should not proceed inside the 90m curve until a reliable position has been obtained.

Tides—Currents.—In the vicinity of Swiftsure Bank, the tidal current is distinctly rotary, turning clockwise twice each day. The set is E at HW and W at LW. The tidal current has a rate of less than 1 knot. Observations indicate the existence of a permanent current setting NW, with an average rate of 0.5 knot.

The NW currents are considerably stronger than the SE. A NW set, with a rate of 2 knots, occurs at times with SE winds, while a SE set, with a rate of up to 1.5 knots, does not occur except with strong W or NW winds. The greatest rate observed in this locality was 3 knots.

Tide rips occur off the prominent points and in the vicinity of banks. They are especially heavy along the N shore of the strait, between Beechey Head and Esquimalt. Under certain conditions, these tide rips can be dangerous to small vessels. The tidal currents are often strong and irregular throughout the strait and its inlets.

A result of the diurnal characteristics of the tides in the vicinity of the SE end of Vancouver Island is that the tidal currents are very irregular in the inlets along this coast.

At night, or in thick weather, vessels should be certain of their latitude when nearing the strait. From the W, the 330m curve is a good guide to the approximate longitude and the distance offshore.

In Plumper Passage and Hecate Passage, the flood tidal current begins immediately after LW by the shore and runs for 3 hours 45 minutes, after which there is slack water for a short period. The ebb tidal current then runs until LW by the shore, or for about 7 hours. Velocities of 3 to 5 knots occur.

In Baynes Channel, a SW current occurs 1 hour 20 minutes and 1 hour 30 minutes, respectively, after the predicted times of HW and LW at Victoria. There is only one predicted HW and LW at Victoria during those 24 hours. The duration of the SW set is quite short. The tidal currents are reported to be strongest on the SE side of the channel.

At the E end of the Strait of Juan de Fuca, the general set of the tidal current is from Race Rocks towards Discovery Island, and reverse. In the intermediate positions, the set is variable. In the vicinity of Race Rocks, the tidal current attains a velocity of 4 to 6 knots at times and dangerous tide rips are often formed. Both the times of HW and LW, indicating the turn of the tidal current, are very irregular. The duration of slack on the S side of Race Rocks is about 15 minutes, on the average.

Off the W entrance of the Strait of Juan de Fuca, within 25 or

30 miles of Cape Flattery and the Vancouver Island coast, a NW current sets across the entrance. This current should be guarded against, especially during the winter when SE and S gales prevail. The NW current is augmented by the W (ebb) tidal current setting out of the strait. It is also drawn to the N and E by the flood tidal current setting N across the entrance.

Within the entrance and as far E as 124°W, the E (flood) tidal current sets towards the Vancouver Island shore. It attains a greater velocity on the N side of the strait, as far E as Race Rocks, than on the S side and turns 1 hour 30 minutes to 2 hours 30 minutes earlier on the N side. Conversely, the W (ebb) tidal current is stronger on the S side of the strait. Vessels frequently take advantage of this effect when the tidal currents in the fairway of the strait are adverse.

The flood tidal current rounds Cape Flattery and Duntze Rock, with a velocity of 2 to 4 knots, and continues strong to abreast Race Rocks. It varies with the force and direction of the wind and the range of the tide. The current accelerates near the coast and in the entrances of channels.

Tides in the waters off the SE end of Vancouver Island are diurnal in type and subject to diurnal inequality both as to time and height. They are influenced most when the moon is at maximum declination and least when the moon is on the celestial equator.

Caution.—Numerous fishing vessels may be encountered within the Strait of Juan de Fuca, from the end of July to the end of October.

Swiftsure Bank (48°34'N., 125°00'W.), with a least depth of 33m, lies off the mouth of the strait. From April 15 to October 31, numerous fishing vessels may be encountered in the vicinity of this bank, about 15 miles NW of Cape Flattery, and on La Perouse Bank, lying 30 miles WNW.

Regulations.—For information on regulations concerning the Western Canada Traffic Zone, Vessel Traffic Services, and Pilotage, see Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia. Details of services are also provided in U.S. Coast Pilot 10.

Canadian modifications to 72 COLREGS are applied in waters under Canadian jurisdictions. See Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia for further information.

Ballast Water Control and Management Regulations contained in the Canada Shipping Act 2001 applies to most vessels arriving in Canadian waters. This is to prevent the introduction of potentially damaging pathogens or organisms to the local ecosystems. Further information can be found on the internet: (<https://laws-lois.justice.gc.ca/eng/regulations/SOR-2011-237>).

Any collision with marine mammals or sightings of entangled, injured, or dead marine mammals must be reported to the appropriate marine animal response organization, including to the Canadian Department of Fisheries and Oceans (DFO).

1. Telephone: 604-666-0384
2. Facsimile: 604-666-1847
3. E-mail: info@dfo-mpo.gc.ca

Cooperative Vessel Traffic Service.—In 1979, by formal agreement, the Canadian Coast Guard and the United States Coast Guard established the Cooperative Vessel Traffic Services (CVTS) for the Strait of Juan de Fuca region. The purpose of this agreement is to provide for a cooperative system of

vessel traffic management in the applicable waters in order to enhance safe and expeditious movement of vessel traffic while minimizing the risk of pollution of the marine environment.

Participation with Prince Rupert Traffic (paragraph 9.1), Victoria Traffic, and Seattle Traffic (in U.S. Coast Pilot 10) is mandatory within Canadian and United States territorial waters. The CVTS Area of Operation is defined as 124°40'00"W, then S along the Washington coast to 48°00'00"N, then W to 125°15'00"W, and N to 48°35'45"N. Inbound vessels are to check in with Prince Rupert Traffic on VHF channel 74 (156.725 MHz) at either 48°00'00"N or 125°15'00"W prior to entering the traffic separation scheme. See the graphic titled **Cooperative Vessel Traffic Services (CVTS) Inland and Offshore**.

An information service, such as a vessel's identity, destination, or other information obtained through VTS reports and sensors, is available upon request outside the VTS area.

Vessel Traffic Service (VTS).—The Vessel Traffic Services Zones Regulations require all participating vessels to file a VTS Offshore Report 24 hours prior to entering a Canadian VTS zone from seaward, or as soon as practical where the estimated time of arrival of the ship to a Canadian VTS zone is less than 24 hours after the time the ship departed its last port of call. Send VTS Offshore Reports to a Canadian Coast Guard Marine Communications and Traffic Services (MCTS) Center, free of charge, or to one of the following:

1. Telephone: 250-627-3071
2. E-mail: vts.rupert@innav.gc.ca

Participation is mandatory for those vessels:

1. 500 grt or more
2. Engaged in towing or pushing a vessel, where the combined tonnage of the ship and the vessel being towed or pushed is 500 grt or more
3. Carrying a pollutant or dangerous goods, or engaged in towing or pushing a vessel carrying a pollutant or dangerous goods as prescribed in the
 - a. *International Maritime Dangerous Goods (IMDG) Code*.
 - b. *Vessel Pollution and Dangerous Chemicals Regulations*.

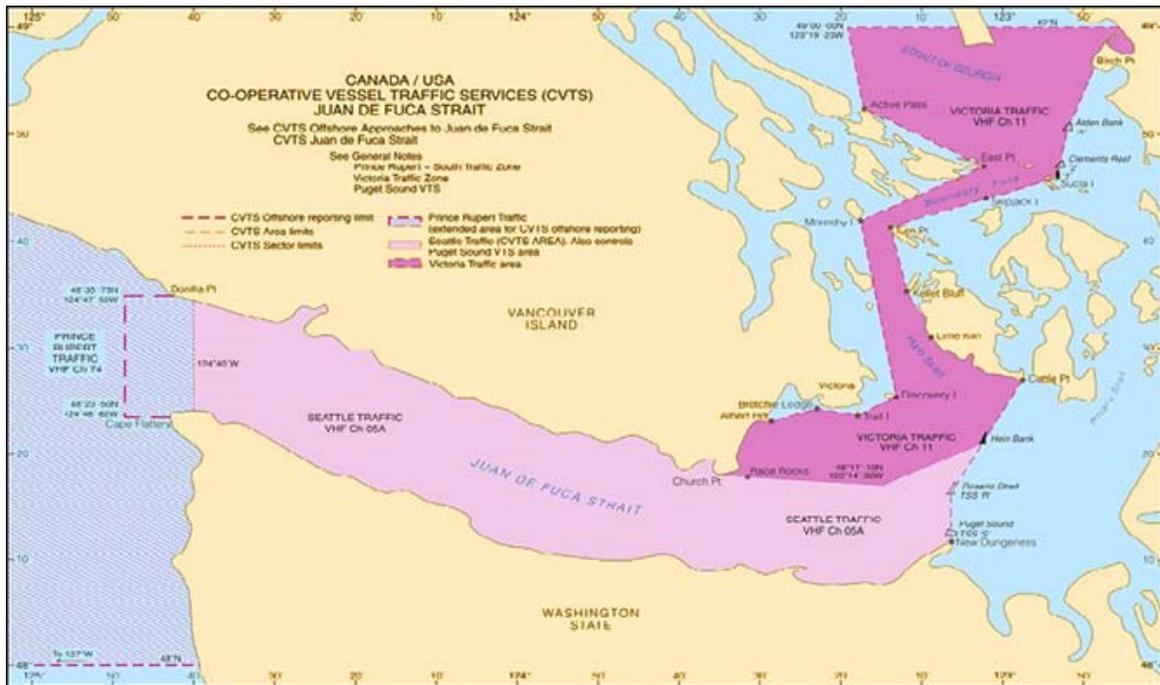
Second Narrows Movement Restriction Area (MRA-2) is in place for the waters surrounding the Second Narrows bridges. See paragraph 3.19 for more details.

The Victoria VTS has been divided into four sectors for reporting purposes, with all four sectors administered by Victoria Traffic. There are specific Calling-In-Points (CIP) spread out over the entire area. These CIPs are listed in the table titled **Victoria Traffic Calling-in-Points** and includes the sector designations and location descriptions for each CIP.

Vessels must contact Victoria VTS through the appropriate VHF channel for each sector (see table titled **Victoria VTS—Contact Information**) and report their position at each Calling-In-Point (CIP) by CIP name and Sector.

The sector limits are, as follows:

1. **Sector 1 (SE limits)**—All Canadian waters N of and included within a line from Vancouver Island at 48°34'58"N, 124°40'00"W along the meridian 124°40'00"W southward to a point that intersects the International Boundary, then along this boundary E and N through Juan de Fuca Strait, Haro Strait, Boundary Passage, and the Strait of Georgia to a point



Cooperative Vessel Traffic Services (CVTS) Inland and Offshore

that intersects the Canadian coastline at 49°00'00"N, 123°05'20"W.

2. **Sector 1 (NW limits)**—A line joining Reception Point Light (49°28'16"N., 123°53'12"W.), Merry Island Light (49°28'04"N., 123°54'40"W.), Ballenas Island Light (49°21'02"N., 124°09'32"W.), and Cottam Point (49°18'57"N, 124°12'45"W.), excluding the area described for Sectors 2 and 3.

3. **Sector 2**—Main (or S) arm of the Fraser River from Sand Heads Light (49°06'23"N., 123°18'04"W.) to a line drawn E from Shoal Point (49°11'45"N., 122°54'51"W.) to the opposite S shoreline.

4. **Sector 3**—All Canadian waters N and E of a line joining these following points:

- a. Iona Breakwater Light (49°12'18"N., 123°15'50"W.).
- b. Position 49°12'18"N, 123°25'53"W.
- c. Cape Roger Curtis Light (49°20'24"N., 123°25'53"W.).
- d. Gower Point (49°23'01"N., 123°32'06"W.), including all of Howe Sound and Burrard Inlet.

5. **Sector 4**—All Canadian waters between the following N and S limits:

- a. North limit—A line joining the following points:
 - i. Cape Sutil Light (50°52'34"N., 128°03'07"W.),
 - ii. Mexicana Point (50°54'52"N., 127°59'58"W.),
 - iii. Cape Caution Light (51°09'50"N., 127°47'06"W.).
- b. South limit—A line joining the following points:
 - i. Reception Point Light (49°28'16"N., 123°53'12"W.),
 - ii. Merry Island Light (49°28'03"N., 123°54'40"W.),
 - iii. Ballenas Island Light (49°21'02"N., 124°09'32"W.),
 - iv. Cottam Point (49°18'57"N., 124°12'45"W.).

Special operating procedures are in effect, as follows:

1. **Outbound Vessels at Brotchie Ledge** (48°24'23"N., 123°23'17"W.): Pilots are requested to advise Victoria Traffic (VAK) of their ETA at Race Rocks, when possible.

2. **Point Grey/Point Atkinson:** Inbound vessels shall initiate a broadcast to Victoria Traffic (VAK) advising an ETA for First Narrows at a line between Point Grey and Point Atkinson. Victoria Traffic (VAK) will respond only if there is any traffic to report.

Thirteen remotely-controlled stations are listed in the table titled **Victoria Traffic Remotely-Controlled Stations**.

Victoria Traffic Calling-in-Points			
CIP	Name	Sector	Remarks
1	Zone Limit	Change	Along longitude 124°40'00"W. Administered by Seattle and Prince Rupert VTS centers.
2	Buoy VF	Change	A line bearing 000°—180° through Lighted Buoy VF (48°14'06"N., 123°31'54"W.).

Victoria Traffic Calling-in-Points			
CIP	Name	Sector	Remarks
3	Race Rocks	Change	A line with range of 090°—270° through Race Rocks Light (48°17'54"N., 123°31'54"W.). Administered by Seattle and Victoria Traffic.
4	Buoy VH	1	A line bearing 000°—180° through Lighted Buoy VH (48°22'32"N., 123°23'29"W.).
5	Hein Bank	Change	A line joining Hein Bank Lighted Buoy (48°22'00"N., 123°02'01"W.) and Cattle Point Light (48°27'03"N., 122°57'45"W.). Administered by Seattle and Victoria Traffic.
6	Turn Point	1	Located 3 miles before Turn Point Light (48°41'20"N., 123°14'10"W.).
7	East Point	1	A line joining East Point Light, Saturna Island (48°47'00"N., 123°02'70"W.) and Patos Island Light (48°47'24"N., 122°58'13"W.). Vessels are encouraged to call in 3 miles from East Point Light when entering or exiting Boundary Pass.
8	Patos Island	Change	A line joining Patos Island Light (48°47'40"N., 123°58'22"W.) and Alden Bank Lighted Buoy (48°50'24"N., 122°52'32"W.). Administered by Seattle and Victoria Traffic.
9	Portlock Point	1	A line with range of 090°—270° through Portlock Point (48°49'68"N., 123°21'02"W.).
10	Peile Point	1	A line with range of 045°—225° through Peile Point (48°51'00"N., 123°24'23"W.).
11	Active Pass	1	A point 3 miles N, NE, or E of Georgina Point Light (48°52'41"N., 123°17'41"W.), entering Strait of Georgia, and when clear of Active Pass.
12	Sand Heads	Change	A line with range of 000°—180° through Sand Heads Light (49°06'35"N., 123°18'20"W.).
12A	Woodward Island (Crown Forest)	2	In the Fraser River along longitude 123°07'49"W.
12B	La Farge	2	A line with range of 157°—337° through (49°09'28"N., 123°00'25"W.).
12C	Shoal Point	Change	A line with range of 090°—270° through Shoal Point (49°11'74"N., 122°54'78"W.).
13	West Porlier Pass	1	A point 3 miles NW or SSE of Virago Rock Light (49°00'47"N., 123°35'29"W.).
14	East Porlier Pass	1	A point 3 miles N, NE, or E of Virago Rock Light.
15A	Iona	Change	A line between Iona Breakwater Light (49°12'18"N., 123°15'50"W.) and position 49°12'18"N, 123°25'53"W.
15B	Cape Roger Curtis	Change	A line between Cape Roger Curtis Light (49°20'24"N., 123°25'53"W.) and position 49°12'18"N, 123°25'53"W.
15C	Gower Point	Change	A line between Gower Point (49°23'01"N., 123°32'06"W.) and Cape Roger Curtis Light.
16	Halkett Point	3	Along the latitude 49°26'43"N in Howe Sound, E of Halkett Point.
17	Grace Island	3	Along the latitude 49°25'50"N in Howe Sound, W of Grace Island.
18	Cowan Point/Point Atkinson	3	A line joining Cowan Point Light (49°20'08"N., 123°21'35"W.) and Point Atkinson Light (49°19'50"N., 123°15'48"W.).
19	Dundarave	3	Only eastbound vessels are required to make this report along a line with range of 000°—180° through Buoy QB (49°19'02"N., 123°12'00"W.).

Victoria Traffic Calling-in-Points			
CIP	Name	Sector	Remarks
20	Vanterm	3	A line between positions 49°17'23"N, 123°04'33"W and 49°18'21"N, 123°04'37"W. See Vancouver Harbor Second Narrows VTS (Vancouver Harbour entry).
21	Berry Point	3	Only westbound vessels are required to make this report along longitude 122°59'09"W in Vancouver Harbor.
22	Roche Point	3	A line with range of 000°—180° through Roche Point (49°18'02"N., 122°57'17"W.).
23	Entrance Island/Five Fingers Island	1	A line between Entrance Island (49°12'34"N., 123°48'25"W.) and Five Fingers Island (49°13'53"N., 123°54'52"W.).
24	Ballenas Island/Merry Island/Welcome Passage	Change	A line joining Reception Point Light, Merry Island Light, and Ballenas Island Light. Northbound mariners shall indicate whether their route is through Welcome Passage, Malaspina Strait via Epsom Point, Sabine Channel, Stevens Passage, W of Sisters Island, or through Ballenas Channel.
25	Cape Lazo/Powell River	4	A line between Cape Lazo Light (49°42'25"N., 124°51'41"W.) and the Powell River breakwater S light (49°51'47"N., 124°33'23"W.). Southbound mariners shall indicate whether their route is through Malaspina Strait via Epsom Point, Sabine Channel, Stevens Passage, or W of Sisters Island, or through Ballenas Channel.
26	Cape Mudge	4	A line with range of 090°—270° through Cape Mudge Light (49°59'56"N., 125°11'38"W.). Northbound mariners shall report ETA for Steep Island and Maud Island Light.
27	Steep Island	4	A line with range of 050°—230° through Steep Island Light (50°04'45"N., 125°15'06"W.). Northbound mariners shall report ETA for Separation Head and update ETA for Maud Island Light, if any change.
28	Separation Head	4	A line with range of 090°—270° through Separation Head (50°10'51"N, 125°21'02"W). Southbound mariners shall report ETA for Steep Island and update ETA for Maud Island Light, if any change.
29	Cinque Island	4	A line with range of 090°—270° through Cinque Island Light (50°17'44"N., 125°23'59"W.). Southbound mariners shall report ETA for Separation Head and Maud Island Light.
30	Ripple Point	4	A line with range of 000°—180° through Ripple Island Light (50°22'05"N., 125°34'42"W.).
31	Vansittart Point	4	A line with range of 000°—180° through Vansittart Point Light (50°22'37"N., 125°44'31"W.).
32	Fanny Island	4	A line with range of 045°—225° through Fanny Island Light (50°27'13"N., 125°59'30"W.).
33	Boat Bay	4	A line with range of 000°—180° through Boat Bay Light (50°31'11"N., 126°34'37"W.).
34	Lizard Point	4	A line with range of 045°—225° through Lizard Point Light (50°40'17"N., 126°53'36"W.). Northbound mariners shall indicate whether their route is through Goletas Channel, Gordon Channel, Ripple Passage, or through Richards Channel.

Sector 1. The Strait of Juan de Fuca

Victoria Traffic Calling-in-Points			
CIP	Name	Sector	Remarks
35	Lewis Point	4	A line with range of 000°—180° through Lewis Point Light (50°33'07"N., 126°51'10"W.).
36	Pulteney Point	4	A point 3 miles NW of Pulteney Point Light (50°37'51"N., 127°09'12"W.). Northbound mariners shall indicate whether their route is through Goletas Channel, Gordon Channel, Ripple Passage, or through Richards Channel.
37	Doyle Island	4	A line with range of 045°—225° through Doyle Island Light (50°48'20"N., 127°27'32"W.).
38	Pine Island	4	A line with range of 045°—225° through Pine Island Light (50°58'21"N., 127°43'35"W.).
39	Cape Caution/Triangle Island	Change	A line joining Cape Caution Light (51°09'50"N., 127°47'06"W.), Mexicana Point (50°54'52"N., 127°59'58"W.), and Cape Sutil (50°52'34"N., 128°03'07"W.). Southbound mariners shall indicate whether their route is through Scott Channel, Goletas Channel, Gordon Channel, Bolivar Passage, Ripple Passage, or Richards Channel.

Victoria VTS—Contact Information	
	Sector 1/Sector 2/Sector 3/Sector 4
Call sign	Victoria Traffic (VAK)
VHF	VHF channel 11 (for Sector 1)
	VHF channel 74 (for Sector 2)
	VHF channel 12 (for Sector 3)
	VHF channel 71 (for Sector 4)
Telephone	1-250-363-6611 (MCTS Operations)
	1-250-363-6880 (CMB—Mount Helmcken)
	1-250-363-6492 (CMB—Bowen Island/Mount Parke)
	1-604-666-3655 (CMB—Bowen Island/Mount Parke)
	1-250-974-5305 (CMB—North Area)
	1-250-339-0748 (CMB—Mid-Island Area)
	1-800-661-9202 (British Columbia only)
Facsimile	1-250-363-6556
E-mail	supervisor.victoria@innay.gc.ca
Web site	http://www.ccg-gcc.gc.ca/marine-communications/home
Public Port web site	http://www.tc.gc.ca/eng/pacific/marine-1521.html
MMSI	003160011
Note. —CMB (Continuous Marine Broadcast)	

Victoria VTS Remotely-Controlled Stations	
Location	VHF
Mount Helmcken (48°24'07"N., 123°34'17"W.)	VHF channels 11, 16, 70, 83A, and 84
Mount Newton (48°36'48"N., 123°26'35"W.)	VHF channels 11, 16, 70, 83A, and 84

Victoria VTS Remotely-Controlled Stations	
Location	VHF
Mount Parke (48°50'23"N., 123°17'41"W.)	VHF channels 11, 16, 26, 70, 74, and 83A
Gabriola Island (49°09'11"N., 123°50'35"W.)	VHF channels 11, 16, and 83A
Annacis Island (49°11'35"N., 122°55'09"W.)	VHF channels 16, 26, 70, 74, and 83A
Bowen Island (49°20'41"N., 123°23'13"W.)	VHF channels 11, 16, 70, 83A, and 84
West Vancouver (49°17'05"N., 123°06'44"W.)	VHF channels 12, 16, and 83A
Watts Point, Howe Sound (49°38'54"N., 123°12'36"W.)	VHF channels 12, 16, 70, and 83A
Cape Lazo (49°42'24"N., 124°51'41"W.)	VHF channels 16, 26, 71, and 83A
Discovery Mountain (50°19'25"N., 125°22'16"W.)	VHF channels 16, 70, 71, 83A, and 84
Alert Bay (50°35'12"N., 126°55'28"W.)	VHF channels 16, 26, 71, and 83A
Port Hardy (50°41'35"N., 127°41'53"W.)	VHF channels 16, 70, 71, 83A, and 84
Texada Island (49°41'47"N., 124°26'07"W.)	VHF channels 16, 70, 71, 83A, and 84

Vessel movements in the Victoria VTS may be restricted when the following vessels are underway:

1. A loaded tanker or tank barge 10,000 grt or over.
2. A vessel carrying dangerous cargo.
3. A vessel which is considered to be navigating with difficulty.

Victoria Traffic (VAK) may broadcast a Securite message regarding the movement of any of these kinds of vessels.

All vessels, including tugs with tows, that are not able to proceed at a speed greater than 5 knots should request clearance before crossing any established traffic lanes.

Victoria Traffic (VAK) will initiate action through the harbor master to have an anchored vessel repositioned under the following circumstances:

1. A vessel drags out of position and does not take immediate steps to recover its position.
2. Unable to establish contact with the vessel on VHF channel 12.

Cape Beale to Carmanah Point

1.2 Cape Beale (48°47'N., 125°13'W.) is bold, rocky, and heavily wooded. It is reported to be a poor radar target. A light is shown from a tower standing on this cape.

From Cape Beale, the shores of Vancouver Island are mostly steep-to, rising inland to densely-wooded hills. The coast trends SE for 75 miles to Race Rocks and all fringing shoals lie within the 100m curve.

Between Cape Beale and Race Rocks, extensive logging operations and forest fires have left noticeable bare patches. The densely-wooded shores on the S side of the strait rise to the perpetually snow-clad Olympic Mountains. Several conspicuous peaks, which may best be seen on the chart, stand within the N entrance of the strait.

Pachena Point (48°43'N., 125°06'W.), steep-to, is located 6 miles SE of Cape Beale. A light is shown from a structure, 12m high, standing on the point. A prominent white house, with a red roof, is situated close W of the light.

A prominent waterfall, rare for this region, marks the mouth of the Tsusiat River, about 7 miles ESE of Pachena Point.

Pachena Bay (48°47'N., 125°08'W.) is entered 3 miles NW of the Pachena Point. Seabird Rocks, above-water, lie in the entrance of this open bay, which is obstructed by dangers. A light is shown from a structure standing on the largest rock. A heavy sea usually rolls into the bay and passage, without local knowledge, is unsafe. Nitinat Lake, an inlet, is entered about 11 miles ESE of Pachena Point. It is used as a refuge by fishing craft with local knowledge. Clooose, an abandoned village, is situated on the coast, 1.3 miles ESE of the inlet. A lighted buoy is moored about 1 mile S of this village.

Carmanah Point (48°37'N., 124°45'W.), located 15.5 miles SE of Pachena Point, forms the N entrance point of the Strait of Juan de Fuca and is conspicuous. Bonilla Point, 1.8 miles SE of this point, slopes down to the strait and is fronted by reefs extending up to about 0.6 mile W and S.

A light is shown from a tower, 9m high, standing on Carmanah Point. A fishing light is occasionally shown from Bonilla Point.

Caution.—Choppy and confused seas, dangerous to small vessels, are raised off Carmanah Point and Bonilla Point when SW swells at the entrance meet wind-driven seas blown out of the strait.

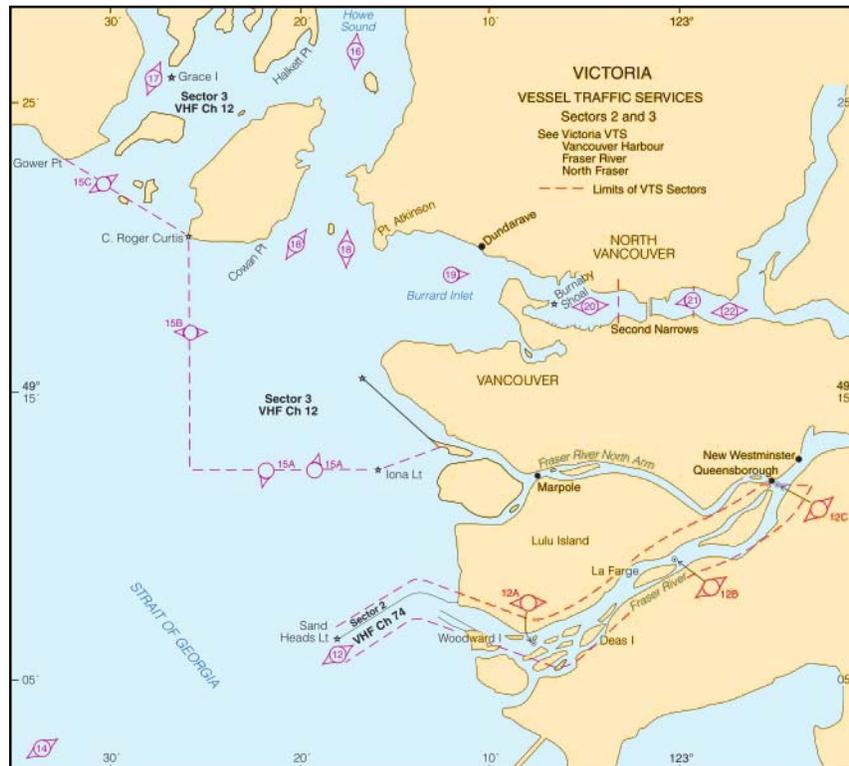
1.3 Port San Juan (48°33'N., 124°26'W.) (World Port Index No. 18705), an inlet, is entered between Owen Point and San Juan Point, 1.5 miles ESE. The fairway is marked by a lighted buoy moored about 0.8 mile SE of Owen Point.

This inlet appears from seaward as a conspicuous, deep gap between two mountain ranges and is open to SW winds, seas, and swell. Above-water rocks lie close off both sides of the entrance. The entrance fairway is clear of dangers and leads through the inlet in a least depth of 10m.

Port Renfrew is situated within a small cove, about 2 miles NE of San Juan Point. Local knowledge is required to enter this cove. There is a small wharf, with a depth of 4.6m alongside.

Anchorage can be taken throughout the inlet, in depths of 11 to 16.5m, sand. In the advent of SW gales, vessels should seek a more sheltered anchorage.

Sheringham Point (48°23'N., 123°55'W.), densely-wooded and inconspicuous, lies 23.5 miles ESE of Port San Juan. This



Victoria VTS—Sector 2 and Sector 3 CIPs

point, which is marked by a light, is the location of the Canadian Coast Guard Victoria Radio Station.

A conspicuous electric power plant, with an outfall pipeline, is situated at a coastal village, about 6 miles WNW of Sheringham Point.

Sooke Bay, located 5 miles E of Sheringham Point, lies on the E side of Otter Point. A small lagoon at the head of this bay is used as a booming ground. A privately-maintained entrance channel leads to this lagoon. A conspicuous building is reported to stand on the W side of the lagoon. The bay is shoal in its E part; however, anchorage can be taken during fine weather, in a depth of 14.6m, about 0.5 mile offshore.

Sooke Harbor (48°22'N., 123°43'W.) is entered from Sooke Inlet by passing through a fairway with a least depth of 4.2m. The entrance, which may best be seen on the chart, is marked by a light and indicated by ranges; however, local knowledge is necessary. The harbor is mainly used by fishing vessels, tugs, and barges. There are several small wharfs, with depths up to 3m alongside.

Anchorage can be taken, in depths of 9 to 18m, within the inlet, about 0.5 mile off the harbor entrance points. Anchorage, in depths 11 to 14m, can be taken within the harbor, about 0.2 mile N of the light marking the E extremity of Whiffin Spit.

Beechey Head (48°19'N., 123°39'W.), marked by a monument, is a conspicuous point.

Becher Bay (48°19'N., 123°37'W.) is entered between Beechey Head and Church Point, 2.8 miles E. Frazer Island lies in the E part of this bay. It is the largest of many islands lying on rocky shoals which fringe the sides of the bay. Several

mooring buoys, used for securing log booms, are situated in the NE part of the bay. The tidal currents in this area are strong and irregular, and tide rips form off the entrance points. During the summer months, floats forming two marinas are moored within the bay.

Sheltered anchorage can be taken, in a depth of 27m, about 0.3 mile NE of Frazer Island.

Christopher Point, low and steep, is located 1 mile E of Church Point. A gunnery control station is situated on this point.

Bentinck Island (48°19'N., 123°33'W.), 46m high, lies centered 0.8 mile ENE of Christopher Point.

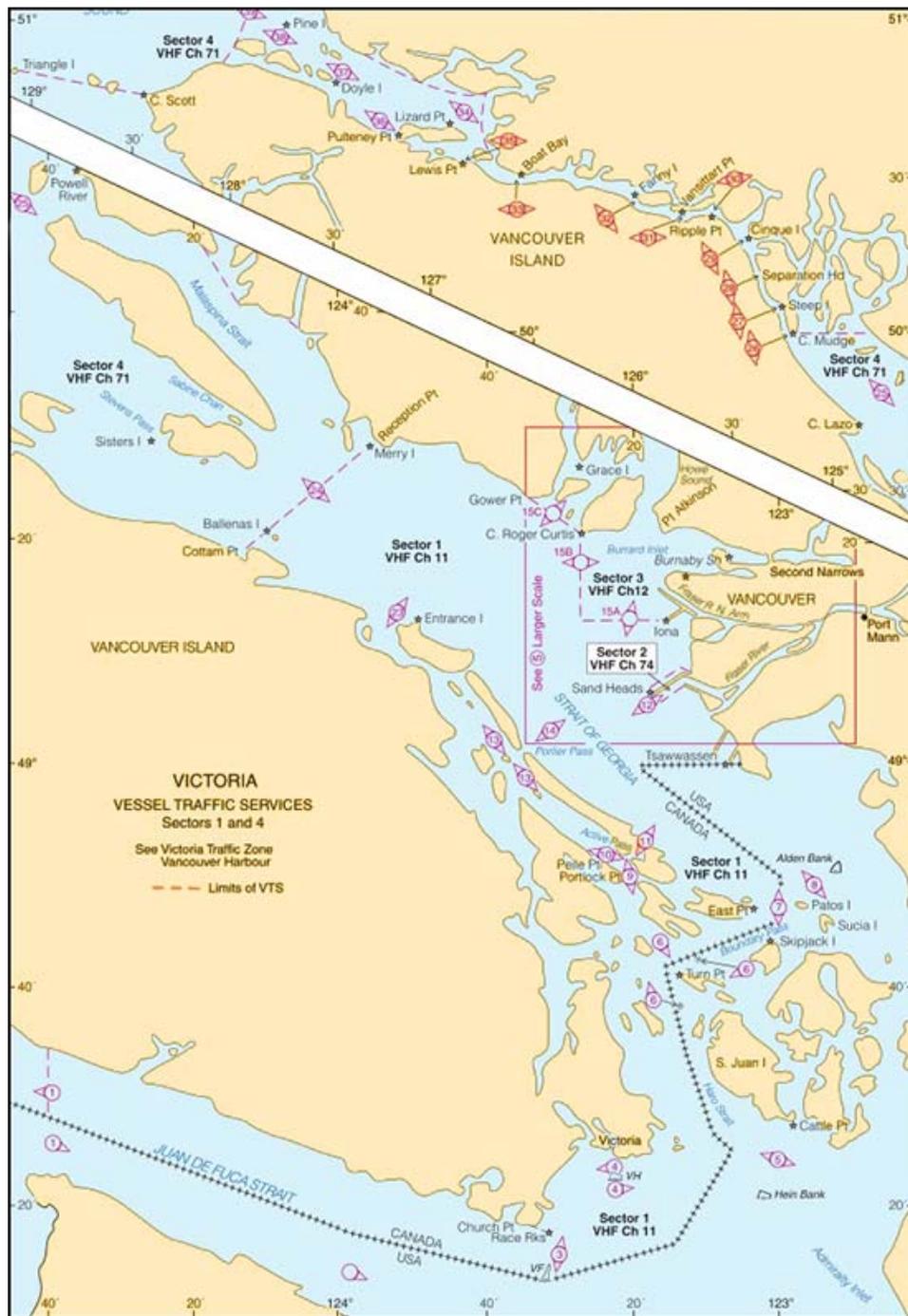
Caution.—A wreck, with a depth of 5.3m, is located close E of Bentinck Island in position 48°18'43"N, 123°32'31"W.

Approaches to Victoria Harbor and Esquimalt Harbor

1.4 Race Rocks (48°18'N., 123°32'W.), a group of low and bare rocks, lie between 0.5 mile and 1.5 miles SE of Bentinck Island. A light is shown from a tower standing on Great Race Rock, the highest of the group; a lighted buoy marks Rosedale Rock, the outermost danger.

Caution.—A tide-generated power turbine is fixed to the bottom about 0.2 mile NW of Great Race Rock; it has a least depth of 5m. A power cable extends from the turbine to Great Race Rock.

1.5 Race Passage (48°19'N., 123°32'W.), with a least



Victoria VTS—Sector 1 and Sector 4 CIPs

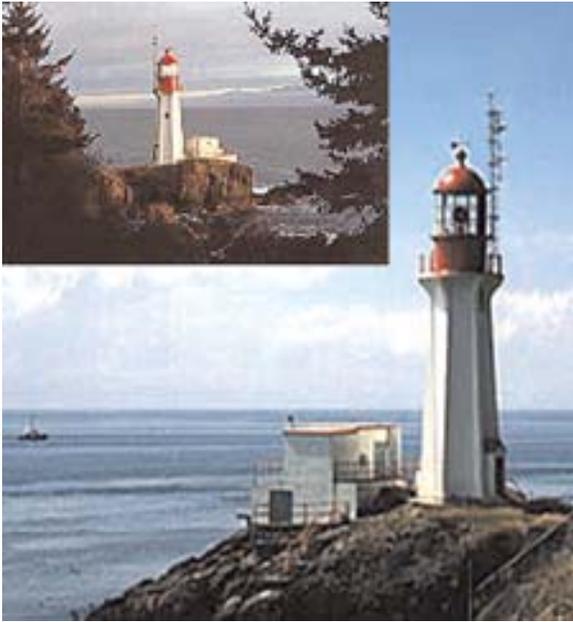
depth of 11m, leads between Race Rocks and Bentinck Island. Due to kelp, the island should be passed at a distance of at least 0.3 mile. Dangerous races and overfalls are prevalent in the passage during stormy weather. Although deep, this passage should not be used by large vessels.

Constance Bank (48°21'N., 123°22'W.), with a least depth of 15.4m, lies about 7.5 miles NE of Race Rocks. Heavy tide

rips occur over the rocky, shoal areas of this bank. Anchorage is not recommended in the vicinity of this bank.

Hein Bank (48°21'N., 123°03'W.), lying about 20 miles E of Race Rocks, has a least depth of 4.1m. It is marked by a lighted buoy equipped with a racon. Thick kelp covers the shallowest part of this bank.

Caution.—Overhead cables, with a vertical clearance of



Inset copyright Chris Mills

Sheringham Point Light

9.8m, span Eemdyk Passage, near the S end of Bentinck Island. An ODAS buoy is situated approximately 5 miles WSW of Hein Bank in position 48°20'01"N, 123°09'53"W.

Pedder Bay to Victoria Harbor

1.6 Pedder Bay (48°20'N., 123°32'W.) is entered 2 miles N of Race Rocks. Cape Calver and Ned Point, about 0.8 mile apart, form the entrance of this bay.

Manor Point (48°20'N., 123°33'W.) is located 0.5 mile NW of Cape Calver. A prominent yellow beacon stands about 0.2 mile NW of this point. A pier is situated near the point and provides a berth, 80m long, with a depth of 7.6m alongside. Anchorage can be taken, in a depth of 9m, sand, about 0.5 mile NNW of Cape Calver. This anchorage is unsafe during SE gales.

William Head, a low promontory, is located close N of Ned Point. The conspicuous buildings of a penitentiary stand on this promontory.

Parry Bay (48°22'N., 123°31'W.) indents the coast between William Head and Albert Head, 3.3 miles NE. The shores of this bay are steep-to and open to E weather. Mary Hill, rising 0.8 mile W of Albert Head, is a prominent landmark. Anchorage, sheltered from W winds, can be taken, in a depth of 11m, mud, about 0.5 mile N of William Head.

Caution.—Vessels should keep clear of target buoys and ships running speed trials in the vicinity of the entrance to Parry Bay.

A submarine cable lies in Parry Bay. Anchorage is prohibited in the N part of Parry Bay.

Vessels should not approach within 0.1 mile of William Head unless authorized.



Top and bottom left photo copyright Mike Mitchell

Race Rocks Light

1.7 Albert Head (48°23'N., 123°29'W.), a salient headland, forms the S end of Royal Roads, which extends NNE to the entrance of Esquimalt Harbor. This headland is wooded, except for its E extremity, which is bare. A conspicuous gravel pit and a pier are situated 1.3 miles N of the headland.

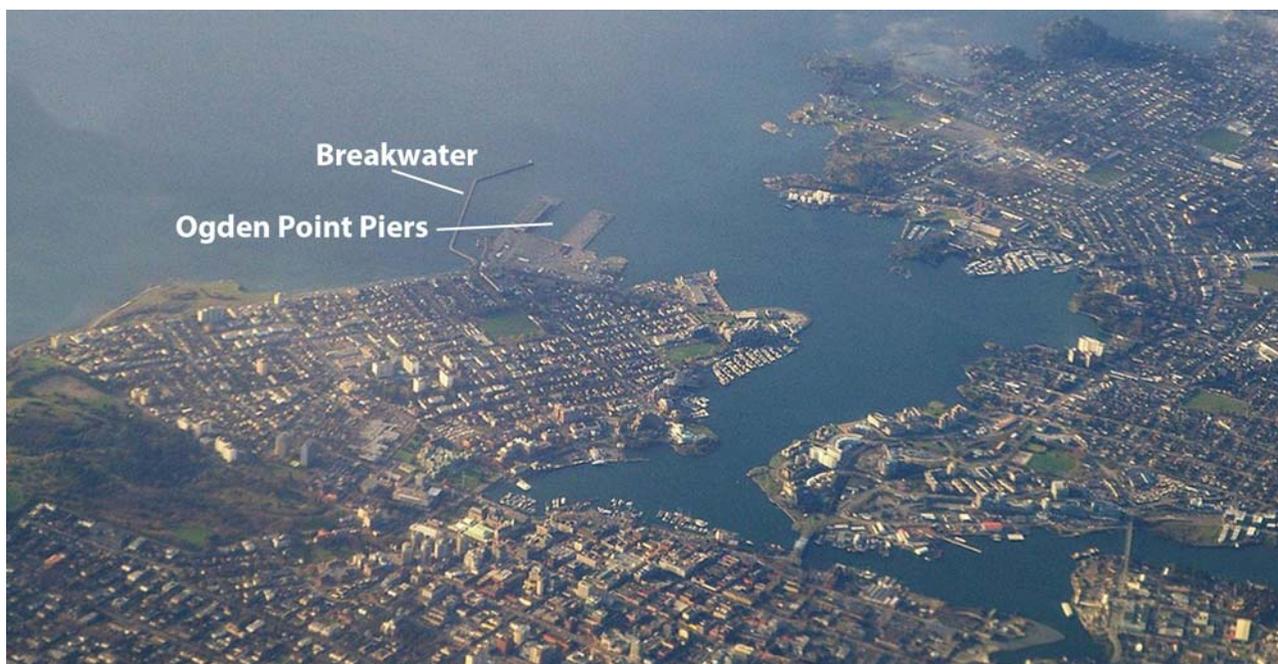
The W shore, forming the roads, consists of sand and gravel. It is backed by sand cliffs extending N to a peninsula fronting a lagoon. The roads, with a least depth of 16.5m, are clear of dangers except for Coghlan Rock, lying about 0.2 mile N of the headland, and a shoal patch, with a depth of 14.6m, lying about 0.8 mile E of the headland.

A prominent radio tower is reported to stand on a hill about 2.5 miles NW of Albert Head.

Victoria Harbor (48°25'N., 123°24'W.)

World Port Index No. 18670

1.8 Victoria Harbor, protected and landlocked, is entered about 2 miles SE of Esquimalt Harbor. This busy harbor is ice-



Victoria Harbor Aerial View

free and accommodates large ocean-going vessels.

Victoria Harbor Home Page

<http://www.victoriaharbour.org>

Winds—Weather.—The strongest and most frequent gales blow from SE and SW. They rarely blow from NW. Winds from the SE blow between November and March, with a strong gale occurring about once a month. Such gales are usually accompanied by rain and thick weather. Winds from the NE rarely blow with much strength and always brings good weather.

It is not unusual to find dense fog in the Strait of Juan de Fuca and clear weather to the N of Race Rocks. Local fog is usually dispelled by noon.

Tides—Currents.—The set and rates of the tidal currents are variable and uncertain in the approaches to Victoria Harbor and Esquimalt Harbor. At the entrance to Victoria Harbor, off Macaulay Point, the flood current sets E and the ebb sets W, with velocities reaching a strength of 1 knot. A similar situation prevails at the entrance to Esquimalt Harbor, although the currents are weaker and more variable in direction than off Macaulay Point. The maximum tidal range for Victoria is 3.1m.

Depths—Limitations.—Victoria is comprised of an Inner and an Outer Harbor, separated by a Middle Harbor. There is an Upper Harbor for barges and tugs located N of the Inner Harbor and separated by the Johnson Street Bridge. The Johnson Street Bridge is 37m wide, with vertical clearance of 5.9m when closed. The middle and inner harbors are located N and E of Shoal Point, including James Bay and consist of several marinas for small and private craft plus Fisherman's Wharf located close E of Shoal Point, which operates as a mixed use facility. The Ogden Point Piers, located on the Outer Harbor



Ogden Point Piers A and B — North and South

close N of the 762m long concrete breakwater that extends outwards from Ogden Point, are the only facilities that can accommodate ocean-going vessels. The Canadian Coast Guard Wharf, situated close S of Shoal Point.

Ogden Point Pier A, also referred to as the Outer Wharf, is situated close within the breakwater at Ogden Point.



Esquimalt Harbor—Vancouver Island with Ogden, Victoria Port in the background



Breakwater Light at Entrance to Victoria Harbor

Ogden Point Pier B, situated close N of Pier A, provides berthage on both the N and S sides. A ferry terminal and ro-ro facilities are available on the inner part of the S berth.

Forest products, the main exports, and containers and general cargo are handled at the Ogden Point piers. Victoria is also a popular cruise ship stop and cruise vessels are accommodated at either of the four berths along Pier A and Pier B. A mooring dolphin has been placed off Pier B to allow for the accommodation of even larger cruise vessels than would normally be able to be handled.

The controlling depth in the harbor entrance is 13m. A minimum depth of 10.7m lies in the fairway of the Outer Harbor. Vessels of up to 155,450 dwt, 305m in length, and 12.5m draft have been accommodated within the outer harbor.

The Inner Harbor has a minimum depth of 5.2m throughout the fairway. Large vessels are accommodated within the outer harbor. The inner harbor is used by ferries, fishing vessels, small craft, and yachts.

Brotchie Ledge, the only off-lying danger in the approaches, lies 0.5 mile SSE of the breakwater head and is marked by a light. A rock, with a depth of 8.5m, lies about 0.4 mile W of the breakwater head and is marked by a light. For further berthing information refer to the table titled **Victoria—Berthing Information**.

Aspect.—The harbor is entered between Macaulay Point, on the W side, and a breakwater extending seaward from Ogden Point, on the E side. A flashing red light is mounted at the end of the breakwater and a picture of this can be seen below.

An approach fairway lighted buoy, equipped with a racon, is moored about 2.3 miles S of the breakwater head.

A conspicuous grain elevator stands on Pier B and several

prominent oil tanks are situated on the W side of the harbor entrance. Ships use their own gear to load and discharge cargo. Containers can be unloaded by crane at Pier A and Pier B at Ogden Point. Mobile cranes can be hired for this purpose.

On the N side of the Inner Harbor close E of Songhees Point, is Tuzo Rock, a submerged rock marked by a light mounted on a white round tower with a green band at the top.

At night, the illuminated skyline of the city of Victoria is conspicuous from seaward. A dome, with a conspicuous gilded figure, stands on the Parliament Building.

Pilotage.—Pilotage is compulsory for vessels over 350 gt or for any vessel carrying pollutants or dangerous goods, engaged in the towing/pushing of vessels carrying pollutants or dangerous goods. Pilots are provided by the Pacific Pilotage Authority Canada (PPA). Pilots are available for all British Columbian ports.

The pilot boarding area is in vicinity of the VH Lighted Buoy.

Vessels should send a request for pilotage, along with ETA, 48 hours, 24 hours, 12 hours, and 4 hours in advance. The 48-hour message should include the following information:

1. Vessel name and call sign.
2. Beam, draft, trim, and LOA.
3. Speed and propeller characteristics.
4. Destination.

Pilot vessels on duty may sound four short blasts as a recognition signal, in addition to the usual prescribed signals.

The limits of Victoria Harbor are designated as all waters to the N of an imaginary line joining the S extremities of Albert Head and the Trial Islands (48°24'N., 123°18'W.). Esquimalt Harbor is excluded.

Victoria—Berthing Information			
Berth	Length	Depth	Remarks
Public Jetty			
East Side	122m	1.2-1.8m	—
West Side	122m	1.5-2.4m	—
Ogden Point Pier A			
South Berth	304m	10.7m	Passengers, breakbulk, and general cargo. Maximum loa of 305m. Maximum draft of 11.3m.
North Berth	243m	10.7m	Passengers, breakbulk, and general cargo.
Ogden Point Pier B			
South Berth	243m	10.7-11.3m	Passengers, breakbulk, and general cargo.
North Berth	243m	10.7-11.3m	Passengers, breakbulk, and general cargo.
Canadian Coast Guard Terminal			
Wharf	220m	3.1-9.0m	Canadian Coast Guard.
Ship Point Wharf			
Ship Point Berth	155m	6.0m	—
Fisherman's Wharf			
Fuel Station	30m	—	Domestic use only.
Note. —Upper Harbor accommodates barges and tugs. Forest products and fuel oil are the primary cargo handled.			



Pelly Island Light and Strobe



Tuzo Rock Light

Contact Information.—Pilots may be contacted, as follows:

1. VHF: VHF channel 17
2. Telephone: 1-250-363-3878
3. Facsimile: 1-250-363-3293
4. Telex: 21-0497236 PPAPILOTS VIC

The harbormaster can be contacted, as follows:

1. VHF: VHF channel 73
2. Telephone: 1-250-363-3578

The Greater Victoria Harbour Association can be contacted, as follows:

1. Telephone: 1-250-383-8300
2. Web site: <http://www.victoriaharbour.org>

The Port Authority can be contacted, as follows:

1. Telephone: 1-250-383-8300
2. Facsimile: 1-250-383-8322
3. E-mail: gvha@victoriaharbour.org

The Johnson Street Bridge is operated by the city of Victoria and can be contacted for vessel traffic control, as follows:

1. Call sign: VAH20
2. VHF: VHF channel 12

The Johnson Street Bridge is manned from 0800 to 1600 local time each day and will not be opened except in case of an emergency between 0700 and 0800 or from 1600 to 1800 on weekdays.

Regulations.—All vessels are required to advise the Esquimalt harbormaster on VHF channel 10 before crossing the area between Fisgard Island and Duntze Head.

Victoria lies within Sector 1 of the Victoria Vessel Traffic Services (VTS) System, administered by Victoria Traffic. For details concerning reporting procedures please refer to paragraph 1.1. For other regulations covering the Western Canada Traffic Zone, please refer to the Regulations paragraph for both Canada and the Pacific Ocean in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

An unmarked Seaplane Take Off and Landing Area is located in the middle of the Inner Harbor and extend into the Outer Harbor area and can be best seen on the chart.

Two Inbound/Outbound Traffic Lanes are located on the S side of the Inner Harbor and extend into the Outer Harbor area. The E portion of the division between the outbound and the inbound traffic lanes is marked with four cautionary lighted buoys. These lanes are also best seen on the chart.

There is a speed limit of 5 knots in Victoria Harbor inside a line from Shoal Point to Berens Island and a speed limit of 7 knots outside the same line.

Proceeding under sail to the N of a line extending between Shoal Point and Berens Island Light is prohibited.

Power driven vessels less than 20m in length, including sailboats, are to transit the Outer Harbor and the Inner Harbor via the vessel Inbound/Outbound Traffic Lanes.

Power driven vessels 20m in length or greater are to transit the Inner Harbor via the Seaplane Take Off and Landing Areas.

All vessels entering or exiting the Inbound/Outbound Traffic Lanes should merge gradually into the appropriate W traffic lane. All vessels should avoid crossing traffic lanes. However, if the crossing of a traffic lane is unavoidable, vessels should cross at right angles to the traffic lane.

All vessels navigating in the area between Songhees Point and Laurel Point, near the Inbound/Outbound Traffic Lanes, should use extreme caution. Additional caution is also required in the

area between Berens Island and Shoal Point, where traffic from West Bay, the Inner Harbor, and the Outer Harbor all converge near the N/S Seaplane Take Off and Landing Area.

Aviation procedures require that pilots take off southbound in the N/S Seaplane Take Off and Landing Area. Landings will most likely occur either eastbound in the E/W Seaplane Take Off and Landing Area or northbound in the N/S Seaplane Take Off and Landing Area. However, wind, water, and aircraft load conditions may be such that aircraft may take off or land in either area and/or in either direction.

A Seaplane Inclement Weather Operating Area in West Bay may be used for take off in some high wind conditions. Because of varying weather conditions, mariners should not count on pilots always being able to operate completely within the designated areas. Therefore, mariners must remain vigilant at all times. To aid mariners, four white strobe lights, located at Berens Island, Shoal Point, Laurel Point, and Pelly Island, are activated by the Flight Service Station up to 60 seconds prior to a seaplane taking off or landing. Also, seaplanes so equipped will normally activate onboard landing/pulsating lights prior to take off.

Aircraft may have to leave the Seaplane Take Off and Landing Areas to make way for other planes and may use the Inbound/Outbound Traffic Lanes until they are able to return to the Seaplane Take Off and Landing Areas.

An Aircraft Holding Area, located SE of Laurel Point, has been designated for one seaplane to hold for short periods while waiting for a berth at one of the seaplane docks.

Aircraft operate in Victoria Harbor from 0700 until 30 minutes past sunset.

Anchorage.—Anchorage is prohibited anywhere in the entrance to Victoria Harbor and E of a line from Berens Island and Shoal Point through the middle and inner harbors, including James Bay, continuing to the Johnson Street Bridge.

Anchorage is permitted with permission of the harbormaster within Royal Roads in areas designated A, B, C, D, and F, which are best seen on the chart.

Anchorage is available within the outer harbor but is not recommended during the winter.

Caution.—Submarine cables cross the harbor to the N of Work Island, between Laurel and Songhees Point, and close N of the Johnson Street Bridge.

Esquimalt Harbor (48°26'N., 123°26'W.)

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1.9 Esquimalt Harbor is entered between Duntze Head and the lighted buoy moored close E of Fisgard Island. A navy base is situated within the harbor and numerous naval installations line the NE shore. There are also several commercial repair and refit facilities.

Winds—Weather.—The winds and currents are similar to those described for Victoria Harbor in paragraph 1.8. Winds from S seldom blow, but strong SW and W winds often make berthing difficult.

Depths—Limitations.—There is a controlling depth of 14.6m in the harbor entrance. Depths decrease gradually from the entrance to the drying head. Vessels up to 314m in length and 10.7m draft have been accommodated.

Deep-draft vessels must avoid a shoal patch, with a least depth of 8.2m, lying about 0.3 mile SSE of Scroggs Rocks Light. A shoal patch with a least depth of 9.8m lies 0.1 miles W of Scroggs Rocks.

The Brothers Islands, lying close SE of Scroggs Rocks, should not be approached within 0.3 mile.

Piers A, B, and C, situated on the S side of Constance Cove, are part of the Canadian Forces Base Esquimalt. They are used for the berthing of military, government, and visiting naval vessels.

Jetties A, B, and C has a berth, 230m long, on its N side, with depths of 8.4 to 8.9m alongside.

Yarrows Shipyard Pier A, situated in the SE part of Constance Cove, is used for ship repair work. It has a berth, 152m long, on its NE side, with depths of 4.5 to 4.8m alongside.

Yarrows Shipyard Pier B lies close W of Yarrow Jetty A and is also used for ship repair work. It has 120m of berthage on each side, with depths of 6.2 to 8.5m alongside the SW side and 4.3 to 7.3m alongside the NE side.

Pier D is situated close N of Yew Point, on the W side of the harbor. It provides 137m of berthage and has a depth of 6.4m alongside the N side and 3 to 5.5m alongside the E side.

Jetty E, situated in the NE part of Constance Cove, has a berth, 290m long, with depths of up to 12.5m alongside. It is used mainly by government weather and survey vessels.

Pier F, situated 0.3 mile N of Yew Point, is a bunkering jetty for naval and other government vessels. Its N side has 244m of

berthage, with depths of 5.6 to 10m alongside. Its S side has 198m of berthage, with depths of 7 to 10m alongside.

Pier G (Colwood Jetty), situated close N of Jetty F, is T-shaped. It has 60m of berthage, with a mean depth of 7.9m alongside. This jetty is reserved for military and government vessels.

Government Graving Dock Landing Wharf is situated on the N side of Constance Cove. It is 290m long and has a least depth of 9.1m alongside. This wharf is used for heavy lifts.

Government Graving Dock is 357m long. It has a width at the entrance of 41m and a depth of 12.2m at MHWS over the sill.

The refueling pier within the harbor has dredged depths of 13.7m along the N side. For further berthing information refer to the table titled **Port of Esquimalt—Berthing Information**.

Aspect.—The harbor opens out inside the entrance and provides a sheltered ice-free anchorage.

Fisgard Island, the W entrance point of the harbor, is located 3 miles NNE of Albert Head. This island is bare and connected to the mainland by a causeway. A sector light is shown from a structure standing on the island and a prominent red house is situated close N of it. A lighted buoy moored close E of the island marks the edge of a shoal area.

Three conspicuous tower cranes are visible from the approaches. Two stand at the naval dockyard, close NE of Duntze Head; the third stands at the graving dock, 0.5 mile NE of Duntze Head.

Port of Esquimalt—Berthing Information			
Berth	Length	Depth	Remarks
Jetty A Terminal			
A East	61m	3.2-4.3m	Breakbulk and general cargo.
A North	230m	8.3-8.9m	Breakbulk and general cargo.
Jetty B Terminal			
B East	183m	4.3-10.7m	Breakbulk and general cargo.
B West	9.1m	3.0-11.0m	Breakbulk and general cargo.
North Landing Wall			
N Landing Wall	360m	9.1m	Breakbulk and general cargo.
Jetty C Terminal			
C East Inner	137m	—	Breakbulk and general cargo.
C East Outer	200m	—	Breakbulk and general cargo.
C West Inner	137m	—	Breakbulk and general cargo.
C West Outer	200m	—	Breakbulk and general cargo.
Jetty D Terminal			
D East	137m	6.4m	Breakbulk and general cargo.
D North	137m	6.4m	Potash, dry bulk, and some liquid cargo.
Jetty E Terminal			
E South	230m	9.4-12.5m	Breakbulk and general cargo.
Jetty G Terminal			
G Coolwood	61m	7.9m	Government vessels, breakbulk, and general cargo.

Port of Esquimalt—Berthing Information			
Berth	Length	Depth	Remarks
Tanker Berths			
Jetty F Terminal			
Coolwood Fuel Jetty N	230m	12.3m	Fuel jetty. Maximum loa of 243m. Maximum draft of 10.5m.



Esquimalt Harbor and Berths

A range, which may best be seen on the chart, indicates the harbor entrance.

Duntze Head, located 0.3 mile E of Fisgard Island, forms the E entrance point of the harbor.

The red directional sector of Fisgard Light indicates all the dangers lying on the E side of the approach to the harbor.

Pilotage.—Pilotage is compulsory. Pilots board about 1 mile S of Fisgard Light. Pilots can be contacted by telephone (250)-363-2160 and utilize VHF channel 10 for communications after initial contact. For further information, see Pilotage for Victoria Harbor in paragraph 1.8. The Royal Canadian Navy provides assistance to visiting naval ships.

Regulations.—The harbor limits are designated as all tidal water lying N of the latitude of the S extremity of the Brothers Islands.

All inbound and outbound vessels are requested by the harbormaster to advise the Port Operations Center, on VHF channel 10, of their position before crossing the area between Fisgard Island and Duntze Head, at the entrance to Esquimalt Harbor. Controlling depths in the approaches to the main berths are in excess of 11m.

For further information, see Regulations for Victoria Harbor in paragraph 1.8.

Anchorage.—A secured anchorage is available inside the harbor, in a depth of 11m, N of a line joining Yew Point to

Grant Knoll and W of a line joining Grant Knoll and Ashe Head.

Anchorage is permitted with permission of the harbormaster within Royal Roads in areas designated A, B, C, D, and F, which are best seen on the chart.

Anchoring is prohibited S of a line joining the N edge of Smart Island (48°26'52"N., 123°26'57"W) and the S edge of Richards Island (48°26'54"N., 123°26'05"W).

Caution.—When approaching Esquimalt Harbor from the E during daylight hours, vessels, after executing their starboard turn, should take care to identify the correct range marks. It is reported that some confusion may exist due to nearby beacons.

Numerous submarine cables cross the entrance to Esquimalt Harbor and E from the coastline for about 0.6 mile N of latitude 48°24'35"N along the W side of Royal Roads and within 0.25 mile of the coastline along the NE side of Royal Roads. Another submarine cable extends SSE from the harbor entrance E of Fisgard Island to a degaussing area centered at (48°24'35"N., 123°27"W). There is a restricted area covering most of Esquimalt Harbor and extending SSW in a narrow band approximately 45m either side of the submarine cable from 48°26'40"N to the degaussing area, all of which can be best seen on the chart.

It has been reported (2015) a submerged buoy, in a depth 57.9m, is located in the vicinity of Buoy J in the outbound lane

of the TSS and has been categorized as dangerous. The WM Military Exercise Area, used for surface firing, extends across the harbor from Jetty F to Monroe Head.

Haro Strait—Southwest Approach

1.10 Numerous islets, rocks, and shoals lie in the vicinity of the Trial Islands, Vancouver Island, and the off-lying Discover-Chatham Islands group. Several navigable passages lead between these dangers. However, local knowledge is essential because most of these dangers are unmarked and the currents in the area are quite strong.

Ocean-going vessels should proceed to the S of the above dangers and pass E of Discovery Island. Local coastal vessels and small craft sometimes pass through the inside passages.

The **Trial Islands** (48°24'N., 123°18'W.), bare and rocky, front the coast about 3.5 miles ESE of Victoria Harbor. Strong tide rips occur, especially on the flood, near the S extremity of these islands. The southernmost island is marked by a light and four radio towers, each 56m high, stand at its center.

Clover Point (48°24'N., 123°21'W.) and **Gonzales Point** (48°25'N., 123°18'W.) form the extremities of the foul fore-shore extending WNW and NNE of the Trial Islands. Clover Point can be identified by a large parking area on it. A prominent water tower stands 1.3 miles NNE of Clover Point; a conspicuous apartment building is situated close N of it. A prominent white dome and a historic monument are situated on Gonzales Point.

Caution.—A Traffic Separation Scheme (TSS), which may best be seen on the chart, is situated S of the Trial Islands.

1.11 Cadboro Point (48°27'N., 123°16'W.), a prominent and rocky headland, is located 2.8 miles NNE of Gonzales Point. Oak Bay and Cadboro Bay indent the coast between these points. Marinas are situated in both of these bays. They are open, but provide shelter to small vessels with local knowledge.

Anchorage within Oak Bay can be taken, in a depth of 9m, between Mary Tod Island and **Cattle Point** (48°26'N., 123°18'W.), except during SE gales. This anchorage can be approached from the N or S of **Fiddle Reef** (48°26'N., 123°17'W.). However, vessels must avoid Tod Rock, which dries and is marked by a beacon, lying close NW of the reef. Anchorage within Cadboro Bay can be taken, in a depth of 8.2m, good holding ground, near the entrance.

Enterprise Channel (Trial Island Pass), leading between Trial

Island and the coast, has a least depth of 6.1m. Mouat Reef, marked by kelp, lies close E of the fairway entrance.



Fiddle Reef Light

Mayor Channel is entered from the S about 0.5 mile E of Gonzales Point. This passage is most frequently used by vessels with local knowledge enroute to Haro Strait. It is about 0.3 mile wide at its narrowest part. Great Chain Island, Harris Island, Fiddle Reef, and Lewis Reef lie along the sides of this passage. A small bank, with a least depth of 7m, lies in mid-channel, between Thames Shoal and Great Chain Island.

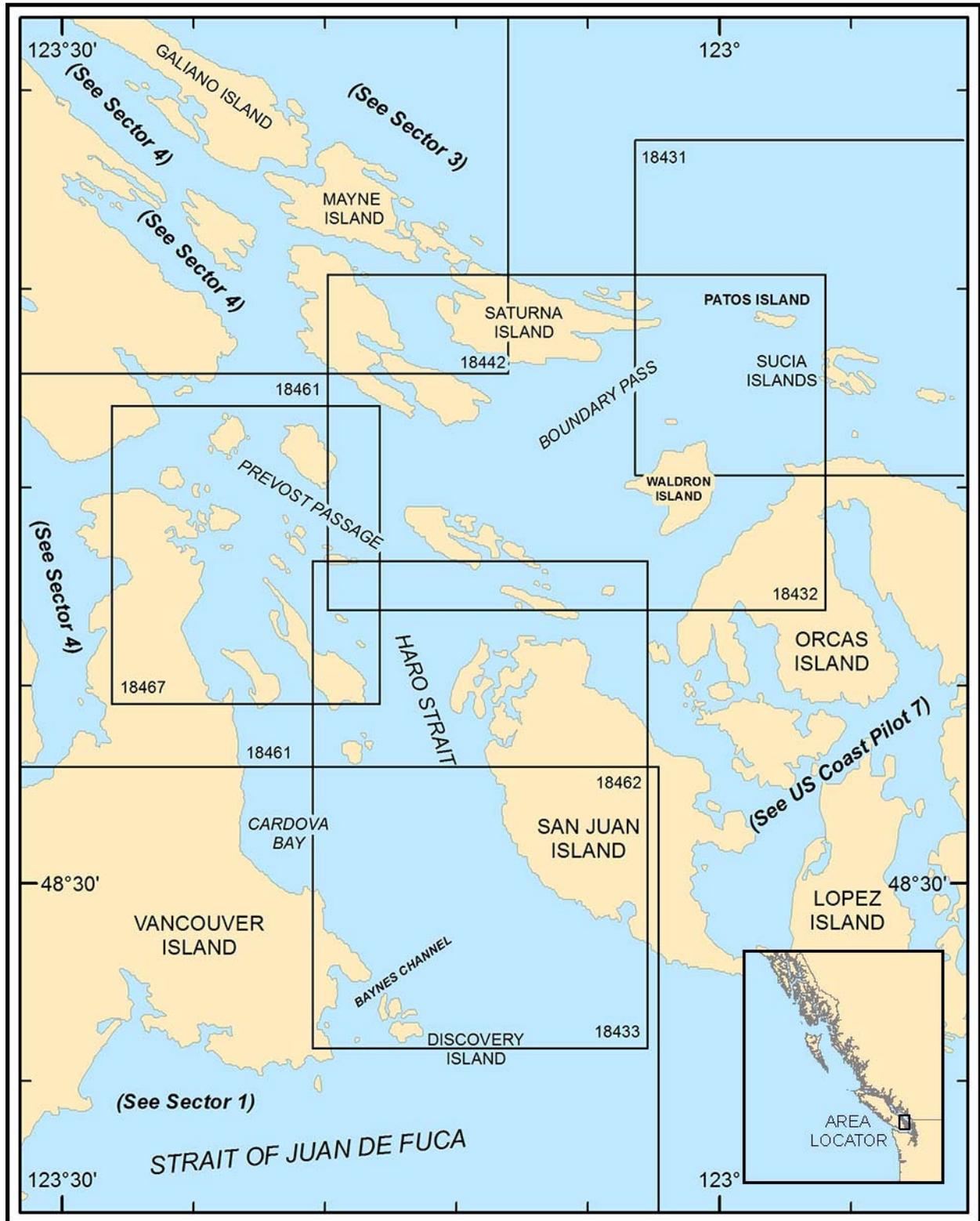
Brodie Rock (48°24'N., 123°17'W.) lies in the S approach to Mayor Channel. Lights are shown from structures standing on Fiddle Reef and Lewis Reef.

Baynes Channel, extending between Cadboro Point and the **Chatham Islands** (48°26'N., 123°15'W.), leads from Mayor Channel into Haro Strait. This channel has a least depth of 7.3m and is clear of dangers, except for an unmarked shoal patch, with a depth of 4.5m, lying in mid-channel. Heavy tide rips often occur within this channel. Baynes Channel North Light is shown from a tower standing on an islet lying 0.3 mile SSE of Cadboro Point.

Hecate Passage and Plumper Passage also lead into Baynes Channel, E of Mayor Channel. Local knowledge is required to transit these passages.

Caution.—Several submarine cables, which may best be seen on the chart, extend between the Trial Islands and Vancouver Island.

Several submarine cables, which may best be seen on the chart, lie in Baynes Channel, between Cadboro Point and the Chatham Islands.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).
SECTOR 2 — CHART INFORMATION

SECTOR 2

HARO STRAIT AND ADJACENT CHANNELS

Plan.—This sector describes Haro Strait and the adjacent channels to the W. Generally, the descriptive sequence is from S to N.

General Remarks

2.1 Haro Strait is the westernmost and more frequented of the three main channels leading from the E end of the Strait of Juan de Fuca to the SE end of the Strait of Georgia. From its S entrance, between Discovery Island and Eagle Point, the strait leads N for 17 miles. In the vicinity of Turn Point, the strait bends sharply ENE for about 12 miles and joins the Strait of Georgia at Boundary Pass.

Vessels navigating the strait and wishing to anchor should enter Plumper Sound, which is sheltered and easily accessible.

San Juan Channel and Rosario Strait, the other two main channels leading N from the Strait of Juan de Fuca and Puget Sound, are described in U.S. Coast Pilot 10.

The channels to the W of Haro Strait lead through several of the Gulf Islands that fringe the SE end of Vancouver Island as far as the Strait of Georgia. Local coastal and low-powered vessels frequent these channels, some of which require local knowledge to transit.

The tidal currents are much weaker in these passages and sheltered anchorages are more prevalent than in the main channels. The shortest principal route, used by ships in transit between Victoria Harbor and Vancouver Harbor, leads through Sidney Channel, Moresby Passage, and Active Pass.

Winds—Weather.—The weather in the vicinity of Haro Strait is variable. The wind direction and strength are influenced greatly by the topography. Winds from the W blowing into the Strait of Juan de Fuca are deflected to the SW into Rosario Strait and Haro Strait.

The summers are warm, but not hot, and there is a long transition period between seasons. The prevailing W winds and cool sea breezes make the summers comfortable. Generally, the relative humidity is high as the area is exposed to W weather. The precipitation is less on the E coast of Vancouver Island, with the SE shores being the driest. The precipitation is not heavy, but frequent. Snowfall occurs between December and March. The entire area is always cloudy. In the fall, radiation fog and smoke are prevalent.

Tides—Currents.—Off Turn Point, the flood current varies in direction, sometimes setting 037° towards the E end of South Pender Island and frequently setting E towards Orcas Island.

In a position bearing 037° and 1.3 miles distant from Turn Point, the ebb current begins promptly and for the first hour sets 285°. When the velocity of this current increases, its direction almost always becomes 263°. The ebb current increases in velocity when the range of tide is great and decreases when the range of tide is small.

Off Skipjack Island and between it and Patos Island, heavy tide rips and eddies are formed, especially with an adverse

wind. The tide rips are generally heaviest when a S current runs. The tidal currents at times run at 2 to 5 knots to the N of Skipjack Island.

In the channel leading between Patos Island and the Sucia Islands, the tidal currents are weaker, more regular, and set more fairly through the passage than they do in Boundary Pass. In addition, this channel is almost free of tide rips.

In a position bearing 159° and 1.5 miles distant from East Point, the flood current, during the first hour, sets about 015°, but changes its direction to 071° about 4 hours after LW at Turn Point. At this time it attains the maximum velocity of 3 knots. The ebb current first sets about 195°, but changes its direction to 217° about 3.5 hours after HW slack at Turn Point. At this time it attains the maximum velocity of 5 knots. The duration of slack water is 10 to 12 minutes. The ebb current runs in rushes and surges, forming whirlpools and eddies, whereas the flood flows more evenly.

In a position bearing 037° and 1.8 miles distant from Seabird Point, there is a distinct flood current. This current usually sets NNW for 2 or 3 hours and may run at 2 to 2.5 knots. Nearer the middle of Haro Strait there is considerably more flood current and it may run at a greater velocity for as long as 4 to 6 hours. The flood current sets strongly towards the S shore of San Juan Island.

In the same position off Seabird Point, the ebb current may continue for 12 to 16 hours. Although the time of its beginning varies, the ebb current usually begins within an hour on either side of HW at Victoria. The first of the ebb current often sets WSW towards Discovery Island, but, when running at strength, the direction varies between SSE and S. The ebb current usually attains its maximum velocity shortly after LW, but, at times, this velocity may occur in the middle of the falling tide. The ebb current frequently runs at 3 to 3.5 knots and at times at 5 knots. The greatest velocity occurs at the end of a large fall in the tide to LLW.

In the middle of the S entrance of Haro Strait, the maximum ebb current velocity occurs about 1 hour 15 minutes before LW at Victoria. The flood current usually begins about 3 hours 30 minutes after LW at Victoria.

At Kellett Bluff, the strongest tidal currents set 004° and 172°. The maximum velocity is attained by the ebb current and may be as much as 2.5 to 3 knots.

In Spieden Channel, the flood tidal currents, which set E from Haro Strait and W from San Juan Channel, meet and cause heavy races and eddies in places.

Regulations.—A Traffic Separation Scheme (TSS), which may best be seen on the chart, lies in the S approach to Haro Strait, close E of Discovery Island. The principal shipping route follows this TSS into the strait, then through Boundary Pass.

A Traffic Separation Scheme (TSS), which may be entered 6 miles E of Discovery Island, leads SE and passes NE of Hein Bank. This separation scheme, situated in U.S. waters, leads into the mandatory Puget Sound Vessel Traffic Service.

For further information concerning the Puget Sound TSS, see U.S. Coast Pilot 10.

For further information concerning the Vessel Traffic Service, see Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

A **Special Operating Area** (SOA) has been established near Turn Point for the efficient and safe movement of vessels thereby reducing the risk of accidents for vessels transiting the waters between Haro Strait and Boundary Pass in this area. The SOA consists of the waters bound by a line passing through the following points:

1. Turn Point Light—48°41'18"N, 123°14'12"W.
2. Position—48°42'24"N, 123°13'54"W.
3. Arachne Reef Light—48°41'06"N, 123°17'30"W.
4. Tom Point Light—48°39'45"N, 123°16'20"W.

Victoria Traffic (VAK) has operational authority over this SOA and can be contacted on VHF channel 11.

Operational procedures for all VTS participants approaching the SOA from Haro Strait heading N for Boundary Pass or Swanson Channel, or vessels heading S for Haro Strait from Boundary Pass, but not from Swanson Channel are, as follows:

1. If towing astern and a VTS participant, use a hawser with a length as short as possible, but maintaining safety and good seamanship.
2. Any VTS participant, 100m or greater, in length will make all efforts needed to be consistent with safety and industry procedures by observing the following practices:
 - a. Do not enter the SOA when another VTS participant of 100m in length or more is already in transit in this area, unless following astern or on a similar course.
 - b. If following astern of another vessel, maintain a minimum distance of 0.5 mile.
 - c. Permission must be granted by Victoria Traffic (VAK) via VHF channel 11 for any overtaking of another vessel in the SOA. If permission is granted then a distance of 0.5 mile must be maintained for the closest point of approach (CPA) and overtaking should only be done when there are no other vessels approaching.
 - d. If outbound from Boundary Pass and there is already an inbound vessel from Haro Strait in the SOA, only enter the SOA when it will be possible to maintain a CPA of 0.5 mile from the other vessel.
 - e. If inbound from Haro Strait and meeting an outbound vessel from Boundary Pass, already in the SOA, stay out of the SOA until the outbound vessel has crossed a line between Turn Point and Arachne Reef, then proceed only when able to maintain a CPA of 0.5 mile from the outbound vessel.
 - f. Maintain a distance of at least 0.3 mile off Turn Point.

The following are reporting points:

1. All vessels heading N participating in the VTS must report to Victoria Traffic at Calling-In-Point (CIP) 4 and CIP 5, and when heading S at CIP 7. Victoria Traffic (VAK) will provide the necessary information regarding traffic advisories for CIP 6. See paragraph 1.1 for CIPs.
2. All vessels participating in the VTS must report to Victoria Traffic at CIP 6. Victoria Traffic will then provide any traffic advisory information for the SOA and the next reporting point. Traffic Advisories will include any opposing

vessel's names, ETA for Turn Point, and vessel's speed. See paragraph 1.1 for CIPs.

3. All vessels participating in the SOA must advise Victoria Traffic of their navigational intentions, any information that is necessary to comply with these standards and/or make arrangements to safely pass other vessels within or near the SOA. All actions are expected to be completed by the time of reaching CIP 6, but it is recommended to take action before reaching this point; if heading N by Lime Kiln Light or Kellett Bluff Light, if heading S by Monarch Head or Blunden Islet.

Caution.—The fairway through Haro Strait is free of dangers. However, two shoal patches, with depths of 12.8m and 14.6m, lie near the middle of the S entrance. During stormy weather, tide rips mark these patches.

A shoal patch, with a depth of 11m, lies close to the fairway leading through Boundary Pass. It is marked by tide rips during stormy weather. In addition, several above and below-water reefs lie about 0.8 mile outside the limits of the fairway.

The fairways leading through the Gulf Islands are constricted by rocky shoals which extend from the various islands bordering the channels. In addition, several detached rocks lie in and close to the fairways.

Although transit of Haro Strait is not difficult, the velocity and direction of the tidal currents vary and care should be exercised while enroute. Strong tide rips and eddies occur off Kellett Bluff, off Turn Point, and between East Point and Alden Point.

Pleasure craft are encountered in large numbers throughout the area described in this sector. In addition, commercial and sport fishing craft may congregate near the entrances to narrow passages and off the prominent headlands.

Haro Strait—Boundary Pass

2.2 Seabird Point (48°25'N., 123°13'W.), the E extremity of Discovery Island, forms the SW entrance point of Haro Strait. Pandora Hill rises close W of this point. A light is shown from a structure, 10m high, standing on the point.

The E side of Haro Strait is steep-to, but several reefs lie rather close to the W side of the channel leading through this passage. The depths in the fairway are ample for most ocean-going ships. The least depths of 12.8m and 14.6m lie in the fairway to the NNE and NE of Seabird Point.

Middle Bank (48°25'N., 123°06'W.), a rocky patch, lies in the S approach to Haro Strait and has depths of 19.8 to 49m.

The **Chatham Islands** (48°26'N., 123°14'W.) lie on foul ground extending NW from Discovery Island as far as Baynes Channel. They are low, wooded, and rocky. The easternmost island can be identified by two prominent radio towers standing in line.

Beaumont Shoal, with a depth of 17.1m, lies about 2.5 miles NE of Seabird Point. A lighted buoy is moored on this shoal and marks the approach (separation zone) for the Haro Strait.

2.3 San Juan Island (48°32'N., 123°05'W.), forming the E side of the entrance of Haro Strait, is rugged and partly wooded. The W side of the island in the vicinity of Eagle Point is steep-to and rocky.

Mount Dallas, standing 1.5 miles SE of **Bellevue Point**



U.S. Islands E of Haro Strait

(48°32'N., 123°10'W.), is 329m high and forms the summit of the island.

Cattle Point (48°27'N., 122°58'W.), marked by a light, is the S extremity of San Juan Island.

Kellett Bluff (48°35'N., 123°12'W.), the SW extremity of **Henry Island** (48°36'N., 123°11'W.), forms a conspicuous landmark for vessels in Haro Strait. A light is shown from a structure standing close N of this bluff. The NW coast of Henry Island is steep-to and Battleship Islet, 9m high, lies 0.3 mile NW of it.

Kelp Reefs (48°33'N., 123°14'W.), above and below-water, lie on the W side of the channel, about 3 miles SSW of Kellett Bluff. These reefs are marked on the E side by a light shown from a tower. Unit Rocks, partly drying, and Little D'arcy Island lie on foul ground extending NNW from Kelp Reefs.

2.4 Gooch Island (48°40'N., 123°17'W.) lies 7.3 miles NNW of Kelp Reefs. A conspicuous red and white watchtower stands on the NW extremity of this island, with a house situated close beside it.

Rum Island lies close E of the E extremity of Gooch Island. A light is shown from a structure standing on Tom Point, the E extremity of this island.

North Cod Reef and South Cod Reef, which both dry, lie close S of the W extremity of Gooch Island. They are marked by a lighted buoy moored about 1.5 miles SW of Rum Island.

Mandarte Island, lying 1.8 miles S of Gooch Island, is bare, except for a few stunted trees standing on its NW end. A lighted buoy is moored about 0.8 mile SE of this island and marks the shoals extending from its SE end. A light is shown from a structure standing on an islet lying 0.3 mile NW of the NW extremity of the island.

Caution.—A wreck, marked by buoys, lies close N of Gooch Island. This wreck serves as an artificial reef for divers.

A local magnetic disturbance has been observed to exist in the vicinity of Bellevue Point.

2.5 Halibut Island (48°37'N., 123°16'W.), lying 2.5 miles S of Rum Island, is encircled by rocky shoal patches. A patch, with a least depth of 5m, lies about 1 mile W of the fairway, 0.5 mile SE of the SE extremity of the island.

Sidney Island (48°36'N., 123°17'W.) lies with its SE extremity located 1.8 miles S of Halibut Island. This island has prominent white cliffs and banks extending along its S side. The summit, 87m high, rises at N end of the island and a radio tower stands close to it.

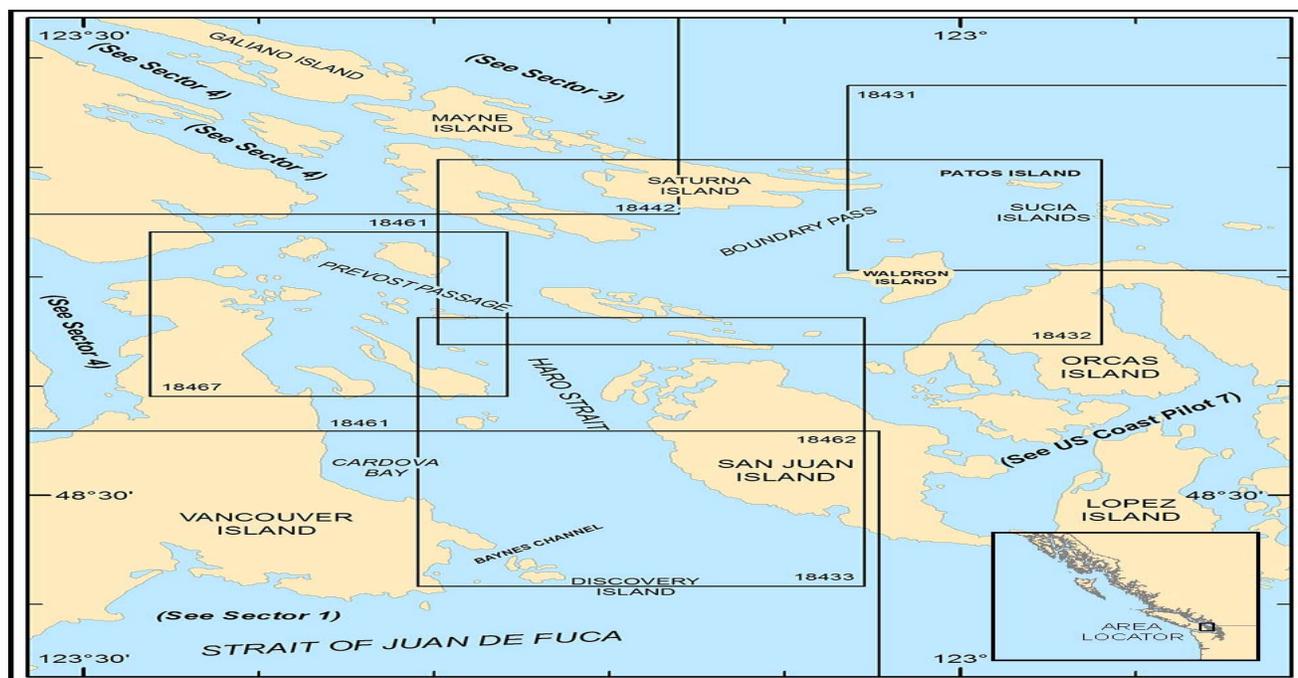
Miners Channel leads NW from Haro Strait, between Sidney Island and Halibut Island. Anchorage can be taken, out of the current, in a depth of 16.5m, within this channel and NW of Halibut Island.

Hughes Passage, a deep but constricted channel, links Haro Strait and Sidney Channel, close S of Sidney Island. Local knowledge is necessary for transiting this passage.

Spieden Channel (48°38'N., 123°08'W.), entered NE of Henry Island and N of San Juan Island, connects Haro Strait and San Juan Channel. This deep, navigable channel is subject to strong tide rips and eddies. Several shoals lie in the W entrance to the channel and are marked by buoys.

Cooper Reef and Arachne Reef, two drying reefs, lie 0.5 mile N and 1.5 miles NW, respectively, of Rum Island. A shoal patch, with a depth of 9.5m, lies about 0.5 mile NE of Arachne Reef. A light is shown from a structure standing on Arachne Reef.

Turn Point (48°41'N., 123°14'W.), the NW extremity of



Moresby Island and Portland Island

Stuart Island, is a bold steep-to bluff. A light is shown from a structure standing on this point; a prominent white building, with a red roof, is situated close SE of it. Stuart Island is wooded; two conspicuous hills rise near its center.

2.6 Reid Harbor (48°40'N., 123°11'W.), indenting the SE side of Stuart Island, affords sheltered anchorage, in a depth of 8m, mud.

Prevost Harbor (48°41'N., 123°12'W.), lying at the N side of the island, provides sheltered anchorage, in depths of 11 to 13m, mud, close within the entrance. Details of the harbor facilities are given in U.S. Coast Pilot 10.

Moresby Island (48°43'N., 123°18'W.) and South Pender Island lie on the NW side of Haro Strait. Both of these islands have conspicuous hills rising at their S and NW ends.

Several above and below-water rocks, lying about 1 mile from the fairway in Haro Strait, fringe the shore of South Pender Island. Blunden Islet, lying near the E end of South Pender Island, is fronted by foul ground on its E side. A light is shown from a tower standing on the bare rocks, close SE of the S extremity of Moresby Island. Gowlland Point, marked by a light, is located at the E end of South Pender Island, about 0.8 mile SW of Blunden Islet.

Caution.—A cable area crosses the fairway of Spieden Channel, between Spieden Island and Davison Head.

Strong tide rips often occur in the vicinity Blunden Islet.

2.7 Bedwell Harbor (48°45'N., 123°15'W.), an inlet, is entered between **Wallace Point** (48°44'N., 123°14'W.) and Tilly Point, the SW extremity of South Pender Island. Hay Point, marked by a light, is located on the E side of the entrance, 1.3 miles NW of Tilly Point.

The harbor is used mainly by small craft and its facilities are

solely for such vessels. Skull Islet, marked by a beacon, lies on a reef close off the N shore of the harbor. Anchorage is available, in depths of 13 to 15m, mud, about 0.2 mile SE of this islet.

Caution.—An abandoned submarine cable crosses the harbor close W of Hay Point.

A seaplane landing area is situated within the harbor.

2.8 Waldron Island (48°42'N., 123°02'W.), located 6.5 miles E of Turn Point, is indented to the SW by Cowlitz Bay. Anchorage during fair weather can be taken, in depths of 7 to 11m, within this bay.

Skipjack Island (48°44'N., 123°02'W.), marked by a light, lies about 1 mile N of Waldron Island and 1.8 miles SE of the fairway passing through Haro Strait. The tidal currents are strong in the vicinity of this island.

The **Sucia Islands** (48°45'N., 122°55'W.) lie about 5 miles NE of Skipjack Island. The largest of these islands encloses Echo Bay, which affords good anchorage, in depths of 7 to 9m, mud, sheltered from W winds. Clements Reef, along with several drying rocks, extends NW from the NE island of the group. A beacon stands at the E extremity of the foul ground that extends ESE from the N part of the group.

West Bank (48°45'N., 122°57'W.), with a depth of 2.3m, lies about 1.5 miles W of the largest of the Sucia Islands. Several shoal patches, with depths of less than 11m, lie in the vicinity of this bank. The passage leading between the bank and the island is not recommended.

2.9 Boundary Pass (48°47'N., 123°00'W.) lies between Saturna Island and Patos Island, at the N end of Haro Strait. It is the widest and most used passage leading into the Strait of Georgia.

Monarch Head (48°46'N., 123°05'W.), the SE extremity of Saturna Island, is bold and rocky. This high, cliffy headland is located less than 1 mile NW of the fairway passing through Boundary Pass. The coast of the island between Monarch Head and Taylor Point, about 1.5 miles W, is formed of steep, rocky cliffs. The Java Islets lie on foul ground which extends about 1 mile E of Taylor Point. Narvaez Bay, lying NE of Monarch Head, is open to the E and is not recommended for anchorage.

A conspicuous television tower, 62m high, stands near the summit of Mount Warburton Pike, about 1.8 miles WNW of Taylor Point.

East Point (48°47'N., 123°03'W.), marked by a light, forms the E extremity of Saturna Island and is located 0.8 mile NW of the fairway passing through Boundary Pass. Strong tide rips and eddies prevail in the vicinity of this point.

Tumbo Island (48°48'N., 123°03'W.), with Tumbo Point forming its E extremity, lies about 0.5 mile NW of East Point and is separated from Saturna Island by a deep channel.

2.10 Rosenfeld Rock (48°48'N., 123°02'W.), marked by kelp, has a least depth of 2.4m and lies about 1.5 miles NNE of East Point. A lighted buoy, equipped with a racon, is moored about 0.5 mile E of this rock. The rocky shoals and below-water rocks fronting East Point, Tumbo Island, and Rosenfeld Rock are all covered by kelp.

A detached reef, with a depth of 11m and marked by a lighted buoy, lies about 1.8 miles SE of East Point. Vessels should pass to the NW of the lighted buoy marking this reef.

Alden Point (48°48'N., 122°58'W.), marked by a light, is the W extremity of Patos Island, which forms the E side of Boundary Pass. Active Cove lies close S of this point and affords anchorage, in a depth of 4m, to small vessels with local knowledge.

Tides—Currents.—The main volume of the flood tidal current runs N from the Strait of Juan de Fuca to the Strait of Georgia, through the E channels connecting the two straits. The main volume of the ebb tidal current runs S through the W channels connecting the straits.

In Rosario Strait, the main E channel, the flood current has almost twice the duration of the ebb; and in Haro Strait and Boundary Pass, the main W channel, the ebb current normally is much stronger than the flood. The tidal currents set fairly through the main channel of Haro Strait from the S entrance to Turn Point.

In Boundary Pass, the flood current from Rosario Strait is felt as soon as the passage between Orcas Island, located 2 miles NE of San Juan Island, and the Sucia Islands is open. This current is apt to set vessels towards East Point, on Saturna Island. The ebb current in Boundary Pass will be observed setting E, even before vessels have proceeded well into the Strait of Georgia. During its strength, the flood current usually flows through the middle of Boundary Pass toward Patos Island.

Caution.—On passing through Boundary Pass into the Strait of Georgia, vessels should be aware of the Traffic Separation Schemes (TSS) existing in the strait which may best be seen on the chart.

Channels West of Haro Strait—Cordova Bay to Sydney

2.11 Cordova Bay (48°31'N., 123°20'W.), lying about 6 miles N of Victoria, indents the E end of Vancouver Island, between Gordon Head and Cowichan Head, 4.5 miles NNW. The latter head is backed by conspicuous white cliffs.

The shore of this open bay is mostly foul and the tidal currents are weak and variable. Anchorage, open to the SE, can be taken, in depths of 14 to 17m, good holding ground, about 1 mile NNW of Gordon Head.

Johnstone Reef, lying about 1.5 miles SE of Gordon Head, dries and is marked by a buoy.

Zero Rock, marked by a light, lies about 2 miles NNE of Gordon Head. This rock dries and several shoal pinnacles lie within about 0.5 mile of it. Little Zero Rock, lying about 1 mile WNW of Zero Rock, dries and is steep-to on its E side. Numerous shoal pinnacles extend up to about 0.5 mile WNW of this rock and are marked by a lighted buoy.

D'arcy Island, lying 2.5 miles N of Zero Rock, is wooded. A light is shown from a structure standing at the W side of this island. Shoals lie up to about 0.8 mile NW of the island and are marked by a lighted buoy. Fairway Patch, with a depth of 9.1m, lies about 0.8 mile SW of this island.

James Island (48°36'N., 123°21'W.) lies on sandy shoals which extend, as James Spit, SSE for 2.3 miles. The S side of this wooded island is formed by high, conspicuous white cliffs. The SW end of these cliffs is located about 2 miles NNE of Cowichan Head and 1 mile SE of Cordova Spit.

A sandy islet lies on a drying spit about 0.5 mile NNW of the SW extremity of James Island. A water tower and a tall chimney stand on high ground NE of this islet.

A light is shown from a structure standing on the NW extremity of James Island. A wharf, situated at the E side of the island, is 37m long and has a depth of 6m alongside. It is used for loading explosives.

2.12 Cordova Channel (48°34'N., 123°21'W.) leads between James Island, Cordova Spit, and Vancouver Island. This channel is not as wide or deep as Sidney Channel, which is preferred. Cordova Channel should not be used at night or during times of poor visibility. A least depth of 10.5m lies in the channel, about 1.3 miles E of Cowichan Head.

Saanichton Bay (48°36'N., 123°23'W.) lies between Cordova Spit and Turgoose Point, about 0.8 mile WNW. Sheltered anchorage, in a depth of 18m, good holding ground, can be taken in the entrance. Mount Newton rises 3 miles WNW of Cordova Spit. This hill forms a conspicuous landmark; two towers stand on it. An aeronautical light is situated at the airport, about 2 miles NNE of this hill.

Tides—Currents.—The tidal currents in Cordova Bay and Cordova Channel vary in direction and velocity. In Colburne Passage, the tidal current attains a velocity of 2 knots. In Moresby Passage, the tidal current attains a velocity of 2 to 3 knots.

At Turn Point, the flood current divides, with part of it flowing NW through Prevost Passage and Swanson Channel. The weaker part sets NE towards Boundary Pass. To the S of Turn Point, minor branches of the current flow NE through the various channels and E through Spieden Channel.

Caution.—A torpedo firing area is situated in the N part of Cordova Bay.

Several submarine cables, which may best be seen on the chart, lie across Cordova Channel, between Cordova Spit and James Island.

2.13 Sidney Channel (48°37'N., 123°20'W.), with a least depth of 14.6m, leads between James Island and Sidney Island.

Munroe Rock, lying about 0.5 mile off the SW extremity of Sidney Island, is an unmarked danger.

Vessels should enter the channel from a position about 3.5 miles NE of Seabird Point (48°25'N., 123°13'W.) and steer a course of 318°. This course leads through the fairway between Zero Rock and Kelp Reefs. When Zero Rock Beacon bears 199°, vessels should change course to 327° and pass between D'arcy Shoals and a shoal patch, with a depth of 6.4m, lying NW of D'arcy Island. Vessels should continue to steer 327° until abeam of the light situated off the NW extremity of James Island. They should then steer a course of 357°, clearing Sidney Spit, if bound for Moresby Passage. If bound for Sidney, vessels should steer 322° for a distance of 1.5 miles and then steer a W direction towards the Government Wharf.

An alternate approach to Sidney lies between Zero Rock and Little Zero Rock. After passing these rocks, Cadboro Point and Zero Rock Light in line, astern, bearing 165°, leads between D'arcy Shoals and James Spit.

Sidney (48°39'N., 123°23'W.) (World Port Index No. 18660) lies 3.5 miles N of Saanichton Bay.

Victoria International Airport is situated 1.3 miles W of Sidney.

The Washington State Ferry Terminal is situated 0.4 mile SSW of the public wharf. The outermost dolphins of this terminal are privately lighted.

A submarine pipeline extends about 0.4 mile seaward, close NE of the ferry landing. Several radio towers stand close W of the ferry landing. A marina is situated close N of the public wharf.

Anchorage can be taken, in depths of 15 to 18m, mud and sand, about 0.5 mile S of the public wharf and 0.5 mile offshore.

Sidney Channel to Moresby Passage

2.14 Sidney Channel, from its N continuation at **Sidney Spit** (48°39'N., 123°21'W.), leads N to **Moresby Passage** (48°44'N., 123°21'W.), between numerous islets and rocky shoals.

Tsehum Harbor, entered 2.5 miles NW of Sidney Spit, is a small craft harbor containing several marinas. Above and below-water rocks clutter this harbor and it should not be entered without local knowledge.

Regulations.—Anchoring is prohibited throughout a large portion of Tsehum Harbor in an area bounded by lines joining the following positions:

- a. 48°40'25.5"N, 123°25'00.2"W.

- b. 48°40'24.1"N, 123°24'57.3"W.
- c. 48°40'23.6"N, 123°24'44.9"W.
- d. 48°40'15.9"N, 123°24'17.9"W.
- e. 48°40'17.5"N, 123°24'10.8"W.
- f. 48°40'24.0"N, 123°24'38.6"W.
- g. 48°40'26.3"N, 123°24'44.4"W.
- h. 48°40'26.0"N, 123°24'45.6"W.

A speed limit of 4 knots has been established for Tsehum Harbor W of a line between Curtis Point and Armstrong Point.

A submarine pipeline runs from 0.3 mile W of Little Shell Island through the harbor into Blue Heron Basin.

Little Group (48°40'N., 123°22'W.), consisting of several islets and rocks connected by foul ground, lies on the W side of the fairway that leads N from Sidney Channel. Dock Islet, marked by a light, is the easternmost islet of this group.

Sunk Rock (48°40'N., 123°21'W.), with a least depth of 5.5m, lies on the E side of the fairway and about 0.5 mile ESE of Dock Islet. Several detached foul patches lie between this rock and Forrest Island, which is located 0.8 mile ESE of Dock Islet and 0.3 mile N of Sunken Spit Light.

Forrest Island, lying at the N end of Miners Channel, is surrounded by drying reefs. A light is shown from a structure standing on the S end of this island.

2.15 Imrie Island (48°42'N., 123°20'W.) is very small and encircled by foul ground. A rocky patch, which is marked by kelp in summer and autumn, lies about 0.5 mile WSW of the island. This patch has a depth of 5.8m and the foul ground extends up to it. The fairway extending to Moresby Passage leads, in a least depth of 16.5m, about 0.3 mile W of this rocky patch.

Charmer Point (48°41'N., 123°22'W.), the E extremity of Coal Island, is located 0.5 mile W of the fairway.

Grey Island (48°41'N., 123°20'W.), a bare rock, is located 0.8 mile ENE of Dock Islet and lies on foul ground at the E side of the fairway. Reay Island, a rocky ridge, lies about 0.5 mile NE of this island.

The **Pellow Islets** (48°44'N., 123°21'W.), conspicuous from the N and S, lie about 2.5 miles N of Charmer Point and close E of **Portland Island** (48°44'N., 123°22'W.). A lighted buoy, moored about 0.3 mile SE of these islets, marks the E side of a shoal with a least depth of 4.6m. The foul ground encircling the islets extends into Moresby Passage.

Turnbull Reef (48°44'N., 123°21'W.), the N extension of the foul ground extending E from Portland Island, has rocky heads with depths of less than 1.8m. Kelp, marking this reef during the summer, is often submerged by the strong tidal currents.

2.16 Seymour Point (48°43'N., 123°20'W.), the W extremity of Moresby Island, is located 1.5 miles N of Imrie Island. From Reynard Point, the NW extremity of Moresby Island, foul ground and drying rocks extend up to about 0.5 mile WNW into Moresby Passage. These dangers terminate at Canoe Rock, which is marked by a light. A shoal, with a depth of 8.2m, lies in the middle of Moresby Passage, about 0.3 mile NW of Canoe Rock.

Small vessels with local knowledge can anchor, in a depth of 14.6m, between Reynard Point and Seymour Point.

Prevost Passage (48°42'N., 123°19'W.) leads W from Haro

Strait and passes close S of Moresby Island. It joins Moresby Passage and Shute Passage to the N and W, respectively. The N side of this passage should be favored as the S side is bounded by numerous islets, rocks, and reefs.

Shute Passage (48°43'N., 123°24'W.) leads W into **Satellite Channel** (48°42'N., 123°29'W.), between Portland Island and **Piers Island** (48°42'N., 123°25'W.).

Celia Reefs (48°43'N., 123°23'W.) lie on the N side of this passage and rocky, foul ground lies on the S side. The fairway is deep and clear of dangers. Knapp Island is located 0.3 mile SE of Piers Island. A channel, marked by lighted buoys, leads between these islands.

Colburne Passage (48°42'N., 123°24'W.), a constricted waterway, is entered close N of Coal Island and leads W into Satellite Channel. The fairway passes between numerous dangers which are marked by lights and lighted buoys.

Swanson Channel and Plumper Sound

2.17 Swanson Channel (48°45'N., 123°18'W.) leads NW from Haro Strait between Moresby Island and North Pender Island.

Mouat Point (48°47'N., 123°19'W.), steep-to and cliffy, is the SW extremity of North Pender Island. Between this point and **Beaver Point** (48°46'N., 123°22'W.), the channel extends N to Active Pass and forms an alternate fairway to the Strait of Georgia.

Swanson Channel is deep and uncluttered between **Wallace Point** (48°44'N., 123°14'W.) and Stanley Point, the SE and NW extremities of North Pender Island. High cliffs face the shore of the island and Cramer Hill, a central eminence, is conspicuous.

Otter Bay (48°48'N., 123°19'W.) indents the coast of North Pender Island, close S of **James Point** (48°49'N., 123°20'W.). This bay affords temporary anchorage, in depths of 13 to 17m, mud, in its outer part. Several conspicuous tanks stand on the N side of this bay.

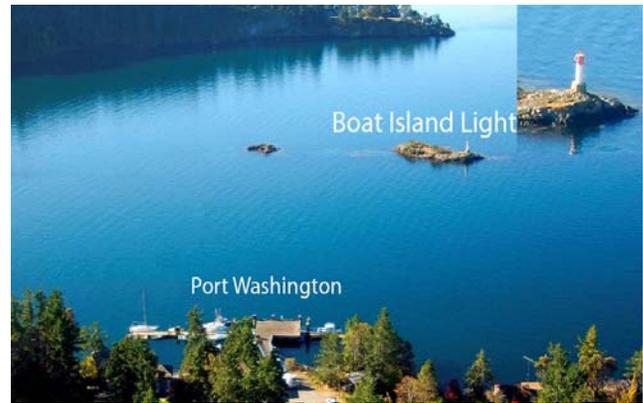
Anchorage can also be taken, in depths of 20 to 27m, within a small bay lying close N of Mouat Point. Several conspicuous tanks stand on the E shore of this small bay.

Port Washington (48°49'N., 123°19'W.), a settlement, stands at the head of **Grimmer Bay** (48°49'N., 123°20'W.). There is a government ferry wharf, with depths of 4.5m to 5.8m alongside. Pleasure craft berth alongside floats. A beacon, with a red triangular topmark, marks the outer end of the above and below-water rocks that extend from the E shore of the bay.

2.18 Prevost Island (48°50'N., 123°22'W.) lies at the NW end of Swanson Channel; **Point Liddell** (48°49'N., 123°22'W.) forms its S extremity.

A reef, extending about 0.3 mile SE of Point Liddell, has a drying rock located at its outer end. A circular tower stands on this rock.

Ellen Bay and Diver Bay indent the E side of Prevost Island, NE of Point Liddell. Red Islets front the point that separates these two bays. Anchorage, open to SE winds, can be taken, in a depth of 18m, within Ellen Bay and, in a depth of 13m, within Diver Bay.



Port Washington N of Pender Island

Portlock Point (48°50'N., 123°21'W.), marked by light, is the NE extremity of Prevost Island. Swanson Channel leads N between this point and Stanley Point, located about 1 mile SE.

Tides—Currents.—In Swanson Channel and Plumper Sound, the flood current sets NW. From the N end of Swanson Channel, a branch sets E through Navy Channel. Off Hope Bay, these currents meet and form tide rips. They then flow N and enter the Strait of Georgia through the narrow channels at either end of Samuel Island. The ebb current sets in the reverse direction. The tidal current in the fairway of Plumper Sound attains a maximum of 3 knots.

At the E end of Navy Channel, the maximum velocity of the flood current is 2 to 3 knots; the maximum velocity of the ebb current is 1 to 2 knots.

The velocity of the tidal currents in the S entrance of Active Pass, off Matthews Point, is 5 to 7 knots at springs and 3 to 5 knots at other times. The velocity of both tidal currents in the N entrance is 4 to 5 knots at springs. Heavy freshets from the Fraser River often increase the velocity of the S tidal current.

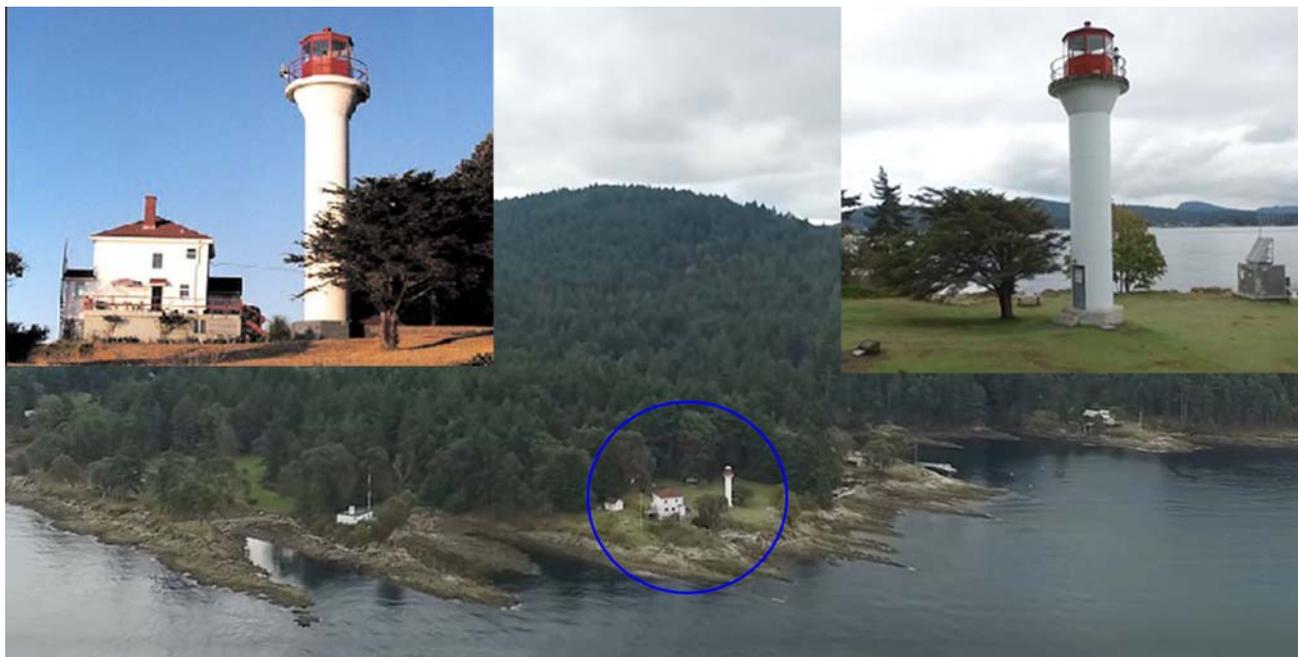
Caution.—Several submarine cables, which may best be seen on the chart, lie across Swanson Channel, from close N of Beaver Point to close N of Pender Island.

The approach to the settlement of Port Washington is a water aerodrome.

2.19 Plumper Sound (48°47'N., 123°13'W.) is entered from Haro Strait between South Pender Island and Saturna Island. It leads NW into Navy Channel and the approach to Active Pass. The sound has a least depth of 21.9m in the fairway and is clear of dangers. Rocky patches lying close to the shore are often marked by kelp.

Recommended anchorage lies in depths of 18 to 22m along the N side of South Pender Island. Vessels should moor about 2 miles within the entrance of the sound and about 0.3 mile offshore. About 2 miles within the entrance, the depths decrease quite suddenly to 18m and excellent anchorage may be obtained almost anywhere.

Port Browning (48°46'N., 123°13'W.), an inlet with a general depth of 9m, indents the SE coast of North Pender Island. Several rocky, shoal patches lie within this inlet and some drying rocks, marked by a buoy, front **Razor Point** (48°46'N., 123°14'W.), the E entrance point. Anchorage can be taken, in a



Active Pass Light at Georgina Point, Mayne Island

depth of 8.8m, mud, about 0.4 mile from the head of the inlet.

Croker Point (48°46'N., 123°12'W.), the SW extremity of Saturna Island, is located 1.5 miles E of Razor Point and is marked by a light. The coast between this point and Taylor Point, 3 miles ESE, is formed by high, steep, and wooded cliffs. A detached rocky patch, with a depth of 4m, lies at the edge of the fairway, about 0.3 mile NW of Croker Point. The NE extremity of North Pender Island bearing 310° and open S of **Fane Island** (48°48'N., 123°16'W.), which is marked by a light, leads W of this rocky patch.

Hope Bay (48°48'N., 123°17'W.) (World Port Index No. 18650), a cove, lies close W of Fane Island. Several islets and below-water rocks lie between the island and the shore. A government pier extends from the SW side of the bay. It is about 220m long and has depths of 5.5 to 10m alongside.

Anchorage can be taken, in depths of 13 to 16.5m, mud, in the entrance to the bay, S of Fane Island.

Caution.—A submarine cable lies within Port Browning and extends from close NW of Razor Point.

2.20 Lyall Harbor (48°48'N., 123°12'W.) (World Port Index No. 18630) indents the NW side of Saturna Island, between Payne Point and King Islet. Boot Cove is entered from the S side of the harbor. A government ferry pier is situated at the E entrance point and has a depth of 7.9m alongside. Floats moored near this pier and off the N shore of the harbor have a least depth of 5.8m alongside.

Crispin Rock, below-water, lies near the center of the harbor and is marked by a buoy.

Anchorage can be taken, in a depth of 12.8m, mud, within the harbor entrance, W of Crispin Rock. Anchorage can also be taken, in a depth of 11m, mud, about 0.3 mile SE of the rock.

Samuel Island forms the NE side of Plumper Sound and is

separated from Saturna Island by **Winter Cove** (48°49'N., 123°12'W.). This latter cove is shoal and foul. Lizard Island lies close off the NW part of Samuel Island and channels leading to the Strait of Georgia pass on either side of it.

Navy Channel—Active Pass and Approaches

2.21 Navy Channel (48°50'N., 123°19'W.) leads WNW from Plumper Sound to a junction with Swanson Channel.

Mayne Island (48°51'N., 123°17'W.), lying about 0.5 mile N of North Pender Island, forms the N side of Navy Channel and the E side of Active Pass. A range of very high hills parallels the S shore of this island. A prominent radio tower stands close W of the summit of the island.

Conconi Reef (48°50'N., 123°17'W.), marked by a light, is flanked by below-water rocks and reefs. These dangers border the N side of the fairway passing through Navy Channel. The fairway has a least depth of 18.3m.

The W entrance of Navy Channel lies between **Dinner Point** (48°50'N., 123°19'W.), the SW extremity of Mayne Island, and Stanley Point, about 1 mile S. Several above-water rocks lie close off Dinner Point.

Village Bay (48°51'N., 123°19'W.) indents the coast of Mayne Island between **Crane Point** (48°51'N., 123°20'W.) and Helen Point, 1 mile NNW. Anchorage can be taken, in a depth of 14m, within this bay. The bay is clear of dangers and easy to access.

Enterprise Reef (48°51'N., 123°21'W.), which extends for about 0.5 mile, lies in the approaches to Active Pass and about 1 mile NW of Dinner Point. This reef consists of several above and below-water rocky heads, with foul ground lying between them. A light is shown from a structure, with a radar reflector, marking the westernmost head of this off-lying danger. A buoy

is moored at the easternmost end of the reef.

Caution.—Several submarine cables cross Navy Channel and may best be seen on the chart.

2.22 Active Pass (48°52'N., 123°20'W.) is entered from the S between **Helen Point** (48°51'N., 123°21'W.) and Collinson Point, 0.3 mile NW. This pass is deep, tortuous, and navigable over a least width of 0.3 mile.

Helen Point, marked by a light, forms the termination of a thickly-wooded slope, which rises gradually to the summit of Mayne Island.

Collinson Point (48°52'N., 123°21'W.), the S extremity of Galiano Island, is steep-to and rocky. A conspicuous mountain backs this point

A drying ledge and several rocky shoal patches lie close NE of Collinson Point. These dangers are marked by a light with a radar reflector.

Tides—Currents.—The ebb current in Active Pass runs from the Strait of Georgia and appears to set SSE across the entrance. Near Fairway Bank, the ebb current is often weak and varies in direction, but it sets S at 1 to 2 knots during spring tides.

After passing Laura Point, the main ebb current veers W; its greatest strength is found somewhat to the S of mid-channel, opposite Matthews Point.

Passing over the shoal area lying to the N of Helen Point, the ebb sets across the S entrance, near Collinson Point, and disperses into Trincomali Channel.

On the ebb, a counterclockwise eddy appears in Miners Bay. This eddy may reach a velocity of 2 knots off the pier at Mayne Island with strong tides. An eddy also appears to the W of Helen Point.

The flood current in Active Pass approaches from the S and rapidly gains velocity off Helen Point. Turning E in conformity with the channel, the main current sets close to Matthews Point. From a position 0.2 mile S of Mary Anne Point, it sets ENE as far as Laura Point, where it is deflected NNE and follows close along the E shore. This direction is maintained as far as Fairway Bank, where the influence of the flood in the Strait of Georgia is felt. The current from Active Pass then veers to the NW in the vicinity of Gossip Shoals.

A portion of the flood current turns S from Laura Point and creates a large, clockwise eddy in Miners Bay. Off the pier at Mayne Island, the current reaches a velocity of 2.5 knots. It returns to the main current off Mary Anne Point and causes great turbulence on strong tides. A weaker eddy occurs on the flood to the N of the main current and to the NE of Mary Anne Point. It sets counterclockwise and returns to the main current close off Mary Anne Point.

Off Georgina Point, a weak W current occurs on the flood. At a point midway between Georgina Point and Fairway Bank, the current may set W, or even SW, at a rate of 1 to 1.5 knots.

Violent rips occur on strong flood tides over an area extending from mid-channel, S of Mary Anne Point, to Laura Point. Strong tide rips also occur near Fairway Bank. They increase in violence when occurring on the ebb tide in Active Pass.

Caution.—Active Pass is the main shipping route for coastal trade between the mainland and South Vancouver Island. Large

and fast ferries may be encountered within this pass, as well as freighters, coastal tankers, and tugs towing barges.

Tidal currents attaining velocities of up to 5 to 7 knots may be encountered, during strong tides, in the S entrance to Active Pass.

2.23 Miners Bay (48°52'N., 123°18'W.) indents the W side of Mayne Island, about midway through Active Pass. This bay is entered between Reserve Point and **Laura Point** (48°52'N., 123°18'W.). A conspicuous church and high hill stand in the vicinity of the latter point. Anchorage can be taken, in a depth of 20m, near the head of the bay and clear of the tidal currents.

Mayne (48°51'N., 123°18'W.) (World Port Index No. 18620), a village, stands at the head of Miners Bay. It is connected by road to Village Bay, where a local ferry service is available. The public wharf fronting the village is in ruins. There is another wharf, 22m long, with a depth of 4m at its head. A seaplane float is attached to this wharf.

Mary Anne Point (48°52'N., 123°19'W.), marked by a light, indicates the turning point where Active Pass changes direction abruptly to the N. The pass is somewhat constricted by rocky shoals fringing the coast between this point and Burrill Point, about 0.8 mile N.

Caution.—Miners Bay is a sea plane terminal.

2.24 Sturdies Bay (48°53'N., 123°19'W.), a shoal inlet with foul ground covered by kelp, lies adjacent to and NW of Burrill Point.

Georgina Point (48°53'N., 123°17'W.), the E entrance point, is located at the N end of Active Pass. A light is shown from a tower standing on this point and a flagstaff is situated close E of it. A radiobeacon is situated at the tower.

Georgina Shoals extend N and NE from the point. The sea breaks over part of this shoal bank where the depths are less than 2m.

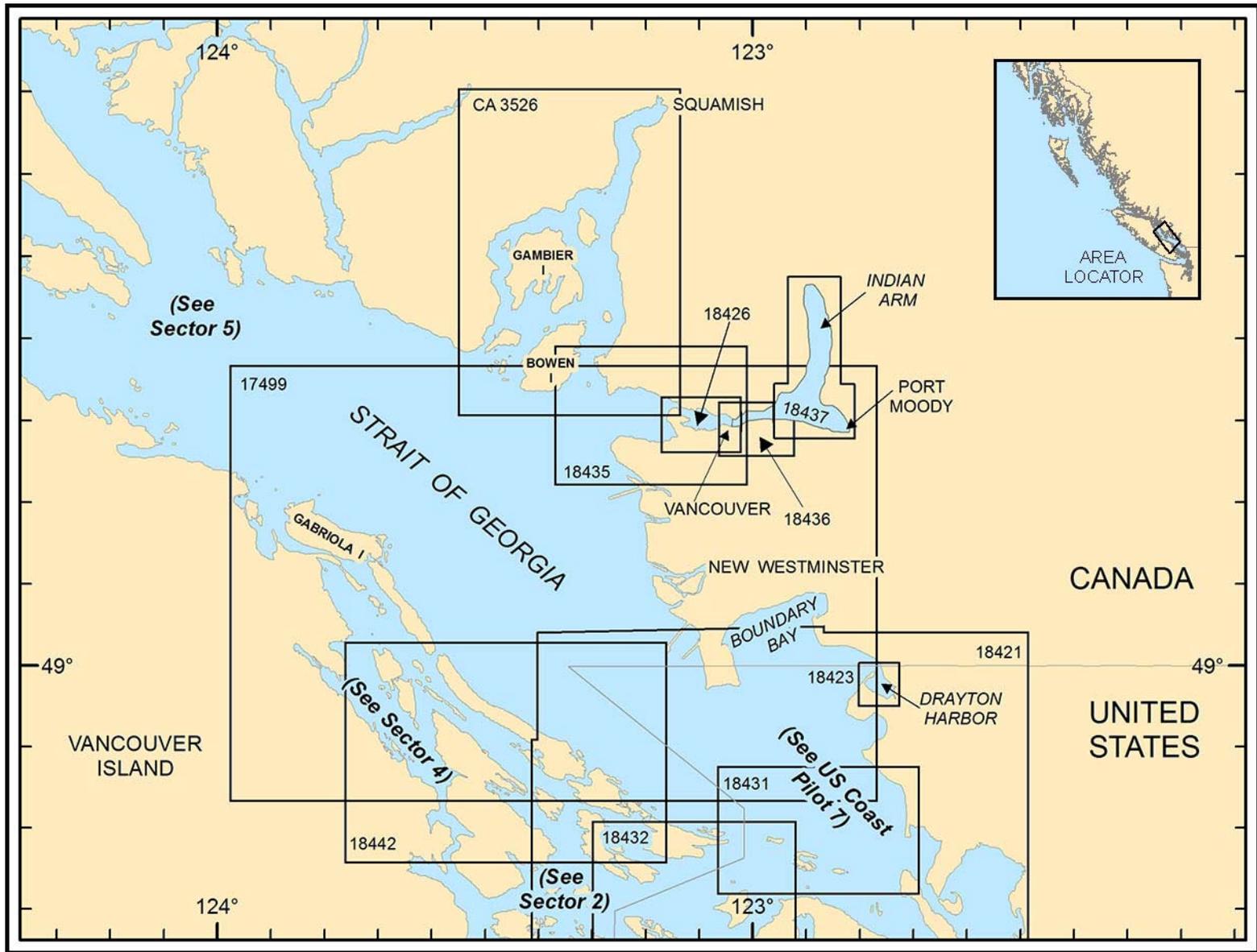
Fairway Bank (48°53'N., 123°18'W.), with a least depth of 9.1m, lies in the N entrance of Active Pass, about 0.5 mile WNW of Georgina Point. Tide rips mark this bank, except at slack water.

2.25 Gossip Island (48°53'N., 123°19'W.), lying at the W side of the N entrance to Active Pass, is located 1.3 miles NW of Georgina Point. Foul ground almost encircles this island. A boat passage leads from the NW part of the island, clear of the **Lion Islets** (48°54'N., 123°20'W.), to Whaler Bay. Heavy tide rips occur in the vicinity of the island on the Strait of Georgia side.

Gossip Shoals, consisting of numerous above and below-water rocks and reefs, extend SE from Gossip Island. A lighted buoy marks the SE edge of these shoals.

Caution.—The lighted buoy marking Gossip Shoals may drag from its mooring with strong N winds and a flood tidal current.

On entering the Strait of Georgia, vessels should be aware of the Traffic Separation Schemes (TSS) existing in this area, which may best be seen on the chart.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 3 — CHART INFORMATION

SECTOR 3

THE STRAIT OF GEORGIA—SOUTH PART

Plan.—This sector describes the N and S sides of the S part of the Strait of Georgia. On the N side it covers the area from Sandy Point to Gower Point, including the Fraser River and Vancouver Harbor. On the S side it covers the area from Boundary Pass to Fairway Channel, including the outer Gulf Islands.

General Remarks

3.1 The Strait of Georgia extends about 115 miles NW, from the junction of Rosario Strait and Haro Strait, to its NW end near Cape Mudge. The mainland of Canada, on the E side of the strait, is deeply indented by sounds, rivers, and inlets, wherein are contained the principal ports of this region. There are other harbors on Vancouver Island, which forms the W side of the strait.

Several of the Gulf Islands lie in the S part of the Strait of Georgia, off the SE end of Vancouver Island. Other islands lying in the central part and N end of the strait have navigable passages leading between them which are parallel to the strait.

Tides—Currents.—The mean diurnal range in the Strait of Georgia is about 2.9m in the S part and about 3.2m in the N part. A maximum range of about 4.9m may occur at times. The difference in heights of the daily HW is small, but the difference in heights of the successive daily LW is considerable.

The tidal currents at the S end of the Strait of Georgia are not nearly so strong as those in the channels leading to it from the Strait of Juan de Fuca. The currents in this part of the strait reach a velocity of 3 knots at times, particularly during the freshets of summer, when the Fraser River discharges a large volume of water. This fresh river water, which has a peculiar milky color, flows across Roberts Bank and Sturgeon Bank, at the river mouth, and almost directly towards Active Pass. Frequently the fresh water extends entirely across the strait, at times reaching into the inner channels and 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 dark blue water of the Strait of Georgia.

In the mid-channel of the Strait of Georgia, to the N of Patos Island and Saturna Island, the velocity of the current varies between 1 knot and 3 knots, but is seldom higher. The velocity is less to the NW of the mouth of the Fraser River, where the width of the strait is about 15 miles. To the SE of the mouth of the Fraser River, the tidal currents are slightly stronger off the S shore of the strait than off the N shore.

The tidal currents are stronger close to the S shore of the Strait of Georgia because of the rapid currents running out of Active Pass, Porlier Pass, and Gabriola Pass.

The S tidal current in the strait sets strongly SW in Active Pass.

The prevailing summer wind in the Strait of Georgia, as on the outer coast, is from NW. Between May and September, the summer wind is strong and steady, beginning about 0900 and dying towards sunset. Usually, these winds do not extend much

below Point Roberts, and in the San Juan Archipelago they become variable and baffling. Vessels with a fair wind in the main channels of Rosario Strait and Haro Strait almost always find the wind ahead on entering the Strait of Georgia.

In winter, there is a good deal of quiet weather in the Strait of Georgia, but gales from between SE and SW are also rather common. In the cooler months, strong NW winds often follow the passage of an intense cold front. These winds may achieve gale force, particularly in the S part of the strait. Often they are intensified by offshore winds blowing down the inlets of the mainland.

At Point Atkinson, HW rises 4.4m at average tides and 5m on larger tides.

Tide rips frequently occur off Point Atkinson and are caused by the meeting of the tidal currents from Vancouver Harbor and Howe Sound.

The velocities of the tidal currents in the vicinity of Alden Bank are appreciably less than those to the S in the narrower parts of Rosario Strait.

Tidal currents are scarcely felt within a line joining Sandy Point and Point Roberts. Vessels can take advantage of this, since good anchorage can be obtained in the vicinity.

Depths—Limitations.—General depths in the Strait of Georgia are ample for ocean-going vessels. The least depth on the track, between Boundary Pass and a position 3 miles NE of Thrasher Rock, is 110m. The fairway is free of dangers between Boundary Pass and Active Pass.

Minimum UKC Allowable			
Control Area	UKC Requirement		
	Rising Tide	Falling Tide	Slack Tide
Roberts Bank	5%	10%	10%
Burrard Inlet (Maneuvering)	5%	10%	10%
Burrard Inlet (Transiting)	10%	10%	10%
First Narrows	10%	10%	10%
Second Narrows MRA	10%	10%	10%
Fraser River (< 250m loa)	90cm	90cm	90cm
Sand Heads (< 250m loa)	1.4m	1.4m	1.4m
Fraser River (> 250m loa)	1.4m	1.4m	1.4m
Sand Heads (> 250m loa)	1.9m	1.9m	1.9m
Alongside a berth	5%	5%	5%
Note. —All percentages are relative to static draft.			

The Vancouver Fraser Port Authority has established recommendations for under keel clearance (UKC) to be used as a safety guideline, which can be found in the table titled **Mini-**

mum UKC Allowable. Local pilots may require adjustments to the UKC given the vessel and/or prevailing circumstances.

Regulations.—The waters described in this sector lie within the Vessel Traffic Services (VTS) System with services provided by Victoria Traffic (Canadian Coast Guard from the Victoria MCTS Center located at Patricia Bay, British Columbia). For further information on reporting requirements, see paragraph 1.1.

A Traffic Separation Scheme (TSS) is situated in the Strait of Georgia. It commences to the E of the entrance to Boundary Pass and extends SE into Rosario Strait. This scheme lies within U.S. waters and is part of the mandatory Puget Sound Vessel Traffic Service. For further details, see U.S. Coast Pilot 10.

Another Traffic Separation Scheme (TSS) lies in the Strait of Georgia. It commences to the NW of the entrance to Boundary Pass and extends N along the E side of the strait into Burrard Inlet and the approaches to Vancouver. This scheme, which may best be seen on the chart, has three precautionary areas situated at points where merging or crossing traffic is encountered.

Caution.—Vessels are advised to stay at least 2 miles from the coast due to numerous fringing rocky shoals and islets.

Vessels are advised to stay at least 2 miles from Sturgeon Bank, between the Fraser River and Point Grey, as possible damage to fishing vessels and their nets could be incurred.

In the area to the W of Sand Heads, vessels should use care as ships may be encountered maneuvering to embark or disem-

bark pilots or to enter or leave the Fraser River.

During the summer months, large concentrations of fishing craft may be encountered in the Strait of Georgia.

Sandy Point to Point Roberts

3.2 Sandy Point (48°47'N., 122°42'W.), forming the N entrance point of the drying Lummi Bay, is located on the U.S. mainland, 10.5 miles E of Alden Point. Three piers, serving an oil refinery and an aluminum smelter, extend from the shore about 2.5 miles, 3.5 miles, and 5.5 miles N of the point. The refinery buildings and a tower, standing 0.8 mile inland, are conspicuous. The piers are fully described in U.S. Coast Pilot 10.

Point Whitehorn (48°54'N., 122°48'W.) is a high bold bluff. It is faced on the seaward side by a conspicuous steep cliff of white clay.

Anchorage, sheltered from N and SE storms, can be taken, in depths of 7 to 9m, good holding ground, within Birch Bay, which is entered between Point Whitehorn and **Birch Point** (48°57'N., 122°49'W.).

A general anchorage area, the limits of which are shown on the chart, lies 3 miles NW of Sandy Point and has depths of 38 to 57m.

Alden Bank (48°49'N., 122°50'W.), with a least depth of 5.4m, lies 5 miles W of Sandy Point. Lighted buoys mark the NW and SE ends of this off-lying bank and a buoy is moored at the E side.



Port Metro Vancouver and Sub-Ports

Semiahmoo Bay (49°00'N., 122°49'W.) is entered between Birch Point and **Kwomais Point** (49°02'N., 122°52'W.). Range lights, shown from towers standing 1 mile apart at the E side of the bay, mark the International Boundary between the United States and Canada. The Peace Monument, a very conspicuous white masonry arch, is situated close to the easternmost tower.

White Rock (49°01'N., 122°48'W.), a resort, lies on the N side of Semiahmoo Bay, 2.5 miles E of Kwomais Point. It has a public wharf, protected by a breakwater, that is used by pleasure craft. A light is shown from a structure standing close W of the breakwater.

3.3 Semiahmoo (48°59'N., 122°46'W.), a town standing at the N end of Semiahmoo Spit, is the site of a cannery. A wharf, with a depth of 9.1m alongside, fronts the town. This wharf may be approached from Semiahmoo Bay through a channel leading N of the spit. Drying sand banks, marked by a light and buoys, extend from the W side of the spit. This channel, with a controlling depth of 6.4m, leads to Drayton Harbor and Blaine Harbor.

Anchorage, sheltered from S and SE storms, can be taken, in depths of 6.5 to 16.5m, off the NW side of Semiahmoo Spit.

Drayton Harbor, a cove extending S and SE from Semiahmoo Spit, contains a large area of drying sand flats, encircling a central area where there are depths of 6.4 to 9.1m, subject to change. Anchorage is possible, but not recommended, because of floating debris and vegetation.

Blaine (49°00'N., 122°45'W.), a fishing center lying on the N side of Drayton Harbor, is approached through the channel leading close N of Semiahmoo Spit.

For detailed information on Blaine Harbor and Drayton Harbor, see U.S. Coast Pilot 10.

Boundary Bay (49°03'N., 122°55'W.) indents the mainland between Kwomais Point and the E side of the promontory forming Point Roberts. Most of this bay is composed of drying mud flats. The International Boundary, marked by range lights situated on Point Roberts, extends E across this bay.

Anchorage, sheltered from W and NW winds, can be taken, in a depth of 9m, good holding ground, about 1 mile ENE of the SE extremity of Point Roberts.

Caution.—Mariners are advised that depths shown in the vicinity of Boundary Bay are subject to change due to silting.

Point Roberts to Point Grey

3.4 Point Roberts (48°58'N., 123°05'W.) is the outermost part of a prominent wooded promontory. A light is shown from a structure standing at the SW extremity. The S part of this promontory appears as an island when approaching from the S.

A large marina is situated at Point Roberts, about 1 mile ENE of the light structure. The marina basin is entered between two piers and the entrance is protected by a detached rock breakwater.



Roberts Bank Superport

The promontory extends S from the delta of the Fraser River, declining in height to its low S extremities. The E face of Point Roberts is composed of conspicuous high white cliffs. The W face is formed by bluffs, which extend N for 3.3 miles to **English Bluffs** (49°02'N., 123°06'W.).

The shore to the N of these bluffs merges with the swampy delta of the Fraser River and is barely discernible from the Strait of Georgia.

Boundary Bluff, located 2 miles N of Point Roberts, is surmounted by a monument. Range lights and beacons, marking the International Boundary, also stand on this bluff.

Foul ground extends SE from the SE extremity of Point Roberts; the outer edge is marked by a lighted buoy.

Tsawwassen Ferry Landing (49°00'N., 123°08'W.) is located at the outer end of a long causeway extending SW from English Bluff. The approach to this landing is indicated by a lighted range, bearing 017°. A breakwater, situated close S of the landing, forms a basin that is used exclusively by the ferries. There is a regular passenger and automobile ferry service to Sidney and Gulf Island ports.

3.5 Roberts Bank (49°03'N., 123°13'W.) is a large steep-to partly-drying bank that is formed by the alluvial deposits of the Fraser River. It fronts the shore between Point Roberts and Sand Heads Light, about 12 miles NW. Vessels should remain in depths of over 90m when passing the outer edge of this bank. The bank can be avoided by keeping the S extremity of Point Roberts bearing less than 114°. See paragraph 3.1 for information on recommended under keel clearances in this area.

Roberts Bank is under the jurisdiction of the Port of Vancouver (Port Metro Vancouver) and home to the largest coal-export terminal in North America. The port consists of two deep-water berths, operated by Westshore Terminals, and the largest container terminal (Deltaport) in western Canada, with one berth operated by Terminal Systems, Inc (TSI). There is a long-range plan to expand the container terminal to a multi-berth facility adjacent to the present area. This new terminal will have three additional container berths and is projected to begin operations by 2024. See paragraph 3.6 for details about these cargo-loading facilities.

Caution.—Submarine cable areas, the limits of which are shown on the chart, lie in the Strait of Georgia to the S of Roberts Bank.

Several submarine cables, which may best be seen on the chart, extend across the Strait of Georgia from Point Roberts to a point located close E of Active Pass.

3.6 Westshore and Deltaport Terminals (49°01'N., 123°10'W.), also called Roberts Bank Superport, are located on a reclaimed area connected to the mainland by a railroad over a causeway. The twin terminal port facility, situated W of Tsawwassen Ferry Landing, is comprised of two deep-water ports for loading coal (Westshore Terminals) and one quay with three berths for loading and discharging containers (Deltaport).

Westshore Terminals Home Page

<http://www.westshore.com>

Deltaport Home Page

<http://www.tsi.bc.ca>

Tides—Currents.—The tidal range for vessels at Westshore Terminals Berth No. 1 may exceed 4m at HWS with tidal currents attaining velocities of approximately 2 knots, running NW and SE.

Depths—Limitations.—Westshore Terminals Berth No. 1 is the outside berth located at the outer end of an L-shaped pier, has an alongside depth of 22.9m. Vessels up to 250,000 dwt and 350m in length, with a beam of 53m and a draft of 21m, can be accommodated at this berth. Mooring buoys are situated off the E and W ends of the pier.

Westshore Terminals Berth No. 2 is the original berth built in 1970 then completely rebuilt in 2003 after storm damage. Berth No. 2 is on the SE side of the terminal, with an alongside depth of 20.8m. Vessels up to 100,000 dwt and 263m in length, with a beam of 42m and a draft of 18m can, be accommodated at this berth. There are certain conditions under which this berth is capable of accommodating vessels up to 180,000 dwt but special permission must be obtained from the terminal with several special restrictions being applied.

The channel leading to Berth No. 2 and Deltaport, described below, is dredged to 20.4m. The turning basin, lying S of the channel, is dredged to 12.2m, but has a least depth of 11.6m. The entrance to the dredged channel is marked by lighted buoys.

At the NE side of the terminal, lighted range beacons, in line bearing 032°, indicate the channel leading between the entrance buoys and the deeper NW dredged area.

Westshore and Deltaport Terminals			
Berth	Length	Depth	Remarks
Deltaport			
No. 1	367m	15.9m	Containers
No. 2	367m	15.9m	Containers
No. 3	367m	15.9m	Containers
Westshore			
No. 1	295m	22.9m	Coal
No. 2	263m	20.8m	Coal, bulk cargo, and general cargo
Note. —Deltaport Berths No. 1 to No. 3 are continuous, with an overall length of 1,101m. Westshore Berths No. 1 and No. 2 are 850m apart. Berth No.1 has an overall length of 430m, including dolphins. Berth No. 2 has an overall length of 390m, including dolphins.			

Deltaport Terminal is a container facility located on the same reclaimed area of land as the coal terminal, close NNE of Westport Terminal Berth No. 2. Deltaport Terminal is operated by Terminal Systems, Inc (TSI) and is under the jurisdiction of the Port of Vancouver (Port Metro Vancouver). Deltaport Terminal is comprised of a single quay, 1,100m in length, with three numbered berths assigned along the quay. Vessels up to 325m

in length can be accommodated when all three berths are being used simultaneously. Depths alongside the quay for all three berths is 15.9m at LW.

Regulations.—All vessels entering, departing, or moving within the terminal must use the services of a tug. Notice of intent to arrive is required to be given to the tug company 24 hours in advance and confirmed again 4 hours prior arrival. For departures, a 12-hour advance notice plus a confirmation 4 hours before departure is required.

The harbormaster can be contacted on VHF channel 12 or through the Marine Communications and Traffic Services (MCTS) Center via telephone number 604-666-6011. The harbormaster must be advised in the case of any emergency or if the vessel intends to undertake repairs of any nature.

Anchorage.—Anchorage is available in an area, designated R, centered on position 49°00'46"N, 123°12'14"W. Depths at the center of this anchorage are 70m, with a minimum depth within the area of 58m. This anchorage is restricted to vessels up to 320m in length and is for short-term use only. A pilot must remain on board during the entire time of anchoring.

Caution.—During smaller flood and ebb tides, the velocity and direction of the tidal currents off the berths and approaches may be different from those indicated on the chart.

3.7 Westham Island (49°05'N., 123°09'W.) is the southernmost and largest of a group of islands forming the delta of the Fraser River. A mud slough separates this island from Reifel Island.

Pelly Point (49°07'N., 123°11'W.) forms the NW extremity of Westham Island.

Canoe Passage (49°05'N., 123°08'W.), leading SE of Westham Island, is the southernmost outlet of the Fraser River. This passage joins a small boat channel leading to the Strait of Georgia. The boat channel is used by local fishermen and local knowledge is required. A survey platform stands on piles near the outer end of the passage.

A lighted buoy, equipped with a racon, is moored at the entrance to Canoe Passage, about 4 miles WNW of Westshore Terminals, and marks the edge of Roberts Bank.

Roberts Bank Light is shown from a structure, 11m high, standing about 7 miles NW of Westshore Terminals, close S of the main entrance to the Fraser River. A racon is situated at the light.

A lighted buoy, equipped with a racon, is moored about 3 miles WSW of Roberts Bank Light and marks the junction between the Traffic Separation Schemes (TSS) leading to Burrard Inlet.

3.8 Garry Point (49°08'N., 123°12'W.) is the SW extremity of Lulu Island. This island forms the N side of the Fraser River at its principal entrance. The town of Steveston is situated close E of Garry Point.

Sand Heads, located 8 miles NW of Westshore Terminals, forms the N entrance point of the main channel of the Fraser River. A light is shown from a structure standing at the outer end of a jetty projecting from the N side of the river.

Sturgeon Bank (49°10'N., 123°15'W.), a continuation of Roberts Bank, extends N between Sand Heads and Point Grey. This bank dries in patches and is steep-to. A lighted buoy, moored about 4.5 miles N of Sand Heads, marks the edge of

the bank.

The Fraser River

3.9 The Fraser River, second only in commercial importance to the Columbia River in the Pacific NW, trends S and E for 400 to 500 miles from its source in the Rocky Mountains. At Hope, a town situated 80 miles E of the river mouth (49°06'N., 123°19'W.), the river turns W and flows to the Strait of Georgia through rich alluvial plains.

The river is navigable by ocean-going vessels and is marked by buoys and lights as far upriver as Douglas Island, approximately 24 miles from the mouth.

Fraser River Home Page

<http://www.portmetrovancover.com>

Tides—Currents.—The river is at its lowest level during January, February, and March. With the melting snows, it begins to rise and in April is about 0.6m above its lowest level. The river rises rapidly in May and reaches its highest level about the end of June. The records show that the year's HW mark is actually reached anywhere between May 24 and July 16. It then maintains this level with only minor fluctuations until the end of July or the middle of August.

The river begins to subside between the middle and end of August and in September the current is not inconveniently strong. September, October, and November are favorable months for river navigation as the water is then sufficiently high for vessels to reach Hope and the strength of the current has considerably abated.

At Fort Langley, about 15 miles above New Westminster, the usual rise of the river during freshets is about 4.3m, but has been known to reach 7.6m.

The river at New Westminster is seldom frozen over. Loose pieces of ice, which do not damage shipping, occasionally come down the river.

The tidal currents in the river are affected by the weather in the Strait of Georgia, the rains, and the amount of water in the river.

During freshets, the current in the channel above Garry Point (at Steveston) runs almost continuously downstream, though the rise of the tide may check it. The strongest current occurs 2 to 3 hours before LW and may attain a velocity of 5.5 knots. After the freshets, the strongest current occurs on the average about 30 minutes before LW and attains a velocity of 3 or 4 knots.

During the low stage of the river, a flood and an ebb occur on all the larger tides. The flood begins soon after HW and commences first along the bottom. At New Westminster, the flood tidal current reverses the river current except during freshet periods.

When the river is at its highest level, the current between Hope and Mission City attains a velocity of 4 to 7 knots and even more in the narrow parts.

Depths—Limitations.—The Fraser River is entered about 10 miles NW of Point Roberts at Sand Head through what is commonly known as the South Arm of the Fraser River. See paragraph 3.1 for information on recommended under keel

clearances in this area.

Several reaches lies in the navigable portion of the river within which there are two dredged channels. The Outer Channel, about 200m in width, is maintained at 10.7m depths and is intended to allow for meeting and passing of vessels at the pilot's discretion. The Inner Channel is maintained completely inside the Outer Channel, is dredged to a depth of 11.5m, and is 130m to 170m in width.

Vessels up to 229m in length and 11.3m draft have been accommodated at New Westminster. Vessels, with drafts of up to 4.3m, can proceed to Mission City, about 50 miles from Sand Heads. Vessels of lesser draft, with local knowledge, can proceed another 30 miles to the town of Hope.

The depths and directions of the fairways in the Fraser River are constantly changing due to scouring action, silting, and dredging. The Canadian Department of Public Works conducts surveys each spring and autumn over the navigable river areas. Published depth information resulting from the surveys is available from the Canadian Hydrographic Office.

Port Metro Vancouver maintains channel depth characteristics by providing annual dredging maintenance.

As depths alongside piers and wharves also vary periodically, vessels should consult the owners of the facilities before arrival.

See paragraph 3.13 for details of the various berths and cargo worked at facilities all along the Fraser River up to and beyond New Westminster (Fraser River Prt).



Photo copyright Mike Mitchell
Sands Head Light

Pilotage.—Pilotage is compulsory for vessels over 350 gross tons and is provided by the Pacific Pilotage Authority Canada (PPA). Pilots that are onboard ships proceeding from sea, British Columbia, or U.S. ports to the Fraser River will arrange for river pilots, if necessary. For details on reporting procedures and pilot boarding areas, refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Pilots for the Fraser River are generally embarked about 2.5 miles seaward of **Sands Head Light** (49°05'N., 123°20'W.).

Regulations.—The Fraser River lies within Sector 2 of the Victoria Vessel Traffic Service (VTS) System, which is admin-

istered by Victoria Traffic. For details concerning reporting procedures, refer to paragraph 1.1. For other regulations covering the Western Canada Traffic Zone, refer to Canada—Regulations and Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

A special Harbor Operations Manual is in effect for the Fraser River. A copy should be obtained from the Port Metro Vancouver Fraser Port Authority. This manual is available from the web site for the Fraser River (<http://www.portmetrovancover.com>).

Contact Information.—The harbormaster and the Port Authority can be contacted as shown in the table titled **Fraser River—Contact Information**.

Fraser River—Contact Information	
Harbormaster	
Telephone	1-604-665-9086
Facsimile	1-866-284-4271
E-mail	harbour_master@portmetrovancover.com
Port Authority	
Telephone	1-604-665-9000
Facsimile	1-866-284-4271

Signals.—In the event of fire on board a ship at a berth or alongside a facility, five long blasts on the whistle or siren shall be sounded at intervals.

Several bridges, both vehicular and railroad, span the Fraser River. White lights, shown on each side of the span on fixed bridges, mark the passage under the bridge. The railroad bridge, with a movable swing span, is marked by additional white lights shown from each end of the center pier projection. Semaphore arms are also situated at each end. The semaphore arm raised in a vertical position, or a fixed green light shown at night, indicates that the span is open. The arm extended horizontally, or a fixed red light at night, indicates the span is closed. A red ball displayed by day at the N end of the swing span indicates the span is out of order; at night, a flashing red light is shown.

In fog, with ships moving on the river, the railroad bridge supervisor will sound an air whistle for 4 seconds every 20 seconds when the bridge is closed. A siren sounded for 5 seconds every 24 seconds indicates the swing span is open.

The following six bridges all have somewhat different procedures to be followed when approaching them with the intent of passing through their openings. Primary communications with the bridge operators on all these bridges is through VHF channel 74. The vessel's ETAs should be sent to the bridge operators as soon as possible. Take special note of the minimum time needed for the bridge operator to get the respective bridges opened if described below when deciding how late an ETA can be sent. Once contact has been established with the bridge operator, vessels should maintain a listening watch on VHF channel 74 until clear of the bridge.

The bridges, along with their operating information, are, as follows:

1. **Annacis Swing Bridge**—An opening procedure will

be established by the bridge operator, who will need to contact the Southern Railway and prepare the bridge for opening, all of which can take up to 8 minutes. The time taken for the bridge to open is approximately 6 minutes so the minimum time needed by the bridge operator to get the bridge open is at least 15 minutes.

Vessels are to use the N opening for bridge transit.

The bridge can be contacted by telephone at 604-521-0964.

2. **New Westminster Railway Bridge**—An opening procedure will be established by the bridge operator. Vessels will provide their ETA plus any changes in that ETA to the bridge operator.

If the vessel deviates from the procedures arranged by the bridge operator for safety or any other reason, then two security broadcasts describing these changes must be made on VHF channel 74 to advise other mariners in the area of intentions.

The bridge can be contacted by telephone at 604-589-6612.

3. **Pitt River Railway Bridge**—An opening procedure will be established by the bridge operator, who will need to contact the rail yard supervisor or controller, then prepare the bridge for opening. The total time needed for getting the bridge opened is at least 35 minutes.

If vessel transit through the bridge opening is no longer needed after it has been arranged, contact the bridge operator through VHF or telephone as quickly as possible to cancel the scheduled opening.

Vessel transit is prohibited between 0530 and 0800 and between 1615 and 1930 every weekday, except for Canadian holidays.

Emergency opening of the bridge is possible at any time. An emergency is recognized when there is a situation that threatens life, property, or the environment. The following procedures need to be followed when requesting an opening for emergency reasons:

- a. Contact the bridge operator on VHF channel 74 or by telephone (604-795-7851) as soon as situation arises.
- b. Identify the emergency.
- c. The bridge operator will then stop all rail traffic and open the bridge for emergency transit.

The telephone contact for non-emergency situations is 604-941-0079.

4. **Pitt River Highway Bridge**—An opening procedure will be established by the bridge operator who will need to contact various agencies for stopping traffic and prepare the bridge for opening. The minimum time for the actual bridge opening is up to 10 minutes plus an unknown amount of time for contacting the necessary agencies to stop traffic.

Vessel transit is prohibited between 0500 and 0900 and between 1430 and 1845 every weekday except for Canadian holidays.

If the bridge operator needs to cancel the bridge opening, the vessel will be notified.

The bridge can be contacted by telephone at 604-552-5830.

5. **Queensborough Highway Bridge**—An opening procedure will be established by the bridge operator when on duty.

Vessels approaching the bridge are required to make safety calls on VHF channels 6 and 74 to determine if there is any traffic sailing in the opposite direction.

The bridge usually remains in the open position with an operator on duty except for the hours between 0800 and 1600 on weekdays. The bridge is also left unattended between 0800 on Saturday through 0800 on Sunday.

The bridge can be contacted by telephone at 604-522-3729.

6. **Westham Island/Canoe Pass Bridge**—An opening procedure will be established by the bridge operator when on duty.

During the period between December 1 and March 31, the bridge is unattended between the hours of 2200 and 0600; vessels must contact the Annacis Bridge operator to assist with the opening procedure.

The minimum time for the actual bridge opening is up to 3 minutes plus an unknown amount of time for the operator to fully arrange the opening.

The bridge can be contacted by telephone at 604-946-0139.

Anchorage.—Anchorage is available for vessels waiting to enter the Fraser River in an area, designated S, centered on position 49°07'45"N, 123°18'29"W. Depths at the center of this anchorage are 70m, with a minimum depth within the area of 55m. This anchorage is restricted to vessels up to 320m in length and is for short term use only. A pilot must remain on board during the entire time of anchoring.

Anchoring is prohibited in the vicinity of the George Massey Tunnel (49°07'18"N., 123°04'33"W.) which connects Lulu Island with Deas Island.

Caution.—The buoys and beacons are frequently shifted to conform with the changes in the river fairway. These aids are liable to be carried away, especially during freshets.

Several submerged pipeline and cable areas are situated in the river and are indicated at their landings. However, floating markers may be adrift or missing during freshets.

Vessels should be aware that frequent changes in river depths due to silting, dredging, and scouring make the charted channel depths often unreliable. Caution should be taken at the mouth of the river as well.

The Fraser River—Sand Heads to New Westminster (Fraser Port)

3.10 Steveston Jetty, consisting of quarried stone, protects the N side of the river channel, between the entrance at Sand Heads and Garry Point, 4.5 miles upriver. A spoil ground, located at the end of the jetty, is bounded by lines joining the following positions:

- a. 49°06'17.7"N, 123°18'50.8"W.
- b. 49°05'43.8"N, 123°18'58.5"W.
- c. 49°05'13.5"N, 123°19'38.7"W.
- d. 49°06'08.7"N, 123°20'20.4"W.

Lighted buoys, lighted beacons, and ranges mark the fairway of the river.

Caution.—Several openings in Steveston Jetty allows a cross current to flow out into the Fraser River resulting in extremely turbulent water during ebb tides in vicinity of the rock groin NW of Garry Point.

An obstruction, at a depth 108m, is located close SSW of the spoil ground.

3.11 Steveston (49°08'N., 123°11'W.) (World Port Index No. 18090) is the center of the salmon-canning industry on the river. This harbor extends for 1.5 miles ESE from Garry Point through Cannery Channel. Numerous wharfs and piers extend out into the W end of Cannery Channel and are available to large fishing vessels at any stage of the tide. Steveston Island fronts Cannery Channel; a rock breakwater extends W from Steveston Island. A light is shown from the W end of the breakwater.

Anchorage is prohibited from the middle of May through October in the approaches to and the W end of Cannery Channel.

Woodward Island (49°06'N., 123°08'W.), very marshy and narrow, lies on the S side of the river channel, about 0.5 mile SE of **Steveston Island** (49°07'N., 123°10'W.). An extensive training wall fronts this island and connects Woodward Dam with **Rose Island** (49°06'N., 123°07'W.).

Woodward Reach extends E from the training wall at Woodward Island to Deas Island, 5 miles above Garry Point.

Woodwards Landing (49°07'N., 123°05'W.), on the N side of the channel, is the site of several mills. Several submerged cables and pipelines extend SE across the channel from the landing to the opposite shore. A tunnel is situated close E of the pipelines. Anchorage is prohibited within an area, about 0.5 mile wide, lying in the vicinity of these obstacles.

Deas Island (49°07'N., 123°04'W.) lies on the S side of the river and is connected at its NE end to the mainland. A channel, used by small craft, leads to the S side of the island. Two marinas are situated in the vicinity of this channel.

An overhead power cable, with a vertical clearance of 9.8m, spans Deas Slough, on the S side.

Tilbury Island, separated from the mainland by Tilbury Slough, lies on the S side of the river, about 1 mile NE of Deas Island.

3.12 Annacis Island (49°10'N., 122°56'W.), lying about 5 miles ENE of Woodward Island, is more than 3 miles long and is located at the head of the river delta. A causeway connects the islands. The Fraser River extends along the S shore of Lulu Island for about 9 miles, passing S and then NE of Annacis Island.

Three overhead power cables, with a minimum vertical clearance of 53m, span the river in the vicinity of Annacis Island and may best be seen on the chart.

The Alex Fraser Bridge (Annacis Island Bridge) is a fixed highway bridge, with a vertical clearance of 57m, which spans the river at the center of Annacis Island.

The Pattullo Bridge, a fixed highway bridge, spans the river near New Westminster and has a vertical clearance of 45m.

A bridge, with a vertical clearance of 44m, spans the river close SW of the Pattullo Bridge.

The Fraser River Railway Bridge (New Westminster Railway Bridge) is a swing bridge which crosses the river close NE of the Pattullo Bridge. The bridge, when closed, has a vertical clearance of 6.7m. The swing span has a length of 99m.

New Westminster (Fraser River Port) (49°12'N., 122°55'W.)

World Port Index No. 18100

3.13 New Westminster is situated on the N bank of the Fraser River, about 21 miles from Sand Heads. The harbor is engaged in considerable foreign and domestic shipping. Air, railroad, and ferry services are available and the port is open all year.

Depths—Limitations.—Many berths, wharves, and other cargo loading and unloading docks are spread out along the Fraser River from N shore opposite Deas Island to New Westminster harbor area, all under the Fraser Port harbor authority. Details of these facilities are given below:

Fraser Wharf (49°07'44"N, 123°04'10"W) is a dedicated ro-ro berth handling the import of automobiles. This is a single berth with a depth alongside of 10m that can accommodate vessels up to 152m in length with their own gear.

Lehigh Northwest Delta Cement Plant (49°08'43"N, 123°01'47"W), at the Tilbury Island Terminal, has three barge stations. Barge Station No. 1 and Barge Station No. 2 handle limestone, shale, silica, and gypsum. Barge Station No. 3 is covered and will handle cement brought from the Lehigh Dock silos along a pneumatic conveyor belt. Barge Station No. 1 and Barge Station No. 2 have depths alongside of 7.6m but Barge Station No. 1 is 77m in length while Barge Station No. 2 is 256m in length. Barge Station No. 3 is 256m in length with depths of 7.6m alongside.

Coasts 2000 Terminals handles pulp, paper, lumber, and other forest products at its single barge berth, 70m in length, located across the Fraser River from Barge Station No. 1 of the Lehigh Northwest Delta Cement Plant.

Seaspan Coastal Intermodal Corporation operates a terminal on Tilbury Island close W of the Lehigh Northwest Delta Cement Plant. Seaspan has five ro-ro berths for ferry and barge services for trucks, trailers, and delivery of containers between terminals on the mainland and on Vancouver Island. Vessels and barges up to 125m in length can be accommodated at these berths.

Lafarge Cement (49°09'17"N, 123°00'27"W) handles bulk cement and cement clinker. This is a single berth, 256m in length, with depths alongside of 6.6m.

Chatterton Petro Chemical Wharf (49°09'01"N, 123°00'48"W) is no longer in use. Chatterton Petrochemical was decommissioned in 1992 but is still undergoing remediation to become an industrial park.

Annacis Auto Terminal (49°11'03"N, 122°55'20"W), another dedicated ro-ro facility, has two berths handling automobile imports, heavy equipment, construction machinery, and other types of vehicles normally carried on these types of vessels. Berth No. 1 is 217m in length and has depths alongside of 10.7m; Berth No. 2 is 200m in length and also has depths alongside of 10.7m. Both berths can accommodate vessels with their own gear.

Fraser Surrey Docks consists of eight berths spread out long the S bank opposite Annacis Auto Terminal extending NE to the S bank opposite Shoal Point. These berths handle lumber, wood pulp, newsprint, steel, containers, wood chips, general cargo, specialty grains, and dry chemicals., as follows:



Fraser River Docks Surrey



Photo courtesy of Fraser Port

Fraser Port—Annacis Auto Terminal

1. Berth No. 2, Berth No. 3, and Berth No. 4 have a total length of 565m, with a depth of 11.7m alongside. Cargo worked at these berths include lumber, wood pulp, newsprint, steel, wood chips, general cargo, specialty grain, and dry chemicals.
2. Berth No. 6 is a dedicated ro-ro terminal, 95m in width, with depths alongside of 11.7m, and will accommodate a barge ramp, 4.25m in width, for direct loading and unloading of vehicles between the barge and the shore.
3. Berth No. 7 and Berth No. 8 have a total length of 701m fronting the container yard, with depths alongside of 11.7m, and are for the exclusive loading and unloading of containers.
4. Berth No. 9 is 244m in length with depths alongside

of 11.7m. Cargo worked at this berth include containers and general cargo. Utilization of cargo by barge is also available.

5. Berth No. 10, a three-dolphin piling berth at the NE end of the terminal, is 220m in length, with depths of 11.7m alongside, and is equipped with a 60m long trestle. This berth is used for loading logs or for larger vessels off-loading their cargo to barges for trans-shipment.

Georgia Pacific Dock (49°12'53"N, 122°52'33"W), located N of the Fraser Surrey Docks in Queens Reach, handles bulk gypsum products using a conveyor system. This is a single berth, 56m in length, with a depth alongside of 8.23m.

News Tech Recycling Wharf (49°13'28"N, 122°51'35"W) handles wood products. This is a single berth, 244m in length, with a depth alongside of 9.0m; however vessel draft is limited to a maximum of 8.4m.

Dredging off of the docks occurs from time to time so prior to arrival, vessels should consult wharf owners, especially if the vessel's draft is critical.

Dangers, consisting of numerous shoals, lie close to the main channel of the Fraser River. City Bank, with a least depth of 1m, lies in the middle of the river, off New Westminster. The main river channel leads S of this bank. Sapperton Channel, with a least depth of 6.4m, leads N of the bank.

Aspect.—Landmarks include numerous tanks, water towers, canneries, and sawmills standing along the banks of the river. Several conspicuous radio towers and lights are situated near the causeway opposite Annacis Island. A prominent grain elevator stands on the S side of the river about 1 mile below the harbor.

Numerous lighted buoys mark the river channel and adjacent shoals between Sand Heads and New Westminster. Lighted range beacons indicate the fairways leading through the various cuts and reaches which form the river channel.



Fraser—South Westminister Docks



Photo courtesy of Fraser Port

Fraser Wharf

Pilotage.—Pilotage is compulsory for vessels over 350 gross tons. For further information, see paragraph 3.9.

Regulations.—The jurisdiction of New Westminister includes the Fraser River from the Strait of Georgia to Langley, a town standing 15 miles above the harbor. Also included within the limits are the waters between the Pitt River and Pitt Lake and that part of the North Arm that is in contact with New Westminister.

Vessels proceeding in the channel between the E extremity of Annacis Island and Sapperton Dyke (49°13'N., 122°51'W.) shall keep to that side of the channel which lies on the port side. In addition, vessels desiring to pass through the draw of the open railroad bridge shall use the draw on the port side of the vessel.

Vessels proceeding with the tide have precedence over those stemming the tide.

See paragraph 3.9 for further information.

Anchorage.—Anchorage can be taken within an area, in depths of 9 to 15m, mud and sand, lying in the channel off New Westminister. Care must be taken to avoid charted submarine cables and pipelines. vessels should also maintain a good

watch during the freshets of summer to avoid dragging.

Caution.—Several pipelines and submarine cables, which may best be seen on the chart, cross the river in the vicinity of Tilbury Island and Annacis Island.

Sapperton Channel is used as a water aerodrome.

The Fraser River (continued)

3.14 Sapperton Dyke (49°13'N., 122°51'W.) is located close E of Sapperton Bar. It diverts the river N and S of the bar and City Bank. The **Coquitlam River** (49°14'N., 122°48'W.) branches N and the **Pitt River** (49°13'N., 122°46'W.) branches NE, respectively, from the W and E ends of Douglas Island. The W end of City Bank is marked by a buoy.

Fraser Mills (49°13'N., 122°52'W.) (World Port Index No. 18110), located on the N bank of the Fraser River adjacent to New Westminister, has the largest sawmill in the area. A very high chimney backing the long lumber pier is also conspicuous.

Port Mann (49°13'N., 122°49'W.) extends about 2 miles along the S bank of the river and is fronted by several ferry landings.

Caution.—A highway bridge, with a vertical clearance of 42m and illuminated by lights, spans the Fraser River close E of Port Mann.

A railroad barge ferry plies between Port Mann and Vancouver Island. There are several submarine pipelines that cross the river in the vicinity of the ferry landing and two overhead power cables, with vertical clearance of 45m, span the river in the vicinity of the ferry landing.

A depth of 0.1m has been reported in position 49°13'16.1"N, 122°49'04.6"W. Another shoal area, with depth of 1.3m, has been reported in position 49°13'14.3"N, 122°49'09.4"W.

3.15 Douglas Island (49°13'N., 122°46'W.) lies at the mouth of the Pitt River. The main channel of the Fraser River leads S of this island.

Mission City (49°07'N., 122°15'W.) (World Port Index No. 18140), a town, stands on the N bank of the Fraser River, about 30 miles from New Westminister. A government wharf fronts the town and has a least depth of 4.5m alongside. The river channel leading to the town is generally free of obstructions, but local knowledge is required.

Port Coquitlam (49°16'N., 122°47'W.) (World Port Index No. 18130) is a railroad freight terminus situated near the mouth of the Pitt River. Small vessels can transit the latter river as far as **Pitt Lake** (49°22'N., 122°36'W.). The lake is enclosed by sheer mountains and is too deep for anchoring.

Several other landings of minor importance are situated along the river, but traffic to the E of the town is minimal.

North Arm (49°13'N., 123°12'W.) leaves the main channel of the Fraser River below New Westminister. It flows W and NW and passes N of Lulu Island, Sea Island, and **Iona Island** (49°13'N., 123°12'W.).

North Arm Jetty extends about 3 miles NW from the N side of Iona Island across Sturgeon Bank to the Strait of Georgia. A breakwater, situated at the N side of the entrance to North Arm, extends SW and forms a haven for fishing vessels.

North Arm is dredged from its outer entrance to the main river channel. An intended depth of 5.5m is maintained from the en-



First Narrows—Burrard Inlet

trance for 0.8 mile, then shallowing to a depth of 4.6m until the main channel. A channel width of 90m is maintained from 2.75 miles upriver from the entrance until the main channel.

North Arm, also known as North Fraser Harbor, is industrialized, especially for timber products. Most of the traffic consists of tugs towing barges and log booms. Local knowledge is necessary.

The **Marpole Railway Bridge** is located in the North Arm approaching Sea Island. All vessels transiting the bridge crossing shall comply with the following procedures:

1. Maintain a continuous listening watch on VHF channel 6.
2. Initiate two security calls on VHF channel 6 to determine if there is any oncoming traffic at the following points:
 - a. Hodders Tugboat Dock.
 - b. The downriver end of Richmond Island.
3. Prior to departure from any berth or a vessel's stationary position at either of the points listed above, including from Mitchell Slough or the Middle Arm, vessels should make two security calls on VHF channel 6 advising any other vessels in the area of their intentions.
4. If safety reasons have dictated that these procedures cannot be followed while a vessel is transiting the bridge crossing, the vessel must make at least two security broadcasts on VHF channel 6 advising any other vessels in the area of their intentions.
5. Vessels may make other arrangements through bridge-to-bridge communications between passing vessels.

Sea Island (49°12'N., 123°12'W.), with Iona Island lying close N of it, is located close to the NW side of Lulu Island. It is separated from the latter by Middle Arm, a very shoal outlet of the Fraser River. North Arm, the secondary entrance of the river, separates Sea Island and Lulu Island from the mainland.

See paragraph 3.9 for pilot contact information.

Pilotage.—Pilotage is compulsory in the North and Middle Arm of the Fraser River and is provided by the Pacific Pilotage Authority Canada (PPA). For details on reporting procedures and pilot boarding areas, refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Regulations.—The North Arm and the Middle Arm of the Fraser River lie within Sector 2 of the Victoria Vessel Traffic Service (VTS), administered by Victoria Traffic. For details concerning reporting procedures refer to paragraph 1.1. For other regulations covering the Western Canada Traffic Zone, refer to Canada—Regulations and Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Vancouver International Airport is situated on Sea Island and a conspicuous ball-shaped radar dome and a prominent control tower stands in its vicinity.

Caution.—A dangerous wreck is located in the North Arm in a depth of 5.7m in position 49°11'40"N., 122°57'03"W.

Approaches to Vancouver

3.16 Burrard Inlet, extending 17 miles E from the Strait of Georgia, is entered between Point Grey and Point Atkinson. This inlet is easily accessible, free of dangers, and navigable by ocean-going ships as far as Port Moody, at the head. See paragraph 3.1 for information on recommended under keel clearances in this area.

Two narrows somewhat confine the inlet and its fairway channel. The area lying between these two narrows is considered to be Vancouver Harbor proper. The city of Vancouver backs the S side of the harbor; North Vancouver stands on the N side. The tidal waters of Burrard Inlet, E of a line joining Point Grey and Point Atkinson, form the legal limits of Van-

couver Harbor.

Point Grey (49°16'N., 123°16'W.), a rounded bluff, forms the W end of a wooded promontory and is the S entrance point of Burrard Inlet. It is very prominent from S. The conspicuous buildings of the university stand on the heights above this point.

Spanish Bank (49°17'N., 123°14'W.) extends N from Point Grey and SE around the promontory to English Bay. This hard, drying, and steep-to sand bank is visible only at LW during strong W winds, when a line of small breakers is formed. A lighted buoy is moored close off the NW edge of the bank, about 1.5 miles N of Point Grey. Lights are shown marking the N side of the bank.

Caution.—Multiple submarine cables extend N and W from the vicinity of Spanish Bank.

English Bay (49°17'N., 123°11'W.), lying E of Spanish Bank, is bordered on the E side by the Stanley Park Peninsula.

Several prominent buildings stand on the S shore of English Bay, about 2.5 miles W of the entrance to False Creek.

Anchorage.—See the table titled **Anchorage—Vancouver and Vicinity** in paragraph 3.18 for designated anchorages in English Bay.

False Creek (49°16'N., 123°08'W.), a shoal inlet, leads SE and E from the head of English Bay and is used by small craft, fishing boats, and yachts. False Creek is entered in depths of 5 to 6m about 465m NNW of Elsje Point. Depths of 5 to 6m continue in a narrow band passing under the Burrard Bridge, located about 0.7 mile up the river, then again on either side of the Granville Bridge further on. The Kitsilano Coast Guard Base and a wharf are located on the SW shore just before the Burrard Bridge. A floating breakwater protects the docks on the S side of the wharf. Elsewhere depths within the creek are less than 4m, except for a small area of 5 to 7m located close WNW of the Cambia Bridge, which is located about 1 mile E of the Burrard Bridge. Small vessels, with local knowledge, can berth at numerous finger piers on both sides of an inlet, on the S side of the creek between the first two bridges, and also on the N side of the creek 250m WNW and 450m SW of the Cambia Bridge.

Caution.—Two wrecks lie in the vicinity of Kitsilano Point; a wreck with depth 3.9m lies 0.3 mile NW and a wreck with depth 2.7m lies 0.4 mile W of the point.

Stanley Park (49°18'N., 123°08'W.), a peninsula, is located at the E side of English Bay and extends N. Ferguson Point, the W extremity of this peninsula, is located 1.5 miles NNW of the entrance to False Creek. A lighted buoy, moored about 0.3 mile WNW of Ferguson Point, marks the shoal bank lying on the W side of the peninsula. Prospect Point, a high bluff, forms the N extremity of Stanley Park and is located 1 mile NE of Ferguson Point.

3.17 Point Atkinson (49°20'N., 123°16'W.), steep-to and radar prominent, is located 3.8 miles N of Point Grey and forms the N entrance point of Burrard Inlet. A light is shown from a structure, 12m high, standing on the point.

Navvy Jack Point (49°19'N., 123°16'W.) is located 4 miles E of Point Atkinson. The intervening coast is indented by several shallow coves, with an occasional boat pier. A prominent

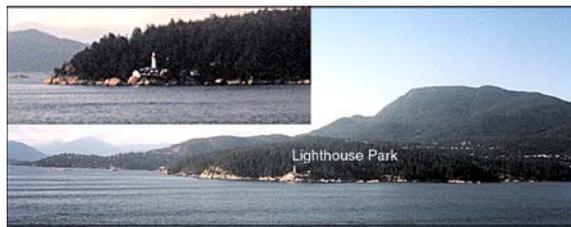


Photo courtesy of Jarrod M. Kushla

Point Atkinson Light from S



Point Atkinson Light

microwave tower stands close NW of Dundarave, about 3 miles E of the point.

The **Capilano River** (49°19'N., 123°08'W.) empties into Burrard Inlet, about 0.3 mile NW of First Narrows and 1.3 miles ESE of Navvy Jack Point.

First Narrows (49°19'N., 123°08'W.), the constricted entrance of Vancouver Harbor proper, is spanned by the Lions Gate Bridge. This fixed bridge, situated close E of Prospect Point, has a vertical clearance under the center of 61m.

The controlling depth of the approach channel through the narrows is 15m at slack water with a navigable width of 305m. See paragraph 3.1 for information on recommended under keel clearances in this area.

Brockton Point, located 1.3 miles SE of the Lions Gate Bridge, forms the E extremity of the Stanley Park Peninsula and the SE entrance point of First Narrows. A sector light is shown from a structure standing on the point. Between this point and Prospect Point, the S shore of First Narrows is fringed by numerous drying ledges.

Regulations.—A Vessel Traffic Services System (VTS) covers Vancouver Harbor and the approaches. For further details, see paragraph 1.1 and Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Traffic Separation Schemes (TSS), the limits of which may best be seen on the chart, are situated on the E side of the Strait of Georgia and in the entrance to Burrard Inlet.

An approach lighted buoy, equipped with a racon, is moored about 2.3 miles WNW of Point Grey and marks the junction



Photo copyright Mike Mitchell
Close-up of Brockton Point Light

between the schemes.

A lighted buoy, equipped with a racon, is moored about 4 miles NE of Point Grey and marks the E end of the TSS leading into the harbor entrance.

Vessels are not permitted to meet or overtake one another between First Narrows Light and Calamity Point Light. Vessels are not permitted to overtake other vessels carrying dangerous goods between First Narrows Light and Brockton Point.

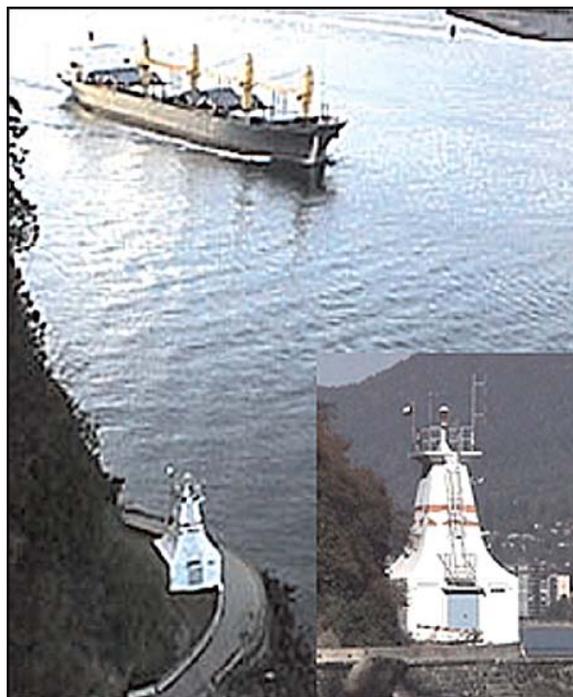
Caution.—The Capilano River is subject to sudden and destructive freshets, which can occur at any time during the year. Vessels entering or leaving First Narrows should exercise great care when passing the river mouth as, if the river is in flood, a strong set towards Prospect Point may be experienced.

A drying shingle and boulder flat lies up to about 0.1 mile off the mouth of the Capilano River and extends E for about 1 mile along the N side of the narrows. This flat is marked by a lighted beacon standing 0.4 mile NNW of Prospect Point. A light is shown from a tower standing on Prospect Point.

Strong tide rips, caused by the meeting of the tidal currents, frequently occur off Point Atkinson.

Extensive tide rips are reported to occur off Brockton Point on large tides.

Parthia Shoal, a rocky patch, has a least depth of 8.2m and extends up to 0.2 mile offshore, 0.3 mile NW of Brockton



Prospect Point Light

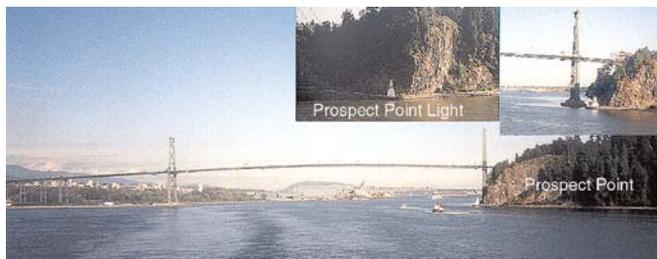


Photo courtesy of Jarrod M. Kushla
The Lions Gate Bridge from W

Point.

Submarine pipelines extend from the shore SW of Parthia Shoal.

Calamity Point is located on the N side of First Narrows, about 0.5 mile ESE of the Lions Gate Bridge; it is fronted by a ridge of drying boulders. This ridge is marked by a lighted beacon, standing close S of the point, and by a lighted buoy, moored close SSE of it.

Burnaby Shoal, distinguished by kelp, lies about 0.3 mile ESE of Brockton Point and is marked by a lighted beacon.

The **Lions Gate Bridge** (49°19'N., 123°08'W.) has lighted towers standing at its extremities. Additional lights are shown from each side of the bridge floor and mark the width of the channel. Tri-colored directional lights are exhibited from the bridge and may best be seen on the chart. The white sectors of these lights indicate the recommended channel. Vessels should



Central Vancouver Harbor

not use these sectors when E of Brockton Point.

Night signals are displayed from the mast on the bridge:

1. One white light—One or more vessels inbound.
2. Two white lights—One or more vessels inbound with tows.
3. One red light—One or more vessels outbound.
4. Two red lights—One or more vessels outbound with tows.

Vancouver Harbor (49°17'N., 123°07'W.)

World Port Index No. 18150

3.18 Vancouver Harbor comprises that part of Burrard Inlet that lies between Brockton Point and Second Narrows (49°18'N., 123°01'W.). The port lies within a well-sheltered natural harbor and is open to navigation all year round.

Most of the principal piers and wharves are contained within this area, which is 3.5 miles long and has a maximum width of 2 miles. The port is the terminus for three major railroads and an international airport is situated 10 miles S of the harbor.

Vancouver Home Page

<http://www.portmetrovancover.com>

Tides—Currents.—Between Brockton Point and Terminal Dock Pier (49°18'N., 123°03'W.), the tidal currents run counterclockwise on the flood and ebb tides. On the ebb, the main current sets W in the central and N part of the harbor, and a weak eddy sets E along the S shore. On the flood, the main current has a strong set from Brockton Point towards the Canadian National piers. After a period of weak velocity and variable direction following slack water, the currents along the N shore form an eddy which continues W and re-enters the main current opposite Brockton Point.

Within the harbor, the strongest currents occur from 1 to 2 hours after the maximum flood. At this time, their velocity may reach 2 knots, with the current setting ESE off the Canadian National piers, and 1 knot setting W along the N shore. The in-shore eddies do not always conform to this pattern, so no reliance should be placed on the anticipated direction of the tidal current alongside any wharf and pier.

The tides in First Narrows rise about 3.5m at neaps and 4m at springs.

Depths—Limitations.—Coal Harbor, lying close SW of Brockton Point, is entered via a channel with depths of 2.4 to 4.2m. This harbor is used by small craft, yachts, and seaplanes. Several marinas lie within the harbor.

There are general depths of 12.8m to 64m within the harbor. Vessels of up to 259,000 dwt, 298m in length, and 18.5m draft have been accommodated in the port at HW.

The principal facilities listed below are situated on the S side of the harbor and are described from W to E, as follows:

1. Canada Place is a cruise terminal with a three-sided pier situated 0.75 mile SE of Brockton Point. The SE side is 506m long, the N side is 276m long, and the W side is 329m long. All three berths have depths of 8.4m alongside and are dedicated to cruise ships and passenger-related facilities.
2. Main Street Dock, situated close E of Canada Place and S of the container yard on the W side of the Centerm Terminal.
3. Centerm Terminal, located N of the Main Street Dock and then extending E has six berths, as follows:
 4. The W edge of Vanterm is located 650m E of the Bal-lantyne Cruise Terminal; the following three piers are situated in between them.
 5. Vanterm Wharf has seven berths divided into three terminals, as follows:
 - c. Vanterm operates Berth No. 4 through Berth No. 7. Berth No. 7.
 - d. Pacific Elevators operates Berths No. 2 and No. 3 on

Vanterm Wharf with agricultural products handled.

e. Cascadia Terminal is located close W of the Second Narrows Bridge on the S shore and has Berth No. 1 for handling wheat and grain products.

See paragraph 3.21 for the principal facilities continuing along the S shore E of the Second Narrows Bridge to Port Moody.

The principal facilities listed below are situated on the N side of the harbor W of the Second Narrows Bridge and are described from E to W, as follows:

1. Lynnterm situated close W of the Second Narrows Bridge, is divided by Lynn Creek into an E and a W section. Lynnterm-East Gate contains Berth No. 4 through Berth No. 7.
2. Neptune Terminal, situated close W of Lynnterm-West Gate, provides three berths for handling bulk cargo.
3. Vancouver Wharves, close W of the Fibreco Terminal and close E of the Lions Gate Bridge, provide five berths for handling bulk cargo. Berth details are given in the table titled **Vancouver—Berth Information**.

Aspect.—Numerous conspicuous terminal buildings, grain elevators, silos, and conveyors stand on both shores of the harbor.

Pilotage.—Pilotage is compulsory for vessels over 350 gross tons and is provided by the Pacific Pilotage Authority Canada (PPA). For details on reporting procedures and pilot boarding areas refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Regulations.—Vancouver lies within Sector 3 of the Victoria Vessel Traffic Service (VTS), administered by Victoria Traffic. For details concerning reporting procedures, refer to paragraph 1.1. For other regulations covering the Western Canada Traffic Zone, refer to Canada—Regulations and Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Contact Information.—See the table titled **Vancouver—Contact Information**.

Anchorage.—Ample anchorage is available in the harbor for vessels waiting for tides and berths. Vessels are prohibited from anchoring anywhere except designated anchorage berths all within English Bay, Burrard Inlet, and Indian Arm.

Vancouver—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
Alliance Grain Terminal							
East Berth	218m	13.6m	229m	13.4m	32.2m	81,800 dwt	Grain and bunkers.
West Berth	214m	11.7m	240m	—	38.0m	95,692 dwt	Grain and bunkers.
Annacis Auto Terminal							
No. 1	215m	10.7m	232m	9.5m	38.0m	26,985 dwt	PCC and bunkers.
No. 2	200m	10.7m	212m	9.5m	35.4m	22,746 dwt	PCC and bunkers.
Ballantyne Cruise Ship Terminal							
No. 1	310m	9.4m	—	—	—	—	Cruise vessels. Closed.
No. 2	215m	10.0m	—	—	—	—	Cruise vessels. Closed.
Burlington Northern-Santa Fe							
No. 1	—	10.0m	—	—	—	—	Cruise vessels. Closed.
Canada Place							
No. 1 and 2 East Quay	485m	10.0m	348m	8.9m	41.4m	12,000 dwt	Cruise vessels.
No. 3 North Quay.	270m	12.7m	—	—	—	—	Cruise vessels. Closed.
No. 4 and 5 West Quay.	290m	9.7m	300m	8.7m	35.9m	11,928 dwt	Cruise vessels.
Cargill Grain Terminal							
No. 1	230m	15.5m	291m	13.1m	45.0m	179,570 dwt	Grain.
No. 2	202m	12.6m	199m	12.1m	32.2m	63,851 dwt	Grain.
DP World Vancouver							
No. 5	324m	15.5m	367m	13.6m	45.5m	124,092 dwt	Containers and reefer.
No. 6	323m	15.0m	352m	13.5m	48.5m	212,824 dwt	Containers and reefer.

Vancouver—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
Fibreco							
No. 1	137m	—	229m	12.2m	33.0m	63,000 dwt	Breakbulk and wood chips.
Fraser Surrey Docks							
No. 2	188m	11.7m	204m	8.5m	33.0m	55,457 dwt	Grain, steel, and breakbulk.
No. 3	188m	11.7m	204m	8.5m	32.0m	55,457 dwt	Grain, steel, and breakbulk.
No. 4	188m	11.7m	179.9m	—	29.8m	37,786 dwt	Grain, steel, and breakbulk.
No. 7	234m	—	294m	11.2m	37.3m	67,170 dwt	Containers, transshipment, and steel.
No. 8	234m	11.7m	294m	10.7m	37.3m	82,094 dwt	Containers, transshipment, and steel.
No. 9	234m	11.7m	262m	10.7m	32.2m	62,841 dwt	Containers, transshipment, and steel.
No. 10	140m	11.7m	199m	10.2m	32.2m	61,693 dwt	Breakbulk.
GCT Deltaport							
No. 1	367m	15.9m	352m	14.5m	48.2m	115,159 dwt	Containers and reefer.
No. 2	367m	15.9m	367m	14.5m	48.2m	115,700 dwt	Containers and reefer.
No. 3	367m	15.9m	366m	14.5m	51.2m	146,749 dwt	Containers and reefer.
Lantic Inc							
No. 1	130m	9.1m	171m	8.1m	27.0m	31,770 dwt	Sugar.
Lynnterm West Gate							
No. 3 West Gate	168m	12.0m	200m	—	32.2m	63,411 dwt	Steel products.
Neptune Bulk Terminals							
Neptune 1	100m	15.2m	291m	14.8m	45.0m	179,570 dwt	Coal.
Neptune 2	44m	15.7m	250m	15.4m	32.2m	125,000 dwt	Coal.
Neptune 3	100m	13.7m	230m	13.7m	32.2m	65,000 dwt	Phosphates.
Pacific Elevators (Viterra)							
No. 2	272m	—	229m	12.4m	32.2m	82,250 dwt	Grain.
Richardson International							
No. 1	165m	15.2m	240m	13.7m	37.5m	93,271 dwt	Grain.
Richmond Auto Terminal							
No. 1	152m	10.0m	199m	9.1m	37.5m	22,733 dwt	Transshipment.
Seaspan-Tilbury Island Ferry Terminal							
Seaspan-Tilbury Island	—	—	148.8m	4.8m	26.0m	4,941 dwt	Containers, ro-ro, and transshipment.
Tsawwassen Ferry Terminal							
No. 1 West	—	—	167.5m	5.8m	27.8m	2,868 dwt	Ro-ro and passengers.

Vancouver—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
No. 2	—	—	167.5m	5.8m	27.8m	2,868 dwt	Ro-ro and passengers.
No. 3	—	—	167.5m	5.8m	27.8m	2,868 dwt	Ro-ro and passengers.
No. 4	—	—	167.5m	5.8m	27.8m	2,868 dwt	Ro-ro and passengers.
No. 5 East	—	—	129.9m	5.8m	23.1m	1,765 dwt	Ro-ro and passengers.
Viterra Cascadia Terminal							
No. 1	226m	15.2m	235m	13.4m	38.0m	95,692 dwt	Grain.
Westshore Terminals Ltd (Roberts Bank)							
No. 1	295m	22.9m	300m	18.0m	50.0m	209,954 dwt	Coal.
No. 2	263m	20.8m	295m	17.5m	47.0m	181,050 dwt	Coal and petcoke.
Chemtrade Electrochem Inc.							
No. 1	152m	10.6m	209.2m	9.2m	32.2m	62,915 dwt	Chemicals.
GCT Vanterm							
No. 4	183m	15.2m	195m	9.9m	32.2m	52,610 dwt	Bio-fuels and vegetable oils.
No. 5	309m	15.5m	300m	13.7m	48.2m	110,525 dwt	Bio-fuels and vegetable oils.
No. 6	309m	14.6m	363m	13.9m	48.2m	131,831 dwt	Bio-fuels and vegetable oils.
Kinder Morgan Vancouver Wharves							
No.1	273m	13.7m	196.2m	12.6m	32.2m	58,110 dwt	Chemicals.
No. 2 & 3	—	13.7m	229m	12.6m	32.2m	82,099 dwt	Multipurpose.
No. 4	162m	11.2m	229m	10.4m	32.2m	82,769 dwt	Fertilizer.
No. 5	207m	11.2m	229m	10.4m	32.2m	81,645 dwt	Paper and forest products.
Lehigh Cement Terminal							
Lehigh North-west Cement Wharf	182m	7.6m	—	—	—	—	Cement, gypsum, and limestone.
Lynnterm East Gate							
No. 4	228m	15.0m	208.8m	12.8m	31.0m	48,000 dwt	Steel.
No. 5	228m	15.0m	208.7m	10.5m	32.2m	49,863 dwt	Steel.
No. 6	228m	15.0m	200m	11.6m	32.2m	63,235 dwt	Steel.
No. 7	228m	15.0m	183m	12.0m	32.2m	50,000 dwt	Chemicals.
Pacific Coast Terminal							
No. 1	111m	12.8m	195m	12.1m	32.1m	30,000 dwt	Chemicals.
No. 2	70m	12.4m	241m	12.2m	33.5m	70,000 dwt	Multipurpose.
Tanker Terminals							
Imperial Oil/Esso Petroleum Company							
Imperial Oil	166m	10.0m	198m	7.7m	—	40,000 dwt	Aviation fuel, CPP, and DPP. Closed.

Vancouver—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
Kinder Morgan Westridge Terminal							
KMI Westridge	93m	11.8m	289m	15.0m	39.0m	105,500 dwt	Aviation fuel.
Parkland Fuels (Vancouver Terminal)							
Parkland Fuels.	70m	11.8m	200m	11.2m	32.2m	51,303 dwt	Aviation fuel, CPP, and DPP.
Shellburn							
Shell outer berth	111m	10.1m	218m	9.2m	—	40,642 dwt	Aviation fuel, CPP, and DPP.
Suncor—Port Moody Terminal							
East Dock	40m	6.0m	85m	5.5m	—	—	CPP.
West Dock	42m	11.8m	222m	10.7m	32.2m	51,717 dwt	CPP and DPP.
<p>Note.—Fumigation services are available prior to loading grain. The ship’s crew is assist in hold preparation, closing vents, and sealing hold openings. The average time necessary for fumigation is 12-15 hours.</p>							



Vancouver Wharves Bulk Terminal



Lynnterm

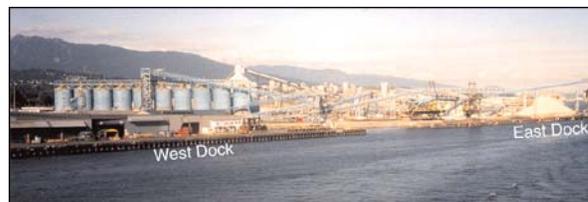


Photo courtesy of Jarrod M. Kushla
Vancouver Wharves Terminal



Photo courtesy of Jarrod M. Kushla
Vanterm Wharf



Photo courtesy of Jarrod M. Kushla
Fibreco Terminal and Seaspan Terminal

The harbormaster assigns anchorages to deep-sea vessels on a first-come, first-served basis. Smaller vessels will have anchorages assigned by the PMV Operations Center by calling the number listed in the Neptune Terminal Contacts table.

Permission must be received from the harbormaster in order to immobilize the main engine or propulsion gear while at an-

chor. If emergency repairs become necessary, permission may be granted provided one or more tugs of adequate power to



Photo courtesy of Jarrod M. Kushla

North Vancouver Grain Terminals



Photo courtesy of Jarrod M. Kushla

Vancouver Wharves—West Dock



Lynnterm—Westgate Berths No. 2 and No. 3

keep the vessel in position are kept standing by the vessel.

If a vessel is improperly anchored and cannot hold position,

a pilot may be required to reposition the vessel if either of the following two conditions occur.

1. Vessel is endangering other vessels at anchor.
2. Vessel is obstructing the use of other anchorages.

A Wind Warning Advisory will be broadcast on VHF channel 12 by Victoria MCTS to all vessels at anchor in Vancouver Harbor when winds from any direction are 25 knots or stronger. This advisory will be canceled when winds have moderated to less than 25 knots for at least 1 hour. Whenever a Wind Warning Advisory is in effect, all vessels must maintain a navigational and engineering watch the same as what would be maintained when underway.

Vancouver—Contact Information	
Harbormaster	
VHF	VHF channels 12 and 16
Telephone	1-604-665-9086
Facsimile	1-866-284-4271
E-mail	harbour_master@portmetrovancover.com
Port Authority	
Telephone	1-604-665-9000
Facsimile	1-866-284-4271
Port Metro Vancouver (PMV) Operations Center	
Telephone	1-604-665-9086

Location and details of the designated anchorages are listed below in the table titled **Anchorages—Vancouver and Vicinity**.

Caution.—The W portion of Vancouver Harbor is a designated water aerodrome area.

A good watch for seaplanes should be kept when in the vicinity of Coal Harbor.

A ferry runs on a regular schedule across the harbor between a point located 1 mile SSE of Brockton Point, on the S side, to a point located 1.5 miles ENE of Brockton Point, on the N side.

Anchorages—Vancouver and Vicinity					
Anchorage Designation	Center Position	Maximum LOA	Center Depth	Least Depth	Remarks
South English Bay					
1	49°17'57"N, 123°14'19"W	400m	60m	48m	Cape-size capable.
2	49°17'33"N, 123°13'53"W	260m	37m	14m	—
3	49°18'04"N, 123°13'33"W	400m	45m	37m	—
4	49°17'39"N, 123°13'11"W	260m	37m	28m	—
5	49°17'15"N, 123°12'42"W	230m	21m	12m	—
6	49°18'12"N, 123°12'48"W	400m	40m	30m	Cape-size capable.
7	49°17'47"N, 123°12'15"W	260m	27m	23m	—
8	49°17'22"N, 123°11'59"W	230m	19m	16m	—

Anchorages—Vancouver and Vicinity					
Anchorage Designation	Center Position	Maximum LOA	Center Depth	Least Depth	Remarks
9	49°16'56"N, 123°11'33"W	190m	12.3m	10m	—
10	49°18'19"N, 123°12'03"W	400m	30m	24m	Cape size capable.
11	49°17'54"N, 123°11'38"W	260m	25m	19m	—
12	49°17'29"N, 123°11'14"W	230m	18m	14m	—
13	49°17'05"N, 123°10'49"W	190m	11.8m	10m	—
14	49°18'25"N, 123°11'19"W	400m	24m	21m	Cape size capable.
15	49°18'01"N, 123°10'53"W	260m	19m	17m	—
U	49°17'45"N, 123°15'13"W	400m	47m	28m	Short term only. Pilot must remain onboard.
Z	49°07'45"N, 123°18'29"W	100m	10.3m	9.0m	—
North English Bay					
16	49°19'57"N, 123°13'08"W	260m	40m	20m	Seasonal anchorage area. See Notes 1, 2, and 3.
17	49°19'56"N, 123°13'54"W	260m	52m	32m	Seasonal anchorage area. See Notes 1, 2, and 3.
18	49°19'55"N, 123°14'39"W	260m	55m	32m	Seasonal anchorage area. See Notes 1, 2, and 3.
Burrard Inlet—Inner Harbor					
A	49°18'11"N, 123°05'26"W	300m	35m	24m	—
B	49°18'06"N, 123°04'46"W	260m	23m	19.4m	—
C	49°18'01"N, 123°04'11"W	260m	21m	16.2m	—
D	49°17'39"N, 123°05'03"W	300m	35m	29.8m	—
E	49°17'44"N, 123°03'55"W	230m	16m	15.7m	—
X	49°18'17"N, 123°06'05"W	185m	20m	17.0m	—
Y	49°18'01"N, 123°03'35"W	260m	16m	14.8m	Short term only. Pilot must remain onboard.
W	49°17'43"N, 123°05'54"W	300m	55m	30.0m	Short term only. Pilot must remain onboard.
Indian Arm					
K	49°17'51"N, 122°56'52"W	260m	30m	23.5m	—
L	49°17'55"N, 122°56'07"W	260m	18m	15.7m	—
M	49°18'23"N, 122°56'17"W	260m	26m	19.9m	Used only when no other anchorages available.
N	49°17'39"N, 122°58'04"W	260m	15.6m	15.3m	Temporary use for outbound vessels.
Notes:					
<ol style="list-style-type: none"> 1. Have a ratio of anchor chain length to water depth of at least 6:1. 2. Anchorage Areas 16, 17, and 18 require permission from the Vancouver Harbormaster before use. 3. Whenever winds exceed 20 knots from any direction, vessels should take the following steps: <ol style="list-style-type: none"> a. Closely monitor distances to shore and any adjacent ships at anchor to ensure safe clearance is maintained. b. Keep the main engines and propulsion gear ready for immediate use. c. Ensure the windlass arrangement and anchoring equipment are in good working condition. 					

Second Narrows

3.19 Second Narrows (49°18'N., 123°01'W.), located 4.5 miles E of First Narrows, is longer and more constricted than the First Narrows. The Second Narrows is spanned by a fixed span highway bridge for vehicular traffic and, close E of the highway bridge, a lower bridge with a lift span for railroad traf-

fic. These bridges are described in greater detail in the following Aspect and Regulations paragraphs.

The fairway channel through the Second Narrows varies in width, but at its narrowest, the width is slightly more than 137m. Shoals and drying mud flats encroach on both sides of the narrows, which is spanned near the W end by two bridges.

Depths—Limitations.—The fairway channel through the



Vancouver Harbor from Second Narrows

Second Narrows varies in width, but the minimum navigable width is 137m with a vertical clearance of 44m. Shoals and drying mud flats encroach on both sides of the narrows.

Vessels with drafts of up to 13.5m can transit Second Narrows. The best time for large vessels to proceed is at or near HWS. See paragraph 3.1 for information on recommended under keel clearances in this area.

The shores forming the narrows are similar to those at First Narrows. Several creeks emptying into the narrows on its N side form extensive, drying mud banks. This is particularly true of the deposits carried down by the Seymour River to its creek mouth, lying close E of the Second Narrows bridges.

Due to disturbances, the predicted slack water times may vary from actual conditions by as much as 30 minutes.

Flood currents attain velocities of up to 6.5 knots, but the ebb currents, due to turbulence W of the bridges, seldom exceed a velocity of 5.5 knots.

Aspect.—The Ironworkers Memorial Second Narrows Bridge, a fixed span, is situated at the W entrance of the narrows. Five lights located under the bridge mark the shipping channel. One light in the middle marks the centerline of the main shipping channel. There are two lights located N of the centerline light with one on the W side and one on the E side of the bridge. Two other lights are located S of the centerline light, also situated on the E and W sides of the bridge. The bridge piers on both sides of the channel are floodlit.

The Second Narrows Railroad Bridge spans the narrows close E of the Ironworkers Memorial Second Narrows Bridge.

The limits of the channel are marked by fixed red and white lights at the base of the piers supporting the lift span. There is a directional light at the center of the bridge, with a range line of 266° intended for vessels departing Port Moody. The E and W sides of the lift span are marked by red and green lights. The center green lights show the span is fully raised or in the process of being raised, while the red light will show the span is closing or fully closed. The lift span has a vertical clearance of 46m when raised and 10.7m when lowered.

Second Narrows Movement Restriction Area (MRA-2).—The Second Movement Restriction Area, known as MRA-2, is located the waters surrounding the Second Narrows. MRA-2 includes the waters E of a line extending S from Neptune Bulk Terminal, about 1 mile W of the Second Narrows Highway Bridge, to a line extending N from Berry Point Light. The latter light is situated 1.5 miles E of the Second Narrows Railway Bridge.

The MRA-2 Procedures apply to all marine traffic in the Second Narrows MRA, except designated patrol vessels of the Vancouver Fraser Port Authority (VFPA), and law enforcement and security vessels.

For the purposes of the MRA-2 regulations, the following definitions apply:

1. MRA-2 Vessel—Means a vessel restricted by the MRA-2 transit windows during transit and when maneuvering within MRA-2, including all tug and barge combinations;
2. Non-MRA-2 Vessel—Means a vessel that is not re-

stricted by the MRA-2 transit windows during transit and when maneuvering within MRA-2, such as pleasure craft and sailing vessels under power, small fishing vessels, and light tugs.

Transit windows are established on either side of high and low water slack tides and are based on predicted slack water or stemming a predicted limiting current of 1 or 2 knots. The following vessels are subject to observing MRA-2 transit windows during their transit and when maneuvering within MRA-2:

1. All piloted vessels and tug and barge combinations when piloted, regardless of tonnage;
2. All non-piloted tug and barge combinations with a barge of 10,000t or more carrying capacity;
3. All non-piloted vessels including barges and articulated tugs and barges when in product, as required by VFPA.

The same vessels mentioned above are also subject to visibility restrictions and may only transit under the Second Narrows bridges when they can clearly see the bridges upon reaching the E or W boundaries of MRA-2.

All available navigational information, including that gained from Portable Pilotage Units along with real time tide and current information, should be used in conjunction with predicted transit windows to improve the safety and efficiency of MRA-2 operations. Tugs with a barge of less than 10,000t carrying capacity, whether in product or in ballast, may only transit during conditions of restricted visibility if an additional tug is employed to assist with the transit, and each tug's shipboard navigation equipment includes a type-approved and fully-operations electronic chart display and radar. These transits are limited to a reduced window when the current is 1 kt or less in either direction.

The following specific transit restrictions and requirements shall apply:

1. Vessels with an loa of 250m or greater and/or a beam of 45m or greater are restricted from transiting MRA-2 without the prior approval of VFPA;
2. Vessels with loa of 230m and greater and/or a beam of 35m and greater are subject to daylight transit of MRA-2;
3. Tankers with loa of 185m and/or 40,000 Summer Deadweight or greater are restricted to daylight transit when in product;
4. Tug and barge combinations with a barge of 15,000t carrying capacity or greater are restricted from MRA-2 without the prior approval of VFPA;
5. Tug and barge combinations with a barge of 10,000t carrying capacity or greater are subject to MRA-2 transit windows;
6. Tug and barge combinations may transit with a barge of less than 10,000t carrying capacity, regardless of current direction, when not employing a pilot. However, such vessels are required to obtain local (VFPA or Canadian Hydrographic Service) tidal data to ensure accuracy and comply with the requirements set out by VFPA.

A maximum speed of 6 knots is required for MRA-2 vessels subject to transit windows; all other vessels within MRA-2 shall proceed at a safe speed which will allow them to properly react according to the prevailing circumstances and conditions.

The width between piers of the Second Narrows Railway Bridge restricts the maximum beam of a vessel transiting the

Second Narrows to 48m. The central portion of the Second Narrows Railway Bridge, where the maximum vertical clearance of 46m is available, is 137m wide. MRA-2 Procedures require a vessel to have a minimum channel width that is 2.85 times the vessel beam.

At least 12 hours before entering MRA-2, the following vessels should advise the harbor master at Vancouver of their proposed transit time:

1. Vessels 20m or greater in length.
2. Air cushion vessels 8m or greater in length.
3. Towing vessels, where the breadth of the tow is 20m or greater or the length of the tow is 30m or greater.

The harbor master should be advised of any changes.

All vessels needing to have the lift span of the Second Narrows Railway Bridge raised shall contact the operator (call sign: CJU52) on VHF channel 12 at least 1.5 hours prior to the MRA-2 scheduled transit time, indicating their intention to request for the lift span to be raised. The information shall be re-confirmed 30 minutes prior to transit.



Photo courtesy of Jarrod M. Kushla

The Second Narrows Highway Bridge from W

All vessels requiring a pilot intending to pass through the Second Narrows bridges should report their intentions and ETA at the CN Railway Bridge to the bridge operator on VHF channel 12, as follows:

1. When entering the harbor limits.
2. Before leaving a berth or anchorage in the harbor.

The ETA should be confirmed upon arrival at the limit of the MRA.

In general, vessels must transit the MRA during the restricted periods of HWS or LWS or stemming the current, with a limiting tidal velocity of 2 knots.

Designated Holding Areas, the limits of which are shown on the chart, are situated E and W of the narrows within the MRA. These areas are used by vessels while awaiting specific times for transit of the narrows or when ordered to clear the narrows for other traffic.

The MCTS may order all vessels to clear the narrows by issuing a Securite call for priority vessels including, but not limited to:

1. Vessels 230m or greater in length and/or 35m or greater in beam;
2. An air draft restricted vessel;
3. An MRA-2 tanker in product;
4. Other vessels with special transit requirements that require the approval of VFPA.

MCTS may direct other vessels to a suitable Holding Area until conditions are such that a transit of the MRA-2 can be safely executed.

Signals.—Vessels requiring the span of the Second Narrows

Railroad Bridge to be raised should sound three long blasts on whistle or siren, repeating as necessary until acknowledged by one of the following signals from the bridge:

1. Two flashing red lights—Indicates vessel is not to approach the bridge.
2. One flashing green light—Indicates lift span has been raised.
3. One flashing red light—Indicates vessel's signal has been understood and that the lift span is being raised.
4. Vertical row of white lights—Indicates a vessel is approaching the bridge from the opposite direction.

The Second Narrows Railroad Bridge Operator is situated on the bridge. For the purpose of traffic control and requesting the lift span to be raised, vessels may contact the Bridge Operator on VHF channel 12.

Caution.—Two submarine pipelines cross the channel close E of the bridges, and another pipeline extends S from the N shore about 1 mile E of the bridges. An overhead cable, with a vertical clearance of 65m, spans the Second Narrows close E of the CN Railroad Bridge.

Second Narrows to Port Moody

3.20 The fairway of Second Narrows continues E for about 1.5 miles to Berry Point, which is considered the SE entrance of the narrows. Burrard Inlet, leading E from this point, is deep and clear of dangers in mid-channel. The terrain extending from Second Narrows to Port Moody is formed by a high bluff. The N shore consists of a low plateau rising steeply to mountains in the background.

Roche Point (49°18'N., 122°57'W.) is located 1.3 miles ENE of Berry Point. Both of these points are marked by lighted beacons. Several mooring buoys are situated on the flats in the vicinity of these points and adjacent installations. A number of deep-water piers are situated opposite Roche Point. Anchorage can be taken, in a depth of 16.5m, mud, off the heads of the piers.

3.21 Port Moody (49°17'N., 122°53'W.) (World Port Index No. 18160), the E branch at the head of Burrard Inlet, is entered between Gosse Point, located 1.3 miles SE of Roche Point, and Burns Point, about 1.4 miles ESE. Lights are shown from structures standing on Gosse Point and Burns Point. This branch leads about 3 miles E from the constricted entrance to the city of Port Moody, which stands on the S shore at the head.

Depths—Limitations.—At Port Moody, the fairway channel leading to the bulk terminals has a controlling depth of 10.1m.

The principal berths listed below are situated on the S shore between Second Narrows and the city of Port Moody and are described from W to E, as follows:

1. Chevron Berth, located at the Stanovan Terminal, situated 0.8 mile E of the narrows bridge, has a berth, 85m long, with depths 11.89m alongside, and can accommodate tankers up to 40,000 dwt, 200m in length, and a draft of 11.28m.
2. Berry Point Site, located 0.8 mile SE of Berry Point, has one berth, 122m in length with depths 12m alongside. This berth consists of fixed hulks of disused vessels and is now operational as an oil response center.



Port Moody from the East

3. Shellburn (Shell) Terminal, situated 1.5 miles SE of Berry Point, has one pier with an outer and inner berth, connected to shore by a pipeline. The outer berth, for petroleum products, aviation fuel, and LPG, is 111m in length, with depths alongside of 10.19m, and can accommodate tankers up to 40,462 dwt, 218m in length, and a draft of 9.27m. The inner berth is only for petroleum products and is 83m in length, with depths alongside of 5.2m.

4. Kinder Morgan Westridge Terminal (KMI Westridge) is located 0.8 mile ENE of the Shell Pier and handles aviation fuel and cruise. This pier is 93m long, with depths 16.5m alongside and dolphins at either end. Tankers up to 105,500 dwt in size, 289m in length, 39m in width, and a maximum draft of 15m, can be accommodated.

5. Petro-Canada Terminal, situated 1.7 miles E of Gosse Point, with two docks. The West Dock handles petroleum products and aviation fuel and is a dolphin berth, 265m in length, with depths of 11.8m alongside, accommodating tankers up to 222m loa and a maximum draft of 10.7m. The East Dock handles only clean products and is 40m in length, with depths of 6m alongside, accommodating tankers up to 85m LOA and a maximum draft of 5.5m.

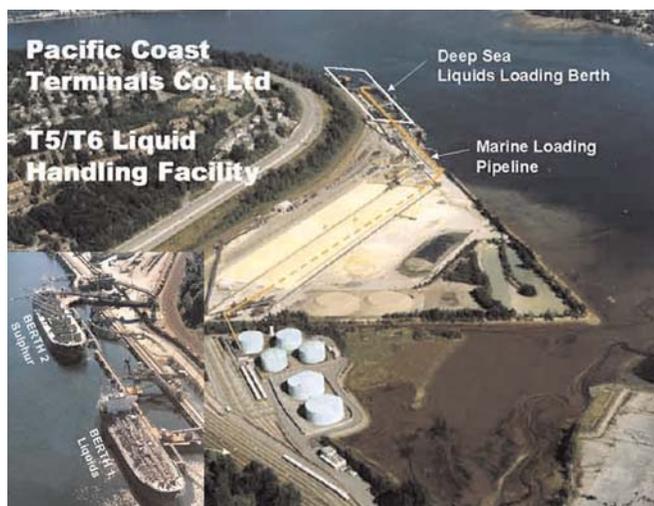
6. Reed Point Marina, protected by an outer breakwater, fronts the S bank close E of the Petro-Canada Terminal.

7. Pacific Coast Terminals, with two berths are situated close SE of Reed Point. Berth No. 1 handles bulk liquid and is 237m long, with depths of 12m alongside. the facility can accommodate vessels up to 30,000 dwt. Berth No. 2 handles sulphur and is 293m long, with depths of 12m.

The principal berths listed below are situated on the N shore and are described from E to W, as follows:

1. The IOCO Terminal (Imperial Oil/Esso Petroleum Company) stands on the N shore directly across from the Reed Point Marina and has one berth, 166m in length and depths alongside of 10.1m. This berth is closed (2012).
2. Canexus Chemicals has one berth situated 0.7 mile E of the Second Narrows Bridge. This berth (No. 1) is 152m long with depths 10.6m alongside, and handles bulk sea salt, caustic soda, and sodium chlorate.

See paragraph 3.18 for the principal facilities continuing along the N shore W of the Second Narrows Bridge to the Lions Gate Bridge. For further berthing information see the table



Pacific Coast Bulk Terminal—Port Moody

titled **Vancouver—Berth Information (Suncor—Port Moody Terminal)** in paragraph 3.18.

Aspect.—A lighted range, in line bearing 277°, to the shore has been established N of the area between the Petro-Canada Wharves and Reed Point.

Anchorage.—Anchorage can be obtained in an area centered on position 49°17'18"N, 122°51'15"W, at the head of the inlet, in depths of 3-4m. This area is marked by lighted buoys.

Caution.—Several overhead cables, with a minimum vertical clearance of 45.7m, span the entrance to Port Moody.

A number of submarine pipelines and a submarine cable, which may best be seen on the chart, lie across the inlet in the vicinity of the Loco Wharf.

3.22 Indian Arm (49°18'N., 122°56'W.) is the N branch of Burrard Inlet. It is entered between Roche Point and Admiralty Point, located 1 mile E. The shores of this arm are densely wooded.

There are no harbors of any consequence within this deep, wide inlet; however, several settlements, fronted by landings, stand along the shores. Generally, vessels only use these landings during the summer months.

Indian Arm differs from Burrard Inlet in that the backing terrain consists of rugged, high, and snow-capped mountains. These peaks enclose the inlet and water cascades down their steep sides when the snow melts in the summer. The water flows into the arm in such quantity as to make the surface fresh.

Anchorage.—See the table titled **Anchorage—Vancouver and Vicinity** in paragraph 3.18 for designated anchorages in Indian Arm.

Caution.—A power cable, with a vertical clearance of 48.8m, spans Indian Arm, 0.8 mile inside the entrance. This cable continues across Bedwell Bay, where it has a vertical clearance of 98.8m.

3.23 Turtle Head (49°19'N., 122°56'W.), located about 1 mile within the entrance of Indian Arm, is a cliffy promontory. It extends into the arm and constricts the width of the navigable

channel. Rocky shoals, marked on their S side by a beacon, extend from the head into the channel. Hamber Island lies on these shoals.

Grey Rocks Island (49°19'N., 122°56'W.) lies on the W side of the entrance to Indian Arm. The island is privately owned and heavily forested, with a single house located on it. There is a pier for small craft extending out from the SE corner of the island. A current of up to 1 knot can be experienced around the island. White Rock is located close SE of this island and connected to it by a low flat shoal area. The White Rock extension constricts the channel entrance to Indian Arm down to a width of about 0.2 mile in the vicinity of Hamber Island.

A submarine pipeline joins Grey Rocks Island to the mainland between 49°19'00.1"N, 122°56'30.8"W and 49°19'03.4"N, 122°56'40.8"W.

3.24 Boulder Island (49°19'N., 122°56'W.), encircled by a reef, lies in the middle of Indian Arm entrance channel about 1 mile NE of Roche Point. A beacon marks the outer edge of the coastal shoal lying E of this island.

Deep Cove indents the W side of the arm, about 0.8 mile NW of Turtle Head. This cove is deep and a pier is situated at its head. Vessels must reduce speed on entering the cove. A speed control lighted buoy is moored close off the entrance to the cove.

Bedwell Bay lies between a large peninsula, extending N from Turtle Head, and the mainland. Rocky shoals fringe the peninsula and extend up to about 0.2 mile N.

Jug Island (49°20'N., 122°55'W.) and **Charles Reef** (49°20'N., 122°54'W.) lie at the seaward extremity of these shoals. A beacon marks a drying ledge lying close S of the reef.

Tupper Rock (49°20'N., 122°54'W.), above-water, lies about 0.3 mile N of the above beacon.

Racoon Island (49°20'N., 122°54'W.) lies in the center of the arm, about 0.8 mile NE of Jug Island. Several above and below-water rocks lie on shoals encircling the island.

Croker Island (49°26'N., 122°52'W.), located 6 miles N of Racoon Island, lies about 1 mile from the head of Indian Arm.

The Indian River flows through a deep and narrow gorge, formed by swift-running streams, and a swampy delta lying at the head of the arm.

Anchorage.—Anchorage can be taken, in depths of 22 to 27m, mud, in the entrance of Indian Arm. This anchorage area is usually used by vessels awaiting berths at Port Moody. Anchorage can also be taken, in depths of 9 to 18m, sand and mud, near the head of Bedwell Bay.

Howe Sound

3.25 Howe Sound leads 24 miles N from the entrance to Burrard Inlet and is entered between Point Atkinson and Gower Point, 11 miles WNW. Four channels lead into the sound between the many islands and islets that encumber the entrance.

The sound is almost entirely enclosed by rugged mountains, which rise abruptly from the water's edge and attain heights of up to 1,830m.

Several local small ports are situated within this ice-free sound. There are also a number of mining and lumber settlements fronted by marine terminals. The settlement of Squamish is situated at the head. The depths in the sound are ample



Howe Sound—Squamish Terminal

for ocean-going vessels.

Winds—Weather.—The winds in this area are strong and violent, and often bluster down the fjords during the winter months. Howe Sound is typical of these mountain-enclosed fjords through which polar air from the interior blows to the coast. The winds usually lose their intensity after leaving the constricted passages of the fjords and are no longer a source of damage or danger to navigation.

Tides—Currents.—Tide rips frequently occur off Point Atkinson and are caused by the meeting of the tidal currents from Vancouver Harbor and Howe Sound.

Regulations.—Howe Sound lies within Sector 3 of the Victoria Vessel Traffic Service (VTS), which is administered by Victoria Traffic. For details concerning reporting procedures, when proceeding to any ports within the sound, refer to Regulations in paragraph 1.1. For other regulations covering the Western Canada Traffic Zone, refer to Canada—Regulations and Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Caution.—Several ferries cross the entrance channels of Howe Sound.

In the southernmost entrance leading to the main channels, large quantities of logs may be encountered.

3.26 Queen Charlotte Channel (49°20'N., 123°20'W.) leads into Howe Sound between Bowen Island and the mainland, 4 miles E. This channel is deep and clear of dangers, except for Passage Island, a conspicuous island with a shoal lying nearby, located in the middle of the entrance.

Bowen Island (49°22'N., 123°22'W.) forms the W side of Queen Charlotte Channel. This island extends 5.5 miles NNE from Point Cowan, its SE extremity, to Hood Point, its N extremity. A light is shown from a structure standing on Point Cowan.

An island, connected by a drying ledge to Bowen Island, lies close ESE of Hood Point. A light is shown from a structure, 13m high, standing on this island.

Mount Gardner (49°23'N., 123°24'W.), very conspicuous, stands on the island. This peak is 727m high and visible from all quadrants. Several radio masts are situated on the summit of this mountain; a television tower stands 0.8 mile NNE of it.

Snug Cove (49°23'N., 123°20'W.) lies 3 miles NNE of Point Cowan. It affords sheltered anchorage, in a depth of 16.5m, to small vessels with local knowledge. Vessels must stay clear of

the submarine cable lying in the vicinity of the entrance.

A light is shown from a structure standing on the N entrance point of the cove. A small wharf, with a depth of 3m alongside, and two marinas are situated within the cove and provide berthing for small craft and ferries.

Anchoring in this cove is not recommended, unless in an emergency, because of the ferries and submarine cables.

Mannion Bay (Deep Bay), very exposed, lies close N of Snug Cove.

Eagle Harbor (49°21'N., 123°16'W.) is entered close S of Eagle Island and 1.5 miles N of Point Atkinson. It affords anchorage, in a depth of 11m, near the head. The anchorage is approached from N of Grebe Islets.

Caution.—A rock, partially submerged, showing 0.4m at MLW, is located close SW of Erwin Point in position 49°20'44"N, 123°16'22"W.

White Cliff Point (49°22'N., 123°18'W.), steep-to, and **Lookout Point** (49°23'N., 123°17'W.) mark a headland which projects into the main channel NW of Eagle Island. A number of facilities for berthing yachts and small craft are situated within Eagle Harbor.

Caution.—Numerous submarine cables cross Queen Charlotte Channel between Batchelor Point (49°21'N., 123°17'W.) and Horseshoe Bay, on the E side, and Deep Bay, on the W side.

3.27 Horseshoe Bay (49°23'N., 123°16'W.) lies NE of Lookout Point. A wharf is situated in the bay and has a depth of 6.1m alongside. A marina, protected by a log breakwater, lies close NW of the wharf.

Several landing floats and a ferry slip are also situated in the bay. Passenger and automobile ferry service is maintained with Nanaimo, via Departure Bay, and Langdale (49°26'N., 123°28'W.). A regular ferry service also runs to Snug Cove.

Collingwood Channel (49°21'N., 123°27'W.) leads into Howe Sound between the W side of Bowen Island and several islands and islets. These islands and islets are aligned N and S and form the W side of the channel. The shores of the channel are steep and bold. The fairway channel itself is deep and clear of dangers.

Cape Roger Curtis (49°20'N., 123°26'W.) forms the SE entrance point and **Worlcombe Island** (49°21'N., 123°27'W.), lying about 1 mile WNW, forms the SW entrance point. A light is shown from a structure standing on the cape and a prominent water tower is situated on the island. The W side of Bowen Island is fringed by rocky shoals.

Hutt Island (49°24'N., 123°23'W.) lies about 0.3 mile off the NW side of Bowen Island. A drying rock, marked by a beacon, is located in the channel leading E of this island. Hutt Rock, which dries and is marked by a beacon, lies 0.3 mile SW of Hutt Island. Another rock, marked by a beacon, lies about 0.3 mile off the W coast of Bowen Island, 1.5 miles SW of Hutt Island.

3.28 Barfleur Passage (49°23'N., 123°29'W.) leads into Howe Sound, between **Popham Island** (49°22'N., 123°29'W.) and **Keats Island** (49°23'N., 123°26'W.), where it joins Collingwood Channel. The fairway leading through this passage has a least depth of 23.8m and is clear of dangers.

Home Island (49°23'N., 123°30'W.) lies about 1 mile N of Popham Island. It is densely wooded, conspicuous, and connected to Keats Island by foul ground. A light is shown from a structure, 12m high, standing on the NW extremity of the island.

Shoal Channel (49°23'N., 123°30'W.) leads into Howe Sound between **Gower Point** (49°23'N., 123°32'W.) and the SW extremity of Keats Island. A shingle bar, with a depth of 2.1m, obstructs the S entrance. The fairway extending across the bar has a depth of 1.5m, over a rock bottom, near mid-channel.

Steep Bluff (49°24'N., 123°30'W.) marks the narrowest part of Shoal Channel. Foul ground extends N from this bluff. A village stands on the opposite side of the channel from the bluff. A wharf, with a depth of 4m alongside, fronts the village.

Plumper Cove (49°24'N., 123°28'W.) lies close E of Steep Bluff. Sheltered anchorage can be taken in the middle of this cove, in depths of 13 to 14m, but local knowledge is necessary.

Gibsons Landing (49°24'N., 123°30'W.), a small craft pier, and a marina front a small town situated at the head of a bight, close NW of Steep Bluff. The pier has depths of 2 to 6m alongside and is protected by rock breakwaters.

Granthams Landing (49°25'N., 123°30'W.), a settlement situated 0.8 mile N of Gibsons Landing, is fronted by a float and a pier.

Soames Hill (49°25'N., 123°29'W.), a conspicuous cone, rises behind Soames Point.

Hopkins Landing (49°26'N., 123°29'W.), a settlement, is situated 0.8 mile N of Soames Point. It is fronted by a float and a pier, with a depth of 4.6m alongside.

Caution.—A submarine cable, which may best be seen on the chart, lies within Collingwood Channel and Barfleur Passage. It extends from Bowen Bay to the SE side of Keats Island.

Submarine cables, which may best be seen on the chart, lie in Shoal Channel. They extend from Keats Island to Steep Bluff and Gibsons Landing.

A seaplane terminal area, about 1 mile wide, is situated off Gibsons Landing.

Howe Sound—Inner Part

3.29 Gambier Island (49°30'N., 123°23'W.), lying in the center of Howe Sound, is enclosed by deep channels that converge to the NE and lead to the head of the sound. Port Graves, Centre Bay, and West Bay indent the S side of the island.

Halkett Bay (49°27'N., 123°20'W.) is the smallest bay found along the S coast of Gamber Island and is entered W of Halkett Point. This bay is heavily encumbered with hazards and obstructions, including drying rocks in the NW part of the bay and a detached dangerous rock, depth unknown, located in the middle of the fairway near the head.

Caution.—HMCS Annapolis was sunk in 2015 on the W side of the entrance to Halkett Bay as an artificial reef for divers. This vessel was a Royal Canadian Navy Destroyer Escort and is 113m long. It is marked by buoys and has a least depth of 9.9m.

Port Graves (49°28'N., 123°22'W.), an inlet, is entered between Hope Point and Gambier Point. It forms the principal anchorage within the sound. The most direct approach into the

inlet is via Collingwood Channel. However, the entrance is not easily identified until within a short distance off Hope Point. A shingle spit, with depths of less than 9m, extends into the anchorage from Potts Point. Anchorage can be taken, in depths of 14 to 16.5m, in Port Graves, NE of Potts Point.

Centre Bay (49°28'N., 123°23'W.) and **West Bay** (49°28'N., 123°24'W.) are summer resorts. A float is situated on the W side of the entrance to West Bay.

Gambier Harbor (49°26'N., 123°26'W.) is situated near the SW end of Gambier Island. There is a wharf, with a depth of 2m alongside, and two floats.

New Brighton (49°27'N., 123°26'W.) is situated close N of Gambier Harbor. There is a wharf with a depth of 8.2m alongside.

Mount Artaban, 614m high, stands close E of Port Graves. A prominent tower, visible from the E, stands on the summit. Mount Killam, 850m high, rises close N of West Bay.

Lights are shown from structures standing on Hope Point and Elkins Point, the N extremity of Gambier Island.

Thornbrough Channel (49°32'N., 123°25'W.), which joins Shoal Channel, separates Gambier Island from the mainland. This channel is entered between the Grace Islands, lying close S of the SW extremity of Gambier Island, and Langdale, about 1 mile W. It is deep and clear of dangers. A light is shown from the Grace Islands, which are connected to each other by a drying ledge.

Langdale is the terminus for the ferry originating in Horse-shoe Bay. Several landing floats are situated between Langdale and **Witherby Point** (49°29'N., 123°28'W.), which is very conspicuous.

Twin Creeks (49°29'N., 123°29'W.), a village, stands about 0.8 mile SW of Witherby Point and is fronted by a wharf, with a depth of 7.6m alongside.

3.30 Port Mellon (49°31'N., 123°29'W.) (World Port Index No. 18235) is a privately-owned port operated by Howe Sound Pulp and Paper Partnership. The single berth serving the pulp and paper mill is 189m in length, with depths alongside of 10.67m. It has been reported that the paper mills is no longer operating but the port can still be used for berthing.

Pilotage.—Pilotage is compulsory for vessels over 350 gross tons and is provided by the Pacific Pilotage Authority Canada (PPA). For details on reporting procedures and pilot boarding areas refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Regulations.—Port Mellon lies within Sector 3 of the Victoria Vessel Traffic Service (VTS), administered by Victoria Traffic. For details concerning reporting procedures, refer to Regulations in paragraph 1.1. For other regulations covering the Western Canada Traffic Zone, refer to Canada—Regulations and Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Contact Information.—The port can be contacted, as follows:

1. Telephone: 1-604-884-5223
2. Facsimile: 1-604-884-21770
3. E-mail: inquiries@hspp.ca

Woolridge Island (49°31'N., 123°27'W.) lies in the channel opposite the port. Latona Passage, a deep channel, leads between this island and Gambier Island. At Seaside Park, adjoin-



Squamish Harbor from Howe Sound

ing Port Mellon, there is a landing float, with a depth of 4.2m alongside.

3.31 Anvil Island (49°32'N., 123°18'W.) lies 2 miles E of **Elkins Point** (49°32'N., 123°23'W.), the N extremity of Gambier Island. The summit of this island is 754m high and resembles the horn of an anvil, point up. It is visible from every part of Howe Sound.

Christie Islet (49°30'N., 123°18'W.) and **Pam Rock** (49°29'N., 123°18'W.), marked by a light, lie 0.8 mile and 1.5 miles, respectively, S of Anvil Island. Both are bare and conspicuous.

Ramillies Channel (49°30'N., 123°19'W.) and **Montagu Channel** (49°31'N., 123°16'W.) are deep extensions lying N of Queen Charlotte Channel. Anvil Island divides these channels, but they are rejoined with Thornbrough Channel and extend as a single, common channel to the head of the sound.

The **Defence Islands** (49°35'N., 123°16'W.) lie about 2 miles NE of Anvil Island. **Watts Point** (49°39'N., 123°13'W.), located about 5 miles NNW of the easternmost of the Defence Islands, is a turning point where the sound tends NE for 3.5 miles and then terminates in drying mud flats. These flats front the mouths of the Squamish River and the Manquam River. A conspicuous microwave tower stands about 0.5 mile ENE of Watts Point.

Shannon Falls (49°40'N., 123°09'W.), conspicuous, flow over the cliffs about 3 miles NE of Watts Point.

Anchorage can be taken, in depths of 27 to 37m, about 0.3 mile offshore and 1.3 miles NE of Watts Point.

Caution.—Submarine cables, which may best be seen on the chart, lie across Thornbrough Channel and extend from the SW end of Gambier Island to a position located close N of Langdale.

3.32 Britannia Beach (49°37'N., 123°12'W.), formerly a mining town with facilities for the shipment of copper ore, is situated 1.5 miles SE of Watts Point. The mine has closed down and its loading wharf, which is 143m long, is in a state of disrepair.

Caution.—A wreck lies close off Britannia Beach in position (49°37'18"N., 123°12'39"W.), least depth 66m.

Woodfibre (49°40'N., 123°15'W.), a former private terminal for the Western Forest Products pulp mill, stands on the W shore of Squamish Harbor, 1.5 miles NW of Watts Point. It is fronted by several wharves; mooring buoys, used by lighters, are situated close SW. Since the pulpmill closed in 2006, the wharves and main pier have become disused. Power is still being supplied to the abandoned buildings of the mill and the owners are trying to work out a contract to develop the site into an energy generator for local utilities in the area. The main pier consists of North Dock, 122m long, and South Dock, 137m long. Both berths have a depth of 9m alongside.

3.33 Squamish (49°42'N., 123°09'W.) (World Port Index No. 18210), a small port, is situated at the entrance to the E arm of the Squamish River.

Tides—Currents.—The maximum tidal range at Squamish is 5.1m. The mean spring range is 2.8m while the mean neap range is about 1m.

Depths—Limitations.—The harbor is approached through the Manquam Blind Channel starting in the river entrance, marked by lights and dredged to a depth of 9m. This channel is subject to narrowing on either side by log booms and deadheads, along with other floating debris. Depths as shallow as 7.6m have been found in the channel due to silting.

The Canadian Occidental Chemicals Wharf is situated on the W side of the dredged channel. It is 187m long, with a depth of 8.3m alongside, and can accommodate vessels up to 15,000 dwt. A mooring dolphin is situated off each end of the berthing face.

A railroad freight car and barge landing, with guiding dolphins connected by timber walkways, is situated close S of the Canadian Occidental Chemicals Wharf.

The Squamish Terminals, with two berths, is located on a peninsula connected to the village of Squamish by a causeway close W of the Mamquam Blind Channel entrance. Berth No. 1 is on the E side of the peninsula; Berth No. 2 is on the W side of the peninsula. For further information, see the table titled **Squamish Terminal—Berth Information**.

Pilotage.—Pilotage is compulsory for vessels over 350 gross tons and is provided by the Pacific Pilotage Authority Canada (PPA). For details on reporting procedures and pilot boarding areas refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Regulations.—Squamish lies within Sector 3 of the Victoria Vessel Traffic Service (VTS), administered by Victoria Traffic. For details concerning reporting procedures, refer to paragraph 1.1. For other regulations covering the Western Canada Traffic Zone, refer to the Canada—Regulations and Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Contact Information.—See the table titled **Squamish—Contact Information**.

Squamish—Contact Information	
Port Authority	
Telephone	1-604-892-3705
E-mail	cliff-linda@shaw.ca
Web site	http://www.dfo-mpo.gc.ca
Terminal	
Telephone	1-604-892-3511
Facsimile	1-604-892-5623
E-mail	info@sqterminals.com
Web site	http://www.sqterminals.com

Anchorage.—Short-term anchorage can be obtained 0.3 mile SW of Squamish Approach Light, in depths of 50m. Long-term anchoring is not recommended due to poor holding ground combined with the unpredictable nature of strong local winds.

Caution.—Hydrographic surveys (2007) revealed that

depths at the head of Squamish Harbor are subject to large and rapid changes.

The area 0.3 mile SW of Squamish Terminals is particularly affected. Material deposited by the Squamish River can reduce depths by as much as 1m per week. This buildup can continue for several months and may be followed by an underwater landslide that results in depths suddenly 20 to 30m deeper. These changes occur too rapidly to be charted.

Mariners are advised to use extreme caution when approaching Squamish Terminals Berth 2. Prevailing winds are SW in summer and N in winter. Squamish is prone to violent squalls of cold air which, blow down the valley from the mountains.

The Strait of Georgia—Outer Gulf Islands

3.34 The principal outer Gulf Islands consist of Saturna Island, Mayne Island, Galiano Island, Valdes Island, and Gabriola Island. These islands form a chain extending 42 miles NW from Boundary Pass to Nanaimo Harbor.

Saturna Island has been described with Boundary Pass in paragraph 2.9. Mayne Island, associated with Active Pass, has been described in paragraph 2.21.

The various passages leading between the outer Gulf Islands are navigable, but local knowledge is required. Information concerning these passages may be obtained from Victoria Traffic and Seattle Traffic using VHF channel 5A (156.25 MHz). Participation in the appropriate VTS system is mandatory. See paragraph 1.1 for details.

Depths—Limitations.—From Tumbo Island, at the SE extremity of the island chain, to the N end of Valdes Island, all dangers lying on the strait side of the outer Gulf Islands are contained within the 90m curve, which lies between 0.3 mile and 1 mile offshore. The light shown from Georgina Point bearing less than 288° leads clear of the dangers lying on the W side of the N entrance to Boundary Pass.

Tumbo Island (48°48'N., 123°03'W.) is high, wooded, and encircled to the E and W by reefs. Steep cliffs face the S side of this island.

Tumbo Channel (48°47'N., 123°05'W.), deep and clear of dangers, leads between Saturna Island and Tumbo Island, but is foul at both entrances.

Savage Point (48°48'N., 123°04'W.), the NE extremity of Tumbo Island, has below-water rocks extending from it as far as **Rosenfeld Rock** (48°48'N., 123°02'W.).

Small craft with local knowledge can anchor in **Reef Harbor** (48°48'N., 123°06'W.), about 2 miles W of Tumbo Point.

Winter Point (48°49'N., 123°11'W.) is the NW extremity of Saturna Island. The N side of Samuel Island closely adjoins Saturna Island and extends NW. Reefs and above and below-water rocks front the N side of both islands.

Squamish Terminal—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
Squamish Terminals							
East Wharf	137m	11.5m	208.7m	11.3m	32.2m	62,841 dwt	Steel
West Wharf	152m	12.2m	213m	11.9m	32.2m	54,044 dwt	Steel



Entrance Island Light

Belle Chain Islets (48°50'N., 123°11'W.), a narrow and rocky ridge, forms the outermost danger in this area.

Edith Point (48°51'N., 123°15'W.) is the NE extremity of Mayne Island.

3.35 Campbell Bay (48°51'N., 123°16'W.) indents Mayne Island between Edith Point and Campbell Point, about 0.5 mile S. A drying rock lies close off the N shore of this bay. Anchorage can be taken, in a depth of 20m, mud, in the middle of the bay, about 200m S of an islet.

Horton Bay (48°50'N., 123°15'W.) is entered about 1 mile S of Campbell Point and is fronted by Curlew Island. This bay can be approached from N or S, although the waters are constricted and local knowledge is necessary. Strong tidal currents set across the entrance of the bay, but are not felt inside. Slack water is the best time to enter the bay. The bay affords anchorage for small vessels. A wreck, with a depth of 4.5m, lies about 230m SW of Aitken Point. A drying ledge extends S from the S extremity of Curlew Island.

Galiano Island (48°55'N., 123°25'W.) lies about 14 miles NW of Active Pass and about 17 miles from Edith Point. A high mountain ridge runs for almost the entire length of the island.

Active Pass, its entrances, and the SE side of Galiano Island have been previously described in paragraph 2.22.

Salamanca Point (48°54'N., 123°21'W.) is rocky and conspicuous from the SE and NW. Trees grow to the water's edge in the vicinity of the point. Heavy tide rips are reported to occur around this point.

3.36 Valdes Island (49°04'N., 123°38'W.) extends 8.3 miles NW from Porlier Pass, described in paragraph 4.30, to Gabriola Passage, described in paragraph 4.35. This island is very similar to Galiano Island in outline and is wooded with a few farms. Shoal rocks and above and below-water reefs, which are steep-to on their seaward sides, fringe the island and extend up to about 3.5 miles NNW of it.

Thrasher Rock (49°09'N., 123°38'W.), detached and steep-to, except on its W side, lies about 2.8 miles NE of the NE end of Valdes Island. A light is shown from a structure standing on this rock.

Gabriola Reefs (49°08'N., 123°38'W.), consisting of above and below-water rocks, extend about 2 miles S and SW of Thrasher Rock. Nanoose Hill, a notched peak, rises on the N side of Nanoose Harbor. Bearing 287° and just open to the N of Orlebar Point, this hill leads about 1 mile N of Thrasher Rock.

Gabriola Island (49°09'N., 123°48'W.) is located with its E side lying close N of Valdes Island.

The **Flat Top Islands** (49°09'N., 123°41'W.), a group of nine, front Gabriola Island and are wooded. They lie on foul ground extending up to 1 mile offshore. Several constricted passages lead between these islands. Some of the passages are deep and unencumbered, but others are shallow and obstructed. Local knowledge is required for all the passages.

Silva Bay (49°09'N., 123°42'W.) is used by small craft.

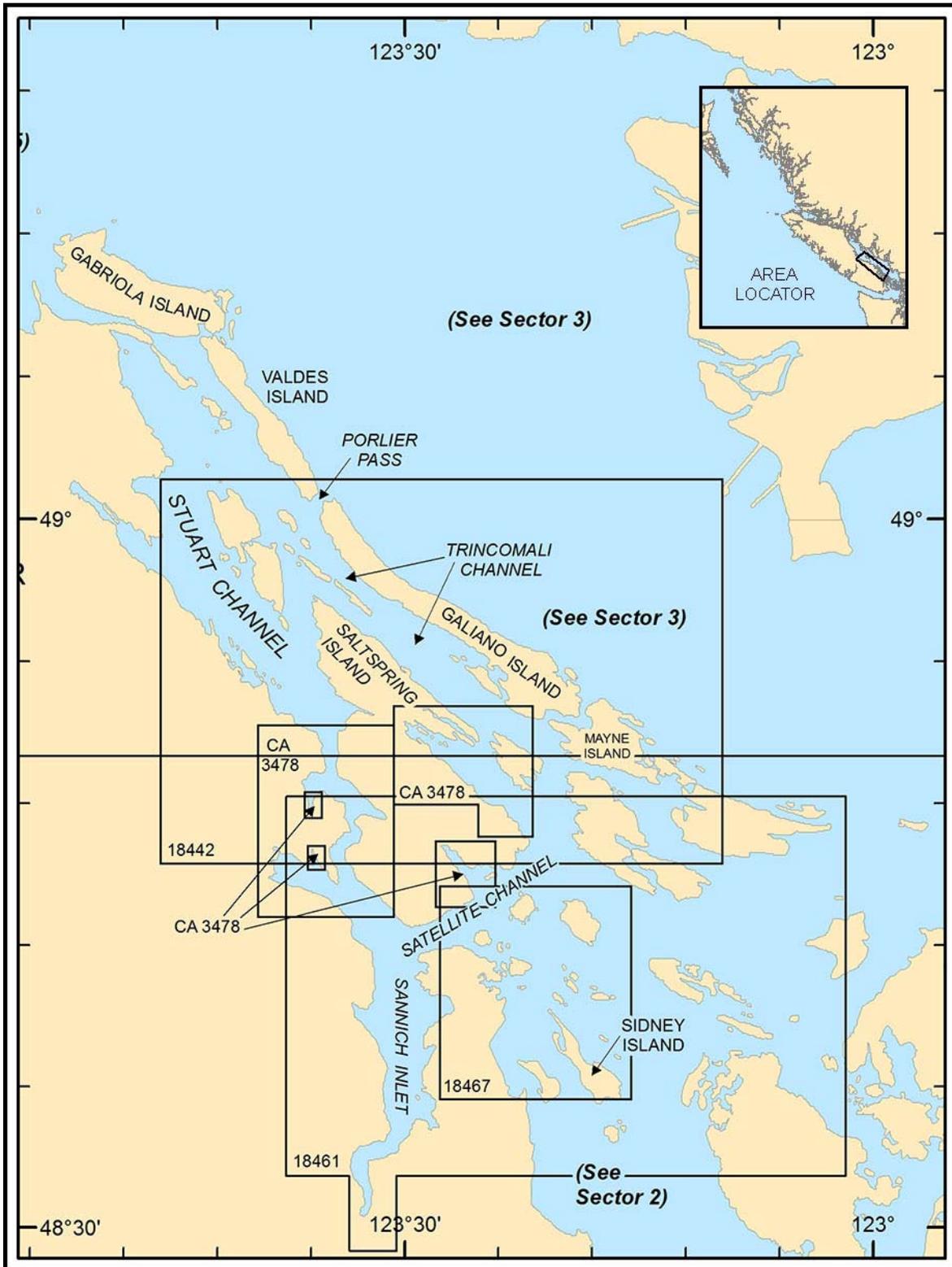
Orlebar Point (49°12'N., 123°49'W.) is the N extremity of Gabriola Island. The bold, wooded N side of the island recedes and vessels should stay at least 0.7 mile from the shore.

3.37 Entrance Island (49°13'N., 123°48'W.) lies 0.5 mile off Orlebar Point. This barren island has several conspicuous buildings, a radio tower, and a flagstaff situated on it. A light is shown from a structure standing on the island and buoys, marking foul ground, are moored close SW and NW of it.

Forwood Channel extends between the island and Orlebar Point. This channel is deep, but constricted, and should not be used without local knowledge. Vessels bound for Nanaimo should pass to the N of Entrance Island.

Fairway Channel, one of three navigable channels leading to Nanaimo from the Straits of Georgia, lies on the N side of Tinson Point, the NW extremity of Gabriola Island.

Caution.—A submarine cable extends NE across Forwood Channel between Orlebar Point and Entrance Island.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 4 — CHART INFORMATION

SECTOR 4

THE GULF ISLANDS

Plan.—This sector describes the passages to the W of Moresby Passage and Active Pass, which lead through the Gulf Islands to Dodd Narrows and the Strait of Georgia. The descriptive sequence is from SE to NW.

General Remarks

4.1 The route to Nanaimo leads via Satellite Channel, Sansum Narrows, Stuart Channel, Dodd Narrows, and Northumberland Channel. It passes the Vancouver Island facilities of Cowichan Bay, Chemainus Bay, and Ladysmith Harbor.

Satellite Channel is a good passage, but Sansum Narrows is somewhat confined and is not recommended without local knowledge. Stuart Channel is a good passage; Dodd Narrows has a least width of 55m; and Northumberland Channel is broad and clear.

An alternate route to Nanaimo is via Trincomali Channel, Dodd Narrows, and Northumberland Channel. Although Trincomali Channel can be navigated without difficulty, there are fewer opportunities to anchor are afforded along this route.

Dodd Narrows, Porlier Pass, and Gabriola Passage lead into the Strait of Georgia from the channels lying between the Gulf Islands. Porlier Pass, lying between Galiano Island and Valdes Island, is used by large vessels, but is more difficult to transit than Active Pass. Gabriola Pass, lying between Valdes Island and Gabriola Island, is not recommended.

Winds—Weather.—See paragraph 2.1.

Tides—Currents.—In Northumberland Channel, the tidal currents set continually to the E. The maximum velocity is 1 knot to 2 knots at springs. Percy Anchorage, lying at the E end of this channel, has weak tidal currents.

When the tidal currents are strong in the passes leading through the outer Gulf Islands, they are little affected by the wind unless it holds the same direction for at least 12 hours.

Gales from the N make slack water earlier at HW and later at LW. They also increase the rate of the ebb current. Gales from the S have relatively less effect, but they tend to make slack water earlier at LW and later at HW. They also increase the rate of the flood current.

The flood current in Sansum Narrows sets N and has an average maximum velocity of 2 knots. The velocity of the tidal currents seldom exceeds 3 knots and in the wider parts of the narrows is usually 1 knot to 2 knots. The HW slack occurs 37 minutes before HW slack in Active Pass; the LW slack occurs 24 minutes after LW slack in Active Pass.

The tidal currents in Stuart Channel have little strength and those in Houstoun Passage are weak. In the NW part of the latter passage, both tidal currents set N as far as the N extremity of Saltspring Island. In the E part of this passage, the currents set NW and SE. In the S part of Stuart Channel, the flood current sets NW and the ebb in the opposite direction.

The tidal currents in Dodd Narrows set N on a rising tide and S on a falling tide. The maximum velocity is 8 to 10 knots, but at ordinary springs the velocity is 6 to 8 knots.

The duration of slack is about 6 minutes, but at no time is the water completely slack throughout Dodd Narrows. The tidal currents, having become very weak, change direction with no cessation of movement in the narrows as a whole.

During the strength of the tidal current, a tide rip always forms in a well-defined curve on that side of the narrowest part of Dodd Narrows towards which the current is setting. The gradual disappearance of this tide rip indicates the slackening of the current. The narrows should not be attempted until the tide rip has entirely disappeared.

The tidal currents in Gabriola Passage have a maximum velocity of 6 to 8 knots. Both tidal currents in this passage vary greatly in direction at different stages of the tide, but in general they flow E with a rising tide and W with a falling tide. The duration of slack is only about 4 minutes.

The tidal currents in the middle of Porlier Pass set at a velocity of 4 to 8 knots; the greater rate occurs when the range of the tide is largest. The flood current sets NE. The ebb current sets directly over Romulus Rock, at the S end of the pass, from the direction of Virago Point.

The tidal currents in Pylades Channel are inappreciable.

The tidal currents are weak in the SE and wider part of Trincomali Channel. To the N of Wallace Island, then as far as Polier Pass, the currents set at a velocity of 1 knot to 3 knots.

The tidal currents in Captain Passage set at a velocity of 2 to 3 knots. The S current sets directly onto the S shore of this passage and the N current sets strongly NW.

The tidal currents in Satellite Channel set at a velocity of 1 knot to 2 knots. The flood current sets SW and NW around Cape Keppel and the ebb in the opposite direction.

Depths—Limitations.—Deep water is found in the fairways of all the major passages of the Gulf Islands. Many of the dangers lying in and adjacent to the fairways are marked by aids. However, rocky shoals extend offshore in some of the more constricted passages and, along with varying tidal current conditions, make it necessary to have local knowledge.

Dodd Narrows has a least depth of 12.8m in the channel, Porlier Pass has a least depth of 6.7m in the channel, and Gabriola Passage has a least depth of 13.7m in the channel.

Regulations.—The waters described in this sector lie within the Victoria Vessel Traffic Service (VTS) System. For further information on reporting requirements, see paragraph 1.1.

Satellite Channel

4.2 **Satellite Channel** (48°42'N., 123°29'W.), a navigable passage, is bounded to the N by Saltspring Island and to the S by Portland Piers and Vancouver Island. This channel is entered from Swanson Channel, Shute Passage, and Colburne Passage and leads to Saanich Inlet, Cowichan Bay, and the S end of Sansum Narrows.

The depths in the channels are great and there are very few dangers. Mid-channel courses should be steered in the fairways of Satellite Channel and its various reaches.

Saltspring Island (48°47'N., 123°29'W.), the largest of the Gulf Islands, forms the SE and SW sides of Satellite Channel. The S part of the island is wooded and mountainous while the N part is hilly and not so high. The valleys are generally cultivated.

Natural landmarks of prominence include **Bruce Peak** (48°46'N., 123°31'W.), which is flat-topped, and **Baynes Peak** (48°48'N., 123°31'W.), which is very conspicuous and has a perpendicular precipice on the S side of its summit.

Between **Beaver Point** (48°46'N., 123°22'W.), the E extremity of the island, and Cape Keppel, 6 miles SW, the coast is indented by Fulford Harbor. Shoals fringe the shore between Beaver Point and **Eleanor Point** (48°45'N., 123°23'W.), 1.3 miles SSW. Isabella Island, marked by a light, lies 2.3 miles SW of Eleanor Point and about 0.4 mile offshore.

4.3 Fulford Harbor (48°46'N., 123°26'W.) is entered between Eleanor Point and Isabella Point. Reginald Hill, bare and rocky, rises near the village backing the harbor. The village is a terminus for the regular ferry service from Swartz Bay (48°41'N., 123°24'W.).

The fairway leading to the inner part of the harbor has a least depth of 9.1m. A drying mud flat extends 0.3 mile from the head of the harbor and is fronted by depths of less than 11m. The harbor is mainly used by pleasure craft and has a wharf, 24m long, with a depth of 3m alongside.



Fulford Harbor

Russell Island (48°45'N., 123°24'W.) lies in the entrance to Fulford Harbor. Cecil Rock, with a depth of less than 1.8m, lies about 0.3 mile S of this island. The principal entrance channel leads SW of the island and W of **Jackson Rock** (48°45'N., 123°26'W.), an above-water danger.

Anchorage can be taken, in depths of 18 to 26m, mud, in the center of the harbor. A preferred roadstead, with a depth of 18m, lies about 0.3 mile SSE of the ferry slip.

Cape Keppel (48°43'N., 123°29'W.), a steep-to point, forms the S end of Saltspring Island. Mount Tuam rises 1 mile NE of the cape and is a conspicuous landmark. Several radio towers stand on the summit of this peak.

Patey Rock (48°42'N., 123°31'W.) dries 2.4m and is marked by a light. A shoal, with a depth of 11m, lies about 0.5 mile E of it. These two obstacles are the only known dangers lying in

Satellite Channel SW of Cape Keppel.

Musgrave Point (48°45'N., 123°33'W.) is located on the SW side of Saltspring Island, about 3.3 miles NW of Cape Keppel. The channel leading between the cape and this point is free of dangers except for Musgrave Rock, with a depth of 2.1m, which lies about 0.5 mile S of the point.

Saanich Inlet

4.4 Saanich Inlet (48°40'N., 123°30'W.) extends 13 miles S from Satellite Channel to within 4 miles of Esquimalt Harbor.

The **Saanich Peninsula** (48°40'N., 123°27'W.), forming the E side of the inlet, extends N from the SE end of Vancouver Island. The W shore of the inlet is steep and heavily wooded, as is the E shore to the S of **Tod Inlet** (48°34'N., 123°28'W.). The E shore to the N of Tod Inlet is low and featureless. The entire inlet is deep and clear of dangers in mid-channel.

Caution.—Submarine cables cross the inlet in several places. Two are at Coal Point, one extends from Brentwood Bay to Bamberton, and one is at the mouth of Squally Reach.

A naval torpedo firing area, marked by buoys, lies about 2 miles within the entrance of Saanich Inlet. This area should be avoided if possible, otherwise, transit is allowed.

4.5 Moses Point (48°41'N., 123°29'W.) and **Hatch Point** (48°42'N., 123°32'W.), located about 2 miles W, form the entrance to Saanich Inlet. Wain Rock, which dries, lies about 0.3 mile SW of Moses Point and is surmounted by a circular light-tower.

Deep Cove (48°41'N., 123°29'W.) indents the coast between Moses Point and Coal Point, 0.7 mile S.

Patricia Bay (48°39'N., 123°28'W.) is entered close S of Warrior Point and affords anchorage, in depths of 11 to 25m, in its center.

The Institute of Ocean Sciences stands on the SE side of the bay and is fronted by a breakwater marked by a light. Several berths, with depths of 4.4 to 7m alongside, are available for vessels employed by or visiting the institute. There are also facilities for small craft and seaplanes within the bay.

A platform, which is lit, has been established in the SW part of the bay. Submarine cables are connected to the platform.

There are four orange and white barrel mooring buoys, marked NAVY, located near the seaward end of the platform; all are best seen on the chart.

Caution.—Anchorage is not recommended due to the existence of cables and instruments within the bay.

Mill Bay (48°39'N., 123°33'W.), entered close S of Whiskey Point, is partly encumbered with drying rocks and shoals. Small vessels, with local knowledge, can anchor in suitable depths within this bay.

Verdier Point (48°38'N., 123°32'W.) forms the S entrance of Mill Bay.

4.6 McPhail Point (48°37'N., 123°31'W.) is the terminus for a ferry that runs from Brentwood Bay. Tozier Rock, below-water, lies about 0.3 mile NE of this point and is marked by a beacon.

The coast between McPhail Point and Verdier Point is

fringed by foul ground. Tanner Rock lies 0.1 mile offshore, about 0.3 mile SSE of Verdier Point. It dries and is marked by a beacon.

Dyer Rocks (48°38'N., 123°29'W.), a group of above and below-water rocks, lie close off Yarrow Point, at the N entrance to Coles Bay. Rocky shoals extend across the mouth of this bay to the N of the entrance fairway.

Coles Bay (48°37'N., 123°28'W.) affords anchorage, in depths of 18 to 27m, in its center with Dyer Rocks bearing 290°. Vessels approaching this anchorage from the N should stay at least 0.5 mile from Dyer Rocks to avoid the fringing shoals extending S from them.

Senanus Island (48°36'N., 123°29'W.) lies 0.5 mile SSW of **Henderson Point** (48°36'N., 123°29'W.) and is separated from it by a deep and clear channel. A light is shown from the N side of the island.

Brentwood Bay (48°35'N., 123°28'W.) may be entered from E or W of Senanus Island and N of **Willis Point** (48°35'N., 123°29'W.). Tod Inlet, narrow and sheltered, leads S from the head of this bay, which is fringed by rocky shoals and drying rocks along its E shore. Two of the drying rocks are marked by a buoy and a beacon. Anchorage can be taken, in a depth of 27m, about 0.2 mile NW of the beacon.

A ferry slip is situated 0.3 mile SE of **Sluggett Point** (48°35'N., 123°28'W.). Two floats, with depths of 2.4 to 4.8m alongside, are moored close to this ferry slip.

4.7 Bamberton (48°33'N., 123°31'W.) (World Port Index No. 18665) is the site of a disused cement works. There are two wharves, the northernmost of which provides 76m of berthage, with a depth of 9m alongside. The southernmost wharf is used only by small vessels. It is reported that vessels of up to 160m in length and 9.7m draft have been handled here at HW.

Squally Reach is that part of Saanich Inlet leading SW from Willis Point to **Elbow Point** (48°33'N., 123°32'W.). Repulse Rock, which dries, lies close off Elbow Point and is marked by a beacon.

Finlayson Arm extends 3.5 miles S from Elbow Point to its head. Sawluctus Island, wooded and steep-to, lies in the inner part of this arm. Anchorage can be taken, in a depth of 16.5m, about 0.2 mile SW of the island.



Cowichan Bay

Cowichan Bay (48°45'N., 123°36'W.) (World Port Index No. 18580) is approached via Satellite Channel, between Cape Keppel and Hatch Point.

A wharf is situated close NW of the latter point. Significant quantities of lumber and forest products are exported from the bay.

Depths—Limitations.—Two main wharves are used by ocean-going vessels, as follows:

1. No. 1 Dock (S) has 155m of berthage, with a depth alongside of 9m.
2. No. 2 Dock (N) has 198m of berthage, with a depth of 9.9m alongside.

Vessels of up to 196m in length and 10.4m draft have been handled.

Aspect.—Between Hatch Point and **Cherry Point** (48°43'N., 123°33'W.) the shore is indented by a drying bight.

Contact Information.—The port can be contacted, as follows:

1. Telephone: 1-250-746-2500
2. Facsimile: 1-250-746-5612

4.8 Boatswain Bank (48°43'N., 123°32'W.) fronts the bight for about 0.8 mile. This bank is steep-to offshore, but shoals abruptly near the bight.

Cowichan Bay is entered between Cherry Point and Separation Point, which is marked by a light. Partly-drying flats fill the head of this deep bay. Mount Tzuhalem rises precipitously over the N side of the bay and is prominent. A railroad trestle extends SE across the flats to a wharf and ferry slip. Several piers and floats are situated close S of the ferry slip. The main wharf provides two berths, 150m and 198m long, with least depths of 8.3m alongside.

Anchorage.—Anchorage can be taken, in a depth of 44m, about 0.2 mile NE of the wharf. Anchorage can also be taken, in depths of 7 to 16m, sand, on Boatswain Bank.

Eight designated anchorage berths, which may best be seen on the chart, lie within Cowichan Bay and its S approach. Berth No. 1 through Berth No. 4 lie within the bay; Berth No. 5 through Berth No. 8 lie in the W part of Satellite Channel. The bottom throughout these anchorages is formed of mud.

Caution.—A submarine pipeline has been placed between the shoreline at position 48°44'05"N, 123°35'19"W and at position 48°44'21"N, 123°35'08"W.

Genoa Bay (48°46'N., 123°36'W.), a small inlet, indents the N side of Cowichan Bay. It is encumbered by shoals, reefs, and above and below-water rocks, some of which are marked by beacons and buoys. Local knowledge is advisable. Anchorage can be taken, with local knowledge, in depths of 4 to 11m, mud, in the middle of this bay.

Sansum Narrows

4.9 Sansum Narrows (48°48'N., 123°33'W.) is entered from the S via Satellite Channel. Musgrave Point forms the SE entrance point while Separation Point forms the SW.

A cove lies close N of Musgrave Point. A pier and an attached float, with depths of 1.8 to 6.7m alongside, are situated within this cove.

Sansum Narrows, leading N to Stuart Channel, is confined between high land on each side, which makes for fluctuating winds. Depths in the narrows are too great for anchoring and local knowledge is recommended. The tidal currents in the narrows seldom exceed a velocity of 3 knots and usually set a lesser rate. In the wider parts, rates of 1 knot to 2 knots may be expected.

The depths are great throughout the channel, except for a rocky patch, with a depth of 11m, lying about 1.3 miles N of Separation Point.



Sansum Narrows

Burial Islet (48°46'N., 123°34'W.), marked by a light, lies about 0.2 mile offshore, 1.5 miles N of Separation Point. It is the only danger in the S part of the narrows. The central and N parts of the narrows are unencumbered. Mid-channel courses are recommended.

Bold Bluff Point (48°47'N., 123°33'W.), broken-up and moss-covered, is fringed by drying rocks. Sansum Point, located 0.5 mile SW of this point, is fronted by a rocky ledge marked by kelp.

Burgoyne Bay (48°48'N., 123°32'W.), lying adjacent to Bold Bluff Point and opposite **Octopus Point** (48°48'N., 123°34'W.), is deep but shoals abruptly as it reaches the sandy head. A light is shown from Octopus Point. A pier, used by vessels from Sydney, fronts the head of this bay.

Maple Bay (48°49'N., 123°36'W.), opening W from the narrows, is entered between **Paddy Mile Stone** (48°48'N., 123°35'W.) and Arbutus Point, 0.8 mile N. Paddy Mile Stone consists of an enormous conspicuous boulder resting on a point.

Birds Eye Cove (48°48'N., 123°36'W.) leads S from Maple Bay and is constricted; speed in the bay is limited to a maximum of 5 knots. Two landing floats, with depths of 4.5 to 8.2m alongside, lie close off the W side of this bay. Several sunken rocks lie close SE of the floats. Anchorage can be taken, in a depth of 36m, mud, in the entrance to the cove.

Caution.—Overhead power cables, with a vertical clearance of 52m, span Sansum Narrows close N of Arbutus Point.

Stuart Channel

4.10 Stuart Channel (49°00'N., 123°44'W.) lies between

Vancouver Island, on the W side, and Saltspring Island, Kuper Island, and Thetis Island, on the E. From the N entrance of Sansum Narrows, this channel leads NNW to Dodd Narrows and the Strait of Georgia.

The depths in the fairway of Stuart Channel are ample for ocean-going vessels. Several dangers, in the form of islets and reefs, lie at the sides of the channel in many places; a mid-channel course is recommended.

Grave Point (48°51'N., 123°36'W.) and **Erskin Point** (48°51'N., 123°34'W.) form the S entrance points of Stuart Channel. A light is shown from a white mast standing on the former point.

Vesuvius Bay (48°53'N., 123°34'W.) is a very small bight. A government pier fronts the N side of this bay. Temporary anchorage can be taken, in a depth of 22m, mud, close off the pier.

Parminter Point (48°54'N., 123°35'W.), steep-to, is located 1.5 miles NNW of Vesuvius Bay. This point is the most conspicuous on the W side of Saltspring Island.

Osborn Bay (48°52'N., 123°38'W.) is entered between **Sheppard Point** (48°52'N., 123°37'W.) and the Shoal Islands, which lie on an extensive, drying flat. Extensive log booming grounds lie in the W part of this bay.

The **Shoal Islands** (48°54'N., 123°40'W.) are a chain of islands, islets, and rocks that extend about 3.5 miles NW from Osborn Bay. The drying flats containing the islands extend as far as 1 mile offshore. These islands are wooded and difficult to define. Numerous rocky heads, submerged bare rocks, and underwater ledges lie near the outer edges of the flats. A drying rock is marked by a beacon. A light is shown from the southeasternmost island. Anchorage, sheltered from prevailing W and SW winds, can be taken, in a depth of 22m, mud, about 0.8 mile SSW of the light.

4.11 Crofton (48°52'N., 123°38'W.) (World Port Index No. 18570), a lumber port and settlement, stands on the SW shore of Osborn Bay. A ferry plies between this port and Vesuvius Bay. Three main wharves, used by ocean-going vessels, front the settlement, as follows:

1. No. 1 Dock (Deepsea Dock) has 175m of berthage, with a depth alongside of 12m. Vessels with a maximum loa of 183m can be accommodated. Rail cargo is handled.
2. No. 2 Dock (Osborn Bay Wharves) has 160m of berthage, with a depth of 12.2m alongside. Vessels up to 62,841 dwt, with a maximum loa of 205m, a maximum draft of 10.8m, and a maximum beam of 32.2m, can be accommodated. Breakbulk cargo is handled.
3. No. 3 Dock (Stuart Channel Wharves) has 138m of berthage, with a depth of 10.4m alongside. Vessels up to 55,175 dwt, with a maximum loa of 190m and a maximum beam of 32.2m, can be accommodated. Breakbulk cargo is handled.

Pilotage.—Pilotage is provided by the Pacific Pilotage Authority Canada (PPA). For details on reporting procedures and pilot boarding areas refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Regulations.—Crofton lies within Sector 1 of the Victoria Vessel Traffic Service (VTS) System, which is administered by Victoria Traffic. For details concerning reporting procedures,

refer to paragraph 1.1. For other regulations covering the Western Canada Traffic Zone, refer to Canada—Regulations and Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Contact Information.—The port can be contacted, as follows:

1. Telephone: 1-604-666-5399
2. Facsimile: 1-604-666-2961

4.12 North Reef (48°55'N., 123°38'W.), a narrow and above-water ridge, lies on foul ground, about 1.5 miles NW of Parminter Point. It is marked by a light. Tent Island, lying 0.5 mile N of the reef, is encircled by foul ground and above and below-water rocks. A reef, which dries, connects this island with Kuper Island at **Josling Point** (48°56'N., 123°38'W.), its S extremity.

Escape Reef (48°57'N., 123°40'W.) is a drying, narrow ridge lying at the E side of Stuart Channel and about 0.5 mile off Kuper Island. The highest part of the reef is marked by a beacon.

4.13 Telegraph Harbor (48°58'N., 123°40'W.) is entered between Active Point and the SE end of **Hudson Island** (48°58'N., 123°41'W.). The inner part of this harbor is constricted and fringed by rocky ledges. The outer harbor has a least depth of 12.8m.

Alarm Rock (48°58'N., 123°40'W.), a narrow ledge, rises barely above water and is marked by a light. It lies about 0.5 mile W of Active Point, at the outer edge of the foul ground extending S from Hudson Island.

The entrance to the inner harbor lies between **Donckele Point** (48°58'N., 123°40'W.) and Foster Point, the S extremity of Thetis Island. A settlement fronted by a pier stands 0.3 mile NE of Donckele Point. Anchorage can be taken by vessels of moderate size, in a depth of 13m, mud, close NW of the pier. The harbor above Foster Point affords sheltered anchorage to small craft. Local knowledge is advisable.

Caution.—A submarine cable, which may best be seen on the chart, lies in the harbor in the vicinity of the anchorage area. Another submarine cable runs from close W of Foster Point to Hudson Island.



Telegraph Harbor

4.14 Preedy Harbor (48°58'N., 123°41'W.), entered from

NW between Thetis Island and Dayman Island, affords good anchorage.

Crescent Point (48°59'N., 123°41'W.), the N entrance point, is located 0.4 mile N of Dayman Island. Shoals fringe this point and extend as far as the channel leading into the harbor. Several drying, rocky ledges, which are marked by beacons, lie on a bar extending between Hudson Island and Foster Point. They separate Preedy Harbor from Telegraph Harbor. A pier, with a depth of 5.5m alongside, is situated at the head of the harbor and ferry landing lies close N of it. The northwesternmost entrance, between Crescent Point and Dayman Island, is the preferred one. The fairway is 0.2 mile wide and has a least depth of 8.2m. False Reef may be passed on either side. Vessels entering the harbor between Hudson Island and Dayman Island should favor the NW side of the channel, which has a least depth of 4.3m.

Good anchorage over a bottom of mud can be taken in the N end of the harbor.

Caution.—A submarine cable, which may best be seen on the chart, lies across the northwesternmost entrance channel between Scott Island and Crescent Point. Another submarine cable lies across the harbor from Dayton Island to the vicinity of Thetis Island.

4.15 Thetis Island (49°00'N., 123°41'W.), lying astride the N end of Kuper Island, forms the E side of the N end of Stuart Channel.

Burchell Hill (49°00'N., 123°41'W.), heavily wooded, and **Moore Hill** (49°00'N., 123°40'W.) are conspicuous landmarks.

Dayman Island (48°58'N., 123°41'W.) and **Scott Island** (48°58'N., 123°42'W.), both wooded, lie on the edge of Stuart Channel and SW of Preedy Harbor. An extensive area of rocky ledges and foul ground extends from Alarm Rock to Scott Island.

False Reef (48°59'N., 123°42'W.) lies about 0.5 mile NW of Scott Island. A beacon stands on a drying rock located at the S end of this reef.

Fraser Point (49°01'N., 123°43'W.) is the NW extremity of Thetis Island. Several detached shoals extend up to about 1.3 miles NNW of the point and constrict Stuart Channel.

4.16 North Cove (49°01'N., 123°42'W.) indents the N coast of Thetis Island between Fraser Point and Pilkey Point, 0.8 mile E. Shoals fringe the sides and head of this cove. Several below-water rocks, unmarked by kelp, lie in the entrance and about 0.3 mile NE of Fraser Point.

Anchorage, sheltered from S winds, can be taken in the center of the cove. The preferred anchorage, in a depth of 12m, mud, lies SW of Pilkey Point.

The **Ragged Islets** (49°02'N., 123°42'W.), three in number, lie on a narrow ridge extending from the foul ground located NW of Pilkey Point. The middle islet, which is the largest, can be identified by stunted bushes growing on it. A beacon stands on the northwesternmost islet.

4.17 Miami Islet (49°02'N., 123°43'W.) lies on a drying ridge, about 1.3 miles NW of Pilkey Point. Several above and below-water rocks lie on this ridge. A buoy is moored at the NW extremity of the ridge and a wreck, which dries 1.3m, lies

close SE of it.

Chemainus Bay (48°56'N., 123°43'W.) is entered between **Bare Point** (48°56'N., 123°42'W.) and Hospital Point. The sides of this bay are steep-to, but drying flats extend from the head into depths of 11 to 46m. These flats are used as booming grounds for logs discharged from a railroad pier. A conspicuous water tower stands at the SW side of the bay and a prominent generating plant, with several oil tanks, is situated on the E side.

Bare Point, marked by a light, is the N extremity of a narrow, wooded peninsula which forms the E side of Chemainus Bay.



Photo copyright Mike Mitchell
Bare Point Light

Hospital Point (48°56'N., 123°43'W.) forms the W entrance of the bay. Hospital Rock, marked by a lighted buoy, lies about 0.2 mile NE of this point. Range lights, situated on the W side of the bay, indicate the entrance fairway and lead E of the rock to the facilities.

Vessels usually anchor in Houstoun Passage, W of Southey

Point.

Caution.—Two submarine cables, which may best be seen on the chart, extend NE across Stuart Channel from Hospital Point.

4.18 Chemainus (48°55'N., 123°43'W.) (World Port Index No. 18560) is a fishing and lumber terminal. The port is approached from the Strait of Georgia by Porlier Pass and Houston Passage; the approaches to the port are deep and marked by a range light. Several piers and wharves line the W side of the bay. The port is connected by railroad to Victoria and Nanaimo. A ferry plies between the harbor and Preedy Harbor.

For further berth information see the table titled **Chemainus—Berth Information**.

4.19 Ladysmith (48°59'N., 123°49'W.), a town, is mainly a lumber center. It is connected by railroad and highways to all of Vancouver Island. The town has no berthing facilities for ships other than a public pier. However, vessels usually anchor when loading or discharging cargo.

Ladysmith Harbor (48°59'N., 123°47'W.), a bay, is entered between Boulder Point (48°57'N., 123°45'W.), on the S side, and Sharpe Point (48°59'N., 123°46'W.), on the NNW side. It is backed by a high, wooded summit. A large, conspicuous boulder marks Boulder Point. Depths of 36m in the entrance gradually decrease to a drying mud flat lying at the head.

Holland Bank (48°59'N., 123°48'W.), consisting of drying mud and shingle, is marked by a beacon. A conspicuous railroad embankment is situated on the shore in the vicinity of this bank.

Williams Point (49°00'N., 123°49'W.) is a low, grassy neck with a sandy beach. Cliffs line the shore to SE of this point.

4.20 Sibell Bay (48°59'N., 123°47'W.) is entered about 0.5 mile NW of Sharpe Point and E of the Dunsmuir Islands. Hunter Point, located 1 mile NW of Sharpe Point, forms the NW side of the bay, which is deep and clear of dangers.

The **Dunsmuir Islands** (48°59'N., 123°47'W.) lie close off Hunter Point. Shoals, with depths of less than 5m, extend from the largest island of this group into the harbor. Cluster Rocks, both drying and awash, lie close S of the islands.

Chemainus—Berth Information			
Berth	Length	Depth	Remarks
Chemainus Ferry Terminal			
Ro-Ro Berth	—	—	Ro-ro passengers.
Chemainus Sawmill			
Cargo Berth	170m	—	Lumber.
Chemainus Wharf			
Ferry Jetty	45m	—	Passengers.
Bare Point Terminal			
Petroleum Berth	—	—	Petroleum.
Note. —The port of Chemainus has a primary cargo of forest products and supports one of the largest mills on the Pacific coast. The port is open all year long.			

The **Woods Islands** (49°00'N., 123°49'W.) lie parallel to the harbor, NE of Williams Point, and constrict the channel, especially off the S side of the islands. The fairway is reduced to width of only 90m between the shoals.

Wedge Point (49°01'N., 123°50'W.), located on the mainland side of the inner harbor, is conspicuous. Within this point, drying mud flats fill the harbor

Anchorage.—Designated anchorage berths, which may best be seen on the chart, lie between the outer part of Ladysmith Harbor and a position located 1.3 miles SE of Boulder Point. They are numbered 1 through 7. Anchorage berths, numbered 8 and 9, lie in the outer part of Kulleet Bay.

4.21 Evening Cove (48°59'N., 123°46'W.) indents the coast between Sharpe Point and Coffin Point, 0.5 mile NE. The latter point is low and wooded. The cove is encumbered with rocky shoals. Anchorage can be obtained within the cove by small craft, but it is exposed to SE winds.

Coffin Island (48°59'N., 123°45'W.), marked by a light, and Nares Rock, above-water, lie on a reef extending 0.5 mile ESE of Coffin Point.

Kulleet Bay (49°01'N., 123°47'W.) indents the coast close W of **Deer Point** (49°02'N., 123°46'W.). It may be approached and safely entered from the S and N by keeping about 0.3 mile offshore. The bay is free of dangers, except for a shoal, with a least depth of 5.5m, extending from the S shore.

Anchorage within Kulleet Bay is good only in fair weather as it is exposed to E winds. The bottom consists of mud. Designated Berth No. 8 has a depth off 33m; designated Berth No. 9 has a depth of 53m.

Houstoun Passage (48°57'N., 123°35'W.) is entered between Parminter Point and North Reef. This passage connects Stuart Channel with Trincomali Channel. It leads N from Stuart Channel, turns abruptly around the N extremity of Saltspring Island, and leads SE to the junction with Trincomali Channel. The N continuation of this passage leads E of Kuper Island and is bound by a chain of islands extending SE.

The depths in the fairway of Houstoun Passage are ample for ocean-going vessels. Several shoals lie in or near the channel, but these dangers are marked by navigational aids.

Caution.—A submarine cable, which may best be seen on the chart, extends E across Stuart Channel close N of Coffin Point.

A submarine cable, which may best be seen on the chart, lies in mid-channel through the entire length of Houstoun Passage. Another submarine cable extends SE across the passage from Josling Point.

4.22 Idol Island (48°55'N., 123°36'W.) and **Grappler Rock** (48°56'N., 123°36'W.), marked by a light, lie about 0.3 mile offshore, on the E side of Houstoun Passage. The island is encircled by shoals and the rock, which dries, lies on a reef marked by kelp. Two other drying rocks lie close S of Grappler Rock.

An area of foul ground, marked by a beacon, extends up to about 0.3 mile E of **Sandstone Rocks** (48°55'N., 123°37'W.). The foul ground and the rocks constrict the fairway channel in Houstoun Passage, to the W of Idol Island.

Southey Point (48°57'N., 123°36'W.), located at the N end of Saltspring Island, is low and fronted by a drying ledge.

Jackscrew Island (48°57'N., 123°35'W.) lies 0.5 mile NNE of Southey Point. The S end of this small, wooded island is marked by a light. Houstoun Passage between the point and island is deep and clear of dangers.

Anchorage.—Four designated anchorage berths, which may best be seen on the chart, lie in Houstoun Passage. No. 1 has a depth of 24m, mud; No. 2 has a depth of 30m, mud; No. 3 has a depth of 20 to 24m, mud; and No. 4 has a depth of 40m, mud.

Caution.—Vessels should be aware of the submarine cables lying in the vicinity of these anchorage berths.

4.23 Penelakut Spit (48°59'N., 123°38'W.), located 2.8 miles NNW of Southey Point, is the NE extremity of a small peninsula. This spit, formed of innumerable white and broken clam shells, is low, but very conspicuous from the SE and NW. The E side of Kuper Island (48°56'N., 123°38'W.) is fringed by drying sand flats, boulders, and drying reefs, which are fronted by foul ground. A prominent church tower is situated at the NE end of the island.

Norway Island (48°59'N., 123°37'W.), lying 0.5 mile E of Penelakut Spit, is wooded and has steep cliffs on its W side. A beacon stands on an islet lying close S of this island. Only small craft should use the passage leading between the island and Penelakut Spit.

Mowgli Island (48°58'N., 123°36'W.), lying 0.5 mile SE of Norway Island, is encircled by foul ground. A navigable and deep passage, about 0.1 mile wide, leads between these two islands. Several wooded islets, lying 0.3 mile S of Mowgli Island, are fringed by foul ground. A beacon stands on the northernmost islet of the group.

The **Secretary Islands** (48°58'N., 123°36'W.), two in number, lie close SE of Mowgli Island. Foul ground encircles the islands and lies in the passage leading between the islands.

Wallace Island (48°57'N., 123°33'W.) extends 2 miles SE from Chivers Point, its NW extremity, to Panther Point, its SE extremity. A chain of shoals, islets, and drying rocks lies 0.2 mile off the island and extends parallel to its W side. A lighted buoy marks the SE end of this chain. Several drying rocks and shoals extend up to 1.5 miles NW of the lighted buoy. The passage lying at the NW end of the island is foul.

Fernwood Point (48°55'N., 123°32'W.), located 3 miles SE of Southey Point, is the W entrance point of Houstoun Passage; Panther Point is the E entrance point. Off-lying dangers, consisting of Victoria Rock and a detached rock, lie between 0.5 mile and 0.8 mile ENE of Fernwood Point.

Captain Passage—Trincomali Channel—Porlier Pass

4.24 Captain Passage (48°49'N., 123°25'W.) is entered from Swanson Channel, between Beaver Point and Point Liddell. This passage, which leads NW to Ganges Harbor and N to Trincomali Channel, has a deep fairway and a least width of 0.5 mile.

Yeo Point (48°48'N., 123°23'W.), located 1.8 miles NW of Beaver Point, is conspicuous due to the white sandy beaches lying nearby.

The **Channel Islands** (48°48'N., 123°23'W.), the northernmost of which is marked by a light, lie in the middle of Captain Passage, about 0.5 mile NE of Yeo Point. Foul ground encir-

cles these very small islands. Deep Ridge extends SE from the islands and has a least depth of 9.4m at its outer end. This shoal is marked by a lighted buoy.

The **Acland Islands** (48°49'N., 123°23'W.) are wooded and extend between 0.3 mile and 0.8 mile NW of Point Liddell. Foul ground surrounds these islands and extends about 1 mile NW to **Batt Rock** (48°49'N., 123°25'W.). This latter rock, isolated with a least depth of 1.5m, lies about 1.8 miles NW of Yeo Point. A chain of islets lies on the foul ground. A lighted buoy is moored close SW of the northnorthwesternmost island of the group.

Welbury Point (48°51'N., 123°27'W.) and **Scott Point** (48°50'N., 123°25'W.) form the entrance to Welbury Bay. This bay is narrow, shoal, and fronted by foul ground extending from Welbury Point.

Horda Shoals (48°50'N., 123°25'W.), lying in the middle of Captain Passage, consists of two rocky patches. It has depth of less than 2m and is marked by a lighted buoy.

4.25 Long Harbor (48°51'N., 123°27'W.), a narrow inlet, is entered between Scott Point and Nose Point, 0.3 mile ENE. The latter point is marked by a light. Several barren islets lie in the harbor within Nose Point and another islet lies in the center. These dangers are marked by lights and buoys. A ferry landing is situated on the SW shore of the inlet.

Anchorage can be taken within the inlet, in 17 to 18m, mud, between the outer islets and the islet lying in the center.

Nose Point (48°51'N., 123°25'W.), the W entrance point of Trincomali Channel, is narrow, rocky, and fronted by a shoal spit.

Peile Point (48°51'N., 123°24'W.), the E entrance point, is sloping and free of off-lying dangers.

Selby Cove (48°50'N., 123°24'W.) and several other shallow inlets indent the NW coast of Prevost Island, opposite Nose Point. They afford sheltered anchorage.

James Bay (48°51'N., 123°24'W.), the northernmost inlet, has a depth of 7m and affords sheltered anchorage from S winds.

Transit of Captain Passage is best accomplished from the S by passing midway between the Channel Islands and the Acland Islands. Vessels should keep at least 0.1 mile E of Horda Shoal and pass midway between Selby Point and Nose Point.

4.26 Ganges Harbor (48°51'N., 123°29'W.) (World Port Index No. 18600) is an agricultural center. A public wharf is situated on the NE side of the small peninsula near the head of the harbor. It is 41m long and has depths of 2.8 to 4.7m.

The harbor is approached from Swanson Channel by passing on either side of the Channel Islands and Batt Rock. It is entered between a point located 3.3 miles NW of Yeo Point and the southeasternmost island of the Chain Islands. There are depths of 12m in the harbor entrance, decreasing to 6.5m near the head.

Ganges Shoal (48°50'N., 123°27'W.), unmarked, has a depth of 4m and lies about 0.3 mile SSW of the southeasternmost island of the Chain Islands. The latter island is marked by a light.

The **Chain Islands** (48°50'N., 123°27'W.), a group consisting of several islands and islets, extend to the head of the har-

bor. The fairway leads between these wooded islands and the S shore. Vessels with drafts of up to 8.5m can enter the harbor. They should avoid Ganges Shoal and proceed inward, keeping about 0.2 mile off the SW side of the Chain Islands.

Anchorage can be taken, in a depth of 12m, mud, about 0.3 mile W of the southeasternmost island of the Chain Islands. Anchorage can also be taken, in a depth of 7.3m, mud, about 0.2 mile ESE of **Grace Islet** (48°51'N., 123°30'W.).

4.27 Trincomali Channel (48°54'N., 123°29'W.) leads from Swanson Channel and Active Pass to Stuart Channel. There is deep water lying throughout the fairway, which has a least width of 0.8 mile, leading through Trincomali Channel.

Hawkins Island (48°50'N., 123°22'W.) lies close off a conspicuous beach of white shells forming the E side of Prevost Island. A rock, 10m high, lies close SE of Hawkins Island and drying rocks extend farther SE. Charles Rocks, above and below-water, extend NW from Hawkins Island. The S entrance of Trincomali Channel, for 1 mile E of Charles Rocks, is clear of dangers.

Phillimore Point (48°52'N., 123°24'W.), an outcropping of Galiano Island, is located on the E side of the channel, 1.5 miles NNE of Peile Point.

Ben Mohr Rock (48°52'N., 123°23'W.) lies near the middle of the fairway, between Phillimore Point and Peile Point. Depths of about 9m lie up to 1 mile SE of this rock. A lighted buoy is moored on the SE side of the rock and a light is shown from Phillimore Point.

Parker Island (48°53'N., 123°25'W.), lying close NW of Phillimore Point, is steep-to and wooded, with sheer cliffs on the W side.

Julia Island (48°52'N., 123°24'W.) lies in the channel leading between Phillimore Point and Parker Island.

Caution.—A sewer pipeline, which may best be seen on the chart, runs the length of Ganges Harbor and discharges 0.5 mile SE of the main harbor light.

A submarine cable area, which may best be seen on the chart, lies across Trincomali Channel from Parker Island to Saltspring Island.

4.28 Montague Harbor (48°53'N., 123°24'W.), sheltered by Parker Island, is entered between Phillimore Point and Julia Island. A mid-channel course leads through a danger-free fairway into this harbor. Small craft can enter the harbor to the NE of Parker Island. The harbor has depths of 11 to 23m. A regular ferry service is maintained with Ganges Harbor.

Anchorage can be taken, in 11m, mud, in the middle of the inner part of the harbor. Anchorage can also be taken, in a depth of 18m, mud, about 0.3 mile N of Phillimore Point.

Caution.—Overhead power cables, with a vertical clearance of 38m, span both the N and S entrances to Montague Harbor.

4.29 Sphinx Island (48°54'N., 123°26'W.) is the southeasternmost island of a chain consisting of islands, islets, and rocks that extends about 1.5 miles NW to **Ballingall Islets** (48°54'N., 123°28'W.).

Walker Rock (48°56'N., 123°30'W.), lying 1.5 miles NW of the Ballingall Islets, is an extensive above and below-water ledge. It is marked by a light at the SE end.

Govethenor Rock (48°55'N., 123°30'W.), with two heads,

has depths of less than 2m and lies in the middle of Trincomali Channel, about 1.3 miles E of Fernwood Point. This rock, usually indicated by kelp, is marked by a lighted buoy.

Atkins Reef (48°53'N., 123°28'W.), above and below-water, parallels the shore for about 0.5 mile. It extends from a position located 3 miles NW of Nose Point and its highest part is marked by a beacon. A detached, partly drying ledge extends SE of the beacon. The shore in the vicinity of the reef is formed of high, wooded cliffs.

Mount Parke (48°50'N., 123°18'W.), bearing 115°, in line with the SE end of Galiano Island, leads about 0.5 mile NE of Atkins Reef.

Walker Hook (48°54'N., 123°30'W.), a narrow and wooded elbow, is connected to the shore by a sandy isthmus. Several below-water rocky heads, lie close ESE of this elbow.

Entering Trincomali Channel from Swanson Channel, the fairway leads between Enterprise Reef, Ben Mohr Rock, and Walker Rock, on the N side, and Portlock Point, Hawkins Island, Charles Rocks, Atkins Reef, and Governor Rock, on the S side.

A steep-to detached rock, with a least depth of 4.9m, lies about 0.3 mile NE of Victoria Rock.

Between Wallace Island, the Secretary Islands, and Galiano Island, the channel is deep, about 1 mile wide, and clear of dangers.

Retreat Cove (48°57'N., 123°30'W.), indenting an otherwise unbroken coastline, is fronted by a wooded islet which affords shelter to small craft with local knowledge.

Bodega Hill (48°58'N., 123°32'W.), rising above high cliffs, stands 1.5 miles NW of Retreat Cove and is a conspicuous landmark.

A white patch, another landmark on the cliffy coast, is located directly beneath **Quadra Hill** (48°56'N., 123°28'W.). It is conspicuous and shaped like a lug sail.

North Galiano (48°59'N., 123°35'W.), a settlement, stands within a cove. There is a float with a depth of 2.4m alongside in the cove. A weekly freight ferry service runs to Chemainus.

4.30 Reid Island (49°00'N., 123°37'W.), and **Hall Island** (48°59'N., 123°36'W.) lie in the middle of Trincomali Channel, close SW of Porlier Pass. Foul ground fringes the S side of both these islands. A channel, about 0.3 mile wide, leads between the islands and has a depth of 20m.

Rose Islets (49°01'N., 123°39'W.), along with several above and below-water rocks, extend up to 0.8 mile NW of Reid Island.

Clam Bay (48°59'N., 123°39'W.), lying 1 mile SW of Reid Island, is entered between Penelakut Spit and Leech Island, about 0.8 mile SE. This bay is fronted by Centre Reef, which dries and is marked by kelp. Foul ground, extending SE from the reef, is marked by a buoy moored at its extremity. Several above and below-water rocks and shoals lie between Centre Reef and Leech Island. A boat passage connects the head of the bay with Telegraph Harbor at HW. Anchorage can be obtained by small craft, in 11m, mud, S of Rocket Shoal.

Cayetano Point (49°01'N., 123°36'W.), fringed by shoals and foul ground, is the S extremity of Valdes Island. The latter island is wooded and lined with cliffs along its W side. Cardale Point, located 0.5 mile NW of Cayetano Point, is low and fronted by drying sandbanks. The shore between this point and

Shingle Point, 2 miles NNW, is sandy.

Caution.—A submarine cable, which may best be seen on the chart, extends NW across Clam Bay from Penelakut Spit.

4.31 Porlier Pass (Cowichan Gap) (49°01'N., 123°35'W.), which separates Galiano Island from Valdes Island, connects Trincomali Channel with the Strait of Georgia. This passage has a least width of about 0.4 mile, but the navigable channel is constricted. The fairway has a least depth of 8.8m and the tidal currents are strong. The best time to transit this passage is during slack water. Local knowledge is advisable.

Alcala Point (49°00'N., 123°35'W.), at the Trincomali Channel end, is the S entrance point of the pass. Rocky shoals extend to the N of this point.

Romulus Reef (49°01'N., 123°36'W.), formerly with a least depth of 4.3m, has been removed by blasting. Several other shoal patches in this area have also been removed and the entire area now has a least depth of 6.7m.

Black Rock, which dries, lies about 0.2 mile SE of Cayetano Point. This rock is marked by a beacon and foul ground extends to the SE of it.

Anchorage—Six designated anchorage berths, which may best be seen on the chart, lie at the N end of Trincomali Channel, as follows:

Berth	Position	Depth
No. 1	49°01.1'N, 123°37.7'W	40m
No. 2	49°01.4'N, 123°39.9'W	35m
No. 3	49°02.0'N, 123°38.7'W	42m
No. 4	49°02.1'N, 123°41.0'W	40m
No. 5	49°02.7'N, 123°39.7'W	42m
No. 6	49°03.2'N, 123°41.0'W	50m

Caution.—Vessels should not use the channel leading N of Black Rock nor the channel leading between Romulus Reef and Black Rock.

4.32 Virago Point (49°01'N., 123°35'W.), marked by a light, is the outermost spur of a narrow projection. The W side of this projection is formed by cliffs. Above and below-water rocks fringe the N and W sides of the projection. Virago Rock, which dries, lies on rocky, foul ground at the NW side of the fairway leading through Porlier Pass. This rock is marked by a light.

Race Point (49°01'N., 123°35'W.), a finger-like projection, is located 0.3 mile N of Virago Point and marked by a light. The lights on these points, when aligned, lead from the Strait of Georgia into Porlier Pass. Foul ground, on which lies Boscowitz Rock, extends off the sides of Race Point. Lighthouse Bay, entered between these two points, affords shelter to small craft.

Vernaci Point (49°01'N., 123°35'W.), located 0.5 mile NW of Race Point, is fronted by foul ground and rocky shoals which extend up to about 0.3 mile SE. Between the outer coast of Valdes Island and **Shah Point** (49°02'N., 123°36'W.), the shore is fringed by foul ground.

Canoe Islet (49°02'N., 123°35'W.), located 0.3 mile E of Shah Point, lies on foul ground. An above and below-water

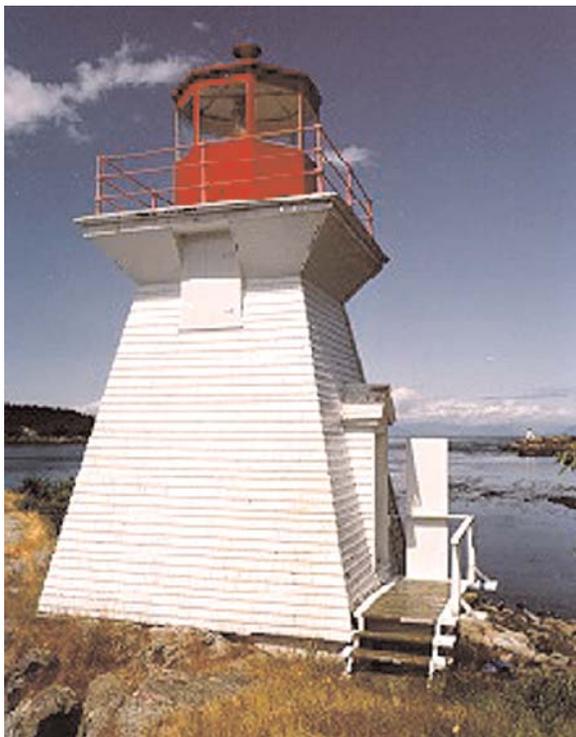


Photo copyright Mike Mitchell
Virago Point Light



Photo copyright Mike Mitchell
Race Point Light

ledge extends SSE of this islet and several detached shoals lie E and W of it.

Dionisio Point (49°01'N., 123°34'W.), located at the SE entrance of Porlier Pass, is a rocky peninsula lying 0.5 mile E of

Race Point. Foul ground, reefs, and rocky ledges extend from this point and another point close SW into the entrance channel.

Caution.—A submarine cable, which may best be seen on the chart, extends NE across Lighthouse Bay from Virago Point.

Dodd Narrows and Southeast Approaches

4.33 Yellow Point (49°02'N., 123°45'W.), located 6 miles SSE of Dodd Narrows, is low and grassy, but the terrain inland rises to a wooded, high summit. Rocky, foul ground extends E from this point. The approach to the narrows leads through Stuart Channel from its junction with Trincomali Channel in the area between Yellow Point and Pylades Island. The coast of Vancouver Island between Yellow Point and the narrows is fringed with rocky shoals, but has no distinguishing features.

The **De Courcy Group** (49°06'N., 123°45'W.), consisting of three islands, forms the E side of Stuart Channel between Pylades Island and Dodd Narrows. This group separates Pylades Channel from Stuart Channel. Foul ground encircles the islands in the group and vessels should not approach them within 0.3 mile.

The depths are ample for ocean-going vessels in the channels leading to Dodd Narrows. Pylades Channel, Stuart Channel, and Ruxton Passage, which connects the two, have fairways that are clear of dangers.

Danger Reefs (49°03'N., 123°43'W.), marked by a light, lie in the middle of the channel leading between Yellow Point and Pylades Island. These reefs consist of several above and below-water ledges and are lie within the 20m curve. A shoal patch, with a depth of 7m, lies off the S end of the reefs; a detached shoal, with a depth of 9.6m, is located off the N extremity of the reefs.

Caution.—Vessels using the passage leading between Miami Islet and Danger Reefs should pass at least 0.5 mile S of the light marking the reefs. A stranded wreck is reported to lie close NW of Miami Islet.

4.34 Boat Harbor (49°06'N., 123°48'W.) indents the coast 4 miles NW of Yellow Point. Drying ledges, marked at their outermost edge by a beacon, extend from the N entrance point of the harbor. A detached shoal, with a depth of 13m, lies about 0.5 mile NE of the beacon. Sheltered anchorage is afforded to small vessels, in a depth of 5m, at the S end of the harbor. Temporary anchorage can be taken, in a depth of 14m, mud, in the entrance of the harbor. Vessels awaiting slack water in Dodd Narrows often anchor in this area.

Round Island (49°07'N., 123°48'W.) lies about 0.5 mile offshore, 1.5 miles N of Flewett Point. Above and below-water rocks encircle this island and a detached shoal patch lies 0.3 mile SE of it.

4.35 Pylades Channel (49°06'N., 123°43'W.), lying between the DeCourcy Group and Valdes Island, connects Trincomali Channel with Gabriola Passage. The shores of the former island group are fronted by rocky shoals lying within the 35m curve. The W shore of Valdes Island consists of wooded bare cliffs fringed by shoals.

Pylades Island (49°04'N., 123°41'W.), the southernmost is-

land of the group, is wooded. Its W end is formed by broken cliffs. Tree Island lies 0.3 mile WSW of this island.

Whaleboat Passage leads between Pylades Island and **Ruxton Island** (49°04'N., 123°42'W.). It is available to small craft. A beacon stands on a drying ledge lying close NW of Ruxton Island. **Ruxton Passage** (49°05'N., 123°43'W.) leads between Ruxton Island and DeCourcy Island, 0.5 mile NW. A mid-channel course should be steered in this passage and vessels should take care to avoid the shoal, with a least depth of 7.6m, lying in the entrance.

DeCourcy Island (49°06'N., 123°45'W.), the largest of the island group, has a cliffy W side. It is fronted by rocky partly-drying shoals extending up to about 0.2 mile NE. Link Island, lying close NW of the island, has a drying shoal fronting its NW end.

4.36 Mudge Island (49°08'N., 123°48'W.), forming the E side of Dodd Narrows, is densely wooded and cliffy along the S side. It is connected to Link Island by a drying shoal. Foul ground extends up to 0.3 mile seaward of the island; several above-water rocks lie at the E end of this area.

False Narrows (49°08'N., 123°47'W.), leading N of Mudge Island, is only a small boat passage.

Gabriola Passage (49°08'N., 123°42'W.) leads E from Pylades Channel to the Strait of Georgia. This passage is constricted and has numerous dangers lying in its E approaches. It is not recommended for navigation. If a transit is necessary, vessels should only use the passage at slack water. Local knowledge is required.

Dibuxante Point (49°08'N., 123°43'W.), a drying rock ledge, lies close off the S entrance point of Gabriola Passage and is marked by a light.

Degnen Bay (49°08'N., 123°43'W.), indenting the N side of the passage, is encumbered with rocks and foul ground, but affords shelter to small craft. A public wharf is situated in the N part of this bay. A float, with a berth 120m long, fronts the wharf and has a depth of 3m alongside.

Cordero Point (49°08'N., 123°42'W.) and Josef Point, close N, are located 0.5 mile inside the W entrance of the passage. The fairway leading between these points has a width of 135m. The passage to the E of the points widens, but rocks and drying reefs fringe the channel on the E and SE sides. Detached, rocky patches lie up to about 1 mile seaward of the NE side of Valdes Island.

4.37 Breakwater Island (49°08'N., 123°41'W.) lies at the N side of the E entrance to Gabriola Passage. Rocky shoals and above and below-water rocks encircle this island. They extend up to about 0.3 mile SE and W as far as Gabriola Island. A light is shown from a structure standing 0.2 mile N of the S extremity of the island.

Rogers Reef, lying about 0.2 mile W of Breakwater Island, dries and is marked near its S end by a light. Small craft can take shelter close E of the light.

Dodd Narrows (49°08'N., 123°49'W.) leads into the SE part of Northumberland Channel and then through the approaches to Nanaimo Harbor and the Strait of Georgia. The least depth in the fairway of the narrows is 12.2m. A rock, which dries 1.8m, lies on the E side of the fairway, close S of Purvis Point.

Purvis Point (49°08'N., 123°49'W.), the W extremity of

Mudge Island, and Joan Point, located close SW, form the N entrance of Dodd Narrows. A light is shown from Joan Point. The fairway in the vicinity of the drying rock lying close S of Purvis Point is only 55m wide.

Caution.—Vessels approaching Gabriola Passage from the E must avoid the rock, awash, lying close SE of the S extremity of Breakwater Island.

On entering Dodd Narrows from the N, an immediate change of course is necessary to remain in the fairway.

Under ordinary circumstances, transit of Dodd Narrows should not be attempted by vessels much larger than tugs or barges. However, vessels of up to 70m in length have passed through without undue difficulty at slack water.

For easily maneuverable power vessels, the narrows presents no transit problems at or near slack water. The passage should not be attempted against the tidal current.

Overhead cables, which may best be seen on the chart, span Dodd Narrows and have a vertical clearance of 37m.

Northumberland Channel

4.38 Northumberland Channel (49°09'N., 123°51'W.) leads NW from Dodd Narrows to Nanaimo Harbor. This channel is deep and relatively free of dangers. Precipitous bare cliffs extend S from the NE entrance point of the channel.

Anchorage.—Percy Anchorage is the name given to the E end of Northumberland Channel to the N of Mudge Island. This anchorage area is a convenient place to await slack water in Dodd Narrows. Anchorage can be taken, in depths of 11 to 16.5m, mud, about 0.8 mile E of Joan Point.

A deep-sea vessel anchorage, designated "NA1" is located N of Harmac in the middle of the channel. A wreck, with a depth of 67m, lies close N of the anchorage and another, with a depth of 105m, lies about 1 mile to the NW.

Caution.—Overhead cables, which may best be seen on the chart, span the mouth of Percy Anchorage and have a vertical clearance of 26m. A submarine cable crosses the channel about 0.7 mile W of Dodd Narrows, and a submarine pipeline extends N into Northumberland Channel from the S shore about 0.2 mile W of Harmac.

4.39 Harmac (49°08'N., 123°51'W.) (World Port Index No. 18525), situated 1.5 miles W of Joan Point, is the site of a large pulp mill.

Depths—Limitations.—Harmac Pulp Operations West Dock is 115m long, with a depth alongside of 10m. Dolphins on each end of the wharf extend the berthing length to 152m.

Harmac East Dock, used for loading packaged lumber, is 137m long, with a depth alongside of 10.4m.

Canadian Occidental Petroleum Wharf is used for the discharging of sodium chloride and the loading of caustic soda. The berth is 70m long and has a depth of 11m alongside.

Duke Point Terminal, situated 1.3 miles SSE of Jack Point, is 170m long and has berthing dolphins standing 50m from each end. It is used for the loading of forest products and has a depth of 13.5m alongside. Vessels up to 45,000 dwt, with a maximum beam of 30m, can be accommodated.

At the Duke Point Terminal, berthing is allowed 24 hours. Berthing is only allowed during daylight hours at the Harmac Pulp Operations West Dock and the Harmac East Dock.

Aspect.—A tall chimney and a conspicuous chemical plant stand 0.5 mile W of the pulp mill.

Caution.—A salt water concrete intake, submerged to a depth of 14m, and a submarine pipeline lie close N of the easternmost dolphin of the Canadian Occidental Petroleum Wharf.

Approaches to Nanaimo Harbor

4.40 Nanaimo Harbor is approached from the Strait of Georgia between Tinson Point and Lagoon Head. Off-lying islands, rocks, and reefs divide the approach into three navigable channels: Fairway Channel, Rainbow Channel, and Horswell Channel. In the outer approaches the channel leads between Gabriola Island, on the E side, and Newcastle Island and Protection Island, on the W. Northumberland Channel forms the S approach leading to the harbor.

Fairway Channel (49°12'N., 123°53'W.) is entered between Tinson Point and Snake Island. This channel is deep and clear of dangers over a navigable width of 0.8 mile.

Rainbow Channel (49°13'N., 123°54'W.) lies between Snake Island and Five Finger Island. This channel is deep and clear of dangers over a width of 1 mile.

Horswell Channel (49°14'N., 123°56'W.) is entered between Hudson Rocks and Vancouver Island, in the vicinity of Lagoon Head. It is deep, with a navigable width of about 0.5 mile. Detached shoals, with depths of 7.6m and 8.6m, lie, respectively, about 0.5 mile E of **Neck Point** (49°14'N., 123°58'W.) and **Angle Point** (49°12'N., 123°55'W.).

Snake Island (49°13'N., 123°53'W.), smooth and grassy, lies 1.8 miles NW of Tinson Point. Foul ground encircles this island and a rocky ledge, with a least depth of 1.5m, lies 0.3 mile SE of it. The passage leading between the island and the ledge is not recommended. Several wrecks, with least known depths of as little as 11.5m, lie in the passage. A light is shown from a structure standing at the N end of the island.

Five Finger Island (49°14'N., 123°55'W.), lying 1.3 miles NW of Snake Island, is barren and rugged. On certain bearings, the five hummocks forming the island resemble the knuckles of a closed hand. Above and below-water rocks lie on foul ground extending N and S of the island and a detached shoal, with a depth of 6.4m, lies about 0.3 mile W of it.

Hudson Rocks (49°14'N., 123°56'W.), a group of five small islets, lie about 0.5 mile SW of Five Finger Island. Partly-drying reefs encircle the islets and lie within the 15m curve. A light is shown from the southwesternmost islet.

4.41 Nanaimo Harbor—East side.—Tinson Point (49°12'N., 123°51'W.) is the E end of a small anvil-shaped peninsula located at the NW side of Gabriola Island. This point lies at the E side of Fairway Channel. Reefs, covered by kelp, extend up to 0.3 mile seaward of the point.

Malaspina Point (49°11'N., 123°52'W.), located 0.8 mile SW of Tinson Point, marks the NE limit of the harbor. Reefs, marked by kelp, extend about 0.2 mile into the channel from the vicinity of this point.

Descanso Bay (49°11'N., 123°52'W.) is entered between the southernmost spur of Malaspina Point and another point located 1 mile S. A partly-drying reef fronts the N shore of this bay. The N and SW parts of the bay are foul, but the center is clear. A small settlement, with a ferry landing, is situated at the head

of the bay. A light is shown from the S entrance point.

Jack Point (49°10'N., 123°54'W.) is located at the S entrance of the harbor and the N entrance of Northumberland Channel. It forms the N end of a long, narrow peninsula. Above and below-water rocks fringe this point. The tidal currents attain considerable velocity at times in the vicinity of the point. A light is shown from a structure standing close NE of the point.

4.42 Nanaimo Harbor—West side.—Lagoon Head (49°14'N., 123°57'W.) is the NW entrance point of Horswell Channel. Above and below-water rocks lie on foul ground fringing the headland. Drying mud flats, on which lie several islets and reefs, extend shoreward and to the NW of this headland.

Hammond Bay (49°14'N., 123°57'W.) indents the coast to the W of and adjacent to Lagoon Head. Several shoal patches, with depths of 7.3 to 9.1m, lie in the approach to the bay, about 0.5 mile N of Lagoon Head.

Anchorage can be taken, in depths of 12 to 16.5m, in the center of the bay, but it is open to the NE and not recommended.

Clarke Rock (49°14'N., 123°56'W.), lying at the W side of Horswell Channel and close ESE of Lagoon Head, is marked by a light. Detached shoals lie in the vicinity of this rock and a dangerous below-water rock lies in the channel close N of it.

Between the bluff, located at the SW end of the channel, and Lagoon Head, shoals fringe the shore and extend up to 0.2 mile seaward. Horswell Rock, detached, lies about 0.3 mile E of this bluff and has a depth of less than 2m.

Departure Bay (49°12'N., 123°57'W.) is entered between Nares Point, the N extremity of Newcastle Island, and Horswell Bluff. The S part of this bay joins Newcastle Island Passage, which leads into the NW part of the harbor. This bay has ample depths, but is seldom used except as an anchorage.

Caution.—Seaplane activity is heavy in Departure Bay. An aeronautical strobe light on Shaft Point, at the N entrance to Newcastle Island Passage, is activated by the seaplane operator to alert mariners of an aircraft taking off or landing.

4.43 Jesse Island (49°12'N., 123°57'W.), with the Brandon Islands lying 0.3 mile W of it, fills the N part of Departure Bay. Drying rocks, below-water ledges, and foul ground encircle all these islands. A beacon marks a drying rock lying at the W end of the Brandon Islands. A light is shown from the E end of Jesse Island.

Pimbury Point (49°12'N., 123°57'W.) is prominent and located at the W side of the S entrance to Departure Bay. Several conspicuous oil tanks stand near the point; an oil pier, which is 49m long and has a least depth of 3m alongside, extends from the shore close to them. A ferry landing is situated 0.3 mile W of the point. A ferry service is maintained with Horseshoe Bay (Howe Sound).

Shaft Point, located at the E side of the S entrance to the bay, lies close NE of Pimbury Point. A lighted buoy marks the outer edge of the foul ground that extends up to about 0.2 mile NW of the point.

Newcastle Island (49°11'N., 123°56'W.), partly fronting Vancouver Island and Departure Bay, is separated from the former by Newcastle Island Passage. Most of the island is fringed



Photo copyright Mike Mitchell

Gallows Point Light

by foul ground and drying flats front its E side. These flats extend as far as Protection Island, lying 0.1 mile SE. The latter island is also fringed by foul ground, reefs, and drying mud flats. These dangers lie within the 5m curve and extend up to about 0.2 mile offshore.

Gallows Point (49°10'N., 123°55'W.), marked by a light close S, is the S extremity of Protection Island. It is also the N entrance point of Nanaimo Harbor. Shoals lie up to about 0.1 mile S of the point and extend into the entrance channel. A buoy is moored within these shoals, at the outer edge of the drying flats.

Newcastle Island Passage (49°11'N., 123°57'W.), the NW part of Nanaimo Harbor, leads into Departure Bay. It is narrow, shallow, and suitable only for small vessels with local knowledge. Drying reefs and mud flats extend into the S entrance of this passage.

Oregon Rock (49°11'N., 123°56'W.), which dries, lies on the W side of the fairway and Passage Rock lies close N of it. A pile dolphin stands close E of the latter rock.

Caution.—A submarine sewer pipeline, which may best be seen on the chart, extends NE from Hammond Bay.

Several submarine cables and submarine pipelines, which may best be seen on the chart, lie across Newcastle Island Passage.

Nanaimo (49°10'N., 123°56'W.)

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4.44 Nanaimo lies on the W side of the Strait of Georgia, about 36 miles W of Vancouver. Nanaimo Harbor fronts the city center and is sheltered and easily accessible. The principal wharves and piers line the shore of Vancouver Island to the SSW of Protection Island. Several other berths front the W side of Newcastle Island Passage.

Nanaimo Home Page

<http://www.npa.ca>

Winds—Currents.—Calm weather prevails in port. The winds mostly blow from the SE and W.

Nanaimo—Berth Information						
Berth	Length	Depth	Maximum Vessel			Remarks
			LOA	Beam	Size	
BC Ferries Nanaimo Ferry Terminal						
West Pier	166m	—	160m	27.8m	2,366 dwt	Freight, ro-ro, and passengers. Berthing length of 166m (including dolphins).

Nanaimo—Berth Information						
Berth	Length	Depth	Maximum Vessel			Remarks
			LOA	Beam	Size	
Central	26m	—	160m	27.8m	2,366 dwt	Freight, ro-ro, and passengers. Berthing length of 166m (including dolphins).
East Pier	—	—	160m	27.8m	2,350 dwt	Freight, ro-ro, and passengers. Berthing length of 166m (including dolphins).
Nanaimo Assembly Wharf						
A	183m	10.1m	—	—	—	Lumber, pulp, and paper.
B	183m	12.4m	—	—	—	Lumber, pulp, and paper.
C	183m	11.7m	—	—	—	Lumber, pulp, and paper.
Nanaimo Cruise Terminal						
P1 (NW side)	107m	—	320m	27.0m	4,050 dwt	Cruise vessels. Berthing length of 396m (including dolphins).
P2 (SE side)	107m	—	—	—	—	Cruise vessels. Berthing length of 396m (including dolphins).
Ocean Cement						
Ro-ro berth	—	—	—	—	—	Breakbulk, cement, and project material. Ramp of 5.5m.
DP World (Duke Point)						
DP World Quay	170m	13.5m	213.5m	32.2m	55,770 dwt	Containers. Berthing length of 282m (including dolphins).
Harmac (Duke Point)						
No. 1	115m	10.0m	—	—	—	Lumber and pulp products.
No. 2	137m	10.4m	—	—	—	Lumber. Berthing length of 263m (including dolphins).
BC Ferries Duke Point Ferry Terminal						
Ferry Berth	140m	—	160m	27.8m	2,350 dwt	Vehicles and passengers. Berthing length of 140m (including dolphins). Ramp of 8.0m.
Esso Fuel Distribution Terminal						
Esso Pier	50m	—	—	—	—	Fuel barges.

Tides—Currents.—The tides rise about 2.9m at springs and 0.9m at neaps. The tidal currents average 1 to 3 knots and follow the directions of the channels. In Newcastle Island Passage, the currents are weak.

Depths—Limitations.—Nanaimo Harbor is approached from E of Protection Island passing through McKay Channel. McKay Channel has a navigable width of 0.15 mile at the narrowest point of approach. Newcastle Island Passage is reached by proceeding through Nanaimo Harbor but there are only facilities for small craft and shipyard construction vessels N of McKay Channel. The approaches are deep and the inner harbor has general depths of 7.3 to 12.8m. The controlling depth at the harbor entrance is 13m.

The drying mud flat lying in the entrance and extending to the inner harbor is marked by lights at its N edge. An unmarked shoal patch, with a least depth of 1.8m, lies about 0.2

mile WNW of Assembly Wharf. Beacon Rock and Carpenter Rock lie close together to the N of the CPR Wharf. The former rock is marked by a beacon; the latter rock is marked by a buoy. Satellite Reef and Three-Fathom Patches lie about 0.5 mile WNW of Gallows Point. The former danger dries and is marked by a buoy. The latter danger is swept to a least depth of 5.2m. Middle Bank, lying close S of Three-Fathom Patches, has a least depth of 7m.

Bate Point, located at the S extremity of Newcastle Island, is flat and grassy. It is fronted by a drying reef marked close S by a buoy. Mark Bay is entered between this point and Good Point, 0.5 mile E. Reefs and mud flats front the shores of the bay. A pier, 76m long, extends from the E side of the bay and has depths of 5.5 to 6.7m alongside.

A new cruise ship terminal has been constructed (2011) close E of the wharf with Berth B and Berth C of the Nanaimo



Nanaimo Harbor

Assembly Wharf. The terminal is a floating cruise dock assembly and is 396m in length including a concrete pontoon that is 100m long and connected to the assembly wharf by a series of transfer bridges and gangways. For further berthing information refer to the table titled **Nanaimo—Berthing Information**.

Aspect.—Conspicuous buildings in the vicinity of the harbor include the old blockhouse, an octagonal tower with a black roof; the post office, a large gray stone building with a flagstaff; and a hotel.

Buoys and beacons mark the various dangers lying in the approaches and the harbor.

Two lights, in line bearing 254°, are shown from structures standing at the SW side of the harbor. This range indicates the fairway leading through Meakin Channel to the CPR. Wharf. A lighted range is also shown from two piers on the SW side of the S entrance to Newcastle Island Passage. In line bearing 310°, these range lights indicate the fairway leading through the S entrance in a least depth of 6.1m.

Pilotage.—Pilotage is compulsory for vessels over 350 gross tons and is provided by the Pacific Pilotage Authority Canada (PPA). Pilots may be contacted by VHF and board off William Head, Victoria. For details on reporting procedures and other regulations besides VTS procedures, refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Pilots board, as follows:

- a. 48°21'54"N, 123°23'04"W. (off William Head, Victoria)

- b. 49°12'24"N, 123°52'20"W. (northbound exchange)
- c. 49°12'47"N, 123°54'13"W. (southbound exchange)

There is a speed limit of 5 knots within the harbor.

Contact Information.—The port can be contacted, as follows:

1. Call sign: VBJ40
2. VHF: VHF channels 16 and 87
3. Telephone: 1-604-754-7701

The Port Authority can be contacted, as follows:

1. Telephone: 1-250-753-4146
2. Facsimile: 1-250-753-4899
3. E-mail: info@npa.ca

Regulations.—Nanaimo Harbor lies within Sector 1 of the Victoria Vessel Traffic Service (VTS) System, which is administered by Victoria Traffic. For details concerning reporting procedures, refer to paragraph 1.1.

Berthing is available at any time for vessels proceeding to the Nanaimo Assembly Wharf or the Duke Point Industrial Site, but only available during daylight hours at the Harmac Wharf.

Anchorage.—Seven designated anchorage areas are located E of McKay Channel, Protection Island, and Newcastle Island, numbered in order from S to N. These areas are suitable for vessels up to 300m in length, have depths of 40 to 80m, mud, and can be best seen on the chart. All deep-sea anchorages are assigned by the harbormaster. The center positions of these anchorages are shown in the table below and best seen on the



Nanaimo Cruise Terminal

chart.

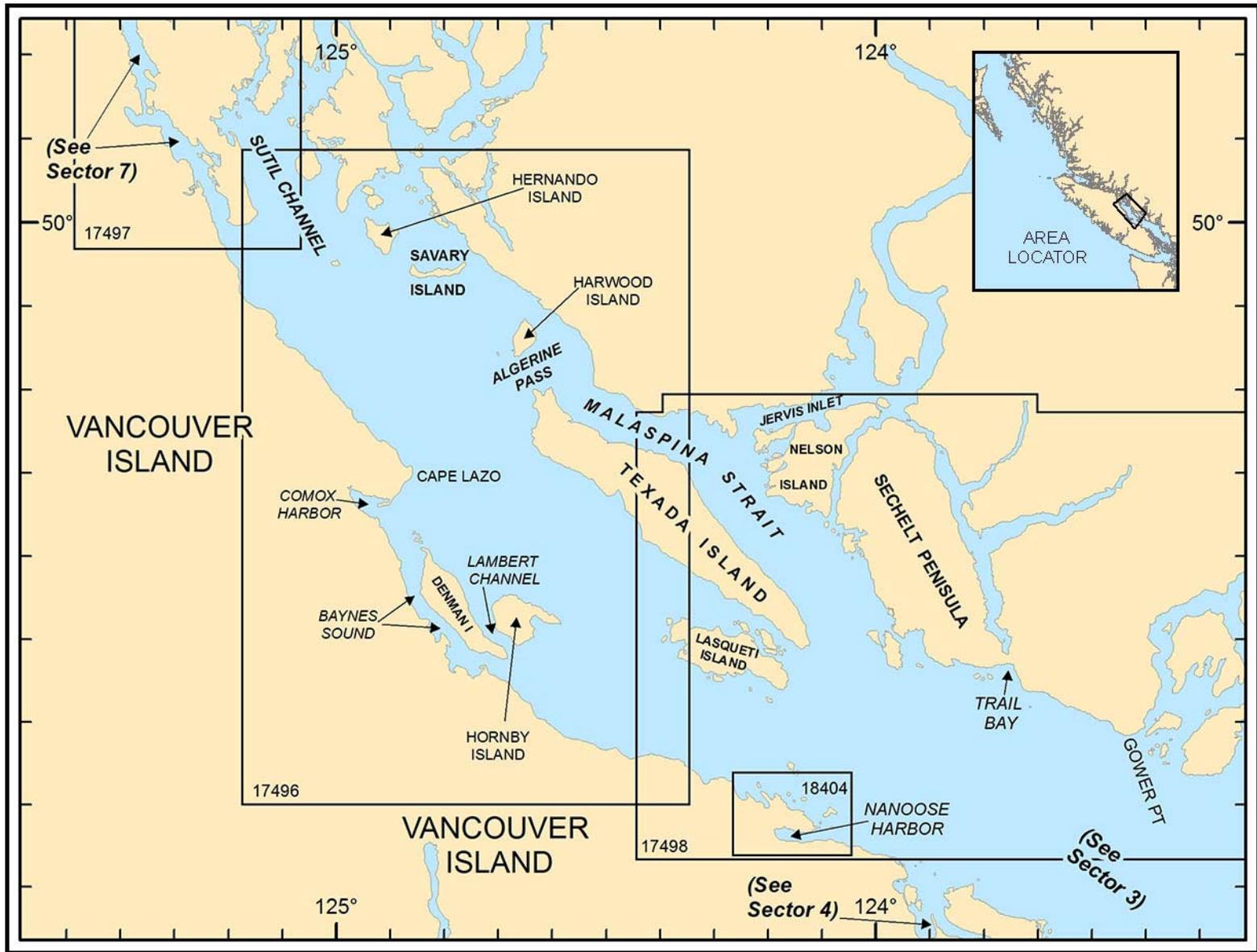
Anchoring is no longer permitted in Mark Bay N of the seaplane basin but mooring buoys are located centered around position 49°10'48"N, 123°55'53"W.

Caution.—When approaching Nanaimo Harbor from the

SE, vessels should keep at least 1 mile off Gabriola Reefs.

Seaplane activity is heavy in the harbor W of Protection Island. An aeronautical strobe light, on the central breakwater at the entrance to Commercial Inlet, is activated by the seaplane operator to alert mariners of an aircraft taking off or landing.

Nanaimo Designated Anchorage Areas			
Area	Position	Depth	Swing Radius
NA-1	49°08'45.6"N, 123°50'52.8"W	55m	225m
NA-2	49°10'26.4"N, 123°54'04.8"W	50m	300m
NA-3	49°11'00'.0"N, 123°53'58.8"W	45m	230m
NA-4	49°11'34.2"N, 123°54'05.4"W	80m	300m
NA-5	49°12'05.4"N, 123°54'26.4"W	60m	230m
NA-6	49°12'19.2"N, 123°55'16.2"W	35m	200m
G	49°12'12.0"N, 123°54'42.0"W	40m	460m



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 5 — CHART INFORMATION

SECTOR 5

THE STRAIT OF GEORGIA—CENTRAL PART AND HEAD

Plan.—The S and N sides of the central part of the Strait of Georgia are first described. Then follows descriptions of Lambert Channel, Baynes Sound, and Malaspina Strait as far as Jervis Inlet. The sector concludes with the description of the S and the N sides of the head of the strait.

General Remarks

5.1 To the NW of a line extending between Neck Point and Gower Point, the Strait of Georgia narrows gradually and is encumbered on its N side by Lasqueti Island and Texada Island. The main channel leading to Discovery Passage passes SW of these islands and several other islands lying at the head of the strait. The inner channels are mostly used by low-powered vessels and vessels towing in order to avoid strong tidal currents and heavy weather.

Sabine Channel leads between Lasqueti Island and Texada Island; Malaspina Strait leads between Texada Island and the mainland to the NE. Welcome Passage, passing E of the Thormanby Islands, is an alternate entrance leading into Malaspina Strait.

Tides—Currents.—In Manson Passage and Baker Passage, the tidal current at times reaches a velocity of 2 knots.

Between Cape Lazo and Cape Mudge, the tidal current, which enters the Strait of Georgia around the SE end of Vancouver Island, meets the corresponding tidal current that flows around the NW end of the island. Usually, the meeting occurs much nearer to Cape Mudge than Cape Lazo, but the place varies with the phase of the moon and the state of the wind. A considerable race forms at the place of meeting.

The tidal currents between Cape Lazo and Shelter Point, located 1.8 miles SE of Willow Point, have an average maximum velocity of 2 knots and at times reach a velocity of 2.5 knots. Off Cape Lazo and Kuhushan Point, located 5.8 miles SE of Willow Point, the flood current sets NW.

The flood tidal currents from Queen Charlotte Strait, Haro Strait, and Rosario Strait meet in the vicinity of Sentry Shoal.

The mean diurnal tidal range in the N part of the Strait of Georgia is about 3.2m. A maximum range of 4.9m may occur at times. The difference in heights of the daily HW is small, but the difference in heights of the successive daily LW is considerable.

In the middle of the Strait of Georgia, the flood tidal current tends to set NW and is influenced by strong N winds, which weaken the flood and may cause the slack after HW to occur earlier than predicted. Strong W winds have less effect, but tend to weaken the ebb and may cause the slack after LW to occur earlier than predicted. The turn of the tidal current from ebb to flood is usually prompt and generally occurs about 3.5 hours after LW. However, the time of turning from flood to ebb is uncertain.

Squamishes are notable in Jervis Inlet. Except in Princess Louisa Inlet and Sechelt Inlet, the tidal currents within Jervis Inlet are weak, irregular, and influenced by the winds.

In the narrow portion of Welcome Passage, the tidal currents attain velocities of 2 to 3 knots. The flood current sets N and the ebb current sets S. At the S end, the tidal currents decrease in strength and seldom exceed velocities of 2 knots.

In the S approaches, the flood current tends to set towards the dangers lying off Lemberg Point. The ebb current generally sets fairly through the channel and its entrance.

The flood tidal current in Lambert Channel sets N and the ebb current sets S. Both of these currents usually follow the trend of the passage.

The tidal currents in the entrance to Baynes Sound attain velocities of 2 to 3 knots. These rates are considerably reduced within the entrance and decrease as the sound becomes wider.

At its strength, the flood tidal current sets NW through Stevens Passage with an average maximum velocity of 2.2 knots. However, this current attains a velocity of 2.8 knots at times.

The tidal currents in Sabine Channel attain velocities of 2 knots at times. In Malaspina Strait, the currents usually do not exceed a rate of 1 knot.

Regulations.—The waters described in this sector lie within the Victoria Vessel Traffic Service (VTS) System. For further information on reporting requirements, see paragraph 1.1.

Caution.—Scientific moorings, which may be found off the Canadian coast, are acoustic sensors consisting of a concrete anchor and a tethered instrument package floating above the anchor. Instruments in water less than 150m deep are within 5m of the sea bed. Instruments in water more than 150m deep are approximately 150m below the surface.

The Strait of Georgia—South Side

5.2 From Neck Point, located 4.5 miles NNW of Nanaimo, the shore trends WNW for 2.8 miles to the ill-defined Icarus Point. It then extends about 2 miles further WNW to Blunden Point, which is wooded. Neck Point can be easily identified by a conspicuous tower situated near it.

Nanoose Harbor (49°16'N., 124°09'W.) (World Port Index No. 18518) is entered between **Blunden Point** (49°15'N., 124°05'W.) and Wallis Point, 1.3 miles NW. Maude Island lies 0.8 mile N of Blunden Point; a light is shown from its E extremity.

The harbor can be easily identified by Nanoose Hill, 261m high, which rises on its N side. The S shore of the harbor is low and thickly wooded. The N side is bolder and fringed in places with rock cliffs.

The harbor is a naval base and provides alongside berthing for small vessels and seaplanes. A pier, with a depth of 18.7m alongside, is situated at Ranch Point. Mooring buoys lie close W and SW of this pier.

The tides at the harbor rise 4.2 to 4.9m at HWS and about 3.3m and LWN. Anchorage can be taken within the harbor, in a depth of 26m, mud, about 0.2 mile WSW of Ranch Point. Small vessels may anchor closer in, in a depth of 18m. Good shelter is afforded, except from infrequent S winds.



Photo copyright Mike Mitchell

Ballenas Islands Light

Caution.—The N shore and adjacent waters of the harbor lie within an area, the limits of which are shown on the chart, that is under the control of the Department of National Defense. Naval vessels frequently use the harbor and care should be exercised in their vicinity. The shore lying within the area limits is restricted and landing is prohibited without prior permission.

5.3 The **Winchelsea Islands** (49°18'N., 124°05'W.), five in number, lie close together, 1.8 miles NNE of Wallis Point.

Grey Rock, distinctly gray in color, lies about 0.3 mile E of the SE extremity of the Winchelsea Islands and Rudder Rock lies close SE of it. Buoys are moored close NW of Grey Rock and close ESE of Rudder Rock.

This group of islands is a Canadian Armed Forces Base and serves as a torpedo tracking facility. A conspicuous white building, with a red and white dome, and several radio masts are situated on the northernmost island. A privately-maintained light is shown from the SW extremity of the northernmost island.

Caution.—A torpedo range lies close off the Winchelsea Islands.

A submarine cable, which may best be seen on the chart, extends between the Winchelsea Islands and Blunden Point.

5.4 From **Wallis Point** (49°16'N., 124°06'W.), the coast trends 1.5 miles NW to **Nankivell Point** (49°17'N., 124°08'W.), a thickly-wooded promontory. Foul ground extends up to about 0.1 mile from all sides of this promontory.

The coast trends 2.5 miles NW from the promontory to Dorcas Point and then 1 mile W to Cottam Point. This entire stretch of coast is indented by coves which afford anchorage to small craft during offshore winds.

The **Ballenas Islands** (49°21'N., 124°09'W.), two in number, lie close together. The northernmost island, which is marked by a light at its N end, is sparsely wooded. Its summit is formed by a sharp, bare peak on which stands the remains of an old lighthouse. The southernmost island is heavily wooded

at its N end. The islands are fairly steep-to and bold on all seaward sides, except for a rocky patch, with a depth of 7.3m, lying about 0.2 mile SE of the southernmost island.

Ballenas Channel (49°20'N., 124°09'W.) leads between the Ballenas Islands and the islands lying off Dorcas Point. It should not be used without local knowledge.

Caution.—The coast between Wallis Point and Cottam Point is fringed with dangers and fronted by numerous islands and obstructions. In addition, the tidal currents are irregular. Vessels without local knowledge should not attempt to use the passages leading between the islands or the channel lying between them and the mainland shore.

A submarine cable, which may best be seen on the chart, extends across Ballenas Channel, from close W of Dorcas Point to the northernmost of the Ballenas Islands.

5.5 **Lasqueti Island** (49°30'N., 124°16'W.) is fringed by numerous small islands, islets, and reefs. Trematon Mountain, rising near the middle of this island, has a conspicuous turret-shaped summit.

Seal Reef (49°26'N., 124°14'W.), lying about 2.5 miles W of the SE extremity of Lasqueti Island, is marked by a beacon, which is equipped with a radar reflector. A rock, awash, lies about 0.3 mile N of the reef and is marked by kelp. The passage leading between this rock and an area of foul ground, which extends up to 0.3 mile seaward from the shore of the island, is not recommended.

Sangster Island, lying 1.5 miles SE of Seal Reef, has reefs extending seaward from its NW and SE extremities. A light is shown from a white cylindrical tower with a red band on top, 16m high, standing at the SE end of the island.

5.6 **False Bay** (49°29'N., 124°21'W.), lying at the S side of the NW end of Lasqueti Island, is entered between Heath Islet and Olsen Island, 0.8 mile NNW. Heath Islet is marked by a beacon.

Lasqueti (49°29'N., 124°21'W.), a settlement, is situated on



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Sisters Islets Light

the E side of False Bay. A pier, with a depth of 5.4m alongside, is situated on the N side of the bay. Jeffrey Rock, with a depth of less than 2m, lies on the N side of the entrance to the bay.

Prose Point (49°29'N., 124°22'W.), located on the S side of the bay, is marked by a light.

Stevens Passage (49°30'N., 124°25'W.), a deep channel, lies close W of False Bay and leads between the Sisters Islets and the Finnerty Islands. Vessels using this passage should keep at least 0.3 mile from the Finnerty Islands. A light is shown from the easternmost islet of the Sisters Islets.

French Creek (49°21'N., 124°22'W.) is located on the S side of the Strait of Georgia, 8 miles W of the Ballenas Islands. This creek enters the strait in the vicinity of a small boat basin, which is protected by two rock breakwaters. A narrow channel, with a dredged depth of 3m, leads to the boat basin.

Caution.—A submarine cable, which may best be seen on the chart, extends across the Strait of Georgia from Qualicum Beach, located 2.5 miles W of French Creek, to False Bay.

5.7 Qualicum Bay (49°25'N., 124°38'W.), lying 11 miles WNW of French Creek, affords fair shelter. Vessels can anchor, in depths of 14 to 18m, good holding ground, about 0.8 mile offshore. The bay is only partly sheltered from NNW winds. It is exposed to the NNE, but strong winds from that direction seldom occur. Winds from the E often send in a considerable sea.

On the N side of the bay, a light is shown from a cable landing site; several conspicuous hydroelectric towers stand near to the shore, close S of it.

A mooring buoy is situated close offshore, 1.3 miles ESE of the mouth of the Qualicum River.

The town of Bowser, located 2.5 miles NW of Qualicum Bay, has a prominent microwave tower marked by red air obstruction lights situated on a hill W of the town, A large marine

farm has been established approximately 0.75 mile offshore from the town of Bowser.

Lambert Channel and Baynes Sound are entered about 4.5 miles NW of the bay.

Flora Islet, marked by light, lies close E of the E extremity of Hornby Island, 7 miles NNE of Qualicum Bay. The main channel leading through the Strait of Georgia passes between this islet and Sisters Islets Light, about 6 miles ESE.

Cape Lazo (49°42'N., 124°52'W.), located 16 miles NW of Flora Islet, is a prominent headland with a flat summit. The seaward sides of this cape are faced with yellow clay. From the SE, the headland appears to be an island until vessels are N of Hornby Island, when it can be identified as part of the shore. Drying rock ledges surround the cape and are marked by a buoy, which is moored about 1 mile E of it.

A microwave tower, 42m high, and a prominent radio tower stand close S of the cape.

An airport lies about 1 mile NW of the cape. An aeronautical lighted beacon is situated in the vicinity of the airport and a conspicuous radar dome stands close N of it.

Caution.—A submarine cable area, the limits of which are shown on the chart, extends NE across the Strait of Georgia, from Qualicum Bay to Texada Island.

A submarine pipeline extends about 1.5 miles seaward from a point located close S of Cape Lazo.

The Strait of Georgia—North Side

5.8 The White Islets (49°25'N., 123°43'W.), consisting of two bare rocks, are 4.6m high and lie about 1 mile offshore, 7.3 miles WNW of Gower Point. Sechelt Light is shown from a structure standing on the westernmost islet.

Trail Bay (49°28'N., 123°45'W.), lying 3.5 miles NNW of the White Islets, provides shelter. Vessels can anchor, in a

depth of 27m, abreast a bluff on the NE side of the bay.

Sechelt, a settlement, stands on the N shore of the bay and has a conspicuous chapel. A light is shown from the head of a breakwater which extends from the E side of the bay. The Trail Islands lie on the W side of the bay; small craft can obtain anchorage close N of them.

Welcome Passage (49°30'N., 123°57'W.), lying 7 miles WNW of Trail Bay, is a deep channel. It separates the **Thormanby Islands** (49°29'N., 123°59'W.) from the mainland to the E. On certain bearings, the Thormanby Islands do not stand out from the mainland. South Thormanby Island rises to a bare rocky summit in its N part. North Thormanby Island is flat and heavily wooded. Its N side consists of a conspicuous cliff which has a bank of boulders at the foot. A light is shown from the W extremity of the northernmost island.

The S entrance to the passage lies between Reception Point, on the mainland, and Dennis Head, the SE extremity of South Thormanby Island. A light is shown from Reception Point. Pirate Rock, marked by a beacon, lies about 0.3 mile SE of Dennis Head. Merry Island lies in the center of the S entrance and a light is shown from its SE end. A shoal, with a depth of 9.1m, lies in mid-channel, about 0.8 mile E of this island.



Photos copyright Mike Mitchell

Merry Island Light

The N entrance to the passage lies between Grant Island, located close to the mainland, and Derby Point, the N extremity of South Thormanby Island. A light is shown from a structure standing at the W side of Grant Island. The narrow channel leading between Grant Island and the mainland is obstructed by rocks. A reef extending about 0.5 mile NNW from Derby Point is marked by a lighted buoy close off its N extremity.

Halfmoon Bay lies on the E side of Welcome Passage and is exposed to the S. A settlement, situated within a cove, stands at the head of the bay. A small craft wharf, with depths of 1 to 3m alongside, fronts the settlement. Anchorage within the bay is not recommended.

5.9 Buccaneer Bay (49°30'N., 123°59'W.), which affords anchorage, is formed between the two Thormanby Islands. It is entered between Derby Point, the NW extremity of South Thormanby Island, and Oaks Point, 0.5 mile W. The bay extends over 1 mile SSE to its head at Gill Beach. Oaks Point is low and grassy.

Vaucroft Beach (49°30'N., 124°00'W.), lying close S of Oaks Point, is a summer resort. It is fronted by a pier and a float, 18m long, which have a depth of 5.5m alongside.

The Surrey Islands, four in number, lie closely grouped about 0.2 mile off the NE shore of Buccaneer Bay. These islands are wooded, 4 to 6m high, and are steep-to on their W sides.

Buccaneer Bay provides good anchorage except during N winds. Anchorage can be taken, in a depth of 31m, sand, about 0.8 mile SSW of Derby Point.

Caution.—Care should be taken when entering Buccaneer Bay because of Tattenham Ledge and the many other dangers lying off the N side of North Thormanby Island.

A local magnetic disturbance has been reported within Welcome Passage.

Lambert Channel and Baynes Sound

5.10 Lambert Channel (49°30'N., 124°43'W.), lying between Hornby Island and Denman Island, is a good navigable passage. Vessels should steer mid-channel courses through it. The S entrance lies between Norman Point, the S extremity of Hornby Island, and Chrome Island, located close S of the S extremity of Denman Island. Norris Rocks lie about 0.8 mile SE of Norman Point.

A breakwater with a light at its end, has been reported (2004) to stand about 0.6 mile NW of Norman Point.

Chrome Island is bare and yellow in color. Several conspicuous white buildings, with red roofs, stand on this island.

Denman Island (49°32'N., 124°48'W.) is wooded; parts of its coast are cliffy. A ridge, about 160m high, runs the length of this island.

Hornby Island (49°31'N., 124°40'W.) rises precipitously in terraces at its W side to the summit of Mount Geoffrey. The E side of the island slopes more gently.

Tribune Bay (49°31'N., 124°37'W.) indents the SE side of Hornby Island. It provides good anchorage, in a depth of 14.6m, sand, and is sheltered from all but SE winds.

Caution.—A ferry crosses Lambert Channel between the settlements at Gravelly Bay and Hornby Island.

Several submarine cables, which may best be seen on the chart, extend across Lambert Channel, between Hornby Island and Denman Island.

5.11 Baynes Sound (49°30'N., 124°50'W.), accessible to deep-draft vessels, lies between Denman Island and Vancouver Island and is entered from the S. The N entrance, over Comox Bar, is limited to light-draft vessels. Union Bay, a coal and lumber port, lies on the W side of the sound; Comox Harbor, a protected anchorage, lies at the head.

The sound has a depth of 12.8m lying in its S entrance, but otherwise, it has general fairway depths of 18 to 68m. Comox Bar, at the N entrance, has a least depth of 2.4m on the range.

Range lights, which aid in the transit of the sound, are shown



Photos copyright Mike Mitchell

Chrome Island Light

from structures standing on Chrome Island and are only visible on their alignment within the sound.

Repulse Point, located 2 miles WNW of Chrome Island, is formed by a red earth cliff, 9m high. A steep-to reef, marked on its SW side by a lighted buoy, extends up to about 0.3 mile S from the point.

The channel to the S of Chrome Island and Repulse Point is defined by its dark-colored water, which contrasts with the lighter-colored water over the shoals on either side.

Denman Island Landing is located 4.8 miles NW of Repulse Point. There is a small wharf, 34m long, with a depth of 5.5m alongside, and a small boat harbor. A ferry crosses the sound and runs between Denman Island and the mainland. Lights are shown from the ferry landing and from a reef lying about 0.3 mile NW of it.

Denman Point, located 1.5 miles NNW of Denman Island Landing, is a low projection. A ledge, marked on its W extremity by a buoy, extends up to about 0.2 mile NW from this point. Good anchorage is afforded to the N of the ledge. A preferred berth lies about 0.3 mile offshore, 0.4 mile NNW of the point.

Caution.—An submarine pipeline intake extends between position 49°38'35"N, 124°55'24"W and position 49°38'44"N, 124°54'57"W.

A rock which covers and uncovers to a height of 1m lies close SE of Chrome Island at position 49°28'16"N, 124°41'01"W. A wreck, with depth 36m, lies 0.7 mile SSE of Chrome Island.

A wreck, with a depth of 25m, lies 0.7 mile SE of Union Point.

A marine farm lying SE of Baynes Sound is bounded by lines joining the following positions:

- a. 49°27'01"N, 124°39'54"W.
- b. 49°27'11"N, 124°39'35"W.
- c. 49°26'08"N, 124°38'16"W.

- d. 49°25'58"N, 124°38'36"W.

5.12 Henry Bay (49°36'N., 124°50'W.), lying 2.8 miles N of Denman Point, provides safe and convenient anchorage, in a depth of 16.5m.

Longbeak Point, the N entrance point of this bay, is the N extremity of Denman Island. A drying spit, on which several small islets and islands lie, extends about 2.5 miles NNW from the point.

Deep Bay, lying 2 miles WSW of Chrome Island, provides anchorage for large vessels, in a depth of 30m, mud. A light is shown from Mapleguard Point, the E entrance point of the bay. Shoals and drying sand flats extend up to about 0.5 mile E and 0.3 mile N of this point. A pier, 137m long, fronts the head of the bay and five public pontoons, used by small craft, are secured to it. Several mooring buoys lie close SE of the head of the pier. A wreck, with a depth of 18m, lies about 0.1 mile WNW of the pontoons.

Between Deep Bay and the S extremity of the Ship Peninsula, 2 miles NW, the shore is indented by a considerable bight and is low and swampy. The bight is encumbered with drying mud flats, which are fronted by detached, drying reefs. The reefs in this vicinity are steep-to and should be given a wide berth.

The **Ship Peninsula** (49°30'N., 124°48'W.) extends 1.3 miles NW from its unnamed S extremity to Ship Point, its N extremity. This peninsula is 61m high and covered with tall dark trees. It is rendered conspicuous by the low and partly-cleared land within it and a housing development standing on the E side.

5.13 Fanny Bay (49°30'N., 124°49'W.) is entered between Ship Point and Base Flat, 1.3 miles NW. Anchorage is afforded in this bay, in depths of 12 to 14.6m, mud. The berth is indicat-



Strait of Georgia — Powell River Ports

ed by Denman Island Light bearing 345° and Ship Point in line, bearing 117° , with the SW extremity of Denman Island.

A government pier, with a least depth of 4.6m at its head, is situated on the W side of the bay, about 0.8 mile WNW of Ship Point. This pier is protected by two floating log breakwaters. A conspicuous tower, 39m high, stands close SW of the pier.

Base Flat lies on the N side of the bay, at the mouth of the Tsbale River. It is encircled by steep-to mud flats which extend up to 0.3 mile seaward. A buoy is moored at the edge of the flats, about 0.4 mile N of the river mouth.

Buckley Bay, a small bay, lies on the NW side of Base Flat. A ferry landing and a pier are situated in the bay on the NW edge of the mud flat.

Caution.—When entering Fanny Bay from the S, vessels should stay at least 0.3 mile from Ship Point.

A submarine cable area, which may best be seen on the chart, extends across Baynes Sound, from Base Flat to Denman Island.

5.14 Union Point ($49^\circ35'N.$, $124^\circ53'W.$), located 4.8 miles NNW of Base Flat, is the N entrance point of Union Bay. A drying shoal of mud and stones extends up to about 0.3 mile E from this point and is marked by a buoy.

Union Bay extends about 0.8 mile S from Union Point and has no defined S entrance point. A log dump and booming ground are situated in this bay.

Anchorage can be taken within Union Bay, in depths of 22 to 26m, close offshore.

From Union Point, the W side of Baynes Sound continues 3.8 miles NNW to **Gartley Point** ($49^\circ39'N.$, $124^\circ55'W.$), the S entrance point of Comox Harbor. This stretch of coast may be safely approached to within 0.5 mile.

5.15 Comox Harbor ($49^\circ40'N.$, $124^\circ55'W.$) (World Port Index No. 18460) occupies the head of Baynes Sound and pro-

vides a protected anchorage area available to all but very large vessels.

Tides—Currents.—The tidal currents in the harbor are complicated by the fresh water from the Courtenay River. Fresh surface currents flow in directions varying from those of the salt water underneath. The tidal currents are further complicated by the configuration of the mud banks. The tidal range is about 3.6m.

Depths—Limitations.—A privately-owned oil pier is situated at Royston, 0.8 mile NW of Gartley Point. It has an outer berthing face, 30m long, with depths of 3 to 4.2m alongside. The harbor also has facilities for small craft.

A government pier, about 0.2 mile long, extends from the N shore. It has a berth at the head, 30m long, with a least depth of 8.8m alongside. This pier is for the use of Department of National Defense vessels only.

The approach across Comox Bar is only for light-draft vessels and is restricted by depths of less than 2.5m. The approach to the harbor through Baynes Sound is deep.

Aspect.—The harbor is entered between Gartley Point and Goose Spit, 1 mile N. The former point is low and swampy. The latter spit is formed by a narrow tongue of land extending SW and W from Willemar Bluff. A light is shown from its W extremity.

Comox Bar extends about 1.5 miles NNW from the spit. A lighted range is situated on the W side of Baynes Sound, about 1.5 miles SSE of Gartley Point. This range indicates the recommended track across the bar.

Anchorage.—Large vessels may anchor to the NW of the NW extremity of Goose Spit. A preferred berth, with depths of 22 to 26m, lies with the pier at Comox bearing 017° and the head of the pier on the N side of Goose Spit bearing 106° .

Caution.—The area lying N of Goose Spit is reported to provide poor holding ground and may be fouled by moored lumber rafts.



Comox Harbor—West View Ferry Port

An submarine pipeline intake extends about 600m NE from shore near Gartley Point, with the end marked by two yellow private buoys.

A magnetic disturbance, up to 2°E, is reported to exist in the vicinity of Goose Spit and within the harbor. This disturbance does not appear to extend beyond the limits of the port.

5.16 The Courtenay River (49°40'N., 124°57'W.) discharges through the flats on the W side of Comox Harbor. It is navigable as far as the town of Courtenay, which stands 3 miles above the mouth. Small vessels can ascend the river as far as the town, where a bascule bridge, with a vertical clearance of 2.1m, over a horizontal clearance of 13.7m, spans the channel. A seal barrier fence, the above-water portion of which is painted fluorescent orange, crosses the river downstream from the bridge and impedes navigation.

Several overhead cables, with a minimum vertical clearance of 18m, span the river at the town, close above the bridge.

Texada Island

5.17 Texada Island (49°40'N., 124°20'W.) rises abruptly except at its N end. The shores of this island are steep and bold on all sides.

Kiddie Point (49°48'N., 124°38'W.) is the NW extremity of the island and Favada Point, moderately steep-to, is located 3.8 miles S of it. A bank, with a least depth of 16.5m, lies about 0.5 mile WNW of the latter point.

Texada Mines Limited Wharf is situated 4 miles SE of Favada Point. The mines have been closed down and the wharf is now used by the Ideal Cement Company. The berth is 257m long and has a depth of 13m alongside. Several conspicuous buildings, storage tanks, and a tower stand close inland of the wharf.

Gillies Bay, lying 7 miles SE of Favada Point, can be easily identified by a conspicuous white patch on the N entrance point. At a distance, this patch appears as two distinct white spots. A radio mast, 63m high, also surmounts the N entrance point. Temporary anchorage can be taken, in a depth of 22m, within the N central part of this bay.

Mouat Bay, lying close SE of Gillies Bay, is separated from

it by Harwood Point. A small island lies off the latter point and is connected to it by a drying ledge. Several islands and rocks front the entrance to the bay.

Partington Point, located 10.5 miles SE of Mouat Bay, lies on the E side of Sabine Channel. Texada Island Light is shown from a structure standing on this point.

Mount Davies stands 1.3 miles inland, 5.5 miles NW of Partington Point. This hill is 780m high and has conspicuous hydroelectric towers running from the shore up its W face.

Mount Shepherd, 885m high, stands 1.5 miles E of Partington Point and forms the summit of Texada Island.

Point Upwood (49°30'N., 124°07'W.), the SE extremity of Texada Island, is rugged and precipitous. Stunted pines grow in the crevasses of the bare rock, but the land behind is more thickly wooded. Mount Dick, a very conspicuous hill, rises close within the point. A drying rock, marked by a buoy, lies about 0.2 mile S of the point. A rock, marking the SE entrance to Sabine Channel, is shown from a structure standing 0.5 mile WSW of the point.

The E side of Texada Island is described with Malaspina Strait in paragraph 5.19.

Sabine Channel

5.18 Sabine Channel (49°30'N., 124°12'W.) provides a deep and clear width of 0.5 mile between Texada Island and the islets and dangers lying off Lasqueti Island. The N side of the channel is described with Texada Island above

Bull Passage leads along the N shore of Lasqueti Island and is separated from Sabine Channel by several small islands. It affords good shelter in all weather, but local knowledge is required.

Tucker Bay (49°30'N., 124°16'W.), an anchorage, is entered between several easily identified wooded islets lying closer off the NW side of Jervis Island and West Point, 1 mile W. The latter point is sloping, partly wooded, and somewhat conspicuous. Larson Islet, lying 1 mile SE of West Point, is located near the head of the bay. Foul ground, with an isolated depth of 3.7m lying close S of it, extends up to about 0.1 mile E from this islet.

Tuck Rock, with a depth of less than 2m, lies in mid-channel, between Larson Islet and Wells Point, 0.2 mile W. Foul ground extends S from this rock to the shore.

Anchorage can be taken, in a depth of 30m, within the bay, with West Point bearing 313° and the northwesternmost of the islets lying on the E side of the entrance bearing 048°. With a strong NW wind and a NW tidal current, this anchorage is uncomfortable but safe.

The Fegan Islets lie 0.8 mile NW of the NW extremity of Lasqueti Island. A light, marking the N entrance to the channel, is shown from the northernmost islet.

Malaspina Strait—West Side

5.19 Malaspina Strait is wide and separates Texada Island from the Sechart Peninsula, Nelson Island, and the mainland.

From Point Upwood to Grilse Point, the N extremity of Texada Island, the E side of Texada Island is steep-to and fringed with occasional narrow beaches of shingle or boulders.

Mount Pocahontas (49°42'N., 124°26'W.), the highest peak

in the N part of Texada Island, is conspicuous.

Northeast Point (49°43'N., 124°20'W.), marked by a light, is located 16 miles NW of Point Upwood. Pocahontas Bay, Raven Bay, and Spratt Bay lie 3, 5.5, and 6.3 miles, respectively, WNW of this point. Several buildings, fronted by dolphins, stand at the head of Pocahontas Bay while Raven Bay and Spratt Bay provide facilities for the loading of limestone.

Van Anda Cove (49°46'N., 124°33'W.), lying 2 miles NW of Spratt Bay, is entered between Van Anda Point and Marble Bluff, about 0.3 mile W. A church, with a conspicuous spire, stands close SW of the head of the cove and prominent mine shaft is situated close SW of it.

A rocky spit fronts the NW side of a narrow point located close W of Van Anda Point. This spit is fringed with shoals on its W and NW sides.

A small wharf, in ruins, is situated on the SE side of the cove and several storage tanks stand in its vicinity.

Caution.—A submarine cable area extends across Malaspina Strait in the vicinity of Van Anda Cove.

5.20 Sturt Bay (49°46'N., 124°34'W.), lying close WNW of Van Anda Cove, is entered between Marble Bluff and Hodgson Point, 0.2 mile NW. A beacon stands on Hodgson Point. Grant Bluff, located 0.4 mile SW of Marble Point, is a projection on the S side of the bay. A conspicuous hotel stands close SE of this bluff.

Scott Rock (49°46'N., 124°34'W.), with a least depth of 2.7m, lies close off the N entrance to Sturt Bay. Ursula Rock, 1m high, lies on a reef which fronts the shore, 0.2 mile WSW of Marble Bluff. A stone-filled breakwater extends E from the rock, which is marked by a beacon, to the shore and protects a small boat basin.

Anchorage may be obtained by small vessels, in depths of 26 to 29m, mud and sand, in the middle of the bay, W of Ursula Rock.

5.21 Blubber Bay (49°48'N., 124°37'W.), an indentation, lies at the N end of Texada Island close W of Grilse Point. It is entered between Treat Point and a low, cliffy projection, 0.4 mile W. A small wharf used for explosives is situated on the E side of the bay; another wharf used for limestone is situated in the S part.

Large vessels can anchor off Blubber Bay, in a depth of 37m, sand, about 0.6 mile E of Grilse Point. Small vessels may anchor, in a depth of 31m, mud and sand, in the middle of the bay, about 0.2 mile from the head. These anchorages are protected from all but NW winds, which may be strongly felt.

Caution.—A ferry crosses the strait between Blubber Bay and Westview. Cyril Rock, marked by a light, lies about 0.3 mile N of Grilse Point.

Malaspina Strait—East Side

5.22 The strait is entered at its S end to the W of North Thormanby Island, which has been previously described in paragraph 5.8.

Turnagain Island (49°32'N., 123°58'W.), 83m high, lies close to the mainland, about 2 miles NE of North Thormanby Island. Secret Cove, entered close SE of the island, affords anchorage for small craft, in depths of 13 to 17m, but local

knowledge is required.

Harness Island, 56m high, lies close inshore, about 4 miles NNW of Turnagain Island. The coast between is steep-to.

The Francis Peninsula, 1.5 miles NW of Harness Island, is connected to the Sechelt Peninsula by a bridge and drying flats. A light is shown from Francis Point, the SW extremity of this peninsula. Several small islands and shoal patches front the entrance to the bay, which lies between the SE side of the peninsula and the mainland.

Pender Harbor (49°38'N., 124°04'W.) provides the only completely-sheltered refuge in this area. It is approached between Moore Point, the W extremity of the Francis Peninsula, and Daniel Point, located on the mainland 1.5 miles NNW.

Several islands lie in the approaches to the harbor. Pearson Island, 78m high, is the largest and lies 0.5 mile SW of Daniel Point.

If approaching from the S, vessels should pass in mid-channel between Martin Island and Charles Island and then round the light structure, standing NW of Williams Island, at a prudent distance. Vessels should enter the harbor passing between Henry Point and the N end of Williams Island.

If approaching from Agamemnon Channel, vessels should take care to avoid the foul ground lying on the W side of Daniel Point. Within Henry Point, vessels should keep close to the N shore in order to avoid the shoals extending N from the Skardon Islands.

When past Skardon Islands, vessels may anchor as convenient or enter Welbourn Cove by passing N of Mary Islet and between Griffin Ledge and the shoals fringing the S extremity of the Garden Peninsula.

If approaching from the N, vessels may pass on either side of Nelson Rock, having regard for the detached shoal patches lying ENE and ESE of it. Vessels should then pass to the N of the Hodgson Islands and steer in mid-channel between Pearson Island and Daniel Point, avoiding Nares Rock.

5.23 Temple Rock, lying about 0.8 mile WSW of Pearson Island, has a least depth of 5.3m. Jacob Rock, lying about 0.3 mile W of Pearson Island, has a least depth of 7.7m.

Martin Island, wooded and 59m high, lies 0.3 mile SE of Pearson Island. Nares Rock lies about 0.2 mile N of this island. It dries 0.6m and is marked by a beacon.

The main entrance to the harbor lies between Henry Point, located on the mainland 1 mile E of Pearson Island, and Williams Island, close SSW. A light is shown from a structure standing on a drying reef lying close NW of Williams Island. Although the least depth in the fairway is 8.8m, the entrance to the harbor is encumbered by numerous islets and shoals. Access is not recommended without local knowledge.

Williams Island, 18m high, is grass-covered and has a few bushes. Foul ground fronts the NW side of the island. Between the N end of this foul ground and Henry Point, 0.1 mile NNE, the fairway is reduced to a width of about 115m.

Charles Island, wooded, lies close S of Williams Island, with an area of foul ground, marked at its E side, nearly connecting them. The passage leading between Charles Island and the N coast of the Francis Peninsula is obstructed by an islet and drying reefs and should not be attempted.

The Skardon Islands, four in number, lie on the S side of the channel. The fairway passing N of these islands is 90m wide

and has a depth of 8.3m. The westernmost and largest island, which has a fishing village situated on it, is 12m high and bare. The fairway passing S of the islands has a depth of 6.2m.

The **Garden Peninsula** (49°37'48"N., 124°01'40"W.), 67m high, extends 0.3 mile S from the N shore of the harbor. Hospital Bay lies on the W side of this peninsula and a rock, almost awash, lies near the middle of its entrance and is marked by a beacon.

Welbourn Cove has general depths of 11 to 16.5m and is that part of the harbor lying immediately SE of the Garden Peninsula. A number of marinas and wharves for small craft, with depths of 3 to 8.4m alongside, are situated in the cove.

Anchorage.—Anchorage can be taken, in depths of 16 to 20m, mud, to the W of the Garden Peninsula. Good anchorage can also be taken, in depths of 11 to 14.6m, mud, within Welbourn Cove.

5.24 Nelson Island (49°42'N., 124°07'W.) lies on the E side of the strait at the entrance to Jervis Inlet. This island is mountainous, with peaks up to 706m high in its N part. The S coast of the island is indented by several bays which are unsuitable for anchoring. Vessels should stay at least 1 mile from the shores of this island to ensure clearing the offshore shoals and rocks.

Fearney Point (49°39'N., 124°05'W.), located 1 mile NW of Daniel Point, is the SE extremity of Nelson Island. The E side of this point is formed by bold, white cliffs. The Hodgson Islands lie 0.5 mile S of the point, in the center of the approaches to Agamemnon Channel. This group of islands is fronted by foul ground.

Nelson Rock lies about 0.5 mile offshore, 1 mile W of Fearney Point. It is steep-to and marked by a light. Acland Rock, with a depth of 7.9m, lies about 1.5 miles WNW of Nelson Rock.

5.25 Cape Cockburn (49°40'N., 124°12'W.), the SE extremity of Nelson Island, is marked by a light. This cape is composed of white granite and has a few dwarf pine trees standing on its summit. Several conspicuous cable towers stand in the vicinity of the cape.

Sinclair Bank lies in mid-channel, about 3.3 miles WNW of Cape Cockburn, and has a least depth of 33m.

Hardy Island lies in the entrance to Jervis Inlet, close off the NW coast of Nelson Island. Alexander Point, located 3.3 miles NNW of Cape Cockburn, forms the SW extremity of this island.

Scotch Fir Point (49°45'N., 124°16'W.) is located on the mainland, 2 miles NW of Alexander Point. A thickly-wooded hill, 123m high, stands within the point with another hill, 166m high with a bare summit, rising about 1 mile NNW of it. The valley lying between these hills is swampy.

Neville Rock, with a depth of 7.3m, lies about 0.4 mile SSW of Scotch Fir Point. MacRae Islet, surrounded by foul ground, lies 1 mile WNW of Scotch Fir Point and is 6m high. A rock, with a least depth of 3m, lies about 0.3 mile S of this islet.

5.26 Stillwater Bay (49°46'N., 124°19'W.), entered 1.5 miles NW of MacRae Islet, is almost completely occupied by log booming grounds. A conspicuous hydroelectric power plant is situated on the N shore of the bay; a conspicuous water

tower, 61m high, stands farther inland. A rock, which dries 0.6m, lies about 0.1 mile S of the W end of the power plant.

Stillwater, a settlement, stands at the head of the bay. Small vessels may obtain temporary anchorage, in a depth of 33m, about 0.3 mile SW of the W end of the power plant.

Albion Point (Black Point) (49°46'N., 124°24'W.) is located 5.3 miles WNW of Scotch Fir Point. It terminates in earth cliffs, 9m high. A shoal spit, the inner half of which dries, projects about 0.4 mile SE from this point.

Grief Point (49°48'N., 124°31'W.), located 5.5 miles WNW of Albion Point, is low, grassy, and fronted by a sandy beach. A light is shown from a structure standing on the W extremity of this point. A marina, protected by a rock breakwater, lies 0.3 mile SE of the point.

Myrtle Rocks, formed by a group of small islets, lie about 2 miles ESE of Grief Point and are connected by drying flats to the mouth of a creek.

Caution.—A submarine cable area, the limits of which are shown on the chart, extends across Malaspina Strait in the vicinity of Cape Cockburn.

An overhead cable, with a vertical clearance of 15m, spans Stillwater Bay, close E of the power plant.

Several submarine cables, which may best be seen on the chart, extend across Malaspina Strait, in the vicinity of Grief Point.

Jervis Inlet

5.27 Jervis Inlet (49°45'N., 124°14'W.), which is entered from Malaspina Strait, is 46 miles long and from 1 to 1.5 miles wide in most parts. The main entrance lies between Hardy Island and Scotch Fir Point. Agamemnon Channel forms a secondary entrance and the inlet can also be entered via Telescope Passage, which lies at the E end of Hardy Island.

Jervis Inlet is hemmed in on all sides by rugged mountains which rise up to height of about 2,440m from steep-to shores. Many of the partly-wooded mountain slopes have been laid bare by winter storms or summer avalanches. Almost the entire inlet has depths over 180m with no off-lying dangers.

Thunder Bay, lying 1.5 miles N of Scotch Fir Point, extends about 1 mile NW to a sandy beach at its head. This bay is one of the few places within Jervis Inlet where vessels can anchor.

Saltery Bay, lying 4 miles E of Thunder Bay, has a depth of 14m and provides anchorage for small craft. Ahlstrom Point, located 1.3 miles E of the bay, is marked by a light.

Blind Bay is entered 2.5 miles N of Cape Cockburn, between the NW side of Nelson Island and the SE side of Hardy Island. It affords anchorage to vessels with moderate draft, but local knowledge is required. Several islands and islets lie on both sides of the deep entrance channel.

Telescope Passage separates the islands lying NE of Hardy Island from Nelson Island and connects the head of Blind Bay with Jervis Inlet. This passage is very narrow and suitable only for small craft with local knowledge. The fairway channel has a least depth of 7.2m.

Captain Island (49°47'N., 123°59'W.), wooded and steep-to, lies close off the NE extremity of Nelson Island, from which it is separated by Agnew Passage, a narrow and clear channel.

Caution.—A submarine cable, which may best be seen on

the chart, extends across the entrance to Jervis Inlet, from Scotch Fir Point to Alexander Point.

A ferry crosses the entrance of Jervis Inlet. It runs between Saltery Bay and Earls Cove, at the N end of Agamemnon Channel.

An overhead power cable, with a vertical clearance of 49m, spans Jervis Inlet close S of Ahlstrom Point. The landings are indicated by red and white checkered boards and several orange spheres are attached to the power line.

5.28 Agamemnon Channel (49°40'N., 124°05'W.) forms a secondary entrance into Jervis Inlet. It is entered between Fearney Point, the SE extremity of Nelson Island, and Daniel Point, 1 mile SE. The channel is about 9 miles long and separates Nelson Island from the Sechelt Peninsula. It is about 0.5 mile wide and has depths of 38 to 263m in the fairway. The tidal current attains a velocity of 1 to 2 knots in the S end of the channel. Anchorage is unobtainable.

Agnew Passage, at the N end of Agamemnon Channel, separates Captain Island from Nelson Island. This passage is about 0.3 mile wide, deep, and free of dangers. A light is shown from an islet lying close off Nelson Island, at the SE end of the passage.

Sechelt Inlet commences at the junction of Agamemnon Channel and Jervis Inlet. This inlet leads SSE for about 20 miles between the Sechelt Peninsula and the mainland. It has high and rocky shores, except near the head. Skookumchuck Narrows, comprising the outer 3 miles of the inlet, has an average width of 0.5 mile. The Sutton Islets, three in number, lie 0.8 mile within the entrance of the narrows. These islets lie in mid-channel and safe passage may be made on either side of them.

The upper end of Skookumchuck Narrows is encumbered by numerous islets and rocks and contracts to a width of 0.3 mile. The obstructions, some of which are marked by lights, prevent the free flow of the tides and form the furious and dangerous

Sechelt Rapids (49°44'N., 123°54'W.), whose roar may be heard for several miles. Currents in the rapids may reach 16.5 knots on the flood and 16 knots on the ebb during large tides.

Hotham Sound extends about 6 miles N from Jervis Inlet and is entered close N of Captain Island. This sound is too deep to provide an anchorage and mountains rise steeply from its steep-to shores.

Caution.—Navigation beyond the Sechelt Rapids is generally restricted to small vessels engaged in the logging industry.

Several submarine cables, which may best be seen on the chart, extend across the S entrance of Agamemnon Channel.

Several overhead power cables, with a minimum vertical clearance of 34m, span Agamemnon Channel, about 3 miles and 6 miles N of Fearney Point.

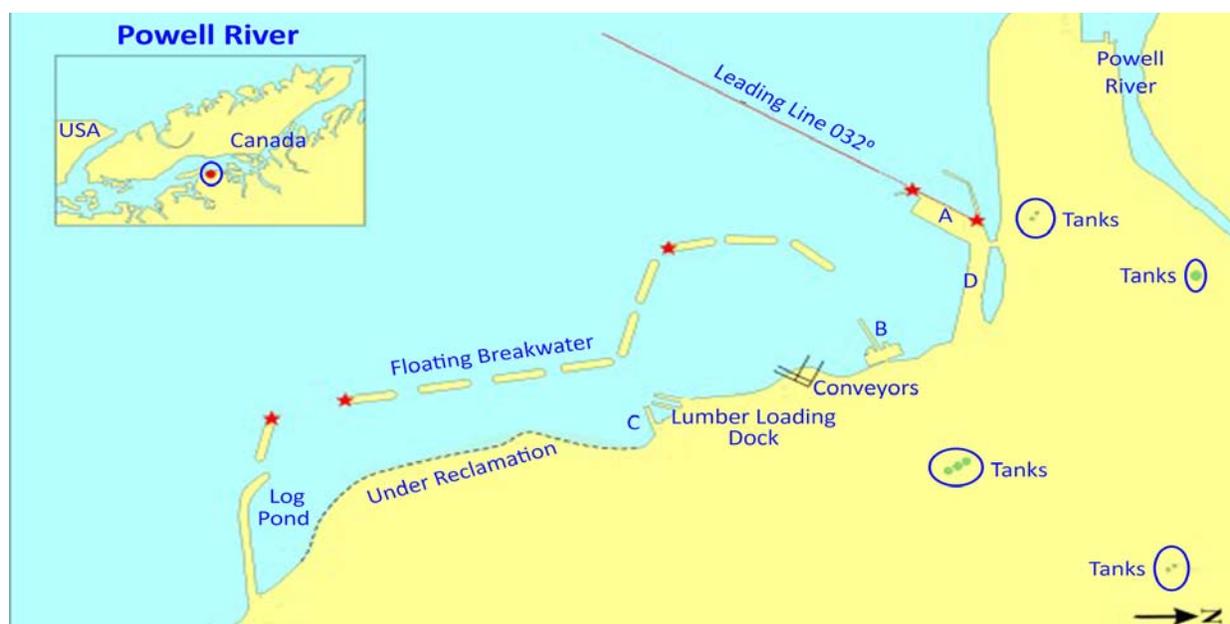
Vessels are advised that several overhead power lines, with various clearances, are found in the vicinity of Agnew Passage, Sechelt Inlet, and Skookumchuck Narrows. They may best be seen on the chart.

5.29 Prince of Wales Reach (49°49'N., 123°56'W.), an extension of Jervis Inlet, is entered above Captain Island. It trends about 6 miles NNE and then about 8 miles NW. The latter portion of the reach narrows to a width of about 0.8 mile.

Vancouver Bay (49°55'N., 123°53'W.), lying on the E side of the reach, is too deep for anchoring. The sides of this bay are formed by precipitous crags. A valley of considerable size extends E from the low head of the bay.

Princess Royal Reach (50°00'N., 124°00'W.), a further extension of Jervis Inlet, trends about 10 miles NE and has a least width of 1 mile.

Deserted Bay (50°05'N., 123°45'W.), lying at the NE end of Princess Royal Reach, is small. A valley extends NE from the mouth of the Deserted River, at the head of the bay. The bay affords indifferent anchorage for small vessels, but is exposed to W and SW winds.



Powell River Docks

Queens Reach is entered abreast the N entrance point of Deserted Bay, about 1.8 miles E of Patrick Point. It extends about 11 miles NW to the head of Jervis Inlet. Mount Victoria rises 2 miles N of the head of the reach. This peak is 2,100m high and prominent.

Hill Rock (50°08'N., 123°50'W.), a pinnacle, lies about 0.4 mile off the W shore of Queens Reach and has a depth of 3.2m.

5.30 Princess Louisa Inlet (50°10'N., 123°50'W.), a deep and narrow arm, is 4 miles long. It is hemmed in by mountains up to 2,440m high. At the head of this inlet, a float is moored close S of a waterfall.

Malibu Rapids, a narrow gorge, connects Princess Louisa Inlet with Queens Reach. At LW, this gorge becomes a rapid and a tidal current, with a velocity of 9 knot at springs, flows through it. A light is shown from a structure standing on an islet lying on the W side of the entrance. A landing jetty is situated 0.2 mile NNW of the light.

The head of Queens Reach terminates in a low and swampy land area. This area is cut by the Skyawka River and its W side is fronted up to 0.2 mile by a nearly steep-to drying flat.

Caution.—The Malibu Rapids should be navigated only by small craft with local knowledge at or near slack water.

The Strait of Georgia—The Head

5.31 Beyond Cape Lazo, on the SW shore, and Grief Point, on the NE shore, the Strait of Georgia narrows to a width of 14 miles and continues about 20 miles to its head in the entrances

of Discovery Passage, Sutil Channel, and Desolation Sound.

The SW shore of the strait extends NW from Cape Lazo to Shelter Point, the SW entrance point of Discovery Passage. Ranges of thickly-wooded hills, 60 to 130m high, rise from this shore and the beaches consist of boulders.

The NE shore of the strait extends NW from Grief Point to Sarah Point, the SE entrance point of Desolation Sound. The port of Powell River lies near the S end of this coastal stretch. The N portion of the shore is backed by the Gwendoline Hills, which rise to a height of 348m.

The fairway leading through the Strait of Georgia, between Cape Lazo and the entrance to Discovery Passage, lies about 1 mile from the shore of Vancouver Island and is deep and clear. A number of offshore islands are located within the strait and lie on the N side of the main fairway.

A ferry landing is situated about 3 miles NW of Cape Lazo. The ferry runs between Vancouver Island and Westview on the mainland. Several conspicuous radio towers stand 1 mile NW of this ferry landing.

The Oyster River flows into the strait about 14 miles NW of Cape Lazo. A drying bank extends about 0.3 mile from the mouth of this river. A marina, entered via a dredged channel, is situated in this vicinity.

Kuhushan Point, located 0.8 mile NNW of the mouth of the Oyster River, is a low, sandy projection. Trees, which in thick weather may be mistaken for the extremity of the point, stand in the vicinity about 0.2 mile inland. Several buildings stand on the point. A light is shown from a structure standing on the point and a boat basin lies close N of it.



Powell River—Catalyst Paper Corporation Berth

Oyster Bay lies between Kuhushan Point and Shelter Point, 4 miles NW and is the site of several resorts. Fair anchorage, except in SE winds, may be taken, in depths of 12 to 16.5m, in the middle of this bay and about 1 mile offshore. Several grounded hulks lie about 1 mile WNW of Kuhushan Point and form a breakwater.

Shelter Point, the N entrance point of Oyster Bay, forms the SW entrance point of Discovery Passage. A reef extends about 0.5 mile seaward from this point and affords considerable protection to the bay.

5.32 Westview (49°50'N., 124°32'W.) (World Port Index No. 18330), a town, stands 1.8 miles N of Grief Point and is fronted by two basins. A public wharf situated between these basins provides 59m of berthage along its W side, 46m along its N side, and 30m along its S end. It has a least depth of 9m alongside the W side. A small boat harbor, sheltered by rock breakwaters, lies close S of the wharf and is used by fishing craft. Another boat harbor, protected by two breakwaters, lies N of the wharf and is operated as a marina.

Ferries run from the town to Texada Island and Vancouver Island.

Vessels may anchor close W of the wharf, except in extremely rough weather.

5.33 Powell River (49°52'N., 124°33'W.) (World Port Index No. 18340), a year-round port, lies 2.5 miles NNW of Westview. It is situated within a bight at the S side of the mouth of the Powell River. This river leads 1 mile upstream to Powell Lake. The lake is 31 miles long and connects with the Strait of Georgia.

The port is the site of one of the largest pulp and paper mills in the world, but also handles grain, coal, general cargo, and serves as a passenger cruise vessel terminal.

Powell River Home Page

<http://www.powellriver.ca>

Tides—Currents.—Close to the northernmost piers at the port, the tidal current always sets SE. In the vicinity of the SW edge of the drying flat extending off the mouth of the river, the tidal set is continuously NW. The maximum tidal range is 5.4m.

Depths—Limitations.—The port is protected by a peninsula to the N and a rock breakwater to the S, with a floating breakwater in place W of the harbor. For details of the berths in Powell River see table titled **Powell River—Berth Information**.

Aspect.—Powell Hill, a prominent bare-topped peak, is 372m high and stands 1.8 miles NNE of the mouth of the river. A large chimney and a steel tower, both very conspicuous, are situated in the vicinity of the paper mill. An prominent encircling breakwater extends close SE of the main piers.

Pilotage.—Pilotage is compulsory for vessels over 350 gross tons and is provided by the Pacific Pilotage Authority Canada (PPA). For details on reporting procedures and pilot boarding areas refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Regulations.—The port authority for Powell River is The MacMillan Bloedel Company Traffic Department. All vessels will need to monitor frequency 2366 kHz before entering the harbor for notification of their berth assignment.

Powell River lies within Sector 4 of the Victoria Vessel Traffic Service (VTS) System. For details concerning reporting procedures, refer to paragraph 1.1. For other regulations covering the Western Canada Traffic Zone, refer to Canada—Regulations and Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Contact Information.—See the table titled **Powell River Port—Contact Information**.

Anchorage.—Anchorage may be obtained SW of the berths but it is exposed to W winds. The area between Westview and Grief Point, 2 miles SW, has numerous mooring buoys and is used as a sheltered anchorage by tugs and their log booms during SE winds.

Powell River—Berth Information

Berth	Berth Length	Depth Alongside	Remarks
Pier A (NW)	157m	9.0m	Closed. Inaccessible to deep-draft vessels.
Quay D	177m	5.8m	Barges. Pulp and paper.
Quay E	110m	—	Breakbulk, general cargo, and pulp and paper.
Rail Transfer	—	—	Dolphin posts 90m apart. Ramp width of 11.0m. Barges.
Public Pier (N)	37m	9.0m	Small cruise vessels and large fishing vessels.
Public Pier (S)	67m	9.0m	Small cruise vessels and large fishing vessels.
Pier Head	13m	9.0m	Small cruise vessels and large fishing vessels.
West View Ferry Pier	112m	—	Ferries, ro-ro, and passenger vessels.
Pier A (SE) CPC	148m	9.0m	Dolphin at SW end extends berthing length to 201m. Pulp, paper, and liquid cargo.

Powell River Port—Contact Information	
Call sign	VGK76
VHF	VHF channel 10
RT Frequency	2366 kHz
Harbormaster	
Telephone	1-604-483-9474
Port Authority	
Telephone	1-604-485-6271
	1-604-483-3722
Facsimile	1-604-483-3164
E-mail	info@cdpr.bc.ca
Web site	http://www.powellriver.ca
Telex	21-044755 MB PVR PRVR

Caution.—An outfall pipeline extends about 0.5 mile SW from a point located on the shore close NW of the main piers.

A gas pipeline and an abandoned submerged cable extend across the Strait of Georgia from the S part of the harbor, as best seen on the chart.

All vessels are notified in advance of their allocated berth by the Catalyst Paper Corporation. Winds from the SE may cause difficulty when berthing and unberthing at the W side of the piers.

5.34 Hurtado Point (49°58'N., 124°45'W.) is bold and cliffy. A rock, 16m high and bare, lies close to the coast, about 1.5 miles SE of this point.

Atrevida Reef, lying about 4.3 miles SE of Hurtado Point, extends up to 0.3 mile from the shore and is marked by a lighted buoy. A prominent building and a wind-powered generator stand near the point, about 1.5 miles NW of the reef.

Lund (49°59'N., 124°46'W.), a settlement, stands 1.3 miles NW of Hurtado Point and is fronted by a wharf used by small craft.

The Copeland Islands, 32 to 87m high, lie close offshore, between 1.5 miles and 4 miles NW of Lund. Thulin Passage, leading between this group of islands and the mainland, is used by small craft.

Major Islet, lying 2 miles NW of Lund, is marked by a light. It is 26m high and formed of bare, white granite rock. A rock, with a depth of less than 2m, lies about 0.3 mile NE of this islet.

The Townley Islands lie 0.8 mile from the mainland, about 2.3 miles NNW of Major Islet. These islands are steep-to; the largest is 35m high.

The Powell Islets, 29m and 38m high, lie 0.5 mile apart, 1 mile NW of the Townley Islands. Shoals extend up to about 0.3 mile N of both of these islets and a rock, with a depth of less than 2m, lies between 0.3 mile and 0.5 mile S of the easternmost islet.

Sarah Point, located 6 miles NW of Lund, is the NW extremity of the Malaspina Peninsula and forms the SE entrance point of Desolation Sound. This point is rounded and rocky. A marina is situated at Bliss Landing, 1.8 miles SE of the point.

Caution.—Submarine cables, which may best be seen on the chart, extend seaward from the vicinity of Lund.

Submarine cables, which may best be seen on the chart, extend NW from the vicinity of Sarah Point.

Offshore Islands and Passages

5.35 Harwood Island (49°51'N., 124°39'W.), centered 3.5 miles NNW of the N end of Texada Island, is flat and thickly wooded. Its E extremity is marked by white cliffs, its S extremity is steep-to, and its N extremity is formed by a low, grassy spit. The shores of the island are fringed with steep-to reefs and drying boulders.

Vivian Island, 17m high, lies 1 mile W of the S end of Harwood Island. It is rocky, treeless, and almost flat.

Algerine Passage, 2.5 miles wide, lies between the S side of Harwood Island and the N end of Texada Island. Rebecca Rock, 2m high and bare, lies in the middle of this passage and is marked by a light.

5.36 Savary Island (49°56'N., 124°49'W.), a summer resort, lies 7.5 miles NW of Harwood Island. Mace Point, the E extremity of the island, is located 1 mile SW of Hurtado Point. The intervening channel is deep and clear. The middle part of the N shore of the island is fringed by a drying, sandy beach which extends up to 0.4 mile seaward. The S side of the island is faced with conspicuous, white sandy cliffs, 15 to 84m high, and backed by grassy patches.

The settlement of Savary Island stands on the N side of the island. It is fronted by a government wharf, 12m long, and a pontoon.

A shoal spit extends about 3 miles SE from the E end of the island. It is covered by kelp and dries in places. The seaward end of this spit is formed by Mystery Reef, a group of boulders that dry 0.6 to 2.4m, and a lighted buoy is moored about 0.5 mile NE of it.

Stradiotti Reef, on which lie numerous drying boulders and rocks, extends up to 1.3 miles S from the W part of the island.

Grant Reefs (49°52'N., 124°47'W.) lie between 2.8 miles and 4 miles S of Savary Island. A lighted buoy is moored close off the S extremity of the E part of these reefs.

Caution.—It is reported that the bottom in the vicinity of Savary Island consists of soft sand and provides little or no holding ground.

Vessels are advised not pass to the N of Grant Reefs without local knowledge.

5.37 Shearwater Passage (49°52'N., 124°43'W.) is bounded on the SE side by Harwood Island and on the NW side by Grant Reefs and Mystery Reef. The fairway in the passage is 2.5 miles wide, deep, and clear. Vessels approaching from the S can safely pass at a distance of 0.3 mile off either side of Vivian Island, which lies on the SE side of this passage.

Hernando Island (49°59'N., 124°55'W.), centered 3 miles NW of the W end of Savary Island, has sandy cliffs on its SW side. This island, 130m high, is surrounded by a drying flat on which lie numerous scattered above-water boulders.

Spilsbury Point, marked by a light, is the NW extremity of the island. It is low, wooded, and sandy.

Stag Bay lies between Spilsbury Point and Hidalgo Point,

1.5 miles E. A conspicuous white boulder, 4.6m high, lies on the shore of this bay, about 1 mile SE of Spilsbury Point. Foul ground extends up to 0.2 mile offshore, close E of this boulder. Hidalgo Point is conspicuous and 27m high. Its summit is surmounted by scattered arbutus trees.

Manson Passage, leading between Savary Island and Hernando Island, is obstructed by numerous drying rocks and a drying spit. It has depths of 0.9 to 2m and can only be used by small craft with local knowledge. Keefer Rock, 2.4m high, lies in the passage, about 1.3 miles E of the S end of Hernando Island.

Mitlenatch Island (49°57'N., 125°00'W.) lies in the middle of the Strait of Georgia, 3.5 miles W of the S end of Hernando Island. It is rocky and has two bare peaks separated by a grassy valley. The southernmost and tallest peak is 53m high. The island is steep-to, except for a shoal spit that extends up to about 0.5 mile seaward from its N extremity.

Montgomery Bank extends 6 miles SE from a position located 1.3 miles S of Mitlenatch Island. Sentry Shoal, with a least depth of 7m, lies on the NW part of this bank, about 2.3 miles S of the E end of the island.

The **Twin Islands** (50°02'N., 124°56'W.), lying 2 miles N of Hernando Island, are joined by a bar of drying sand. The northernmost island rises at its center to a bare summit, 157m high.

The southernmost island is 116m high.

Baker Passage lies between the Twin Islands and the N side of Hernando Island. It is clear, deep, and about 0.8 mile wide at the narrowest part.

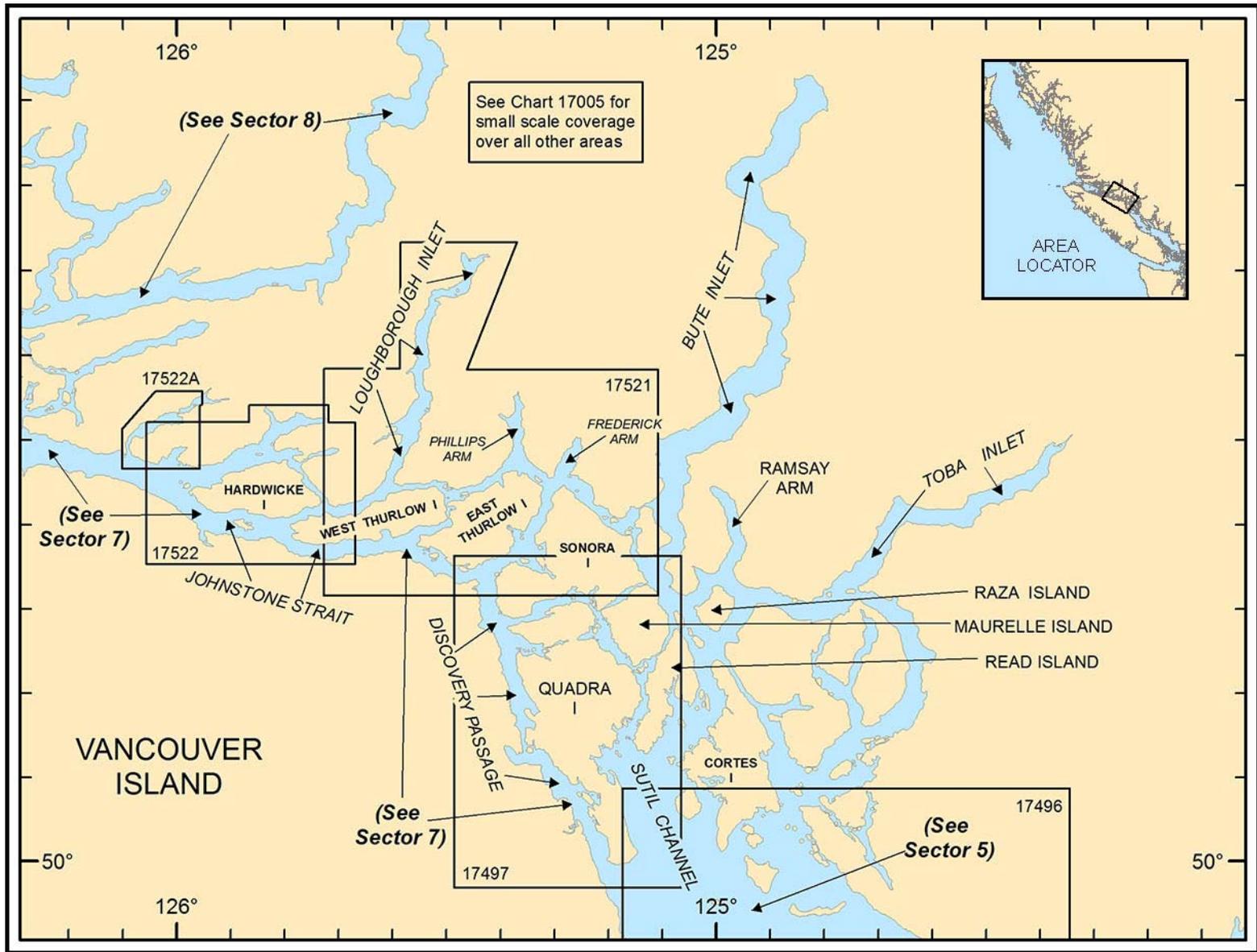
Caution.—A local magnetic disturbance exists in the vicinity of Spilsbury Point and may lessen the variation in the area by 2°.

5.38 Sutil Point, located 2.3 miles W of the Twin Islands, is the SW extremity of Cortes Island. Mary Point, located 2.3 miles NE of the E extremity of the Twin Islands, is the SE extremity of Cortes Island. The passage leading between the coast and the N side of the Twin Islands is obstructed by several islets, rocks, and shoals.

Cortes Bay (50°04'N., 124°56'W.) indents the S coast of Cortes Island, 1.3 miles W of Mary Point. Three Islets lies in the approach to the bay, about 1 mile WSW of Mary Point. These islets are 14m high, white, bare, and rocky. A settlement stands within the bay and is fronted by a float, 87m long, with a depth of 9m alongside.

Anchorage can be obtained, in depths of 9 to 15m, soft mud, within the bay but the holding ground is reported to be poor.

Caution.—A seaplane operating area exists within Cortes Bay.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 6 — CHART INFORMATION

SECTOR 6

DESOLATION SOUND

Plan.—This sector describes, in order, Desolation Sound, Sutil Channel, Cordero Channel, and their respective branches. The descriptive sequence is NW from Sarah Point to Bessborough Bay.

General Remarks

6.1 Desolation Sound, Sutil Channel, Cordero Channel, and their respective branches comprise that part of the inner passage which lies E of Discovery Passage and N of the E end of Johnstone Strait. The area is a maze of navigable channels. Cordero Channel is locally regarded as the more protected route to the N.

The inner passage is a series of channels and passages used by low-powered vessels, small vessels, and tugs in order to avoid the strong tides and winds that funnel through Johnstone Strait. The route leads NW through Desolation Sound and Lewis Channel, or through Sutil Channel, Calm Channel, Yuculta Rapids, Cordero Channel, and Chancellor Channel to Johnstone Strait.

Depths nearly everywhere are great, the exception being Okisollo Channel, which has sufficient depths for any vessel that can clear Beazley Passage.

Hazards to navigation exist in Okisollo Channel and Cordero Channel. These include rapids, dangerous eddies, and swift tidal currents in the narrows. Anchorages are available within the fairways of several channels, within several of the small harbors, and in most of the inlets.

There are no ports of commercial importance. Port facilities at a number of settlements are meager. Diesel oil and gasoline are the only supplies available. Communication is maintained by local steamers and by telephone service connected with the general system.

Tides—Currents.—The flood current in Yuculta Rapids sets 185° at a velocity of 5 to 7 knots for nearly 1 mile. The ebb current sets 005° at a velocity of 4 to 6 knots. Slack at HW and slack at LW in Yuculta Rapids, 0.8 mile S of Gillard Islands Light, occur 40 minutes, respectively, before the corresponding slack waters in Seymour Narrows.

The flood current in Arran Rapids sets NE into Bute Inlet; and the ebb current sets in the reverse direction. These currents attain velocities of 7 to 9 knots. The time of slack water is identical with that of c; the duration is 4 minutes on the average. An overfall of several meters occurs when the currents are strong.

The tidal currents in Sutil Channel are usually weak and do not exceed velocities of 2 knots.

The tidal currents are weak in Bute Inlet to the E of Stuart Island; however, vessels are cautioned about the effect of the tidal currents in other parts of this inlet. A current, with a velocity of 1 to 2 knots, sets constantly outward from Bute Inlet during the summer months.

When the flood current is setting S through Yuculta Rapids, a countercurrent sets 300° close off Harbott Point at a velocity of 1 to 2 knots. This current continues N to a position located

0.5 mile NW of Harbott Point, where it meets the S flood and forces it to the W. A line of sharp rips often marks the junction of these currents. The ebb current sets 305° close off Harbott Point at a velocity of 1 to 2 knots. It sets 385° in mid-channel off this point.

The tidal currents in Homfray Channel are weak. They seldom exceed a velocity of 1.5 knots and are influenced by winds. The flood current flows in a S direction and the ebb in a N.

The tidal currents in Lewis Channel are influenced by the wind. They are weak, irregular, and seldom exceed a velocity of 2 knots.

Caution.—Numerous marine farms exist close off the shores within the inlets, bays, and coves in this area.

Desolation Sound and North Branches

6.2 Desolation Sound ($50^\circ05'N.$, $124^\circ49'W.$) is entered from the S between Sarah Point and Mary Point, the SE extremity of Cortes Island, 1.5 miles W. It has depths that are too great for anchorage. The depths are also great in the fairways of the channels and inlets to the N of the sound.

Mary Point ($50^\circ03'N.$, $124^\circ53'W.$) is located close W of the entrance to Desolation Sound. It is 79m high, rocky, and covered with a few stunted trees.

Seaford ($50^\circ05'N.$, $124^\circ54'W.$), a settlement, is situated on the E side of Cortes Island but its wharves are in ruins.

Squirrel Cove ($50^\circ08'N.$, $124^\circ55'W.$), a landlocked basin, is a popular anchorage for small craft. Its shores are considerably indented and moderately high. Protection Island, 49m high, lies within the cove, with its S extremity located 0.4 mile NW of Boulder Point. The channel leading W of this island is about 55m wide and has a least depth of 4.6m in the fairway. The channel leading E of the island is foul.

A government wharf, with a depth of 4.9m at its head, is situated on the S side of the approach to the cove. Floats, attached to this wharf, provide 122m of berthing space.

A dangerous wreck lies in the inner part of the cove close N of Protection Island.

6.3 Boulder Point ($50^\circ08'N.$, $124^\circ54'W.$) is low and can be easily identified by the prominent large boulder standing on its S side. Two rocks, which dry 2.4m and 3.7m, lie close SE of this point; however, it can be rounded at a distance of 0.2 mile. A beacon stands close S of the point.

Lewis Channel ($50^\circ07'N.$, $124^\circ53'W.$) leads NW from Desolation Sound to Calm Channel and Deer Passage.

Junction Point, marked by a light, is located on the W side of Lewis Channel, about 1 mile NE of Boulder Point.

Cliff Peak ($50^\circ11'N.$, $124^\circ56'W.$), 459m high and conspicuous, rises on the W side of Lewis Channel. Anchorage can be taken under this peak, in a depth of 33m, about 0.1 mile offshore.

Joyce Point ($50^\circ10'N.$, $124^\circ54'W.$) is high and fringed by

shoals; its NW side is fronted by three islets.

Teakerne Arm, leading N of Joyce Point, is deep with few offshore dangers.

Refuge Cove (50°07'N., 124°51'W.) lies on the E side of Lewis Channel, opposite Squirrel Cove, in the SW part of West Redonda Island. An island, the shores of which are steep-to, occupies a large part of this cove and is a popular supply center for small craft. Marine farm facilities extend from the N side of the island into the central part of the cove. A light shown from Hope Point, the S entrance point of the cove, is mounted on a white cylindrical tower with a red band at the top.

Caution.—Several submarine cables, which may best be seen on the chart, extend WNW across the entrance to Desolation Sound from Sarah Point.

6.4 Kinghorn Island (50°05'N., 124°51'W.) lies about 1 mile within the entrance of Desolation Sound. The N and E sides of this island are fronted by numerous rocks and shoals.

The **Martin Islands** (50°07'N., 124°49'W.), joined by a dry-lying ledge, lie 1.5 miles NNE of Kinghorn Island.

Stacey Rock (50°04'N., 124°49'W.) lies about 1 mile W of Sarah Point and should be given a wide clearance.

Malaspina Inlet (50°02'N., 124°46'W.) should not be navigated without local knowledge because of the narrowness of the channel and the many islands and dangers lying in its vicinity. The fairway channel leading through the inlet has a swept depth of 7.3m at LW. The narrowest part of the channel has a width of 82m.

Mink Island (50°07'N., 124°46'W.) lies 1.5 miles NE of Zepherine Head, the NE entrance point of Malaspina Inlet. The Curme Islands lie close off the NE end of this island.

Otter Island (50°07'N., 124°44'W.) is 114m high and wooded. Sky Pilot Rock, which dries 1.2m, lies about 0.2 mile N of the NE extremity of this island. The passage leading between Otter Island and the Curme Islands, about 0.5 mile SW, is navigable; however, the passage leading between the island and the mainland is very narrow and should not be used.

6.5 Waddington Channel (50°10'N., 124°44'W.) is entered from the N part of Desolation Sound, between Marylebone Point and Horace Head, about 1 mile ENE. The latter headland is very bold and conspicuous. The channel is about 0.1 mile wide at its narrowest part.

The **Gorges Islands** (50°16'N., 124°48'W.), four in number, lie on the W side of Waddington Channel. The two easternmost islands are 55m and 46m high. False Passage, lying between this group of islands and Butler Point, 0.2 mile NNE, is obstructed by rocks and kelp.

Anchorage can be taken, in depths of 22 to 26m, within Walsh Cove, at the W side of the Gorges Islands.

Dean Point (50°17'N., 124°47'W.) is located on the W side of the N entrance to Waddington Channel. This channel narrows to a width of 0.1 mile between its N entrance points. A rock, with a depth of 2.4m, lies in mid-channel, about 0.3 mile S of Dean Point. Another rock, which dries 2.1m, lies about 0.1 mile S of Dean Point. Depths of 2.7m and 4.6m are reported to lie on the E side of the channel, opposite Dean Point.

Pendrell Sound (50°12'N., 124°45'W.) has excessive depths and is not suitable for anchorage.

6.6 Homfray Channel (50°09'N., 124°43'W.) leads 12 miles from the NE part of Desolation Sound to the junction of Pryce Channel and Toba Inlet. It has a least width of 1 mile.

Forbes Bay (50°14'N., 124°36'W.) and **Attwood Bay** (50°19'N., 124°40'W.) are entered from the E side of the channel. Temporary logging camps, with private floats and booming grounds, stand in the vicinity of these bays. The depths in the channel and the two bays are too great for anchorage.

Toba Inlet (50°21'N., 124°44'W.) is deep and extends about 18 miles in a general NE direction from its confluence. This inlet, which is nearly 2 miles wide at the entrance, gradually narrows to a width of 1 mile at its drying head.

Channel Island (50°19'N., 124°45'W.), 102m high, lies in the entrance to Toba Inlet, close SW of Brettell Point. A deep channel, 0.2 mile wide, leads between the point and the island. Double Island lies close off the W side of the entrance to Toba Inlet, about 1 mile W of Channel Island. The main entrance channel leading into the inlet lies between these two islands.

Brem Bay (Salmon Bay) (50°26'N., 124°40'W.) lies on the NW side of Toba Inlet.

An Indian village stands on the right bank of a river, at the head of Toba Inlet. A small cemetery is situated within a bight on the NW side of the head of the inlet.

Anchorage can be taken, in a depth of 35m, with a point located on the NW shore, about 1 mile from the head, bearing 219° and the cemetery bearing 329°.

Caution.—Care is necessary when anchoring at the head of Toba Inlet as the depths shoal rapidly near the edge of the drying flats.

Sutil Channel and North Branches

6.7 Sutil Channel leads N and NNE for 17 miles along the W side of Cortes Island, from the N end of the Strait of Georgia to the junction of Calm Channel, Lewis Channel, and Deer Passage. It is entered from the S between Sutil Point and Francisco Point, 6 miles W. The depths within the fairways leading through Sutil Channel and the channels and inlets to the N, with the exception of Okisollo Channel, are great. These fairways are also clear of dangers. The depths in the fairway of Okisollo Channel are sufficiently deep for any vessel that can clear Beazley Passage. However, this channel is obstructed by several dangers including narrows, rapids, and violent eddies.

Sutil Point (50°01'N., 124°59'W.), the S extremity of Cortes Island, forms the common entrance point of Sutil Channel to the W and Baker Passage to the E.

Between this point and Manson Bay, 3.8 miles N, the E shore of Sutil Channel is 24 to 46m high and fringed by a sandy beach that extends up to 0.3 mile seaward in places. A lighted buoy is moored near the edge of the shoal bank extending SW of Sutil Point. A government wharf, with 22m of berthing space and a least depth of 5.2m alongside, fronts the shore of Manson Bay.

6.8 Gorge Harbor (50°06'N., 125°00'W.) is a landlocked anchorage lying on the E side of Sutil Channel. This harbor is available only to vessels of moderate size. The Gorge, the narrow entrance to the harbor, is about 0.5 mile long and less than 60m wide in places. The W side of this entrance passage is formed by cliffs, 46m high; the E side is bold and steep. The

tidal currents set through the harbor entrance at velocities of up to 4 knots at times.

A least depth of 22m lies in the approaches to Gorge Harbor. The least depth in the fairway of the entrance channel is 11m; the anchorages have depths of 16 to 22m.

Marina Island (50°04'N., 125°03'W.) lies off the mouth of Gorge Harbor, close SW of Cortes Island. Marina Reef, marked by a buoy moored at its S end, extends up to about 1 mile S from the island.

The **Subtle Islands** (50°07'N., 125°05'W.), two in number, lie close together off the W extremity of Cortes Island. The N island is 67m high and the S island is 64m high. Both islands are wooded and joined by a gravel bank that dries. They are fringed with gravel banks, on which lie many large boulders. A gravel spit, surmounted by boulders, extends about 0.1 mile W from the W end of the N island. Centre Islet, 7m high, lies about 0.2 mile NW of the N island. This islet is bare, fringed with a rocky foreshore, and moderately steep-to. Plunger Passage, leading between Cortes Island and the Subtle Islands, is available to small craft only.

Caution.—A submarine cable, which may best be seen on the chart, extends from Marina Island to Manson Bay.

Two submarine cables, which may best be seen on the chart, extend across Sutil Channel from the W extremity of Marina Island to Quadra Island, located 2.5 miles N of Francisco Point.

6.9 Francisco Point (50°01'N., 125°09'W.), the SE extremity of Quadra Island, is high and cliffy; foul ground extends up to about 0.3 mile seaward from it.

Between this point and Rebecca Spit, 6 miles NNW, the W shore of Sutil Channel is flat, heavily wooded, and fringed by a beach extending up to 0.1 mile seaward in places.

Rebecca Spit (50°06'N., 125°12'W.), a narrow tongue of land, is 1.8 to 2.4m high and thinly wooded. A light is shown from a structure standing at the NE extremity of this spit.

Anchorage.—Anchorage can be taken throughout Drew Harbor, lying on the W side of Rebecca Spit. The best anchorage, in a depth of 15m, sand, lies about 0.4 mile from the head. The shores of the harbor are low and fringed by a sandy beach. As the shores are low, this anchorage is exposed to strong S and SE gales, especially during the winter. Vessels entering the harbor should round the extremity of the spit at a distance of 0.2 mile to avoid a shoal, with a depth of 5.5m, lying close off its NW side. They should then proceed up the harbor in mid-channel. The E shore of the harbor should not be approached within a distance of 0.2 mile.

6.10 Heriot Bay (50°06'N., 125°13'W.) is obstructed by a rock, with a depth of less than 1.8m, lying in its entrance. A government wharf, with 12m of berthing space, fronts the shore of this bay. Vessels can obtain anchorage, in a depth of 18m, within the bay.

Hyacinthe Point (50°08'N., 125°13'W.) is the common entrance point of Hyacinthe Bay, on the S side, and Open Bay, on the N. Neither of these bays can be used for anchorage.

Coulter Bay (50°08'N., 125°03'W.) indents the NW side of Cortes Island; most of it is occupied by a drying mudflat. Coulter Island, 59m high, lies close off the bay entrance.

Quartz Bay (50°10'N., 125°00'W.) has two islets lying close

off its W side. A rock, 3m high, lies close S of these islets.

Viner Point (50°08'N., 125°08'W.), the S extremity of Read Island, is 12m high and bare.

Caution.—The shore of Cortes Island for about 2 miles to the N of Von Donop Creek (50°11'N., 124°59'W.) should not be approached within 0.1 mile due to the existence of offshore reefs in places.

6.11 Burdwood Bay (50°10'N., 125°06'W.) indents the E side of Read Island. A settlement stands on the shore of the bay and several small islets lie within it. The southernmost islet lies about 0.2 mile NNE of the S entrance point. A rock, which dries 4.6m, lies close off the N end of this islet and is marked by a beacon. A shoal, with a depth of 2.3m, lies between the islet and a point located close NW. Another rock, awash, lies about 0.2 mile NNE of the N extremity of the islet.

A group of five islets, connected by drying reefs, extends NW from a position located 0.3 mile N of the southernmost islet.

A rock, with a depth of less than 1.8m, and an island, 49m high, lie about 0.3 mile WSW and 0.1 mile E, respectively, of the N entrance point of the bay. The channel leading to the W of the island is available only to small vessels with local knowledge.

Anchorage can be taken, in depths of 22 to 24m, at the S end of the bay, about 0.1 mile W of the southernmost islet. Open anchorage can be taken, in a depth of 22m, within the N part of the bay.

Hill Island (50°10'N., 125°04'W.), 157m high, lies in the approach to Evans Bay; an islet, 27m high, lies close off its S extremity. A shoal, with a depth of 3.7m, lies about 0.1 mile E of the islet.

The shores of Evans Bay are rocky, indented, and fronted by many islets and rocks. Frederic Point, the NE entrance point, is bold and can be approached to within 0.1 mile. An islet lies close E of this point and is connected to it by a reef that dries.

The **Penn Islands** (50°11'N., 125°01'W.) are rocky and covered with stunted trees. The easternmost island, which is the largest and tallest, is 140m high. A rock, which dries 1.5m, lies about 0.1 mile NE of the southwesternmost island and a rock, awash, is located close S of it. A shoal, with a depth of 3.7m, lies about midway between the southwesternmost and the northwesternmost islands. A small islet surmounts an extensive reef lying close E of the northwesternmost island. Vessels are advised not to pass between the islands in this group without local knowledge.

Whale Passage, leading between the Penn Islands and the E side of Read Island, has a navigable width of 0.3 mile. It is clear of off-lying dangers and deep.

The shore of Read Island located to the N of the Penn Islands is rocky and steep-to, except for an isolated rock lying close inshore, about 1.8 miles N of the islands.

6.12 Hoskyn Channel (50°08'N., 125°10'W.) extends 6 miles N between Quadra Island, on the W side, and Read Island, on the E, to the SE end of Okisollo Channel. The shores of this channel are rocky and indented. Several islets lie close offshore but the mid-channel fairway is clear and deep.

Village Bay (50°10'N., 125°11'W.) is exposed to the SE but temporary anchorage can be taken by moderate-sized vessels,

in depths of 29 to 33m, within its center. Vessels should avoid the shoals lying close off the S entrance point of this bay.

Beazley Passage (50°14'N., 125°08'W.) lies at the junction of Hoskyn Channel and Okisollo Channel. It is the only safe passage leading N out of Hoskyn Channel. The fairway channel has a minimum width of 60m and a least depth of 5.5m. This passage should only be attempted by small vessels with local knowledge at or near the time of slack water.

6.13 Okisollo Channel (50°14'N., 125°10'W.) leads about 6 miles NW from the N end of Hoskyn Channel to Cooper Point, the NE extremity of Quadra Island. It then leads about 6 miles WSW to Discovery Passage.

The channel, which has two rapids and several dangerous eddies, is suitable only for small vessels with local knowledge. The depths in the fairway are sufficient for any vessel that can clear Beazley Passage. Several bays indent the sides of the channel and can be used for anchorage.

Calm Channel (50°15'N., 125°01'W.) is deep; its shores rise abruptly to considerable heights. The tidal currents are weak within this channel, except in the NW part.

The **Rendezvous Islands** (50°17'N., 125°03'W.), three in number, are 149m, 81m, and 183m high from SE to NW. The passage leading between the SE island and the middle island is foul, except for a very narrow channel suitable only for small vessels with local knowledge. The passage leading between the middle island and the NW island is deep and clear.

Drew Passage, lying on the W side of Calm Channel, leads between the Rendezvous Islands and the N part of Read Island. It is deep and used by local vessels.

Johnstone Bluff (50°21'N., 125°05'W.) is located on the E side of the junction of Calm Channel and Bute Inlet. Temporary anchorage can be taken, in a depth of 27m, about 0.1 mile offshore, about 0.3 mile S of this bluff.

Stuart Island (50°23'N., 125°07'W.), which rises in places to heights of 314m and 521m, has an undulating surface with a rocky shore. A light is shown from Harbott Point, the S extremity.

6.14 Frances Bay (50°20'N., 125°01'W.) is deep. A rock, with a depth of 5.5m, lies about 0.1 mile off the N shore of this bay, 0.7 mile from the head. Small vessels can obtain anchorage near the head.

Ramsay Arm (50°21'N., 124°59'W.) indents the mainland for 7 miles and is hemmed in by mountains on both sides. It is very deep and clear of off-lying dangers.

Bute Inlet (50°26'N., 125°05'W.), which varies from 1 to 2 miles in width, extends about 40 miles in a general NNE direction. Mountains rise abruptly and almost precipitously from its shores. The summits of these mountains are usually covered with snow throughout the year. The inlet, with the exception of the anchorage at the head, is very deep. The water is nearly fresh and milky white in color for some distance from the head.

Orford Bay (50°36'N., 124°52'W.) lies on the E side of Bute Inlet. It is deep and a drying flat occupies the head. A ruined pier fronts the S side of this bay and anchorage can be taken by small vessels close off it. A rocky ledge, which dries, extends about 0.1 mile into the channel from a point located on the E shore of the inlet, about 1.8 miles N of the N entrance point of the bay.

Waddington Harbor (50°55'N., 124°50'W.) lies at the head of Bute Inlet. This so-called harbor is surrounded by precipitous rocky mountains covered with stunted pines. The shores of the harbor are fringed in places, especially off the mouths of the rivers, with shoals and drying flats which are reported to be subject to change. The current flowing out of the Homathko River, at the head of the harbor, attains a velocity of 5 knots in August.

Anchorage.—Anchorage can be taken close to the edges of the drying flats. The best berths, in a depth of 27m, lie with the S entrance point of the Southgate River bearing 167° and distant 1.5 miles or, in a depth of 12m, with the same point bearing 160° and distant 2 miles. These anchorages are exposed to strong SW winds that render them unsafe. Care should be taken as the bottom shoals very rapidly in the vicinity of these berths.

Cordero Channel and the North, South, and West Branches

6.15 Cordero Channel (50°24'N., 125°10'W.) is formed by Sonora Island and the Thurlow Islands, on the S side, and by the mainland, on the N side. The channels and inlets leading from Cordero Channel include Frederick Arm and Phillips Arm, on the N side, and Nodales Channel and Mayne Passage, on the S side. The shores of Cordero Channel are rocky and mountainous in most places. The channel is deep, encumbered with islands, and is not without dangers.

Yuculta Rapids (50°23'N., 125°09'W.) is a passage leading from Calm Channel to Cordero Channel. It has a least depth of 35m in the fairway channel. Tidal currents here may reach as much as 10 knots.

Kellsey Point (50°22'N., 125°08'W.) is located on the E side of the junction of Calm Channel and Yuculta Rapids. Whirlpool Point is located on the E side of the N end of Yuculta Rapids, about 1 mile N of Kellsey Point. An islet, 3m high, lies on the W side of the N end of Yuculta Rapids, about 0.3 mile W of Whirlpool Point. Sea Lion Rock, which dries 1.8m, lies close N of the E extremity of this islet.

Arran Rapids (50°25'N., 125°08'W.) are little used and should not be attempted without local knowledge. Tidal currents here may reach as much as 14 knots.

Big Bay (50°24'N., 125°08'W.) indents the W side of Stuart Island. A rock, with a depth of 4m, lies in the middle of this bay and is marked by kelp. Due to the strength of the tidal eddies, the bay is not suitable for anchorage.

The **Gillard Islands** (50°23'N., 125°10'W.) front the entrance to Big Bay. The northernmost and largest island is 98m high. This island lies with its NE extremity located about 0.4 mile NNW of Sea Lion Rock. A light is shown from a structure standing on its NE extremity. The other two smaller islands of the group lie between Sea Lion Rock and the SE side of the largest island.

Jimmy Judd Island (50°24'N., 125°09'W.), 70m high, and the Gillard Islands divide Cordero Channel into three passages.

Gillard Passage (50°24'N., 125°09'W.) leads between the northernmost of the Gillard Islands and Jimmy Judd Island. It is over 0.1 mile wide and has a depth of 33m in the fairway. This passage is clear of dangers but care is necessary to avoid Jimmy Judd Reef, which dries 1.2m and fronts the W extremity of Jimmy Judd Island.

Innes Passage (50°23'N., 125°10'W.) leads S of the northernmost of the Gillard Islands. It is less than 90m wide and has a least depth of 8.2m. This passage should only be used by small vessels with local knowledge.

Barber Passage (50°24'N., 125°09'W.) leads between Jimmy Judd Island and Stuart Island. It is over 0.2 mile wide and has a least depth of 15.5m in the fairway. This passage is clear of dangers with the exception of a rock, which dries 1.5m and fronts the W shore of Stuart Island.

Tides—Currents.—The flood current in Gillard Passage sets 095° at a velocity of 6 to 8 knots, but may reach as much as 13 knots. The flood current in Barber Passage sets 155° at a velocity of 6 to 8 knots, but may reach as much as 13 knots. A wide area of confused swirls and rips occurs at the confluence of these currents, to the E of Gillard Islands Light. The flood current sets 070° at a velocity of 3 to 4 knots across the W entrance of Gillard Passage.

The ebb currents are straighter and less turbulent than those of the flood. The areas of turbulence shift on the ebb from S of Jimmy Judd Island and the Gillard Islands to the N of them. The ebb current in Barber Passage sets 340° at a velocity of 8 to 10 knots. Part of the ebb current turns sharply into Gillard Passage, where it sets 290° at a velocity of 5 to 6 knots. Vessels entering Gillard Passage from the S, on the ebb, will usually encounter a strong current setting E within the area lying E of Gillard Islands Light.

6.16 The Dent Islands (50°24'N., 125°12'W.) are connected to the NE side of Cordero Channel by drying ledges. Dent Island, the easternmost and largest of the group, is 91m high. Mermaid Bay, which indents the S side of this island, is used as an anchorage and mooring ground for tugs towing log booms. Engels Rock, with a depth of 3.7m, lies about 0.1 mile ESE of the E entrance point of the bay.

Little Dent Island, 58m high, lies 0.3 mile W of Dent Island; a light is shown from its W extremity. A shoal, with a depth of 6.4m, lies about 0.5 mile NW of the light and about 0.1 mile off the SW side of Cordero Channel.

Dent Rapids is a stretch of turbulent water which leads between the Dent Islands and the SW side of Cordero Channel. This stretch is 0.2 mile wide at its narrowest part and has depths over 90m. The rapids are frequently used by tugs towing rafts of timber.

Tugboat Passage, which leads between Dent Island and Little Dent Island, is not recommended. However, it is frequently used by tugs with local knowledge.

Tides—Currents.—The flood current in Dent Rapids sets 190° at a velocity of 7 to 9 knots, but may reach as much as 11 knots. It impinges sharply on the SW shore and causes violent swirls and eddies. The flood current in Tugboat Passage sets 180° at a velocity of 6 to 8 knots.

The ebb currents are straighter and less turbulent than those of the flood. The areas of turbulence shift on the ebb from S of the Dent Islands to the N of them. The ebb current in Dent Rapids sets 330° at a velocity of 6 to 8 knots. This current continues at strength for 0.5 mile along the SW shore and rips of considerable extent appear in the area. The ebb current in Tugboat Passage sets 015° at a velocity of 5 to 7 knots.

Slack at HW and slack at LW in Dent Rapids, abreast of Little Dent Island, occur 1 hour 10 minutes and 1 hour 20 min-

utes, respectively, before the corresponding slack water in Seymour Narrows.

Caution.—Navigation of Yuculta Rapids, Gillard Passage, Barber Passage, and Dent Rapids should not be attempted, other than at or near slack water, because of the strength of the tidal currents.

Vessels, especially small craft, are strongly advised not to attempt the passage of Yuculta Rapids on the flood during spring tides due to the strong rips and whirlpools prevalent in this area.

In Barber Passage, the ebb velocity does not alter with the daily variation in the range of the tide, but only with the variation between spring and neap tides. Therefore, during spring tide periods, the ebb attains a velocity of 10 knots, twice a day.

Vessels with local knowledge usually start through with the last 15 minutes of the run. It is reported that vessels attempting to navigate the rapids during the full run have been lost or damaged. Accuracy in ascertaining slack water is recommended as the period is short, usually not more than 5 minutes, and the current reverses rapidly.

Vessels towing logs frequently leave Mermaid Bay near the last of the ebb to proceed through Gillard Passage at or near the beginning of the flood. Vessels bound N should make passage through Yuculta Rapids and Barber Passage on the last of the ebb in order to avoid meeting the above-mentioned tugs with tows in Gillard Passage. Tugs with booms may also be encountered at Dent Rapids on the turn of the flood.

6.17 Horn Point (Henry Point) (50°26'N., 125°14'W.) is located on the NE side of Cordero Channel. Secord Rock, which dries 0.6m, lies about 0.2 mile NNW of this point.

Denham Islet (50°27'N., 125°16'W.), 58m high, lies 0.3 mile off the SW side of Cordero Channel. Denham Rock, with a depth of 2.4m, lies about 0.3 mile SE of the islet and is marked by kelp. The tidal currents in the vicinity of this islet at times attain a velocity of 4 knots.

Gomer Island (50°28'N., 125°16'W.), 49m high, is wooded and joined to the shore by a drying spit.

Channe Passage (50°27'N., 125°20'W.) leads SE of Channe Island. It is suitable only for small craft with local knowledge due to the foul ground extending from the NE shore of East Thurlow Island and Channe Island.

Shoal Bay (50°27'N., 125°22'W.) indents the N end of East Thurlow Island and partially dries.

Thurlow (50°27'N., 125°22'W.), a settlement, stands at the head of Shoal Bay and is fronted by a small pier.

Bickley Bay (50°27'N., 125°24'W.), lying 1 mile SW of Godwin Point, is one of the few anchorages in Cordero Channel. This bay indents the NW side of East Thurlow Island. Peel Rocks, up to 0.3m high, and several rocks, which dry 0.6 to 4m, lie on the SW side of the entrance to the bay. A rock, with a least depth of 4.9m, lies about 0.1 mile SE of Peel Rocks. Sheltered anchorage can be taken, in a depth of 27m, about 0.3 mile from the head of the bay.

6.18 Greene Point Rapids (50°26'N., 125°30'W.) are dangerous; in their vicinity the fairway of Cordero Channel is less than 0.2 mile wide. In the rapids, the currents attain velocities of 4 to 7 knots. The flood current sets 145°. Slack at HW and slack at LW occur 1 hour and 35 minutes and 1 hour and 25

minutes, respectively, before the corresponding slack water in Seymour Narrows.

Lyall Island (50°27'N., 125°36'W.) lies in the W entrance to Cordero Channel and a light is shown from its SW extremity. A rock, which dries 1.2m, lies on a shoal spit extending about 0.1 mile S from the island. A rock, with a depth of less than 1.8m, lies in the vicinity of a detached shoal, with a depth of 5.5m, located close NE of the island.

Frederick Arm (50°28'N., 125°17'W.) extends 3 miles NNE from the N side of Cordero Channel. This arm is deep and shoals gradually towards its head. A river, with an extensive sheet of water to its NE, enters the head of the arm from Estero Basin and its mouth is fronted by flats.

Anchorage can be taken, in depths of 18 to 29m, off the flats at the head of the arm. This anchorage, although exposed to the S, appears to be better than those in other inlets as the edge of the flats is not steep-to.

Nodales Channel (50°24'N., 125°20'W.) has a least width of 0.8 mile and is deep throughout. The tidal currents in this channel attain a velocity of 3 knots at times. The flood current sets N.

Hemming Bay (50°23'N., 125°23'W.) indents the W side of Nodales Channel and Jackson Point is located on the N side of its entrance. The Lee Islands, two in number, lie 0.5 mile S of the point. A rock, with a depth of less than 1.8m, lies between the point and the islands. The depths in the bay appear to be very irregular. Menace Rock, with a depth of less than 1.8m, lies nearly in the middle of the bay. This rock is located about 0.5 mile NW of the S extremity of the Lee Islands and is not marked by kelp. A shoal, with a depth of 7.8m, lies close SE of the rock. Pinhorn Islet lies on the SW side of the bay, about 0.8 mile NW of the S extremity of the Lee Islands. Shoals extend from the SW side of the head of the bay and leave a narrow channel on the NE side.

6.19 Thurston Bay (50°22'N., 125°19'W.) indents the E side of Nodales Channel and is entered between Davis Point and Edward Point, 1 mile S. Block Island, with a below-water rock lying about 0.1 mile SW of it, is located in the N part of the bay close SE of Davis Point. A rock, 7m high, lies on a shoal in the S part of the bay, about 0.3 mile S of this island. Two drying rocks lie close N of the latter rock.

Small vessels can obtain anchorage, in a depth of 16.5m, close NE of Block Island.

Hardinge Island (50°21'N., 125°21'W.), 84m high, lies on the E side of Nodales Channel. Burgess Passage, about 0.5 mile wide, and Young Passage, about 0.3 mile wide, lead NE and S, respectively, of this island. Both of these passages have ample depths. A rock, which dries 0.9m, lies on the S side of Young Passage, about 0.3 mile WSW of the S extremity of the island.

Large vessels can obtain good anchorage, in a depth of 27m, in Young Passage. The best berth lies near mid-channel, about 0.2 mile SE of the S extremity of Hardinge Island.

Cameleon Harbor (50°20'N., 125°19'W.) is entered about 1.3 miles SE of Hardinge Island and affords sheltered anchorage. Bruce Point, the S extremity of a small peninsula, is located 1 mile SSE of Edward Point and forms the N entrance point of the harbor. Maycock Rock, with a depth of less than 1.8m, lies about 300m off the S shore of the approach, 0.6 mile

WNW of Bruce Point. Entry Ledge, marked by kelp, extends up to about 0.1 mile seaward from the S shore of the approach, 0.3 mile W of Bruce Point. A rock, which dries 4.3m, lies on this ledge. Douglas Rock, which dries 1.5m, lies close SW of Bruce Point.

Tully Island, 6m high, lies in the N part of the harbor, 0.3 mile NNE of Bruce Point. Crook Rock lies close to the SW side of the harbor, about 0.8 mile SE of Bruce Point.

Anchorage can be taken, in a depth of 18m, about 0.2 mile from the head of the harbor. This berth, which lies close N of Crook Rock, is sheltered from all winds. Small vessels can obtain anchorage about 0.2 mile SE of Tully Island.

Caution.—Vessels entering Cameleon Harbor should keep outside of the kelp. Care is necessary as the depths shoal abruptly near the head of the harbor.

6.20 Phillips Arm (50°29'N., 125°22'W.) indents the N side of Cordero Channel. This arm extends about 5 miles N and then shoals suddenly to a drying flat about 1 mile from its head.

Mayne Passage (50°24'N., 125°30'W.), known locally as Blind Channel, leads S and WSW from Cordero Channel to Johnstone Strait. This passage is clear of dangers, with the exception of a shoal patch, with a depth of 9.1m, lying about 0.2 mile NW of the S entrance point of **Charles Bay** (50°25'N., 125°29'W.), and a rock, with a depth of less than 1.8m, lying about 0.8 mile S of the settlement known as Blind Channel. Anchorage is available near the N and S ends of the passage.

Shell Point (50°25'N., 125°30'W.) is located on the E side of the N entrance to Mayne Passage. Edsall Islets lie on a shoal spit projecting from the W side of the N entrance to the passage.

The current in Mayne Passage attains a rate of 5 knots. Slack at HW and slack at LW occur 1 hour and 10 minutes and 1 hour and 5 minutes, respectively, before the corresponding slack water in Seymour Narrows. The duration of the slack is about 8 minutes.

Anchorage can be taken, in depths of 16 to 27m, within Mayne Passage, off the S entrance point of Charles Bay. However, this anchorage is inadvisable since strong tidal currents, tide rips, and eddies may occur.

Blind Channel (50°25'N., 125°30'W.), a settlement, stands on the S shore of a small bay that indents the W side of Mayne Passage. It is fronted by a public wharf, 37m long.

Mayne Point (50°23'N., 125°33'W.) is located on the S side of Mayne Passage. Anchorage can be taken, in a depth of 37m, within the passage, about 0.4 mile NW of this point. The berth lies about midway between the point and Butterfly Bay on the opposite side of the passage.

6.21 Loughborough Inlet (50°27'N., 125°36'W.) extends about 17 miles NNE from its junction with Cordero Channel and Chancellor Channel. This inlet is nearly skirted by precipitous mountains that rise abruptly from its shores. Like the other inlets, it is deep with few anchorages. The tidal currents in the inlet seldom exceed a rate of 2 knots.

Beaver Inlet (50°30'N., 125°35'W.) indents the W side of Loughborough Inlet. The Goat Islets, three in number, lie on the NW side of the inlet, about 0.5 mile within the entrance. These islets are connected to the NW shore by a drying flat.

Dickson Point and Barry Point are located on the NW side of the inlet, WSW of Goat Islets. Hales Point, with Edith Cove lying on its SW side, and Margaret Point are located on the SE side of the inlet, SW of Goat Islets.

Anchorage can be taken, in 12m, near the head of Beaver Inlet or, in a depth of 27m, in mid-channel, SW of Goat Islets.

Towry Head (50°40'N., 125°31'W.) is located on the E side of Loughborough Inlet. This headland, which is conspicuous, has cliffs on its S side.

Caution.—The area fronting the settlement of Blind Channel is used as a water aerodrome.

6.22 Frazer Bay (50°43'N., 125°28'W.), lying on the W side, and McBride Bay, lying on the E side, form the head of Loughborough Inlet. Heard Point, fronted by drying reefs, is located near the head of McBride Bay; a shoal patch, with a depth of 3.7m, lies close W of it.

Anchorage can be taken, in depth of 37m, within McBride Bay, about 0.2 mile S of Heard Point. The depths in Frazer Bay are too deep for anchoring, except very close inshore.

Wellbore Channel (50°26'N., 125°44'W.) separates Hardwicke Island from the mainland and has ample depths. This channel presents no difficulties to navigation, provided a mid-channel course is maintained.

Bukely Island (50°26'N., 125°44'W.) lies almost in the middle of the SE entrance to Wellbore Channel. The fairway passing E of this island is deep and free of dangers.

Carterer Point (50°27'N., 125°46'W.) is located on the SW side of Wellbore Channel. It is fringed by several islets and rocks that reduce the width of the channel to about 0.2 mile. An islet, 19m high, lies close N of the point and a light is shown

from its E side.

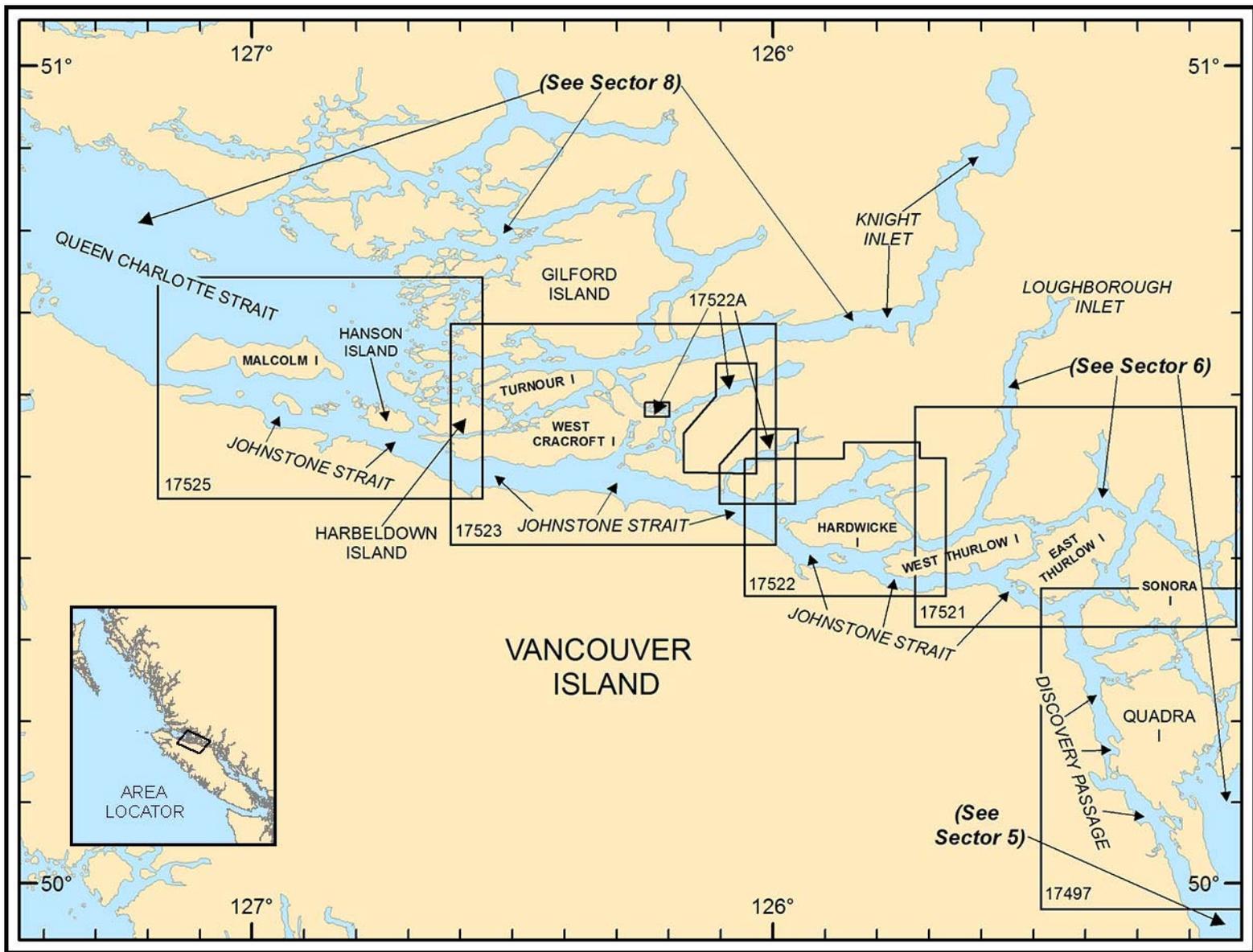
Whirlpool Rapids, an area of narrows, lies abreast Carterer Point. The tidal currents in the rapids have an average maximum velocity of 7 knots and, at times, attain a velocity of 8.8 knots. The flood current sets 185°. Slack at HW and slack at LW occur 1 hour and 40 minutes and 1 hour and 50 minutes, respectively, before the corresponding slack water in Seymour Narrows. The duration of slack is about 6 minutes.

6.23 The Midgham Islets (50°28'N., 125°46'W.), up to 18m high, lie in the approach to Forward Harbor. A detached rock, with a depth of less than 1.8m, lies about 0.1 mile S of the larger islet. Two detached shoal patches, with depths of less than 11m, lie close together, within 0.2 mile SW of the largest islet.

Forward Harbor (50°28'N., 125°45'W.), an inlet, indents the NE side of Wellbore Channel. Except near the entrance, it is covered with ice during the winter. The entrance channel, which is 0.5 mile long and 0.1 mile wide, has a least depth of 14.6m. It is generally clear of dangers and can be safely navigated by vessels of moderate size. The harbor widens within the entrance and has general depths of 22 to 27m. The shores are steep-to, except for the head, which dries. Robson Point is located at the inner end of the entrance channel, on the N side of the harbor. Anchorage can be taken almost anywhere within the harbor. A good berth lies in a depth of 24m, about 0.3 mile NE of Robson Point.

Caution.—It is reported that the entire S side of Forward Harbor is used as a log booming ground.

It is reported that marine farms may exist within the inlets, bays, and coves in this area close off the shores.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 7 — CHART INFORMATION

SECTOR 7

DISCOVERY PASSAGE—CAPE MUDGE TO MALCOLM ISLAND

Plan.—This sector describes Discovery Passage, Johnstone Strait, Broughton Strait, and their respective branches. The general descriptive sequence is NW from Cape Mudge to Malcolm Island.

General Remarks

7.1 Discovery Passage, Johnstone Strait, and Broughton Strait comprise that part of the inner passage which leads along the NE coast of Vancouver Island, a total distance of 94 miles.

Discovery Passage is the only safe navigable channel leading NW from the Strait of Georgia that can be used by vessels other than those with light drafts and local knowledge.

The terrain on the W side of Discovery Passage, to the N of Seymour Narrows, and on the S side of Johnstone Strait is mountainous near the shore; elsewhere, it is comparatively low. Most of the terrain described within this sector is covered with dense pine forests which grow close to the water's edge.

Discovery Passage and Johnstone Strait are deep; however, depths of less than 20m lie in Broughton Strait. The main navigational hazard is formed by Seymour Narrows, in Discovery Passage, where the tidal currents run with great velocity over and around Ripple Rock. The resulting rips, eddies, and upwellings are dangerous. The tidal currents setting in the vicinity of Ripple Shoal and Helmcken Island, in Johnstone Strait, are also hazardous.

Tides—Currents.—The flood tidal current sets 105° at velocities of 5 to 11 knots over the bank, with a depth of 20m, lying close E of Race Point. Strong swirls and rips occur close to this bank and the turbulence may extend up to about 0.8 mile E of the point. Fresh E or SE winds render this race very dangerous to boats.

The flood tidal current in mid-channel, off Race Point, has velocities of 4 to 10 knots. It then turns gradually S along the E side of Discovery Passage towards Copper Cliffs. Between Race Point and Middle Point, a countercurrent runs along the shore when the S current is strong.

The ebb tidal current in mid-channel, off Race Point, sets 322° at velocities of 3 to 6 knots. It then turns steadily W.

The flood tidal current approaching Vancouver Island from Seymour Narrows has a velocity of 4 to 10 knots and divides with a weaker portion setting W into Menzies Bay. The latter current also sets clockwise at a velocity of 1 to 5 knots and returns to a position lying close E of Stephenson Point, where it sets directly across the main current. This causes a formation of violent swirls and rips which extends up to about 0.5 mile SE of Wilfred Point.

The ebb tidal current sets W from Race Point until S of Maud Island. It then runs NW into Seymour Narrows. At a position bearing 132° and distant 0.5 mile from the S extremity of Maud Island, the current sets 284° at a velocity of 4 to 7 knots. At a position bearing 180° and distant 0.3 mile, the current sets 305° at a velocity of 5 to 9 knots.

The ebb is usually stronger near Maud Island than along the

shore to the W of Race Point. When the ebb current is strong, an overfall occurs off the SE extremity of Maud Island. Otherwise, there is little turbulence to the S of Seymour Narrows.

The current is relatively weak, with small eddies, along the shore to the W of Race Point. In the approaches to Menzies Bay and bearing 178° distant 0.8 mile from Maud Island Light, the current sets 271° at a velocity of 1 to 4 knots. It then turns towards Stephenson Point and is lost in the bay.

The tidal currents in Johnstone Strait turn from 1.5 to 2 hours after HW and LW along the shore. They attain velocities of 1 to 4 knots in the wider parts of the strait and, at times, up to 6 knots in the narrower parts. Tide rips are formed in places.

The tidal currents in Johnson Strait, to the W of Hardwicke Island, seldom exceed a velocity of 3 knots.

The tidal currents to the S of Seymour Narrows attain velocities of 6 knots and turn at HW and LW along the shore. The N ebb current begins immediately after HW.

The tidal currents to the N of Seymour Narrows are comparatively weak and do not exceed velocities of 3 knots. The N ebb current and the S flood current begin from 1.5 to 2 hours after HW and LW along the shore.

The tidal currents off Cape Mudge have an average maximum velocity of 5.7 knots. At times they may attain velocities of up to 7 knots; the flood sets 165°. These currents turn up to 30 minutes after HW and LW along the shore.

Regulations.—The waters described within this sector lie within the Vancouver Vessel Traffic Service (VTS) System. For further information on reporting requirements, see paragraph 1.1.

Anchorage.—Anchorages are available throughout the area. Local vessels frequent a number of small ports which are active in the logging, fish canning, and tourist trades.

Caution.—The navigation of Discovery Passage is very simple; the chief difficulty is caused by the tidal currents in Seymour Narrows, which may attain velocities of up to 16 knots with maximum tides.

Vessels engaged in towing operations are reminded of the requirement to prevent damage to submarine cables. Where there is a possibility of the tow line scouring the bottom, vessels are to shorten lines and reduce the catenary.

Discovery Passage

7.2 Discovery Passage leads 23 miles NNW, between the coast of Vancouver Island and the W coasts of Quadra Island and Sonora Island, to Johnstone Strait. At its N end, Okisollo Channel and Nodales Channel enter the passage from the E. Except for Seymour Narrows, located 12 miles N of the S entrance, the passage is wide and deep.

The terrain to the S of Seymour Narrows is of moderate height, the E side being more broken and hilly. The terrain to the N of the narrows becomes steep, mountainous, and attains a considerable elevation, especially on the W side, where Mount Menzies rises to a height of over 1,230m. This mountain has



Photo copyright Mike Mitchell

Cape Mudge Light

many spurs, with deep valleys between them, on which snow often remains until June. The terrain on both sides of the passage is covered with dense fir forests.

Discovery Passage is entered from the S between Shelter Point, which has been previously described in paragraph 5.31, and Cape Mudge, 3.3 miles N.

Cape Mudge (50°00'N., 125°11'W.) is flat, wooded, and terminates in conspicuous white earth cliffs interspersed with

vegetation. These cliffs, 61m high, face SE and decrease gradually in height towards the entrance of the passage. Cape Mudge Sector Light is a flashing light shown at an elevation of 17.7m from a white tower with a fog signal consisting of one blast every 30 seconds. Cape Mudge North Sector Light, a fixed light shown at an elevation of 7.4m, is also mounted on a white tower.

Wilby Shoals extend up to about 2.5 miles ESE from the S extremity of Cape Mudge and a patch, with a depth of 3m, lies near their extremity. The edge of these shoals is steep-to and marked by kelp in summer. A lighted buoy marks the S extremity of the shoals and a buoy marks the E extremity.

Caution.—During the summer, numerous small pleasure craft may be encountered in the vicinity of Cape Mudge.

A heavy race, which attains a rate of 9 knots on the flood and 7 knots on the ebb, exists between Cape Mudge and Shelter Point during the flood current. Strong S or SE winds render this race dangerous to small vessels.

If the S flood current is running at the S entrance, care must be taken to avoid being set over towards Wilby Shoals. If the N ebb current is running at the S entrance, care must be taken to avoid being carried into Sutil Channel.

7.3 Campbell River (50°01'N., 125°14'W.) (World Port Index No. 18450), a harbor, lies on the E coast of Vancouver Island, at the S entrance to Discovery Passage.

Campbell River Village is situated on the W side of the harbor. This village is primarily a tourist center because of its location at the main entrance to Strathcona Park, an alpine area of outstanding beauty. Logging, fishing, and hydroelectric development industries are also situated in the vicinity of the harbor.

Campbell River Home Page
<https://www.campbellrivercruise.com/index/html>

Depths—Limitations.—Campbell River Village, protected by a breakwater, provides facilities for small vessels, sport and pleasure craft, and ferries.

A wharf, used by bulk carriers to load ore, is situated 1.3 miles N of the village, at the S end of a spit. It is 122m long and has a depth of 10.3m alongside.

Pulp Wharf, 152m long, has a depth of 7.8m alongside; Paper Wharf, also 152m long, has a depth of 4.6m alongside. Vessels up to 179m in length and 11.6m draft have been handled in the harbor, but it is reported that silting has occurred.

Campbell River—Berth Information						
Berth	Length	Depth	Maximum Vessel			Remarks
			LOA	Beam	Size	
Cruise Ship Terminal						
Wei Wai Kum	310m	10.0m	216m	28.8m	48,075 gt	Cruise vessels, passengers, and general cargo. Berthing length of 410m (including dolphins).
Duncan Bay—Elk Falls—Operated by Norske Canada Elk Falls Division						
Pulp Wharf West	152m	7.8m	—	—	—	Paper products and general cargo.

Campbell River—Berth Information						
Berth	Length	Depth	Maximum Vessel			Remarks
			LOA	Beam	Size	
Pulp Wharf East	152m	3.6m	—	—	—	Paper products and general cargo.
Paper Wharf	152m	4.6m	—	—	—	Paper products and general cargo.
Nystar Discovery Terminal						
Berth #56	56m	—	162m	—	—	Copper and lead cargo. Berth length includes dolphins.



Port of Campbell River

Campbell River Cruise Ship Terminal includes a pier, four moorings, and four berthing dolphins providing berthing for cruise ships up to 311m in length. There is also a floating pontoon for cruise ships up to 57m in length. For further berthing information see the table titled **Campbell River—Berth Information**.

Aspect.—Tyee Spit, a low neck of land, is located on the E side of the river mouth, about 1.3 miles N of the village. Several marinas and repair ramps for aircraft are situated on the W side of this spit, inside the river entrance.

An aeronautical lighted beacon is shown from a structure standing at the N end of the spit when seaplanes are operating.

A lighted range indicates the entrance channel leading into the river, which is navigable by small boats. A light is shown from the breakwater.

Pilotage.—Pilotage is compulsory. Pilots board at Victoria. Vessels must confirm their ETA 24 hours, 12 hours, and 4 hours in advance.

Contact Information.—The port can be contacted by telephone (1-250-361-3298).

Anchorage.—Due to the strong tidal stream and poor holding ground, anchorage should only be temporary off Campbell River. Duncan Bay provides the only safe anchorage for large vessels.

Caution.—A submarine cable and a submarine pipeline, which may best be seen on the chart, extend into the passage in the vicinity of Campbell River Village.

Silting has been reported in the entrance channel leading to the Campbell River and depths may be less than charted.

The entrance to the river, W of Tyee Spit, and the area in Discovery Passage to the NE of the spit are sometimes used as a water aerodrome.

7.4 Quathiaski Cove (50°03'N., 125°13'W.) lies on the E side of the passage, 4 miles N of the entrance, and affords shelter to small vessels. Grouse Island lies in the middle of this cove and nearly divides it into two parts. A rocky ledge, which dries, extends SE from the SE extremity of the island. A light is shown from a structure standing at the seaward extremity of this ledge. The S entrance channel is clear of dangers, with the exception of the above-mentioned ledge.

A settlement is situated in the SE corner of the cove and has facilities for ferries and pleasure craft. A ferry service runs between this cove and Campbell River Village.

Small vessels can anchor, in depths of 9 to 14.6m, in the SE part of the cove

7.5 Gowlland Harbor (50°05'N., 125°15'W.), a protected anchorage, lies on the E side of the passage, 2 miles N of Quathiaski Cove. A least depth of 7.3m lies in the entrance channel and depths of 16.5 to 18.0m prevail at the anchorage. The harbor is entered between the N end of Gowlland Island and Entrance Rock. A number of rugged and wooded islets front the harbor. Several floats and marinas are situated within the harbor.

Steep Island (50°05'N., 125°15'W.) lies close off the NW end of Gowlland Island. It is steep-sided and has cliffs on its SW side. A light is shown from a structure, 6m high, standing at the W side of the island. A beacon stands on the NW extremity of the island.

A boat passage, giving access to the S part of the harbor, lies between the SW end of Gowlland Island and April Point. A buoy is moored about 0.2 mile NW of the latter point.

The **Vigilant Islets** (50°05'N., 125°15'W.), four in number, lie close off the N extremity of Gowlland Island. The westernmost and tallest islet is 5m high. A detached patch, with a least depth of 7.1m, lies close NW of these islets.

Entrance Rock, with a depth of 0.6m, lies on the N side of the entrance, about 0.4 mile N of the easternmost islet. A shoal, with depths of less than 4.5m, fronts the SE side of this rock. A detached patch, with a depth of 7.3m, lies in the entrance channel, about 0.1 mile SW of Entrance Rock. The navigable channel leading between the Vigilant Islets and Entrance Rock is about 135m wide.

Spoil Rock, with a depth of 6.4m, lies almost in the fairway, about 0.1 mile ENE of the easternmost islet of the group. It is marked by kelp during the summer.

Tides—Currents.—The average tides at Gowlland Harbor rise 3.3m at springs and 2.1m at neaps.

The tidal currents attain rates of up to 5 knots, at times,

across the entrance to the harbor. An eddy sets S, close W of the Vigilant Islets, during the N tidal current. The tidal currents are usually not felt within the entrance.

Anchorage.—Anchorage can be taken, in depths of 15 to 18m, mud, within the harbor, S of Doe Islet.

Caution.—A submarine cable, which may best be seen on the chart, lies between the S end of Gowlland Island and a point located 0.2 miles E of April Point.

Care is necessary when approaching the entrance due to the strong tidal currents.

7.6 Duncan Bay (50°04'N., 125°17'W.) (World Port Index No. 18441) indents the W side of Discovery Passage, 3.5 miles NNW of Campbell River Village. It is easy to access. A shoal, with many boulders lying on it, extends up to about 0.4 mile N of the SE entrance point of the bay. A detached shoal, with a least depth of 10.7m, lies close NE of the same point and is marked by kelp during the summer.

Depths—Limitations.—Pulp Wharf, the W berth, is 152m long and has a depth of 9.8m alongside. It is equipped with conveyor belts and a movable spout.

Shipping Wharf, the N face, is 122m long, with a depth of 9.1m alongside.

Aspect.—A prominent pulp and paper mill is situated on the S shore of the bay. It has two conspicuous chimneys. The southernmost is 113m high and the northernmost is 52m high.

Two radio masts are reported to stand in the vicinity of a barge terminal at the W side of the bay.

Anchorage.—Good anchorage can be taken, in depths of 27 to 29m, sand, in the bay. The anchorage lies well out of the tidal currents and is sheltered from all but NW winds.

Caution.—A submerged sewage outfall, which may best be seen on the chart, extends about 0.2 mile NE from the E side of the SE entrance point.

Log storage areas and several private mooring buoys exist in the W side of the bay.

A dangerous submerged wreck, with a depth of 6.1m, lies near the shore S of the launching ramp, about 150m NW of the mill. A second submerged wreck, with a depth of 38.9m, lies about 800m NE of the mill.

7.7 Middle Point (50°05'N., 125°18'W.) is located on the W side of the passage, 1.3 miles NW of the mill at Duncan Bay. It is low, shelving, and rocky. Warspite Rock, a pinnacle, lies about 0.2 mile E of the point and has a least depth of 1.2m. This rock is marked by kelp during the summer; however, the kelp is run under at times by strong tidal currents.

Copper Cliffs (50°06'N., 125°16'W.) stand on the E side of the passage, close N of the entrance to Gowlland Harbor. This series of cliffs has traces of copper ore and attains heights of 61 to 70m. White Cliffs, another series of cliffs, is located about 1.3 miles NW of Copper Cliffs. The shore extending NW of White Cliffs is fringed by a beach formed of boulders and shingle.

Race Point (50°07'N., 125°19'W.) is located on the W side of the passage, 1.5 miles NNW of Middle Point. This point consists of a bare, bold, steep-to, and rocky bluff. It is 20m high and marked by a light.

Two rocky banks, with least depths of 18.3m and 13.7m, lie about 0.2 mile E and 0.5 mile NE, respectively, of the point.

7.8 Menzies Bay (50°07'N., 125°23'W.) lies on the W side of Discovery Passage, close W of the S entrance of Seymour Narrows. Lumber-shipping facilities are situated on the S side of this bay. Vessels sometimes anchor within the bay to await favorable tidal currents in Seymour Narrows.

Foul ground, marked by kelp during the summer, extends up to about 0.1 mile SE from Stephenson Point, the N entrance point of the bay.

Defender Shoal, which dries 1.5m, lies in the middle of the bay. It is composed of sand and is steep-to on the E side. A narrow channel, with a least depth of 9.1m, leads NE of the shoal and into the NW part of the bay. Numerous piles exist between this shoal and the SW side of the bay.

Tides—Currents.—Part of the weak flood current, which flows W along the shore from a position about midway between Race Point and Huntingford Point, is deflected NW and lost in the middle of Menzies Bay. The W edge of the ebb current flows weakly against Stephenson Point; that part of the current which flows W into Menzies Bay is lost almost immediately. Very little swirl exists W of a line joining Huntingford Point and Stephenson Point.

Anchorage.—Temporary anchorage, with no inconvenience from tidal currents or eddies, can be taken, in depths of 9 to 11m, within the S part of the bay. Vessels should exercise care to avoid two shoal patches, with depths of 4.9m and 6.4m, lying close N of the abandoned ore facility. This anchorage is convenient when awaiting the turn of the tidal currents in Seymour Narrows.

A navigable channel about, 130m wide, lies NE of Defender Shoal. It has been reported (2004) that a privately-maintained buoy marks the NE end of the shoal.

Secure anchorage can be taken, in depths of 11 to 13m, mud and sand, in the NW part of the bay. This anchorage is out of the range of the tidal currents.

Seymour Narrows

7.9 Seymour Narrows (50°08'N., 125°21'W.), the narrowest portion of Discovery Passage, commences about 1 mile NW of Race Point. The narrows are about 2 miles long and not less than 0.4 mile wide. The shores on either side are high, rugged, and steep-to. Passage should only be attempted at or near slack water unless in possession of intimate local knowledge. The greatest care must be observed at night during all stages of the tidal currents, even when in possession of the most intimate local knowledge.

Vessels are recommended to follow the reporting procedures prescribed for the Vancouver Traffic Zone (VTS) when approaching the narrows.

Tides—Currents.—The MHW interval at Seymour Narrows is 2 hours 58 minutes. The tides rise 4.2 to 5m at springs and 3.4m at neaps.

The tidal currents reach velocities of up to 16 knots with the flood setting S and the ebb N. When either current is running at strength, the eddies and swirls are extremely heavy. When the currents are opposed by a strong wind, the races become very dangerous to small vessels.

With the flood current setting along the W shore, the eddies and rips start about opposite North Bluff. The upwellings over Ripple Rock start under the power cables and from there to the

W shore, the water is very turbulent. The rips and upwellings then curve gently to mid-channel, S of Maud Island Light. The rips extend S of the light to the middle of the channel, where they meet the rips and eddies from the W shore, and culminate in large whirls and eddies. This area of maximum turbulence extends beyond Race Point and gradually diminishes towards the entrance of Gowlland Harbor. The maximum strength of the flood current occurs in the vicinity of Maud Island.

With the ebb current, smooth water extends N to North Bluff. At this point, the rips from both the E and W sides meet and culminate in large, smooth whirls and eddies. Due to the course of the main current through the narrows, the upwellings over the S head of Ripple Rock occur much farther over towards the W shore. Therefore, on the ebb current, no turbulence is met until abeam of North Bluff.

Between North Bluff and Puget Bluff, the channel is all whirls and eddies. These diminish gradually farther N and disappear almost entirely abreast of Separation Head. The maximum strength of the ebb current is encountered in the vicinity of Maud Island Light.

A notable feature during the ebb is that 1 hour after maximum current the turbulence on both sides of the narrows greatly diminishes, in fact, the change is quite remarkable. Vessels not wishing to proceed at the time of maximum current will find favorable passage by waiting for 1 hour.

The time interval between slack water and HW, or LW, along the shore in the narrows varies from 10 minutes to 4 hours. The duration of slack water may amount to 12 minutes, but when the range of tide is great, slack water lasts for only a few minutes.

Depths—Limitations.—**Ripple Rock** (50°08'N., 125°21'W.), formerly a shoal hazard, lies in the middle of the S end of the narrows between Maud Island and Vancouver Island. This rock has two heads which lie about 90m apart.

The depths over this danger have been increased by demolition. At LW, the northernmost head has a depth of 15.1m and the southernmost head has a depth of 13.7m. The entire area in the vicinity of the rock has been swept with a wire drag to a depth of 12.5m at LW.

The position of Ripple Rock is indicated, except for a short time at slack water, by upwellings over the least depth on the southernmost head.

The channels leading on either side of Ripple Rock are about 0.2 mile wide. The depths lying in the middle of the E and W channels are 59m and 64m, respectively.

To proceed against the tidal current during the period of spring tides and to ensure maximum control, a speed of 13 knots is necessary during the first and last hours of the current; a speed of 15 to 16 knots during the second and fourth hours; and a speed of 17 knots to proceed through at the full strength of the tide.

During neap tide periods, when the velocity of the tidal current is weaker, less power than that given above is required to proceed through the narrows at the full strength of the current. A speed of 3 to 4 knots in excess of the maximum predicted current velocity would be adequate.

Vessels proceeding through the narrows with the tidal current should adjust their speed as necessary for maximum control.

A vessel navigating the narrows against the tidal current and

meeting another proceeding in the opposite direction should pay regard to such vessel, which may not be in full control, and should therefore give that vessel as much clearance as possible.

Vessels of low power, vessels with tows, small craft, and vessels without any local knowledge are strongly advised to navigate the narrows at or near slack water only. In these circumstances, no special directions are necessary, and a mid-channel course may be steered.

Caution.—With the removal of Ripple Rock as a navigational danger, the full width of Seymour Narrows is available, but regard should be given to the extreme turbulence that is present when the tidal currents are running at strength, particularly during the period of spring tides.

An overhead power cable, with a vertical clearance of 58m, spans the narrows between Maud Island and Wilfred Point. This cable, which may best be seen on the chart, is marked by several orange spheres suspended from it.

Discovery Passage—North of Seymour Narrows

7.10 From Seymour Narrows, the N part of Discovery Passage extends about 12 miles N to its junction with Johnstone Strait. The tidal currents in this portion of the passage do not exceed a rate of 3 knots.

Plumper Bay (50°10'N., 125°20'W.), entered close N of Plumper Point, lies on the E side of the passage, close N of the entrance to the narrows. It is a convenient anchorage for vessels awaiting favorable tidal currents in the narrows.

A conspicuous boulder lies on the S side of the bay, 0.3 mile ESE of Plumper Point. A detached rocky patch, with a depth of 11m, lies in the middle of the bay, about 0.2 mile NNE of the boulder. This patch must be avoided when anchoring. A rock, with a depth of 1.8m, lies near the head of the bay, about 0.1 mile off the SE shore.

Anchorage can be taken, in depths of 14 to 18m, mud and sand, within the bay. This anchorage is sheltered, out of the tidal currents, and easy to enter.

Brown Bay lies on the W side of the passage, close N of the narrows. It is the site of a marina but is too deep for anchorage.

Separation Head, cliffy and steep-to, is located on the E side of the passage and marked by a light. This point separates Plumper Bay from Deepwater Bay, which has depths in excess of 40m. Another light is shown from a structure standing 1 mile SSW of the head.

Directions.—Vessels with adequate power to maintain maximum control should experience no difficulty in making the passage to the N at any stage of the ebb current, provided they use the channel leading E of Ripple Rock.

Vessels should pass 0.1 mile off Race Point and steer to pass Maud Island Light at the same distance. When this light bears 000°, they should change course gradually to starboard in order to pass it at a distance of 90 to 180m. Vessels should then keep in the tongue of the current and steer a course towards a position lying in mid-channel off North Bluff. The eddies from both sides of the channel meet in the vicinity of this position. Thereafter, vessels should steer a mid-channel course.

Vessels bound N from Menzies Bay, during a strong ebb current, are advised to proceed S of Race Point before turning to approach the narrows.

Vessels bound S against the N ebb current should steer a

mid-channel course until nearly abeam of North Bluff. They should then steer a course to pass Maud Island Light at a distance of 90 to 180m. A course should then be steered to pass Race Point at a distance of about 180m.

Vessels bound N against the S flood current, after passing Gowlland Harbor, should keep to the E of mid-channel to avoid the heavy swirls off Race Point. They should round this point at a distance of 0.4 mile and then steer a course of about 285° for the clearly visible apex of the turbulence-free water. Vessels should then pass Maud Island Light at a distance of 0.1 mile and steer to pass North Bluff and Puget Bluff in mid-channel. The width of the turbulence-free water, abeam of Maud Island Light, is much less than during the ebb current because of the upwellings curving E from Ripple Rock.

When approaching the narrows from the S, care should be taken to avoid being set into the violent rips which extend up to about 0.4 mile S of Maud Island.

Vessels bound S with the S flood current should keep in mid-channel until North Bluff is abeam. They should then steer to pass Maud Island Light at a distance of 0.1 mile. Vessels should hold this course, keeping in the tongue of the current, until clear of the rips that extend S of Maud Island Light. They should then change course to about 105° until Cape Mudge is open to Orange Point, the latter bearing about 150°. Vessels should then alter course to S favoring the E shore to obtain full benefit of the tidal current. Care should be taken to avoid the eddy lying S of Maud Island.

Caution.—A wreck, with a depth of 11.5m, lies close E of Maud Island. This wreck is marked by buoys and used by divers.

7.11 Kanish Bay (50°16'N., 125°22'W.) indents the E side of Discovery Passage, about 4 miles N of **Separation Head** (50°11'N., 125°21'W.). This bay is too deep for anchorage, except for small vessels with local knowledge.

The Chained Islands lie along the S shore of the bay. Granite Bay, with the remains of a logging camp, is located in a narrow arm extending from the SE part of Kanish Bay. The entrance fairway is less than 90m wide and has a least depth of 6.1m. A rock, with a depth of less than 1.8m, lies on the N side of the approach to this bay.

Caution.—A dangerous wreck is reported to lie near the head of the bay.

Granite Point (50°17'N., 125°23'W.), the N entrance point of Kanish Bay, separates it from Okisollo Channel. This point is low, rounded, and steep-to.

McMullen Point is located on the W side of the passage, about 2 miles SSW of Granite Point. This steep-to headland is marked by a light.

Elk Bay (50°17'N., 125°26'W.) indents the W side of the passage, opposite the W entrance of Okisollo Channel. This bay is entered N of Moriarty Point and about 1 mile WSW of Granite Point. The tidal currents setting off Moriarty Point have an average maximum velocity of 3 knots but can, at times, attain a velocity of 3.8 knots.

Anchorage can be taken, in a depth of 27m, mud and sand, within the bay about 0.5 mile off the drying flat at the head. The anchorage is open to the N and E, but lies out of the tidal currents. This anchorage is often used by vessels awaiting



Photos copyright Mike Mitchell

Chatham Point Light

slack water at Seymour Narrows.

The **Cinque Islands** (50°18'N., 125°24'W.), a short chain of islets and rocks, lie on the E side of the passage, close W of the N entrance point of Okisollo Channel. A light is shown from a structure standing on the W shore of the largest islet.

Discovery Passage leads about 3 miles N from this chain and joins Johnstone Strait.

Howe Island, 105m high, lies close off the E entrance point of Johnstone Strait, about 2.5 miles N of the Cinque Islands.

Johnstone Strait

7.12 Johnstone Strait (50°21'N., 125°27'W.) is from 1 to 2 miles wide and leads WNW along the N side of Vancouver Island. This strait, which is deep throughout, extends for 54 miles between the junction with Discovery Passage and the W end where it joins Broughton Strait.

The S side of the strait is formed by a continuous series of high, steep, mountain ranges. These ranges rise abruptly from the water's edge and some of the higher peaks are covered with snow throughout the entire year. The ranges are separated by valleys through which flow several rivers of considerable size.

The N side of the strait is high and mountainous in most places, but it is not as rugged as the S side, nor do the mountains attain such great heights. It is indented by several channels and inlets.

The N side is formed by the Thurlow Islands, Hardwicke Island, a portion of the mainland, and West Cracroft Island.

The shores on both sides of the strait are densely wooded, with the exception of the higher peaks, which are bare.

Several anchorages are available on the N side of the strait. There are no anchorages on the S side.

Chatham Point (50°20'N., 125°26'W.) is located on the SW side of the confluence of Discovery Passage, Johnstone Strait,

and Nodales Channel. It is low, wooded, and rocky. Several prominent buildings stand on the point and a radio tower is situated 0.3 mile NW of them.

Foul ground fronts the shore to the N of the point. Beaver Rock, with a depth of less than 2m, lies about 0.3 mile NNW of the point and a drying rock, marked by a light, lies close S of it.

Rock Bay (50°20'N., 125°29'W.) indents the S side of Johnstone Strait, close W of Chatham Point, and a light is shown from its W entrance point. The ruins of a pier front the W side of this bay.

Turn Island (50°21'N., 125°28'W.), 98m high and wooded, lies on the N side of the strait, 1.3 miles NW of Chatham Point. It is separated from East Thurlow Island by a narrow passage with depths of less than 9m. A light is shown from the S side of the island.

Caution.—Vessels should stay at least 0.5 mile from Chatham Point.

A submarine power cable, which may best be seen on the chart, extends W from Beaver Rock to the shore.

7.13 The Walkem Islands (50°22'N., 125°32'W.), a group of mostly-wooded islands and rocks, lie on the N side of Johnstone Strait. A light is shown from a structure standing on a drying rock lying close off the SW end of the southernmost island.

Caution.—The tidal currents run strongly between the Walkem Islands and, at times, tide rips, which are dangerous to small vessels, are formed. Vessels should pass these islands with care and at a distance of not less than 0.3 mile.

7.14 Ripple Point (50°22'N., 125°35'W.), marked by a light, is located on the S side of Johnstone Strait. This point rises steeply to the mountains of the Halifax Range. The ebb tidal current sets W and attains a velocity of 2 to 5 knots off the

point. The flood tidal current sets 105°. Tide rips, which are dangerous to small vessels, are formed off the point at times.

Needham Point (50°23'N., 125°36'W.) is the E entrance point of Knox Bay. This bay has depths too deep for anchorage. Heavy tide rips are sometimes formed off the point.

Vansittart Point (50°23'N., 125°44'W.), marked by a light, is located on the N side of Johnstone Strait, at the foot of Mount Vansittart.

Vere Cove (50°23'N., 125°46'W.) is easy to access and affords anchorage to small vessels. The anchorage has depths of 18 to 31m and lies out of the tidal currents, but is exposed to the W. The shores of the cove are steep and thickly wooded. Tye Point, the S entrance point of the cove, is marked by a light.

7.15 Camp Point (50°23'N., 125°50'W.), a rounded projection, is located on the S side of Johnstone Strait and marked by a light. The shore extending ESE of this point is fringed with drying rocks. The shore extending W of the point is steep and cliffy with mountains rising abruptly from the water's edge.

Race Passage East Light is shown from a structure standing on an above-water rock lying 0.5 mile ESE of the point.

Ripple Shoal, with a least depth of 3m, lies in the fairway of Johnstone Strait between Camp Point and Eden Point. It has several heads and is about 1 mile long. Kelp grows on the shoal during the summer, but it is usually run under by the tidal current.

The tidal currents off Camp Point have an average maximum velocity of 5 knots and, at times, attain velocities of up to 7 knots. The flood current sets 110°. Slack at HW and LW occur 55 minutes and 1 hour 5 minutes, respectively, before the corresponding slack water in Seymour Narrows. The tidal currents in the vicinity of Ripple Shoal, at times, attain velocities of 5 knots, often causing eddies and ripples.

7.16 Helmcken Island (50°24'N., 125°52'W.) lies in the middle of Johnstone Strait. This island is thickly wooded and its shores are rugged and indented, especially on the N side. Billy Goat Bay lies on the N side of the island and is fronted by several islets.

A prominent storage tank and a radio mast stand at the E end of an islet, 49m high, which lies close NE of Billy Goat Bay.

A light is shown from a structure standing on a drying rock located 0.3 mile N of the E end of Helmcken Island. A beacon stands on the E end of an islet, 40m high, which fronts Billy Goat Bay, about 0.4 mile WNW of the light.

The range formed by the light and the beacon indicates the channel leading through the E part of Race Passage, S of Ripple Shoal.

Lights are also shown from the N and S extremities of Helmcken Island.

Current Passage and Race Passage, each over 0.5 mile wide, lead N and S, respectively, of Helmcken Island and are both clear of dangers.

The tidal currents run strongly in Current Passage and Race Passage, attaining velocities of up to 6 knots at springs. The flood current sets 120° in Current Passage and 110° in Race Passage. These currents cause numerous and frequently strong eddies, especially during bad weather when they sometimes

become dangerous to small vessels.

Caution.—A Traffic Separation Scheme (TSS) extends from close W of Vansittart Point to the W end of Hardwicke Island. It is recommended for use by all vessels.

The separation of traffic is achieved by using Helmcken Island and Ripple Shoal as natural obstacles to divide the E traffic from the W. No inshore traffic zones are provided in this scheme.

It is recommended that eastbound traffic pass to the S by using Race Passage and westbound traffic pass to the N by using Current Passage.

In some instances, due to certain vessels having difficulty in making the turn into Current Passage and clearing Ripple Shoal, vessels may be encountered proceeding against the recommended traffic flow within Race Passage. Such vessels proceeding against the traffic flow are advised to warn the Vessel Traffic Service (VTS) System and other ships in the vicinity.

Peterson Islet (50°23'N., 125°55'W.) lies close to the S shore of the strait, about 1 mile SW of the W end of Helmcken Island. A light is shown from this islet.

Earl Ledge extends up to about 0.3 mile S from the S shore of Hardwicke Island, about 1 mile WNW of the W end of Helmcken Island. A light is shown from the S extremity of this ledge.

Kelsey Bay (50°24'N., 125°58'W.) lies on the NW side of the entrance to Salmon Bay, 1.8 miles W of Peterson Islet. The shore of this bay is fronted by a small wharf, with a depth of 8m alongside, which is used by small craft.

Hardwicke Point, located on the N side of the strait, is the W extremity of Hardwicke Island and lies 2.3 miles NW of Earl Ledge.

Yorke Island, 104m high and wooded, lies in the entrance to Sunderland Channel, about 0.3 mile NNW of Hardwicke Point. Several small islets, the largest being 8m high, lie 0.3 mile S of the island.

Clarence Island, 59m high and wooded, and Fanny Island, 4m high and bare, lie 0.3 mile and 0.5 mile, respectively, NW of Yorke Island. A light is shown from the S side of Fanny Island.

7.17 Blenkinsop Bay (50°29'N., 126°00'W.) provides good convenient anchorage. It lies on the N side of the junction of Johnstone Strait and Sunderland Channel. The W side of the bay is high. The E side of the bay is of moderate height and slopes gradually to Tuna Point, which is marked by a light. Mary Island, lying 0.5 mile SE of the latter point, has prominent white cliffs on its S side. Extensive drying flats front the head of the bay. Vessels can obtain sheltered anchorage, in depths of 11 to 18m, mud with good holding ground, within the W part of the bay.

Sunderland Channel (50°27'N., 125°58'W.), wide and free of dangers, is entered from the W between Fanny Island and Mary Island; about 7 miles from the W entrance, the channel branches NE into Topaze Harbor and SE into Wellbore Channel.

The tidal currents in the channel seldom exceed a velocity of 1.5 knots, but heavy tide rips sometimes occur in the W entrance.

Seymour Island and Poyntz Island are 38m and 47m high, respectively, and lie in mid-channel, about 5 miles ENE of the

W entrance. A light is shown from the S side of Seymour Island.

Topaze Harbor (50°30'N., 125°50'W.) provides sheltered anchorage. Vessels can anchor, in depths of 18 to 24m, within this harbor or in the entrance to Jackson Bay, which indents its N side.

Wellbore Channel separates Hardwicke Island from the mainland and leads to Chancellor Channel. It is deep and presents no problems, provided a mid-channel course is maintained.

Jesse Island (50°28'N., 126°02'W.), 40m high and sparsely wooded, lies close to the N shore of the strait, about 1 mile W of Tuna Point. The passage leading N of this island may be used by small craft.

7.18 Port Neville (50°30'N., 126°05'W.), an inlet, extends 7.3 miles NE and affords secure anchorage to small craft. It is entered between Ransom Point, located 2 miles WNW of Jesse Island, and Neville Point, 0.5 mile WNW. Milly Island, 82m high and wooded, lies close S of Neville Point.

The settlement of Port Neville is situated on the E side of the inlet, 0.5 mile N of Ransom Point. It is fronted by a small wharf with a depth of 6m alongside. The approaches are deep and there is a depth of 7.3m in the entrance channel as far as the settlement.

The tidal currents in Johnstone Strait, off the entrance to Port Neville, have an average maximum velocity of 3 knots, but at times may attain a velocity of 3.8 knots. The flood current sets 110°.

Stimpson Reef (50°30'N., 126°12'W.), which dries 1.5 to 2.7m, lies about 4.3 miles WNW of the entrance to Port Neville. This reef extends up to about 0.3 mile offshore and is steep-to on its S side. A beacon marks the drying portion of the reef.

The **Broken Islands** (50°31'N., 126°18'W.), a group of islands and rocks, lie on the N side of Johnstone Strait. They are located on the E side of the approach to Port Harvey and Havannah Channel, about 3.5 miles WNW of Stimpson Reef. The southernmost and largest island is 73m high and wooded. A light is shown from the SW extremity of this island. Foul ground exists between the islands and rocks in the group and extends between them and the mainland.

The tidal currents in Johnstone Strait, off this group, have an average maximum velocity of 3 knots and, at times, may attain a velocity of 3.8 knots. The flood current sets 100°.

Escape Reef (50°31'N., 126°21'W.), with a depth of less than 1.8m, lies on the N side of Johnstone Strait. It is located on the W side of the approach to Port Harvey and Havannah Channel, about 2 miles W of Broken Islands Light.

Hull Rock (50°32'N., 126°18'W.), with a depth of less than 1.8m, lies in the approach to Port Harvey and Havannah Channel, about 1 mile NNW of Broken Islands Light. This rock is steep-to and not marked by kelp.

The common approach to Port Harvey and Havannah Channel lies between the Broken Islands and the SE shore of West Cracroft Island, about 0.8 mile NW.

Port Harvey (50°33'N., 126°17'W.), an inlet, extends about 2 miles NNE from the approaches. Mist Islets, the largest being 78m high, lie on the E side of this inlet. During the fishing season, floats for small craft and marine farm facilities are estab-

lished at various places within the inlet.

Anchorage can be taken, in depths of 12 to 14m, mud, within the inlet, close N of Mist Islets.

7.19 Havannah Channel (50°32'N., 126°17'W.) leads 4.5 miles NE from the common approach junction with Port Harvey. This channel is entered between Domville Point, located 1 mile NNE of Broken Islands Light, and Harvey Point, 0.5 mile NNE.

The Havannah Islets, a group of islets and rocks, front the N shore of the channel and lie about 1 mile E of Harvey Point. A light is shown from the southernmost islet. Lily Islet, marked by a beacon, lies in mid-channel, about 1 mile ENE of Domville Point. Bockett Islets, a group of islets and rocks, lie in mid-channel, about 0.5 mile E of Havannah Islets. The largest islet of this group is 67m high.

Whitebeach Point is located on the S side of the channel, 2.8 miles ENE of Domville Point. It is low and fringed by a conspicuous white, sandy beach.

Hull Island, 158m high and wooded, lies in mid-channel, 0.5 mile NE of Whitebeach Point, and Mistake Island, 72m high, lies close off its S side.

Boughey Bay, an arm of Havannah Channel, is entered close SE of Hull Island. This bay extends SSE for about 1.3 miles and Boughey Shoal, with a depth of 5.5m, lies in the middle of its entrance. Anchorage can be taken, in depths of 20 to 27m close to the head of the bay. During strong SE gales, the full force of the wind enters the bay through a valley lying to the S. Under these circumstances, vessels are advised not to anchor.

From Whitebeach Point, Havannah Channel extends N for 2.5 miles to the junction of Call Inlet and Chatham Channel. Chatham Channel leads 5 miles NW to Knight Inlet and is described in paragraph 8.14.

Soderman Cove, a small indentation, lies on the W side of the channel, about 0.5 mile W of the N end of Hull Island. Sheltered anchorage can be taken, in a depth of 27m, sand and gravel, within this cove. Marine farm facilities may exist in the cove.

The Indian Islands, two in number, lie close off the E shore of the channel, E of Hull Island. These islands are joined to the shore by foul ground. Matilpi, an abandoned Indian village, is situated on the mainland close E of the islands.

Call Inlet (50°35'N., 126°11'W.), the NE continuation of Havannah Channel, is 1 to 1.5 miles wide and extends about 12 miles ENE. The shores of the inlet are high and precipitous. The N side rises abruptly to mountains up to 1,445m high. The inlet terminates in a low swamp, with a valley extending ENE from it. Log storage areas may exist near the S side of the head.

The depths in the inlet are, in most places, too deep for anchorage.

Call Shoal (50°36'N., 126°08'W.), with a least depth of 10.5m, lies in the fairway channel leading into the inlet, about 2.3 miles inside the entrance.

7.20 Forward Bay (50°31'N., 126°23'W.), a wide but slight indentation, lies on the N side of the strait, 1.5 miles WNW of Escape Reef. Anchorage can be taken, in depths of 27 to 29m, close SE of a drying flat fronting the head of the bay. Bush Islets lie on a reef that extends up to about 0.4 mile seaward from the W side of the bay entrance.

Boat Bay indents the N shore of the strait, 6 miles W of Forward Bay. A number of rocks and shoals, marked by kelp in summer, lie within 0.2 mile of the shore extending between this bay and Forward Bay. An islet, 44m high, lies in the W part of the bay and foul ground extends between it and the W shore. Small craft can obtain good anchorage close N of this islet.

Boat Bay Light is shown from a structure standing on Swaine Point, 0.5 mile WSW of the W side of the bay.

Robson Bight lies on the S side of the strait, close S of Swaine Point. The Tsitika River flows into the head of this bight, which is filled with a steep-to drying flat. The depths within the bight are too deep for anchorage.

The Sophia Islands, consisting of two large and several smaller islands with numerous drying and below-water rocks around them, form two groups. These groups lie about 0.3 mile off the N shore, 2.5 miles W of Boat Bay. Baron Reef, with several shoal heads, lies about 0.8 mile NW of the Sophia Islands. Growler Cove, which is approached between this reef and the Sophia Islands, is a narrow inlet. It has depths of 9 to 13m and affords sheltered anchorage to small craft with local knowledge.

Cracroft Point (50°33'N., 126°41'W.), the W extremity of West Cracroft Island, is located 2 miles WNW of the Sophia Islands and marked by a light.

Hanson Island lies centered 2.5 miles WNW of the point. This island is 191m high, wooded, and forms the N side of the W end of Johnstone Strait.

7.21 The Blinkhorn Peninsula (50°32'N., 126°47'W.), 56m high, is located on the S side of the strait, 4 miles WSW of Cracroft Point. A light is shown from this peninsula.

An islet, 15m high, lies in the approach to a small cove, about 0.8 mile WNW of the peninsula.

Ella Point, located 1.8 miles WNW of the peninsula, lies on the S shore at the junction of Johnstone Strait and Broughton Strait.

Blackney Passage (50°34'N., 126°41'W.) is entered close W of Cracroft Point. It extends E of Hanson Island, from the N side of Johnstone Strait, into Blackfish Sound. The entrance to Baronet Passage lies on the E side of Blackney Passage, close N of Cracroft Point.

The tidal currents in Blackney Passage attain rates of 5 knots, at times. Heavy races are formed off Cracroft Point during both the E and W tidal currents. The two portions of the E tidal current, flowing N and S of Hanson Island, meet near the S end of Blackney Passage and cause a strong tide race in mid-channel.

Parson Island, located at the N end of the passage, lies on the E side about 1 mile N of Cracroft Point. A light is shown from a structure standing on a drying rock lying close NW of this island.

Licka Point, located on the W side of the passage, forms the E extremity of Hanson Island and is marked by a light. Alexander Rock, with a depth of 6.7m, lies about 0.4 mile NNW of this point.

Baronet Passage should not be entered without local knowledge as it is encumbered with numerous rocks and shoals. The passage is narrow and leads E between West Cracroft Island and Harbledown Island. It then connects with Clio Channel and Beaver Channel, both of which lead to Knight Inlet.

7.22 Blackfish Sound (50°35'N., 126°42'W.) lies N of Hanson Island and leads NW from Blackney Passage to the SE part of Queen Charlotte Strait. It can be entered from Johnstone Strait via Weynton Passage and from Broughton Strait via Cormorant Channel.

Parson Bay (50°35'N., 126°39'W.) indents the W part of Harbledown Island, at the SE end of Blackfish Sound. Harris Shoals, with a least depth of 11m, lie in the middle of the bay. Anchorage, exposed to NW winds, can be taken, in a depth of 22m, within the SE corner of the bay.

Whitebeach Passage (50°36'N., 126°41'W.) is entered on the N side of Blackfish Sound, about 0.8 mile N of Parson Island. It leads S of Compton Island and into Indian Channel. This passage is less than 90m wide at its narrowest part. It is suitable only for small craft with local knowledge and is not recommended.

West Passage is entered 0.8 mile NW of Whitebeach Passage. It leads N of Compton Island and into Farewell Harbor.

Broughton Strait

7.23 Broughton Strait (50°36'N., 127°00'W.) leads 15 miles W from the W end of Johnstone Strait to the S side of Queen Charlotte Strait. Its minimum width of about 0.2 mile occurs in Haddington Passage, about midway through the strait. The high mountain ranges, which rise abruptly from the S shore of Johnstone Strait, recede considerably from the S shore of Broughton Strait, leaving the land nearby comparatively low. The islands lying on the N side of Broughton Strait are also comparatively low. The shores of the strait are densely wooded.

Several small ports lie in Broughton Strait and a number of anchorages are available.

Caution.—A Traffic Separation Scheme (TSS), which may best be seen on the chart, exists within Broughton Strait and use of the routes is recommended by the Canadian Authorities.

The separation of traffic is achieved by using Haddington Island as a natural separation zone. The main shipping channel leading through the strait passes to the S of Cormorant Island. Westbound traffic is recommended to pass N of Haddington Island and through Haddington Passage. Eastbound traffic is recommended to pass S of Haddington Island. The scheme is not IMO-adopted but the Canadian authorities advise that the principles for the use of Routeing Systems defined in Rule 10 of the International Regulations for Preventing Collisions at Sea apply to it.

7.24 Beaver Cove (50°33'N., 126°51'W.) lies on the S side of the junction of Broughton Strait and Johnstone Strait. It is entered between Ella Point and Lewis Point, 1 mile W. A light is shown from Lewis Point. A settlement stands on the SE side of the cove and is fronted by a logging port. Numerous piles and dolphins are situated along the E side of the harbor and are used for mooring log booms.

Mount Holdsworth, 901m high, stands 2.5 miles SW of the head of the cove. This mountain has an abrupt fall on its S side and is conspicuous from the E.

Anchorage can be taken, in a depth of 35m, about 0.3 mile from the head of Beaver Cove.

The **Plumper Islands** (50°35'N., 126°47'W.) extend 1.3

miles NW from the NW extremity of Hanson Island. The narrow channels leading between the islands and between the islands and Hanson Island are obstructed with many islets, rocks, and shoals. Stubbs Island, 34m high, lies 0.8 mile NW of the northwesternmost island of the group.

7.25 The Pearse Islands (50°35'N., 126°52'W.), thickly wooded, lie on the N side of Broughton Strait, about 2 miles NW of Ella Point.

Stephenson Islet lies close SE of the Pearse Islands, about 1.5 miles N of Ella Point. This islet is 8m high; two smaller islets lie close SE of it. Vessels without local knowledge are advised not to pass between the Pearse Islands and Stephenson Islet.

Pearse Reefs lie close N of the N extremity of Pearse Island. They consist of several drying and below-water rocks with a detached rock lying about 0.5 mile WNW of the main reef.

Pearse Passage (50°35'N., 126°54'W.) is formed between the SW side of Pearse Island and the SE end of Cormorant Island. The passage is about 0.8 mile wide but the channel is narrowed by shoals that extend in places up to about 0.2 mile from its sides. Several small islets and rocks lie on the shoals that front the E side. The tidal currents set obliquely through the passage at rates of up to 5 knots at times.

Gordon Rock, with two heads, dries up to 1.2m and lies in the middle of Pearse Passage. Another rock, which dries 0.6m, lies close E of Gordon Rock. The reefs surrounding these rocks are marked by kelp during the summer, but it is frequently run under by the tidal currents. The best channel leads W of Gordon Rock; however, neither is recommended.

Cormorant Island (50°35'N., 126°56'W.) lies on the N side of Broughton Strait, 4.5 miles NW of Ella Point. This island is 128m high in its E part and wooded. It is fringed in most places by beaches of boulders and shingle. A conspicuous white boulder lies close off Gordon Bluff, the SE extremity of the island. A tower, conspicuous from seaward, and a group of radio masts stand 0.5 mile WNW and 1 mile NW, respectively, of Gordon Bluff.

Caution.—Several submarine cables, which may best be seen on the chart, extend across Broughton Strait from Vancouver Island to Cormorant Island.

Several submarine cables, which may best be seen on the chart, extend across Cormorant Channel from Cormorant Island to Malcolm Island.

7.26 Yellow Bluff (50°35'N., 126°57'W.) is the S extremity of the W part of Cormorant Island. It consists of an overgrown cliff, 30m high. A beach of boulders extends up to about 0.1 mile S from this bluff. Shoals, marked by kelp during the summer, front this beach. A light is shown from a structure standing on a drying ledge close S of the bluff.

Alert Bay (50°35'N., 126°56'W.) (World Port Index No. 18860), lying on the S side of Cormorant Island, is a small commercial fishing port. The N and E sides of the harbor are lined with an oil company building, a sawmill, a fish cannery, several hotels, and numerous stores. They are fronted by piers and floats. A floating log breakwater and a pile breakwater are situated at the head of the harbor. They provide protection to a small craft float and a seaplane float. A mooring buoy is situated S of the log breakwater. The small craft harbor has a depth

of 2.7m and the public wharf has a depth of 9m alongside. A marina is also situated within the harbor.

Two prominent towers stand 0.3 mile SE of the breakwaters.

Nimpkish Bank, which dries in places, extends NW from the S shore of the strait, opposite Cormorant Island. A number of small rocks and islets lie on this bank. The N edge of the bank is marked by a lighted beacon and a lighted buoy.

Good sheltered anchorage can be taken, in a depth of 13m, sand, within Alert Bay. Anchorage can also be taken, in a depth of 24m, close off the W side of Nimpkish Bank.

Caution.—The waters of Broughton Strait, which front Alert Bay, are used at times as a seaplane aerodrome.

7.27 Leonard Rock (50°36'N., 126°59'W.), with a least depth of 3m, lies on the N side of Broughton Strait. It is located in the W entrance of Cormorant Channel, about 1.5 miles NW of Yellow Bluff. This rock is marked by kelp during the summer and a deep channel leads between it and the W shore of Cormorant Island.

Haddington Island (50°36'N., 127°01'W.) lies in the middle of Broughton Strait, 2.5 miles W of the W end of Cormorant Island. This island is 85m high, wooded, and steep-to on its E side. The other sides are fronted by reefs. A conspicuous quarry is situated on the SE side of the island. Haddington Island North Light is shown from a structure standing on a drying rock lying close off the N shore and Haddington Island South Light is shown from a structure standing on a drying ledge fronting the SW extremity of the island.

Haddington Passage, about 0.2 mile wide, leads between the S side of Haddington Reefs and the N extremity of Haddington Island. A light and a lighted buoy mark the S edge of the reefs.

Broad Point is located on the S shore of the strait, 1.8 miles W of Yellow Bluff. A sector light is shown from a structure standing 1 mile W of the point and indicates the fairway channel passing W of Haddington Island.

Ledge Point (50°36'N., 127°05'W.), the N entrance point of Port McNeill, is located on the S side of the strait, 2 miles W of Haddington Island. Neill Ledge, with depths of 1.8 to 11m, extends E from this point to within about 0.4 mile W of Haddington Island. This ledge is marked by kelp during the summer; lighted buoys are moored off its N and E extremities. The tidal currents set obliquely across Neill Ledge at rates of 1 to 3 knots.

7.28 Port McNeill (50°35'N., 127°05'W.) (World Port Index No. 18872) is a logging harbor lying on the S side of Broughton Strait. The land around the harbor is low and thickly wooded. The shores of the harbor are fringed by beaches of boulders and shingle.

The town is fronted by a small craft harbor, with a depth of 3m; a public wharf provides two berths, 18m and 37m long, with a depth of 7.6m alongside. Shell Wharf, situated close E of the town, has a berth, 137m long, with depths of 9.4 to 12.5m alongside. The Orca Quarry, gravel cargo berth with a length of 340m, can accommodate a vessel up to 80,000 dwt. The tidal currents are not felt within the harbor.

Anchorage, sheltered from N and W winds, can be taken, in depths of 9 to 16.5m, within the harbor. Anchorage, with less shelter from N winds, can also be taken, in depths of 16 to 36m, off the entrance to the harbor, close S of Neill Ledge.



Photos copyright Mike Mitchell

Pulteney Point Light

rounded and densely-wooded hills. The tallest hill is 189m high and stands near the middle of the N side of the island.

Dickenson Point is located on the S side of the island. It lies about 3 miles NW of Yellow Bluff and is prominent. Haddington Reefs, consisting of numerous drying and below-water rocks, lie about 0.8 mile SSE of the point and are joined to it by a bank with a least depth of 3.7m. The S edge of the reefs is marked by a light and a lighted buoy. It forms the N side of Haddington Passage.

Caution.—A submarine pipeline, which may best be seen on the chart, extends 0.4 mile WSW from a point located close E of Dickenson Point.

Marine farm facilities, marked by buoys, may be encountered close off the shores of Malcolm Island.

7.30 Rough Bay (50°38'N., 127°02'W.) indents the S side of Malcolm Island, close W of Dickenson Point. Good anchorage can be taken, in depths of 11 to 14.6m, about 0.3 mile S of the edge of the drying flat fronting the head of the bay.

Sointula (50°38'N., 127°01'W.) (World Port Index No. 18850), a fishing and farming settlement, stands on the E side of Rough Bay, about 0.5 mile N of Dickenson Point. Several piers are available for berthing.

A small craft harbor, with several floats, lies at the N end of the harbor. It is protected by a rock breakwater and has a depth of 3m. A public wharf is situated 1 mile SSE of the small craft harbor. It has a berth at the head, 15m long, with depths of 8.5 to 10m alongside. The berth at the N side is 43m long and has depths of 3 to 7.6m alongside. The berth at the S side is 43m long and has depths of 5.2 to 9.4m alongside. The Imperial Oil Wharf provides a berth, 15m long, with a depth of 6m alongside.



Port McNeill

Caution.—Vessels are warned that numerous ruined piles and dolphins, many submerged, front the shores of the harbor, especially in the NW part.

At times, part of the harbor is used as a water aerodrome.

7.29 Malcolm Island (50°39'N., 127°06'W.) separates Broughton Strait and Cormorant Channel from the E part of Queen Charlotte Strait. Donegal Head, the E extremity of the island, is located 4.5 miles N of Ella Point and Graeme Point, the W extremity of the island, is located 4 miles NW of Ledge Point.

The island is comparatively low and undulating, with several

Small vessels can anchor, in depths of 13 to 18m, about 0.3 mile SW of the breakwater. Large vessels can anchor, in a depth of 33m, off the harbor, but are exposed to the W.

Caution.—The area fronting the settlement is at times used as a water aerodrome.

7.31 Pulteney Point (50°38'N., 127°09'W.), the SW extremity of Malcolm Island, is located 0.5 mile SSE of Graeme Point and marked by a light.

Kelp Patch (50°39'N., 127°11'W.), with a least depth of 5m, lies about 1 mile NW of Graeme Point. an isolated patch, with a least depth of 12.5m, lies about 2 miles W of Graeme Point.

Weynton Passage (50°35'N., 126°49'W.) leads N from the junction of Broughton Strait and Johnstone Strait to the junction of Cormorant Channel and Blackfish Sound. This passage is en-

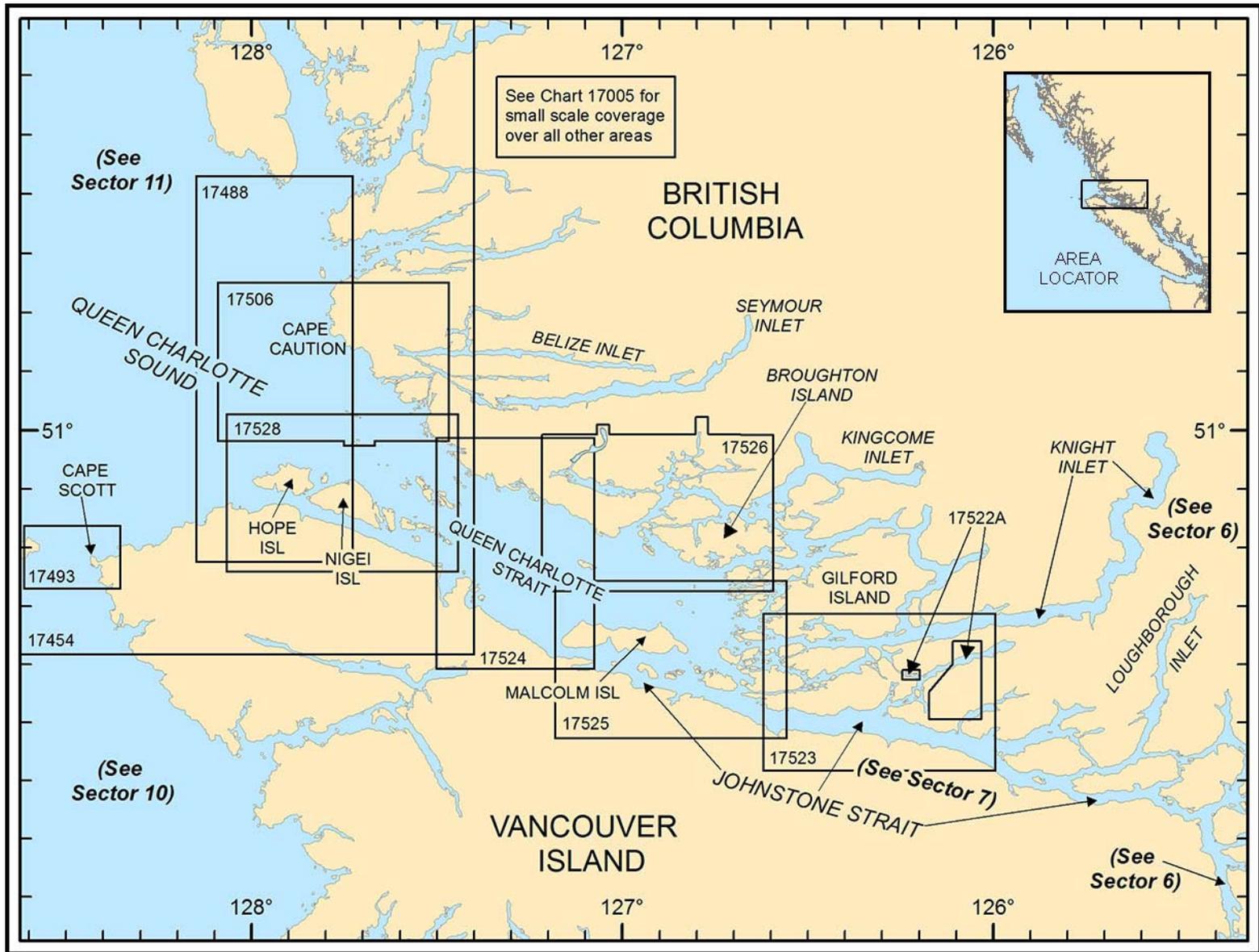
tered from the S between the dangers lying close E of Stephenson Islet and the islands located close off the W side of Hanson Island. It is deep and not less than 0.8 mile wide.

Stubbs Island (50°36'N., 126°49'W.) lies in the center of the E entrance to Cormorant Channel and N of the passage.

It may be passed on either side at a prudent distance.

The tidal currents in the passage attain velocities of up to 5 knots at times and set over and across the shoals extending from Stephenson Islet. At times, heavy tide rips occur near both shores and Stubbs Island.

Cormorant Channel (50°36'N., 126°52'W.) parallels the E part of Broughton Strait and is connected to it by Weynton Passage and Pearse Passage. It is bounded on the N side by the S shore of Malcolm Island and on the S side by Cormorant Island and the Pearse Islands.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 8 — CHART INFORMATION

SECTOR 8

QUEEN CHARLOTTE STRAIT

Plan.—This sector describes the S side of Queen Charlotte Strait as far W as the E end of Goletas Channel; then the E end of the strait and the adjoining inlets; then the N side of the strait; then the channels and passages at the W end of the strait; and lastly, the N side of the W end.

General Remarks

8.1 Queen Charlotte Strait is an extensive arm of the sea and connects the inner waters lying NE of Vancouver Island with the Pacific Ocean. The strait is formed by the mainland, on the N side, and by the NE side of Vancouver Island, on the S side. It has an average width of 10 to 15 miles and extends about 50 miles ESE to the entrance of Knight Inlet.

Numerous islands, islets, and dangers, which lie in the W half of the strait, form several alternate channels. Goletas Channel and Gordon Channel, on the S side, are the best. Richards Channel, on the N side, is somewhat encumbered.

The E half of the strait is more open; however, there are numerous islands, islets, and dangers lying at the E end of the approaches to Knight Inlet and Fife Sound.

The depths in the strait are considerable. Beaver Harbor and Hardy Bay, on the S side, and Port Alexander, in Goletas Channel, are the only anchorages available to vessels of moderate size. A number of secure anchorages are available for small vessels.

The W part of the strait, with the exception of Goletas Channel, is open to the Pacific Ocean; the channel is protected by Nahwitti Bar. A swell from the W, which is considerably increased immediately after a SE wind of any strength, rolls in from seaward; this swell is broken on reaching the islands lying between the Millar Group and the Gordon Group, and is not felt to the SE of them.

The route of the inside passage runs along the S side of Queen Charlotte Strait from the W end of Broughton Strait. It leads through the E part of Goletas Channel, Christie Passage, and the NW part of Gordon Channel. The route then passes W of Pine Island and leads to Cape Caution.

Vessel Traffic Service (VTS).—The Vessel Traffic Services Zones Regulations require all vessels greater than 500 gt to file a VTS Offshore Report 24 hours prior to entering a Canadian VTS Zone from seaward, or as soon as practical where the ETA of the ship to a Canadian VTS Zone is less than 24 hours after the time the ship departed its last port of call. Send VTS Offshore Reports to a Canadian Coast Guard MCTS Center, free of charge, or to one of the following:

1. Telephone: 250-627-3071
2. E-mail: vts.rupert@innav.gc.ca

The waters described in this sector lie within the Victoria Vessel Traffic Service (VTS) System. For further information on reporting requirements, see paragraph 1.1.

Queen Charlotte Strait—South Side

8.2 Several groups of islands and islets lie in the middle of the E part of Queen Charlotte Strait, to the N of Malcolm Island.

Foster Island (50°42'N., 126°51'W.) has a conspicuous conical hill standing on its S extremity. Penfold Islet lies 1.5 miles SE of this island and the channel leading between them is clear of dangers. Numerous dangers fringe the island and the islet. They are marked by kelp during the summer.

The **Holford Islets** (50°44'N., 126°48'W.), a group, are surrounded by shoals and drying rocks.

The **Numas Islands** (50°46'N., 127°06'W.), a conspicuous group, lie centered 3 miles off the N side of the strait. A light is shown from a structure standing on the N side of the easternmost island. Numas Bank and George Bank, with least depths of 20m and 22m, respectively, lie between the Numas Islands and Foster Island.

Labouchere Passage leads between the Numas Islands and **Lewis Rocks** (50°48'N., 127°03'W.). It is about 2 miles wide and very deep. Vessels using this passage should favor that side lying closer to the Numas Islands.

Morgan Shoal (50°47'N., 127°15'W.), with a depth of 18m, is rocky and lies in the middle of the strait.

Tides—Currents.—The tidal currents within the passages and channels lying among the above-described islands attain a velocity of 3 knots at times and follow the general direction of each passage.

8.3 Donegal Head (50°38'N., 126°49'W.), the E extremity of Malcolm Island, is formed by a conspicuous, white earth cliff. It is 31m high and fringed by a shingle beach.

A shoal extends SE from the head and the tidal currents run with strength over and past it.

Lizard Point, marked by a light, is located 3.8 miles NW of Donegal Head.

Trinity Bay (50°40'N., 126°55'W.) indents the N side of Malcolm Island, close W of Lizard Point. A bank of sand and gravel, with depths of less than 9m near its center, extends seaward from the shores of this bay. Anchorage can be taken on this bank, but it is exposed to all except S winds.

Bere Point (50°40'N., 127°03'W.), comparatively steep-to, is located 6 miles W of Lizard Point. A reef, with a least depth of 12.5m, lies about 1 mile E of this point. An unnamed bay lies close E of the point and is fringed with shoals extending up to 0.2 mile offshore.

Caution.—A fringe of kelp extends from 0.1 to 0.2 mile seaward from the N shores of Malcolm Island during the summer.

8.4 False Head (50°40'N., 127°17'W.) is located on the W side of the W entrance of Broughton Strait, about 4.8 miles WNW of the W extremity of Malcolm Island. Foul ground, with boulders, extends up to about 0.1 mile E of this headland.

The tidal currents at a position about 2 miles N of the head have an average velocity of 2.5 knots; the flood current sets 130°.

Between False Head and **Thomas Point** (50°42'N., 127°23'W.), 4.5 miles WNW, the shore is low and fringed with a beach of sand and boulders.

Beaver Harbor (50°43'N., 127°25'W.), a bay, lies close W of Thomas Point, on the S side of Queen Charlotte Strait. The shores of the bay are comparatively low and a number of islands lie in the entrance. A light is shown from a structure standing on the N side of Round Island, the outermost island, which lies 1.8 miles NNW of Thomas Point.

A public wharf, fronting the shore of the bay, is 85m long and has a depth of 6.7m alongside. Dredging has been carried out up to 30m beyond the end of the wharf and vessels of up to 113m in length can be accommodated.

A large, white conspicuous hanger stands at the airport situated about 1 mile SSE of Thomas Point. An aeronautical lighted beacon, visible from seaward, is situated in the vicinity of the airport.

Vessels approaching the harbor from the E should enter between Thomas Point and Eagle Island, 0.5 mile NNE. Vessels approaching from the N or W should enter via **Daedalus Passage** (50°45'N., 127°23'W.). The depths in both entrances are irregular. Both entrances are fringed with numerous dangers which may best be seen on the chart.

The tidal currents at a position about 1 mile N of the entrance to Daedalus Passage have an average velocity of 2.5 knots; the flood current sets 110°.

Cormorant Rock, which dries 4.3m, lies in the middle of the inner part of the harbor and is marked by a beacon.

Anchorage.—Protected anchorage can be taken, in depths of 24 to 27m, within the harbor, about 0.4 mile NNE of Cormorant Rock.

8.5 Hardy Bay (50°43'N., 127°29'W.) lies on the S side of the strait and is separated from Beaver Harbor by a peninsula. The bay extends 3.3 miles S to a drying mudflat at the head. The shores of the bay are rugged. A microwave tower surmounts the highest summit of the Seven Hills, which stand on the SE side of the bay. It is 192m high and conspicuous from seaward.

The **Masterman Islands** (50°45'N., 127°26'W.) lie close N of the peninsula separating Hardy Bay from Beaver Harbor. They are wooded and form the E entrance point of Hardy Bay. The passage leading between this group of islands and the S shore of Queen Charlotte Strait is available only to small craft with local knowledge.

A light is shown from a structure standing on the E end of the northernmost island of the group. The head of the bay consists of a small basin with a narrow entrance; access is difficult and should not be attempted without local knowledge.

Port Hardy (50°43'N., 127°29'W.) (World Port Index No. 18840), a settlement, stands on the W side of Hardy Bay.

Port Hardy Home Page

<https://porthardy.ca/visitors/harbour-authority/>

Depths—Limitations.—Port Hardy is fronted by the Port

Hardy Terminal with a berth, 61m long, and depths of 3.4-7.3m alongside. Two public pontoons located S of the public wharf are used by large fishing vessels. A marina is located S of the pontoons.



Port Hardy

Pilotage.—Pilotage is compulsory for vessels over 350 gross tons and is provided by the Pacific Pilotage Authority Canada (PPA). For details on reporting procedures and pilot boarding areas as well as other regulations besides VTS procedures, refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Regulations.—Port Hardy lies within Sector 4 of the Victoria Vessel Traffic Service (VTS). For details concerning reporting procedures, refer to paragraph 1.1.

Contact Information.—The port can be contacted between 0800 and 2000 during the summer and between 0830 and 1600 during the winter, as follows:

1. VHF: VHF channel 66A
2. Telephone: 1-250-949-6332
1-250-949-0336 (mobile)
3. E-mail: porthardylharbour@gmail.com

Emergency contact to the port is available at any time.

Anchorage.—Anchorage can be taken, in a depth of 24m, about 0.3 mile ENE of the head of the wharf.

Caution.—A submarine cable, which may best be seen on the chart, lies across the head of Hardy Bay.

Queen Charlotte Strait—East End

8.6 The E end of Queen Charlotte Strait is encumbered by the numerous islands, islets, and rocks which extend from **Swanson Island** (50°37'N., 126°42'W.), lying on the S side of the strait, to **Broughton Island** (50°46'N., 126°45'W.), lying on the N. A number of passages in this area provide access to extensive inlets. These passages, with the exception of Fife Sound, are narrow, intricate, and should be approached with care.

The inlets are deep and their shores rise in almost sheer precipices to heights of between 1,500 and 1,820m. Inland, the stupendous peaks are always covered with snow. Numerous cataracts, caused by melting snow, rush down the barren, rugged sides of the mountains.

The inlets are intensely dreary and gloomy because of the lofty and precipitous mountains and the frequent mist and rain.

Settlements are rare. However, anchorages are available in each of the inlets and between the islands lying in the approaches.

Directions.—The 100m curve provides a safe guide along the seaward edge of the islands, islets, and dangers lying in the outer approaches to Knight Inlet and Fife Sound.

8.7 White Cliff Islets (50°39'N., 126°44'W.), the largest of which is 15m high, lie within 0.5 mile N of Round Islet. The islets are white and very conspicuous. The channel lying between the foul ground located S of this group of islets and Round Islet is about 0.1 mile wide, but is not recommended.

Start Island (50°41'N., 126°42'W.), 46m high, and **High Island**, 82m high, lie within a group of islands located on the S side of the approach to Dusky Cove.

Dusky Cove (50°42'N., 126°40'W.) provides sheltered anchorage, in depths of 11 to 14.6m, to small vessels with local knowledge. Cove Islet lies on the N side of the entrance. The approach channel leading to the anchorage is about 0.1 mile wide.

Evening Rocks (50°42'N., 126°42'W.) and **Loon Rock** lie on the N side of the approach. Evening Rocks, forming the westernmost danger, dry up to 1.8m and lie about 0.6 mile WNW of Cove Islet. Loon Rock, 2.1m high, lies about 0.3 mile W of the islet and a reef, with a least depth of 5.5m, lies about 0.2 mile WSW of it.

The Fog Islets, a group, lie close NE of Evening Rocks and two unnamed small islets lie close S of Cove Islet.

8.8 Ledge Rock (50°42'N., 126°42'W.) and a chain consisting of several islands, islets, and rocks extend E on the S side of the approach. The chain includes Trap Rock, South Islet, and Leading Islet.

Ledge Rock, the westernmost danger, dries 1.5m and lies about 0.6 mile WSW of Cove Islet. Trap Rock, 2.4m high, lies about 0.3 mile WSW of Cove Islet. A shoal lies about midway between these two dangers and a rock, awash, is located on it.

South Islet lies about 0.1 mile SSW of Cove Islet. Leading Islet lies on the SE side of the anchorage, about 0.3 mile SE of Cove Islet. Several unnamed islands lie between these two islets.

Sunday Harbor (50°43'N., 126°42'W.) provides sheltered anchorage to small vessels with local knowledge off the S side of Crib Island. A chain of islands and islets extends from W to E off the S side of Crib Island and the harbor. This chain includes Kate Islet, Narrows Islet, Angular Island, and Egg Islet.

Crib Passage leads from Queen Charlotte Strait to the anchorage. It is entered between **Huston Islet** (50°44'N., 126°43'W.), 26m high, and **Liska Islet**, 26m high, 0.3 mile SW. A shoal patch, with a depth of 4.1m, lies about 0.2 mile WNW of Huston Islet. The passage narrows to a width of less than 0.1 mile between Island Point, the S extremity of Crib Island, and Narrows Islet. The bar lying between these two features has a least depth of 5.5m.

Sunday Passage (50°43'N., 126°42'W.), a narrow channel leading to the anchorage, has a least depth of 11.9m and is approached to the N of the **Coach Islets** (50°43'N., 126°42'W.).

Anchorage can be taken, in depths of 7 to 12.8m, in a small basin lying E of Island Point. A good berth, with a depth of 7.3m, is with the N extremity of Kate Islet, lying on the S side of Crib Passage, and Island Point in line, bearing 272°. The

depths lying close E of the anchorage are less than 5.5m. Brush Islet lies in the NE corner of the anchorage area.

8.9 Monday Anchorage (50°44'N., 126°39'W.) provides sheltered anchorage to small vessels with local knowledge. A good berth lies, in a depth of 12.8m, between the N side of Mars Island and the S side of Tracey Island. This anchorage can be approached from Queen Charlotte Strait via Philips Passage or Trainer Passage, lying close N. Vessels should then pass between the N side of Crib Island and the S side of Eden Island.

Philips Passage (50°44'N., 126°43'W.) lies between the N side of Crib Island and a group of islets and rocks encumbering the middle of the passage, between Crib Island and the SW side of Eden Island. A rock, with a depth of less than 1.8m, and another, with a least depth of 3.1m, lie in the middle of the passage. The navigable channel leading between these dangers and Crib Island is only 110m wide.

Numerous islets and rocks lie in the approach to Monday Anchorage. The outermost danger consists of a rock, with a depth of 5.5m, lying about 0.5 mile NNW of Huston Islet. Another rock, with a depth of 3.7m, lies about 0.4 mile WSW of the SW extremity of Eden Island.

The Marsden Islands, five in number, lie close ENE of Crib Island with several other islets and rocks located close S of them. The channel lying N of this group of islands is clear and leads to the anchorage.

Joe Cove (50°45'N., 126°40'W.), an inlet, and **Misty Passage** lie on the S side of Eden Island.

8.10 Spiller Passage (50°43'N., 126°40'W.) leads SE from Monday Anchorage to Arrow Passage. Misty Passage leads NE to Blunden Passage and Old Passage. Due to being narrow, these passages should not be attempted without local knowledge.

The main approach to Knight Inlet is entered from Queen Charlotte Strait between Wedge Island, marked by a light, and the **Puzzle Islands** (50°38'N., 126°43'W.). After passing between these two features, vessels should steer a course with the summit of Jumble Island ahead, bearing 086°, and pass about 0.2 mile N of Chick Reef. When the E extremity of Whirl Islet is abeam, vessels should change course to pass about 0.2 mile S of Night Islet and Jumble Island. A mid-channel course should then be steered until Rocky Point is abeam. Vessels should then steer 089° and pass about 0.2 mile N of Clock Rock. When Warr Bluff is abeam, a mid-channel course can be resumed.

The tidal currents off **Owl Island** (50°38'N., 126°41'W.), in the main approach to Knight Inlet, have an average velocity of 2.5 knots. The flood current sets 120°.

Farewell Harbor (50°36'N., 126°41'W.) lies on the S side of the main approach to Knight Inlet. It provides secure anchorage, in a depth of 16m, to small vessels with local knowledge, but the entrances are narrow.

Swanson Passage (50°37'N., 126°41'W.) leads S into Farewell Harbor from the S side of the main approach to Knight Inlet. Numerous dangers lie in the approaches to this passage.

West Passage (50°36'N., 126°41'W.) forms the entrance into Farewell Harbor from Blackfish Sound. It is approached between Slate Point, the NW extremity of Compton Island, and

Fresh Rock, 0.4 mile WNW. The passage leads between Apples Islet, lying close off Swanson Island, and the Star Islets, lying within 0.2 mile of the N side of Compton Island. The Star Islets, two in number, lie on the SE side of the passage and are 11.6m and 13.7m high.

Punt Rock, which dries 4.3m, lies close SW of the northwesternmost of the Star Islets.

Village Channel, Indian Channel, Eliot Passage, and Beware Passage comprise the E approaches to Farewell Harbor.

8.11 Village Channel (50°37'N., 126°38'W.) leads W into Farewell Harbor from Eliot Passage and Beware Passage. It passes between Crease Island and the Indian Group, on the N side, and Berry Island and the Carey Group, on the S side. The fairway channel lying between Crease Island and Berry Island is only about 180m wide. It should be used only by vessels with local knowledge.

The Carey Group extends about 2 miles E from Berry Island. It includes, from W to E, Leone Island, Madrona Island, Larsen Island, Alder Island, and **Ralph Island** (50°36'N., 126°36'W.). The passages leading between the islands in this group should not be attempted.

The **Indian Group** (50°37'N., 126°37'W.), which includes Fern Island, has no navigable passages within it.

Eliot Passage (50°37'N., 126°35'W.), available only to small vessels with local knowledge, leads S from Knight Inlet. It passes between the Indian Group, on the W side, and Village Island, on the E side, and connects with Village Channel.

Beware Passage (50°35'N., 126°32'W.) is encumbered with numerous islets and rocks, particularly at the SE end. It should only be attempted by small craft with local knowledge.

Knight Inlet (50°38'N., 126°35'W.) is entered between Warr Bluff and Slope Point, 1 mile NE. This inlet is deep with few places for anchorage.

The main approach to the inlet is from Queen Charlotte Strait. However, it can also be approached via several passages and channels which are connected to Johnstone Strait and Farewell Harbor.

Tides—Currents.—The tidal currents setting between the entrance of the inlet and Steep Head, 15 miles E, attain a rate of 3 knots and heavy tide rips occur in places. The currents turn from 1 to 2 hours after HW and LW, the time being greatly affected by the amount of run-off from the land. The wind has a large effect on the velocity of the tidal currents and may increase their strength by up to 2 knots. During the summer, when the land run-off is at its greatest, the flood current may disappear entirely in the upper reaches of Knight Inlet and a marked increase in the rate of the ebb will occur.

Ripple Bluff (50°38'N., 126°31'W.), the bold and steep-to N extremity of Village Island, is located on the S side of Knight Inlet.

Chop Bay (50°39'N., 126°30'W.) is a small bight which indents the S side of Gilford Island, opposite Ripple Bluff. It is foul and should not be entered.

8.12 Port Elizabeth (50°40'N., 126°30'W.) is one of the few anchorages in Knight Inlet. It can be approached by passing either E or W of the **Lady Islands** (50°39'N., 126°25'W.) and by keeping in mid-channel. Anchorage can be taken, in depths of 18 to 33m, E and NE of a group of islets lying at the

head of the inlet.

Maple Cove (50°41'N., 126°28'W.) provides good anchorage, in a depth of 13m, to small vessels.

Shewell Island (50°39'N., 126°15'W.), 117m high, lies on the N side of the fairway of Knight Inlet. Martin Islets, three in number, lie close off the E end of this island.

Clapp Passage and Nickoll Passage lead into the S end of Tribune Channel, NW and NE, respectively, of Shewell Island. The fairways of both of these passages are deep and free of dangers.

Montagu Point (50°38'N., 126°13'W.) is located on the S side of Knight Inlet and Protection Point lies 2 miles E of it. Tsakonu Cove, lying on the S side of Protection Point, has a depth of 22m and shoals to a depth of 9m near its head. Small craft can obtain anchorage in this cove, but it is exposed to the E.

Steep Head (50°40'N., 126°11'W.) is located on the N side of the inlet, on the E side of the S end of Sargeant Passage. The S end of Viscount Island lies between Shewell Island and this headland.

Shelterless Point (50°41'N., 126°05'W.) is located on the N side of the inlet, 3.3 miles E of Steep Head.

Prominent Point (50°40'N., 126°00'W.) is located on the S side of the inlet, 6 miles ENE of Protection Point. Rest Islets lie close inshore, about 0.8 mile WSW of this point.

Hoeya Head (Boulder Point) (50°41'N., 125°59'W.) is located on the N side of the inlet. A ridge, with depths of 37 to 68m, lies between this headland and Prominent Point. The depths to the W and E of the ridge are deeper.

Hoeya Sound is entered close N of Hoeya Head. The depths in this sound are too deep for anchorage and it shoals abruptly to a drying flat, about 0.5 mile from the head.

8.13 Lull Bay (50°42'N., 126°01'W.) has depths too deep for anchorage; numerous piles stand on a drying bank lying off its W shore.

Rough Point (50°40'N., 125°54'W.) is located on the S side of the inlet, 4 miles E of Prominent Sound.

Glendale Cove (50°41'N., 125°43'W.), the S half of which dries, indents the S side of Knight Inlet. The ruins of a former cannery are situated on the NE side of this cove. Anchorage can be taken, in a depth of 42m, off the edge of the drying part but the depths shoal rapidly.

Glacier Peak (50°52'N., 125°34'W.), 1,324m high, rises 2.3 miles ESE of Cascade Point. A conspicuous glacier is located a short distance inshore over a gully at the foot of this peak.

Knight Inlet widens slightly at the head. However, the inlet maintains its deep depths close to a mud flat that extends about 0.5 mile off an area of marshy land, at the S end of a valley where it terminates.

Anchorage can be taken, in a depth of 44m, with **Costello Peak** (51°03'N., 125°30'W.) bearing about 101° and open to the S of Dutchman Head, 3 miles NW. Vessels are cautioned that the depths shoal rapidly to the N of this bearing. During the winter, strong N winds render this anchorage unsafe.

Clio Channel (50°38'N., 126°20'W.) leads S from Knight Inlet and joins the passages connecting with Johnstone Strait.

Negro Rock (50°36'N., 126°22'W.), marked by a beacon, lies off the entrance to Bones Bay.

Bones Bay (50°35'N., 126°21'W.) indents the SE side of

Clio Channel, close SE of Negro Rock. Sambo Point, located on the S side of Clio Channel, forms the N entrance point of this bay. A small cove, with a pier, lies at the head of the bay.

Joliffe Island (50°35'N., 126°28'W.) lies in the fairway of Clio Channel. A rock, with a depth of less than 2m, and another, with a depth of less than 3.2m, lie about 0.2 mile S and about 0.2 mile SSE, respectively, of this island.

8.14 Chatham Channel (50°35'N., 126°15'W.) is entered from Knight Inlet and leads about 5 miles SE. It passes between East Cracroft Island, on the SW side, and the mainland, on the NE side, and connects with the junction of Havannah Channel and Call Inlet. The least depth in the fairway is reported to be 3m. The shallowest part is at the E end where kelp grows across the channel during the summer and autumn.

Tides—Currents.—The tidal currents in Chatham Channel attain a velocity of 4 to 6 knots to the S of Atchison Island and a velocity of 5 to 7 knots to the S of the Bowers Islands. The HW slack and LW slack occur 45 minutes and 1 hour 25 minutes, respectively, before the corresponding slack water in Seymour Narrows. These times are for the SE end of the channel, near Root Point.

Caution.—A small slide area, with a radius of about 15m, was reported (1975) to lie on the foreshore of East Cracroft Island in position 50°35'27"N, 126°15'49"W and may be hazardous.

8.15 Atchison Island (50°35'N., 126°13'W.) lies on the N side of Chatham Channel. An islet lies close S of this island and is connected to it by a drying shoal. This islet has a cliff, about 4m high, on its S side with a prominent white patch on it. The S side of the islet is steep-to, but a detached rocky patch, with a depth of 3.7m, lies about 0.2 mile E of it.

Ray Point (50°35'N., 126°12'W.), 38m high, consists of a narrow rocky tongue of land and is marked by a light. It forms the E entrance point at the SE end of Chatham Channel. Root Point, located 0.4 mile WSW of Ray Point, is low and forms the W entrance point. Several rocks, with depths of less than 1.8m, lie close off the S shore of the channel and up to 1 mile W of Root Point. A beacon stands on Root Point; two other beacons are situated on the S side of the channel, about 0.4 mile and 0.7 mile W of it.

A beacon also stands close off the S side of the southernmost island of the Bowers Islands group, about 1 mile WNW of Root Point.

8.16 Retreat Passage (50°42'N., 126°36'W.) leads NE to its junction with Arrow Passage and Cranmer Passage. This passage is entered from the approach to Spring Passage. Several islands, islets, and rocks lie on the E side of the passage. A number of channels lead between these features and the shore but should not be used.

Bonwick Island (50°42'N., 126°38'W.), 226m high near its N end, forms the W side of Retreat Passage. The E shore of this island is bold.

Seabreeze Island (50°40'N., 126°37'W.), 98m high, is the largest and southernmost island lying within Retreat Passage.

Sail Island lies on the E side of Retreat Passage, 0.8 mile NE of Seabreeze Island. Several islets lie close off the N end of this island. The passage lying close NE of Sail Island is about 0.2

mile wide and available to small vessels with local knowledge.

Health Bay (50°41'N., 126°35'W.) indents the E side of Retreat Passage and provides good anchorage, in a depth of 20m. A detached patch, with a depth of 7m, lies near the middle of the bay. Small vessels can anchor in shallower depths nearer to the head of the bay.

Grebe Cove (50°43'N., 126°37'W.), a narrow inlet, indents the E side of Bonwick Island. The depths in the cove shoal gradually from 29m in the entrance to 5.5m near its head.

Caution.—It was reported (1976) that compass errors up to 18° have been experienced within Retreat Passage, in the vicinity of Meade Bay.

8.17 Meade Bay (50°42'N., 126°35'W.), a small indentation, lies on the E side of Retreat Passage, opposite Grebe Cove. This bay has a depth of 24m lying near its head.

The **Fox Islands** (50°42'N., 126°35'W.) lie close off the NE end of Bonwick Island. The passage leading between the easternmost island of the this group and Solitary Islet, 15m high, is clear. Several channels lie within the island group but they are intricate and should only be used with local knowledge.

False Cove (50°44'N., 126°33'W.), an indentation, indents the coast of Gilford Island. Two detached shoal patches, with depths of 4.3m and 7m, lie within the cove 0.4 mile and 0.6 mile, respectively, NE of Solitary Islet. The cove may be approached on either side of Solitary Islet, but vessels passing to the S should stay at least 0.2 mile from the shore to avoid the foul ground extending from it. Anchorage can be taken, in a depth of 29m, in the center of the cove.

Arrow Passage (50°43'N., 126°40'W.) is entered from the W between Horse Rock and Evening Rocks. A rock, with a depth of 7.3m, lies 0.3 miles E of Horse Rock.

Cranmer Passage (50°45'N., 126°32'W.) leads ENE from the junction of Retreat Passage and Arrow Passage to the junction of the E end of Fife Sound and the W end of Tribune Channel. This passage is formed by Gilford Island, on the SE side, and Baker Island, 389m high, on the NW side.

Steep Islet (50°44'N., 126°35'W.), 58m high, lies on the W side of the S entrance of Cranmer Passage, close S of the S extremity to Baker Island. An area of foul ground lies about 0.3 mile E of this islet. Browne Rock, which dries 0.6m and is marked by kelp in the summer, lies about 0.3 mile ESE of the E extremity of the islet. Another rock, which dries 5.2m, lies about 0.2 mile E of Steep Islet.

Isle Point (50°44'N., 126°34'W.) is located on the E side of the S entrance of Cranmer Passage and foul ground extends WSW from it. A rock, with a depth of less than 1.8m, lies about midway between Steep Islet and this point.

Evans Point (50°45'N., 126°31'W.), the SE extremity of Baker Island, is located 2 miles ENE of Isle Point.

8.18 Shoal Harbor (50°44'N., 126°30'W.), a narrow inlet, indents Gilford Island. This harbor is only available to small vessels with local knowledge. The entrance channel is less than 60m wide in places and has a least depth of 5.5m.

Echo Bay (50°45'N., 126°30'W.), a small indentation, lies on the E side of Cranmer Passage, close E of Evans Point. A settlement stands on the shore of this bay and offers gasoline, diesel, propane, lubricants, and charts for sale. Mooring is available with power and water hookups for small craft. There

is a scheduled float plane service to Seattle, Campbell River, and Port McNeill.

Simoom Sound settlement, another small indentation along the E side of Cramer Passage, is abandoned and lies about 0.6 mile N of Echo Bay. A rock, with a depth of 3.7m, lies about 0.1 mile WSW of the float and is marked by a small patch of kelp during the summer.

Pym Rocks (50°46'N., 126°31'W.), which dry up to 1.8m, lie between 0.3 mile and 0.4 mile NNW of Horsford Point, the NE extremity of Baker Island. These rocks are marked by a large patch of kelp during the summer.

Baxter Shoal (50°46'N., 126°30'W.), with a least depth of 7.3m, lies about 0.2 mile SSE of Horsford Point.

Powell Point is situated on the E side of the N entrance of Cranmer Passage, 0.8 mile ENE of Horsford Point. A rock, which dries 1.5m, lies about 0.1 mile NNW of this point.

Fife Sound (50°47'N., 126°38'W.) is entered from Queen Charlotte Strait between Duff Islet and Gordon Point, 0.8 mile NW. The depths in the sound are deep and no special directions are necessary. Tidal currents in the channel are negligible.

Indian Passage (50°46'N., 126°35'W.) is a narrow channel which leads S of the Benjamin Group, on the S side of Fife Sound. This passage should only be used by small vessels with local knowledge because several drying rocks lie near the fairway, to the S of Davies Island.

Deep Harbor (50°48'N., 126°35'W.), a narrow inlet, lies on the N side of Fife Sound and is formed by the Pearse Peninsula. This inlet is entered close N of Sharp Point and has depths of 26 to 71m.

Jumper Island lies in the entrance of the harbor. A reef, with a least depth of 4.6m, extends up to about 0.3 mile W from the W extremity of the island. A rock, which dries 2.1m, lies about 0.2 mile E of the E extremity of the island. The harbor is entered by passing to the N of the island. Anchorage can be taken, in a depth 44m, at the head of the harbor, about 0.3 mile SW of the entrance of a narrow inlet.

8.19 Sharp Shoal (50°47'N., 126°36'W.), with a depth of 6.4m, extends up to about 0.1 mile seaward from the N shore of Fife Sound, about 0.3 mile SE of Sharp Point.

Nickless Islet (50°47'N., 126°32'W.), 43m high, lies on the N side of Fife Sound, close off the SE extremity of the Pearse Peninsula and 2.5 miles ESE of Sharp Point. The N shore of the sound curves N for 0.8 mile from this islet to Notice Point, the NE extremity of the peninsula. Notice Rock, 1.2m high, lies close N of Notice Point.

Scott Cove (50°46'N., 126°28'W.) indents the S side of Fife Sound between Powell Point and Evangeline Point, 0.8 mile ENE. A rock, with a depth of 2.7m, lies in the entrance of this cove, close W of Evangeline Point. Evangeline Rock, with a depth of less than 1.8m, lies about 0.2 mile WSW of Evangeline Point.

The **Burdwood Group** (50°48'N., 126°28'W.), consisting of several islands, lies in the approach to Tribune Channel. The largest and northwesternmost island of the group is 116m high.

Raleigh Point (50°48'N., 126°30'W.) is the W extremity of the northwesternmost island of the group. Village Point, the W extremity of the southwesternmost island, is located about 1.5 miles NW of Evangeline Point. Walker Island, the northeasternmost island, lies in the entrance of Tribune Channel. No at-

tempt should be made to pass between the islands of this group.

Hornet Passage and Raleigh Passage lead E and W, respectively, of the Burdwood Group and are both deep.

8.20 Viner Sound (50°47'N., 126°26'W.) lies at the E end of Fife Sound; its entrance is located between Evangeline Point and King Point, 1.8 miles NE. This sound is entered to the S of Penn Islet, 20m high, which lies about 0.2 mile S of King Point. It is clear of dangers and sheltered by precipitous mountains. A drying flat extends about 0.5 mile from the head of the sound. The depths are too deep for anchoring, except near the head, where small vessels can obtain anchorage, in a depth of 16.5m.

Deep Sea Bluff (50°49'N., 126°30'W.) is located on the N side of the junction of Penphrase Passage and Raleigh Passage. It is bare, conspicuous, and steep. This bluff rises almost vertically to a height of 91m; another conspicuous bluff is located 1 mile E of it.

Tribune Channel (50°48'N., 126°28'W.) is entered at its W end between King Point and Deep Sea Bluff. This entrance can be approached via either Raleigh Passage or Hornet Passage. The fairway of the channel leads E and then S for 24 miles. The depths in the channel are deep throughout, except for **Humphrey Rock** (50°41'N., 126°15'W.). The fairway is free of dangers but few anchorages are available.

Smith Rock (50°49'N., 126°25'W.), which dries 4.9m, lies close to the S shore of the channel, about 1 mile NE of King Point.

Rainy Point (50°50'N., 126°20'W.) is located about 4 miles ENE of Smith Rock.

Kwatsi Bay (50°51'N., 126°16'W.) is approached between Gormely Point (Watson Point) and Miller Point, 2.3 miles ESE. It is deep, except near the head, where high mountains rise on three sides. Small vessels can obtain anchorage, in a depth of 27m, within the bay.

8.21 Wakhana Bay (50°49'N., 126°16'W.) indents the S side of Tribune Channel, between Clam Point and Irvine Point. The latter point is the NE extremity of Gilford Island and is marked by a beacon. A projection extends from the S shore of the bay. It narrows the fairway to a width of 0.1 mile and forms a wide basin, with a least depth of 11.3m. A rock, with a depth of 0.3m, lies about 0.3 mile E of Clam Point. Sheltered anchorage can be taken, in depths of up to 31m, within the basin.

Bond Sound (50°50'N., 126°11'W.) has depths too deep for anchoring. Loaf Point is located on the E side of the entrance to this sound, 1.5 miles E of Irvine Point.

Brown Point (50°47'N., 126°12'W.), off which Tribune Channel turns SE, is located on the E side of the channel, 3 miles S of Loaf Point.

8.22 Thompson Sound (50°46'N., 126°07'W.) is entered on the E side of Tribune Channel and Sackville Island lies near its head. The depths in the sound shoal suddenly above the island to the edge of mud flats. A logging camp stands NE of Sackville Island.

Anchorage can be taken, in a depth of 36m, with limited swinging room, in the NE corner of the head of the sound, but local knowledge is advised.

Kumlah Island (50°44'N., 126°10'W.) lies on the W side of Tribune Channel. The depths in the narrow channel leading to the N of this island are deep. Cleave Point is located on the opposite side of Tribune Channel, 1.3 miles E of this island.

Viscount Island (50°41'N., 126°13'W.) lies on the E side of the S end of Tribune Channel. Humphrey Rock, with a depth of less than 1.8m, lies in the middle of the main channel, about 0.5 mile WSW of Bamber Point. This latter point forms the W extremity of the island and is marked by a light.

Braza Island (50°40'N., 126°15'W.) lies close off the W side of the main channel, about 1.5 miles SW of Bamber Point. A rock, which dries 5.2m, lies close inshore, about 0.5 mile SSW of this island.

Queen Charlotte Strait—North Side

8.23 The N side of Queen Charlotte Strait extends in a general WNW direction from **Gordon Point** (50°46'N., 126°44'W.), located on the W side of the SE end of Richards Channel.

A number of anchorages are available. Cullen Harbor and Blunden Harbor are both directly accessible from Queen Charlotte Strait.

Commercial maritime activity is limited to that associated with logging operations and local steamer traffic.

Gore Rock (50°46'N., 126°46'W.), 1.8m high, lies on the N side of Nowell Channel, in the approaches to Cullen Harbor and Fife Sound. A rock, which dries 1.8m, lies on a shoal which extends up to about 0.1 mile SW from Gore Rock. A shoal patch, with a depth of 4.1m, and a rock, with a depth of 5.5m, lie about 0.5 mile W and 1 mile WNW, respectively, of Gore Rock. Vessels should pass at least 0.5 mile S of Gore Rock.

Cullen Harbor (50°46'N., 126°44'W.) is approached between Gordon Point and Nelly Islet, 0.3 mile W. The entrance is less than 0.1 mile wide. A rock, with a depth of less than 1.8m, lies off the entrance, 0.2 mile WNW of Gordon Point. The harbor widens within the entrance and Davidson Islet lies in its N part.

The tides in the harbor rise about 4.9m at springs and 3.5m at neaps.

Booker Passage, a narrow boat channel, leads N of Long Island, which forms the NW side of the harbor, and into Booker Lagoon. The tidal currents run with great strength through this passage.

Small vessels can obtain sheltered anchorage, in a depth of 9m, sand, within the harbor about 0.2 mile SSW of Davidson Islet.

The **Polkinghorne Islands** (50°48'N., 126°55'W.) lie on the E side of the approach to Wells Passage. The southwesternmost and largest island is 62m high and wooded. A rock, with a depth of 5.5m, lies about 1.3 miles SE of Fantome Point, the SE extremity of this island. The Polkinghorne Islands group should be given a berth of at least 0.5 mile.

Boyles Point (50°49'N., 127°01'W.) is located on the W side of the entrance of Wells Passage. A hill, 105m high, rises close NW of this point. A group of rocks front the point and the outermost, which dries, lies about 0.4 mile SW of it.

Lewis Rocks (50°49'N., 127°03'W.), up to 6.7m high, lie about 0.3 mile offshore. A rock, which dries 2.4m, lies about

0.7 mile SSW of the highest rock of the group and another, which dries 0.9m, lies close NW of it. A number of rocks, with depths of less than 1.8m, lie between Lewis Rocks and the above-mentioned drying rocks. This group of dangers should be given a berth of at least 1 mile.

Howcraft Point (50°51'N., 127°05'W.) is located 2 miles NW of Lewis Rocks. Taylor Point, backed by white cliffs, is located 2 miles WNW of this point.

The **Raynor Group** (50°53'N., 127°13'W.), consisting of five islets, lies close offshore. Several drying and below-water rocks fringe the S side of this group. During the summer, masses of kelp surround the islets and fringe the shore. The Raynor Group should be given a berth of at least 0.5 mile.

8.24 Blunden Harbor (50°55'N., 127°16'W.) provides good, sheltered anchorage for small craft on the N side of Queen Charlotte Strait.

Wells Passage (50°50'N., 126°58'W.) leads 7 miles NE to the junction of Sutej Channel, Grappler Sound, and Drury Inlet. The depths in the channel are generally deep, except at the SW entrance where the bottom is uneven. The fairway channel has a minimum width of about 0.3 mile. The tidal currents in the passage attain a velocity of 3 knots at times.

Vincent Island (50°49'N., 126°56'W.), Percy Island and Dickson Island are 81m, 107m, and 90m high, respectively. They lie off the E side of Wells Passage. Foul ground extends up to about 0.3 mile W of Percy Island.

Drew Islet (50°49'N., 126°55'W.) lies on the E side of Wells Passage with dangers lying close W and NW of it.

Kenneth Bay (Rocky Bay) (50°50'N., 127°00'W.) indents the W side of Wells Passage. Foul ground extends up to about 0.4 mile seaward from the S entrance point of this bay.

Ommaney Islet (50°50'N., 126°58'W.), the northwesternmost islet lying in Wells Passage, is 20m high. It is located about 0.7 mile NW of the W extremity of Percy Island. The W side of the islet is fronted by foul ground and several dangers lie between it and Percy Island. A rock, with a least depth of 3.4m, lies about 0.5 mile SW of the islet.

The fairway leading between the islet and James Point, close NW, is reduced in places to a width of 0.4 mile. Several islets and rocks lie close off the W extremity of Dickson Island. A rock, with a least depth of 7.8m, lies on the W side of Wells Passage, about 0.4 mile NW of Dickson Island. In the vicinity of this rock, the passage is reduced to a width of about 0.3 mile.

Caution.—The passages leading between the Polkinghorne Islands, Vincent Island, and Percy Island should not be attempted without local knowledge. Vessels should not attempt to pass between Percy Island and Dickson Island because the channel is encumbered with rocks.

8.25 Carter Passage (Canoe Passage) (50°50'N., 126°54'W.) is entered on the E side of Wells Passage. It is unsuitable for any craft other than small boats of light draft at or near HW.

Tracey Harbor (50°51'N., 126°53'W.) lies on the E side of Wells Passage, near the middle of the NW side of North Broughton Island. This harbor is entered between Cane Point, located 1.3 miles ENE of Bourmaster Point, and Baronet Point, 0.3 mile NNE. Mauve Islet lies on the S side of the entrance,

close W of Cane Point. Lambert Island, 107m high, lies on the N side of the approach with its S extremity located 0.4 mile NW of Cane Point. A shoal, with a depth of 11m, lies about 0.2 mile NW of Mauve Islet.

The harbor narrows gradually within its entrance for a distance of 1 mile. Wood Point and Bath Point are located on the N side of the harbor 0.3 mile SSE and 0.7 mile SE, respectively, of Baronet Point. Star Rock, 0.9m high and fringed with reefs, lies close inshore, close W of Bath Point. A rock, which dries 2.1m, lies close to the shore, close SE of Wood Point. A rock, which dries 4m, lies close inshore, about 0.2 mile WNW of Preston Point. Freshwater Cove, a small drying inlet, is located on the S side, opposite Bath Point.

The harbor widens within Preston Point and Griffiths Point. Carter Point, located 0.3 mile E of Griffiths Point, is the W extremity of a small peninsula that divides the inner part of the harbor into two sections. Napier Bay is the northernmost and larger section. A rock, with a depth of less than 1.8m, lies close off the SE shore, about 0.2 mile ENE of Carter Point.

Small vessels can obtain anchorage, in depths of 16.5 to 18m, mud, between Freshwater Cove and Bath Point or, in depths of 11 to 13m, in the middle of Napier Bay. Both anchorages are sheltered.

Caution.—A submarine pipeline, which may best be seen on the chart, lies across Napier Bay.

8.26 Alder Point (50°52'N., 126°52'W.) and Providence Point, 0.8 mile NE, are located on the E side of Wells Passage. Foul ground fronts the latter point.

Compton Point (50°53'N., 126°54'W.) is located on the W side of Wells Passage. Wehli Bay lies 1.5 miles SW of this point but is small and cannot be used as an anchorage.

The **Surgeon Islets** (50°54'N., 126°52'W.) lie close together in the middle of the NE end of Wells Passage, about 0.5 mile W of Atkinson Island. A light is shown from the northernmost of this group of islets. Several detached shoals, with a least depth of 5.5m, lie between this group and Atkinson Island.

Sutlej Channel (50°54'N., 126°49'W.) leads from the NE end of Wells Passage to Kingcome Inlet and the junction of Fife Sound and Tribune Channel. It passes N of North Broughton Island and NE of Broughton Island. The channel is entered through Patrick Passage between Atkinson Island, on the S side, and Kinnaird Island, on the N.

The depths almost everywhere within the channel are deep. The tidal currents attain a velocity of 3 knots at times.

Atkinson Island (50°53'N., 126°51'W.), 212m high, lies on the S side of the W entrance of Sutlej Channel. Several above-water rocks front the SW and NW extremities of the island. No attempt should be made to pass between Atkinson Island and North Broughton Island.

8.27 Patrick Passage (50°54'N., 126°51'W.) leads E into Sutlej Channel, between Atkinson Island, on the S side, and Kinnaird Island, on the N. The depths in this passage are deep. An islet lies on the N side of the passage, close off the SE side of Kinnaird Island.

Sullivan Bay (50°53'N., 126°50'W.) indents the N side of North Broughton Island, close SE of Atkinson Island. A settlement stands on the shore of the bay. Two detached shoals, with depths of 7m and 9.5m, lie about 0.2 mile off the E entrance

point of the bay.

Sullivan Point (50°54'N., 126°48'W.), the N extremity of North Broughton Island, is located on the S side of Sutlej Channel, 1.5 miles E of Atkinson Island. A shoal, with a least depth of 10.4m, lies about 0.3 mile NNW of this point.

Codrington Point, the westernmost of two projections on the N side of Sutlej Channel, is located opposite the point.

Connally Point (50°54'N., 126°47'W.), located 0.8 mile E of Codrington Point, is conspicuous. A shoal, with a least depth of 10.7m, lies about 0.4 mile W of this point. A bay lies close E of the point but is encumbered by several islets and rocks.

Cardale Head (50°52'N., 126°44'W.) is located on the S side of Sutlej Channel, 3 miles SE of Sullivan Point. Cartwright Point is located about midway between the headland and the latter point. A rock, 1.5m high, lies about 0.2 mile N of the headland.

Greenway Sound is entered between Cardale Head and Walker Point, 1.3 miles E. This sound, which almost divides Broughton Island into two parts, is connected to Wells Passage by Carter Passage. The depths in the sound are too deep for anchorage.

Maude Islet and Cecil Islet, 79m and 78m high, respectively, lie on the W and E sides of Greenway Sound, about 0.8 mile within the entrance.

Greenway Point (Jackson Point) (50°51'N., 126°47'W.) is located on the S side of the sound, 2.3 miles WSW of Maude Islet. A rock, which dries 0.3m, lies about 0.4 mile W of this point. A shoal patch, with a depth of 8.2m, lies about 0.1 mile N of the point. A rock, with a depth of 6.1m, lies about 0.3 mile WSW of the point.

Broughton Point, the N entrance point of the E end of Carter Passage, is located on the W side of the sound, about 1 mile WSW of Greenway Point. Simpson Island, 104m high, lies near the head of the sound and an islet, 37m high, lies close SE of it.

8.28 Stackhouse Island (50°51'N., 126°39'W.), 194m high, lies in the middle of Sutlej Channel, about 2 miles ESE of Walker Point. Philip Point (Phillip Point) and Moore Point are located on opposite sides of the channel, NW and SE, respectively, of the island.

Pasley Passage and Sharp Passage lead N and S, respectively, of Stackhouse Island. Pasley Rock, with a depth of less than 1.8m, lies in Pasley Passage, about 0.2 mile SSW of Philip Point.

Cypress Harbor (50°50'N., 126°40'W.) is entered on the S side of Sharp Passage, between Woods Point, located 1.8 miles SE of Walker Point, and Donald Head, 0.2 mile E. The entrance is reduced to a width of about 0.1 mile by a reef which extends E from Woods Point. Fox Rock, which dries 4.8m, lies on the E part of this reef. A detached shoal patch, with a least depth of 5.8m, lies close SW of Donald Head. Two rocks located close together, with depths of less than 1.8m, lie in the middle of the fairway off the entrance to Duck Inlet, in the vicinity of the head of the harbor.

Miller Bay indents the E side of the harbor, between Donald Head and Burt Point, 0.3 mile SE. Harbor Point and Blount Point are located on the W side of the harbor, 0.2 mile and 0.4 mile, respectively, SE of Woods Point. Berry Cove, with Tree

Island lying close off its S side, indents the W side of the harbor, close S of Blount Point. Roffey Point is located on the W side of the harbor, close S of Burt Point.

The S half of Cypress Harbor, to the S of Burt Point and Roffey Point, is narrow and shoal. Duck Inlet, which dries, is entered between Talbo Point, located 0.4 mile SSE of Burt Point, and Cawston Point, close WSW. Stopford Basin is entered close W of Cawston Point and forms the head of the harbor. Keating Islet (Keating Rock), 1.8m high, lies on the W side of this basin, near the head. The tides in the harbor rise about 4.8m at springs and 3.5m at neaps.

Anchorage.—Cypress Harbor affords good sheltered anchorage, in a depth of 29m, mud, about 0.2 mile within its entrance. Small craft can anchor, in a depth of 11m, mud, off Berry Cove. Miller Bay is not recommended for anchorage because of the shoals lying in its entrance.

8.29 The Magin Islets (50°52'N., 126°38'W.), three in number, are 37 to 69m high and lie in the entrance of Kingcome Inlet, 1.3 miles ENE of Philip Point. Two rocks, which dry 2.4m and 4.3m, lie between these islets and the shore. A detached shoal, with a depth of 5.5m, lies close E of the easternmost islet.

Hayes Point (50°51'N., 126°36'W.) is located on the SW side of Sutlej Channel, about 1.3 miles E of Moore Point.

Shawl Bay indents the E side of the entrance of Kingcome Inlet, between Gregory Island and Vigis Point. An islet lies in the S part of the bay. Vigis Point, the NW extremity of the Wishart Peninsula, is located on the NE side of the channel, 1 mile ENE of Hayes Point.

Penphrase Passage (50°50'N., 126°35'W.) is entered between Hayes Point and Vigis Point. The Wishart Peninsula is connected to the mainland by a narrow isthmus and forms the NE side of the passage. Shawl Bay lies on the W side of this isthmus. The peninsula is steep-to with rocky cliffs rising from the water's edge.

Steep Point (50°50'N., 126°34'W.), the SW extremity of the Wishart Peninsula, is located 1.3 miles SE of Vigis Point. Pollard Point, the SE extremity of the peninsula, is located 2 miles E of Steep Point.

Nicholls Island (50°50'N., 126°36'W.) lies on the SW side of Penphrase Passage, about 0.5 mile SE of Hayes Point. Two rocks lie within 0.1 mile of the NW side of this island. One rock dries 1.8m, and the other, located close NW, has a depth of less than 1.8m. A rock, which dries 2.1m, lies about 0.2 mile NW of Sir Edmund Head, the NE extremity of a peninsula located on the SW side of the passage. Trivett Rock, with a depth of less than 1.8m, lies about 0.2 mile ESE of the E extremity of Trivett Island.

Penphrase Passage is reduced to a width of about 0.3 mile at its SE end, between Trivett Island, on the S side, and the shore extending E of Steep Point, on the N side. A swept depth of 18.7m lies in this part of the passage, 0.3 mile NNE of the E extremity of Trivett Island.

8.30 Simoom Sound (50°51'N., 126°29'W.) is entered on the NW side of Tribune Channel S of Pollard Point and W of Louisa Islet. The depths in this sound are for the most part deep. Louisa Islet lies close to the E shore of the sound, about 1 mile NNE of Deep Sea Bluff. Esther Point, off which the sound

turns sharply W, is located 1.3 miles NE of Pollard Point. Esther Shoal, with a swept depth of 5.9m, lies nearly in the middle of the fairway, about 0.3 mile S of Esther Point.

Hannant Point (50°51'N., 126°30'W.) and Curtis Point are located on the N and S shores of Simoom Sound 1.3 miles NW and 1.5 miles WNW, respectively, of Esther Point. The depths in the sound decrease to less than 36m within these two points.

McIntosh Bay (50°52'N., 126°31'W.) indents the N shore of the sound, close W of Hannant Point. Several islets and an area of foul ground lie within this bay. A rock, with a depth of 2.4m, and another, with a depth of 4m, lie 0.2 mile and 0.3 mile, respectively, W of Hannant Point.

O'Brien Bay (50°51'N., 126°32'W.) forms the head of Simoom Sound. It is entered N of Curtis Point, where the sound narrows to a width of only 180m. The bay is about 0.5 mile wide and its W side is formed by the narrow isthmus that connects the Wishart Peninsula to the mainland. The depths in the bay decrease from 27m at the entrance to 7m near the head. A group of rocks, up to 3.7m high, lies close off the N shore of the bay, about 0.5 mile W of Curtis Point. A rock, which dries 1.2m, lies close S of a small promontory located on the N shore at the head of the bay.

Vessels can obtain good anchorage, in a depth of 46m, mud, within Simoom Sound, about 0.8 mile NW of Esther Point. Small vessels can anchor, in a depth of 24m, mud, within O'Brien Bay, about 0.4 mile from the head.

Laura Bay (50°49'N., 126°34'W.) is entered between Trivett Island and Hayle Point, 0.2 mile S. A rock, which dries 2.7m, lies near the head of this bay.

8.31 Birmingham Island (50°48'N., 126°32'W.) lies close off the SW side of Sutlej Channel, about 1.5 miles SE of Hayle Point and 0.3 mile NW of Notice Point. Notice Rock and several drying rocks lie between this island and Notice Point. An area of foul ground lies between the island and the shore to the W.

Kingcome Inlet (50°52'N., 126°35'W.) is entered on the N side of Sutlej Channel, between Magin Islets and Bradley Point, 1 mile E. The depths in the inlet are deep and there are no off-lying dangers. However, the depths decrease gradually near the head about 1.5 miles from the edge of a mud flat.

Gregory Island (50°52'N., 126°37'W.) lies on the E side of the entrance of the inlet and Bradley Point forms its W extremity. The island is separated from the mainland by a narrow passage which leads from Shawl Bay to Moore Bay. This passage is suitable for small boats only.

Reid Bay (50°53'N., 126°39'W.) lies on the W side of Kingcome Inlet, close NW of the Magin Islands. It is unsuitable as an anchorage due to the depths and limited swinging room. A shoal, with a depth of 8.8m, lies in the middle of the entrance to the bay. Olivia Point and Ellen Point are located on the same side of the inlet 2.5 miles and 3.8 miles, respectively, NE of the Magin Islands.

Moore Bay (50°53'N., 126°33'W.) lies on the E side of Kingcome Inlet, between the NE side of Gregory Island and Thomas Bluff, which is located 2.5 miles NE of Bradley Point. Several islets lie within this bay. Thief Rocks, which dry up to 2.7m, lie in the middle of the approach, about 0.2 mile NNE of Thief Islet. A group of rocks, which dry up to 5.5m, lies about 0.2 mile S of the N entrance point of the bay. Another group of

drying rocks, the highest of which dries 1.8m, lies about 0.4 mile WSW of Thief Rocks. The bay is too deep for anchoring.

8.32 Frances Point (50°55'N., 126°30'W.) is located 2.8 miles NE of Thomas Bluff. The shore in the vicinity of this point is very steep.

Wakeman Sound (50°58'N., 126°30'W.), on the N side of Kingcome Inlet, is entered between Upton Point and Philadelphia Point. The depths in this sound are too deep for anchoring.

Belleisle Sound (50°55'N., 126°25'W.) is entered on the S side of Kingcome Inlet, 2.5 miles ESE of Frances Point. Edmond Islet lies in the entrance of the sound and a rock, 1.2m high, is located close E and joined to it by drying ledges. Passage can be made either W or E of these dangers in depths of over 55m; however, the depths in the sound are too deep for anchoring.

Terease Point and Petley Point are located on the N side of Kingcome Inlet. Sybilla Point and Halliday Point are located on the S side of the inlet 2.5 miles and 4.5 miles, respectively, E of Edmond Islet. A white monument stands near the shore in this vicinity.

Anchorage Cove lies in the SE corner of the head of Kingcome Inlet and two islets are located within it. This cove provides the only anchorage within the inlet, in a depth of 33m.

8.33 Grappler Sound (50°54'N., 126°53'W.) is entered between Kinnaird Island and Pandora Head, 0.5 mile W. A rock, which dries 3.1m, lies about 0.1 mile SE of the southernmost of two islets that lie in the entrance.

Kinnaird Rock (50°55'N., 126°53'W.), with a depth of less than 1.8m, lies in mid-channel, about 0.3 mile NW of the W extremity of Kinnaird Island. Another rock, with a depth of 5.2m, lies about 0.8 mile N of Kinnaird Rock.

Dunsany Passage (50°54'N., 126°50'W.) leads from Sutlej Channel, between Kinnaird Island and the mainland to the E, to Hopetown Passage and Grappler Sound. Cunning Point is located on the E side of the N entrance of the passage and on the S side of the W entrance to Hopetown Passage. The passage is clear of dangers, with the exception of a ledge that fronts Cunning Point. A rock, which dries 5.2m, lies about 0.1 mile SSE of the point. An islet lies close off the N side of Kinnaird Island, W of Cunning Point.

Carriden Bay (50°54'N., 126°54'W.) is entered on the W side of Grappler Sound, between Pandora Head and Linlithgow Point, 0.5 mile W. A reef extends about up to 0.2 mile S from the latter point. Small craft can obtain anchorage, in a depth of 7.3m, within the bay.

Buckingham Island (50°55'N., 126°52'W.) lies close NW of the N extremity of Kinnaird Island. Several islets and rocks lie close E of the island. A small islet lies close NW of the island. A detached shoal, with a least depth of 5.2m, lies almost in mid-channel, about 0.4 mile WNW of the NW extremity of the island.

Claydon Bay (50°56'N., 126°54'W.) indents the W side of Grappler Sound. It is entered close NE of Morton Point (Hope Point), which is located 0.8 mile NE of Linlithgow Point. Three rocks, which dry 2.1 to 5.5m, lie nearly in the middle of the narrow entrance of the bay. Vessels are advised to pass on the S side of these dangers. Small craft can obtain anchorage, in a depth of 7m, within the bay.

8.34 Watson Island (50°56'N., 126°50'W.) lies on the E side of Grappler Sound, N of Kinnaird Island. Hopetown Passage and Kenneth Passage lead from the E side of the sound S and N, respectively, of the island. A rock, 0.6m high, and another rock, which dries 5.5m, lie on a reef located in the approaches to Dunsany Passage and Hopetown Passage, about 0.4 mile ESE of the SW extremity of the island. An islet lies about 0.5 mile NW of this same extremity. Watson Point (George Point), the NW extremity of the island, is located on the E side of the entrance to Embley Lagoon and on the S side of the entrance to Kenneth Passage. A rock, which dries 1.8m, lies close off this point.

Embley Lagoon (50°57'N., 126°53'W.) forms the head of Grappler Sound, to the N of Watson Point. An island lies in the middle of this lagoon.

Hopetown Passage leads along the S side of Watson Island, from the junction of Dunsany Passage and Grappler Sound to Mackenzie Sound. A reef extends across this passage, about 1.5 miles E of Cunning Point. The passage is available only to boats that can pass over this reef at HW.

Kenneth Passage (50°57'N., 126°48'W.) leads along the N side of Watson Island, from the SE corner of Embley Lagoon to Mackenzie Sound. It should not be attempted without local knowledge. The passage is only about 0.1 mile wide to the N of Watson Point; however, it widens within the entrance.

Jessie Point (50°57'N., 126°49'W.) is located on the NE side of Kenneth Passage, 1.8 miles E of Watson Point. Turnbull Cove is entered on the N side of the passage, 0.8 mile NW of this point. It is only accessible to small craft with local knowledge. Nepah Lagoon is about 4.5 miles long and has depths of 37 to 159m. It is only accessible to small craft with local knowledge. Such craft must enter by passing through Roaring-hole Rapids, about 0.3 mile N of Jessie Point, at HW. Kenneth Point, off which Kenneth Passage turns SE, is the NE extremity of Watson Island and located opposite Jessie Point. The width of the passage is reduced to 0.3 mile between Jessie Point and Kenneth Point by several islands, islets, and rocks. These dangers render navigation intricate. Steamboat Bay, lying on the S side of Kenneth Passage, affords anchorage, in a depth of 20m, to small craft. A detached shoal, with a least depth of 2.4m, lies near the head of this bay.

8.35 Mackenzie Sound (50°56'N., 126°45'W.) extends 4.5 miles E from Claypole Point, the E extremity of Watson Island. The depths in the sound shoal gradually toward the head.

Burly Bay lies on the S side of the W end of the sound, SW of Claypole Point. Blair Islet lies in the entrance of this bay. The bay affords anchorage to small vessels, in a depth of 18m, near the head.

Turner Island (50°56'N., 126°44'W.) lies close off the S shore of the sound, 1.5 miles E of Claypole Point. Anne Point and Stirling Point are located on the N shore of the sound, 0.8 mile WNW and 0.8 mile E, respectively, of the island. A detached shoal patch, with a depth of 6.1m, lies about midway between the island and Stirling Point. Another detached shoal patch, with a depth of 8.7m, lies about 0.4 mile NE of the island.

Nimmo Bay (50°57'N., 126°42'W.) is entered on the N side of Mackenzie Sound, close E of Stirling Point. Vessel entering this bay require local knowledge because of the numerous dry-

ing rocks lying on either side of the entrance.

Drury Inlet (50°54'N., 127°03'W.) indents the W side of the N end of Wells Passage. It is entered between Compton Point and Pandora Head, 0.8 mile NNE. The hills standing on both sides of this inlet are generally low, round, and less than 300m high. The W end of the inlet is encumbered by islands and reefs. The depths in the inlet are less than 45m in most places. The maximum depth is 73m.

Due to the presence of numerous dangers, vessels should not navigate in this inlet without local knowledge. The inlet is also not recommended as an anchorage because of the lack of sheltered bays and because the prevailing SE and W winds sweep through it, raising a considerable sea.

The tides in the inlet rise about 4.5m at springs and 3.6m at neaps.

8.36 Morris Islet (50°54'N., 126°54'W.) lies on the S side of the fairway, about 0.3 mile NNW of Compton Point. The width of the inlet is reduced to about 0.3 mile in the vicinity of this islet. A reef, marked by kelp in summer, lies near the S shore and connects with another reef extending about 0.2 mile WNW from the islet. To avoid the reefs, vessels should stay close to the N shore of the inlet in this area.

Helen Bay (50°54'N., 126°56'W.) lies on the N side of the inlet, about 1 mile above Morris Islet. A shoal, with a depth of 4m, lies about 0.1 mile S of the E entrance point of this bay. A ledge, which dries 2.4m, fronts the SW side of the same point.

Stuart Narrows lies close W of Morris Islet. The fairway leading through the narrows is reduced to a width of 0.2 mile by two islets, each of which is connected to the shore by a reef. A rock, which dries 2.4m, lies in the fairway, between these two islets. The tidal currents in the narrows attain a velocity of 7 knots at springs.

Leche Islet (50°54'N., 126°58'W.) lies on the S side of the fairway at the W end of Stuart Narrows. Two rocks, which dry 2.4m and 4.3m, lie about 0.1 mile ESE and 0.1 mile S, respectively, of the islet. Another rock, with a depth of less than 1.8m, lies between these two rocks. A shoal, with a least depth of 3.1m, lies about 0.3 mile WSW of the islet.

Richmond Bay indents the S side of Drury Inlet, SSW of Leche Islet. Several small islets lie between Leche Islet and the head of the bay. A rock, with a depth of less than 1.8m, lies in the middle of the bay.

Cumming Point (50°54'N., 126°59'W.) is located on the N side of Drury Inlet, about 0.8 mile WNW of Leche Islet. Ligar Islet lies on the S side of the fairway, about 0.4 mile SW of this point, and Tancred Bay is entered close S of it. A below-water rock lies about 0.1 mile SE of the S extremity of Ligar Islet. Voak Rock, which dries 1.8m, lies on the N side of the fairway, about 0.3 mile N of Ligar Islet. The depths in the fairway lying between Ligar Islet and this rock are deep.

Davis Islet (50°53'N., 127°01'W.), lying on the S side of Drury Islet, is located off the entrance of a small cove, about 1 mile WSW of Ligar Islet. Everard Islets, a group with rocks lying between them, extend N from the S side of the inlet, about 0.8 mile W of Davis Islet. Blount Rock, which dries 0.9m, lies close to the S shore, about 0.5 mile W of this group. The fairway leading between Everard Islets and Hooper Island, 0.5 mile N, is clear.

Jennis Bay is entered on the N side of Drury Inlet, between

Byron Point (Thomas Point) (50°54'N., 127°01'W.) and Hooper Island, 0.3 mile NW. Two rocks, which dry 2.4m and 0.6m, lie close together and front the SE extremity of Hooper Island. A rock, with a depth of less than 1.8m, lies close off the S shore of this island. A detached shoal, with a depth of 5.5m, lies about 0.2 mile NW of Byron Point. A rock, awash, fronts the NNW side of the latter point. Another rock, with a depth of 2.1m, lies in the entrance of the bay, about 0.1 mile ENE of the NE extremity of Hooper Island. Small vessels can obtain anchorage, in depths of 12 to 18m, within Jennis Bay.

8.37 Centre Rock (50°54'N., 127°04'W.), which dries 4.3m, lies in the fairway, about 0.5 mile SW of Bedwell Point. The latter point is located on the N side of Drury Inlet, about 1 mile W of Hooper Island. This rock is steep-to and can be avoided by keeping about 0.2 mile from either shore.

Collinson Bay (50°55'N., 127°05'W.) indents the N side of Drury Inlet. Its entrance lies between Bedwell Point and Blackney Point, 2 miles WNW.

Shuckburgh Point (50°54'N., 127°06'W.) and Cunningham Point are located on the S side of Drury Inlet 1.5 miles and 3.3 miles, respectively, WNW of O'Keefe Point. Macgowan Bay, with a number of islets lying in its approaches, is entered about 0.5 mile S of Cunningham Point.

Wilson Island (50°55'N., 127°07'W.), 55m high, lies 0.6 mile WSW of Blackney Point. It is the southeasternmost island of a group that encumbers the W end of Drury Inlet. Keith Islets lie about 0.2 mile NW of this island. The Muirhead Islands, three in number, lie within 1 mile NW of Wilson Island.

Numerous islets and rocks lie between the Muirhead Islands and the S side of Drury Inlet. However, a clear channel leads between the N sides of these islands and the dangers fringing the N side of the inlet in the vicinity of Charlotte Point. The latter point is located 1.5 miles NW of Blackney Point. Two detached shoals, with depths of 10.1m and 2.7m, lie in the channel, close W of the Muirhead Islands.

Jenkins Islet (50°56'N., 127°09'W.) lies close W of the northwesternmost of the Muirhead Islands. The depths, which shoal rapidly to the W of this islet, are less than 5.5m within Sutherland Bay, at the head of Drury Inlet. A densely wooded valley extends SW from the head of the inlet to the N shore of Queen Charlotte Strait.

Actaeon Sound, the N arm of Drury Inlet, is entered W of Charlotte Point and Dove Island lies in its entrance. The sound is so encumbered with islets and rocks that it is only available to small vessels with local knowledge. Rapids lie in a narrow passage near the head of the sound.

Queen Charlotte Strait—West End

8.38 Goletas Channel, Gordon Channel, Ripple Passage, and Richards Channel lie at the W end of Queen Charlotte Strait. In that order, from S to N, they lead from the E part of Queen Charlotte Strait into Queen Charlotte Sound. Several passages lead N from Goletas Channel to Gordon Channel and N from Gordon Channel to Ripple Passage. These channels and passages are formed by numerous islands, islets, and rocks lying between Vancouver Island and the mainland to the N.

The depths in all of the channels and passages are deep, with the exception of the W end of Goletas Channel, where a least

depth of 11m prevails on Nahwitti Bar.

Ripple Passage is encumbered with dangers and Richards Channel is somewhat obstructed. Ripple Passage is recommended only in clear weather during daylight.

Several anchorages are available in Goletas Channel. An anchorage also lies on the N side of the strait, between the Southgate Group and the mainland.

8.39 Goletas Channel (50°47'N., 127°27'W.) leads 22.5 miles WNW between the N shore of Vancouver Island, on the S side, and a chain of islands and islets, on the N. Several navigable passages lead N from this channel, between numerous islands, to Gordon Channel. The shores of Goletas Channel are high, rugged, and steep-to, except in the W part. Vessels can generally approach to within 0.3 mile of the shore.

The depths in Goletas Channel are deep throughout with the exception of Nahwhitti Bar, lying at the W end, where the least depth in the fairway is 11m. This bar, in great measure, prevents any heavy sea from rising in the channel during W gales.

The tidal currents in the E part of Goletas Channel do not exceed a velocity of 3 knots. However, at the W end they sometimes attain a velocity of 5.5 knots in the vicinity of Nahwhitti Bar. The currents set E and W on rising and falling tides, respectively. The tidal currents in Goletas Channel, off Duval Point, have an average maximum velocity of 2.5 knots. The flood current sets 110°.

8.40 Miles Cone (50°49'N., 127°28'W.) is the conspicuous and southwesternmost summit of Doyle Island, which lies on the N side of the E entrance of Goletas Channel. Several islets and rocks extend up to about 0.4 mile SE from the SE end of this island. A rock, which dries 3.7m, forms the outermost of these dangers.

Meeson Cone (50°50'N., 127°34'W.) is a well-defined conical hill standing near the middle of Hurst Island.

Noble Islets (50°49'N., 127°35'W.), two in number, are 20m and 24m high. A few stunted bushes and some coarse vegetation grow on them. The westernmost islet is marked by a light.

Nigei Island (50°52'N., 127°45'W.) is the largest of those separating Goletas Channel from Gordon Channel. Mount Lemon, a conspicuous conical peak, rises at the S side of the island, 2 miles from its W end. The S side of the island is steep-to and bold.

The flood tidal current off Boxer Point, the SE extremity of the island, has an average velocity of 2.5 knots and sets 110°.

Lemon Point (50°51'N., 127°46'W.), about 5 miles WNW of Boxer Point, forms the SW extremity of a small peninsula. The flood tidal current off this point has an average velocity of 2.5 knots and sets 110°.

Shushartie Bay (50°51'N., 127°52'W.) has high shores, except at the head where a drying sandbank extends up to about 0.3 mile seaward. Halsted Islet, a bare rock, lies close off the E entrance point of the bay. Dillon Rock, which dries 3.1m, lies about 0.2 mile NW of Halsted Islet and is marked by a light. The tides in the bay rise about 4.5m at springs and 3.6m at neaps.

8.41 Hope Island (50°55'N., 127°55'W.) lies on the N side of Goletas Channel and is the westernmost island of the chain bordering it. This island is separated from Nigei Island by Bate

Passage. The sea breaks heavily on the N coast of the island.

Heath Point (50°53'N., 127°53'W.), steep-to, forms the S extremity of Hope Island. The flood tidal current off this point has an average velocity of 3 knots and sets 110°.

Godkin Point (50°54'N., 127°56'W.), marked by a light, is located on the N side of Goletas Channel, about 2 miles WNW of Heath Point. The shore extending between these points is steep-to and deeply indented. A cliff, 30m high, rises on the W side of the point.

Caution.—The waters lying between Godkin Point and Vancouver Island are used as a seaplane landing area.

8.42 Jones Point (50°54'N., 127°56'W.), located 0.5 mile NW of Godkin Point, is a high, steep, and cliffy bluff. Foul ground extends up to about 0.2 mile S from this point.

Bull Harbor (50°55'N., 127°56'W.), an indentation on the S side of Hope Island, is entered between Jones Point and Godkin Point; an entrance light about 200m N of Norman Island is shown at an elevation of 4m from a dolphin. The roadstead lies close N of Norman Island, which lies in the middle of the harbor. The fairway channel leads E of this island. The harbor is often crowded with numerous fishing vessels during the season. A radio tower with flashing red lights stands on the N end of the harbor.

A wharf stands on the E shore about 600m N of Norman Island with a berthing face 15m long and depths alongside of 6m. The harbor provides good anchorage in heavy mud, but only for small vessels in depths of 3m.

Caution.—The speed limit in the harbor is 3 knots. A marine farm is located at the entrance to the harbor.

8.43 Nahwitti Bar (50°54'N., 128°00'W.) extends across the W entrance of Goletas Channel. Tatnall Reefs, with a least depth of 3.2m, lie on a spit which extends NW from the S shore, at the S end of the bar. The fairway leading N of these reefs is about 0.8 mile wide and has depths of 11 to 16.5m. The depths on the seaward side of the bar increase very gradually, but within it they increase suddenly to 73m.

A swell occurs on Nahwitti Bar most of the time. A very heavy sea, dangerous to small vessels, breaks on the bar during bad weather when the W wind opposes a strong W tidal current. The sea breaks right across the bar during heavy W gales and it is then too dangerous to attempt to cross.

The tidal currents in the vicinity of the bar sometimes attain a velocity of 5.5 knots, setting E and W on the rising and falling tides, respectively. The tidal currents set fairly across the bar in the direction of the channel.

Slack at HW and slack at LW occur 44 minutes and 34 minutes, respectively, before the corresponding waters at Prince Rupert. The duration of slack at HW and slack at LW is about 12 minutes and 17 minutes, respectively.

Nahwitti Point (50°54'N., 127°59'W.) is located 2.3 miles WNW of Godkin Point, on the N side of the fairway. Mexicana Point, located 0.8 mile NW of Nahwitti Point, forms the W extremity of Hope Island. Foul ground extends up to about 0.3 mile offshore in this vicinity. A light is shown from a structure standing on Nahwitti Point and an approach fairway lighted buoy is moored about 2.3 miles W of it.

Caution.—While in the vicinity of Nahwitti Bar, vessels should steer along the S side of Hope Island at a distance of

about 0.5 mile in order to avoid the inshore dangers if the distant landmarks cannot be identified. The tidal currents must be guarded against in this area, especially during thick weather. Mount Lemon and Nahwitti Point are the only conspicuous features in the vicinity of the bar, at the W end of Goletas Channel.

8.44 The NW coast of Vancouver Island between **Cape Sutil** (50°53'N., 128°03'W.) and Cape Scott, 5 miles WSW, is generally low but rises to heights of 240 to 305m, in places. Foul ground extends up to 0.8 mile seaward from the shore in some places. Vessels are advised to give this part of the coast a wide berth.

Cape Sutil, the low N extremity of Vancouver Island, is located on the S side of the W entrance of Goletas Channel, about 3 miles SW of Nahwitti Point. A bay lies at the E side of the cape but is not suitable for anchorage.

Several banks, with least depths of 16.5 to 20m, lie in the approach to Goletas Channel, NW of the cape. Weser Island, 8m high, lies 0.3 mile offshore, about 1 mile ESE of the cape. Edmund Rock, 4m high, lies about 0.2 mile NE of the cape. An area of foul ground extends up to about 0.8 mile W from this rock. Thomson Rock, 1m high, lies about 1.5 miles W of the cape.

Northwest Nipple, 229m high, stands 1.5 miles SW of Cape Sutil and is a prominent landmark.

Christie Passage (50°50'N., 127°36'W.), about 0.5 mile wide, leads N to Gordon Channel between Hurst Island, on the E side, and Balaklava Island, on the W. Deep-draft vessels using this passage should pass to the W of Noble Islets.

The tidal currents in this passage attain a velocity of 3 knots at times, setting S and N on the rising and falling tides, respectively.

8.45 George Rock (50°51'N., 127°37'W.), which dries 0.6m, lies about 0.2 mile offshore, on the W side of Christie Passage. A rock, with a depth of 11m, lies in the fairway about midway between George Rock and the N extremity of Hurst Island.

Vessels proceeding N through this passage should round Noble Islets at a distance of about 0.3 mile and should then steer 349° towards **Scarlett Point Light** (50°52'N., 127°37'W.). When the settlement, which stands in the cove on the W shore of Hurst Island, is abeam, vessels should change course to 000° and pass 0.3 mile off the light. Vessels will then clear George Rock by about 0.2 mile.

Browning Passage (50°50'N., 127°39'W.) leads NNW to Gordon Channel between Balaklava Island, on the E side, and Nigei Island, on the W. Numerous dangers lie in this passage and vessels without local knowledge should only navigate in it during daylight. The tidal currents in the passage are weak.

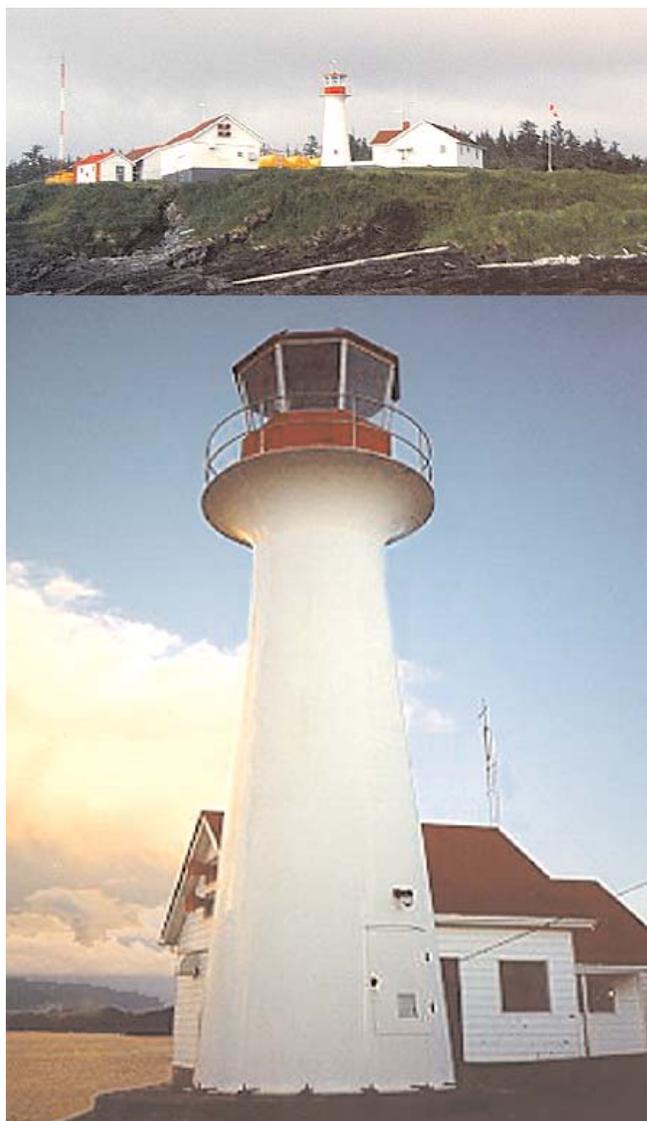
A rock, with a depth of less than 1.8m, lies on the E side of the passage, 0.8 mile S of the NE entrance. This rock lies near the edge of an area of foul ground that extends W from a group of islets. A reef, which dries 5.2m, lies on the E side of the passage, close NW of the group of islets. Another rock, which dries 3.7m, lies on the W side of the passage. The narrowest part of the passage lies between these dangers.

Vessels proceeding N through the passage should steer a mid-channel course. When the southernmost of the two islets

lying on the E side of the passage bears 000°, vessels should alter course to pass to the SW of the northernmost islet at a distance of 0.2 mile.

Port Alexander (50°51'N., 127°39'W.), an inlet easy to access, lies on the W side of Browning Passage. Fraser Island lies in the fairway, about 0.5 mile within the entrance of this inlet. This inlet affords good anchorage, sheltered from all but SE winds, in depths of 20 to 22m, about 0.5 mile from the head.

8.46 Bate Passage (50°54'N., 127°50'W.) leads NE from Goletas Channel to Gordon Channel. This passage is straight, not less than 0.5 mile wide, and can be navigated with safety.



Photos courtesy of Charlotte Higgins
Scarlett Point Light

Thornton Reef (50°56'N., 127°46'W.), rocky with a depth of 3.7m, lies in the middle of the N entrance of Bate Passage.

Vansittart Island (50°55'N., 127°48'W.) lies on the N side of the passage. It is wooded and has a rugged shoreline.



Pine Island (top left) and Pine Island Light

Photo copyright Mike Mitchell

Cascade Harbor (50°55'N., 127°44'W.) indents the N side of Nigei Island, at the NE entrance to Bate Passage. A heavy swell usually sets into this harbor, particularly during the summer, when NW winds prevail.

Shadwell Passage (50°55'N., 127°49'W.) leads N from Bate Passage along the W side of Vansittart Island. This passage is not recommended because of the numerous dangers lying within it. A heavy swell usually occurs at the N end of the passage.

The tidal currents in Shadwell Passage attain a velocity of 4.5 knots at times. Tide rips are sometimes formed at the S entrance of the passage, off the SW extremity of Vansittart Island.

8.47 Gordon Channel (50°51'N., 127°27'W.) leads NW between the Gordon Islands, Balaklava Island, Nigei Island, and Hope Island, on the SW side, and the Deserters Group, Walker Group, Redfern Island, Buckle Group, and Pine Island, on the NE.

The depths in the channel are deep and, although several dangers lie on either side of the channel, the fairway has a minimum width of 0.8 mile.

The tidal currents in the channel attain a velocity of 3 knots at times and have an average maximum of 2.5 knots. The flood current sets 125°.

The **Deserters Group** (50°53'N., 127°28'W.) consists of a number of islands, islets, and rocks. Deserters Island, the largest of the group, is wooded and hilly.

Davey Rock (50°52'N., 127°31'W.), with a depth of 6.4m, lies on the NE side of the fairway and is marked by a lighted buoy. Numerous rocks and shoals lie close N and NW of Davey

Rock.

The **Crane Islands** (50°51'N., 127°31'W.), three in number, are 3.3m, 4m, and 10.4m high. They lie, respectively, from E to W along the SE side of the fairway. A light is shown from the summit of the largest and westernmost island. These islands should not be approached within 0.3 mile.

8.48 Boyle Island (50°51'N., 127°33'W.) lies on the S side of the fairway, about 1.5 miles WNW of the Crane Islands. Foul ground extends up to about 0.7 mile NW from the N side of this island. A light is shown from a structure standing on a rock lying about 0.5 mile NW of the N side of the island.

Kent Island (50°55'N., 127°33'W.) is densely wooded and hilly. However, none of the hills can be distinguished from a distance, except the northwesternmost, which is 91m high. This latter hill appears to have a prominent rounded peak from some directions.

The **Buckle Group** (50°56'N., 127°39'W.) consists of a number of islands, rocks, and shoals lying between 2.5 miles and 3.5 miles NW of Redfern Island.

Sunken Rock (50°58'N., 127°41'W.), which dries 1.5m and usually breaks, lies on the NE side of Gordon Channel.

Hunt Rock (50°54'N., 127°41'W.), with a depth of 2.4m, lies on the SW side of the fairway and a lighted buoy is moored close E of it.

Pine Island (50°59'N., 127°43'W.) lies on the NE side of the NW entrance of Gordon Channel. The island is wooded and a distinct summit, 85m high, stands at its NW end. The shores of the island are precipitous everywhere.

Cape James (50°56'N., 127°50'W.), the NE extremity of Hope Island, is a rocky bluff, 27m high. Foul ground extends up to about 0.2 mile N from this cape.

Caution.—The sea breaks heavily on the N shore of Hope Island and Cape James should not be approached within 0.5 mile.

8.49 Shelter Passage (50°53'N., 127°30'W.) and **Bolivar Passage** (50°53'N., 127°32'W.) lead N from Gordon Channel to the E and W, respectively, of the Walker Group.

Shelter Passage is entered from the S between Race Island and the S extremity of Staples Island, 0.3 mile NW. This passage has a minimum width of 0.2 mile and the depths are deep. However, transit of this passage is not recommended without local knowledge.

Bolivar Passage has a minimum width of 0.5 mile and the depths are deep. It can be navigated safely in clear weather. This passage can be entered from the SE between the S extremity of Staples Island and Alex Rock, or from the S between Alex Rock and Nye Rock. The SW sides of Staples Island and Kent Island are steep-to and clear of off-lying dangers. However, vessels are cautioned to avoid the numerous dangers lying on the W side of this passage.

The tidal currents in Bolivar Passage attain a velocity of 5 knots at times.

Torrance Islet (50°55'N., 127°33'W.), covered with grass, lies on the NE side of Bolivar Passage. A rock, which dries, lies on an area of foul ground that extends up to about 0.1 mile SE from this islet. Detached shoals, with numerous rocks, lie on the NE side of the NW entrance of Bolivar Passage. These dangers lie within 0.6 mile NNW and N of Torrance Islet. Several of these rocks dry up to 3.1m.

Ripple Passage (50°53'N., 127°25'W.) leads NW between the Deserters Group and the Walker Group, on the SW side, and Mary Rock, Millar Group, David Rock, and Wentworth Rock, on the NE. Although there are some dangers lying within it, this passage may be used with safety in clear weather during daylight.

The tidal currents in Ripple Passage attain a velocity of 4 knots at times and cause heavy tide rips and eddies.

8.50 Richards Channel (50°54'N., 127°23'W.) leads NW between Mary Rock, Millar Group, David Rock, and Wentworth Rock, on the SE side, and the Jeannette Islands, the Wallace Islands, and Annie Rocks, on the NE. This channel is entered from the SE between Stuart Point and Mary Rock, 2.3 miles SW. It has a minimum width of 0.4 mile and the narrowest part lies between the Jeannette Islands and Ghost Island. The depths in the channel are deep. A lighted buoy is moored close NE of Wentworth Rock.

The tidal currents in the channel attain a velocity of 3 knots at times at the narrowest part. Elsewhere, their velocity is considerably less. The tidal currents set SE and NW on the rising and falling tides, respectively. Small vessels are cautioned that heavy overfalls frequently occur between the Jeannette Islands and Ghost Island when strong winds are in opposition to the tidal currents.

Ghost Island (50°55'N., 127°25'W.), 24m high, lies on the SW side of the narrowest part of the channel. This island is conspicuous from the SE and NW because of the trees which

give it a rounded appearance. The island is fringed with foul ground.

Vessels are advised not to pass between Ghost Island and the Millar Group, 0.3 mile SW, without local knowledge. There are no safe passages leading between the islands of the latter group.

Shelter Bay (50°58'N., 127°27'W.) is entered on the NE side of Richards Channel. The entrance is about 0.6 mile wide. This bay can only be used with local knowledge because the most sheltered parts are encumbered with rocks.

8.51 The Southgate Group (51°00'N., 127°32'W.) consists of several islands, islets, and rocks and lies close off the mainland. The mainland coast in the vicinity of this group is hilly and thickly wooded.

Coast Hill (51°00'N., 127°30'W.), the highest in the vicinity, is formed by the northernmost summit of a flat-topped peak. A conspicuous conical hill, known as Allison Cone, is 184m high and rises close to the coast, 1 mile NNW of Coast Hill.

Simpson Rock (50°59'N., 127°31'W.), 2.1m high, lies close S of the Southgate Group. Several rocks, which dry up to 3.4m, lie close NW of this rock.

A reef, with a least depth of 1.5m, lies about 0.2 mile SE of Simpson Rock. Another reef, the S head of which dries 1.2m, lies 0.2 mile S of the rock.

Approach Rock (50°59'N., 127°31'W.), 1.2m high, is surrounded by foul ground and marked by kelp.

Knight Island (51°00'N., 127°32'W.) is 62m high and densely wooded. A rock, 0.6m high, lies close S of the W extremity of this island. Another rock, with a depth of 1.8m, and a small detached shoal patch, with a depth of 5.5m, lie within 0.2 mile SSW of the same extremity.

A rock, which dries 4.6m, lies close off the N side of the island, about 0.1 mile NE of the NW extremity. A shoal patch, with a depth of 3.1m, lies close N of this rock and reduces the width of the fairway to about 135m.

8.52 Guard Rock (51°00'N., 127°31'W.), 7.6m high and bare, lies close N of the NE extremity of Knight Island. A chain of rocks fronts the N and NW sides of this rock. The northernmost rock of the chain, which dries 0.6m, is steep-to on its N side. A detached shoal patch, with a depth of 5.5m, lies on the N side of the fairway, about 0.2 mile NNW of Guard Rock, and another shoal patch, with a depth of 6.9m, lies close S of it.

New Island, 21m high, lies on the NE side of the fairway, about 0.2 mile NNE of Guard Rock. A rock, which dries 3.3m, fronts the S side of this island. Another rock, which dries 0.9m, fronts the NW side of the island.

A shoal patch, with a depth of 8.8m, lies in the vicinity of the anchorage situated between Knight Island and the mainland. It is located about 0.1 mile E of the NE extremity of the island. Tide Rock, 0.6m high, lies close off the E side of Knight Island, about 0.1 mile NE of its SE extremity. An islet, 19m high, lies about 0.1 mile N of this rock. An area of foul ground lies between the rock and the islet and extends E to the mainland shore.

Southgate Island (51°01'N., 127°32'W.), 78m high, is the largest island of the Southgate Group. Stevens Island, 40m high and thickly wooded, lies near the SW end of a chain of is-

lets, which extends about 0.2 mile SSW from the SW end of Southgate Island. A rock, which dries 2.4m, lies close WNW of this island.

Several islets and an area of foul ground, with drying rocks, front the S shore of Southgate Island. Several islets also lie close off the NW side and NE end of Southgate Island. A rock, with a depth of 1.2m, lies close NW of the largest of the islets located off the NE end of Southgate Island.

Elizabeth Rocks (51°01'N., 127°32'W.), three in number, are 2.7 to 5.8m high and lie about 0.3 mile NW of the middle of the NW side of Southgate Island. A shoal, with two rocky heads and a least depth of 4.6m, lies about 0.2 mile SW of Elizabeth Rocks. Foul ground, with drying rocks, extends up to about 0.1 mile NE of Elizabeth Rocks.

A reef, marked by kelp, lies about 0.4 mile N of Elizabeth Rocks. Slater Rocks, which dry 1.2 to 2.4m, lie on the NW part of this reef. Several rocks, with depths of less than 1.8m, lie on the SE part of the reef. A rock, which dries 1.2m, lies about 0.4 mile ENE of Elizabeth Rocks and a reef extends about 0.1 mile N from it.

Anchorage.—Anchorage can be obtained within the Southgate Group, between Knight Island and the mainland to the E. Because of the dangers lying in the entrance, this anchorage is not recommended without local knowledge.

Queen Charlotte Strait—West End—North Side

8.53 The N side of the W end of Queen Charlotte Strait contains numerous islands, islets, and other dangers. The approaches to Allison Harbor and Schooner Channel lie between the Southgate Group and Bramham Island. Slingsby Channel passes N of Bramham Island and leads to Seymour Inlet and Belize Inlet. Its entrance lies about midway between the Southgate Group and Cape Caution.

Harris Island (51°00'N., 127°34'W.), bare and rocky, is 12m high and marked by a light. A shoal patch, with a depth of 10.1m, lies about 0.1 mile NW of this island. Numerous islands, islets, and other dangers lie N and NE of Pine Island and W and WNW of Harris Island.

The **Tree Islets** (50°59'N., 127°43'W.), five in number, lie close together about 0.4 mile NE of Pine Island. The two southwesternmost islets are 32m and 40m high and wooded. Shoals extend up to about 0.3 mile S of these islets. The passage leading between Pine Island and these islets, with the exception of the latter shoals, is clear.

Sealed Reef (51°00'N., 127°43'W.), with a least depth of 2.2m, lies about 1 mile N of the Tree Islets. This reef, which breaks, is extensive and marked by kelp.

The **Storm Islands** (51°02'N., 127°44'W.) are a chain of islands, islets, and rocks extending about 1.8 miles WNW from a position located 2 miles N of the Tree Islets. The islands are 56 to 70m high and have no conspicuous features. A shoal patch, with a depth of 10.5m, lies about 0.4 mile W of the northwesternmost island.

Europa Passage leads between Sealed Reef, on the S side, and the Storm Islands, on the N. This passage is clear and deep.

The **Reid Islets** (51°01'N., 127°42'W.), five in number, lie about 0.4 mile ESE of the southeasternmost of the Storm Islands. Foul ground extends between the island and these islets. The largest islet is 27m high, steep-sided, and has trees on its

summit. The easternmost islet is 18m high, bare, and has a peaked summit. A rock, with a depth of less than 1.8m, and several detached shoal patches lie within 0.3 mile E of these islets.

Ta-aack Rock, with a depth of less than 1.8m, lies about 0.6 mile ESE of the Reid Islets. A shoal, with a least depth of 9.1m, lies close NE of this rock. Another shoal, with a least depth of 2.7m, lies about 0.5 mile ESE of Ta-aack Rock.

8.54 Dominis Rocks (51°00'N., 127°39'W.), which dry 2.1m, lie about 1.8 miles ESE of the Reid Islets. These rocks are usually marked by breakers when covered.

Lama Shoal, with a least depth of 10.1m, lies about 0.5 mile ESE of Dominis Rocks. Farquhar Bank, with a least depth of 11.9m, is extensive and lies about 1.8 miles SE of the shoal.

The **Naiad Islets** (51°02'N., 127°41'W.), a group of bare and rocky islets, lie very close together about 0.4 mile NNE of the Reid Islets. The largest islet of this group is 16.5m high. Several detached shoals, one of which dries 2.4m, lie within 0.3 mile NW of these islets.

Middle Rocks, which dry up to 3.4m, are steep-to and lie NNE of Dominis Rocks, about 1.5 miles E of Naiad Islets. A shoal patch, with a depth of 9.1m, lies close NW of these rocks.

Allan Rocks (51°02'N., 127°38'W.), which dry up to 4.6m, lie ENE of Middle Rocks and are marked close NE by a lighted buoy. They are located on the S side of the fairway, about 2.3 miles E of the Naiad Islets.

Dickenson Rock (51°01'N., 127°35'W.), 8.5m high and bare, lies on the E side of the fairway, about 0.8 mile NW of Harris Island. A shoal area extends up to about 0.1 mile SSE from this rock. Two detached shoal patches, with depths of 5.9m and 7.3m, lie about 0.2 mile E and about 0.2 mile SE, respectively, of the rock.

The Rogers Islands, bare and rocky, lie close together on the E side of the fairway, about 0.5 mile NNW of Dickenson Rock. The westernmost and easternmost islands of this group are 15.8m and 4.6m high, respectively. A rock, 1.2m high, and another rock, which dries 1.5m, lie on a shoal that extends up to about 0.3 mile SE from the easternmost island. Two detached shoal patches, with depths of 15.5m and 10.1m, lie within 0.2 mile N of the westernmost island.

Woods Rock (51°01'N., 127°33'W.), with a depth of less than 1.8m, lies on the SW edge of a shoal, about 0.8 mile E of the easternmost island of the Rogers Islands. A shoal patch, with a depth of 8.2m, lies about 0.2 mile NE of Woods Rock.

The approaches to Allison Harbor and Schooner Channel, close NW, are formed by a bay which indents the mainland. This bay is greatly encumbered with islands, islets, and rocks. Allison Harbor, lying on the E side of the bay, provides anchorage. Schooner Channel, lying at the head of the bay, should only be entered by small craft with local knowledge.

The **Emily Group** (51°02'N., 127°34'W.), consisting of about seven wooded islands, lies about 0.6 mile NE of the Rogers Islands. The two northernmost and largest islands are 50m and 53m high. A rock, with a depth of less than 1.8m, lies about 0.3 mile ESE of the easternmost island and a shoal patch, with a depth of 4.3m, lies close NW of it.

The **Eliza Islands** (51°02'N., 127°33'W.), two in number, are densely wooded and lie about 0.4 mile NE of the Emily Group. The northernmost and largest island is 59m high. Some

conspicuous white marks are located on the cliffs at the NW side of this island. The southernmost island is 37m high.

An area of foul ground, encumbered by rocks and shoals, extends between the northernmost of the Eliza Islands and the entrance of Skull Cove, 0.8 mile N.

The Deloraine Islands, the largest and southernmost of which is 59m high, are wooded and lie about 0.3 mile NE of the Eliza Islands. Murray Labyrinth, a group of islands and islets, lies close N of the Deloraine Islands. Numerous passages, available to small vessels with local knowledge, lead through this group to the S end of Schooner Channel.

8.55 The Frederick Islands (51°02'N., 127°32'W.), up to 30m high and wooded, lie about 0.2 mile SE of the largest of the Deloraine Islands. These islands, with the exception of their W sides, are fringed by shoals. A rock, which dries 1.5m, lies on the shoal extending up to about 0.2 mile NE from the northwesternmost island.

Eno Island (51°02'N., 127°31'W.) lies close inshore, about 0.8 mile ESE of the southwesternmost of the Frederick Islands. A beacon stands on the SW extremity of this island. A rock, awash, lies on a shoal located on the W side of the approach to Allison Harbor, about 0.2 mile NW of Eno Island. A shoal patch, with a depth of 9.1m, lies on the E side of the approach fairway, about 0.3 mile N of the N extremity of Southgate Island.

City Point (51°02'N., 127°31'W.), the S entrance point of Allison Harbor, is located 0.5 mile NNE of Eno Island and marked by a beacon. The bight lying between Eno Island and this point is encumbered with numerous islets and rocks.

Town Rock, 1.5m high, lies on the W side of the approach to the harbor, about 0.3 mile WSW of City Point. Allison Reefs, consisting of several dangerous shoal patches, lie W of a line joining Town Rock and the rock, awash, lying NW of Eno Island.

Ray Island (51°02'N., 127°31'W.) lies on the N side of the entrance of Allison Harbor, about 0.1 mile NNW of City Point. Roy Islet lies about midway between Ray Island and an unnamed point, 0.1 mile N.

8.56 Allison Harbor (51°03'N., 127°31'W.) is entered between City Point and Ray Island. A rock, which dries 2.4m, lies on the E side of the fairway, about 0.9 mile within the entrance. A cove lies on the E side of the harbor abreast this rock. The entrance channel in the vicinity of City Point has been swept to a depth of 7m at LW.

Good anchorage can be taken, in a depth of 12m, mud, about 0.1 mile N of the previously-mentioned drying rock. Vessels may also anchor, in a depth of 7.3m, mud, near the head of the harbor.

Between **Skull Cove** (51°03'N., 127°34'W.) and Bramham Point, the SW shore of Bramham Island extends W and NW for 1.8 miles. Several rocky islets and rocks front this section of the coast.

Several small hills, with bare summits, rise along the shore and their slopes are covered with stunted bushes. Nina Hill, 84m high, stands 0.3 mile E of Bramham Point.

Mayor Island (51°03'N., 127°36'W.), 50m high, lies about 0.4 mile offshore, 0.8 mile SSE of Bramham Point. This island is wooded and the wall-like appearance of the trees makes it

conspicuous.

Two small islets, 2.7m and 3m high, lie close E of the island. An area of foul ground, which dries 1.2m at its E edge, extends up to about 0.2 mile E from these islets. A rock, which dries 1.2m, and numerous below-water rocks lie on another area of foul ground extending up to 0.5 mile seaward between Mayor Island and Bramham Point. These dangers are marked by breakers.

Bramham Point (51°03'N., 127°36'W.) is the SE entrance point of Miles Inlet. A shoal patch, with a depth of 4.6m, lies about 0.6 mile W of this point. A rock, which dries 2.7m, lies about 0.1 mile NNW of the point. Other rocks lie between this drying rock and the point.

8.57 McEwan Point, located 0.7 mile NW of Bramham Point, is the W extremity of Bramham Island and the NW entrance point of Miles Inlet.

McEwan Rock (51°05'N., 127°38'W.), 17.4m high and bare, lies about 1 mile WSW of the point and is marked by a light. A rock, which dries 5.2m, lies close SE of McEwan Rock. Another rock, with a least depth of 4.6m, lies about 0.5 mile SE of McEwan Rock.

Morphy Rock, which dries 4m, lies about 0.3 mile W of McEwan Point. A rock, which dries 0.6m, and a below-water rock lie on the shoal extending between Morphy Rock and the point.

Miles Inlet is entered between Bramham Point and McEwan Point. An islet, 36m high, lies close off the N side of the entrance. The inlet narrows to a width of only 45m, about 0.5 mile within the entrance. The head of the inlet branches SE and NW into two large lagoons. These lagoons afford good sheltered anchorage to small craft with local knowledge.

Slingsby Channel (51°05'N., 127°38'W.) leads E to Seymour Inlet and Belize Inlet.

8.58 The Fox Islands (51°05'N., 127°37'W.), three in number, lie on the S side of the W end of Slingsby Channel. These islands are thickly wooded and separated by very narrow unnavigable channels. The westernmost and largest island is 116m high.

The bight lying between the NW side of Bramham Island and the S sides of the Fox Islands is encumbered with rocks. The passage leading from the head of this bight into Slingsby Channel is only available to boats.

Dalkeith Point (51°05'N., 127°39'W.), the W extremity of the westernmost of the Fox Islands, is located on the SE side of the main entrance of Slingsby Channel, about 1.5 miles WNW of McEwan Point. Several rocks, some of which dry up to 4m, lie close off this point. A rock, with a depth of less than 1.8m, lies about 0.5 mile SE of the point. A group of rocks, which dry up to 2.4m, lies on a shoal extending up to 0.2 mile seaward, within about 0.4 mile NE of Dalkeith Point.

Lascelles Point (51°05'N., 127°39'W.) is located on the NW side of the main entrance of Slingsby Channel, about 0.6 mile NW of Dalkeith Point. A wooded peak, 50m high and with taller hills behind it, rises on the point. A group of rocks, up to 4.3m high, lies within 0.2 mile of the shore, close W of the point. A shoal, with a depth of 10.1m, extends about 0.2 mile seaward from the N shore of the channel, about 0.4 mile E of the point.

North Point and South Point are located 0.8 mile ENE of

Lascalles Point and 0.7 mile NE of Dalkeith Point, respectively. Vigilance Cove, an inlet, lies on the N side of North Point. It is too exposed to be of any value as an anchorage and both sides of its entrance are foul.

8.59 Outer Narrows (51°05'N., 127°38'W.), lying between North Point and South Point, is about 0.1 mile wide and has a least depth of 38m. When the wind blows into the channel from seaward, the sea breaks across the entrance and the surface of the water in the narrows becomes very agitated. Even during calms, vessels should navigate the narrows at or near slack water only and small vessels should do so only during good weather.

A rock, which dries 2.7m, lies close to the N shore of the channel, about 0.4 mile ENE of South Point. A rock, which dries 3m, is the northernmost of several that lie on a shoal fronting the S shore of the channel, about 0.7 mile E of South Point.

Tides—Currents.—The flood tidal currents in Outer Narrows set E. They attain velocities of 5 to 9 knots at springs and 4 to 6 knots at neaps. Slack water lasts about 16 minutes. The ebb currents attains velocities of 10 knots at springs and 5 to 7 knots at neaps.

8.60 Boot Point (51°06'N., 127°34'W.) is located on the N side of the channel, about 2.5 miles E of North Point. The shore between is fronted by several below-water rocks. Lump Hill, 142m high, rises 0.5 mile NE of this point. Stream Point is located on the S side of the channel, about 0.3 mile SE of Boot Point.

Kitching Point (51°06'N., 127°31'W.) is located on the N side of the channel, about 2 miles E of Boot Point.

Treadwell Bay indents the N side of Slingsby Channel, between Boot Point and Kitching Point. The Anchor Islands, a group consisting of one island and many islets and rocks, lie within this bay. The island of this group is 70m high. Slingsby Rock, which dries 2.4m, lies close S of the Anchor Islands and about 0.2 mile off the S shore of Slingsby Channel. A rock, awash, lies close NE of the SE side of the Anchor Islands.

8.61 Butress Island (51°05'N., 127°31'W.), 72m high, lies on the S side of Slingsby Channel, about 0.3 mile SE of Kitching Point. Goose Point and Barrow Point are located 0.3 mile S and 0.1 mile E, respectively, of this island. They form, respectively, the W and E entrance points at the N end of Schooner Channel. The passages leading on either side of Butress Island and the islet lying close S of it may be used, but local knowl-

edge is required because of the many rocks located within them.

Johnson Point (51°06'N., 127°30'W.), fronted by an islet, is located on the W side of the E entrance of Slingsby Channel, about 0.6 mile ENE of Kitching Point. Harvell Point is located on the E side of the entrance, about 0.6 mile NNE of Barrow Point. The E entrance of the channel is about 0.3 mile wide.

Nakwakto Rapids (51°06'N., 127°30'W.) lie at the E end of Slingsby Channel, between Harvell Point and the islet fronting Johnson Point. Turret Rock, 17m high, lies in mid-channel, between the point and the islet. The passage leading E of this rock has depths of 11 to 20m. The passages lying on either side of this rock may be used. The channel on the W side is deeper and easier to navigate. Vessels should take care to avoid a rock, with a depth of 3.4m, lying close SSW of Turret Rock.

Caution.—The tidal currents rush against Turret Rock with great fury. The flood tidal currents attain a velocity of 9 to 13 knots and the ebb current a velocity of 11 to 16 knots. The duration of slack water is usually less than 6 minutes.

Vessels can enter Slingsby Channel from seaward in fine weather, but they should pass through the Outer Narrows at or near slack water.

If it is necessary to proceed through Nakwakto Rapids, the beginning of slack at HW should be most carefully awaited so that the vessel may, with certainty, make the passage during slack water. It would not be possible to do so at any other time with any degree of safety. The narrows should only be used in an emergency.

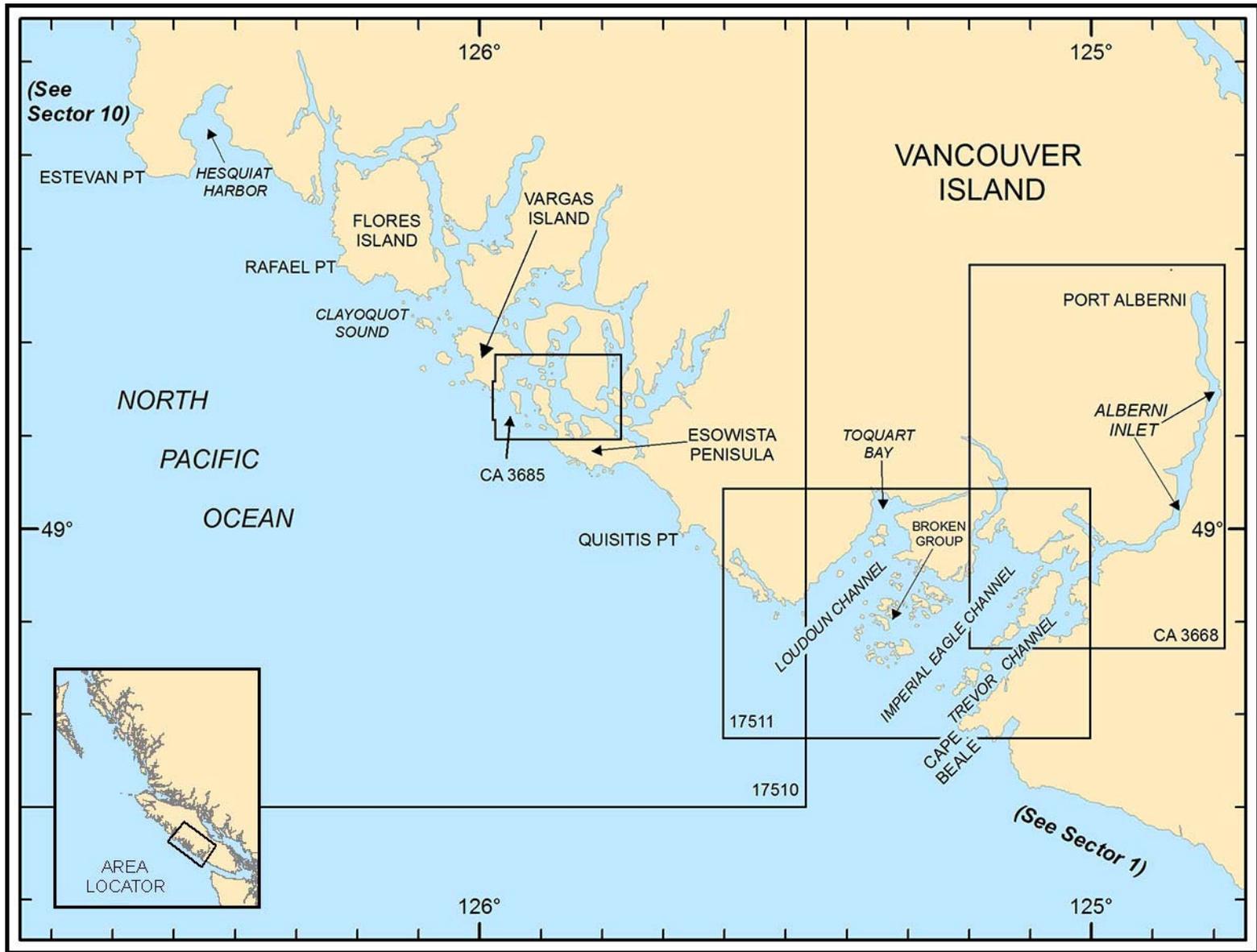
8.62 Buccleugh Point (51°06'N., 127°40'W.) is located 0.6 mile NW of Lascalles Point. The coast extending between these two points is very rugged. A shoal patch, with a depth of 4.1m, and another, with a depth of 10.1m, lie about 0.4 mile SW and 0.7 mile WSW, respectively, of Buccleugh Point.

Bremner Point is located 0.6 mile NNW of Buccleugh Point and Bremner Islet, 16m high, lies about 0.6 mile SE of it. A rock, 1.8m high, lies close off the SE side of this islet.

Burnett Bay indents the coast between Bremner Point and Wilkie Point, 2.5 miles NW. Hayes Rock, with a depth of less than 1.8m, lies close off the entrance of this bay, about 1 mile NW of Bremner Point. Another rock, with a depth of 6.1m, lies about 0.2 mile NNE of Hayes Rock.

Silvester Bay (51°09'N., 127°45'W.) indents the coast between Raynor Point, located 0.8 mile WNW of Wilkie Point, and the S extremity of Cape Caution, 1.5 miles NW.

Cape Caution is fully described in paragraph 11.2.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).
SECTOR 9 — CHART INFORMATION

SECTOR 9

VANCOUVER ISLAND—CAPE BEALE TO ESTEVAN POINT

Plan.—This sector describes the W coast of Vancouver Island, from Cape Beale to Estevan Point, including Barkley Sound and Clayoquot Sound.

General Remarks

9.1 The W coast of Vancouver Island trends 63 miles NW, from Cape Beale to Estevan Point. Secure anchorages are found in many of the inlets which indent this stretch of coast. Although the coast is mostly low and rocky, it is backed closely by mountains of considerable height. Numerous above and below-water rocks, reefs, and shoals fringe this coast, especially near the entrances to the various inlets and sounds. Vessels without local knowledge should not attempt to enter any of these inlets at night or during thick weather, except as otherwise stated.

Winds—Weather.—Fog and thick weather closes in on this coast very suddenly during any season, but it is more prevalent during the summer and autumn.

Tides—Currents.—The tides along the SW coast of Vancouver Island are never diurnal; they are only moderately declinational and springs and neaps are distinguishable. In the open along the whole extent of the outer coast, HHW occurs near the time of the moon's upper transit in N declination and near the time of the moon's upper transit in S declination. The LLW follows the HHW in both cases. The maximum rise is about 3.6m.

An ocean current, the result of a combination of Kuroshio with the E drift of the North Pacific current, sets in a general SE direction outside a distance of 30 miles from the outer islands of the British Columbia coast. Between this current and the coast, a countercurrent sets NW along the outer coasts of Vancouver Island at a rate of 0.3 to 1.5 knots. In winter, strong SW winds increase the rate at times to 2.5 knots. Winds from the N decrease the rate of this current.

Little is known about the ocean currents off the SW coast of Vancouver Island in summer. Reports indicate that there is no NW current in summer. In May and June there is evidence of a slight drift, variable in direction. The countercurrent is strengthened somewhat by the ebb tidal current flowing out of the Strait of Juan de Fuca, as well as by the flood current which flows N along the coast of Washington and across the entrance to the strait.

The set of the tidal currents tends toward the land and is accentuated by the channeling into the large sounds, especially during strong winds from SE to SW. The flood current appears to flow NW along the W coast of Vancouver Island, but there is evidence that a set in the opposite direction with the ebb current is not general.

Pilotage.—Pilotage is compulsory within Canadian waters W of Vancouver Island, S of a line from Cape Scott to Triangle Island.

Pilotage is under the jurisdiction of the Pacific Pilotage Authority. Pilots board off Cape Beale, at the entrance to Trevor Channel in Barkley Sound. Vessels should send an ETA at least

48 hours prior to arrival. In addition, an amendment or confirmation message should be sent 12 hours prior to arrival.

Regulations.—For information on regulations concerning the Western Canada Traffic Zone, Vessel Traffic Services, and Pilotage, see Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Cooperative Vessel Traffic Service.—In 1979, by formal agreement, the Canadian Coast Guard and the United States Coast Guard established the Cooperative Vessel Traffic Services (CVTS) for the Strait of Juan de Fuca region. The purpose of this agreement is to provide for a cooperative system of vessel traffic management in the applicable waters in order to enhance safe and expeditious movement of vessel traffic while minimizing the risk of pollution of the marine environment.

Participation with Prince Rupert Traffic (paragraph 9.1), Victoria Traffic (paragraph 1.1), and Seattle Traffic (U. S. Coast Pilot 10) is mandatory within Canadian and United States territorial waters. The CVTS Area of Operation is defined as 124°40'00"W, Then S along the Washington coast to 48°00'00"N, then W to 125°15'00"W, and N to 48°35'45"N. Inbound vessels are to check in with Prince Rupert Traffic on VHF Channel 74 (156.725 MHz) at either 48°00'00"N or 125°15'00"W prior to entering the traffic separation scheme. See the graphic titled **Cooperative Vessel Traffic Services (CVTS) Offshore** in paragraph 1.1.

An information service, such as a vessel's identity, destination, or other information obtained through VTS reports and sensors, is available upon request outside the VTS area.

Vessel Traffic Service (VTS).—The Vessel Traffic Services Zones Regulations require all participating vessels to file a VTS Offshore Report 24 hours prior to entering a Canadian VTS zone from seaward, or as soon as practical where the estimated time of arrival of the ship to a Canadian VTS zone is less than 24 hours after the time the ship departed its last port of call. Send VTS Offshore Reports to a Canadian Coast Guard Marine Communications and Traffic Services (MCTS) Center, free of charge, or to one of the following:

1. Telephone: 250-627-3071
2. E-mail: vts.rupert@innav.gc.ca

Participation is mandatory for those vessels:

1. 500 grt or more.
2. Engaged in towing or pushing a vessel, where the combined tonnage of the ship and the vessel being towed or pushed is 500 grt or more.
3. Carrying a pollutant or dangerous goods, or engaged in towing or pushing a vessel carrying a pollutant or dangerous goods as prescribed in the:
 - a. *International Maritime Dangerous Goods (IMDG) Code.*
 - b. *Vessel Pollution and Dangerous Chemicals Regulations.*

The Prince Rupert South VTS area of responsibility is comprised of the waters and port approaches on the W side of Vancouver Island, including Barkley Sound and Alberni Inlet, but

EXCLUDING all other inlets between a line joining Cape Scott Light, Triangle Island, and position 50°42'11"N, 129°18'W to the N and a line joining position 48°28'36"N, 124°40'W and position 48°34'58"N, 124°40'00"W to the SE. In Canada, MCTS Centers use AIS to monitor vessel traffic movement.

Vessels must contact Prince Rupert South VTS Control by VHF and report their position at each Calling-In-Point (CIP), as best seen on the chart, by CIP name and sector, described in the table titled **Prince Rupert South VTS Calling-in-Points**.

The Prince Rupert South Vessel Traffic Control System (CVTS) can be contacted, as follows:

1. Call sign: Prince Rupert Traffic (VAJ)
2. VHF: VHF channels 16 and 74
3. Telephone: 1-250-627-3082
4. Facsimile: 1-250-624-9075
5. E-mail: mctsprincerupert@dfo-mpo.gc.ca
6. MMSI: 003160013

Eight remotely-controlled stations are in operation and are

listed in the table titled **Prince Rupert South Remote-controlled Stations**.

The Prince Rupert VTS Center will provide shipping information upon request. Information about fishing vessel concentrations is also provided upon request from Fisheries Patrol Vessels on VHF channel 16.

Caution.—Numerous fishing vessels are frequently encountered in the vicinity of La Perouse Bank.

During summer and autumn, vessels should frequently check their position due to the sudden closing-in of fog along this coast.

When the following vessels are underway, Prince Rupert VTS may restrict the movement of the following vessels in their area of coverage:

1. A loaded tanker or tank barge 10,000 grt or larger.
2. A vessel loaded with hazardous or dangerous cargo.
3. A vessel or tug and tow that has difficulty navigating because of size, construction, or other deficiency in equipment or machinery.

Prince Rupert South VTS Calling-in-Points		
CIP	Name	Remarks
1	Zone Limit	A line from the International Boundary extending N along 124°40'00"W to the Vancouver Island coastline. Administered by Seattle and Prince Rupert Traffic (CVTS).
2	Cape Beale	A line between Cape Beale Light (48°47'13"N., 125°12'51"W.) and Amphitrite Point Light (48°55'17"N., 125°32'23"W.). Vessels should advise if transit is through Trevor Channel, Imperial Eagle Channel, or Loudoun Channel.
3	Chup Point	A line between Chup Point (48°57'20"N., 125°01'37"W.) and Mutine Point (48°56'33"N., 125°01'06"W.).
4	Ten Mile Point	A line bearing 256° between Ten Mile Point Light (49°03'34"N., 124°50'22"W.) and position 49°03'20"N, 124°51'44"W.
5	Dunsmuir Point	A line bearing 090° between Dunsmuir Point Light (49°09'16"N., 124°48'26"W.) and position 49°09'16"N, 124°47'42"W.
6	Amphitrite Point	A line bearing 220° between Amphitrite Point Light and position 48°46'06"N, 125°44'02"W.
7	Estevan Point	A line bearing 220° between Estevan Point Light (49°23'00"N., 126°32'32"W.) and position 49°13'47"N, 126°44'26"W.
8	Nootka Sound	A line between Estevan Point Light and Bajo Point (49°37'06"N., 126°49'35"W.).
9	Esperanza Inlet	A line between Ferrer Point (49°44'57"N., 126°58'54"W.) and Tatchu Point (49°51'35"N., 127°08'56"W.).
10	Solander Island	A line bearing 220° between Solander Island Light (50°06'41"N., 127°56'17"W.) and position 49°57'26"N, 128°08'16"W.
11	Kains Island (Quatsino Sound)	A line between Kwakiutl Point (50°21'09"N., 127°59'28"W.) and Cape Parkins (50°26'38"N., 128°02'44"W.).
12	Cape Scott (Triangle Island)	A line bearing 281° between Cape Scott Light (50°46'57"N., 128°25'32"W.) and Triangle Island (50°52'00"N., 129°05'00"W.) through Cox Island and Lanza Island.
13	Zone Limit	A line bearing 220° from Triangle Island to the limit of the Canadian Territorial Sea (50°42'11"N., 129°18'00"W.).

Prince Rupert South Remote-controlled Stations	
Location	VHF Channel or RT Frequency (kHz)
Port Alberni (49°13'07"N., 124°48'43"W.)	VHF channels 16, 26, 74, and 83A
Mount Ozzard (48°57'34"N., 125°29'30"W.)	VHF channels 16, 70, 74, 83A, and 84
Nootka (49°35'36"N., 126°36'52"W.)	VHF channels 16, 26, 74, and 83A
Eliza Dome (49°52'24"N., 127°07'13"W.)	VHF channels 16, 70, 74, 83A, and 84
Holberg (50°38'24"N., 128°07'34"W.)	VHF channels 16, 26, 70, 74, and 83A
Amphitrite Point (48°55'31"N., 125°32'25"W.)	Frequencies 2054 kHz, 2182 kHz, and 4125 kHz (transmit only)
Estevan Point (49°22'59"N., 126°32'00"W.)	VHF channels 16 and 83A
	Frequencies 2054 kHz, 2182 kHz, and 4125 kHz (receive only)
Esperanza (49°50'32"N., 126°48'22"W.)	VHF channels 16 and 83A

Barkley Sound—East Part

9.2 Barkley Sound (48°50'N., 125°25'W.), an extensive inlet, lies miles NW of Cape Flattery. It is entered between Cape Beale and Amphitrite Point, 15 miles NW.

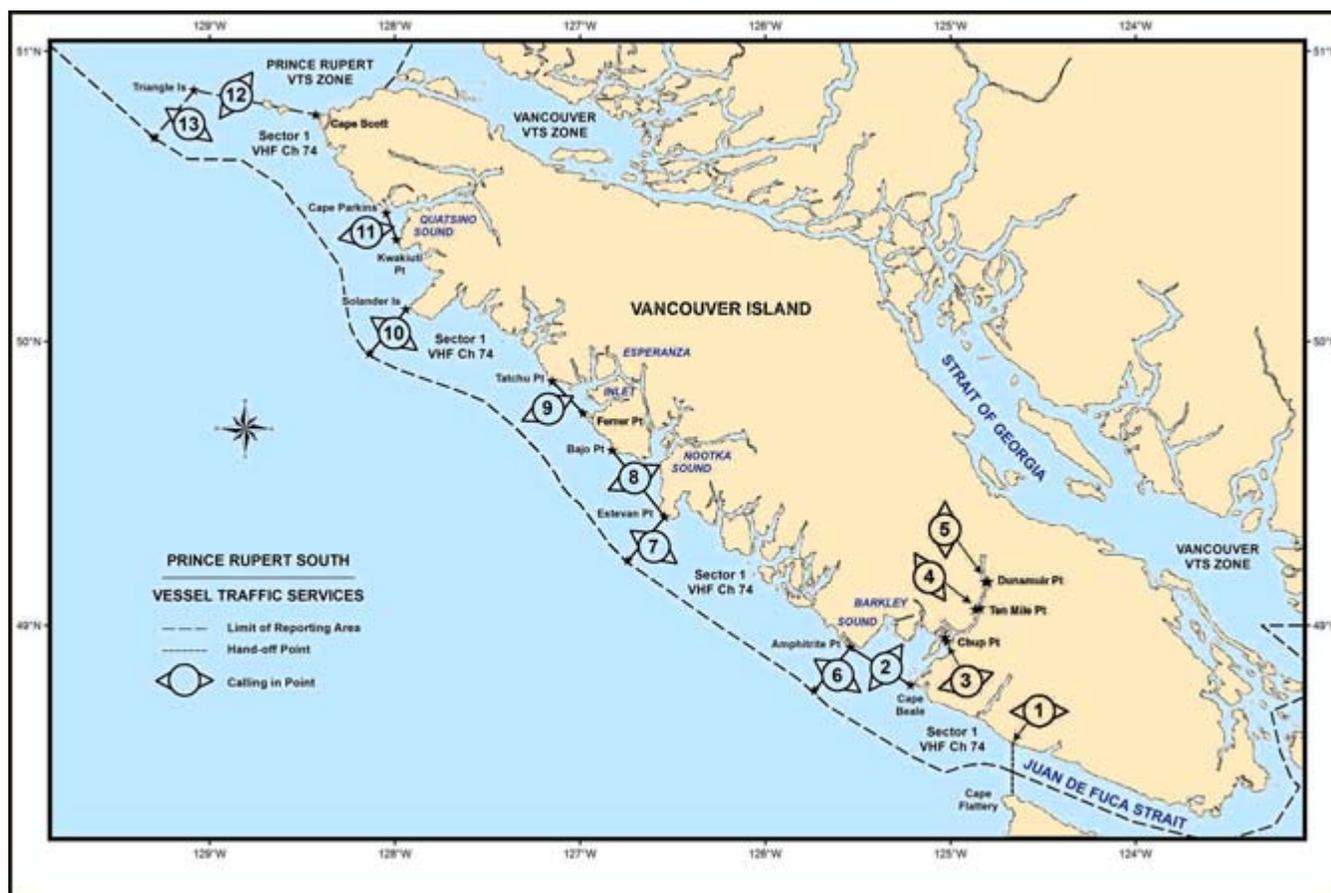
Cape Beale, located at the SE entrance of the sound, is fully described in paragraph 1.2.

The sound is encumbered with numerous islands, islets, and

rocks. The shores are low, except in the N part and among the inlets, where they become high, rugged, and mountainous.

Trevor Channel, Imperial Eagle Channel, and Loudoun Channel are the three main entrances.

Local knowledge is necessary to enter the sound and proceed through the several narrow inlets leading to its head. Alberni Inlet is the principal inlet.



Prince Rupert South Zone VTS Calling In Points

Caution.—Subsurface moorings containing scientific equipment and extending up to about 30m below the surface are situated in various locations within the sound and marked by buoys.

Numerous submarine cables, best seen on the chart, extend SSW from the entrance to Trevor Channel and from about 1 mile S of Folger Passage. An additional submarine cable extends WSW from position 48°48'30"N, 125°16'51"W.

9.3 Mount Ozzard (48°57'N., 125°30'W.), a conspicuous landmark, rises 3 miles NE of Amphitrite Point. Especially prominent from the S, this mountain is the southwesternmost summit of a range of peaks that rise above the NW shore of the sound. It is 710m high and surmounted by a white radar dome.

Trevor Channel (48°48'N., 125°14'W.), the easternmost of the three main passages leading into Barkley Sound, is entered close W of Cape Beale and bound by Vancouver Island and by the islands of The Deer Group. The channel leads NE to the entrance of Alberni Inlet. It is considered "Minor Waters" under Canadian Regulations.

Depths in the fairway are ample for ocean-going vessels. The channel has a least depth of 25m lying about 2.3 miles NE of Cape Beale.

Seapool Rocks (48°49'N., 125°12'W.), partly drying and usually marked by breakers, lie NW of the fairway within Trevor Channel and about 2 miles N of Cape Beale.

A rocky patch, on which the sea breaks heavily, lies about 0.3 mile S of Seapool Rocks. It has a depth of 5.4m and is marked close E by a lighted buoy, equipped with a racon.

Kooh Rock (48°54'N., 125°04'W.), with a depth of 2.7m, lies close to the fairway. It is steep-to and marked close E by a lighted buoy.

The **San Jose Islets** (48°54'N., 125°03'W.), three in number, are low and lie on the E side of the fairway, 1 mile E of **Foucault Bluff** (48°54'N., 125°05'W.).

Directions.—Vessels should enter Trevor Channel with the light on Aguilar Point ahead, bearing 056°. This course should be maintained until the S extremity of Edward King Island is in line with the NE extremity of Folger Island. Vessels should then steer about 045° in order to pass midway between Foucault Bluff and Nanat Islet.

When the light on the San Jose Islets bears 068°, vessels should change course to bring the light on Assits Island ahead, bearing 034°, and pass midway between Kooh Rock and the patch, with a depth of 12m, lying W of the San Jose Islets.

When Clifton Point is abeam, vessels should change course to bring Chup Point Light ahead, bearing 023°, and pass 0.3 mile off Assits Island. When the latter is abeam, vessels should then alter course to enter Alberni Inlet, midway between Chup Point and Mutine Point.

Vessels entering Trevor Channel from Imperial Eagle Channel, via Satellite Passage, should bring the middle of Dixon Island in line, bearing 101°, with the highest part of Wizard Islet. This range will lead midway between the dangers lying in the W part of the passage and should be maintained until Foucault Bluff, bearing 058°, is open E of the SE side of Sandford Island.

Vessels proceeding through Junction Passage should steer a mid-channel course, and if bound N through Alberni Inlet, should pass Chup Point at a distance of not more than 0.2 mile.

If bound S through Trevor Channel, vessels should round Fularton Point at a distance of about 0.3 mile and then steer to pass about 0.3 mile off the point on Tzartus Island that is located directly across the channel from Assits Island.

Caution.—A Prohibited Anchorage Area includes that part of Trevor Channel lying between Cape Beale, Bordelais Island, Fleming Island (48°53'N., 125°07'W.), and Ellis Island (48°52'N., 125°06'W.).

Several submarine cables, which may best be seen on the chart, extend across Trevor Channel.

9.4 Bamfield Inlet (48°50'N., 125°08'W.), lying on the E side of Trevor Channel, is entered close E of Aguilar Point, the low N extremity of **Mills Peninsula** (48°49'N., 125°09'W.). This inlet, which has a least depth of 18m in the entrance, becomes constricted and shallow in the vicinity of Rance Island, about 1 mile within its entrance. The channel leading through the inlet is marked on its E side by buoys moored 0.2 mile N and close W of Rance Island. Four mooring buoys are situated close off the NE extremity of Burlo Island.

A light is shown from Aguilar Point. Prominent landmarks in the area include two oil tanks and a water tower standing on the W side of the inlet, 0.3 mile S of Aguilar Point. A conspicuous radio tower, 59m high, stands on the E side of the inlet, 0.8 mile SSE of Aguilar Point.

Several small piers and floats are situated within this inlet. Sheltered anchorage can be taken by one vessel, in depths of 12 to 14m, mud, between a ledge and Rance Island.

Grappler Inlet (48°50'N., 125°08'W.) leads SE from the entrance of Bamfield Inlet. The depths in this inlet decrease from 18m at the entrance to 9m or less in the vicinity of Port Desire, 0.5 mile inside the entrance. Several floats, one with a depth of 4m alongside, are situated at Port Desire. A buoy marks the rocky ledge that extends S from the N shore of the inlet, 0.2 mile ESE of Grappler Inlet Light.

Caution.—Several submarine cables and pipelines, which may best be seen on the chart, lie across Grappler Inlet.

9.5 The Bordelais Islets (48°49'N., 125°14'W.), together with several above and below-water rocks, lie at the SW extremity of the Deer Group. The largest of these islets is marked by a light and appears as a cliff from the SW. Several low islands and islets, which lie NE of the Bordelais Islets, are encircled by foul ground.

Satellite Passage (48°52'N., 125°10'W.) is the only navigable channel leading through the Deer Group.

Wizard Islet (48°51'N., 125°10'W.), low and barren, lies near the center of the E approach to Satellite Passage and is marked by a light. Sheltered anchorage can be taken in Entrance Anchorage, about 0.2 mile SSW of this islet.

Ohiat Islet (48°51'N., 125°11'W.) lies on the outer edge of an area of foul ground, at the SW entrance to the passage. Shoal patches, with depths of 5.5m and 8.2m, lie near the fairway in the vicinity of the W entrance.

Tzartus Island (48°55'N., 125°05'W.), the highest and largest island of the Deer Group, is steep-to along its E side, except in the vicinity of Sproat Bay. Foucault Bluff, the SE extremity of the island, is steep-to and conspicuous. Sproat Bay, lying close NE of this bluff, affords shelter in any weather and provides anchorage in its S part.

9.6 Roquefeuil Bay (48°51'N., 125°07'W.) is entered 1.5 miles NE of Aguilar Point. It affords sheltered anchorage, in a depth of 16.5m, bottom uneven. Local knowledge is necessary as several below-water rocks lie in the entrance.

Nanat Islet (48°53'N., 125°04'W.) lies close offshore, 3.7 miles NE of Aguilar Point. This islet is conspicuous and wooded.

Numukamis Bay (48°54'N., 125°02'W.), with an entrance 3 miles wide, lies between Nanat Islet and Congreve Island. Although easy to access, this bay is too deep for anchoring. Numerous small islands and islets, which may best be seen on the chart, lie in the entrance of this bay.

Christie Bay (48°53'N., 125°02'W.) provides temporary anchorage, in depths of 12 to 18m, about 0.2 mile offshore.

Poett Nook (48°53'N., 125°03'W.), a landlocked basin, has depths of 7 to 13m. Its entrance is only 45m wide. This basin provides good, sheltered anchorage to small craft.

Assits Island (48°56'N., 125°02'W.), marked by a light, lies close offshore and S of the junction of Trevor Channel and Alberni Inlet.

Caution.—Anchorage is prohibited within Satellite Passage due to the existence of submarine cables.

9.7 Alberni Inlet (48°57'N., 125°00'W.), a continuation of Trevor Channel, is entered between Mutine Point and Chup Point, 1 mile NNW. Chup Point is marked by a light. The shores of this inlet are rocky, rugged, and rise abruptly from the water's edge to mountainous peaks. At the head of the inlet, the terrain becomes low and fertile. The depths in the inlet are too deep for anchoring.

San Mateo Bay (49°56'N., 125°00'W.), entered about 1 mile ENE of Mutine Point, has a wide and unencumbered entrance. This bay is free of dangers except for an islet and a drying rock lying near the center.

Chris Rock (49°57'N., 125°00'W.), with a least depth of 5m, lies in the N approach to San Mateo Bay and about 0.5 mile SE of the fairway leading through Alberni Inlet.

Uchucklesit Inlet (49°00'N., 125°00'W.) is a branch of Alberni Inlet. It leads NW and is entered between Burrough Point and Brooksby Point, 0.4 mile NE. On the NE side of this inlet the terrain rises to mountains. The SW side and the head of the inlet are low. All the branches of this inlet are included within the harbor limits of Alberni Inlet.

Green Cove (Elhlateese) (48°59'N., 124°59'W.), a snug harbor, lies 0.5 mile N of Brooksby Point and is sheltered by Cheeyah Island. Chaputs Passage leads into the cove and is encumbered by a drying rock and a shoal with a least depth of 3.6m. The NW approach to the cove is deep and free of dangers. Anchorage can be obtained, in depths of 10 to 20m, mud and sand, within the cove.

Kildonan (49°00'N., 125°00'W.), a fishing settlement and site of a former cannery, is situated 1.5 miles NW of Green Cove.

Pocahontas Point (48°59'N., 124°55'W.), located 2.5 miles E of Brooksby Point, is a turning point for Uchucklesit Inlet.

Nahmint Bay (49°04'N., 124°52'W.) provides temporary anchorage, in a depth of 36m.

9.8 Sproat Narrows (49°06'N., 124°49'W.) is an area lying within the inlet that is navigable over a width of only 0.2 mile. Drying spits, marked by lights, constrict the inlet in this area.

China Creek lies on the E side of the inlet, about 3 miles above Sproat Narrows. It has a marina with depths of 2 to 3m alongside.

Stamp Narrows (49°11'N., 124°49'W.) has a navigable width of about 0.2 mile. Drying spits, marked by lights, constrict the channel in this vicinity. The E side of the narrows is preferable for transit.

A fish farm holding pen is situated 0.8 mile S of the head of Cous Creek. A marina is situated on the E shore of the inlet, 1.3 miles N of Lone Tree Point.

Caution.—A great part of Uchucklesit Inlet, within Kildonan, is filled with booming grounds.

Fish farm holding pens are situated within San Mateo Bay and in other parts of Alberni Inlet. These pens are covered by galvanized sheds, 21m square. Several pens may be rafted together for various periods of time. The pens are vulnerable and vessels should use care when in their vicinity.

Port Alberni (49°14'N., 124°49'W.)

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9.9 Port Alberni provides a sheltered anchorage and harbor at the head of Alberni Inlet. The W side of the port is high and rocky. The E side is formed by a low, fertile plain on which the city of Port Alberni is situated.

The town of Alberni stands on the E bank of the Somass River, about 1 mile above the mouth, where it empties into the head of Alberni Inlet.

Port Alberni Home Page

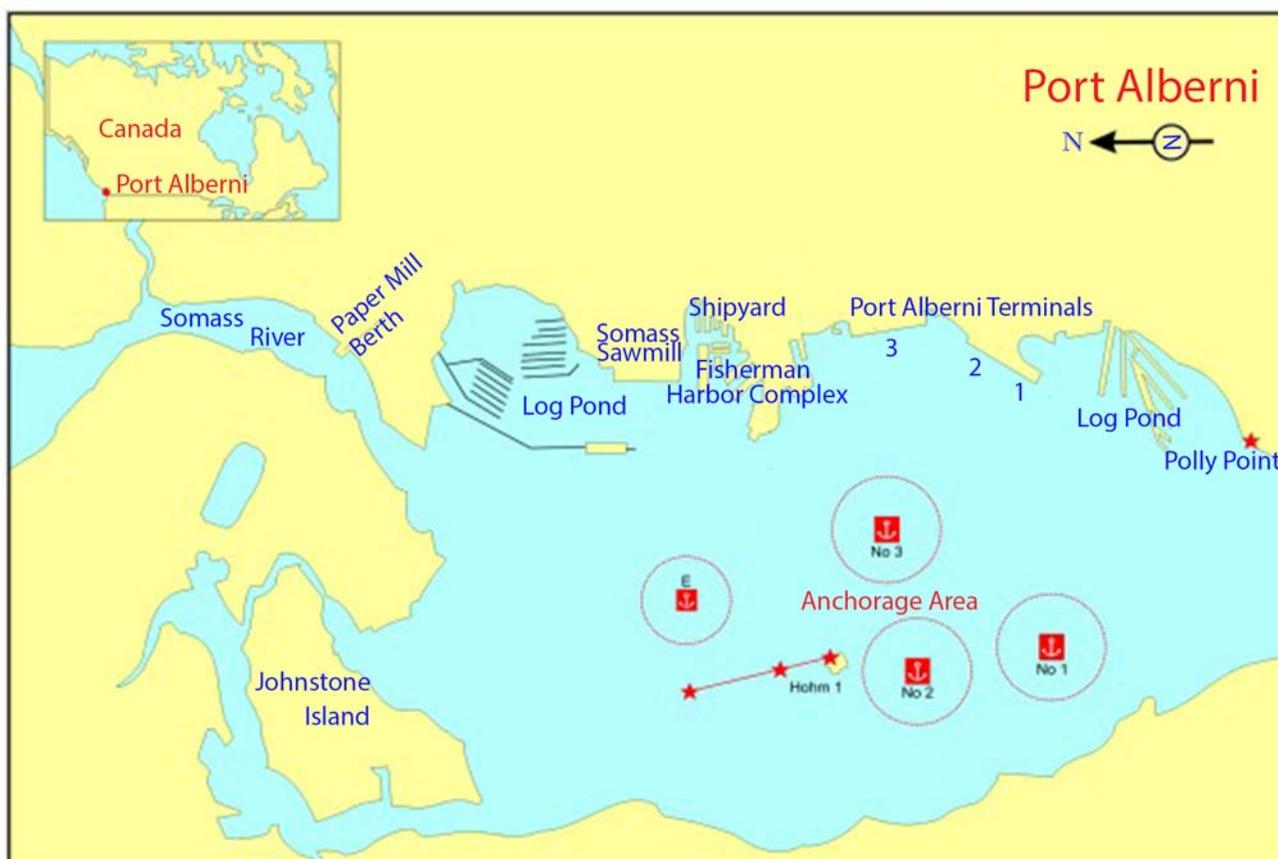
<http://www.portalberniportauthority.ca>

Tides—Currents.—The harbor is ice-free and open all year round. A fresh S breeze usually prevails as far as the head of the inlet.

The tides rise about 2.5m at springs and 1.4m at neaps.

Port Alberni—Berth Information						
Berth	Length	Depth	Maximum Vessel			Remarks
			LOA	Beam	Size	
Port Alberni Terminals						
No. 1	160m	11.4m	190m	32.2m	55,183 dwt	Transshipment and breakbulk.

Port Alberni—Berth Information						
Berth	Length	Depth	Maximum Vessel			Remarks
			LOA	Beam	Size	
No. 2	160m	11.4m	185m	30.6m	39,763 dwt	Transshipment and breakbulk.
No. 3	183m	12.2m	190m	32.2m	55,183 dwt	Transshipment and breakbulk.



Port Alberni

The Somass River, which discharges into the head of the inlet, causes a continual current to set S at a velocity of up to 1 knot.

Depths—Limitations.—The harbor has depths of 11 to 27m but extensive drying mud flats fill the head. Cargo is worked at berth S of the Somass River entrance. The Somass River channel is entered from a position W of the Fisherman's Harbor (14°12'N).

The channel, lying within the Somass River, leads to Alberni. It is dredged periodically to maintain a least depth of 3m as far as the pulp mill wharf situated at the N side of Lupsi Cupsi Point. A least depth of 1.2m is then maintained as far as the town.

The largest vessel accommodated in the harbor has been 44,398 gt, 185m in length, and 12.2m draft.

Dangers in the harbor are reported to be minimal above Polly Point and Stamp Point, 0.5 mile W.

Hohm Island, barren and rocky, lies in the center of the harbor and is marked by a light. Foul ground encircles this island; a detached shoal patch, with a depth of 7.3m, lies about 0.1 mile NNE of it.

The MacMillan Bloedel Pulp and Paper Wharf, situated on the E side of the mouth of the river, is connected to Lupsi Cupsi Point by a long trestle. This berth is no longer used for oceangoing cargo operations.

The Argyle Street Wharf is situated close S of the Sawmill Wharf. It is used by small coastal vessels.

All ocean-going cargo operations are carried out from the Port Alberni Terminals on the Assembly Wharf Berths located directly E of Holm Island.

The Port Alberni Terminal Berth No. 3 is situated 0.3 mile S of the Argyle Street Wharf.

The Port Alberni Terminal Berth No. 1 and Berth No. 2 are situated close S of Berth No. 3. They are used for the handling

of general cargo.

Aspect.—The conspicuous chimney of a lumber company stands 0.5 mile NNE of Polly Point.

In addition to the lighted beacon standing at the river entrance, several dolphins and piles mark the sides of the channel leading SW of Lupsi Cupsi Point.

Pilotage.—Pilotage is compulsory for vessels over 350 gross tons and is provided by the Pacific Pilotage Authority Canada (PPA). For details on reporting procedures and pilot boarding areas refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Pilots will board approximately 2 miles W of Cape Beale.

Regulations.—Port Alberni lies within the Prince Rupert South Vessel Traffic Service (CVTS) System. For details concerning reporting procedures, refer to paragraph 9.1. For other regulations covering the Western Canada Traffic Zone, refer to Canada—Regulations and the Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

The vessel's ETA should be advised to Port Alberni terminals, including the vessel's loa and draft.

Contact Information.—See the table titled **Port Alberni—Contact Information**.

Port Alberni—Contact Information	
Port Manager	
Telephone	1-250-723-5312
	1-250-723-5138 (mobile)
Harbormaster	
Telephone	1-250-723-5312
Facsimile	1-250-731-5839 (mobile)
Port Authority	
Telephone	1-250-723-5312
Facsimile	1-250-723-1114
Port Alberni Terminals	
Telephone	1-250-723-7922
Facsimile	1-250-723-1629

Anchorage.—Four designated anchorages, one located N of Holm Island and three located S of the island, are best seen on the chart and have depths 7 to 26m. The harbormaster will need to be contacted for assignment of anchorages.

Caution.—Silting is reported to occur in the approaches to the wharves situated in the N part of the harbor.

Several booming grounds, floats, and dolphins are situated close to the docking facilities.

A submarine cable and pipeline extend across the Somass River at Lupsi Cupsi Point as best seen on the chart.

Three submerged pipelines extend across the river at a point 0.4 mile N of Lupsi Cupsi Point with an overhead cable, with a vertical clearance of 31m, in the same vicinity.

9.10 Imperial Eagle Channel (48°53'N., 125°14'W.), leading into Barkley Sound, is entered between the Deer Group

and the Chain Group, on the SE side, and the Broken Group, on the NW. Several detached dangers lie within this channel. The depths in the channel are ample for ocean-going vessels. The dangers lying in the approach to the channel and to the S of the Broken Group are indicated by the red sector of Cape Beale Light. Hornby Rock, Miller Reef, Janit Reef, and Folger Island lie in the entrance.

Caution.—During S and SW gales, a very heavy sea forms within Imperial Eagle Channel.

9.11 Hornby Rock (48°49'N., 125°18'W.), with a depth of less than 1.8m, is steep-to and usually marked by breakers. Detached shoals, with a depth of 18m, lie close SE of this rock. A shoal, with a depth of 9.6m, lies about 1 mile NNW of the rock.

Miller Reef (48°50'N., 125°19'W.), consisting of two drying rocks, lies about 0.2 mile W of the rock and usually breaks.

The depths are irregular. A least depth 16.5m lies on the entrance range midway between Miller Reef and Hornby Rock. A rocky patch, with a depth of 8.8m, lies about 1.5 miles SW of the S extremity of Swiss Boy Island.

At night, vessels approaching Imperial Eagle Channel from seaward, should keep in the white sector of Cape Beale Light and no attempt should be made to enter. Even in calm weather, a large breaking wave can occur unexpectedly in this area.

Janit Reef (48°50'N., 125°22'W.), which dries, lies on the NW side of the entrance and 1.5 miles S of Wouwer Island. A rocky foul area extends N and NE of this reef and is dangerous to shipping.

9.12 Folger Island (48°50'N., 125°15'W.) is small, wooded, and cliffy. Leach Islet lies on foul ground close NE of it.

Folger Passage (48°49'N., 125°16'W.) and Hammond Passage lead into Imperial Eagle Channel. The former passes between Hornby Rock and Folger Island. The latter passes between Edward King Island and Folger Island. Folger Passage affords the best entry into the channel during thick weather or from the S. Hammond Passage can be used in good weather with local knowledge.

Dodger Channel (48°51'N., 125°12'W.) is entered close S of Kirby Point. It affords sheltered anchorage to small vessels, with local knowledge, in a depth of 5.5m.

Directions.—Folger Passage is about 2 miles wide. The E extremity of Swiss Boy Island (48°55'N., 125°08'W.) in line, bearing 043°, with the NW extremity of Folger Island leads about 0.5 mile SE of Hornby Rock. Vessels approaching from the S or SW should not open Swiss Boy Island NW of Folger Island until Cape Beale Light bears about 122°. Course may then be altered to pass in mid-channel through Folger Passage.

Hammond Passage is an alternate entrance but not as safe. Local knowledge is required. Vessels approaching from the W can enter Imperial Eagle Channel, between Hornby Rock and Miller Reef, on the entrance range formed by Nanat Islet bearing 068° and just open N of Ohiat Islet. When Folger Island is abeam, a mid-channel course can be steered. This entrance is not recommended in SW gales or during poor visibility. Vessels should then use Folger Passage.

Sail Rock (48°53'N., 125°24'W.), bearing 320° and open SW of Wouwer Island, leads SW of Hornby Rock and Miller Reef. It is advisable to keep Sail Rock N of that bearing until the ves-

sel is on the latter entrance range.

Vessels approaching from the NW should keep Cape Beale Light bearing less than 109° until on the latter entrance range, when they may proceed as directed above.

9.13 Adamson Rocks (48°54'N., 125°08'W.), a group of above and below-water rocks, lie close off the NW side of Fleming Island. Breakers mark these rocks in rough weather. A detached reef, with a depth of 8.8m, lies in the fairway of Imperial Eagle Channel, about 1.5 miles WNW of this group and 1.5 miles SW of Swiss Boy Island. The latter island lies at the SW end of the Chain Group of islands which parallel the NW coast of Tzartus Island, about 0.8 mile offshore.

Baeria Rocks (48°57'N., 125°09'W.), bare and conspicuous, lie in the fairway, about 3.5 miles W of the N end of Tzartus Island. Numerous above and below-water rocks lie in the vicinity of the two main rocks of the group. A light is shown from the southernmost rock of the group.

Effingham Inlet (48°59'N., 125°11'W.), indenting the coast at the NW corner of the channel, is a deep but constricted waterway bound by high rocky shores. Numerous above and below-water rocks and islets lie on either side of the entrance of the inlet. The depths in the inlet are too deep for anchorage.

Vernon Bay (48°59'N., 125°09'W.), lying adjacent and E of Effingham Inlet, is deep and easily entered from the S, although foul ground extends off the entrance points. High rocky shores confine this bay and its depths are too deep for anchorage.

Junction Passage (48°58'N., 125°04'W.) leads from the NE head of Imperial Eagle Channel to the junction of Trevor Channel and Alberni Inlet. This passage is deep and the fairway has a least width of 0.3 mile. It is entered from the W about 0.5 mile S of Pill Point, the SW extremity of **Seddall Island** (48°59'N., 125°04'W.).

Rainy Bay (48°58'N., 125°02'W.), lying on the N side of the passage, is encumbered with islands, islets, and rocks. The Boyson Group of islands lie in the middle of the bay. These islands are barren with conspicuous bluffs.

Ecoole (48°58'N., 125°03'W.), a village, stands in a cove at the SE side of Seddall Island. It is fronted by a wharf in ruins.

Anchorage can be taken by small vessels, in a depth of 36m, mud, within the E arm of the bay.

Chup Point (48°57'N., 125°02'W.), located at the S extremity of a peninsula, and **Fullarton Point** (48°57'N., 125°03'W.), the NE extremity of Tzartus Island, form the E entrance points of Junction Passage. Chup Point is formed by a prominent cliffy and steep-to projection.

Tyler Rock (48°57'N., 125°02'W.), detached with a depth of 6.4m and lies in the middle of the E entrance of Junction Passage.

Barkley Sound—West Part

9.14 The W part of Barkley Sound consists of the numerous islands, islets, and rocks of the Broken Group. The depths in the various channels within the group and approaching it are generally ample for ocean-going ships. However, the constricted nature of the passages and the manifold dangers nearby clearly necessitate local knowledge.

Cree Island (48°51'N., 125°20'W.) is the southernmost is-

land of the Broken Group.

Mara Rock (48°53'N., 125°29'W.), above-water, is the outermost rock on the NW side of the approach to the channel. A drying rock lies 0.3 mile SE of this rock.

The Broken Group extends NE to Sechart Channel, which divides the group from the mainland.

Effingham Island (48°52'N., 125°18'W.) is the largest island in the Broken Group. This island is cliffy, steep-to on its outer side, and free of off-lying dangers. Foul ground fronts the W and NW sides of the island.

Effingham Bay, indenting the NW side of the island, affords sheltered anchorage, in depths of 11 to 14m, good holding ground, to vessels with local knowledge. The anchorage is approached from Imperial Eagle Channel via **Coaster Channel** (48°53'N., 125°17'W.). The SW entrance of Coaster Channel is encumbered with rocks and reefs.

Fishing vessels enter Coaster Channel from the W between **Clarke Island** (48°53'N., 125°23'W.) and **Benson Island** (48°53'N., 125°23'W.), which lies at the W extremity of the Broken Group.

Sheltered anchorage can be taken, in a depth of 31m, about 0.5 mile S of **Cooper Island** (48°52'N., 125°21'W.). Local knowledge is essential. The anchorage lies about 0.3 mile S of an islet located close off the SE side of Cooper Island.

9.15 Thiepval Channel (48°55'N., 125°21'W.) leads between the Broken Group, N of Coaster Channel. It is considered to be the most direct and sheltered route from Bamfield Inlet to Loudoun Channel under favorable light and weather conditions. This channel is entered from the E between **Turret Island** (48°54'N., 125°20'W.) and **Turtle Island** (48°55'N., 125°19'W.). The Faber Islets lie about 1 mile E of the S end of the former island.

Vessels entering Thiepval Channel from Coaster Channel should pass between the two rocky islets, 1.5m high, which lie between Turret Island and the Faber Islets. When Thiepval Channel is open, vessels should proceed along the NE coast of Turret Island until the dangers, including both submerged rocks and rocks that uncover, lying in mid-channel, are passed. The wreck of the HMCS Thiepval, containing unexploded ordnance, lies among the rocks in position 48°54'18.9"N, 125°20'00.5"W.

A rock, 1.5m high, lies at the NW end of the channel with a rock, which dries 4.2m, located close to it. These dangers should be passed on the NE side. A below-water rock lies about 0.2 mile NE of the latter dangers.

Island Harbor (48°55'N., 125°17'W.) is a sheltered anchorage suitable for small vessels. The approach to the harbor lies between **Dempster Island** (48°54'N., 125°16'W.) and **Gibraltar Island** (48°55'N., 125°15'W.). A number of detached reefs lie S and SE of Dempster Island and foul ground extends up to 0.3 mile SE of it.

Eussen Rock (48°55'N., 125°16'W.), steep-to, lies in the middle of the entrance fairway leading to the anchorage. It may be passed on either side.

Anchorage can be taken, in a depth of 20m, mud, about 0.3 mile NW of Dempster Island.

9.16 Sechart Channel (48°56'N., 125°14'W.), leading between the Broken Group and the mainland, has a least width of

0.5 mile. It is entered from Imperial Eagle Channel between **Swale Rock** (48°56'N., 125°13'W.) and **Alma Russell Island** (48°57'N., 125°13'W.) and leads WNW to Loudoun Channel. The E part of the channel is clear of dangers. The Pinkerton Islands extend from the mainland into the channel, as far S as **Capstan Island** (48°57'N., 125°17'W.). Canoe Island lies close offshore, 1 mile E of Capstan Island, and Hand Island lies 1 mile W of it. Rocky shoals lie in the fairway, about 0.5 mile SW of Canoe Island. A conspicuous red brick chimney stands on the shore close N of Canoe Island.

A mid-channel course should be maintained through Sechart Channel. Swale Rock and Hand Island should be given a berth of 0.3 mile after rounding Prideaux Island and Capstan Island. The latter two islands should be passed at a distance of 0.2 mile. Vessels proceeding to the anchorage lying E of the Pinkerton Islands should avoid the detached shoal patches located close E of the islands and between Canoe Island and Prideaux Island. The passage leading E of Canoe Island should not be used. Anchorage can be taken, in a depth of 34m, about 0.3 mile offshore, E of the Pinkerton Islands. Similar anchorage is available N of Canoe Island.

Peacock Channel (48°56'N., 125°18'W.) leads from Loudoun Channel to Sechart Channel between the Broken Group and the **Brabant Islands** (48°56'N., 125°19'W.). **Jarvis Island** (48°56'N., 125°17'W.) and **Dodd Island** (48°55'N., 125°20'W.) lie E and S of the fairway channel. **Galley Rock** (48°56'N., 125°18'W.), which dries, is the only danger lying within Peacock Channel.

9.17 Loudoun Channel (48°53'N., 125°25'W.), the principal entrance into the W part of Barkley Sound, leads between the Broken Group and the dangers lying SW of Sargison Bank.

Dangers located in the SE approach to the channel are described with the Broken Group in paragraph 9.14.

Sail Rock (48°53'N., 125°24'W.), barren and conspicuous, is the westernmost above-water rock of the Broken Group. It lies off the SW side of the group and resembles a sail. A rock, with a depth of less than 1.8m, lies about 0.4 mile WNW of Sail Rock.

The **Pigot Islets** (48°53'N., 125°23'W.), both above and below-water, extend W from Benson Island and lie to the N of Sail Rock.

Several islands and rocks, above and below-water, lie on the E side of Loudoun Channel, to the N of Benson Island.

Hankin Island (48°55'N., 125°22'W.) and **Page Island** (48°56'N., 125°23'W.) lie in Loudoun Channel at its junction with Thiepvall Channel and Peacock Channel.

Pinder Rock (48°55'N., 125°23'W.) lies in the fairway leading through Loudoun Channel, midway between Hankin Island and Page Island. All of these islands and rocks in this vicinity are encircled by foul ground and fronted by shoals which may best be seen on the chart.

9.18 Castle Island (48°57'N., 125°22'W.), lying about 1.5 miles NNE of Page Island, forms a leading mark. When it is open to the W of the latter island, this mark provides a safe entry into Loudoun Channel. The Bryant Islands and Curwen Island lie E and SE, respectively, of Castle Island. These islands are surrounded by rocky shoals, foul ground, and drying rocks. Deep passages, free of dangers, lie on all sides of the island

group. Only **Warner Rock** (48°58'N., 125°22'W.), below-water, forms a danger and lies in the fairway to the N of the Bryant Islands. A rock, which dries, lies about 0.1 mile SE of Curwen Island and is marked by a beacon.

Great Bear Rock (48°53'N., 125°27'W.) lies on an above and below-water reef, about 1.5 miles NE of Mara Rock.

Alley Rock (48°54'N., 125°26'W.) lies at the W side of Loudoun Channel, about 1 mile ENE of Great Bear Rock. A reef, awash, extends N from Alley Rock.

Sargison Bank (48°55'N., 125°25'W.), partly awash at its NE and SW parts, lies N of Alley Rock and fronts the W side of Loudoun Channel.

Directions.—When Castle Islet bears 023° and open W of Page Island, this range leads into Loudoun Channel from seaward between the dangers on either side. When Sail Rock is abeam, vessels should change course to about 036° and pass between Pinder Rock and Hankin Island. Then change course to 028° and steer in mid-channel between the rocky shoals extending E of Curwen and the Bryant Islands to a position about 0.3 mile NW of **Lyall Point** (48°58'N., 125°19'W.).

Barkley Sound—Northwest Part

9.19 The entire NW part of the sound is encumbered with rocks, reefs, and shoals. Various passages lead between and around the dangers. They are navigable with local knowledge.

David Channel (48°59'N., 125°19'W.) is entered between Lyall Point, which is marked by a light, and **St. Ines Island** (48°58'N., 125°22'W.). It leads NE into Mayne Bay and N into Toquart Bay. The fairway is deep and free of dangers. The **Stopper Islands** (49°00'N., 125°20'W.), two in number, are high and wooded. They form the W side of the channel. Foul ground extends off the SE side of both of the islands.

Richard Rock (48°59'N., 125°20'W.), with a drying rock located close NE of it, lies at the W side of the channel and is marked by a light. Vessels should not pass to the W of this rock.

Mayne Bay (48°58'N., 125°20'W.) indents the coast close NE of Lyall Point. It is deep and clear of dangers. A mooring buoy is situated in the NE part of this bay. Anchorage can be taken, in a depth of 31m, mud, within the SE part of the bay.

The **Shears Islands** (49°00'N., 125°19'W.), a chain of islands and rocks, extend S from the NW extremity of Mayne Bay. The channel leading W of the beacon and light marking the W end of the chain is deep and free of dangers.

Macoah Passage (48°59'N., 125°23'W.) parallels the NW shore of the mainland and leads into Toquart Bay. This constricted channel is obstructed by several shoal patches and lies adjacent to the foul ground extending from the islands forming the E side of the passage. It is entered W of **Forbes Island** (48°57'N., 125°25'W.) and should not be used without local knowledge.

Toquart Bay (49°01'N., 125°21'W.) lies at the NW head of Barkley Sound and affords shelter from inclement weather.

Hermit Island (49°00'N., 125°20'W.), located 0.3 mile N of Stopper Island, lies in the S entrance of the bay. An islet lies close NW of the island. A light is shown from a structure standing at the seaward edge of an area of foul ground extending E from the islet.

9.20 Snowden Island (49°01'N., 125°20'W.) lies at the head of the bay and rises high against the low shore.

Anchorage can be taken, in a depth of 25m, in the bay with Hermit Islet bearing 153° and the SE extremity of Snowden Island bearing 076°. Anchorage can also be taken, in a depth of 18m, close W of an islet lying 0.5 mile N of Snowden Island.

Pipestem Inlet (49°02'N., 125°16'W.) is entered from the E side of Toquart Bay. It is deep and backed by rocky shores. The N side rises higher than the S.

Kirby Rock (49°01'N., 125°19'W.), with a depth of 0.5m, lies in the entrance of the inlet. Bazett Island fronts the S shore, close within the entrance.

This inlet can be approached from either N or S of Snowden Island. Having entered the inlet, vessels should steer to pass to the S of Kirby Rock and proceed to the anchorage. Vessels proceeding up the inlet should keep in mid-channel and give the N side of Bazett Island a berth of at least 0.1 mile.

Anchorage can be taken by small vessels, with local knowledge, in a depth of 21m, mud, about 0.1 mile SW of Bazett Island.

Ucluelet Inlet and Approaches

9.21 Ucluelet Inlet, the W entrance of Barkley Sound, is bound by the Ucluth Peninsula (48°57'N., 125°34'W.), to the W, and fronted by the George Fraser Islands. Several channels lead clear of the islands and into the entrance of the inlet, but local knowledge is required.

Felice Channel (48°54'N., 125°30'W.) is considered to be the best channel leading from seaward for vessels bound for Ucluelet Inlet. The fairway has a least width of 0.4 mile and a least depth of 27.4m. Numerous islets, rocks, and shoals lie along the sides of the channel.

Vessels entering Felice Channel should keep Chow Islands Light ahead, bearing 043°, until Francis Island Light bears 309° and is open NE of the islets lying E of the George Fraser Islands. The course should then be changed to 340° in order to clear the dangerous shoal patches lying W of the Chow Islands. When Chow Islands Light bears 081°, the course should be altered to bring the Francis Island light ahead, bearing 305°. Vessels should steer about 305° until the northernmost islet of the George Fraser Islands is abeam. They may then change to enter Ucluelet Inlet.

Starlight Reef (48°53'N., 125°29'W.), above-water, and the **Chow Islands** (48°55'N., 125°28'W.) lie at the SE and NE sides of Felice Channel. A light is shown from the NW end of the northernmost of the Chow Islands. Heddington Reef and Sykes Reef, both above-water, lie between the dangers previously mentioned. Several detached shoal patches, with depths of 3.6m, lie about 0.5 mile W of the Chow Islands.

Humphries Reef (48°54'N., 125°31'W.), above-water, lies at the NW side of the channel entrance. Several detached shoal patches and a number of above-water rocks lie SE and E of this reef and extend SE to the edge of the channel.

Newcombe Channel (48°55'N., 125°29'W.) joins Felice Channel at its N end and leads from Ucluelet Inlet into Loudoun Channel, NW of the Chow Islands and Sargison Bank. The S entrance of this channel lies between the northernmost of the Chow Islands, which is marked by a light, and the **Food Islets** (48°54'N., 125°28'W.). A rock, awash, lies 0.2

mile SSW of these islets. Forbes Island lies at the N end of the channel.

Vessels using Newcombe Channel should proceed as directed for Felice Channel, until Chow Islands Light bears 081°. The course should then be altered to 059° and vessels should pass 0.3 mile NW of the latter light. When abreast this light, the course should be changed to bring Forbes Island Light ahead, bearing 051°. When Page Island bears 100°, vessels should change course to 085° and pass about 0.2 mile S of the beacon standing 0.1 mile ESE of **Curwen Island** (48°57'N., 125°22'W.).

This route can be used by vessels navigating between the inner part of Barkley Sound and Ucluelet Inlet. Vessels should pass between the Beg Islands and the NE side of the George Fraser Islands.

9.22 Alpha Passage (48°54'N., 125°32'W.) leads from seaward towards the entrance of Ucluelet Inlet. It passes between the George Fraser Islands and **Jenny Reef** (48°55'N., 125°32'W.). This passage is very constricted and has numerous above and below-water rocks and shoal patches lying adjacent to the fairway. Only small vessels of light draft, with local knowledge, should use this passage. Transit should be made in calm weather and during daylight hours.

The **George Fraser Islands** (48°55'N., 125°31'W.) lie on the SE side of Alpha Passage. The group consists of two main islands and numerous small islets and rocks. Jenny Reef lies on the NW side of Alpha Passage. It is extensive and also consists of several above and below-water rocks.

Vessels proceeding to Ucluelet Inlet by way of Alpha Passage should enter with the N extremity of the northernmost islet of the George Fraser Islands ahead, bearing 038°. When Francis Island Light bears 358°, it should be brought ahead on that bearing. When the northernmost islet of the George Fraser Islands is abeam, the course should be altered to 027°. Vessels should then pass 0.2 mile SE of Francis Island and proceed into the inlet.

Carolina Channel (48°55'N., 125°32'W.) leads from seaward between Jenny Reef and Amphitrite Point. It is the most frequently used channel by light-draft vessels in calm weather. During stormy weather, long swells roll in from seaward. The channel then becomes dangerous as several below-water rocks lie within the fairway. The fairway has a least depth of 10m and lighted buoys mark the principal dangers lying near it.

Vessels proceeding to Ucluelet Inlet by way of Carolina Channel should steer a course with Francis Island Light ahead, bearing 058°. They should pass between the lighted buoys moored off the entrance. When the highest part of Beg Island bears 097°, it should be steered for on that bearing. When the E extremity of Francis Island is abeam, the course should be changed to the N and Francis Island rounded at a distance of about 0.2 mile.

9.23 Ucluelet Inlet (48°56'N., 125°31'W.) is entered about 1 mile E of Amphitrite Point. The inlet extends 4 miles NW to its head, shoaling gradually to drying flats. Local knowledge is required to enter the inlet due to the numerous dangers lying in the vicinity of the fairway.

The least depth in the entrance channel is 6.1m and lies about 0.2 mile NE of Francis Island. The inlet has a least width

of 0.1 mile. The navigable channel leading E of Lyche Island is only about 45m wide and has a depth of 6.4m. The channel leading W of the island has a depth of only 3.3m.

Francis Island (48°55'N., 125°31'W.), at the W side of the entrance to the inlet, is marked by a light shown from its S end.

Hyphocus Island (48°56'N., 125°32'W.) lies 0.5 mile NW of Francis Island. Spring Cove, used by fishing vessels, is formed between these two islands. Stuart Bay lies close within the E entrance point of the inlet and provides a boat anchorage.

Sutton Rock (48°56'N., 125°32'W.) lies in the fairway channel, about 1.5 miles within the entrance. It is marked by a lighted buoy moored close S; the buoy should be kept to starboard. Several rocks lie along the E side of the inlet and are marked by beacons. A number of prominent radio towers stand on Hyphocus Island.

Lyche Island (48°57'N., 125°33'W.) lies in the middle of the inlet, about 1.8 miles inside the entrance. A reef lies close off the NW extremity of the island and is marked by a beacon. Safe passage to the head of Ucluelet Inlet is taken N of Leyche Island, where there is a minimum depth of 7.6m. The waters S of Lyche Island are narrowed significantly by foul ground.

Caution.—A dangerous wreck, in a depth of 8.3m, is located NW of Lyche Island in position 48°56'55"N, 125°33'04"W.

9.24 Ucluelet (48°57'N., 125°33'W.) (World Port Index No. 18760), a village, is situated on the W side of the inlet, 4.3 miles NNW of Francis Island. Several piers front the village. The largest has depths of 5.5 to 6.4m alongside. There are facilities for small craft, fishing boats, and yachts.

Port Albion (48°57'N., 125°33'W.), a settlement, stands on the NE shore of the inlet, about 0.5 mile N of Ucluelet. It is situated on the site of a disused fish plant. A drying mud flat extends S from the settlement and is marked at its outer edge by a beacon.

Anchorage can be taken, in depths of 16 to 23m, between the shoal patch lying NW of Sutton Rock and Lyche Island. Anchorage can also be taken in depths of 14 to 7m above Lyche Island.

Amphitrite Point (48°55'N., 125°32'W.), located at the S extremity of Ucluth Peninsula, forms the NW entrance point of Barkley Sound. This point is marked by a light and is radar conspicuous.

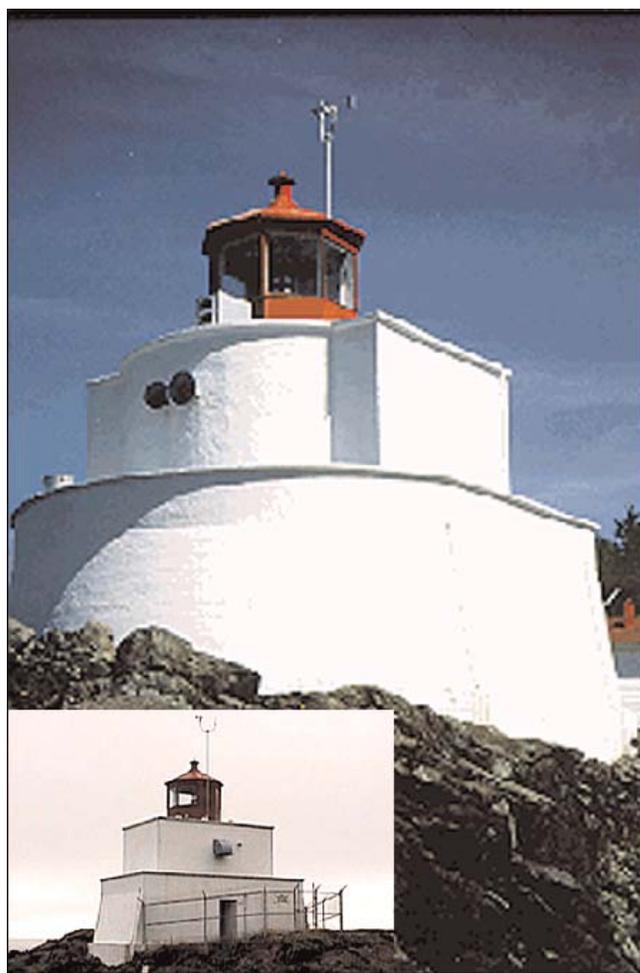
Caution.—Several submarine cables and a pipeline extend across Ucluelet Inlet, close N of the Lyche Island.

Barkley Sound to Clayoquot Sound

9.25 The W coast of Vancouver Island trends 17 miles NW from Amphitrite Point to Cox Point, the SE entrance point of Clayoquot Sound. Numerous dangers lie at varying distances offshore along this stretch of coast and it should not be approached within 2 miles. The outermost dangers lie off Clayoquot Sound and are described with that feature.

Florencia Bay (48°58'N., 125°37'W.) is centered 5.5 miles NW of Amphitrite Point and extends NW between Wya Point and Quisitis Point. This bay is exposed, encumbered by foul ground, and shallow. Anchorage in the bay is not recommended. Florencia Islet lies in the middle of the entrance to the bay, about 1 mile offshore.

Wickaninnish Bay (49°02'N., 125°44'W.) lies between



Main photo copyright Chris Mills

Amphitrite Point Light

Quisitis Point and Portland Point, 7.3 miles NW. This bay is too exposed and shallow to be used as an anchorage, except by small craft with local knowledge. A long sandy beach fronts the shore of the bay. A radiobeacon is situated midway along the beach, about 3.5 miles NNW of Quisitis Point; an airport is situated on the N side of the bay.

A lighted buoy is moored about 1.8 miles SSE of Portland Point, at the N entrance to the bay.

Gowlland Rocks (49°04'N., 125°51'W.), above and below-water, extend up to 0.8 mile offshore, about 1.5 miles NW of Portland Point.

Cox Point (49°07'N., 125°54'W.), a rocky projection, is located at the SE extremity of Clayoquot Sound. Cox Bay indents the coast close N of the point and is fronted by Frank Island. The bay is exposed and provides no anchorage.

Vargas Cone, 131m high, rises 1 mile ESE of Cox Point. Prominent towers stand 0.5 mile and 1.3 miles SE of this conspicuous hill.

Radar Hill, 116m high, stands 0.5 mile ESE of Vargas Cone and is surmounted by a tower.



Photo copyright Mike Mitchell

Lennard Island Light

Clayoquot Sound—Outer Part

9.26 Clayoquot Sound (49°05'N., 126°00'W.) is encumbered by a number of large and small islands, numerous islets, and rocks. Several channels lead between these features and provide access to vessels with local knowledge to the inner part of the sound. The tidal currents within some of these channels may attain velocities of up to 5 knots.

The entrance of the sound lies between Cox Point and Sharp Point, the NW entrance point of Sydney Inlet.

Lone Cone (49°13'N., 125°55'W.), 753m high, and **Mount Colnett** (49°10'N., 125°50'W.), 802m high, stand on Meares Island, in the SE part of the sound, and are both prominent.

Flores Island (49°19'N., 126°10'W.), lying in the NW part of the sound, is low on its W and S sides. Its interior is formed by mountains, up to 900m high. Mount Flores is the summit of the island and Rafael Cone, rising 2 miles SW of it, is very prominent from the NW.

Catface Range (49°16'N., 125°58'W.), rising N of Village Island, is flat-topped with conspicuous cliffs. Several prominent patches of bare white rock are located near the middle of the S side of this range.

Caution.—Numerous dangers, which may best be seen on the chart, lie with Clayoquot Sound. A few of the dangers lying near the various fairway channels are described. Sea Otter Rock and Cleland Island are the outermost dangers in the entrance and are described with Brabant Channel in paragraph 9.31.

9.27 Templar Channel (49°08'N., 125°55'W.) lies at the SE entrance of Clayoquot Sound. It is formed by the **Esowista Peninsula** (49°07'N., 125°53'W.), on the E side, and by Lennard Island, Tonquin Island, and Wickaninnish Island, on the

W side. The channel is entered between Cox Point and **Lennard Island** (49°07'N., 125°55'W.). The latter island is fringed by foul ground and a light and a radiobeacon are situated on its SW part. Tonquin Island lies 0.5 mile N of Lennard Island. Foul ground fronts the N side of this island and also extends S along the W side of the channel.

The tidal currents set through the channel at a velocity of 1 to 2 knots. The flood current flows N and the ebb current S. In heavy weather, the sea breaks across the entrance.

There are depths of 12 to 20m in the entrance fairway but they shoal abruptly to the E of Tonquin Island and decrease to 4.5m near the N end of the channel. Vessels, with drafts of over 3.6m, should not use Templar Channel without local knowledge.

Directions.—Vessels entering the channel from seaward should pass between 0.15 and 0.2 mile E of Lennard Island and Tonquin Island. They should then steer 343° and pass about 0.1 mile E of the rock, awash, lying N of Tonquin Island. When the SE extremity of Echachis Island is seen N of the rock, 2.1m high, lying 0.2 mile N of Tonquin Island, bearing 244°, the course should be altered to WNW until the NW extremity of Stubbs Island is just open E of the NE extremity of Wickaninnish Island, bearing 341°. These points should not be closed and vessels should keep them just open in order to pass W of the lighted buoy marking the W side of the middle ground. When the light structure on Lennard Island appears to the W of the summit of Tonquin Island, bearing 171° astern, vessels should steer into the fairway. If bound for Clayoquot, vessels should pass W of the lighted buoy moored SW of Felice Island. If bound for Tofino, they should pass S and E of this lighted buoy.

9.28 Thorn Reef (49°08'N., 125°55'W.), formed by above and below-water rocks, lies between **Echachis Island**



Tofino Harbor

(49°08'N., 125°56'W.) and the above and below-water reefs extending N from Tonquin Island. A rock, awash, lies at the N end of this reef and is marked close E by a buoy. An extensive middle ground, with a least depth of 3m, lies N of the reef and close E of the fairway.

Wickaninnish Island (49°08'N., 125°56'W.) lies close N of Echachis Island and is connected to it by a drying spit. A beacon stands on the outer edge of a spit fronting the NE end of the island. Foul ground and shoal patches, with depths of 1.2m and 0.9m, lie E of the island and extend to the edge of the channel.

9.29 Stubbs Island (49°09'N., 125°56'W.) lies 0.5 mile NNE of Wickaninnish Island and is separated from it by shoals with a least depth of 1.5m.

Van Nevel Channel (49°10'N., 125°55'W.), leading between Stubbs Island and Felice Island, connects with Heynen Channel. A shoal area extends S from Felice Island and is marked by a lighted buoy moored at its S extremity. Templar Channel divides SW of this buoy, the left branch leading, as Van Nevel Channel, to Clayoquot. The tidal currents in the channel attain a velocity of 1 to 3 knots. The flood current sets NE and the ebb current SW.

Clayoquot (49°09'N., 125°55'W.) (World Port Index No. 18780), a resort village, is situated at the E side of Stubbs Island. It is fronted by T-head pier which has a depth of 4.5m alongside. A least depth of 4.9m lies in the approach channel. A shoal patch, with a depth of 2.4m, lies about 0.5 mile NE of the pier head.

Felice Island lies midway between Stubbs Island and **Grice Point** (49°09'N., 125°55'W.). Duffin Passage, the right branch of Templar Channel, passes E of Felice Island and N around Esowista Peninsula. This passage, which is 0.2 mile wide,

leads to Tofino, a village situated close E of Grice Point. The tidal currents in this channel set N and NE at a velocity of 2 to 3 knots.

9.30 Tofino (49°09'N., 125°54'W.), a village, stands on the N end of Esowista Peninsula near the entrance to Clayoquot Sound on the W coast of Vancouver Island. Tofino used to be a timber and fishing town but has now become a rapidly growing tourist center with docks and wharves used by local fishermen and serving as launching places for tourist activities such as kayaking, whale watching, and numerous tours. A floating log breakwater and a fixed breakwater of pilings protect the piers and a small boat harbor. The latter harbor lies 0.5 mile E of Grice Point.

Father Charles Channel (49°08'N., 125°58'W.) is formed between Wickaninnish Island and Stubbs Island, on the E side, and **Vargas Island** (49°11'N., 125°59'W.), on the W. Numerous rocks, some dangerous, lie in the entrance and on either side of the fairway channel.

The seaward approaches on both sides are bordered by several rocky islets. On the E side, reefs extend NW from Lennard Island to **McKay Reef** (49°07'N., 125°58'W.). Several above and below-water rocks lie between this latter reef and the narrows located W of Wickaninnish Island. **Jensen Rock** (49°08'N., 125°58'W.), one the above dangers, is generally marked by breakers.

The **La Croix Group** (49°09'N., 126°00'W.), consisting mostly of rocks and foul ground, borders the W side of the approach to the channel and also fringes the S side of Vargas Island. **Wilf Rock** (49°08'N., 125°59'W.), the southeasternmost rock of the group, lies 1 mile SW of Moser Point and is marked by a light.

Father Charles Channel has a width of not less than 0.4 mile

and a least depth of 8.5m in the fairway. The tidal currents in the channel attain a velocity of 2 knots and heavy tide rips frequently occur. Vessels should not use this channel without local knowledge.

Moser Point (49°09'N., 125°58'W.), low and rocky, is the SE extremity of Vargas Island. Small above-water rocks lie in the channel, about 0.3 mile E and close NE of this point.

Between Moser Point and **Rassier Point** (49°11'N., 125°56'W.), the channel leads N through an area of unmarked shoals. It then continues as Maurus Channel or leads E as Heynen Channel. A shoal patch, with a depth of 8.5m, lies in the fairway, close E of an islet located 0.3 mile E of **Yarksis** (49°10'N., 125°58'W.).

9.31 Brabant Channel (49°12'N., 126°05'W.), lying on the NW side of Vargas Island, is the preferred channel for entry into Clayoquot Sound for vessels with local knowledge. The approach fairway is deep and leads between **Sea Otter Rock** (49°11'N., 126°08'W.) and **Cleland Island** (49°10'N., 126°05'W.), the outermost dangers. The latter island is bare, conspicuous, and has drying rocks and foul ground encircling it. Sea Otter Rock, above-water, lies on the NW side of the channel close to several detached shoal patches. A rocky shoal patch, with a depth 3.6m, lies 0.5 mile E of Sea Otter Rock and close to the fairway.

Brabant Channel is about 5 miles long. It has a least depth of 7.3m lying on the bank extending across the N part of the channel. The tidal currents in the channel set NE on the flood with a velocity of 1 to 2 knots. With heavy SW gales, the sea is reported to break across the channel between Lawrence Islet and Hobbs Islet.

Vessels approaching the channel from seaward should bring the SE side of Lawrence Islet in line, bearing 047°, with the gap located between the Leeke Islets and the northernmost summit of the Catface Mountain Range. They should then steer on this range alignment and avoid the rocky shoal patch, with a depth of 3.6m, and Plover Reefs. At night, the light on Monks Islet, bearing 054°, leads into the fairway. Approaching Hagen Reef, vessels should change course to the E and pass 0.5 mile off the Hobbs Islets and the Burgess Islets.

Caution.—Numerous rocks, reefs, and shoals abound on either side of Brabant Channel. **Plover Reefs** (49°11'N., 126°05'W.), consisting of above and below-water rocks, lie 0.5 mile E of the entrance fairway and extend E to **Blunden Island** (49°11'N., 126°04'W.). The **Lawrence Islets** (49°13'N., 126°04'W.) lie in the fairway with foul ground extending SW from them to **Hagen Reef** (49°12'N., 126°05'W.). The **Leeke Islets** (49°14'N., 126°04'W.) lie in the fairway, about 1.3 miles NE of Lawrence Islets. **Eby Rock** (49°13'N., 126°01'W.), which dries, lies at the junction of Brabant Channel and Calmus Passage. It is marked by a beacon. The **Monks Islet** (49°14'N., 126°01'W.), marked by a light, lies NE of Brabant Channel.

9.32 Russell Channel (49°14'N., 126°08'W.), lying N of Brabant Channel, is entered between **Bartlett Island** (49°13'N., 126°05'W.) and the S side of Flores Island. The E part of this channel connects with Calmus Passage, N of Vargas Island, and with Millar Channel, on the E side of Flores Island.

The depths in the channel vary from 25m at the entrance to

9m at the E end. The channel has a least width of 0.5 mile and the sea breaks heavily at times along both sides of the entrance.

Vessels should approach Russell Channel from seaward with Tibbs Islet Light bearing between 075° and 095°. When about 1 mile seaward of the islet, vessels should change course to pass about 0.2 mile N of it. The Shot Islets should then be rounded at about 0.2 mile and a course set to pass about midway between Eby Rock and the SW end of **Coomes Bank** (49°13'N., 126°00'W.).

Bartlett Island lies on the S side of the channel. It is wooded and encircled by numerous islets, rocks, and reefs.

Tibbs Islet (49°14'N., 126°07'W.), marked by a light, lies 0.8 mile NW of Bartlett Island, at the S side of the entrance channel. Rocky patches, with a depth of 7.8m, lie close SW of this islet. The Whaler Islets and the **Shot Islets** (49°14'N., 126°03'W.) lie on an area of foul ground extending up to 2.3 miles E from Tibbs Islet. A shoal, with a depth of 0.4m, lies about 0.2 mile NNE of the summit of the largest islet of the latter group.

Garrard Group (49°14'N., 126°03'W.), bordering the N side of the entrance, consists of numerous islets, rocks, and reefs. Foul ground lies N and NE of this group and extends WNW to Rafael Point, the low, wooded SW extremity of **Flores Island** (49°20'N., 126°10'W.).

Clayoquot Sound—Inner Part

9.33 Calmus Passage (49°13'N., 126°00'W.) leads E from Brabant Channel and is constricted by Coomes Bank, to the N, by coastal shoals fringing the N side of Vargas Island, to the S. This passage has a least depth of 10m and is divided at its E end by **Morfee Island** (49°13'N., 125°57'W.). Eugvik Rock, which dries, lies in mid-channel, close S of the latter island. A below-water rock, marked by a buoy, lies 0.1 mile NW of Eugvik Rock.

Epper Passage (49°14'N., 125°58'W.), with a least depth of 9.1m, leads NE from Calmus Passage. This passage lies between Morfee Island and an island lying 0.2 mile NW of it. The tidal currents in this passage may attain a velocity of 3 knots at times. They diminish towards the E part where the E current setting S of Morfee Island attains a velocity of 1 to 2 knots.

Bedwell Sound (49°17'N., 125°49'W.) is bound by steep-to rugged shores and backed by mountainous peaks. It is approached from Epper Passage or from the S through Fortune Channel and Matset Narrows. This sound is deep and free of dangers. It is entered close E of Rant Point and leads N to where the Bedwell River empties into the head.

Anchorage can be taken, in depths of 10 to 18m, in the W approaches to this sound, including **Ritchie Bay** (49°14'N., 125°55'W.). Anchorage can also be taken, in depths of 14 to 18m, in **Hecate Bay** (49°15'N., 125°56'W.). The latter anchorage is sheltered, easy to access, and free of dangers.

Cypress Bay (49°16'N., 125°53'W.) provides good anchorage in a depth of 22m about 0.5 mile off its NE shore.

9.34 Fortune Channel (49°13'N., 125°46'W.) is mainly approached from Bedwell Sound via **Matset Narrows** (49°14'N., 125°48'W.). This channel is deep, at least 0.5 mile wide, and unencumbered. The narrows located near the N entrance of the channel have a fairway, about 0.2 mile wide, with

a depth of 23m. Below-water rocks lie about 0.1 mile off the S side of the narrows. The flood tidal current sets E in the channel and the ebb current sets W with strong tide rips forming off the E entrance of the narrows.

Warn Bay (49°15'N., 125°45'W.), lying at the head of Fortune Channel, affords anchorage, in depths of 23 to 26m, mud, close off an islet located near its head. A rock, with a depth of 3.4m, lies about 0.2 mile SW of this islet.

Mosquito Harbor (49°12'N., 125°47'W.) is entered close W of Plover Point. Numerous islets, rocks, and shoals lie in the entrance and within the harbor. Anchorage can be taken, in a depth of 11m, near the center of the harbor.

Tofino Inlet (49°10'N., 125°40'W.) is deep and may be approached through **Dawley Passage** (49°09'N., 125°47'W.). The latter passage is winding, constricted, and has a least depth of 16.5m lying at the S end of Fortune Channel. The inlet can also be approached from the W via Browning Passage and Tsapee Narrows. However, this approach should not be attempted without the latest local knowledge.

Warne Island (49°08'N., 125°44'W.) lies in the entrance of Tofino Inlet. After clearing Dawley Passage, vessels should stay to the N side of the narrows and pass S of this island.

Anchorage can be taken by small vessels in **Island Cove** (49°09'N., 125°46'W.), a landlocked basin, lying NW of Warne Island. The entrance to the cove leads NE of a small island and has depths of 7 to 16m.

Berryman Point (49°09'N., 125°41'W.) forms the NW end of a peninsula located at the mouth of the Kennedy River. This latter river flows into the SE part of Tofino Inlet. Small vessels can anchor, in a depth of 14m, close NW of the islets lying off the peninsula.

McCaw Peninsula (49°11'N., 125°40'W.) is located close S of Tofino Inlet. **Deer Bay** (49°14'N., 125°36'W.) lies at the head of the inlet. Foul ground lies in the entrance and the bay is too deep for anchoring.

9.35 Browning Passage (49°08'N., 125°52'W.) connects the SW end of the Tofino Inlet with Templar Channel and Heynen Channel. Numerous dangers lie in and adjacent to this constricted passage which has a controlling depth of 8.2m. The tidal currents in the passage are strong at times. The principal dangers lying in and near the fairway are marked by buoys and beacons. It is a secondary passage and only used by vessels with local knowledge.

Tsapee Narrows (49°07'N., 125°49'W.), forming the SE entrance of Browning Passage, is entered SW of **Auseth Point** (49°07'N., 125°48'W.). Mud flats and islets lie at the W end of the narrows. The passage leading S of the islets, which has a least depth of 4.6m, should be used. The tidal currents set E and W. They begin shortly after LW and HW, respectively. In the congested passages and narrows, the tidal currents may attain a velocity of 5 knots.

Deadman Passage (49°10'N., 125°54'W.), marked by buoys, has a width of only 90m and a least depth of 3m. It leads S from the junction of Van Nevel Channel and Heynen Channel past the W side of Deadman Island to **Duffin Passage** (49°09'N., 125°55'W.). The tidal currents in the channel attain a velocity of 2 knots at times.

Van Nevel Channel (49°10'N., 125°55'W.) leads SW from Heynen Channel to Clayoquot and Templar Channel. It is

marked by buoys and beacons. The fairway has a controlling depth of 5.8m lying W of the Deadman Islets.

9.36 Heynen Channel (49°10'N., 125°56'W.) leads W from Van Nevel Channel to the junction with Father Charles Channel. It has a least depth of 6.4m lying at the SW side. Lighted buoys mark the outer edges of the drying spits which extend from the shores to the edge of the channel at its E and W ends.

Maurus Channel (49°12'N., 125°56'W.) leads N between Vargas Island and Meares Island. It connects Father Charles Channel and Heynen Channel with Calmus Passage. The fairway has a least depth of 27.4m.

Elbow Bank (49°12'N., 125°56'W.), which dries, borders the W side of the channel. The tidal currents in the channel attain a velocity of 1 to 2 knots.

Herbert Inlet (49°19'N., 126°00'W.), unobstructed and deep, is entered between Bawden Point and McKay Island. Its shores are mostly steep and densely wooded. A waterfall is located at the head of the inlet near the mouth of the **Moyeha River** (49°25'N., 125°55'W.). The approach to the inlet from the E end of Russell Channel leads over a bar, with a controlling depth of 6.4m, which extends SE from the **McKinn Islets** (49°15'N., 126°03'W.).

Whitepine Cove (49°18'N., 125°58'W.), lying at the SE side of Herbert Inlet, affords anchorage, in a depth of 18m, near its head but a number of rocks and other dangers must be avoided.

Bawden Bay (49°17'N., 126°01'W.) provides anchorage, in depths of 18 to 27m.

Matilda Inlet (49°17'N., 126°04'W.), entered about 2 miles W of Bawden Point, is very constricted. It indents the E coast of Flores Island. A light is shown from a circular tower standing on a reef at the entrance. Anchorage can be taken by small vessels, in a depth of 31m, about 0.5 mile inside the entrance of this inlet.

Caution.—Two submarine cables and a submarine pipeline (water) cross the inlet in the area of Ahousat.

Ahousat (49°17'N., 126°04'W.) (World Port Index No. 18790), a settlement, stands on the W shore of the inlet. It is fronted by a wharf, 30m long, with depths of 4.9 to 6.1m alongside.

Millar Channel (49°22'N., 126°04'W.), a N extension of Russell Channel, leads along the E side of Flores Island to Obstruction Island. The latter island almost fills the N end of this channel. Depths increase from 5.5m at the S end of this channel to over 128m at its N end.

Sydney Inlet, Shelter Inlet, and Hesquiat Harbor

9.37 Sydney Inlet (49°20'N., 126°15'W.) is entered about 4 miles N of **Rafael Point** (49°17'N., 126°14'W.) and close E of **Sharp Point** (49°21'N., 126°15'W.). The latter point is marked by a light.

Rocks, with depths of 3.7m, 5.5m, and 8.2m, lie 0.5 mile SW, 0.7 mile WSW, and 0.5 mile WNW, respectively, of Rafael Point. This wide inlet extends 10 miles N and is clear of dangers. The depths range from 20m at the entrance to 120m near the head. The tidal currents in the inlet may attain a velocity of 2 knots.

Stewardson Inlet (49°27'N., 126°16'W.) indents the W side of the inlet, about 6 miles N of Sharp Point. It is free of dangers but too deep for anchoring.

Holmes Inlet (49°27'N., 126°15'W.), which is constricted, is entered close E of Adventure Point, the S extremity of a finger-like projection forming the W side of the inlet.

Shelter Inlet (49°24'N., 126°09'W.) leads E from **Starling Point** (49°24'N., 126°14'W.), marked by a light, its S entrance point. The shores of the inlet are steep-to and precipitous. The fairway is deep and clear of dangers. Riley Cove, lying close E of Starling Point, affords shelter and anchorage for small craft.

Steamer Cove (49°23'N., 126°11'W.), lying 2 miles within the entrance, affords anchorage, in depths of 31 to 35m. Clio Island, marked by a light, lies close N of this cove.

9.38 Hayden Passage (49°24'N., 126°07'W.) connects Shelter Inlet with Millar Channel. It is constricted with a least navigable width of 135m lying between Obstruction Island and Flores Island. Several drying rocks lie at the NW and SE ends of this passage. A rock, marked by a beacon, lies near the middle of the passage, on the N side of the fairway. Other dangers lying near the channel are also marked by beacons.

The tidal currents flowing into Millar Channel and Shelter Inlet, meet 1 mile E of Hayden Passage where their junction is apparent. These currents may attain a velocity of 4 knots.

Refuge Cove (49°21'N., 126°16'W.), also known as Hot Springs Cove, is separated, at its entrance, from Sydney Inlet by Openit Peninsula. Sharp Point is the S extremity of the latter peninsula.

The **Mate Islands** (49°21'N., 126°16'W.) lie on the W side of the cove entrance and a light is shown from the E end of the easternmost island.

Barney Rocks, above and below-water, lie about 0.3 mile SW of this group of islands. Numerous dangers consisting of rocks, some awash and marked by kelp, lie along the sides of the cove. The fairway has a least width of 0.1 mile and a controlling depth of 7.3m. After clearing the drying rocks lying

close N of the Mate Islands, vessels should steer a mid-channel course toward the anchorage.

Hot Springs Cove (49°22'N., 126°16'W.), a settlement, stands on the E shore of the cove, about 1 mile within the entrance. It is fronted by a government pier, 73m long, which has attached floats with depths of 3 to 5.5m alongside.

Anchorage, sheltered and secure, can be taken, in a depth of 7.3m, about 0.3 mile N of the pier head.

9.39 Hesquiat Harbor (49°26'N., 126°27'W.) indents the coast between Hesquiat Point and **Matlahaw Point** (49°23'N., 126°28'W.). The coast SE of Hesquiat Point is rocky and backed by steep mountains. Kanim Lake pierces this mountainous terrain. The shore of the harbor is mostly low and wooded. Several detached shoal patches, which may best be seen on the chart, lie in the approaches to the harbor and have a least depth of 2.7m.

Hesquiat Point (49°25'N., 126°24'W.) is low and wooded. A gravel shoal, which dries, and several below-water rocks lie about 0.5 mile SSW of this point and are marked by breakers.

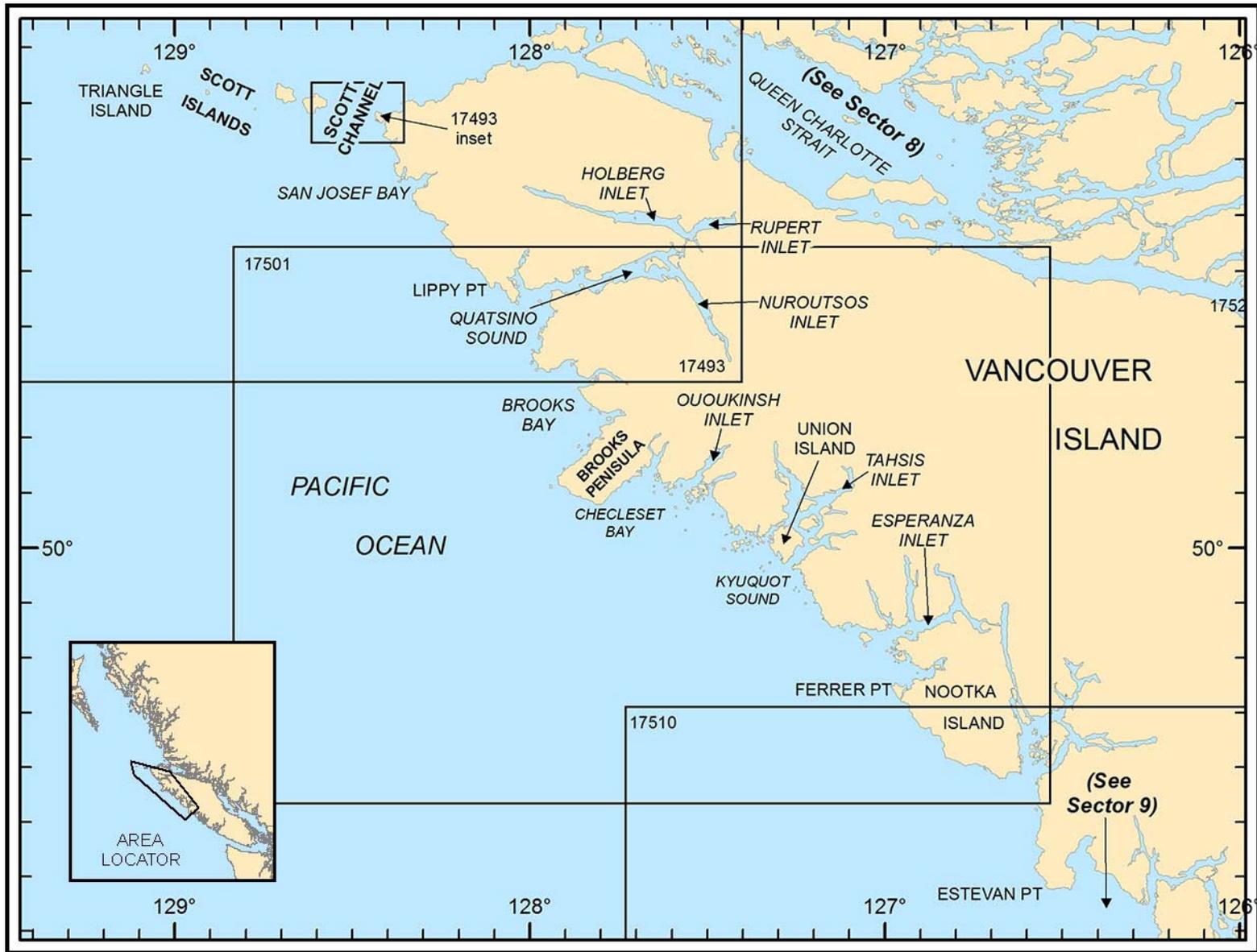
A bar extends across the entrance between the principal points and protects the harbor from the swell. This bar, with a least depth of 3.7m, is marked by kelp. During S and SW gales, the sea breaks heavily on the bar.

Hesquiat (49°24'N., 126°28'W.), a settlement, stands at the W entrance of the harbor and a conspicuous church and a flag-staff are situated in its vicinity.

A spit lies 1 mile N of the settlement and is often marked by breakers. A rocky ledge extends about 0.5 mile SE from Matlahaw Point, the W entrance point of the harbor. Detached rocky patches, with depths of 9.4m and 8.5m, lie 1.5 miles SE and 1.3 miles NE, respectively, of the latter point.

Sheltered anchorage can be taken, in a depth of 16m, mud, in the middle of the harbor or, in a depth of 14m, mud, near the head.

Estevan Point (49°23'N., 126°33'W.), located 2.8 miles W of Matlahaw Point, is fully described in paragraph 10.2.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 10 — CHART INFORMATION

SECTOR 10

VANCOUVER ISLAND—ESTEVAN POINT TO TRIANGLE ISLAND

Plan.—This sector describes the W side of Vancouver Island from Estevan Point to Triangle Island, including the inlets and sounds indenting the coast.

General Remarks

10.1 The coast extending NW of Estevan Point is mountainous and presents a bold, rugged appearance from offshore. The Brooks Peninsula, located 42 miles SE of the NW extremity of Vancouver Island, is an outcropping which interrupts the general trend of the coast. The high jagged skyline of the mountains in the interior is remarkable. The mountains backing the coast are steep and densely wooded.

The entrances of the principal inlets and sounds have characteristic features, which usually make them readily identifiable. Numerous anchorages lie in the approaches to or within the inlets and sounds. It is advisable to employ a local pilot in order to reach any of the small harbors in this area as many above and below-water rocks lie in the approaches.

Winds—Weather.—The marine influence dominates the weather along the coast of Vancouver Island. The climate features mild and humid winters, warm but not hot summers, and a small range of temperatures.

The winds offshore rotate between S and W during the winter and between W and NW during the summer. Before moving E, stormy weather is not unusual during the winter along the seaward side of the coast lasting for several days. Offshore storms originating in the W part of the Pacific Ocean pass through the Gulf of Alaska and often swing SE along the coast. During the winter, SE gales of short duration occur and are often followed by SW gales and clear weather.

A coastal countercurrent sets NW along the coast of Vancouver Island with a velocity of 0.5 knot to 1.5 knots. Prevailing winter winds may increase the velocity to as much as 2.5 knots. The coastal current will be joined by the California Current when it reverses, and will continue NW past Vancouver Island. About 30 miles offshore, the current dissipates into confused eddies. Between Nootka Sound and Cape Cook, the velocity of the countercurrent increases to 2.5 knots with strong E winds and decreases to 0.5 knot with W winds. The flood tidal currents flow NW along the coast to Cape Scott where it divides, one branch continuing N and the other setting ESE into Queen Charlotte Strait.

Depths—Limitations.—The depths are ample for ocean-going vessels along the coastal track extending between Estevan Point and Triangle Island. The track, which passes about 10 miles off Estevan Point and Cape Cook, is clear of dangers and has a least depth of 91.4m. From Cape Cook, the track leads to Queen Charlotte Sound and closes the coast about 2.8 miles off Cape Scott, where the channel fairway has a least depth of 42.1m.

Vessel Traffic Service (VTS).—The Vessel Traffic Services Zones Regulations require all vessels greater than 500 gt to file a VTS Offshore Report 24 hours prior to entering a Canadian

VTS Zone from seaward, or as soon as practical where the ETA of the ship to a Canadian VTS zone is less than 24 hours after the time the ship departed its last port of call. Send VTS Offshore Reports to a Canadian Coast Guard MCTS Center, free of charge, or to one of the following:

1. Telephone: 250-627-3071
2. E-mail: vts.rupert@innav.gc.ca

The waters described in this sector lie within the Prince Rupert South Vessel Traffic Service (VTS) System. For further information on reporting requirements, see paragraph 9.1.

Caution.—A local magnetic disturbance, differing as much as 7° from the normal variation, was reported (1964) to exist about 75 miles SW of Cape Scott, the NW extremity of Vancouver Island.

Estevan Point to Cape Cook

10.2 Estevan Point (49°23'N., 126°33'W.), a low and wooded projection, is located 2.8 miles W of Matlahaw Point. A light is shown from a structure standing on the SW extremity of the point.

A gap in the trees, conspicuous from SW, indicates the point and several large boulders lie on a sandy beach in front of it. Several detached rocky shoal patches, with depths of 12.8m and less, lie up to 2.3 miles seaward of the point. Vessels should stay at least 2 miles from the point and the adjacent coast.

There are no off-lying dangers along this coast. However, the approaches to many inlets and sounds, except Nootka Sound, are encumbered with dangers.

Caution.—An ODAS buoy is situated about 3 miles SW of Estevan Point in position 49°21'12"N, 126°36'30"W.

Perez Rocks (49°25'N., 126°36'W.), below-water and drying, lie on an area of foul ground which extends up to 3.3 miles NW of Estevan Point. The outermost of these rocks has a depth of less than 1.8m. This group of rocks should be given a berth of at least 2 miles.

Escalante Point, located 9.3 miles N of Estevan Point, marks the E entrance of Nootka Sound. The coast between these points is low and fringed by foul ground. Escalante Rocks, above and below-water, extend up to 1 mile W of this point. An area of foul ground, with drying rocks, lies about 0.8 mile N of the point. Vessels should pass at least 1 mile seaward of these dangers.

Directions.—The coastal track leads about 10 miles SW of Estevan Point and Cape Cook. It then gradually closes the coast in the approaches to Cape Scott. The minimum offshore distance of the track is 2.8 miles and it occurs in the middle of Scott Channel, between Cape Scott and the easternmost of the Scott Islands. The track leads clear of all dangers and has depths, with the exception of those in Scott Channel, greater than 90m.

From a position with the light on Solander Island bearing



Estevan Point Light

039° and distant 10 miles, a course of 338° for a distance of 41.5 miles leads to a position with the light on Cape Scott bearing 015° and distant 10 miles. A course of 000° for 9.5 miles then leads to a position with the light on Cape Scott bearing 090° and distant 2.8 miles.

This track leads seaward of the 200m curve off the entrance to Brooks Bay and the approaches to Quatsino Sound. It crosses the 200m and 100m curves in the S approach to Scott Channel, between Cape Parkins and Cape Scott. The track then passes close W of a patch, with a least depth of 55m, lying in the S part of Scott Channel.

10.3 Nootka Sound (49°34'N., 126°36'W.) is entered between Escalante Point and **Maquinna Point** (49°35'N., 126°40'W.). The terrain around the entrance of the sound is low. The foul shores are fringed by rocks and reefs, and marked by breakers. Within the entrance, the steep land backing the shores rises to mountainous heights. This sound is entered more easily than any of the others indenting the W coast of Vancouver Island. From its central part, in which lie a group of islands, narrow branches lead N, NE, and E. The northernmost branch separates Nootka Island from the mainland.

Burdwood Point (49°35'N., 126°34'W.), located 2.5 miles N of Escalante Point, is the steep-to E point at the inner entrance of Nootka Sound. Maquinna Point, the S extremity of Nootka Island, is low, wooded, and fronted by rocky foul

ground extending seaward for 1 mile.

Yuquot Point (49°35'N., 126°37'W.), the W point at the inner entrance of Nootka Sound, is fringed by foul ground and fronted by the San Miguel Islands. The islands in this latter group are connected to each other and to the shore of the sound by drying reefs. A light is shown from a structure standing on San Rafael Island, which lies close NE of Yuquot Point.

Nootka Cone (49°37'N., 126°39'W.), 520m high, stands 2 miles N of Maquinna Point and is conspicuous from seaward.

Conuma Peak (49°50'N., 126°17'W.), 1,477m high, stands about 20 miles NE of Maquinna Point. It is a conspicuous steeply-shaped mountain.

Caution.—An abandoned submarine cable, which may best be seen on the chart, lies across the entrance to the sound between Burdwood Point and Discovery Point.

10.4 Cook Channel (49°38'N., 126°36'W.) leads N from the entrance of Nootka Sound, between the Saavedra Islands and the Spanish Pilot Group, to Kendrick Inlet and Eliza Passage.

The **Saavedra Islands** (49°37'N., 126°37'W.), a chain of several small islands, lie parallel to the W side of Cook Channel.

Boca del Infierno Bay (49°37'N., 126°38'W.) is entered NW of the Saavedra Islands. It is very constricted and only used by small craft at slack water.

Nootka (49°37'N., 126°37'W.), a sport fishing resort, is situated at the entrance of Boca del Infierno Bay. It stands on the site of a former fish cannery that is now abandoned and in ruins.

Spanish Pilot Group (49°37'N., 126°35'W.) lies on the E side of Cook Channel and SW of Bligh Island. Anchorage can be obtained, in a depth of 42m, mud, between Narvaez Island and Vernaci Island, but the swinging room is limited because of shoal patches. A light is shown from a structure, at an elevation of 6.9m, standing on a drying rock lying close off the W side of Vernaci Island. Rocks, with depths of 2.7m and 3.4m, lie, respectively, close off the SW and SE extremities of Vernaci Island. Another rock, with a depth of 2.7m, lies close off N extremity of Narvaez Island.

Vessels should not enter the channels leading between the various islands of this group without local knowledge.

The **Villaverde Islands** (49°40'N., 126°34'W.) lie on the E side of the junction of Cook Channel and Eliza Passage. **Boston Point Light** (49°40'N., 126°37'W.) marks the end of a peninsula located at the W side of this junction.

Fidalgo Passage (49°39'N., 126°34'W.) leads NE from Cook Channel, between Bligh Island and the Villaverde Islands. Foul ground and numerous above and below-water rocks lie NW and SE of the passage. Vessels should only use this passage during daylight and clear weather.

Caution.—Care is required in the area fronting Nootka due to submerged piles and general debris.

10.5 Eliza Passage (49°40'N., 126°35'W.) leads NE from Cook Channel and S of Strange Island to Tahsis Inlet and Tlupana Inlet. A rocky shoal patch, with a depth of 13.7m, lies in the middle of this channel.

Kendrick Inlet (49°41'N., 126°37'W.), entered from the N end of Cook Channel, leads NNW between Nootka Island and

Strange Island (49°42'N., 126°37'W.). The fairway channel is deep, clear of dangers, and navigable by vessels as far as the anchorage at Plumper Harbor.

Plumper Harbor (49°42'N., 126°38'W.), lying on the W side of Kendrick Inlet, consists of a cove. It is 0.3 mile wide and fronted by the very small islands of the Matute and Funter groups. The harbor is used as a booming ground. A pier fronting the shore of the cove is used by small local vessels.

Sheltered anchorage can be taken, in a depth of 22m, in the middle of the harbor. Local knowledge is required.

Princesa Channel (49°43'N., 126°38'W.), constricted and encumbered by rocks, connects Kendrick Inlet and Tahsis Inlet, close N of Strange Island. The channel, available to only small craft, is marked by beacons and lighted beacons at the entrances.

Tahsis Inlet (Tasis Inlet) (49°50'N., 126°40'W.) extends about 15 miles N from its entrance, at the NE side of Eliza Passage. This inlet is formed by steep-to rocky shores backed by mountains. The depths in the inlet are deep. Vessels should steer a mid-channel course in order to clear the inshore shoals. The tidal currents in the more constricted parts of the inlet attain a velocity of 2 to 3 knots. The flood current sets N and the ebb current sets S.

Salter Point (49°41'N., 126°35'W.), marked by a light, and **Coopte Point** (49°42'N., 126°35'W.) mark the entrance to Tahsis Inlet. Canal Island, marked on its W side by a light, lies in the entrance, midway between these points. A beacon stands on the N end of the island. Clear passages, about 0.2 mile wide, lead on either side of the island. Small vessels can obtain anchorage, in a depth of 29m, mud, in Jewitt Cove, about 1 mile NNW of Salter Point.

Tsowwin Narrows (49°47'N., 126°39'W.), located about 6 miles inside the entrance, is constricted by the Tsowwin River, which empties into its S side. A drying gravel spit, marked by a light, extends from the river mouth and reduces the width of the inlet to 225m.

Tsowwin Narrows West Light is shown from a structure standing on the W side of the narrows. Another light is shown from a structure standing on a small islet lying on the W side of the inlet, about 0.8 mile N of the narrows.

A stranded wreck is reported to lie on the E side of the inlet, about 0.8 mile N of the narrows.

10.6 Tahsis (Tasis) (49°55'N., 126°40'W.) (World Port Index No. 18805), a lumber port, is situated on the W side of the head of Tahsis Inlet.

Tides—Currents.—The tidal range is 4.4m. Tidal currents in the inlet can reach a maximum of 2 to 3 knots in the Narrows but are much weaker everywhere else. The flood current set N and ebb sets S.

Depths—Limitations.—Tahsis Inlet is approached by either Nootka South or Esperanza Inlet on the W coast of Vancouver Island.

The terminal is comprised of the Deep-Sea Dock and a public wharf. The Deep-Sea Dock is 144m in length with depths alongside of 12.2m and accommodates general cargo vessels with and LOA up to 213m and a beam as wide as 30.5m. The public wharf, 43m in length with depths alongside of 4m, is used for general cargo.

Pilotage.—Pilots may be embarked off Cape Beale, at the

entrance to Trevor Channel. For further information, see pilotage for the Gold River in paragraph 10.9.

Regulations.—The vessel's initial ETA should be sent upon departure from previous port to the ship's agent. Additional ETA messages are normally sent 14 days, 10 days, 7 days, and 5 days prior to expected arrival. The ETA messages should include the following information:

1. Date and time of ETA.
2. Name of master.
3. Last three ports of call.
4. Crew number including their nationalities.

Deep-sea vessels are normally scheduled for arrival and departure only during daylight hours.

Anchorage.—Anchorage can be taken about 8 miles from the berth.

Caution.—The port is sheltered from most directions, but S gales blow directly through the inlet and can make berthing operations difficult.

A submerged rock, with a depth of 8.9m, lies 91m off the Deep-Sea Dock.

10.7 Tahsis Narrows (Tasis Narrows) (49°52'N., 126°40'W.), leading W from Tahsis Inlet to Hecate Channel and Esperanza Inlet, separates the NE end of Nootka Island from Vancouver Island. The tidal currents in the narrows are weak, with the flood setting E. Mozino Point, located at the N side of the narrows entrance, is marked by a light and a beacon. Two drying rocks lie close off the S shore of the narrows, SW and W of the light. The channel in the narrows has a least width of 0.1 mile and a least depth of 9.6m, lying at its W end.

Two beacons, the southernmost one lighted, stand on opposite shores of the narrows about 0.5 mile WNW and 0.8 mile W of Mozino Point. When these two beacons are aligned, they mark the position in the narrows to change course.

Ceepeecee (49°52'N., 126°43'W.) (World Port Index No. 18810), the site of a former cannery, is situated at the head of a bay, near the W end of the narrows. A short, broad peninsula divides the W end of the narrows.

10.8 Muchalat Inlet (49°39'N., 126°15'W.) and its approaches form the E part of Nootka Sound. The inlet can be approached from either S or N of Bligh Island. Mountains back both sides of this inlet, which is too deep for anchoring.

Bligh Island (49°40'N., 126°30'W.), the largest island in Nootka Sound, lies in the center of a system of inlets, passages, and channels which radiate in many directions. The Clerke Peninsula, long and narrow, forms the SE part of the island and the W side of **Zuchiarte Channel** (49°38'N., 126°30'W.). The latter channel, which is deep and clear, leads 4 miles NE to **Anderson Point** (49°39'N., 126°28'W.), where it turns E towards the entrance of Muchalat Inlet.

Atrevida Point (49°39'N., 126°26'W.), located 1 mile ENE of Anderson Point, marks the N side of the inlet entrance. Lights mark both the entrance points.

Gore Island (49°39'N., 126°24'W.) lies in the middle of Muchalat Inlet with its W extremity located about 0.5 mile SE of Atrevida Point. A light is shown from a structure standing on the W extremity.

Williamson Passage (49°40'N., 126°23'W.) and **King Passage** (49°38'N., 126°23'W.), lying N and S of Gore Island, join

close E of the latter island. Williamson Passage is deep and clear of dangers while King Passage is not recommended for transit.

The channel in that part of Muchalat Inlet lying E of Gore Island is deep and clear of dangers, except for **Victor Island** (49°40'N., 126°17'W.). Several islets front the S side of the inlet, about 2.5 miles E of Gore Island. Lights are shown from the N sides of these dangers.

10.9 Gold River (49°41'N., 126°07'W.) (World Port Index No. 18792), a lumber industry port, is situated 5 miles from the head of the inlet adjacent to the Gold River.

Depths—Limitations.—Deepsea Dock, a finger pier, is 213m long, with alongside depths of 10.1 to 10.6m.

A wharf for loading wood pulp, formerly used by a now-closed pulp and paper mill, is situated 0.2 mile E of Deepsea Dock. It has a berthing face, 61m long, on the W side with a depth of 8.5m alongside. Dolphins joined by a catwalk extend up to 33m SSE from this wharf.

The public wharf is 55m long and has a least depth of 5.2m alongside. This wharf is used by coastal vessels. There are also facilities for barges, fishing vessels, small craft, and seaplanes. Vessels of up to 213m in length and 10.4m draft have been handled.

Pilotage.—Vessels requiring a pilot should contact Pilots Victoria by VHF and report any change in ETA, as soon as possible, because the pilots depart from Port Alberni and proceed to the embarkation area off Cape Beale. After boarding, the pilots will navigate vessels out of Barkley Sound and proceed towards Nootka Sound. Pilots will generally only navigate Nootka Sound during daylight hours. Between Cape Beale and Estevan Point, pilotage is not required. At Estevan Point, pilots resume their duties.

Anchorage.—Due to the deep depths, no anchorage is possible outside the harbor.

Tlupana Inlet (49°43'N., 126°29'W.), the principal waterway in the N part of the sound, can be approached from either E or W of Bligh Island and entered from N of that island, preferably via Eliza Passage. The shores forming the inlet are high and rocky. The depths within the inlet and its tributaries are very deep.

Hanna Channel (49°40'N., 126°29'W.), the easternmost approach channel to Tlupana Inlet, is deep and clear of dangers. **Concepcion Point** (49°40'N., 126°29'W.) and **San Carlos Point** (49°41'N., 126°31'W.), the NE and N extremities, respectively, of Bligh Island mark the entrance of the channel. San Carlos Point and a point located 1 mile NW of Concepcion Point are marked by lights.

10.10 Descubierta Point (49°41'N., 126°30'W.) forms the NE entrance point of the channel. Several above and below-water rocks lie up to about 0.1 mile seaward of these points. A rock, marked by a buoy, fronts the SE entrance point. Numerous islets, rocks, and patches of foul ground lie about 1.5 miles SW of San Carlos Point and in the NE approach to Fidalgo Passage.

Galiano Bay (49°43'N., 126°28'W.) indents the SE side of Tlupana Inlet and its entrance is fronted by an islet. The preferred entrance channel leads close S of this islet. Small vessels can enter and anchor, in a depth of 27m, about 0.4 mile SE of

the islet, but the swinging room is limited. A drying rock lies in mid-channel, about 0.5 mile within the bay entrance.

Hisnit Inlet (49°44'N., 126°30'W.) indents the NW side of Tlupana Inlet. It is deep and clear of dangers, except for a drying rock and a below-water rock lying about 1 mile inside the entrance and close N of mid-channel. Anchorage can be taken, in a depth of 20m, at the head of the inlet.

Princess Royal Point (49°45'N., 126°27'W.), a high and bold bluff, and **Perpendicular Bluff** (49°46'N., 126°27'W.), formed by high and steep cliffs on three sides, are the entrance points off which Tlupana Inlet branches NW. An islet lies close inshore, about 1 mile NW of the Perpendicular Bluff.

Nesook Bay (49°46'N., 126°25'W.), the eastnorthernmost branch of Tlupana Inlet, is entered between **Santa Saturnina Point** (49°40'N., 126°26'W.) and Perpendicular Bluff. This bay is deep and clear of dangers in mid-channel. A rock, with a depth of 8.2m, lies about 0.3 mile off the E shore of the bay. Anchorage can be taken by small vessels, in a depth of 36m, mud, about 0.1 mile N of this rock.

Moutcha Bay (49°47'N., 126°27'W.) indents the shore at the neck of the peninsula extending N from Perpendicular Bluff. This bay is open and clear of dangers as far as the drying bank, which extends 0.5 mile seaward from its head. Anchorage can be taken, in depths of 29 to 34m, about 0.3 mile off the N shore of the bay.

Head Bay (49°48'N., 126°29'W.) indents the northwesternmost branch of Tlupana Inlet. The E side of the bay entrance is fronted by several islets, above and below-water rocks, and foul ground. Anchorage can be taken, in a depth of 27m, about 0.5 mile from the head of the bay.

10.11 Nootka Island (49°40'N., 126°45'W.) extends 19 miles NW and separates Nootka Sound from Esparanza Inlet. The SW coast of this island is low and fringed by sandy beaches in places. Heavy seas usually break on the seaward side of the island. The terrain backing the coasts appears fertile and rises gradually N to several mountains, over 700m high.

Bajo Point, the low and rocky SW extremity of Nootka Island, is located 6 miles WNW of Maquinna Point. Ferrer Point is located 10 miles NW of Bajo Point. It is low, rocky, and moderately steep-to.

Bajo Reef (49°35'N., 126°49'W.) and Inner Bajo Reef extend up to 3 miles E, W, and S of Bajo Point. The outer edge of the reefs is marked close S by a lighted buoy. The inner reef has several drying heads and the outer reef has depths of less than 18m.

Ferrer Point (49°45'N., 126°59'W.) is low, rocky, and steep-to. It forms the S entrance point of Nuchatlitz Inlet. The 20m curve fringes the coast between this point and Bajo Point.

Nuchatlitz Inlet (49°46'N., 127°01'W.) indents the W side of Nootka Island and extends 10 miles E. It is entered between Ferrer Point and Pin Rock, 2.3 miles NNW. Within the inlet, the shores are high and rocky.

Danger Rock (49°46'N., 127°00'W.), with a depth of less than 1.8m, lies in the fairway channel, about 1 mile NNW of Ferrer Point. It is steep-to and breaks in stormy weather.

Nuchatlitz Reef (49°46'N., 126°59'W.) lies about 0.4 mile N of Danger Rock. It consists of above and below-water rocks and is usually marked by breakers.

Pin Rock (49°47'N., 126°59'W.) is one of several above and



Nootka Island Light

below-water rocks, which along with Nuchatlitz Reef and Danger Rock, lie in the entrance of Nuchatlitz Inlet. The passage lying between these dangers is not recommended. The preferred entrance passage leads between Ferrer Point and Danger Rock.

Northwest Cone (49°45'N., 126°58'W.), a hill, is conspicuous from the SW and useful in identifying the inlet from seaward. **Mount Rosa** (49°48'N., 126°54'W.) is also very prominent.

10.12 Florence Point (49°46'N., 126°55'W.) is located on the S side of the inlet, 2.5 miles within Ferrer Point. This point and **Tongue Point** (49°45'N., 126°56'W.) form the entrance of Louie Bay. Several above and below-water dangers lie in the vicinity of the entrance channel. These include **South Reef** (49°46'N., 126°58'W.), **Frank Rocks** (49°45'N., 126°56'W.), **Justice Rock** (Bare Rock) (49°47'N., 126°55'W.), and **Cameron Rocks** (Bare Island) (49°47'N., 126°55'W.).

Fitz Island (49°46'N., 126°54'W.), high and wooded, lies 1 mile NE of Florence Point and fronted by drying rocks.

Ensenada Islet (49°48'N., 126°58'W.), Colwood Island, and several rocks lie on the N side of the inlet. Numerous islets and below-water rocks lie W of this islet.

Port Langford (49°48'N., 126°56'W.), an inlet open to SW storms, has a depth of 12m in its outer part, but the holding ground is bad.

Mary Basin (49°48'N., 126°51'W.) is entered between a point, located 0.7 mile NE of **Benson Point** (49°47'N., 126°52'W.), and the NW part of **Lord Island** (49°47'N., 126°51'W.). An islet and a drying rock lie close within its entrance, which extends as far as **Narrows Island** (49°48'N., 126°50'W.). Anchorage can be taken, with local knowledge, in a depth of 7m, in the middle of Mary Basin.

Mark Hill (49°47'N., 126°49'W.) rises 0.5 mile SE of Narrows Island and is conspicuous.

Inner Basin (49°48'N., 126°48'W.) lies at the head of Nuchatlitz Inlet and is entered via a narrow passage leading NE of

Narrows Island. The passage is used only by small craft and strong tidal currents are reported to set through it.

Vessels approaching Nuchatlitz Inlet from the S should steer for Ferrer Point on a course of 014°. When nearing the point, they should then change course to pass about 0.5 mile W of it. When abeam, vessels should steer for Ensenada Islet (Cliff Islet) on a course of 030°. When Mark Hill and the NW extremity of Fitz Island are in line, bearing 076°, vessels will be in a position located midway between Danger Rock and a shoal patch, with a depth of 9.5m, which lies 0.8 mile NE of Ferrer Point. The latter range leads about 0.2 mile N of the shoal patch.

Caution.—Vessels not equipped with radar should not attempt to enter Nuchatlitz Inlet unless the range marks (Mark Hill and Fitz Island) can be easily identified.

A heavy swell prevails outside the entrance of Nuchatlitz Inlet.

10.13 Esperanza Inlet (49°47'N., 127°03'W.) indents the coast, 31 miles NW of Estevan Point, and is entered 5 miles N of Ferrer Point. This extensive inlet separates Nootka Island from Vancouver Island and has high, rugged shores backed by mountains. Port Eliza is the only arm extending N from the inlet that affords sheltered anchorage.

Two channels lead from seaward in the entrances to Esperanza Inlet. Both are encumbered with dangers. A heavy swell usually prevails outside these entrances. A third entrance passage leads W of **Catala Island** (49°50'N., 127°03'W.) and between that island and the mainland. This passage is only used by local fishing craft.

Gillam Channel (49°48'N., 127°01'W.), the preferred channel leading into Esperanza Inlet, is entered 3.5 miles NW of Ferrer Point. Blind Reef, Flower Islet, and several intervening dangers lie on the SE side of the channel. Middle Reef, Mid Rock, Black Rock, and Double Island lie on the NW side. The channel is narrowest between Blind Reef and Middle Reef and has a least depth of 25.6m in the fairway. Only those dangers

lying nearest to the fairway are described.

Nuchatlitz Light (49°49'N., 126°59'W.) is shown from a structure standing on an unnamed island.

Blind Reef (49°48'N., 127°01'W.), lying about 2 miles SW of Nuchatlitz Light, dries and is marked by breakers.

An approach fairway lighted buoy is moored about 1 mile SW of Blind Reef.

Extensive above and below-water rocks extend NNE from Blind Reef to **Flower Islet** (49°50'N., 126°59'W.).

Middle Reef (49°48'N., 127°03'W.), which dries, lies about 1.3 miles WNW of Blind Reef. Several detached rocky patches lie near a rock, 1.2m high, located at the SW extremity of the reef. A lighted buoy is moored close off the SE end of the reef.

Low Rock, Outer Black Rock, and Mid Rock lie on a drying reef which extends up to about 1 mile W, 0.8 mile WNW, and 0.8 mile N of Middle Reef.

Catala Island, 64m high and wooded, lies on the W side of the entrance to the inlet, 2 miles N of Middle Reef. The coasts of this island are rocky and fringed with dangers.

North Channel (49°48'N., 127°04'W.), a secondary channel, can be used with local knowledge. It joins Gillam Channel, SE of Mid Rock, after leading between Low Rock and Outer Black Rock. The area lying NW of the channel consists of extensive patches of above and below-water rocks and reefs. The channel is not recommended as it is encumbered by rocks with depths of less than 1.8m.

Rolling Rollstead (49°51'N., 127°02'W.), a channel, leads between the N side of Catala Island and the coast of Vancouver Island. It is generally entered from the E side. Halftide Reef, along with several above-water rocks, lies about 1 mile SW of the W end of Catala Island. Between the reef and Tatchu Point, 2.8 miles NW, the W approach to the anchorage is encumbered by numerous shoals and rocks. Anchorage can be taken, in a depth of 8m, about 0.5 mile NNW of the E end of Catala Island. A swell often prevails in the roadstead.

Double Island (49°51'N., 127°00'W.), marked by a light, lies off the NW side of the entrance to Esperanza Inlet.

Flower Islet (49°50'N., 126°59'W.) lies at the SE side of the entrance channel, 1 mile SE of Double Island.

Eliza Dome, a prominent and high mountain, stands 3 miles NNW of Catala Island. Leading Hill, with a conspicuous and cone-shaped peak, rises 1 mile NW of Double Island.

10.14 Centre Island (49°51'N., 126°56'W.) lies in the middle of the inlet, about 2.3 miles E of Double Island. The bay lying S of this island is foul and unfit for anchoring. The irregular and steep-to N side of Nootka Island extends ENE to **Steamer Point** (49°53'N., 126°48'W.), which is marked by a light.

Port Eliza (49°53'N., 127°01'W.), the westernmost of three inlets leading N from Esperanza Inlet, is entered through **Birthday Channel** (49°52'N., 126°59'W.), which lies E of Harbor Island. This inlet is deep and its shores are high. The fairway channel has a least width of 275m. Anchorage can be taken, in depths of 21 to 31m, about 0.5 mile from the head.

Vessels entering Port Eliza should do so via Birthday Channel. They may pass either W or NE of Fairway Island and then about 0.1 mile E of the E extremity of Harbor Island. Vessels proceeding to Queen Cove should pass E of the beacon marking Channel Reef and W of the islands lying in the entrance. The state of the tide should be considered before passing over

the rocks in the entrance.

Vessels proceeding to the head of Port Eliza should enter as directed above. When about 0.3 mile N of Harbor Island, they should steer to pass W of Channel Reef and then maintain a mid-channel course to the anchorage.

10.15 Fairway Island (49°51'N., 126°58'W.) and **Harbor Island** (49°51'N., 126°59'W.) lie in the entrance of Birthday Channel. The passage leading between these islands is deep and about 0.1 mile. The passage leading NE of Fairway Island is about 0.1 mile wide. **False Channel** (49°51'N., 127°00'W.), the passage lying W of Harbor Island, is encumbered with foul ground and not recommended.

Channel Reef (49°52'N., 126°59'W.), which partly dries on its N side, lies in mid-channel, about 0.5 mile N of Harbor Island. It is marked by a beacon on the S side.

Queen Cove (49°53'N., 126°59'W.) is entered NNE of Channel Reef and has an entrance about 90m wide. Its shores are high and rocky. The fairway channel has a least depth of 4.6m over a rock lying in mid-channel. Saddle Point, located 0.3 mile within the W shore of the cove, is the former site of a cannery, now in ruins. Anchorage can be taken, in a depth of 12m, mud, about 0.1 mile SE of this latter point.

Espinosa Inlet (49°53'N., 126°55'W.) is entered about 1 mile NNE of Centre Island and has depths too deep for anchoring. It extends N for 7.5 miles between high, rugged shores.

Zeballos Inlet (49°55'N., 126°48'W.), the easternmost of the three inlets leading N from Esperanza Inlet, is entered close N of Steamer Point. Its shores are rocky and steep-to. The fairway channel has a least width of 0.2 mile, but the depths are too deep for anchoring.

Zeballos (49°59'N., 126°51'W.), a settlement, stands at the head of the inlet. A T-shaped public wharf fronts the settlement and has a berth, 70m long, at its outer end. A float, for the use of small craft, is attached to the W end of the wharf and has a depth of 5.5m an alongside.

Hecate Channel (49°52'N., 126°45'W.) leads SE from the vicinity of Steamer Point to the W entrance of Tahsis Narrows. The shores of this channel are high and rocky. It has deep depths and is clear of dangers.

Esperanza (49°52'N., 126°45'W.), a settlement, stands on the N side of the channel, at the W entrance of Tahsis Narrows. An L-shaped pier fronts the settlement and has depths of 4.9 to 5.8m alongside. A beacon marks the edge of a drying bank which lies close WNW of the pier.

10.16 The Barrier Islands (49°55'N., 127°15'W.) are an extensive chain of islands, islets, and reefs extending NW from a position located 1.8 miles NW of Tatchu Point. Three navigable channels lead through the chain. Kyuquot Channel, the main channel, leads into Kyuquot Sound.

The islands front the coast and extend up to 2 miles offshore in the approach to Kyuquot Sound and up to 5 miles offshore near the NW end of the chain.

Vessels should keep well clear of this chain and remain in depths of over 50m, especially in thick weather.

Rugged Point (49°58'N., 127°15'W.), marked by a light, is located 7.5 miles NNW of Tatchu Point. The coast within the islands, between Tatchu Point and this point, is indented by several small bays. These bays afford shelter to small craft be-

hind the rocks and reefs.

Clear Passage (49°54'N., 127°13'W.), a boat passage, leads into Kyuquot Channel between the Barrier Islands and the mainland.

Kyuquot Sound—Approaches

10.17 Union Island lies in the entrance to Kyuquot Sound with White Cliff Head, its S extremity, located 1 mile W of Rugged Point Light. The island is 439m high in its N part and borders the W side of Kyuquot Channel. A conspicuous white cliff rises on the S side of White Cliff Head.

The **Thornton Islands** (49°58'N., 127°20'W.), which are part of the Barrier Islands, lie 2.5 miles WSW of White Cliff Head. These islands are bare but the westernmost of the group has two prominent hummocks.

Vessels passing W of the Thornton Islands should approach with Amos Island Light ahead, bearing 005°. When a rock, 5.5m high, lying N of the Thornton Islands is abeam, they should alter course to bring Crowther Channel Beacon ahead, bearing 023°. When Amos Island Light bears 320°, vessels should then alter course to pass SW of it.

West Entrance Rock, with a depth of less than 1.8m, lies about 3 miles WSW of Rugged Point Light. East Entrance Reef, 4.3m high, lies about 2 miles ESE of West Entrance Rock.

Kyuquot Channel (49°58'N., 127°17'W.) may be approached from the seaward side of the Barrier Islands and entered between West Entrance Rock and East Entrance Reef. An approach fairway lighted buoy is moored about 0.8 mile W of East Entrance Reef.

The channel leads to Kyuquot Sound and passes between Union Island and Vancouver Island. A heavy swell generally prevails in the vicinity of the channel and the sound. The fairway channel is deep, about 1 mile wide, and clear of dangers.

Munsie Rocks, an extensive area of above and below-water rocks, extends up to 2 miles E of the Thornton Islands, on the NW side of the channel.

Eliza Dome, 873m high, stands 2.3 miles NE of Tatchu Point and is conspicuous from seaward.

Remarkable Cone, 945m high, stands 2.5 miles E of Rugged Point and Kyuquot Hill, 223m high, rises 0.5 mile N of White Cliff Head.

Vessels entering Kyuquot Sound via Kyuquot Channel should steer for the summit of Whiteley Island, bearing 040°. This course leads through the channel about midway between the reefs lying on either side and passes about 0.4 mile NW of the lighted buoy. Approaching Chatchannel Point, vessels should change course to the E in order to pass about 0.5 mile E of that point and to avoid a rock, which dries 2.1m, lying close off it. Vessels proceeding to Cachalot Inlet should pass S of Whiteley Island. Vessels proceeding to Fair Harbor or Easy Inlet may pass either E or W of Whiteley Island. If bound for the former, they should proceed up Pinnacle Channel.

Chatchannel Point (50°00'N., 127°14'W.), the E extremity of Union Island, is low, rocky, and has a defined knob within its extremity. A drying rock lies about 0.1 mile E of this point.

Whiteley Island (50°01'N., 127°12'W.) lies at the N end of Kyuquot Channel. It is steep-to, except at the S end.

Caution.—Vessels should not attempt to enter Kyuquot

Channel without local knowledge, except in clear weather.

Vessels navigating within Kyuquot Channel should not proceed into depths of less than 55m on the SE side. In addition, they should not approach within 0.6 mile of Munsie Rocks, on the NW side.

10.18 Nicolaye Channel (49°58'N., 127°17'W.) leads between the SW shores of Vancouver Island and Union Island, on the N side, and the Barrier Islands, on the S. It is entered from the E between White Cliff Head and a rock, with a depth of 4.3m, lying close NE of Munsie Rocks. The W end of the channel joins the N end of Brown Channel. It can be entered from the S by passing W of the Thornton Islands.

Kyuquot Bay (49°59'N., 127°17'W.) indents the SW side of Union Island, between White Cliff Head and **Beacon Point** (Onward Point) (49°59'N., 127°18'W.). The E part of this bay is encumbered with dangers.

Kate Rocks (49°59'N., 127°19'W.) and Moos Islet, about 0.4 mile SW, lie at the SW edge of Nicolaye Channel. A below-water rock lies in the channel, about 1 mile NW of Kate Rocks.

Crowther Channel (50°01'N., 127°20'W.) forms the W entrance of Kyuquot Sound and leads NE from Nicolaye Channel between Union Island and Vancouver Island. Several islands, islets, and dangerous rocks, some unmarked, encumber the S entrance of this channel. The NE entrance is very constricted. Local knowledge is required.

Amos Island (50°01'N., 127°21'W.) lies on the W side of the S entrance to Crowther Channel. A light is shown from a structure standing on the SW end of the island. Several islets and rocks extend up to about 0.5 mile SE of the island into the channel. Rolston Island lies 0.2 mile WNW of the island and a light is shown from a structure standing 0.1 mile W of it.

Surprise Island (50°03'N., 127°17'W.) lies in the NE end of Crowther Channel and constricts the fairway to a width of only 90m. Local knowledge is necessary. Anchorage can be obtained, in depths of 18 to 27m, in Kyuquot Bay between Surprise Island and the mainland.

Kyuquot Sound—Inner Part

10.19 Cachalot Inlet (50°00'N., 127°08'W.) is entered from Kyuquot Channel, ESE of Whiteley Island. It is constricted at the head by an extensive mud flat. The fairway channel has a least depth of 18.3m. Anchorage can be obtained by small vessels, but strong SE and W gales cause heavy squalls throughout the inlet.

Amal Inlet (50°02'N., 127°08'W.) is entered about 1.3 miles N of Cachalot Inlet. It is about 0.3 mile wide and deep. Anchorage can be obtained in a depth of 33m about 0.5 mile from the head. Gales from the S cause heavy squalls at the roadstead. A high and conspicuous precipice rises at the N side of the roadstead.

Hohoe Island (50°03'N., 127°13'W.) and **Moketas Island** (50°05'N., 127°14'W.) lie in Kyuquot Sound, N of Whiteley Island. Several deep, navigable passages lead between and around these islands.

Anchorage can be taken, in a depth of 14m, within **Dixie Cove** (50°03'N., 127°12'W.). The roadstead is sheltered by Copp Island which fronts the cove.

Pinnacle Channel (50°02'N., 127°12'W.) leads between the steep-to rocky shores of Hohoae Island and the mainland. The fairway, which is deep and clear of dangers, leads to Tahsis Inlet at its junction with **Markale Passage** (50°04'N., 127°12'W.). The passage leading between Hohoae Island and Mocketas Island is deep and clear, except for **Warren Rocks** (50°04'N., 127°13'W.), above and below-water, which lie at the W end. These latter rocks are steep-to on their S sides.

Eelstow Passage (50°05'N., 127°12'W.) leads between Mocketas Island and the mainland. Several above and below-water rocks lie in the middle of the E entrance to the passage. Several rocks also front the N side of Mocketas Island.

Tahsis Inlet (50°05'N., 127°10'W.) leads NE and is entered from the passages lying N and S of Mocketas Island. The deep and clear fairway leads between high rugged shores.

False Ears (50°08'N., 127°08'W.), a conspicuous mountain, can be seen rising over Kyuquot Hill when entering Kyuquot Channel.

10.20 Fair Harbor (50°04'N., 127°09'W.) is entered between the NE side of **Markdale Peninsula** (50°04'N., 127°10'W.) and **Karouk Island** (50°05'N., 127°10'W.). It is the site of a logging settlement and affords anchorage to small vessels. Foul ground, with above and below-water rocks, extends N of the peninsula. A drying rock, marked by a light, lies on the N side of the fairway, SE of Karouk Island. A below-water rock lies on the S side of the fairway, about 0.1 mile S of this drying rock. The entrance channel has a least width of 0.1 mile and a least depth of 13.7m. It leads midway between the peninsula and Karouk Island, and then close S of the drying rock.

Range beacons, bearing 088.5°, stand on an islet lying 0.3 mile SE of Karouk Island and indicate the channel leading to the harbor. A wharf fronts the S shore near the E end of the harbor. It has depths of 5.5 to 12.8m alongside the SW side.

Anchorage can be taken, in a depth of 18m, mud, at the E end of the harbor or, in a depth of 34m, mud, near the W end. Both anchorages are sheltered, but are open to N gales.

Kashutl Inlet (50°08'N., 127°16'W.), a branch of Kyuquot Sound, is entered 1 mile NNW of Mocketas Island. The rocky shores of this inlet are indented. The fairway channel has a least depth of 36.6m.

The **Expedition Islets** (50°06'N., 127°14'W.) lie in the inlet entrance. A detached rock, with a depth of 6.1m, lies about 2 miles NNW of these islets.

Easy Inlet (50°08'N., 127°18'W.) is entered close N of Kayouk Bluff. It is constricted and has a least depth of 21.9m in the fairway channel. The inlet is bound by rocky, high, and steep-to shores. Several above-water and drying rocks front the W extremity of Kayouk Bluff.

Anchorage can be obtained, in depths of 27 to 36m, at the head of Kashutl Inlet, about 0.3 mile from the edge of the drying flat.

Brown Channel (49°59'N., 127°27'W.) is entered between the **Mission Group** (50°00'N., 127°25'W.), an extensive grouping of islands and islets lying on foul ground, and Lookout Island. It leads N and NE to join the W end of Nicolaye Channel. Kamils Island, Aktis Island, and Spring Island are the three largest islands of the Mission Group. A mast is situated at the S end of Spring Island and a white square building stands

about 0.3 mile S of it.

Brown Channel has a least depth of 12.8m and is most constricted to the SE of McLean Island, where the width of the channel is about 0.2 mile. Rocky shoals front the sides of the channel and at least two detached shoals lie in the fairway. These dangers may best be seen on the chart.

Kamils Anchorage (50°00'N., 127°24'W.) lies in the middle of the three largest islands of the Mission Group. It has a depths of 10.9m and is located about 0.5 mile SE of Aktis Island. Favourite Entrance leads from the S to the anchorage. The anchorage is only used by small craft with local knowledge.

Lookout Island (50°00'N., 127°27'W.), 55m high, is the westernmost island of the Mission Group. A light is shown from the E side of this island.

10.21 McLean Island (50°02'N., 127°25'W.) lies on the N side of Brown Channel and 1.3 miles N of **Trapp Bluff** (50°00'N., 127°25'W.), a prominent and steep rocky headland. McLean Point, the S extremity of the island, is located 1.3 miles E of **Cole Rock** (50°02'N., 127°27'W.). The island forms the SW side of Clanninick Cove and is connected to Vancouver Island by a sandy beach which dries at LW.

Clanninick Cove (50°02'N., 127°24'W.) indents the N shore at the junction of Brown Channel and Nicolaye Channel. The shores of the cove are low and rocks front both sides of the entrance.

Chief Rock, which dries, lies at the W side at the outer edge of the foul ground extending SE from McLean Point. Yakats Rock, with a depth of less than 1.8m, lies about 0.3 mile N of Chief Rock.

Anchorage can be taken, in a depth of 165m, close S of a drying bank at the head of the cove.

Gayward Rock (50°01'N., 127°23'W.), above-water, lies on the S side at the NW end of Nicolaye Channel and is marked by a light. Clanninick Cove is entered NNW of this rock. A rock, with a depth of 6.4m, lies about 0.1 mile NE of Gayward Rock.

Anchorage can be taken, in a depth of 51m, about 0.2 mile NE of Gayward Rock. Anchorage can also be taken, in a depth of 33m, about 0.5 mile ESE of Gayward Rock.

Walters Cove (50°02'N., 127°22'W.) is approached to the SE of **Rolston Island** (50°01'N., 127°22'W.) and entered E of Walters Island. A dredged channel, 37m wide, leads into the cove and can be used by vessels up to 36m long. It has a depth of 4m and is marked by beacons. Local knowledge is required as several above and below-water dangers lie adjacent to the channel.

Kyuquot (50°02'N., 127°22'W.), a settlement, stands on the N side of Walters Island. It can be reached via the channel in the cove. A wharf fronts the settlement. It provides a berth, 30m long, and has a depth of 4.9m alongside. There are facilities for small craft and seaplanes.

Directions.—Vessels bound for Clanninick Cove, or the anchorages in Nicolaye Channel, that do not have local knowledge should make the approach through Brown Channel. The outermost of the Barrier Islands should be given a berth of at least 2 miles until the light shown from Lookout Island bears about 350°. Vessels should steer for the lighted buoy on this bearing and then change course to pass about 0.2 mile E of the

light.

After passing the light, vessels should steer for Cole Rock on a bearing of 357° in order to pass about 0.3 mile W of a shoal, with a least depth of 4.1m, lying WNW of Trapp Bluff. When McLean Point bears 068°, vessels should alter course to ENE in order to pass about 250m S of Chief Rock.

When the light on Gayward Rock bears 114° and distant about 0.3 mile, vessels should change course to NNW and enter the cove about midway between Yakats Rock and a rock, with a depth of 0.6m, lying close E. Vessels should then adjust course as required for the anchorage.

Caution.—Vessels should not attempt to pass to the W of Lookout Island.

A submarine cable, which may best be seen on the chart, lies across Brown Channel, near the entrance.

10.22 Checleset Bay (50°02'N., 127°40'W.) indents the coast of Vancouver Island, between Lookout Island and the Brooks Peninsula. Three inlets lead NNE from the N shore of this bay. Numerous islets, above and below-water rocks, and reefs lie scattered throughout the bay. Breakers usually mark the below-water dangers. A swell often exists in the bay.

Caution.—It has been reported (2001) that depths in the bay are less than charted.

Malksope Inlet (50°07'N., 127°28'W.) is entered between **Malksope Point** (50°05'N., 127°29'W.) and Upsowis Point, 0.5 mile WNW. The sides of the inlet are high and steep-to. Mount Paxton rises 0.8 mile ENE of the E entrance point and is very conspicuous. Upsowis Point is fringed by foul ground.

Several islets lie on an area of foul ground located in the fairway, about 1 mile within the entrance. The inlet is approached from the S through the Barrier Islands and to the W of **Thomas Island** (50°04'N., 127°29'W.). Two buoys mark the dangers lying at the edge of the channel to the NW and SW of Thomas Island. Clear weather and local knowledge are necessary to enter the inlet. Anchorage can be taken, in depths of 20 to 33m, within the inlet.

An approach should be made from the S by passing about 0.5 mile W of a rock, 4.6m high, lying about 1.5 miles W of Lookout Island. Vessels should steer 007° and pass about 0.2 mile off the first buoy. They should then steer a course of about 347° to pass about 0.2 mile off the second buoy. Vessels should then set a course to pass 0.2 mile off Malksope Point.

Vessels should pass to the W of the group of islands and rocks lying 1.5 miles within the inlet. The fairway in this vicinity is only 0.1 mile wide, but has a least depth in mid-channel of 25m.

Ououkinsh Inlet (50°06'N., 127°34'W.), lying close W of Malksope Inlet, is entered NW of the Barrier Islands. The shores of this inlet are generally high. The depths in the inlet are deep, but temporary anchorage is available.

Byers Cone (50°07'N., 127°36'W.) rises at the W side of the entrance and is conspicuous.

Mahope Point (50°06'N., 127°34'W.), located 1.5 miles SE of Byers Cone, is conspicuous from the E.

10.23 McKiel Rock (50°04'N., 127°36'W.), which dries, and **Clara Islet** (50°05'N., 127°35'W.) lie SE and close to the entrance fairway of the inlet. Both of these dangers are fronted

by foul ground on their S sides.

Vessels approaching from the S or SE should bring the west-ernmost of the O'Leary Islets and Scarf Island in line, bearing 350°. They should then proceed on this range until Mahope Point bears 046°, open E of Izard Point. Vessels should then steer for Mahope Point on this bearing and pass about 0.2 mile off the shoal, with a depth of 4.2m, lying N of McKiel Rock and 0.2 mile off the shoal, with a depth of 7.3m, lying 0.5 mile NNW of Clara Islet. When this latter shoal has been passed, they may enter, favoring the SE shore of the inlet.

Sullivan Reefs (50°05'N., 127°40'W.), partly awash and often breaking, lie close to the approach channels of Ououkinsh Inlet and Nasperti Inlet. Two detached shoal patches, with a least depth of 7.3m, lie near the fairway, NW of Clara Islet.

The **Cuttle Islets** (50°06'N., 127°36'W.) and the **Bunsby Islands** (50°06'N., 127°32'W.), both extensive groups, border the entrance of the inlet. The islands are steep-to on their NW sides. **Gay Passage** (50°07'N., 127°32'W.) leads SE between the two largest of the Bunsby Islands and is used by small vessels with local knowledge.

Green Head (50°05'N., 127°34'W.), located on the SE side of the entrance, is conspicuous. The area lying N of Mahope Point and fronting **Battle Bay** (50°07'N., 127°35'W.) is encumbered with numerous islets and shoals. The SE side of the entrance channel should be favored in order to avoid these dangers.

The **Longback Rocks** (50°07'N., 127°33'W.) lie on the NW side of the channel, opposite the entrance of Gay Passage. A drying rock lies on the SE side of the fairway, about 0.8 mile E of these rocks.

Izard Point (50°08'N., 127°31'W.), bold and conspicuous, is located 1.5 miles NE of Longback Rocks. The **Hisnit Islands** (50°10'N., 127°28'W.) lie 2.2 miles NE of the point and are steep-to on their S sides. The **Ououkinsh River** (50°11'N., 127°26'W.) flows into the head of the inlet through a drying bank. Small vessels can obtain anchorage, in a depth of 29m, about 0.3 mile SW of this drying bank.

10.24 Nasperti Inlet (50°07'N., 127°40'W.) lies W of Ououkinsh Inlet and E of the Brooks Peninsula. It has high rocky shores that are indented. The depths in the inlet decrease from 58m at the entrance to 25m near the head. Numerous above and below-water rocks and shoals lie in the approaches to the inlet. Sullivan Reefs form the outermost danger.

Vessels entering Nasperti Inlet should steer to keep Scarf Island and a summit, 492m high, rising between Johnson Lagoon and the head of the inlet in line, bearing 019°. This range leads midway between a shoal, with a depth of 7.3m, lying 0.8 mile NNE of Cutler Rock and the dangers located to the SW of Ferey Rock. When Yule Rock is nearly abeam, vessels should change course to the E until Lorenz Point, bearing 030°, is just open W of the E entrance point of the inlet. This course leads between a rock, which dries 3.9m, lying at the NW end of the group of islands on the E side of the fairway and the dangers located to the SE of Scarf Island. Vessels should then maintain a mid-channel course up the inlet.

Vessels approaching from the SW can do so on the range that leads toward the entrance of Nasperti Inlet. They should then bring Scarf Island and the summit, 492m high, rising between Johnson Lagoon and the head of the inlet in line, bearing 019°.

Vessels should proceed on this range until Clara Islet and Mount Paxton are in line, bearing 073°. They should then proceed on this range until Mahope Point bears 046°. Vessels should then steer for Mahope Point on this bearing.

10.25 Baker Rock (50°06'N., 127°42'W.), awash, has a detached shoal, with a depth of 9.5m, lying about 0.4 mile S of it. Both of these dangers break during heavy weather.

Quineex Reef (50°06'N., 127°44'W.), drying, lies 1.5 miles W of Baker Rock. A shoal patch, with a depth of 8.2m, is reported to lie about 0.3 mile NNE of this reef.

Cutler Rock (50°07'N., 127°41'W.), above-water, lies about 0.8 mile NNE of Baker Rock. A shoal patch, with a depth of 7.3m, lies about 0.7 mile NNE of this rock, on the W side of the approach fairway.

The **O'Leary Islets** (50°06'N., 127°39'W.), barren and steep-sided; **Yule Rock** (50°07'N., 127°39'W.), fronted by several above and below-water rocks; and **Ferey Rock** (50°07'N., 127°39'W.), which dries, all lie on the E side of the approach fairway, at the outer edge of foul ground extending from the mainland.

Jackobson Point (50°08'N., 127°41'W.) is the low W entrance point of Nasparti Inlet. A drying ledge fringes the S side of this point. Small craft can obtain anchorage within a sheltered bay lying close N of the point.

Scarf Island (50°08'N., 127°40'W.), conspicuous from seaward, lies in the middle of the inlet, about 1 mile NE of Jackobson Point. The fairway is constricted by several drying rocks and shoals, which may best be seen on the chart, lying SE of the island.

Johnson Lagoon (50°11'N., 127°39'W.), constricted but navigable by small craft, is entered about 0.8 mile WNW of **Lorenz Point** (50°10'N., 127°38'W.). The drying head of Nasparti Inlet lies 2 miles NE of the latter point.

Anchorage can be taken in a depth of 40m in the middle of the inlet, WSW of Lorenz Point. Vessels can also anchor, in a depth of 27m, about 0.8 mile from the head of the inlet.

The **Brooks Peninsula** (50°10'N., 127°46'W.), broad and blunt, extends 9 miles SW from the coast of Vancouver Island. Its shores are rocky and mountains, over 600m high, rise abruptly inland from them.

From **Clerke Point** (50°05'N., 127°48'W.), the SE extremity of the peninsula and the W entrance point of Checleset Bay, the S coast of the peninsula is fringed by numerous above and below-water rocks and reefs. These dangers include Eldridge Rock, lying SE of Clerke Point, which is marked by breakers and **Banks Reef** (50°05'N., 127°51'W.), which dries and breaks heavily.

Cape Cook to Triangle Island

10.26 Cape Cook (50°08'N., 127°55'W.), the SW extremity of the Brooks Peninsula, is a high bluff. It is conspicuous, wooded, and rises steeply from the sea.

Solander Island (50°07'N., 127°56'W.), lying 1.3 miles SW of Cape Cook, has a high summit marked by a light. The area lying between this island and the peninsula is foul and without a clear passage.

Brooks Bay (50°14'N., 127°56'W.) lies on the NW side of the Brooks Peninsula. The shores of the bay are rocky and

backed by mountain ranges. The entrance lies between Cape Cook and Lawn Point. Klaskish Inlet and Klaskino Inlet indent this bay and afford anchorage to small vessels. Numerous dangers lie in the approaches to these inlets. The Hacket Islands and the Guilliams Islands lie on an area of foul ground extending about 1 mile seaward from the SE shore of the bay.

Clerke Islet (50°12'N., 127°50'W.) lies on an area of foul ground extending NE from Hacket Island. **Clerke Reefs** (50°12'N., 127°53'W.), above and below-water, lie N of the latter island. Shoals extend NW of these reefs to within 1 mile of the approach channel leading into Klaskish Inlet. Vessels without local knowledge should avoid the SE part of Brooks Bay.

Scarf Reef (50°19'N., 127°59'W.), which breaks in heavy weather, lies 1.3 miles SW of Lawn Point, the low and grassy N entrance point of Brooks Bay. Several detached shoals lie SE of this reef and the area located between the reef and the point is foul.

Caution.—Brooks Bay should not be entered via the passage lying between Solander Island and Cape Cook.

Vessels approaching from the N should give Lawn Point a berth of at least 2 miles.

Local knowledge is required to enter any of the inlets within Brooks Bay.

10.27 Klaskish Inlet (50°14'N., 127°49'W.) is entered between **Orchard Point** (50°13'N., 127°48'W.) and **Gould Rock** (50°15'N., 127°50'W.). The depths in the entrance and throughout the inlet are deep. The Klaskish River flows into a landlocked basin which forms the head of the inlet.

Harris Peak and Shields Cone, two mountain peaks, are conspicuous. Shields Cone in line, bearing 084°, with Bonner Islet forms a range that indicates the channel leading through the reefs lying in the approach to the inlet.

Hughes Rock (50°15'N., 127°53'W.), which dries, lies about 1 mile N of the approach range and the sea breaks heavily over it. Gould Rock, above-water, lies on an area of foul ground extending about 1.5 miles W from **Sapir Point** (50°15'N., 127°48'W.), the N entrance point of the inlet. Bonner Islet lies 0.5 mile ESE of Sapir Point.

The **Donald Islets** (50°14'N., 127°48'W.), surrounded by above and below-water rocks, lie at the S side of the inlet entrance. A light is shown from the northernmost islet of the group.

McDougal Island (50°14'N., 127°46'W.) lies on the S side of the entrance fairway leading into the inlet. The channel lying between this island and Bonner Islet is constricted and confused seas often exist within it.

Klaskish Anchorage is the constricted area located between the E side of McDougal Island and the mainland. The approach to this area lies between an above-water rock and a group of rocks, marked by a beacon. Sheltered anchorage can be taken, in depths of 18 to 23m.

Vessels should approach, bearing 084°, on the range alignment. When the northwesternmost of the Donald Islets bears 154°, they should change to a mid-channel course, pass between Bonner Islet and McDougal Island, and approach the anchorage entrance.

10.28 Klaskino Inlet (50°18'N., 127°52'W.), with Side Bay indenting its N side, has high rocky shores. This inlet is ap-

proached between Heater Point, rocky and conspicuous, and the N side of Brooks Bay. A rocky knob rises close within the Heater Point. The outer part of the inlet has depths of 18 to 36m.

Restless Mountain and Red Stripe Mountain are prominent landmarks in this vicinity. The latter mountain has a conspicuous landslide on its SW side which appears as a red stripe from seaward.

Morris Rocks (50°18'N., 127°52'W.), the largest group of rocks conspicuous from seaward, consist of several above and below-water rocks on which the sea breaks.

Steele Reefs (50°18'N., 127°53'W.), another group of above and below-water rocks, are marked by a buoy moored off their NW extremity.

The **Rugged Islands** (50°19'N., 127°55'W.) lie on an area of foul ground fronting the N shore of the bay and are marked by a light at their N end. The approach range leads NW of this group of islands.

Martin Rock (50°19'N., 127°53'W.), which dries, lies 0.8 mile E of the largest of the Rugged Islands. It is marked by a buoy moored at the SW end.

Side Bay (50°20'N., 127°54'W.) indents the coast NE of the Rugged Islands. This bay, which is open to the weather, is encumbered by numerous islets, rocks, and reefs.

Seward Hill (50°21'N., 127°52'W.) rises within the head of the bay and is conspicuous from seaward.

Newton Entrance (50°18'N., 127°57'W.) is the approach passage leading from seaward towards Klaskino Inlet.

Anchorage Island (50°18'N., 127°49'W.) lies on an area of foul ground in the middle of the constricted part of the inlet. A chain of islets and rocks extends across the inlet, close NE of this island. Beacons and buoys mark the rocks lying adjacent to the sides of the passage.

Klaskino Anchorage (50°18'N., 127°49'W.) lies off the SE side of Anchorage Island. The entrance passage leading to this anchorage lies S of Anchorage Island and has a width of only 135m, between the shoals and rocks. The anchorage is sheltered but constricted and has depths of 14 to 18m.

Directions.—Seward Hill in line with the NW extremity of Rugged Island, bearing 045°, indicates the passage leading between the shoals lying in the approach to Newton Entrance. When Lawn Point bears 315°, vessels should change course to pass midway between the Rugged Islands and the mainland to the W and N. When about 0.3 mile NE of Rugged Islands Light, they should change course to pass between the two buoys moored to the SE. Vessels should then steer a course of 104° for the S extremity of Anchorage Island until Morris Rock bears 170°.

Caution.—The dangers lying in the entrance of Klaskino Inlet consist of numerous islets, rocks, and reefs which may best be seen on the chart. These dangers extend NW across the entrance between Heater Point and the shore in the vicinity of Lawn Point.

10.29 Quatsino Sound (50°25'N., 128°00'W.) is extensive and is the northwesternmost of the larger inlets located along the W coast of Vancouver Island. This sound extends about 13 miles ENE to its head and divides, branching SE into Neroutsos Inlet and N through Quatsino Narrows into Holberg Inlet

and Rupert Inlet. It is approached between Kwakwaka'wakw Point and Cape Parkins. The entrance lies N of Cliffe Point. Forward Inlet, extending N from Cape Parkins, affords one of the better anchorages along this stretch of coast. A number of small local ports are situated in the branches at the head of the sound.

Several conspicuous mountains, islets, and a landslide serve as landmarks at the entrance. Nose Peak rises 3.5 miles NE of Cape Parkins and has a sharp, rocky summit.

Tides—Currents.—The currents in the sound attain a rate of 3 knots at springs. They set N and S at a position to the W of the Gilliam Islands.

The current flowing E through the channel leading N of Drake Island divides. Off the NE coast of Drake Island, one part flows SE into Neroutsos Inlet and the other ENE towards Quatsino Narrows. Each of these currents attains a rate of 3 knots at springs. The junction of the W flowing parts of the tidal current occurs in the same position.

The tidal currents set past the entrance of Hecate Cove at a rate of 1 to 3 knots. Off Kokwina Cove, they set with strength and heavy tide rips are sometimes formed.

Directions.—Vessels approaching Quatsino Sound from the NW should give the coast to the NW of the sound a berth of about 2.8 miles by keeping Lawn Point bearing 134°. When Kains Island Light bears 095°, they should change course to 112° and head for the conspicuous landslide located 3 miles NNE of Kwakwaka'wakw Point. Vessels should maintain this course until Cliffe Point and the northernmost end of the Gilliam Islands are in line, bearing 056°. They should then steer on this range until the E side of the Hunt Islets and Pinnacle Island are in line, bearing 353°. Vessels should then steer 353° on the range and pass South Danger Rock and Robson Rock to the E and Kains Island to the W. As an alternate, they may pass S of Billard Rock and then E of the Gilliam Islands.

Vessels bound for Quatsino Sound should proceed as previously directed until the N extremity of Kains Island is abeam. They should then alter course to pass about 0.2 mile N of the buoy marking Brown Rock. Vessels should then change course to 075° and head towards the conspicuous rock lying off the S end of the Bedwell Islands. This latter course leads S of Pilley Shoal and N of Cliffe Point. When Cliffe Point is abeam, they should change course to pass 0.3 mile S of the Bedwell Islands and 0.2 mile N of May Point.

Vessels bound for the easternmost anchorage in Koprino Harbor should give the E side of Schloss Island a berth of about 0.2 mile and then pass on either side of Ives Islet into the anchorage.

Vessels approaching Quatsino Sound from the S should make for a position located about 11 miles NW of Cape Cook with Kains Island Light bearing 021° and distant 14 miles. From this position, they should steer for the light until Cliffe Point is seen through the widest gap of the Gilliam Islands, bearing 041°. Vessels should then steer for Cliffe Point until the E side of the Hunt Islets and Pinnacle Island are in line, bearing 353°.

Caution.—The approaches to Quatsino Sound are exposed to the full sweep of the Pacific Ocean. Consequently, buoys moored in exposed positions may be missing.

Dangers in the form of rocks, reefs, and shoals lie along the sides and in the fairway of the approach to the sound. Only in heavy weather are these dangers marked by breakers.

10.30 Kwakiutl Point (50°21'N., 128°00'W.), located at the S approach of the sound, is low, rocky, and rises gradually SE to Restless Mountain. The coast extending 1.5 miles SSE of the point to Lawn Point and 7 miles NNE of the point to Cliffe Point is fronted by numerous above and below-water rocks, reefs, and shoals. Rowley Reefs and Piling Rock, which dries, extend up to 1.5 miles W of **Gooding Cove** (50°24'N., 127°57'W.). Anchorage can be taken, in a depth of 10m, sand, within this latter cove.

Harvey Cove (50°26'N., 127°56'W.), backed by steep cliffs on its N side, is open to the W and not recommended as an anchorage.

Cape Parkins (50°27'N., 128°03'W.), at the N side of the sound, is steep, precipitous, and fringed by foul ground.

Mount Kains (50°28'N., 128°03'W.) rises prominently inland in the vicinity of the point.

Kains Island, 73m high, lies close SE of Cape Parkins and is separated from it by a small boat passage. A light is shown from a prominent structure standing at the S end of this island.

Heron Rock, below-water, and South Danger Rock, awash, lie about 0.2 mile S and 1 mile SE, respectively, of Kains Island. Robson Rock, which dries, and several below-water rocks lie close E of the island and are often marked by breakers.

The **Gillam Islands** (50°27'N., 127°58'W.), a chain of islands located on an area of rocky foul ground, lie about 1 mile offshore, SE of Cliffe Point. The largest and northernmost island of this chain is wooded. The channels lying adjacent to the islands are deep.

10.31 Billard Rock (50°26'N., 127°58'W.), steep-to, and **Brown Rock** (50°27'N., 127°59'W.), below-water, are marked by buoys and lie S and NW, respectively, of the Gillam Islands.

Forward Inlet (50°29'N., 128°02'W.), which trends N and NE, is entered between **Kains Point** (50°28'N., 128°02'W.) and **Montgomery Point** (50°28'N., 128°00'W.). The fairway channel is deep and free of dangers. Several islets and drying banks encumber the head where a narrow passage leads into Ahwhichaolto Inlet, a large salt water lagoon.

Vessels bound into Forward Inlet should, when abeam of Kains Island, alter course to the E and give Pinnacle Island a berth of 0.2 mile. When the SW side of Matthews Island is open NE of Kains Point and bearing 323°, they should change course to follow the middle of the fairway through the inlet, passing E of the Hunt Islets and Matthews Island.

If bound into North Harbor, vessels should round the N extremity of Matthews Island at a distance of about 0.2 mile and then proceed WSW towards the anchorage.

If bound into Winter Harbor, vessels should proceed as previously directed until the N extremity of Matthews Island is abeam. Deep-draft vessels should favor the W shore of the inlet in order to avoid the shoal patch, with a depth of 9.7m, lying on Hall Bank. After passing Hall Bank, vessels should proceed in mid-channel toward the harbor and the anchorages.

Plumper Hill, with steep cliffs on its SW side, rises close above Montgomery Point. Nose Peak stands close NE of the hill and is conspicuous. Both entrance points are fronted by several islets.

A rocky patch, with a least depth of 9.6m, lies in the entrance fairway, about 0.8 mile W of Brown Rock.

Anchorage can be taken, in a depth of 12m, within **North Harbor** (50°29'N., 128°03'W.). The anchorage is sheltered by Matthews Island, which lies in the entrance. The anchorage can be approached by passing N of the island and S of Flint Rock, which lies close off the N shore. Hall Bank extends from the E side of the inlet and has depth of 5.5m lying at its W edge, about 0.5 mile E of Flint Rock.

10.32 Greenwood Point (50°31'N., 128°02'W.), marked by a light, is fringed by a steep-to sand bank.

Winter Harbor (Leeson Harbor) (50°31'N., 128°01'W.) is formed by that part of Forward Inlet lying above Greenwood Point. It has low shores fringed with sandy beaches. Sheltered anchorage can be taken, in a depth of 14m, mud, between 0.5 mile and 0.8 mile NE of Greenwood Point. A settlement, fronted by a public wharf, stands N of the latter point and several conspicuous oil tanks are situated in its vicinity.



Quatsino (Kains Island) Light

Cliffe Point (50°28'N., 127°56'W.), marked by a light, is the S entrance point of the main body of Quatsino Sound. It consists of a steep-to and precipitous bluff that rises gradually inland to a mountain. Mount Bury stands about 1.8 miles SE of the point and is prominent.

Koskimo Bay (50°28'N., 127°52'W.), a broad and open bight, lies E of Cliffe Point and is fringed by rocks and shoals. Anchorage can be taken, in a depth of 27m, sand and mud, at the E end of this bay with an islet, lying about 0.2 mile N, bearing 003°.

Caution.—Two small water intake pipelines, which may best be seen on the chart, lie across Winter Harbor between the vicinity of the mouth of Quashtin Creek and a point located on the W shore close S of the public wharf.

10.33 Koprino Harbor (50°30'N., 127°51'W.) lies on the N side of the sound, opposite Koskimo Bay. It is entered close E of **Prideaux Point** (50°29'N., 127°51'W.). The harbor is formed by an open bay, but is cluttered in its inner part by several islands, islets, and rocks. Small vessels can anchor, in a depth of 27m, about 0.2 mile W of **Schloss Island** (50°30'N., 127°52'W.). Anchorage may also be taken, in a depth of 14m, close N of the island, but the swinging room is limited.

The **Salmon Islands** (50°28'N., 127°48'W.) lie in an open bay close E of the Koskimo Islands. A T-shaped pier, with a depth of 9.1m alongside, fronts the head of the bay.

Brockton Island (50°29'N., 127°46'W.), marked by a light at its N end, lies off the S shore of the sound, about 2 miles NE of the Salmon Islands.

Drake Island (50°31'N., 127°38'W.), lying in the middle of the head of Quatsino Sound, has rocky shores and high wooded slopes. The **Ildstad Islands** (50°31'N., 127°42'W.), lying close off the N side of the sound and 1 mile W of Drake Island, are joined together by a sand flat and marked by a light. **Newcomb Rocks** (50°31'N., 127°41'W.), below-water, lie on the E side of the approach channel which passes N of Drake Island. **Mount Byng** (50°33'N., 127°41'W.) has two conspicuous summits.

Bergh Cove (50°32'N., 127°37'W.) (World Port Index No. 18818) is entered between **Leeson Point** (50°32'N., 127°37'W.) and another point, 0.3 mile ESE. A light is shown from a structure standing on a drying reef located close S of Leeson Point. Leeson Rock, below-water, lies 0.2 mile SSE of the point and is marked close W by a buoy. A customs house is situated 1 mile W of Leeson Point. A wharf, with a depth of 6.1m alongside, fronts the E side of the cove.

Quatsino (50°32'N., 127°37'W.), a settlement, is situated on a low point about 0.5 mile ESE of Leeson Point. A wooded hill rises behind the settlement. The shore between the cove and Leeson Point is fronted by foul ground extending up to about 0.1 mile seaward. A boat landing and facilities for seaplanes are situated on the E side of the point.

10.34 Buchholz Channel (50°30'N., 127°38'W.) leads S of Drake Island and into Neroutsos Inlet. This channel is deep, but constricted to a width of about 0.2 mile by numerous islets and rocks at its W end. The E flood tidal current sets strongly toward the **Farmer Islets** (50°30'N., 127°39'W.), which are fronted by foul ground.

Bland Island (50°30'N., 127°40'W.), wooded and steep-to, lies in the channel entrance. It is located SSE of Holloway Point, the low and rocky SW extremity of Drake Island.

Banter Point (50°30'N., 127°37'W.), low and steep-to, is the NW extremity of a peninsula which extends into the channel and forms the E side of **Kultus Cove** (50°29'N., 127°37'W.). Several drying rocks lie near the head of the cove and are marked by a buoy.

The E and S shores of the cove are fronted by booming grounds. It was reported (1986) that the cove is used by ocean-going vessels to load logs by mooring to rafts extending from the shore.

Small vessels can obtain anchorage in the cove and also in Julian Cove, which is entered 1 mile ESE of Banter Point. Both of these coves have depths of 12 to 14m.

Caution.—A drying rock lies in the middle of Julian Cove.

The E entrance of Buchholz Bay lies between **Pender Point**

(50°29'N., 127°35'W.) and **Lakken Point** (50°30'N., 127°36'W.). Both of these points are low and backed by high land.

10.35 Neroutsos Inlet (50°30'N., 127°35'W.), the SE branch of Quatsino Sound, has high and rugged shores backed by mountains in many places. The inlet is deep and has a least width of about 0.3 mile. Ice forms at times in the inlet, but does not interfere with shipping.

Evenson Point (50°31'N., 127°37'W.), rocky and fairly high, is located on the E side of the entrance to the inlet at its junction with Quatsino Narrows. McNiffe Rock, lying 0.2 mile SW of the point, dries and is marked by a light. **Cross Island** (50°31'N., 127°37'W.) lies near the entrance channel. It is steep-to on the E side, but foul ground fronts the S and SW sides.

Atkins Cove (50°30'N., 127°35'W.), open to the SE, affords shelter to small craft.

Buchholz Rock (50°29'N., 127°34'W.), below-water, is steep-to on its E side and is marked by a lighted buoy.

Yreka Mine (50°27'N., 127°34'W.), situated on a mountain slope, is a very conspicuous landmark. The wharf, barge landing, and dolphins fronting the shore in the vicinity of the mine are all abandoned.

Mist Rock (50°26'N., 127°30'W.), which dries, lies on a shoal located 0.7 mile S of Jeune Landing and is marked by a light.

The **Frigon Islets** (50°25'N., 127°29'W.) lie about 0.8 mile SSE of Mist Rock and are wooded. A light is shown from the westernmost islet, which lies near the channel of the inlet. Vessels should pass at least 0.1 mile W of these islets.

Ker Point (50°23'N., 127°29'W.), located 2 miles SSE of the Frigon Islets, is the low extremity of a peninsula. This peninsula is located on the W side of the inlet and forms the E side of Thurburn Bay. Muir Rocks, consisting of a number of drying ledges, extends 0.1 mile NE of the point. An extensive drying mud flat lies off the mouth of Cayuse Creek, at the head of the inlet. Kretchen Island lies close to the W shore of the inlet, SW of Port Alice. Between the drying flat and Kretchen Island, both shores of the inlet are lined with booming grounds.

10.36 Port Alice (50°23'N., 127°27'W.) (World Port Index No. 18820), a small and privately owned port, is the site of the Neucel Specialty pulp mill. The residential area of the town is situated in Rumble Beach, about 3 miles NNW.

Depths—Limitations.—Port Alice is approached from sea through Quatsino Sound, passing either N or S of Drake Island, then heading SE upriver through Neroutsos Inlet for approximately 10.4 miles.

Berthing facilities are located at the pulp mill upriver from the village. The Pulp Mill Wharf is 126m in length. The Western Forest Products Berth is 172m in length, with depths of 8m alongside, and is capable of accommodating vessels up to 160m in length. It has been reported (2022) the pulp mill is closed and is in receivership awaiting new owners.

Vessels up to 172m in length can be accommodated in depths of 10.6m through use of fenders enabling them to be berthed 4.8m from the main dock.

Tankers up to 176.6m in length are accommodated in depths of 10.6m by mooring alongside a 10m long scow that has been



Port Alice—Western Pulp Ltd Partnership

secured alongside the main wharf.

Facilities for small craft are available at both the village of Port Alice and the pulp mill. Seaplane facilities and a small marina are located at Port Alice.

Pilotage.—Pilotage is compulsory for vessels over 350 gross tons and is provided by the Pacific Pilotage Authority Canada (PPA). For details on reporting procedures refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Pilots will board approximately 2 miles W of Cape Beale unless another position has been agreed upon.

Regulations.—Port Alice lies within the Prince Rupert South Vessel Traffic Service (VTS) System. For details con-

cerning reporting procedures, please refer to paragraph 9.1. For other regulations covering the Western Canada Traffic Zone, refer to Canada—Regulations and Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Contact Information.—Western Pulp Limited Partnership serves as the Port Authority for Port Alice and can be contacted, as follows: As of January 2022 this mill is non-operational awaiting new ownership.

Anchorage.—Vessels waiting for a berth can obtain anchorage, in depths of 50 to 80m, mud, NW of Ker Point.

Caution.—An obstruction lies 25m S of the S corner of the pulp mill wharf, in a depths of 2.6m.

A drag-line dredge is occasionally needed in this area to keep waste pulp from blocking a discharge pipe at the SE end of the wharf; the cables from the dredge will obstruct this area during operations.



Port Alice

10.37 Quatsino Narrows (50°32'N., 127°34'W.) is approached between Evenson Point and Quatsino. It leads N into Rupert Inlet and Holberg Inlet. There are depths of 18 to 36.6m in the fairway of the narrows. There is a depth of 19.8m lying in mid-channel, NE of Ohlsen Point. There are also depths of 11.2m and 9.6m lying, respectively, in mid-channel, W of Kultah Point and W of Makwazniht Island.

Tides—Currents.—The tidal currents attain a velocity of 5 knots, frequently even more at springs. Slack at HW occurs 5 minutes before the HW at Prince Rupert and has a duration of 12 minutes.

Hecate Cove (50°33'N., 127°36'W.), open to the S, has high shores and is fringed by sandy beaches.

Quattische Island (50°32'N., 127°35'W.) lies in the middle of the approach channel to the narrows. The fairway leading N of the island is deep and about 0.1 mile wide. The fairway leading S is obstructed by rocks.

Kokwina Cove (50°31'N., 127°35'W.) offers refuge to small craft, but the tidal currents are strong at the entrance.

10.38 Ohlsen Point (50°32'N., 127°34'W.), located at the W side of the S end of Quatsino Narrows, is bold, rocky, and marked by a light. A conspicuous gray cliff rises close N of this point. The fairway channel bends sharply to the N abreast of this point. A shoal patch, with a least depth of 19.2m, lies near the center of the channel, about 0.2 mile NE of the point.

It is reported that heavy tide rips occur at times off Ohlsen Point.

Sorenson Point (50°34'N., 127°34'W.), located at the W

side of the N end of the narrows, is fringed by shoals. Kultah Point is located on the E side of the N end of the narrows.

Makwazniht Island (50°33'N., 127°33'W.), high and wooded, lies in the N entrance of the narrows, close NW of Kultah Point. Tide rips and overfalls occur in the vicinity of this island. A light is shown from a structure standing on the NW extremity of the island.

Range beacons stand on the E side of the narrows, 0.4 mile SSW of Kultah Point. In line, bearing 193°, these beacons indicate the channel leading through the N entrance of the narrows.

Rupert Inlet (50°35'N., 127°30'W.) is entered between Makwazniht Island and Hankin Point, 0.8 mile N. It extends 5.5 miles ENE to a drying flat at the head. The inlet has high sides. It is deep and clear of dangers in mid-channel.

Utah Mines Bulk Wharf fronts the N shore of the inlet, about 2.5 miles NE of Hankin Point. This wharf provides 213m of berthage and consists of a pier extending offshore to dolphins, which are connected by a catwalk.

Anchorage can be taken, in a depth of 25m, at the head of the inlet, W of the drying flat.

Varney Bay is entered between Makwazniht Island and Kenny Point, 0.5 mile ENE. It affords anchorage to small vessels, but is encumbered by many drying and below-water rocks.

Anchorage.—Anchorage can be taken, in a depth of 18m, mud, in the center of Hecate Cove.

Vessels waiting to enter Prince Rupert should use the designated anchorage berths that lie in the NW end of Marcus Passage, along the E coast of Prescott Island, and from Lawyer Islands to Prince Rupert harbor. These anchorage areas are identified by either a letter or number but since their specific designations and exact locations are subject to change they will not be listed here. See the latest chart editions along with the associated Notice to Mariner bulletins for these charts for specific letter and number designations.

Vessels are cautioned that these anchorage berths may not provide ideal holding ground during periods of inclement weather.

Vessels are urged to exercise extreme care at all times when anchored in these areas and maintain a continuous radio watch on VHF channel 71 (Prince Rupert Traffic Zone Control).

Caution.—Caution is necessary when entering the Hecate Cove due to strength of tidal currents setting across entrance.

10.39 Holberg Inlet (50°35'N., 127°35'W.), the W branch of Quatsino Sound, has high, rocky shores with several bays indenting its N shore and a drying flat fronting its head. It is entered between Sorenson Point and Hankin Point and extends 18.5 miles WNW.

Coal Harbor (50°36'N., 127°35'W.) (World Port Index No. 18835), entered 1.7 miles NW of Hankin Point, has shores fringed by sand and gravel. It has depths of 14 to 31m. A rock, below-water, lies close off Stewart Point, at the E entrance. A pier fronts the NW side of the harbor. It has a T-head, 31m long, with a depth of 6.4m alongside. Anchorage can be taken, in a depth of 22m, in the middle of the harbor.

The **Stragglings Islands** (50°36'N., 127°41'W.), above and below-water rocks and islands, lie off the N side of Holberg Inlet, about 4 miles W of Coal Harbor. A light is shown from the W end of the largest island. No attempt should be made to pass through the islands.

Holberg (50°39'N., 128°00'W.), a settlement at the head of the inlet, has a pier with berthing floats on the outer end extending across the drying flat. Booming grounds line both the N and S sides of the inlet in the vicinity of Holberg.

Caution.—Submarine cables, which may best be seen on the chart, lie across Holberg Inlet in the vicinity of Coal Harbor.

A submarine sewer outfall, which may best be seen on the chart, extends about 0.2 mile seaward from the N shore of Holberg Inlet, 0.5 mile WNW of Stewart Point.

Lippy Point (50°28'N., 128°06'W.), located on the coast about 2.5 miles NW of Cape Parkins, is low and rocky. Between this rocky point and Cape Scott, the coast is rocky, indented, and vessels should not approach within the 35m curve, which lies about 2 miles offshore. The coast between Cape Parkins and Lippy Point is fronted by rocks and shoals extending up to almost 0.5 mile offshore.

Quinn Rock (50°28'N., 128°05'W.), with a depth of less than 1.8m, lies off the entrance of **Grant Bay** (50°28'N., 128°05'W.). This bay is exposed, but anchorage can be taken, in a depth of 11m, sand, in the middle of the bay during fair weather.

Topknot Point (50°32'N., 128°13'W.), located 6 miles NW of Lippy Point, is low with a distinctive knot-shaped hill rising within it.

10.40 Commerell Point (50°34'N., 128°15'W.), located 2.3 miles NNW of Topknot Point, forms the S entrance point of **Raft Cove** (50°35'N., 128°15'W.). This latter cove is encumbered by shoals and open to the weather. A conspicuous tower stands on a high hill, 6 miles NE of the point.

Bushby Rock, with a depth of 7m, lies about 1.5 miles SW of Commerell Point.

San Josef Bay (50°39'N., 128°19'W.) is open and unsheltered, except during N winds. It has high shores and ample depths, but a heavy swell often prevails. The bay is approached between Cape Palmerston, located 3.3 miles NW of Commerell Point, and Hanna Point, about 3.5 miles NNW.

Cape Palmerston (50°36'N., 128°18'W.), the S entrance point of the bay, is bold, rocky, and backed by heights. Foul ground extends up to about 0.5 mile offshore in the vicinity of Cape Palmerston.

Temporary anchorage can be taken, in a depth of 12m, about 1 mile ESE of Hanna Point.

10.41 The Winifred Islands (50°40'N., 128°22'W.), bare and yellow-topped, lie about 0.8 mile WSW of Hanna Point and are conspicuous from the NW. The Helen Islands lie close NE and both island groups are located in the entrance of **Sea Otter Cove** (50°41'N., 128°21'W.). The latter cove is entered W of Hanna Point. Several mooring buoys are situated within this cove and are used by small craft.

Cape Russell (50°41'N., 128°23'W.) is a conspicuous headland on which the sea breaks heavily. It forms the W side of Sea Otter Cove and lies about 1.5 miles N of the Winifred Islands. Between Cape Russell and Cape Scott, 6 miles NNW, the coast is indented by Lowrie Bay, Hansen Bay, and Guise

Bay.

Strange Rock (50°45'N., 128°25'W.), 4m high, lies at the outer end of a shoal located about 2.5 miles S of Cape Scott. It is the outermost danger in this vicinity.

Cape Scott (50°47'N., 128°26'W.), the NW extremity of Vancouver Island, is a promontory connected to the island by a low, sandy isthmus. It is fronted by foul ground extending up to about 0.7 mile seaward. A light is shown from a skeletal steel tower standing close within the extremity of the cape. Three prominent white buildings stand in the vicinity.

10.42 Scott Channel (50°47'N., 128°30'W.) leads between Cape Scott and the Scott Islands and is deep and free of dangers.

Tides—Currents.—The tidal currents off Cape Scott are strong and cause heavy tide rips and overfalls on both sides of the channel. The main flood tidal current sets NNE after leaving the cape. The secondary current sets E toward Goletas. The flood current sets 037° and the ebb current sets 217° in Scott Channel.

The **Scott Islands** (50°50'N., 128°54'W.), five in number, lie offshore up to 26 miles W of Cape Scott. The group also includes several islets and rocks. The tidal currents are strong in the various passages leading between the islands. Tide rips are often formed and are dangerous to small craft.

Depths of less than 90m lie W of Cape Scott and indicate proximity to the islands.

Cox Island (50°48'N., 128°36'W.), the easternmost and largest of the group, is 312m high, wooded, and fringed with rocks. Anchorage, during S winds, can be taken, in depths of 14 to 22m, about 0.3 mile off the beach on the NW side of the island.

Lanz Island (50°49'N., 128°41'W.) is separated from Cox Island by a channel encumbered with rocks. It is 212m high, wooded, and rocky. Anchorage can be taken, during S winds, in a depth of 18m, about 0.3 mile off the NE side of the island.

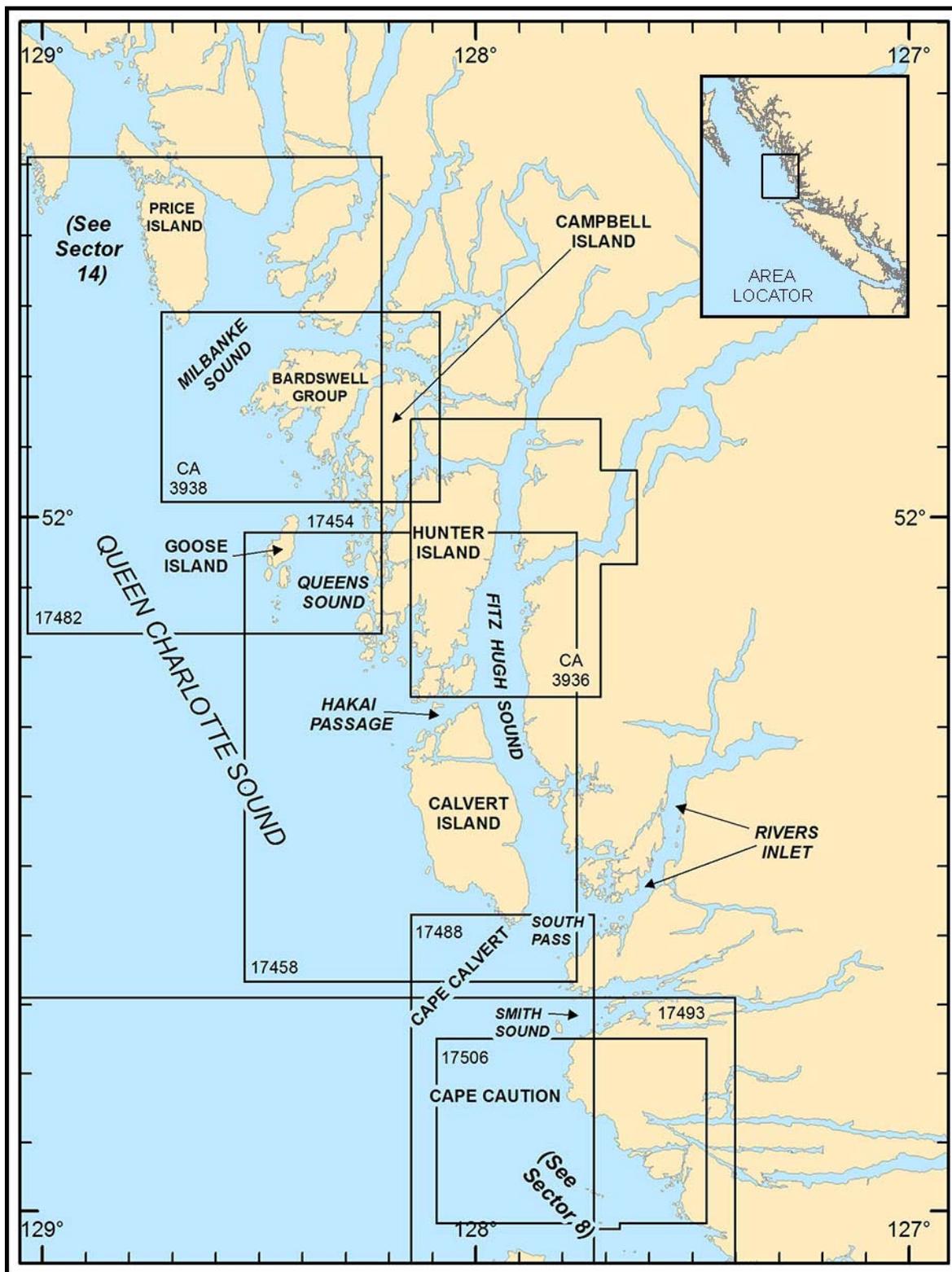
Bersford Island (50°47'N., 128°47'W.), 98m high and wooded, lies 2.5 miles SW of Lanz Island. Several islets and rocks extend up to about 0.7 mile N and 0.5 mile S of this island.

10.43 Sartine Island (50°49'N., 128°55'W.), lying 5 miles WNW of Bersford Island, is 107m high, grassy, and rocky. Numerous islets and above-water rocks extend up to about 1.3 miles W of the island. Many below-water rocks extend up to about 0.8 mile from the ESE side of the island.

Triangle Island (50°52'N., 129°05'W.), the westernmost island of the Scott Islands, lies 7 miles WNW of Sartine Island. It is 210m high, bare, and precipitous. Several islets lie close off this island and numerous below-water rocks extend up to about 0.8 mile from its E and W sides. Two rocky islets, 9m and 21m high, lie 1.8 miles E of the island and foul ground extends between them.

Temporary anchorage can be taken, during SW winds, in a depth of 24m, about 0.3 mile off a bight indenting the NE side of Triangle Island.

Caution.—ODAS buoys are moored about 30 miles and 260 miles W of Triangle Island.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 11 — CHART INFORMATION

SECTOR 11

THE INNER PASSAGE—CAPE CAUTION TO CAPE MARK

Plan.—This sector describes the inner passage N from Cape Caution to Ivory Island at the W end of Seaforth Channel; the outer coast N from Herbert Point to Cape Mark at the entrance of Milbanke Sound, and the passages leading from Queen Charlotte Sound to the inner passage.

General Remarks

11.1 Winds—Weather.—The approaches to Smith Sound and Fitz Hugh Sound are subjected to a heavy swell during W gales. Dense fogs are frequent.

The prevailing wind in North Bentinck Arm in summer is from the SW, the W winds of the ocean blowing across Fitz Hugh Sound being led up the channel as through a funnel following the direction of the different bends. The breeze generally sets in at 1000 and blows fresh until sunset, when it usually falls calm. During winter months, winds up to gale force can be expected from the NE down the valley.

During summer, the prevailing winds are from the N, being funneled down from Burke Channel and following much the same pattern as those in North Bentinck Arm. During winter, periodic gale force winds can be expected from the S. Above Taleomey Narrows there are seldom any winds of strength, no matter how strong they may be outside.

Tides—Currents.—The velocity of the tidal currents in Dean Channel, from Rattenbury Point to within 2 miles of Snowquitz Bay, is 1 to 2 knots. Between Snowquitz Bay and Dolmage Point they gradually weaken and almost disappear. In summer, the tidal currents are marked by the effect of the freshets from various rivers and creeks; an overlay of fresh water is noticeable and the current is mostly an ebb. To the S of Carlson Inlet this effect is almost lost and the normal tidal currents remain with the ebb being somewhat the stronger. Dean Channel is free of tide rips and eddies.

The prevailing wind in Dean Channel in the summer is from the SW; it follows the direction of the channel as through a funnel. The breeze usually sets in about 1000 and gradually reaches a maximum in the early afternoon; it continues fresh until sunset, when it usually falls calm. During the winter, winds often reaching gale force can be expected from the N, down the channel.

The tidal currents within Lama Passage are strong in the narrow area lying between the NE end of Campbell Island and Saunders Island. The tidal currents in Seaforth Channel, between Idol Point and Ocean Falls at the head of Cousins Inlet, are variable in direction and weak; they depend to a great extent on the prevailing winds.

The flood tidal currents from N and S meet about midway between Fog Rocks and the E entrance of Lama Passage.

The tidal currents between Edmund Point and Restoration Bay are strong and heavy tide rips occur, especially off Hvidsten Point. Towards Bella Coola, to the N, the tidal currents are weak. In summer, when strong freshets from the various rivers and creeks are in evidence, the tidal currents from Gibraltar

Point to Bella Coola are marked; there is a definite overlay of fresh water and the current is mostly all ebb. The flood current sets N through Fitz Hugh Sound. The E tidal current sets in Smith Sound at a velocity of almost 2 knots at springs. The tidal currents in Labouchere Channel, Rivers Inlet, and South Bentinck Arm are weak.

Regulations.—For information on regulations concerning the Western Canada Traffic Zone, Vessel Traffic Services, and Pilotage, see Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia. Details of services are also provided in U. S. Coast Pilot 10.

Canadian modifications to 72 COLREGS are applied in waters under Canadian jurisdictions. See Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia for further information.

Vessel Traffic Service (VTS).—The Vessel Traffic Services Zones Regulations require all participating vessels to file a VTS Offshore Report 24 hours prior to entering a Canadian VTS zone from seaward, or as soon as practical where the estimated time of arrival of the ship to a Canadian VTS zone is less than 24 hours after the time the ship departed its last port of call. Send VTS Offshore Reports to a Canadian Coast Guard Marine Communications and Traffic Services (MCTS) Center, free of charge, or to one of the following:

1. Telephone: 250-627-3071
2. E-mail: vts.rupert@innav.gc.ca

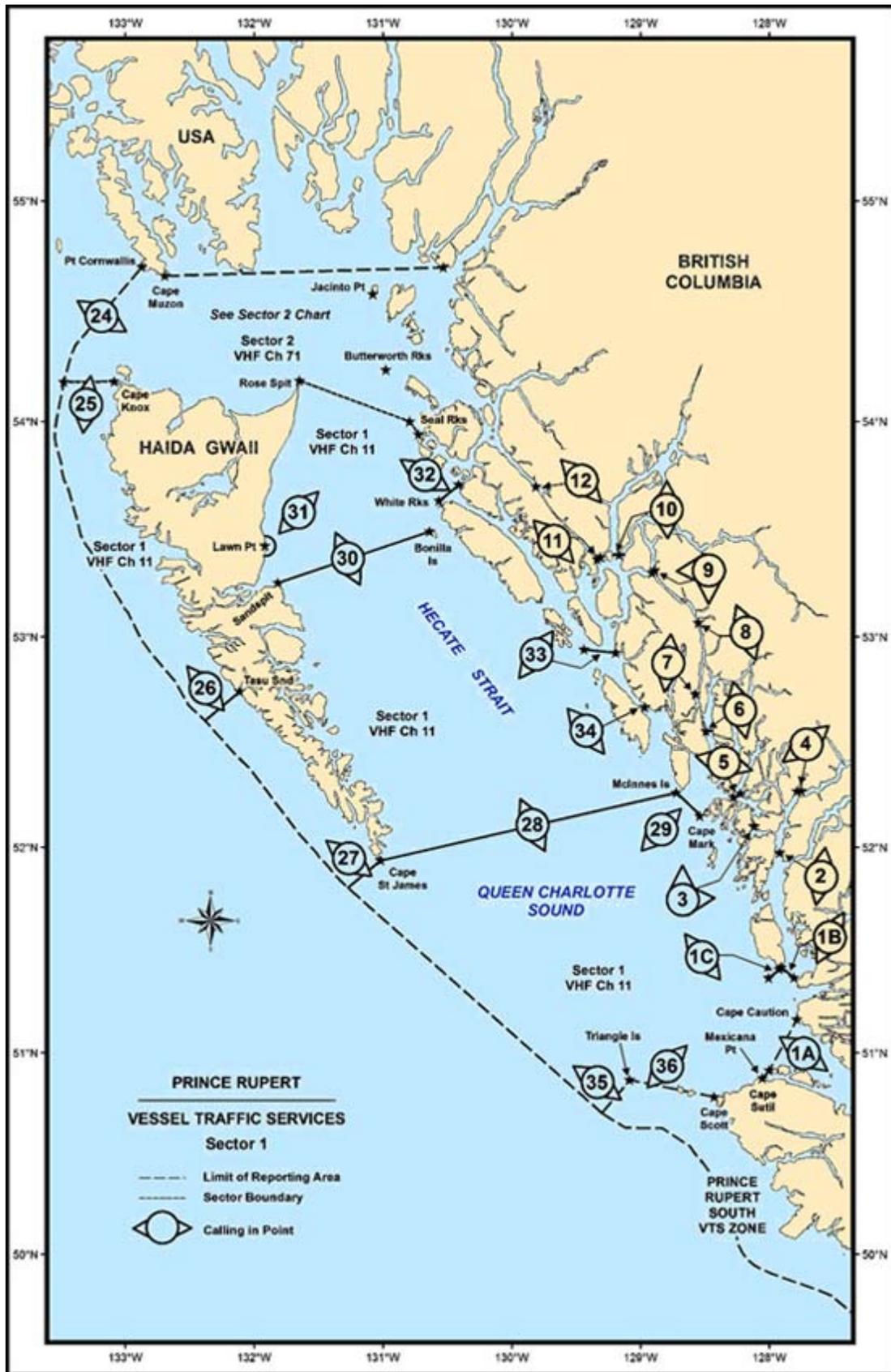
Participation is mandatory for those vessels:

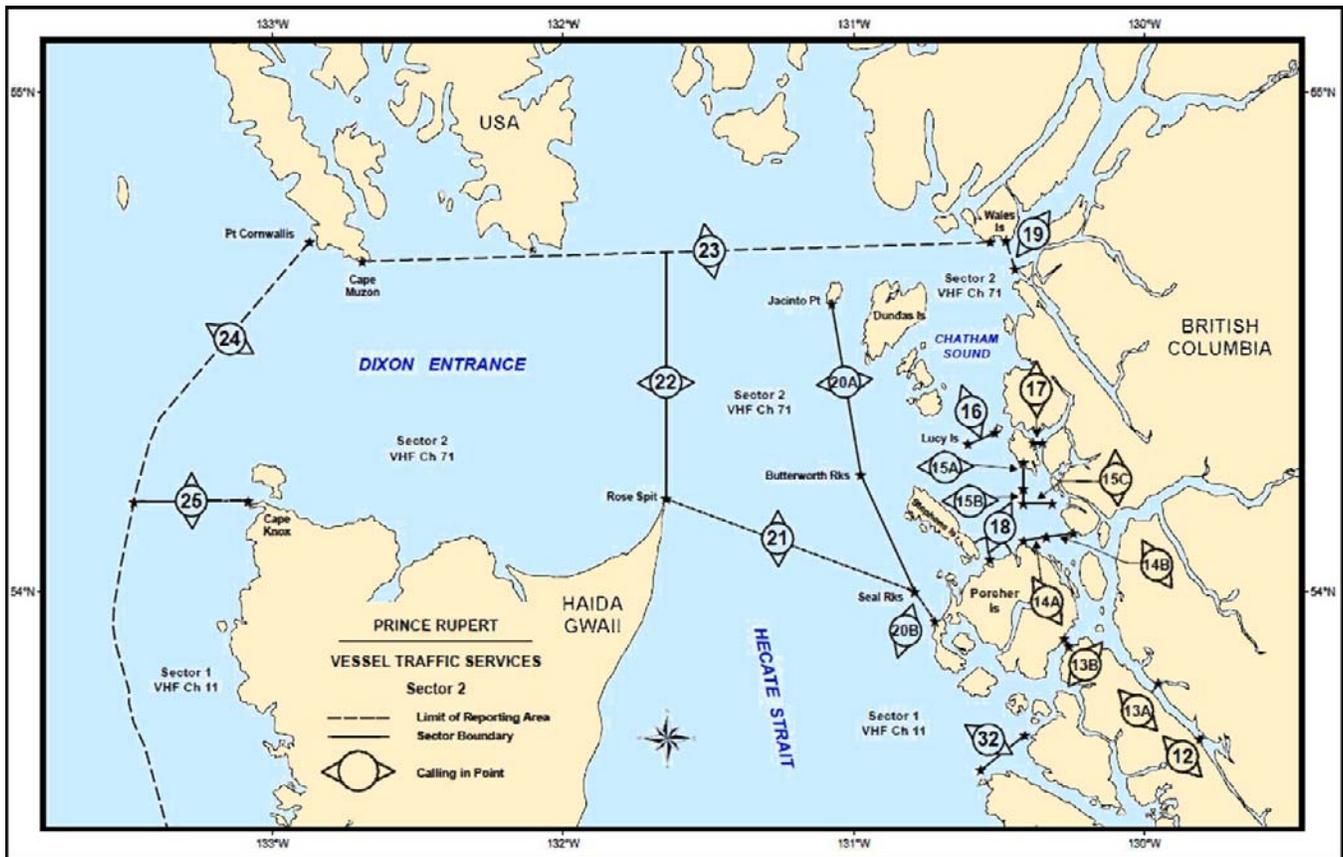
1. 500 gt or more
2. Engaged in towing or pushing a vessel, where the combined tonnage of the ship and the vessel being towed or pushed is 500 grt or more
3. Carrying a pollutant or dangerous goods, or engaged in towing or pushing a vessel carrying a pollutant or dangerous goods as prescribed in the
 - a. *International Maritime Dangerous Goods (IMDG) Code.*
 - b. *Vessel Pollution and Dangerous Chemicals Regulations.*

A mandatory reporting system for inbound vessels is in effect, and is provided by Prince Rupert MCTS. Prince Rupert MCTS has divided the area of responsibility for providing this service into the Prince Rupert North Traffic Zone and the Prince Rupert South Traffic Zone. Prince Rupert South Traffic Zone is the replacement for the former Tofino MCTS; see paragraph 9.1 for more details. Prince Rupert North Zone has been divided into two sectors for reporting purposes.

The sectors are, as follows:

1. **Sector 1**—Comprised of all waters N of Vancouver Island from a line joining Cape Caution Light (51°09'50"N., 127°47'06"W.), Mexicana Point (50°54'52"N., 127°59'58"W.), and Cape Sutil (50°52'34"N., 128°03'07"W.); then following the NW shoreline to Cape Scott (50°47'03"N., 128°25'50"W.); then a line extending from position 50°46'57"N., 128°25'32"W to position 50°52'00"N,





Prince Rupert North Zone VTS—Sector 2

129°05'00"W; then along a bearing of 220° to the limit of the Territorial Sea, then N following the limit of the Territorial Sea to a bearing of 270° from Cape Knox on the NW tip of Graham Island (54°11'00"N., 133°05'00"W.) to the limit of the Territorial Sea, but NOT including the waters described to be in Sector 2 or any mainland inlets and channels outside VHF coverage.

2. **Sector 2**—Comprised of all Canadian waters bound by a line passing through the following positions:

- 53°54'12"N, 130°16'31"W (Bareside Point);
- 53°53'16"N, 130°15'35"W (Swede Point); then extending along the N coast of Pitt Island to
- 53°48'03"N, 129°58'31"W; then through
- 53°48'41"N, 129°57'08"W; then N along the mainland coast to
- 54°09'38"N, 129°57'37"W; then through
- 54°11'53"N, 129°58'51"W; then N along mainland coast to
- 54°37'57"N, 130°26'31"W; then to position
- 54°38'02"N, 130°26'31"W; then N along the W coast of Maskelyne Island through positions
- 54°38'55"N, 130°26'42"W (Maskelyne Point) and
- 54°42'17"N, 130°28'33"W (Wales Point); then W along the coast of Wales Island to
- 54°42'06"N, 130°31'47"W; to

- 54°42'27"N, 130°36'50"W; then along the International Boundary to
- 54°39'48"N, 132°41'30"W (Cape Muzon Light); then W along the coast of Dall Island to
- 54°42'12"N, 132°52'17"W (Point Cornwallis Light); then SW to
- 54°31'24"N, 133°12'43"W; continuing SW to
- 54°21'02"N, 133°22'33"W; then following the limit of the Territorial Sea to
- 54°11'00"N, 133°28'00"W; then along bearing 090° to
- 54°11'00"N, 133°05'00"W (Cape Knox); on Graham Island, then E along the coast of Graham Island to
- 54°11'12"N, 131°38'43"W (Rose Spit); then SE to
- 54°00'00"N, 130°47'26"W (Seal Rocks); then to
- 53°56'24"N, 130°43'15"W (Oval Point); then E along Porcher Island coastline; back to Bareside Point (position a.).

In Canada, MCTS Centers use AIS to monitor vessel traffic movement. Vessels will be contacted by Prince Rupert Traffic (VAJ) and are required to report the following information:

- Vessel position, course, speed, and destination.
- Any defects or deficiencies in cargo, charts, hull, machinery, navigational equipment, or radio equipment.
- A brief description of the main cargo, pollutant cargo,

and dangerous cargo, by classification.

Vessels will contact Prince Rupert Traffic on VHF channel 11 when 50 miles from the Queen Charlotte Islands.

After initial contact, all vessels must also contact the Prince Rupert VTS by VHF and report their position at each Calling-In-Point (CIP), also seen on the chart, by CIP name and sector, as listed in the table titled **Prince Rupert North Zone (Sectors 1 and 2) VTS Calling-in-Points**.

There are also 14 remotely-controlled stations from Prince Rupert MCTS as listed in the table titled **Prince Rupert Remotely-controlled Stations**.

Contact Information.—The Prince Rupert Vessel Traffic Control System (VTS) can be contacted as follows:

1. Call sign: Prince Rupert Traffic (VAJ)
2. VHF: VHF channel 11 (for Sector 1)
VHF channel 71 (for Sector 2)
VHF channel 16 for either sector at any time.

3. Telephone: 1-250-627-3074 (MCTS Operations)
1-250-627-3081 (Marine Engineering Safety)
1-250-627-3077 (Officer in Charge)
1-250-624-9009 (CMB—Continuous Marine Broadcast)
4. Facsimile: 1-250-624-9075 (MCTS Operation)
5. E-mail: mctsprincerupert@dfo-mpo.gc.ca
6. MMSI: 003160013

Movements in the Prince Rupert Traffic Zone may be restricted when the following vessels are underway:

1. A vessel carrying dangerous or pollutant cargo.
2. A vessel considered to be navigating with difficulty.

Directions.—The usual route between Cape Caution and the SE part of Alaska is via the Inner Passage. This passage leads through sheltered waters with only a few areas exposed to the ocean. The strong gales frequently encountered in Queen Charlotte Sound and Hecate Strait are avoided.

Prince Rupert North Zone (Sectors 1 and 2) VTS Calling-in-Points			
CIP	Name	Sector	Remarks
1A	Cape Caution/Triangle Island	Change	Line joining Cape Caution Light (51°09'50"N., 127°47'06"W.), Mexicana Point (50°54'52"N., 127°59'58"W.), and Cape Sutil (50°52'34"N., 128°03'07"W.).
1B	Dugout Rocks	1	Line between Dugout Rocks (51°22'01"N., 127°48'23"W.) and Cape Calvert (51°25'04"N., 127°54'16"W.). Vessels bound for Fitz Hugh Sound should report ETA at Dugout Rocks.
1C	Pearl Rocks	1	Line joining Pearl Rocks (51°22'00"N., 128°00'12"W.), the S end of Sorrow Islands (51°24'33"N., 127°55'18"W.) and Cape Calvert. Vessels bound for Queen Charlotte Sound through the North Passage should report ETA at Pearl Rocks.
2	Fog Rocks	1	Line in Fisher Channel extending E and W from Fog Rock Light (51°58'21"N., 127°55'02"W.).
3	Walker Island	1	Line in Lama Passage extending E and W from Walkers Island Light (52°05'58"N., 128°06'55"W.).
4	Barba Point	1	Line at the S entrance to Cousins Inlet between Barba Point (52°16'11"N., 127°44'55"W.) and Boscowitz Point (52°16'06"N., 127°47'00"W.).
5	Idol Point	1	Line in Seaforth Channel between Idol Point Light (52°14'19"N., 128°16'31"W.) and Graven Point (52°15'27"N., 128°13'19"W.).
6	Freeman Point	1	Line in Finlayson Channel along latitude 52°33'11"N extending through Freeman Point Light. Vessels heading N should advise ETA at Boat Bluff Light and Ditmars Point and should also confirm if intending to transit Hiekish Narrows.
7	Ditmars Point	1	Line in Tolmie Channel along latitude 52°43'48"N. Vessels heading S should advise ETA at Boat Bluff Light and Freeman Point.

Prince Rupert North Zone (Sectors 1 and 2) VTS Calling-in-Points			
CIP	Name	Sector	Remarks
8	Griffin Point	1	Line in Graham Reach along latitude 53°03'56"N extending through Griffin Point Light. Vessels heading N should advise their intentions of passing N or S of Work Island. Vessels heading S will need to advise if intending to transit Hiekish Narrows.
9	Kingcome Point	1	Line at N entrance to Fraser Reach between Kingcome Point Light (53°17'57"N., 128°54'23"W.) and S shore of Anglers Cove (53°18'44"N., 128°53'17"W.). Vessels heading S will need to advise intentions of passing N or S of Work Island.
10	Money Point	1	Line extending E and W through Money Point Light (53°22'55"N., 129°09'50"W.). Vessels bound for Kitimat through Douglas Channel will need to advise ETA at Emilia Point.
11	Sainty Point	1	Line at S entrance to Grenville Channel between Sainty Point Light (53°22'18"N., 129°18'40"W.) and Yolks Point (53°21'47"N., 129°20'00"W.). Vessels heading N will need to advise ETA at both Tom Island Light and at Pitt Island Light.
12	Pitt Island Light	1	Line in Grenville Channel NE and SW through Pitt Island Light (53°42'00"N., 129°48'38"W.). Northbound vessels should advise ETA at Tom Island Light and Pitt Island Light.
13A	Baker Inlet	Change	Line in Grenville Channel bearing 232° through Baker Inlet Light (53°48'41"N., 129°57'08"W.).
13B	Swede Point	Change	Line in Ogden Channel between Bareside Point (53°54'12"N., 130°16'31"W.) and Swede Point (53°53'16"N., 130°15'35"W.).
14A	Lawyer Islands	2	Line in Malacca Passage between Hunt Point (54°06'11"N., 130°24'54"W.) and Lawyer Islands (54°06'36"N., 130°20'12"W.).
14B	Genn Islands	2	Line in Marcus Passage between Lawyer Islands and Hazel Point (54°07'03"N., 130°14'39"W.).
15A	Petrel Rock	2	Line from Digby Island (54°15'33"N, 130°25'00"W), extending S to West Kinahan Island (54°12'30"N., 130°25'00"W.).
15B	Greentop Island	2	Line from Greentop Islet (54°10'40"N, 130°25'00"W) extending N to West Kinahan Island.
15C	Holland Rock	2	Line from Greentop Islet extending E to Kitson Island (54°10'40"N., 130°19'00"W.).
16	Lucy Islands	2	Line in Chatham Sound joining Lucy Islands Light (54°17'46"N., 130°36'25"W.) and Tugwell Island (54°19'10"N., 130°30'54"W.).
17	Pillsbury Point	2	Line in Prince Rupert Harbor from Pillsbury Point (54°17'58"N., 130°21'05"W.) extending W to Tobey Point (54°17'58"N., 130°22'55"W.).

Prince Rupert North Zone (Sectors 1 and 2) VTS Calling-in-Points			
CIP	Name	Sector	Remarks
18	Edye Passage	2	A point, 3 miles NNE of Table Point (54°03'49"N., 130°31'55"W.). Mariners are encouraged to call at Gull Rocks (54°07'58"N., 130°31'16"W.) when entering or exiting Edye Passage.
19	Wales Island	Change	Line in Portland Inlet between Wales Point (54°42'17"N., 131°28'33"W.) and Maskelyne Point (54°38'55"N., 130°26'42"W.).
20A	Butterworth Rocks	2	Line joining Jacinto Point Light (54°34'47"N., 131°04'30"W.), Butterworth Rocks Light (54°14'08"N., 130°58'30"W.), and Seal Rocks Light (54°00'00"N., 130°47'26"W.). Vessels will need to advise if they are using Brown Passage or not.
20B	Seal Rocks	Change	Line joining Seal Rocks Light and Oval Point (53°56'24"N., 130°43'15"W.).
21	Rose Spit/Seal Rocks	Change	Line between Rose Spit Racon (54°11'12"N., 131°38'43"W.) and Seal Rocks Light.
22	Rose Spit	2	Line in Dixon Entrance from Rose Spit Racon N to the International Boundary.
23	International Boundary/Dixon Entrance	1	Line along the International Boundary between Cape Muzon Light (54°39'48"N, 132°41'30"W) and Wales Island (54°42'06"N, 130°31'47"W). Vessels crossing Chatham Sound should advise if their route is through Holliday Passage, Oriflamme Passage or Main Passage.
24	Zone Limit	2	Line running from Point Cornwallis Light (54°42'12"N., 132°52'17"W.), extending along a SW arc to a point 270° W of Cape Knox (54°11'00"N., 133°05'00"W.) on the Territorial Sea limit. This line is the W limit of the Prince Rupert Traffic Zone.
25	Cape Knox	Change	Line bearing 270° from Cape Knox to the limit of the Territorial Sea.
26	Tasu Sound	1	Line from Davidson Point Light (54°44'32"N., 132°06'42"W.) along bearing 220° to the limit of the Canadian Territorial Sea. Vessels entering or leaving Tasu Sound should report at Davidson Point.
27	Cape St. James	1	Line from Cape St. James Light (51°56'10"N., 131°00'52"W.) along bearing 220° to the limit of the Canadian Territorial Sea.
28	McInnes Island/Cape St. James	1	Line in Queen Charlotte Sound between McInnes Island Light (52°15'42"N., 128°43'13"W.) and Cape St. James Light.
29	Cape Mark/McInnes Island	1	Line in Milbanke Sound between Cape Mark Light (52°08'59"N., 128°32'18"W.) and McInnes Island Light.
30	Bonilla Island/Sandspit	1	Line in Hecate Strait between Bonilla Island Light (53°29'34"N., 130°38'09"W.) and Sandspit Aeronautical Beacon (53°15'10"N., 131°48'48"W.).

Prince Rupert North Zone (Sectors 1 and 2) VTS Calling-in-Points			
CIP	Name	Sector	Remarks
31	Lawn Point	1	A point 3 miles from Lawn Point (53°25'30"N., 131°54'50"W.) in Skidgate Inlet.
32	White Rocks	1	Line between Browning Entrance Light (53°38'05"N., 130°33'48"W.) and Hankin Rock Light (53°42'28"N., 130°24'36"W.).
33	Duckers Islands	1	Line in Caamano Sound between Duckers Island Light (52°55'31"N., 129°11'28"W.) and Dupont Island Light (52°56'23"N., 129°26'10"W.). Northbound vessels should advise if their intended route is through Squally Channel or through Whale Channel.
34	Wilson Rock	1	Line in Laredo Channel along a range of 052°—232° extending through Wilson Rock (52°40'00"N., 128°57'55"W.).
35	Triangle Island	Change	Line from Triangle Island (50°52'00"N., 129°05'00"W.) bearing 220° to the limit of the Canadian Territorial Sea.
36	Cape Scott	Change	Line between Cape Scott (50°46'57"N., 128° 25'32"W.) and Triangle Island.

Prince Rupert Remotely-controlled Stations	
Location	VHF Channel or RT Frequency (kHz)
Digby Island (54°17'51"N., 130°25'06"W.)	Frequencies 2054 kHz, 2182 kHz, and 4125 kHz
Hunter Point (53°15'31"N., 132°42'53"W.)	Frequencies 2054 kHz and 2182 kHz
Mount Dent (55°12'58"N., 129°59'18"W.)	VHF channels 16 and 84
Calvert Island (51°35'21"N., 128°00'43"W.)	VHF channels 11, 16, 70, 83A, and 84
Klemtu Mountain, Swindle Island (52°34'45"N., 128°33'45"W.)	VHF channels 11, 16, 70, 83A, and 84
Mount Gil, Gil Island (53°15'46"N., 129°11'42"W.)	VHF channels 11, 16, 26, 70, and 83A
Mount Hays, Prince Rupert (54°17'12"N., 130°18'49"W.)	VHF channels 11, 16, 70, 71, 83A, and 84
Dundas Island (54°31'16"N., 130°54'55"W.)	VHF channels 16, 70, 71, 83A, and 84
Kitimat (54°03'20"N., 128°37'51"W.)	VHF channels 11, 16, and 83A
Naden Harbor, Graham Island (53°57'18"N., 132°56'30"W.)	VHF channels 11, 16, 70, 71, 83A, and 84
Van Inlet, Graham Island (53°15'08"N., 132°32'30"W.)	VHF channels 11, 16, 26, and 83A
Cumshewa, Moresby Island (53°09'33"N., 131°59'47"W.)	VHF channels 11, 16, 70, 83A, and 84
Barry Inlet, Moresby Island (52°34'30"N., 131°45'13"W.)	VHF channels 11, 16, 26, and 83A
Rose Inlet (52°13'18"N., 131°12'54"W.)	VHF channels 11, 16, 26, 70, and 83A

The main route of the Inner Passage, commencing from the S, leads through Fitz Hugh Sound, Lama Passage, Seaforth Channel, Milbanke Sound, Finlayson Channel, Tolmie Channel, Princess Royal Channel, Grenville Channel, Arthur Passage, and Malacca Passage into Chatham Sound.

Approaches to Smith Sound and Fitz Hugh Sound

11.2 Cape Caution (51°10'N., 127°47'W.) is moderately high and level. The coast in the vicinity of this cape is formed by granite and appears white. A light is shown from a structure

standing on the W extremity of the cape.

The approaches to Smith Sound and Fitz Hugh Sound lie between Cape Caution, on the mainland, and Herbert Point, on Calvert Island, 22 miles NNW.

Sea Otter Group, an extensive area of rocks and shoals, lies in the approaches to these sounds between 6 miles and 21 miles offshore. North Passage and South Passage afford safe access to the sounds N and E, respectively, of the Sea Otter Group. Five navigable passages lead from the E side of South Passage to the entrance of Smith Sound. They pass between several islands and numerous dangers.

Macnicol Point (51°15'N., 127°47'W.), located 5 miles N of

Cape Caution, forms the S entrance point of Smith Sound. Extended Point, located 4 miles N of this point, forms the N entrance point of Smith Sound.

Kelp Head (51°21'N., 127°47'W.), located about 2 miles N of Extended Point, forms the SE entrance point of Fitz Hugh Sound. The coast between Extended Point and this head is fronted by numerous islets and rocks.

Cape Calvert (51°25'N., 127°54'W.), located 5.5 miles NW of Kelp Head, forms the NW entrance point of Fitz Hugh Sound. This cape marks the S termination of the Cape Range Mountains. These peaks attain an elevation of 602m, about 4.5 miles N. The cape presents a broad face of rocky coast, about 90m high, at the S end of Calvert Island.

Clark Point, marked by a light, forms the SE extremity of Cape Calvert.

Herbert Point is located 7.5 miles NW of the S extremity of Cape Calvert. The shore between is fronted by numerous rocks extending up to about 1 mile seaward.

The land ENE of Cape Caution rises gradually for about 5 miles to **Coast Nipple Mountain** (51°12'N., 127°40'W.). Egg Island is a prominent landmark lying between Queen Charlotte Strait and Fitz Hugh Sound. Mark Nipple, an isolated hill, rises 1.3 miles E of Herbert Point and is a useful landmark for vessels approaching Fitz Hugh Sound through North Passage. Entry Cone, which stands 2 miles N of Cape Calvert, is conspicuous and forms a good mark for identifying Fitz Hugh Sound from the S and W. The Sorrow Islands form an excellent mark when vessels are approaching from the NW in thick weather.

11.3 The Sea Otter Group, which lies in the W approaches to Smith Sound and Fitz Hugh Sound, consists of a number of dangerous rocks and shoals. The group is separated from the mainland by South Passage, to the E, and from Calvert Island by North Passage, to the N.

Virgin Rocks (51°17'N., 128°12'W.), three in number, are white and lie near the W extremity of the Sea Otter Group. Barugh Shoal, with a depth of 11m, lies about 2 miles NW of the largest of these rocks.

Hannah Rocks (51°14'N., 127°58'W.), forming the southeasternmost danger of the Sea Otter Group, has a depth of less than 1.8m. This danger is awash at HW and nearly always breaks. It may be cleared by keeping Egg Island Light bearing less than 075°.

Silistria Shoal (51°15'N., 127°56'W.), with a least depth of 8.2m, is the easternmost danger of the Sea Otter Group.

England Rock (51°16'N., 127°56'W.), with a depth of less than 1.8m, seldom breaks. New Rocks, which dry 0.6m, lie about 3 miles WNW of this rock.

Tynemouth Rock (51°18'N., 128°03'W.) has a depth of less than 1.8m. Shoals, with depths of 8.2m and 11m, lie about 0.3 mile NW and about 1 mile ENE, respectively, of Tynemouth Rock.

Watch Rock (51°23'N., 128°06'W.) is black, steep-to, and 11m high. Wigen Shoal, with a depth of 14.6m, and Kent Bank, with a least depth of 24m, lie about 2.3 miles NW and 1.3 miles SSE, respectively, of Watch Rock.

11.4 Pearl Rocks (51°22'N., 128°00'W.) consists of two groups of rocks, above and below-water, lying close together at

the NE end of the Sea Otter Group. The tallest rocks of the northwesternmost and southeasternmost groups are 5.8m and 3.1m high, respectively. A rock, which dries 3.1m, lies at the S extremity of the southeasternmost group.

Rankin Shoals, consisting of numerous rocky patches, have a least depth of 8.2m and lie between Watch Rock and Pearl Rocks. A deep channel, 2.5 miles wide, lies S of Pearl Rocks.

South Passage (51°15'N., 127°54'W.) leads to Smith Sound and Fitz Hugh Sound from the S. The depths in the passage are good, but irregular.

North Passage (51°24'N., 128°03'W.) leads to Smith Sound and Fitz Hugh Sound. The fairway is about 3 miles wide and deep, except for Hedley Patch (51°26'N., 128°03'W.) which has a least depth of 11.9m.

Caution.—Although adequate depth of water makes the passage leading between the rocks and shoals of the Sea Otter Group possible, vessels should not attempt to transit this area because navigation is hazardous due to the difficulty in identifying the various dangers.

Vessels using South Passage should pass not less than 0.8 mile or more than 3 miles W of Egg Island. During the fishing season, between May and September, numerous fishing craft may be encountered between Egg Island and Cape Calvert. The heaviest concentration being between the last week of June and the first week of August.

The shore between Cape Caution and Protection Cove, 4 miles N, is fronted by numerous shoals, with depths of less than 5.5m, which extend up to about 0.5 mile seaward. Numerous above-water, drying, and below-water rocks lie on these shoals. Wright Bank, with a least depth of 24m, lies about 3.5 miles WNW of Cape Caution.

11.5 South Iron Rock (51°13'N., 127°49'W.), which dries 0.3m, is steep-to on its W side and breaks at times. A shoal, with a depth of 4.6m, and a rock, with a depth of less than 1.8m, lie about 0.1 mile SE and 0.1 mile NE, respectively, of South Iron Rock.

North Iron Rock (51°14'N., 127°49'W.), which dries 3.4m, is usually marked by breakers when not uncovered. A rock, which dries 0.9m, and a shoal, with a depth of 7.3m, lie close N and about 0.1 mile NW, respectively, of it.

Alexandra Passage is entered NW of North Iron Rock.

Egg Island (51°15'N., 127°50'W.), 84m high, is a prominent landmark. It lies between Queen Charlotte Strait and Fitz Hugh Sound. An islet fronting the E side is separated from the island by a narrow channel. This channel appears as a split in the island itself when seen from N or S. Egg Rocks, which extend up to about 0.5 mile S from the island, are apparently steep-to. A light is shown from a structure standing on the island.

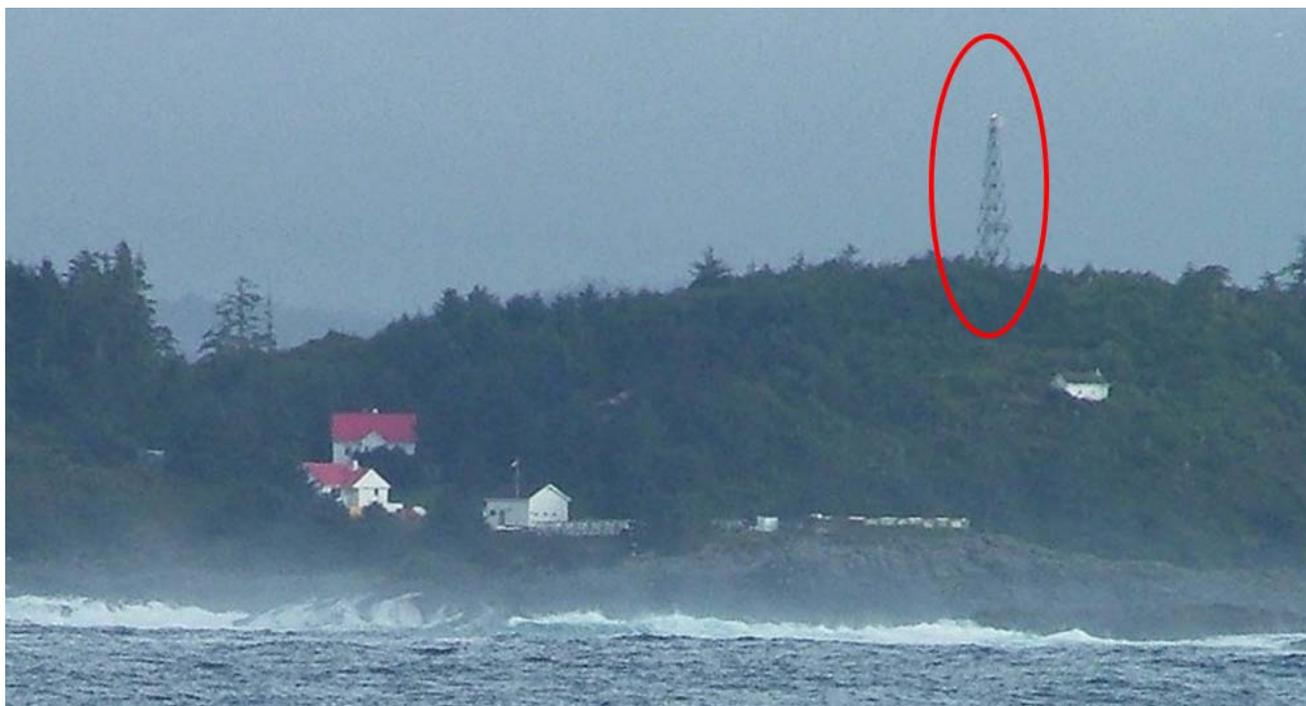
Denny Rock, with a depth of less than 2m, lies about 0.5 mile WSW of Egg Island. This rock, which is steep-to, seldom breaks and is not marked by kelp.

Table Island (51°16'N., 127°48'W.), 50m high, is nearly flat but appears to have two hills standing on it when seen from abeam of Cape Caution.

Ann Island, 58m high and wooded, lies close N of Table Island and is separated from it by a narrow channel.

Speedwell Shoal, with a least depth of 11m, lies about 2 miles N of Egg Island Light.

Cluster Reefs (51°18'N., 127°47'W.) consist of a number of



Egg Island Light

rocky heads and shoal patches scattered over an extensive area extending about 2 miles NNE from the N end of Table Island. Staunton Shoal, with a least depth of 9.1m, forms the NW side of these reefs.

Ruby Rocks (51°18'N., 127°49'W.), two above-water rocks, lie about 2 miles N of Ann Island. They are conspicuous when viewed from the N. Thorndike Shoal, with a depth of 9.1m, lies about 0.8 mile W of these rocks.

John Rock (51°19'N., 127°49'W.), which dries 0.6m, lies about 0.3 mile N of Ruby Rocks and foul ground extends up to about 0.2 mile W of it.

11.6 False Egg Island (51°19'N., 127°48'W.) is similar in shape to Egg Island, but smaller. The island lies on the N side of the approach to Smith Sound, about 1.3 miles NE of Ruby Rocks.

James Rock (51°20'N., 127°48'W.), with a depth of less than 1.8m, lies close N of False Egg Island and breaks at LW. Another rock, with a depth of less than 1.8m, lies about 0.4 mile WSW of James Rock and also breaks at LW.

Tie Island, 55m high, lies 0.8 mile ESE of False Egg Island and Ada Rock, which dries 2.1m, lies about 0.3 mile S of it.

Brown Island, 49m high, lies 1.5 miles SE of False Egg Island. Foul ground, with several above and below-water rocks, extends NE from the island to the main shore.

Dugout Rocks (51°22'N., 127°48'W.), lying about 1 mile NW of Kelp Head, consist of a chain of rocks and shoals. The largest of these rocks is 15m high and stands out boldly against the coast. A light is shown from this chain.

Spur Rocks extend up to 0.5 mile W of Kelp Head and consist of numerous drying and above and below-water rocks.

Brown Bank, with a least depth of 27m, consists of rock and

lies about 2.3 miles SW of Dugout Rocks. A shoal, with a depth of 20.1m, lies about 1 mile SSE of this bank.

The **Sorrow Islands** (51°25'N., 127°55'W.) lie within 1 mile S of Calvert Island. These islands are of granite formation and covered with gnarled and stunted trees. They form an excellent landmark when approaching in thick weather from the NW via North Passage. Tide rips occur in the vicinity of Henderson Shoal which lies close SW of these islands.

Upward Rock, 11m high, lies on the E side of a group of rocks located about 1 mile from the shore, 3.3 miles SE of Herbert Point.

Blackney Island, 84m high and wooded, is 1 mile W of Herbert Point and connected to Calvert Island by a drying ridge.

Fitz Roy Reef, with a depth of less than 1.8m, lies about 1.5 miles WNW of Blackney Island and is the outermost danger located on the N side of the entrance to North Passage.

Smith Sound

11.7 The entrance of Smith Sound, lying between Macnicol Point and Extended Point, is partially protected by several islands and reefs, but there is nearly always a moderate swell in the W part, except after a prolonged spell of good weather.

The sound may be entered by Alexandra Passage or Loran Passage, on the S side, and Radar Passage or Irving Passage, on the N side.

Alexandra Passage leads between North Iron Rock and Egg Rocks, lying NW. This passage is deep. Soundings give practically no warning of the approach to dangers and great care is necessary in thick weather.

Loran Passage leads between Egg Island and Table Island. It is deep and free of dangers.

Radar Passage leads between Speedwell Shoal and Ruby Rocks.

Irving Passage leads between John Rock and Ada Rock.

Radar Passage and Irving Passage join to the E of Ruby Rocks and then lead through a common entrance to Smith Sound, passing between Cluster Reefs and Brown Island. The fairway in this common entrance is deep but only 0.2 mile wide in places.

The central part of Smith Sound is divided into two channels by a chain of islands, islets, and rocks. Browning Channel leads S of the chain to Takush Harbor and Smith Inlet. Blackney Channel leads N of the chain to Boswell Inlet.

Smith Sound should be navigated with care because its waters are not completely surveyed. The depths in the fairways of the sound are generally over 73m.

Vessels from the S that are entering Smith Sound by way of Alexandra Passage should bring the SE extremity of Table Island ahead bearing 038° and maintain this course until the light on Egg Island is abeam. They should then steer a course with the Surf Islets ahead bearing 062°.

When the light on the Watcher Islands is abeam, vessels should alter course to 090° in order to pass about 0.3 mile S of the Surf Islets. When these islets are abeam, they should steer a mid-channel course through Browning Channel. Vessels bound for Boswell Inlet should pass midway between Round Rock and Halliday Island, taking care to avoid the foul ground lying on the N side of the latter. They should then steer a mid-channel course through the E part of Blackney Channel.

Vessels using Radar Passage should keep the N side of Brown Island ahead bearing 064° until the E side of False Egg Island bears 000°. They should then alter course in order to pass about 0.2 mile S of Brown Island.

From S of Brown Island, vessels bound through Blackney Channel should pass about 0.2 mile off Shield Island and about 0.3 mile off the W entrance point of Dsulish Bay. Thereafter, they should steer a mid-channel course.

Loran Passage is the best entrance to Smith Sound under conditions of poor visibility because it is both wide and deep. Vessels from the N should take care to avoid Thorndike Shoal and Speedwell Shoal. A mid-channel course between Egg Island and Table Island should be steered until the SE extremity of the latter bears about 025°. The directions given for Alexandra Passage should then be followed.

Irving Passage can be used in clear weather by vessels from the N. A course with the N side of Brown Island ahead bearing 102° should be steered until the E side of False Egg Island is abeam. The course should then be altered to bring the light on the Watcher Islands ahead bearing 129°. When the S extremity of Brown Island bears 090°, the course should then be altered to pass about 0.2 mile off it.

11.8 Takush Harbor (51°17'N., 127°37'W.), entered by way of Browning Channel and Ship Passage, affords the only secure anchorage for vessels in Smith Sound. The depths in the approaches to the harbor are great. The least depth in the approach to the anchorage is 12.8m.

Nab Patch (51°18'N., 127°37'W.), with a depth of 6.4m, lies on the E side of the entrance. Fly Basin, the S arm of the harbor, is landlocked. The entrance of this basin is narrow and encumbered with drying and below-water rocks. It can only be

used by small craft with local knowledge.

Anchorage can be taken, in a depth of 16.5m, mud, within **Anchor Bight** (51°17'N., 127°38'W.), midway between Abrupt Point and Ship Rock. A shoal, with a depth of 7.3m, lies close E of the anchorage, about 0.1 mile N of the E extremity of Ship Rock.

The channels leading E of **Fish Rocks** (51°17'N., 127°37'W.) and W of and between the Gnarled Islets are narrow and shoal. They should only be used by small craft with local knowledge.

Smith Inlet is the continuation of Smith Sound to the E. This deep inlet extends about 6 mile E from Ripon Point, the N entrance point, to Quascilla Bay and the entrance of Naysash Inlet. About 11 miles within the entrance, the inlet divides into E and N arms, which continue about 2 miles farther. Above Ripon Point, the inlet is about 0.5 mile wide and its shores consist of high, rocky, and precipitous mountains, which are covered with trees. A survey has been made of the first 7 miles within the entrance, but the remainder has not been fully examined.

Cape Anne (51°18'N., 127°23'W.), the E extremity of Greaves Island, is located on the S side of the inlet, about 6 miles above McBride Bay. A conspicuous white cliff stands about 1.5 miles W of this cape. A steep-to rock, which dries 1.2m, lies close E of the cape.

Quascilla Bay (51°17'N., 127°23'W.) indents the S shore of Smith Inlet, on the E side of Cape Anne. Several islets lie off the E side of the entrance of this bay. Anchor Cove forms the S part of the bay.

Ahclakerho Channel (51°17'N., 127°25'W.), which separates Greaves Island from the mainland to the S, connects Quascilla Bay with Takush Harbor via Broad Reach. It is a tortuous channel, navigable only by boats at HW.

Wyclees Lagoon (51°17'N., 127°21'W.), lying close E of Quascilla Bay, is connected to Smith Inlet by a short passage available only to small craft.

11.9 Naysash Inlet (51°19'N., 127°22'W.) is entered on the N side of Smith Inlet, opposite Cape Anne. Adelaide Point, the S entrance point, has the appearance of a cone and is thickly wooded. A prominent landslide is located on the N side of the entrance. The inlet has a least width of 0.1 mile and extends for 9 miles. It is navigable for only about 3 miles within the entrance. Hickey Cove lies on the E side of the inlet, about 0.8 mile from the entrance. A conspicuous white cliff rises on the N side of Smith Inlet, 1.5 miles E of Adelaide Point.

Margaret Bay (51°20'N., 127°30'W.) indents the E side of Smith Sound, between the entrances of Smith Inlet and Boswell Inlet. The settlement at this bay is reported to be abandoned.

Frank Rock (51°19'N., 127°33'W.), 0.9m high, lies in the approaches to Margaret Bay. Foul ground, with rocks covered by depths of less than 1.8m, fronts the W side of this rock and a shoal, with a depth of 11m, lies about 0.1 mile E of it. Vessels entering the bay can pass on either side of the rock.

Camosun Rock (51°20'N., 127°31'W.), with a depth of 3.7m, lies nearly in mid-channel in the entrance to Margaret Bay. A wooded islet, 44m high, lies close to the N shore, at the head of the bay. A group of rocks, which dry up to 3.3m, lie close SW of this islet. With the exception of these rocks and Camosun Rock, the bay is clear of dangers.

Boswell Inlet (51°21'N., 127°30'W.) is entered between

Barb Point and Napier Island. It extends ENE for about 8 miles. The fairway channel is deep and clear of dangers, except for a rock, which dries 1.2m, lying about 0.2 mile off the N shore, 1 mile E of Barb Point. A survey has been made of the first 5 miles above the entrance, but the remainder is unsurveyed.

Fitz Hugh Sound

11.10 Fitz Hugh Sound leads from Queen Charlotte Sound to the S end of Fisher Channel and is part of the inner passage. The S entrance of the sound lies between Kelp Head and Cape Calvert, 5.5 miles NW. The shores are mainly bold, rocky, and backed by steep, wooded slopes. Elevations of over 610m stand on both sides of the sound. About 11 miles N of Cape Calvert, the sound is constricted to a width of about 1.5 miles by Addenbroke Island (51°36'N., 127°51'W.).

Rivers Inlet and Burke Channel indent the E side of the sound close within the entrance and about 30 miles N of Cape Calvert, respectively. Kwakshua Channel, Hakai Passage, and Nalau Passage lead from the W side of the sound to the open sea. They are entered from the E about 14, 20, and 23 miles N, respectively, of Cape Calvert.

Rivers Inlet

11.11 Rivers Inlet lies on the E side of the entrance of Fitz Hugh Sound. It is entered between Kelp Head and Addenbroke Point, 9.5 miles N. The main channel leads S of a group of islands lying in the entrance. It is deep and clear of dangers. Darby Channel, lying close N of this group, leads to the inner part of Rivers Inlet, but it is very narrow in places.

Several channels and sheltered anchorages are located within the group of islands lying in the entrance. These channels and anchorages are encumbered with rocks and shoals and should only be used by small craft with local knowledge. Included among these are Klapuak Channel, Magee Channel, and Schooner Retreat.

Rivers Inlet extends about 25 miles NE and has an average width of 1.5 miles between its bold shores. Moses Inlet is a N extension of the main channel. Hardy Inlet branches W from Moses Inlet. The Wannock River empties into the head of Rivers Inlet.

Several former canneries are situated on the shores of Rivers Inlet, but they are now only used to stow fishing gear. They are all fronted by wharves or floats with good depths alongside and can accommodate local fishing vessels and coasters which frequent this area.

Ironside Island (51°28'N., 127°45'W.), 72m high, is separated from Sea Bluff, the NW extremity of Joachim Island, by Safe Entrance, a channel which leads to Schooner Retreat. The Grey Islets lie close off the SE side of Ironside Island, on the NW side of Safe Entrance. The fairway channel leading over the bar between the Grey Islets and Sea Bluff is 137m wide and has a least depth of 11.9m.

Open Bight (51°22'N., 127°46'W.), lying on the E side of Cranstown Point, affords temporary anchorage in moderate weather, although it is exposed N and there is usually a swell. The best anchorage berth, in depths of 18 to 24m, lies about 0.3 mile ESE of Cranstown Point.

11.12 Sharbau Island (51°25'N., 127°42'W.) is the westernmost island of a group which lies close off the S side of Rivers Inlet. A steep-to rock, with a depth of 4.6m, lies about 0.6 mile NW of this island.

Major Brown Rock, lying about 0.6 mile NNE of Sharbau Island, is a rocky islet composed of white limestone. A light is shown from a structure standing on its N side.

A rock, with a least depth of 4.6m, and Maud Rock, which dries 1.2m, lie about 0.8 mile WSW and 3 miles NE, respectively, of Major Brown Rock.

Goose Bay (51°24'N., 127°40'W.) is entered 2 miles E of Major Brown Rock. Numerous islands, islets, and reefs lie in the entrance to this bay, between Sharbau Island and the mainland. Deep channels lead into the bay from the N but local knowledge is necessary.

Duncanby Landing (51°24'N., 127°39'W.) is located on the E side of the entrance to Goose Bay. It is fronted by a float with a depth of 4.3m alongside.

Draney Inlet (51°28'N., 127°32'W.) is entered through Draney Narrows, on the SE side of Rivers Inlet. This inlet, which is unsurveyed beyond Draney Narrows, can be entered only at slack water. A rock lies in the middle of the W entrance of the narrows and has a least depth of 4.6m. Deep depths are found all around this rock. The tidal rapids in the narrows attain a velocity of 8 to 10 knots.

Taylor Bay (51°30'N., 127°36'W.) and **Hemasila Inlet** (51°32'N., 127°35'W.) indent the E side of Walbran island.

Wadhams (51°31'N., 127°31'W.), a settlement, stands on the SE side of Rivers Inlet and is the site of a former cannery now used to store fishing gear.

Good Hope (51°34'N., 127°30'W.), another former cannery fronted by a wharf, is situated 3.5 miles N of Wadhams.

Darby Channel (51°31'N., 127°40'W.) forms the W entrance of Rivers Inlet. This navigable channel, used by coastal vessels, varies in width from 1.5 miles at the entrance to only 115m at the narrows, off Pendleton Island. There are depths of over 27m in the fairway, but several dangers lie within the channel and along the shores. Local knowledge is required.

11.13 Pendleton Island (51°31'N., 127°39'W.) partially obstructs Darby Channel, 1 mile E of Fleming Point. A rock, which dries, lies in mid-channel close off the W end of this island and is marked by a beacon. Between Pendleton Island and McLeod Point, 4 miles NE, the fairway is deep and clear.

Pierce Bay (51°32'N., 127°45'W.), lying on the N side of the entrance to Darby Channel, is encumbered with islets and rocks, but a deep channel leads to its head. This bay is exposed and affords little shelter.

Provincial (51°33'N., 127°37'W.), situated on the W side of Darby Channel, is the site of an abandoned cannery.

Beaver (51°33'N., 127°36'W.), formerly a cannery, is situated at the head of a small bay on the E side of Darby Channel. It is now a fisherman's service facility.

Dawsons Landing (51°35'N., 127°35'W.) is situated on the W side of Darby Channel, opposite Bickle Pass. This settlement is fronted by a wharf, 12m long, with a least depth of 4.6m alongside. There is also a fisheries float, 18m long, and several pontoons with berths for yachts.

Rivers Inlet (51°41'N., 127°16'W.), a settlement, is situated at the head of an inlet and at the mouth of the Wannock River.



Addenbroke Island Light

It is fronted by a wharf that can accommodate small vessels.

11.14 Moses Inlet (51°40'N., 127°27'W.), bound by steep-to shores, is deep except for Nelson Narrows. Mountains, over 610m high, rise on both sides of this inlet and the Clyak River flows into the head.

Nelson Narrows (51°46'N., 127°25'W.), encumbered with drying rocks, requires local knowledge for making a safe passage.

Safety Cove (51°32'N., 127°55'W.) indents the W side of Fitz Hugh Sound, 6 miles N of Clark Point. Two islets lying close S of North Point, the N entrance point, are useful in identifying the entrance, especially from the N. A conspicuous landslide is located on the S side of the entrance. The shores of the cove, except near the head, are rocky, steep-to, and rise up to heights of 305m. A conspicuous conical peak stands near the head of the cove.

Anchorage can be taken, in a depth of 27m, mud, in the middle of the cove. During SE or SW gales, strong gusts blow through the valley at the head of the cove.

Philip Inlet (51°33'N., 127°47'W.), indenting the E side of Fitz Hugh Sound opposite Safety Cove, is available to small craft with local knowledge.

Convoy Passage (51°35'N., 127°48'W.) leads from Fitz Hugh Sound to Fish Egg Inlet. Neither the passage nor the inlet have been surveyed. Several drying rocks lie in the S entrance of the passage.

Fifer Bay (51°36'N., 127°49'W.) lies on the E side of the sound. Its entrance is restricted to a width of only about 0.1 mile by an area of foul ground extending from the S entrance point. The depths in the fairway and within the bay are uneven.

There is a least depth of 1m in the fairway.

Anchorage can be taken by small vessels, in a depth of 20m, about 0.2 mile E of the islet lying close N of the S entrance point.

Addenbroke Island (51°36'N., 127°51'W.) is the westernmost island of a group fronting the E side of Fitz Hugh Sound. A light is shown from the W extremity of this island.

Kwakume Inlet (51°42'N., 127°53'W.), lying on the E side of the sound, has uneven depths in its approach and the entrance is obstructed by a rock, awash. The inlet should only be used by small craft with local knowledge. A light is shown from the S entrance point.

Kelpie Point (51°44'N., 128°00'W.), located on the W side of the sound, forms the SE entrance point of Hakai Passage and is marked by a light. The passage leads W to the open sea.

11.15 Namu Harbor (51°52'N., 127°54'W.), lying on the E side of Fitz Hugh Sound, is the site of the fishing settlement of Namu. The facilities here are only available during the fishing season from March through September. The former cannery is now a freezer plant and is fronted by a wharf. The harbor can be approached from the S through Morehouse Passage. This passage is deep and unencumbered. It leads between Lapwing Island (51°51'N., 127°53'W.) and Kiwash Island (51°52'N., 127°53'W.). Cloverleaf Passage leads into the harbor from close N of Kiwash Island.

Whirlwind Bay (51°52'N., 127°52'W.) is formed at the mouth of an inlet lying close N of Namu. Kiwash Island, marked by a light, lies in the middle of the entrance to the harbor.

Anchorage can be taken by small vessels, in depths of 20 to 22m, within Whirlwind Bay during the spring and summer.

Vessels can anchor, in depths of 42 to 48m, in the middle of Namu Harbor, about 0.3 mile E of Kiwash Island.

Caution.—Furious gusts of wind blow from the mountains in the vicinity of Namu Harbor during the autumn and winter. Therefore, anchoring within Whirlwind Bay is not recommended.

Burke Channel

11.16 Burke Channel (52°00'N., 127°40'W.) leads for about 55 miles NE from the E side of Fitz Hugh Sound to Bella Coola, at the head of North Bentinck Arm. The channel, which is deep in the center, lies between high, precipitous, and snow-capped mountains. The sides of these mountains are covered with stunted pine trees.

Windsor Cove (51°56'N., 127°53'W.) provides temporary anchorage, in a depth of 29m, but with little shelter.

The first reach of Burke Channel trends ENE for about 8 miles. It is about 1 mile wide at first, but narrows to about 0.8 mile a few miles within the entrance.

Hvidsten Point (51°57'N., 127°45'W.) is located on the S side of this first reach. Haaksvold Point, marked by a light, is located on the N side of the first reach where the channel turns sharply N.

11.17 Restoration Bay (52°01'N., 127°39'W.) lies on the E side of the channel under a high, conical mountain. The depths in the bay shoal gradually from 73m, about 0.5 mile off the sandy beach at the head, to 5.5m close inshore.

Kelkpa Point (52°07'N., 127°36'W.), from which a light is shown, is located 6.5 miles NNE of Restoration Bay.

Mapalaklenk Point (52°10'N., 127°31'W.), located on the E side of the channel, is the SW entrance point of Kwatna Inlet. Odegaard Rocks, which dry 3.4m and 3.7m, lie about 0.1 mile NW of this point. These rocks are the only dangers lying in Burke Channel. This channel, to the N of the point, skirts the base of a conspicuous, bare, and stony mountain rising on the S shore.

Kwatna Inlet (52°05'N., 127°30'W.) is entered between Mapalaklenk Point and Cathedral Point, 3 miles NE. This inlet trends S for 4 miles to Kwatna Bay, then W and S for about 8 miles to a drying flat at its head. The head is separated from Restoration Bay by a narrow neck of land, about 0.8 mile wide. The inlet is clear of dangers and deep throughout.

Anchorage can be taken, in a depth of 27m, mud and sand, about 0.3 mile from the edge of the drying flat.

11.18 Kwatna Bay (52°06'N., 127°24'W.) indents the E shore of Kwatna Inlet for about 3 miles. Kwatna Rocks, two in number, lie close within the entrance of this bay. The N rock is 0.6m high and the S rock is 7.6m high. The navigable channel lies N of them. Two rocks, which dry 0.3m and 2.7m, lie about 0.3 mile SE of Kwatna Rocks. Another rock, with a depth of less than 1.8m, lies close S of the highest of the Kwatna Rocks. An extensive steep-to mudflat, through which the Kwatna River flows, fronts the shore at the head of the bay. An island lies in the middle of this mudflat.

Anchorage can be taken, in a depth of 58m, mud, about 0.2 mile from the edge of the drying mud flat. This berth should be approached with caution.

Labouchere Channel (52°25'N., 127°13'W.), deep and unencumbered, is entered on the N side of Burke Channel between **Mesachie Nose** (52°21'N., 127°10'W.), a headland, and Labouchere Point, 1.3 miles NW. This channel trends tortuously for about 7 miles between high, wooded mountains to Dean Channel. Deas Point, marked by a light, is located about 2.5 miles within the S entrance.

Labouchere Channel is usually calm during the summer; however, very strong N and NE winds may be felt in the winter.

Burke Channel leads E for about 5 miles from the S entrance of Labouchere Channel to **Menzies Point** (52°19'N., 127°01'W.), where it divides into North and South Bentinck Arms. The former extending ENE and the latter SE.

11.19 North Bentinck Arm (52°21'N., 126°55'W.) is entered between Loiyentsi Point, located 2 miles NE of Menzies Point, and Tallheo Point, 1.5 miles SE. It extends about 8 miles ENE and terminates at a sandy mudflat, formed by deposits from the Bella Coola River. This river is of considerable size and flows into the SE part of Bella Coola anchorage. The water in the river is quite fresh and at LW is suitable for drinking. The arm is about 1.3 miles wide at its head.

Flagpole Point (52°21'N., 126°56'W.), marked by a light, is located on the S side of North Bentinck Arm and Sutlej Point, also marked by a light, is located about 5 miles ENE of it.

Custom House Point (52°23'N., 126°50'W.) is located on the N side of the arm.

Bella Coola (52°22'N., 126°48'W.) (World Port Index No. 18890), a settlement, stands on the S shore of the inlet, about 0.8 mile inland from the head of North Bentinck Arm.

A rock breakwater extends 160m NNE from close E of Sutlej Point and a light is shown from its outer end. A public wharf extends 92m NNE from a point located close E of the breakwater. It has depths of 6.7m alongside the W face and 3m alongside the E face. A turning dolphin lies close N of this wharf. There are also several pontoons situated close E of the wharf.

Anchorage.—Anchorage can be obtained off the cannery and close to the mudflat lying at the mouth of the Bella Coola River. The utmost care must be taken because the bank is very steep-to with depths decreasing from 33 to 1.8m over a distance of 65m. There is no satisfactory anchorage for large vessels near the head of North Bentinck Arm. Small vessels can obtain anchorage, in depths of 44 to 49m, about 0.1 mile N of the head of the wharf. Shelter is afforded during the summer off **Tallheo Point** (52°23'N., 126°50'W.).

11.20 South Bentinck Arm (52°10'N., 126°50'W.) branches SE for 24 miles. It is about 1 mile wide and backed by high land on both sides. Ice forms in the S part of this arm.

Bensins Island (52°13'N., 126°55'W.), 151m high, lies close off the E shore of the arm. Larso Bay indents the E shore of the arm, about 3 miles SE of this island. A shoal, with a depth of 7.3m, lies close to the W shore of the arm and about 3 miles SE of Larso Bay.

The **Noeick River** (52°03'N., 126°40'W.) flows into the E side of the arm. A steep-to flat lying at the mouth of the river fronts the E shore. It extends up to 0.5 mile seaward in places and fills the bay. A logging camp is situated N of the river. It is fronted by a float and several conspicuous fuel tanks stand in

the vicinity.

Taleomey Narrows (52°01'N., 126°41'W.) lies off the mouth of the Taleomey River. The width of the arm at the narrows is reduced to 0.1 mile between a drying flat lying off the river mouth and the W shore. There is a least depth of 22m in mid-channel.

Bentinck Narrows lies about 1.5 miles S of Taleomey Narrows. The width of the arm at this narrows is reduced to 90m between the shore and the edge of a drying flat. The flat fronts the mouths of two rivers that flow into the W side of the arm. There is a least depth of 16.5m in mid-channel.

The arm broadens and deepens to a depth of 106m above Bentinck Narrows. It then extends about 1.3 miles to the head, the shore of which is fronted by a steep-to drying flat.

Taleomey Narrows and Bentinck Narrows should only be used by vessels with local knowledge.

Sheltered anchorage can be taken, in a depth of 60m, between Taleomey Narrows and Bentinck Narrows

Fisher Channel

11.21 Fisher Channel is the continuation of Fitz Hugh Sound that leads N from the entrance of Burke Channel. The channel is entered between Walker Point and DeCosmos Point, 2.5 miles NW. It leads to Lama Passage, Gunboat Passage, and Johnson Channel on the W side; to Evans Inlet and Port John on the E side; and to Cousins Inlet and Dean Channel to the N.

Lama Passage is part of the main route of the Inner Passage. Johnson Channel and Gunboat Passage are alternative routes connecting with the main Inner Passage.

Walker Point is the SW extremity of Humchitt Island. This island is the largest of several lying close off the SW extremity of King Island. A shoal, with a depth of 11.9m, lies about 0.3 mile W of Walker Point.

Temporary anchorage can be taken, in depths of 26 to 46m, between 0.2 mile and 0.4 mile NW of Humchitt Island. The depths in this vicinity are very uneven.

Fog Rocks (51°58'N., 127°55'W.) lie on the E side of Fisher Channel, about 3 miles N of Walker Point. They consist of six flat, above-water rocks. Several small, black rocks, which dry, lie close off the southernmost rock. Fog Rocks can be passed on either side, but the preferred fairway leads about 0.5 mile W. A light is shown from the largest rock of the group.

The Trap (52°02'N., 127°57'W.), lying on the W side of the channel, is a constricted passage formed by Clayton Island, on the E side, and Hunter Island, on the W. Vessels without local knowledge should avoid this passage.

Lagoon Bay lies between Nob Point and Codville Hill on the E bank of Fisher Channel about 5 miles N of Fog Rocks.

Codville Lagoon is entered by a narrow passage from Lagoon Bay. A dangerous rock lies slightly N of mid-channel in this narrow passage. Codville Island lies on the E side of Codville Lagoon.

Small vessels may find a well-sheltered anchorage in Codville Lagoon.

Caution.—It has been reported (2003) that due to a landslide, the SE corner of Codville Lagoon has shoaled to the 30m contour.

Evans Inlet

11.22 Evans Inlet lies on the E side of Fisher Channel 2.5 miles N of Lagoon Bay. It is entered between Brend Point and Bold Point. Luke Island and Matthew Island lie in the entrance to Evans Inlet. A rock that dries 0.6m lies in the middle of the passage between these islands.

Luke Passage is the best entrance to Evans Inlet. Matthew Passage is obstructed by Peril Rock, which dries to 1.2m.

Septimus Point is on the S side of Evans Inlet. Boot Island lies near the head and has shallow water extending 0.1 mile NW and NE of it. A 3.2m shoal lies off the E shore of Boot Island.

Anchorage.—Vessels of moderate size can anchor at the head of Evans Inlet, in depths of 27 to 37m.

11.23 Port John (52°07'N., 127°51'W.) is entered between Exeter Point and Salisbury Point. About 0.3 mile into the bay a reef extends SW; Mark Rock lies at the SW end of the reef. Hook Nose Creek empties close S.

Farewell Point lies on the W side of Fisher Channel about 1.5 miles NW of Port John; the land on this shore rises steeply from shore. Farewell Point Light is shown from a skeleton tower, 6.5m high.

Salisbury Cone (52°09'N., 127°51'W.) is 1.5 miles N of Port John and rises abruptly to its summit. North of Salisbury Cone the land slopes more gradually.

Georgie Point (52°11'N., 127°53'W.) is the point at the SE entrance to both Gunboat Passage and Johnson Channel, both of which are described in paragraph 11.35.

Sunny Island lies 0.6 mile NE of Georgie Point and is marked by a light shown from a skeleton tower, 6.3m high. Dean Island, Stokes Island, and Clitheroe Island all lie close on the W shore of Fisher Channel. Rattenbury Point is about 5 miles NE of Sunny Island.

Cousins Inlet

11.24 Cousins Inlet, the N continuation of Fisher Channel, extends about 5.5 miles NNE between high hills to **Coolidge Point** (52°21'N., 127°43'W.). It then turns sharply and continues about 1 mile E to Ocean Falls. Coolidge Point is marked by a light.

Boscowitz Point (52°16'N., 127°47'W.), the W entrance point of Cousins Inlet, is steep-to and conspicuous.

Wallace Bay indents the E side of Cousins Inlet, about 2 miles NE of Boscowitz Point.

Guns Rock (52°18'N., 127°45'W.) lies in the N portion of the bay and is not marked by kelp.

Anchorage can be taken, in a depth of 40m, mud, within Wallace Bay. This anchorage is generally used by vessels arriving at Ocean Falls.

Wearing Point, located 2 miles NNE of Boscowitz Point, is precipitous, marked by a light, and backed by a high hill which is conspicuous from the S. A shoal, with a depth of 7.6m, lies about 0.5 mile SSW of the point.

Caution.—A magnetic anomaly of 2° to 3° is reported to exist between Boscowitz Point and Wearing Point.

11.25 Ocean Falls (52°21'N., 127°41'W.) is situated at the

head of Cousins Inlet, about 300 miles NW of Vancouver. The port has anchoring and berthing facilities for ocean-going vessels. The town, standing at the foot of high and wooded hills, is picturesque with the buildings mainly painted white and extending up the hillsides. The tall chimney of a pulp mill and two radio masts in town are conspicuous.

Fisher Channel forms the S approach to Cousins Inlet and Ocean Falls. The principal approach from Milbanke Sound is through Seaforth Channel, Return Channel, and Johnson Channel.

The tides rise 4.8 to 5.5m at springs and about 3.6m at neaps. The S and W approaches have depths of 46m in the fairway. The harbor has a similar depth. Vessels of up to 183m in length and 9.4m draft can be accommodated.

It was reported that since the pulp mill was closed, no commercial vessels have entered the port and some of the docks are in need of repair.

Pilotage is compulsory. The pilot will remain aboard during the vessels stay in the port. Requests for pilots should be sent to Vancouver or Victoria through coast radio station VAK.

Anchorage can be obtained, in depths of 37 to 46m, within the port, E of Coolidge Point.

Caution.—Booming grounds front the N and S shores of Cousins Inlet. They extend up to about 120m offshore in places.

Winds from Link Lake to the E are occasionally troublesome for vessels anchored in the harbor. Vessels usually move to the anchorage in Wallace Bay.

A pipeline that extends out from between Dock D and Dock E has its outfall about 0.4 mile WNW. It was reported (2004) to be marked with privately-maintained buoys.

Dean Channel

11.26 Dean Channel, the NE continuation of Fisher Channel, extends about 52 miles NE from **Rattenbury Point** (52°15'N., 127°46'W.). The channel is about 1 mile wide and lies between a number of precipitous mountains that are partially wooded and usually snow-capped. The channel is deep and the shores are generally steep-to. Cascade Inlet branches NW about 17 miles NE of Rattenbury Point and Labouchere Channel, 6 miles farther NE, branches SE and connects with Burke Channel. Dean Channel trends about 20 miles NNE from its junction with Labouchere Channel. It then extends about 9 miles NNW and terminates in low, marshy land.

Jenny Inlet (52°15'N., 127°37'W.) is entered on the S side of Dean Channel between Neavold Point, located 4.3 miles ENE of Rattenbury Point, and Fosbak Point, 1.5 miles E. This inlet, which is deep, extends SSE for about 3 miles and terminates in drying banks at the mouths of several streams.

Elcho Harbor (52°23'N., 127°30'W.) indents the NW shore of Dean Channel and extends NW for about 2.5 miles. It terminates in a flat over which Elcho Creek flows.

Anchorage can be obtained, in depths of 29 to 35m, mud, throughout the length of the harbor. A cairn, 13m high, stands on the NW side of Dean Channel, about 0.5 mile ENE of Elcho Point, the E entrance point of the harbor. A beacon stands on Hokonson Point, 1.5 miles S of Elcho Point.

Cape McKay (52°24'N., 127°25'W.), 277m high, is the SW entrance point of Cascade Inlet. McKay Bay lies on the SW

side of this cape. A beacon stands on Fougner Point, 1.8 miles E of the cape.

Cascade Inlet is entered between Cape McKay and Cascade Bluff, to the NE. This inlet is so named because of the many waterfalls on its NE side. The shores are precipitous and steep-to. The inlet is clear of dangers and deep as far as its head. A steep-to mud and grass flat lies at the head off which the depths are too deep for anchoring.

Eucott Bay (52°27'N., 127°19'W.) is a small indentation suitable for small craft indenting the N shore. Labouchere Channel is entered on the S side of Dean Channel, between **Edward Point** (52°26'N., 127°16'W.), marked by a light, and Ram Bluff, 1.5 miles E.

11.27 Nascall Bay (52°30'N., 127°16'W.) is a small indentation in the W shore of Dean Channel.

Nascall Rocks, two in number, lie off the E shore of Dean Channel, close NE of this bay. The larger and southernmost rock is 6.1m high. The smaller rock dries 0.6m. The two rocks, 0.1 mile apart, are connected by a drying reef.

Nascall Island (52°31'N., 127°14'W.), 56m high and wooded, lies close to the E shore of the channel, about 0.3 mile N of Nascall Rocks. The channel leading between the island and the E shore has a depth of 5.5m, but passage should be attempted only by small craft with local knowledge.

Carlson Inlet (52°35'N., 127°14'W.), lying on the NW side of Dean Channel, extends 1.5 miles NW. It is deep and has an average width of 0.2 mile.

Skowquiltz Bay (52°36'N., 127°10'W.) lies on the same side of the channel, about 2.5 miles NE of Carlson Inlet. An extensive mudflat lies at the head of the bay through which the Skowquiltz River flows. Some old piles and the ruins of a wharf front the edge of this flat.

Sylvester Point (52°39'N., 127°02'W.) and Wattie Point, on the opposite shore, are bold and form the S entrance points of bights lying on either side of the channel. These bights increase the width of the channel in this vicinity to about 2 miles.

Purcell Rock, which dries 0.9m, lies about 1 mile NE of Sylvester Point and fronts the westernmost bight. Engerbrightson Point, the N entrance point of this bight, is located 2 miles NE of Sylvester Point. Ironbound Island, 21m high and wooded, lies about 0.2 mile S of Engerbrightson Point. A reef, which dries 3m, fronts the N side of Ironbound Island. The westernmost bight is too deep for anchorage and should be given a wide berth to avoid Purcell Rock.

Raphoe Point (52°43'N., 126°57'W.), off which Dean Channel turns N, is conspicuous and is located on the W side of the channel, 3 miles NE of Engerbrightson Point. Two landslides and a large boulder, all conspicuous, are located on the W side of the channel, 3 miles N of the point.

11.28 Kimsquit Narrows (52°49'N., 126°58'W.) is 0.3 mile wide. It lies between the flat at the mouth of the Dean River, which flows into the E side through an extensive valley, and a drying spit of grass and stones, extending from the W side at the mouth of Manitoo Creek. This latter spit is steep-to and presents no danger. The depths in the fairway of the narrows exceed 73m. The ruins of a cannery and a wharf are situated on the W shore, close N of the narrows.

Kimsquit Bay (52°50'N., 126°59'W.) lies on the E side



Pointer Island Light

above the narrows. It is deep, but temporary anchorage can be obtained, in a depth of 55m, about 0.1 mile from the head.

Dean Channel trends about 3.5 miles NW from Kimsquit Bay to a steep-to drying flat at its head. The Kimsquit River flows over this drying flat. The ruins of an old logging pier extend over the flat, close W of the river mouth.

Caution.—The head of Dean Channel, as far S as Kimsquit Narrows and sometimes beyond, frequently becomes icebound for lengthy periods during the winter.

Lama Passage

11.29 Lama Passage (52°05'N., 128°00'W.) leads W for 6 miles between Hunter Island and the S coast of Denny Island. It then leads N for 6 miles between Campbell Island and the W coast of Denny Island. This passage is the main route connecting Fisher Channel with Seaforth Channel and Milbanke Sound. Its E entrance (52°04'N., 127°57'W.), on the W side of Fisher Channel, can be identified by a conical mountain, 303m high, rising at the NE end of Hunter Island. The passage is deep throughout and there are no known dangers in the fairway.

Pointer Island (52°04'N., 127°57'W.), 40m high, lies on the S side of the entrance of Lama Passage. The island is marked by a light and is prominent.

Walbran Rock, with a depth of less than 1.8m, lies about 0.4 mile SE of Pointer Island. A buoy is moored close off the N side of this rock.

White Point (52°04'N., 127°58'W.), marked by a light, is located on the N side of Lama Passage. The shore in the vicinity of this point should not be approached within about 200m.

Serpent Point is located on the S side of the passage, about 1 mile W of White Point. A light is shown from a structure standing on the rocks fronting the N side of this point.

Cliff Bluff (52°05'N., 128°02'W.) lies on the N side of the passage, 1.8 miles W of Serpent Point.

Harbormaster Point, located 2.3 miles WSW of Serpent Point, forms the E entrance point of Cooper Inlet and is marked by a light.

11.30 Cooper Inlet (52°04'N., 128°04'W.) indents the S shore of Lama Passage. This inlet is deep and contains several coves off which lie many islets and rocks.

Hogan Rock (52°04'N., 128°05'W.), which dries 5.2m, lies within Cooper Inlet.

Anchorage by vessels up to 75m in length can be taken, in a depth of 24m, about 0.2 mile N of Hogan Rock or, in a depth of 20m, about 0.5 mile ESE of the rock.

Twilight Point (52°06'N., 128°06'W.) is located on the N side of Lama Passage, about 2.5 miles NW of Harbormaster Point.

Walker Island (52°06'N., 128°07'W.), marked by a light, lies close off the SW end of Denny Island and is the turning point into the N part of Lama Passage.

Alert Island, 46m high, lies close offshore on the E side of the passage, about 1 mile N of the island. Alarm Cove, encumbered by rocks, is entered close N of Alert Island.

Napier Point, marked by a light, is located on the W side of the passage, about 2 miles NNW of Walker Point. The passage narrows in the vicinity of this point to a width of about 0.3 mile.

McLoughlin Bay (52°08'N., 128°08'W.), lying close NNW of Napier Point, is entered on the W side of Lama Passage. The shore of the bay is fronted by a beach but it is fringed by rocks in places. A rock, with a depth of 11.9m, lies in the middle of the bay, about 0.2 mile offshore.

A hill, 69m high, stands 0.2 mile S of the beach and forms a useful mark when approaching the anchorage. It is bare and rocky with some cleared ground at the foot.

Anchorage can be taken, in a depth of 20m, mud, about 0.1 mile off the middle of the beach with the W extremity of Saunders Island (52°11'N., 128°06'W.) bearing 021°.

Story Point (52°09'N., 128°08'W.), marked by a light, is located on the E side of the passage, about 1 mile N of Napier Point. Several small islets, connected by a drying ridge, lie close off the coast of Denny Island, about 1 mile NE of Story Point.

11.31 Bella Bella (52°10'N., 128°09'W.) (World Port Index No. 18915), an Indian village with port facilities, stands on the W side of Lama Passage. A public wharf, with a berthing face 61m long and a least depth of 7.6m alongside, fronts the village and is used by coastal supply vessels.

Anchorage can be obtained, in a depth of 27m, about 0.6 mile ENE of the wharf at Bella Bella.

Saunders Island, 40m high, lies at the N end of Lama Passage, about 2 miles NNE of Story Point. An area of foul ground extends up to about 0.3 mile SW from the island and is marked by a lighted buoy. This island is the westernmost island of a group lying off the NW end of Denny Island.

The N end of Lama Passage lies between Campbell Island and the NW shore of Saunders Island. The passage is reduced in this vicinity to a width of 0.2 mile, but there is a least depth in the fairway of 37m. The tidal current is strong and vessels should keep in mid-channel.

Dryad Point (52°11'N., 128°09'W.), marked by a light, is located 0.5 mile N of Saunders Island at the junction of Lama Passage and Seaforth Channel. A drying rock lies close SSE of this point. Several white buildings, with red roofs, and a radio tower, 51m high, stand in the vicinity of the light and are prominent.

Caution.—A submarine cable area, which may best be seen on the chart, extends ESE across Lama Passage from a point located 0.4 mile S of the wharf at Bella Bella to Denny Island.

11.32 Kliktoatli Harbor (52°09'N., 128°05'W.) indents the N side of Denny Island, on the E side of Lama Passage.

Shearwater Island (52°09'N., 128°05'W.) lies in the W part of the harbor and is surrounded by shoals. Clayton Passage, with a least depth of 15.1m, leads into the harbor. Wheelock Passage leads into the harbor between Shearwater Island and the E shore of the bay. Two shoal patches, with depths of 6.4m and 8.7m, lie in the middle of the entrance to the bay, about 0.4 mile N of Shearwater Island. A buoy marks the S end of the shoal area extending from the W shore of Wheelock Passage.

Several mooring buoys are situated in the E part of the harbor and there are facilities for small craft, fishing boats, and yachts.

Anchorage can be taken, in a depth of 20m, mud, about 0.3 mile SE of Shearwater Island.

Vessels should enter through Clayton Passage favoring the W shore. When leaving through Wheelock Passage, vessels should keep about 0.2 mile off Klik Island.

Seaforth Channel

11.33 Seaforth Channel (52°15'N., 128°15'W.) is the main passage connecting Return Channel. Johnson Channel, Cousins Inlet, Lama Passage, and Gunboat Passage with Milbanke Sound and the sea. The channel is about 13 miles long, has a least width of 1 mile, and is generally deep.

Rithet Island (52°13'N., 128°08'W.), 21m high, lies in the

fairway, 1.8 miles NNW of Dryad Point. A shoal, with a depth of 2.1m, lies close N of the island.

Ormidale Harbor (52°12'N., 128°09'W.) lies 1.5 miles NW of Dryad Point, on the S side of the channel. It is protected from the N and E by Nevay Island and Thorburne Island which lie across the entrance. The main entrance of the harbor lies W of Nevay Island. It is 0.2 mile wide and has a least depth of 22m in the middle of the channel. Wellington Rock, with a depth of 5.2m, lies in the approach to the harbor, about 0.3 mile NNW of Nevay Island.

Anchorage can be obtained, in a depth of 31m, within the harbor, about 0.2 mile S of Nevay Island.

Regatta Rocks (52°13'N., 128°08'W.), two in number, lie 90m apart, about 0.5 mile NW of Rithet Island. These rocks are marked by a light and fronted by foul ground.

Kynumt Harbor (52°13'N., 128°10'W.), entered close NW of Ormidale Harbor, has depths of 11 to 26m over a mud bottom.

Anchorage, by vessels up to 60m in length, can be taken, in a depths 13 to 16m.

Dall Rocks, consisting of a series of rocky shoals with a dangerous wreck situated at the N end, lie about 0.5 mile WSW of Regatta Rocks. They are marked by a lighted buoy moored on the N side and a buoy moored on the S side.

11.34 Nose Island (52°14'N., 128°12'W.) lies on the N side of Seaforth Channel, 2.5 miles WNW of Regatta Rocks. This island is steep-to on the S side and a conspicuous tree, 61m high, stands on it.

Ferrie Island, 58m high and steep-to, lies 1 mile WNW of Nose Island.

Dearth Island is centered 1 mile NE of Ferrie Island. The area lying between Nose Island, Ferrie Island, and Dearth Island is encumbered by many islets and rocks. A shoal, with a depth of 5.5m, lies about 0.5 mile W of Nose Island and forms the closest danger to the channel.

Idol Point (52°14'N., 128°16'W.), marked by a light, is located on the S side of the channel, 2 miles WSW of Ferrie Island. Mount Gowllan, 317m high, stands 2 miles SE of this point and is conspicuous.

Hyndman Reefs lie on the N side of the channel, about 2 miles NE of Idol Point. A light is shown from the southernmost and highest rock lying on the reef. A group of small islands and islets lies about 0.8 mile W of these reefs.

Cape Swaine (52°14'N., 128°26'W.), formed by an island lying close to the shore, is located 6 miles W of Idol Point and forms the SW entrance point of the Seaforth Channel.

Robb Point, located 2.5 miles NE of Cape Swaine, is the SW extremity of an islet which lies close off the SW end of Ivory Island. This point is marked by a light and forms the NW entrance point of Seaforth Channel.

Cod Bank, with a least depth of 29m, lies 1 mile SW of Robb Point, in the center of the entrance to the channel. Depths as deep as 365m lie close N of this bank.

Passages and Channels joining Seaforth Channel

11.35 Gunboat Passage (52°10'N., 128°00'W.) leads E from the E end of Seaforth Channel to the S end of Johnson Channel. This passage is narrow, intricate, and contains many

rocks and kelp patches. It should not be attempted except by small vessels with local knowledge.

Troup Passage is entered on the N side of Seaforth Channel, N of Dryad Point. The passage leads NE for about 7 miles into Return Channel. The N entrance is encumbered by several islands, shoals, and drying rocks. It should not be attempted without local knowledge.

Raymond Passage, 9 miles long, is entered on the S side of Seaforth Channel, S of Nose Island. It is deep, clear of dangers, and connects Seaforth Channel with Queens Sound.

Spiller Channel is entered on the N side of Seaforth Channel, about 2 miles N of Ferrie Island. It extends 15 miles NNE and then divides into two arms. The N arm continues N for about 8 miles and the NE arm for about 11 miles. Due to incomplete surveys, local knowledge is recommended before entering the channel.

Return Channel, extending NE and E for about 10 miles, connects Seaforth Channel with the N end of Johnson Channel. The channel may be entered at its W end between Hyndman Reefs and Dearth Island, or between Nose Island and the W end of Chatfield Island.

Johnson Channel leads 8 miles S from the E end of Return Channel and connects with Fisher Channel. It has a least width of 0.4 mile and the shores rise within a short distance to heights of 300 to 760m.

Roscoe Inlet extends from the junction of Return Channel and Johnson Channel in a N and E direction for about 21 miles. There are depths of 70 to 180m in mid-channel and the shores in most parts are rugged and steep-to. There are no off-lying dangers. In ordinary weather, no particular difficulties are encountered in navigating this deep passage.

The tidal currents in Roscoe Inlet are negligible. In Return Channel and Johnson Channel, the tidal currents vary in direction and are weak, but they are dependent on wind conditions. Within Return Channel, in the vicinity of Donald Point (52°18'N., 128°06'W.), eddies sometimes occur off the point and near the rocks and islets.

Herbert Point to Cape Mark

11.36 The Bardswell Group is an extensive group of low, wooded islands lying on the E side of the approach to Milbanke Sound. This group is bounded to the N by the Seaforth Channel and to the E by Raymond Passage. Calvert Island, Hunter Island, Campbell Island, and the islands of the Bardswell Group all lie on the E side of Queen Charlotte Sound. They are located in that order from S to N between the approaches to Fitz Hugh Sound and the entrance of Milbanke Sound. These islands along with numerous smaller islands form an irregular broken coastline that extends for about 43 miles NNW between Herbert Point and Cape Mark.

The islands of the Goose Group lie between 9 miles and 18 miles SSE of Cape Mark, on the W side of Queens Sound. These islands and their adjacent dangers lie the farthest to seaward and extend about 5 miles WSW of a line joining Herbert Point and Cape Mark.

Several navigable passages lead between the above named islands to various reaches of the inner passage.

11.37 Hakai Passage (51°43'N., 128°04'W.), entered 13

miles N of Herbert Point, leads ENE between Calvert Island and Hecate Island, on the S side, and Stirling Island and Nalau Island, on the N. Throughout this passage there is a deep fairway. It is about 1 mile wide and clear of dangers; however, there are numerous islets and dangers lying on both sides of the W entrance and on both sides of the passage itself.

The flood current flows E past **Adams Harbor** (51°41'N., 128°07'W.) and then NE through the fairway. The currents in both directions attain a velocity of 4 knots at springs.

11.38 South Pointers (51°40'N., 128°11'W.), a group of black rocks, rise up to 0.9m high and are the outermost dangers lying on the S side of the entrance to Hakai Passage. A rock, with a depth of 2.7m, lies about 0.5 mile NE of South Pointers. The channel leading between South Pointers and the **Surf Islands** (51°40'N., 128°09'W.) is deep and clear of dangers.

Kwakshua Channel (51°39'N., 128°00'W.) separates Hecate Island from Calvert Island. The N reach of this channel is encumbered with islets and rocks, but there are narrow fairways which are used by coasting vessels with local knowledge.

Kildidt Sound (51°46'N., 128°10'W.), entered about 4 miles N of the W entrance of Hakai Passage, has a main channel that is about 0.8 mile wide and trends in a N direction for about 9 miles. Within the sound, the shores are indented. The land on either side is generally low and contains many lakes which drain into the sound. Numerous islands, islets, and shoals fringe both shores.

Airacobra Rock (51°45'N., 128°13'W.), 14m high, is the largest of a small group of rocks lying in the entrance to Kildidt Sound.

North Pointers, consisting of a group of bare islets and rocks 0.3 to 11m high, lie about 2.5 miles SE of Airacobra Rock, in the S part of the entrance.

Blenheim Island, 72m high, is located 1.8 miles NNW of Airacobra Rock. Its coast consists of white cliffs, which are prominent from the S and W. A rock, awash, lies about 0.5 mile S of this island. Blenheim Island is the southwesternmost island of the Breadner Group which forms the N entrance of Kildidt Sound and the SE entrance of Queens Sound.

Queens Sound

11.39 Queens Sound (51°56'N., 128°20'W.) is bounded on the E side by Hunter Island and on the W by the Goose Group. Numerous islands and rocks front the W side of Hunter Island, which is relatively low-lying.

The tallest mountain in the vicinity is **Mount Merritt** (51°59'N., 128°02'W.), which is 902m high. The head of the sound is encumbered by a maze of islands, but there are navigable channels lying between them which lead to Hunter Channel and Raymond Passage.

The sound is entered from the S between Gosling Rocks, lying close S of the Goose Group on the W side, and the Breadner Group, lying on the E side.

Spider Island (51°51'N., 128°15'W.) has high, bold, and white cliffs at its NW end. Breadner Point, the W extremity of the island, is formed by a cliffy peninsula. The W side of the **Breadner Group** (51°48'N., 128°12'W.), including Spider Island, can be safely approached to within a distance of 0.2 mile.

A light is shown from an islet lying close off the NW side of

Spider Island.

Fulton Passage (51°50'N., 128°16'W.), lying on the S side of Spider Island, is a deep channel with a least width of about 135m. It leads through the Breadner Group to Spider Anchorage.

Spider Anchorage (51°50'N., 128°13'W.) provides good anchorage, in a depth of 62m, about 0.3 mile W of the S extremity of Hurricane Island. Small vessels can anchor, in depths of 10 to 21m, about 0.1 mile NNE of the N extremity of Manley Island.

Caution.—Vessels entering Spider Anchorage through Fulton Passage should pass N of the rocky shoal, with a depth of 6.4m, lying in the middle of the fairway, and N and E of the rock, 0.6m high, located in the NW part of the anchorage. Vessels are cautioned that it is difficult to enter or leave the anchorage during bad weather because of the heavy seas encountered in the entrance.

11.40 Superstition Ledge (51°53'N., 128°15'W.), the NW extremity of which dries 4.3m, lies close off the S entrance to Cultus Sound, about 1.5 miles N of the N end of Spider Island. There are strong tide rips in the vicinity of this ledge and the sea breaks heavily over it at times.

Cultus Sound (51°54'N., 128°14'W.) widens within its entrance into a deep basin that extends about 1.5 miles E. The entrance is clear of dangers, except for shoal, with a depth of 6.4m, lying about 0.1 mile WSW of the S entrance point. A shoal, with a depth of 16.5m, lies in the middle of the entrance. Emergency anchorage can be obtained, in a depth of 48m, about 0.3 mile N of, or in depths of 16 to 26m, about 0.3 mile NE of, respectively, the **Goolden Islands** (51°54'N., 128°13'W.). Swell is encountered in both locations.

Simonds Group (51°57'N., 128°17'W.), centered about 6 miles N of Spider Island, consists of two large and many small islands.

11.41 Purple Bluff (51°56'N., 128°18'W.), the W extremity of the largest island of the Simonds Group, is conspicuous. It is 75m high and terminates in high, bold, and purple-tinted cliffs.

The tidal currents attain a rate of 2 to 3 knots about 1.8 miles NW of Purple Bluff.

Caution.—The W side of the Simonds Group should be given a berth of at least 0.5 mile.

The **Goose Group** (51°56'N., 128°28'W.) consists of four principal, wooded islands that are connected to each other at LW. Goose Island, the northernmost and largest island, is 65m high and has some high, white cliffs near its NE end.

Gosling Rocks (51°52'N., 128°28'W.) lie on an area of foul ground that extends up to about 3.3 miles SSW from the Goose Group.

Currie Islet, 8.2m high and bare, lies at the S end of Gosling Rocks and about 4.5 miles S of the S end of Goose Island. A light is shown from this islet. The southernmost danger is formed by a rock, 4.6m high, which lies about 0.4 mile SW of **Currie Islet** (51°51'N., 128°27'W.).

Anchorage can be taken, in a depth of 22m, within **Goose Island Anchorage** (51°56'N., 128°26'W.). The approach to the anchorage should be made in mid-channel and on a course of 250° until the desired depth is obtained.

Caution.—The E side of the Goose Group is clear of dangers beyond a distance of 0.3 mile offshore. The W side of the group is fringed with foul ground. The outermost dangers are Vivian Rock, which dries 4.6m, lying about 2.3 miles W of the S end of Goose Island; a shoal, with a depth of 4.1m and marked by kelp, lying about 0.2 mile SSW of Vivian Rock; a shoal, with a depth of 9.1m, lying about 4 miles NNE of Vivian Rock; Bourke Rock, with a depth of 5.5m, lying 1.8 miles NW of the N end of Goose Island and over which the sea occasionally breaks; a shoal, with a depth of 11m, lying about 0.3 mile S of Bourke Rock; and a similar shoal lying about 0.4 mile farther S.

The N end of the sound is encumbered by several groups of islands through which lead several routes.

11.42 McMullin Group (52°03'N., 128°25'W.), located 2 miles N of Goose Island, consists of two main islands and numerous islets, rocks, and shoals.

Prince Group (52°00'N., 128°15'W.) is a chain of islands lying close NNE of the Simonds Group.

Admiral Group (52°01'N., 128°16'W.) consists of a group of islands lying close together, NW of the Prince Group.

Tribal Group (52°02'N., 128°19'W.) lies at the head of the sound, NW of the Admiral Group.

Hunter Channel leads from the NE side of the sound in a N and NE direction to Lama Passage. The fairway is deep throughout. The channel may be entered from the sound via Lillooet Passage or Safe Passage.

Lillooet Passage, the shorter but narrower route, is deep and leads between the Simonds Group and the Prince Group. This passage affords the shortest and most direct entry into Hunter Channel from Queens Sound, but because of the dangers in the general vicinity, it is recommended for use only during daylight hours.

Safe Passage leads between the Prince Group and the Admiral Group. It affords an alternative route by rounding the Prince Group and entering Hunter Channel to the SE, as well as a route to Raymond Passage, to the N.

Raymond Passage connects the sound to Seaforth Channel. This passage can be entered from the S by four routes leading from the head of Queens Sound.

Tide Rip Passage, lying between the Admiral Group and the SE end of the Tribal Group, and the passage leading between the largest islands of Tribal Group are not recommended without local knowledge. Safe Passage and Codfish Passage, the most direct routes, may be used.

Codfish Passage, the recommended route, leads W of the Tribal Group. It is deep and clear of dangers throughout.

11.43 Golby Passage (52°02'N., 128°26'W.) leads from the NW side of Queens Sound to the open sea and separates the Goose Group from the McMullin Group. It is deep and the fairway is about 0.8 mile wide. However, this passage should only be attempted in clear weather and during daylight hours because of the unmarked dangers lying in the vicinity.

Peveril Rock, 2.1m high, lies about 1.5 miles NE of the N end of Goose Island, on the N side of the E end of the passage. Another rock, with a depth of less than 1.8m, lies about 0.5 mile WSW of this rock.

Weyburn Rock, with a depth of less than 1.8m, lies on the S

side of the passage near the N extremity of the foul ground extending N from Goose Island.

The W approach to Golby Passage leads between Bourke Rock, previously described in paragraph 11.41, and Tingley Rock, which dries 3m, about 1.5 miles NNW. The depths lying among the dangers located N and E of Tingley Rock are very irregular and the area should be avoided.

Directions.—Safe Passage should be approached with the SE extremity of Jones Island in line with the islet, 300m high, lying about 0.2 mile NE of it, bearing 034°. When within 0.5 mile of Jones Island, vessels should steer E to pass Jones Island and the islet at a distance of 0.15 mile.

The NE side of the Admiral Group should then be rounded at a distance of 0.15 mile. The course should be then set to pass midway between Pullen Island and the NE shore of Athabaskan Island.

When Pullen Island is abeam, the course should be altered to pass about 0.1 mile E of the rock, 4.6m high, lying at the S end of Brown Narrows. The W shore of the latter should then be favored. When clear of the N end of the Creery Islands, a mid-channel course should be followed into Raymond Passage.

Vessels wishing to enter by Codfish Passage should make for a position located 0.5 mile E of Peveril Rock where the NW extremity of Miles Island should be brought to bear 026°. This bearing leads between the dangers off the NW side of Huron Island and the rock, which dries 1m, lying at the SE extremity of the shoal ground extending from Guano Rocks.

The W side of the approach to Codfish Passage, N of Guano Rocks, is bounded by numerous detached rocks, above and below-water; however, there are no dangers lying E of a line between Guano Rocks and Alleyne Island, 2 miles NNE.

When the highest of the Guano Rocks is abeam, vessels should alter course for the middle of Codfish Passage and pass

between Miles Island and Alleyne Island. They should then follow a mid-channel course through the passage and into Raymond Passage.

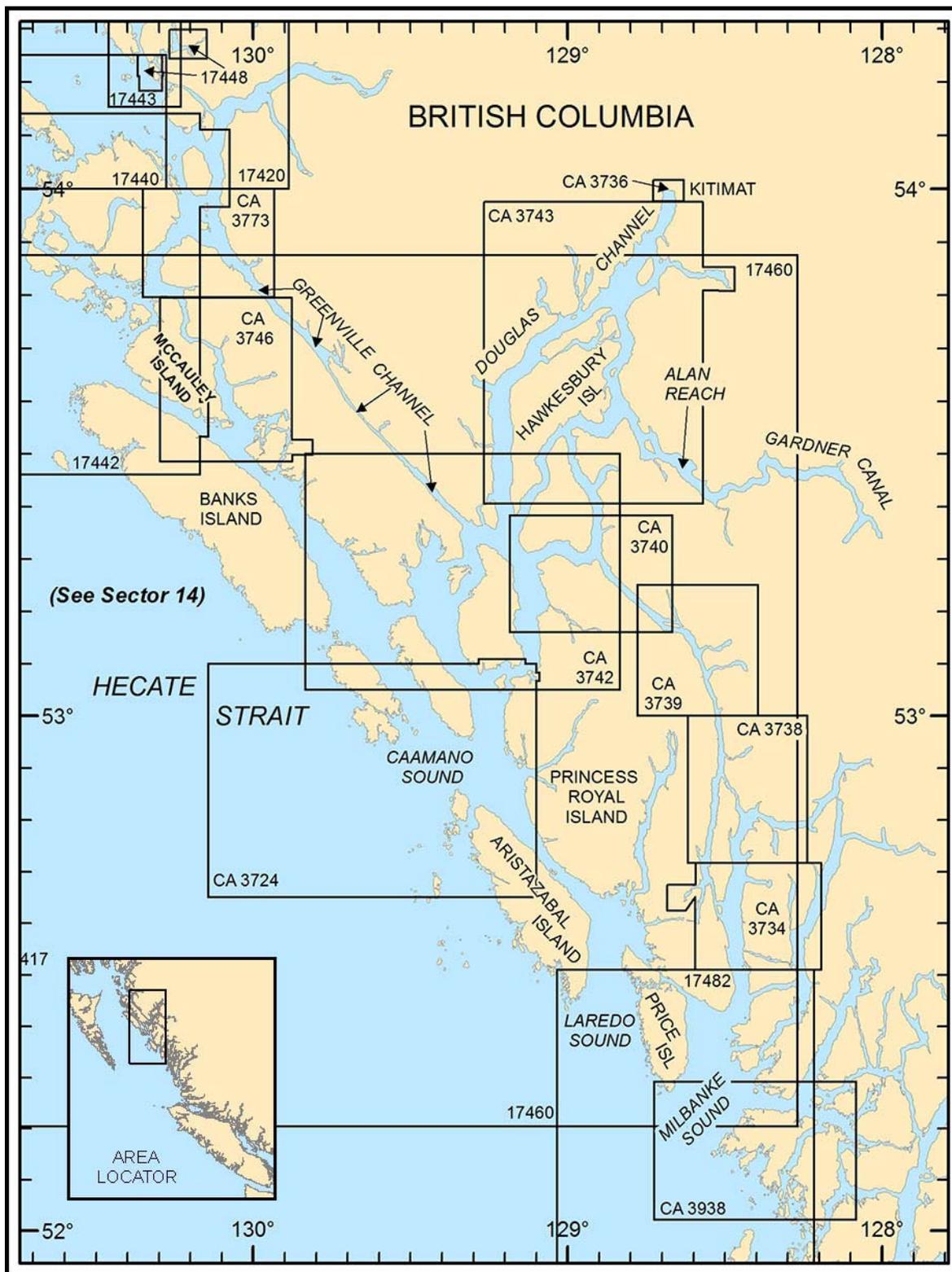
Caution.—Because of the featureless nature of the countryside and the mass of islands in this vicinity, vessels should be certain of their positions before proceeding to enter any of the passages.

11.44 Fingal Island (52°05'N., 128°27'W.), 40m high and wooded, lies NW of the McMullin Group, about 4.5 miles NNW of the N end of Goose Island. Above and below-water rocks ledges extend up to 1 mile SW of this island. The passage between the island and the McMullin Group is obstructed by a shoal area, with rocks and depths of less than 1.8m. Marshall Reef, which dries, lies 1.5 miles SW of the island.

Limit Island, 75m high and wooded, lies 2.5 miles NNW of Fingal Island. Several small islets and rocks extend up to 0.3 mile SW from the SW end of this island.

Rempstone Rocks, consisting of above and below-water rocks, lies between 1 mile and 2.3 miles W of Limit Island. Numerous detached patches, with depths of less than 10m, lie up to 2 miles S of Rempstone Rocks.

Cape Mark (52°09'N., 128°32'W.), marked by a light, forms the S extremity of a small island. This island lies at the SW end of the Bardswell Group and about 10 miles NNW of the N end of Goose Island. The islands in the vicinity of the cape are wooded and the tops of the trees are about 45m high. Providence Rock, with a depth of less than 1.8m, and Cheeseman Rock, over which the sea breaks, lie 0.8 mile W and 0.8 mile NNW, respectively, of the cape. Hope Rocks, two in number, lie about 0.8 mile S of the cape. These rocks are awash and an area of foul ground lies between them.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).
SECTOR 12 — CHART INFORMATION

SECTOR 12

THE INNER PASSAGE—MILBANKE SOUND TO THE SKEENA RIVER

Plan.—This sector continues the description of the inner passage from the seaward entrance of Milbanke Sound to the NW end of Malacca Passage. The lower reaches of the Skeena River and its approaches are described last.

General Remarks

12.1 Milbanke Sound can be entered on the E side of Queen Charlotte Sound, about 70 miles NW of Cape Caution. The sound can also be entered from the W end of Seaforth Channel, which is part of the inner passage. When passing from Seaforth Channel into Milbanke Sound, the usual route is to the E and N of Susan Rock.

Finlayson Channel is entered 8 miles N of Susan Rock. Tolmie Channel, lying W of and parallel to the N part of Finlayson Channel, is entered at the S end of Sarah Island, about 13 miles within Finlayson Channel.

From the junction of Tolmie Channel and Hiekish Narrows, located at the N end of Sarah Island, the channel leading N is known as Graham Reach. The continuation of this latter channel, which is known as Fraser Reach and McKay Reach, leads to Wright Sound and Grenville Channel.

Grenville Channel can be approached from seaward through Hecate Strait, Chamamo Sound, and Campamia Sound. Then via either Squally Channel or Whale Channel.

The Gibson Group lies at the NW end of Grenville Channel. A deep channel lies W of this group and leads through Arthur Passage and Malacca Passage into Chatham Sound, Prince Rupert Harbor, and Port Simpson.

Kitimat, situated at the head of Douglas Channel, is the only port of commercial importance within the limits of this sector.

The inner passage that leads N from the S part of British Columbia towards Alaska enters Milbanke Sound from Seaforth Channel. The route then follows Finlayson Channel, Tolmie Channel, Princess Royal Channel, Grenville Channel, Arthur Passage, and Malacca Passage into Chatham Sound.

Tides—Currents.—The tidal current in Watts Narrows attains a considerable rate. The HW and LW occur about the same time as those at Prince Rupert. The duration of slack water is about 5 minutes.

The tides are subject to considerable diurnal inequality. The influence of the tide is felt for a distance of up to 18 miles above Port Essington. In Telegraph Passage, the N currents attain a rate of 3 knots and the S currents attain a rate of 4 knots. Abreast the E entrance of Marcus Passage, the current turns 1 hour after HW. In Marcus Passage, the W current attains a rate of 5 knots. In the spring, both the S current in Telegraph Passage and the W current in Marcus Passage are, at times, greatly accelerated by freshets. In Inverness Passage off Hicks Point, the tidal currents attain a rate of 2 to 3 knots.

The N tidal current attains a rate of 2.5 knots at the N end of Arthur Passage, about 0.5 mile S of Hammer Island.

The flood current flowing from the NW entrance of Grenville Channel meets the flood current from the SE entrance off

Evening Point. On the ebb tide, the separation of the current takes place about 1 mile farther NW. It is subject to considerable change, depending on the winds outside.

The tidal currents are weak in the channel and in most places do not exceed 1 knot. At springs, the flood current may attain a rate of 2 knots and the ebb current a rate of 4 knots in the narrow portions of the channel.

The ebb currents continue to run for 1 hour 30 minutes after LW by the shore, which is probably about 4.5 hours before the next HW. The flood currents probably run for the other 6 hours. In considering which current is running, the positions of meeting and separating mentioned above must be studied.

Strong eddies occur with the ebb current abreast Love Inlet.

The N currents flowing through Squally Channel and Whale Channel unite about 1 mile N of Turtle Point. The united current then sets directly across Wright Sound, impinging on Waterman Point, off which it causes very strong eddies. The current then turns NW into Grenville Channel.

A portion of the N current flowing through Whale Channel turns into McKay Reach and meets the N currents from Finlayson Channel, abreast Aaltanhash Inlet.

Another portion turns N into Douglas Channel and Verney Passage. With the S current, the reverse takes place, the main part of the current from Wright Sound exiting via Whale Channel.

The currents from Wright Sound, Douglas Channel, and McKay Reach unite nearly midway between Maple Point and Home Bay. The united current sets directly toward the latter bay causing eddies at the entrance. The current then sets fairly through Whale Channel, passes N and S of Ashdown Island, unites with the current from Squally Channel, and flows out into Campania Sound.

Both currents attain a rate of 3 knots at springs in the contracted portions of the channels. Apparently, the currents turn about 1 hour 30 minutes after HW and LW.

The ebb currents predominate in Douglas Channel. Flood currents may occur from 5 hours to 1 hour before HW at Prince Rupert. Winds from the N usually reduce or eliminate the flood current while S winds increase its strength and duration.

Tidal currents are strong in the N half of Hiekish Narrows. In the vicinity of Hewitt Island, the maximum flood attains a velocity of 4 knots and the maximum ebb a velocity of 4.5 knots.

The N tidal current is stronger in Finlayson Channel than in Tolmie Channel. The S current is stronger in Tolmie Channel and runs for 1 hour 30 minutes after the S current in Finlayson Channel has ceased. In the narrow parts of these channels, both currents attain a velocity of 3 knots at springs. In the broader parts, the currents attain a velocity of only 1 knot.

Vessels proceeding S with an ebb tidal current and wishing to enter Sarah Passage should favor Boat Bluff, which displays a light, as a precaution against being set toward Hazard Rock.

The tidal currents in Klemtu Passage are comparatively weak. The N current is only slightly felt, the great body of water passing into Finlayson Channel. The S current seldom ex-



Boat Bluff Light

ceeds a rate of 1 knot.

The tidal currents flowing through Perceval Narrows attain a rate of 3 to 5 knots at springs. The flood current sets N until about 1 hour before LW at Prince Rupert and the ebb current sets S. With strong SE winds, considerable tide rips occur SW of Lizzie Rocks.

Regulations.—The waters described in this sector lie within the Prince Rupert Vessel Traffic Zone. For further information, see General Remarks in paragraph 11.1.

Caution.—In Arthur Passage, Malacca Passage, and their approaches the tidal currents are greatly influenced by the discharge of the Skeena River. Their directions and velocities are unpredictable, even by navigators of long experience in these passages. Numerous islands and shoals lie in this vicinity and the area is hazardous for vessels navigating in thick weather.

Milbanke Sound

12.2 Milbanke Sound (52°09'N., 128°32'W.) is entered between Cape Mark and Day Point, 8.8 miles NW. This sound is the main opening from seaward leading to the inner passage.

The W entrance of Seaforth Channel lies on the E side of Milbanke Sound, about 6.5 miles NE of Cape Mark. Mathieson Channel and Moss Passage branch from the E side of the sound E and N of Lady Douglas Island, respectively. Finlayson Channel, Tolmie Channel, Graham Reach, Fraser Reach, and McKay Reach lead, in that order, from Milbanke Sound to Wright Sound. These channels and reaches are a N continuation of the inner passage from Seaforth Channel and Milbanke Sound.

The flood current sets N and divides near the middle of Milbanke Sound. One portion runs toward Finlayson Channel, another toward Mathieson Channel, and a third toward Seaforth Channel. The reverse takes place on the ebb.

The rate of the current is variable, but it seldom exceeds 1 knot in Milbanke Sound. It increases to 2 or 3 knots in the narrow parts of the channels.

A channel, 8 miles wide, extends SW of Milbanke Sound. It has depths over 180m and a bottom of mud. To the NW of the entrance, the depths decrease to 90m. They decrease to less than 90m off the W side of the entrance to Laredo Sound, with a bottom of fine sand. To the SE of the entrance, there are depths of 128 to 146m in the fairway over a bottom of sand, mud, and rocky patches.

Helmet Peak (52°21'N., 128°21'W.) rises on Lake Island in

Mathieson Channel and resembles a helmet with its sloping side toward the W. It is very conspicuous to vessels approaching Milbanke Sound from the SW.

Caution.—Vessels approaching from the N in Tolmie Channel should, when passing Tenas Island, keep towards the E shore and take care not to enter the N entrance of Meyers Passage.

Milbanke Sound—East Side

12.3 Wurtele Island (52°10'N., 128°30'W.) lies 2 miles NE of Cape Mark. Foul ground extends SW from the S end of this island as far as the islands lying in the vicinity of Cape Mark.

Townsend Point is the NE extremity of Wurtele Island. Rage Reefs, which form a natural breakwater, extend up to about 0.8 mile NNE from the point and are marked by a buoy.

Reginald Island, 50m high, lies 0.4 mile E of Townsend Point and Raby Islet, wooded and prominent, lies close E of it.

Saint John Harbor (52°12'N., 128°28'W.) is entered on the NW side of the Bardswell Group between **Townsend Point** (52°11'N., 128°29'W.) and Cheney Point, 1.3 miles NE. The entrance is fairly protected by Rage Reefs, which form a natural breakwater. This harbor is somewhat confined.

The fairway leading to Dyer Cove in St. John Harbor passes E of Raby Islet, where it is about 180m wide. A shoal, with a depth of 3.8m, lies close SE of Raby Islet. A wider channel lies W of Reginald Island and leads to Louisa Cove, which forms the SW arm of the harbor.

Small vessels can obtain anchorage, in depths of 20 to 26m, within Dyer Cove.

Caution.—At HW when Rage Reefs are mainly covered, it is sometimes difficult to identify the entrance to Saint John Harbor. Between half-tide and LW, the N end of Rage Reefs and the ledges on the E side of the entrance are visible.

12.4 Between **Cheney Point** (52°12'N., 128°28'W.) and Cape Swaine, 2.3 miles NE, the shore is fringed by below-water ledges extending up to about 0.4 mile seaward in places.

Yaaklele Lagoon (52°13'N., 128°26'W.) lies 0.5 mile S of Cape Swaine and its entrance is obstructed by several islands.

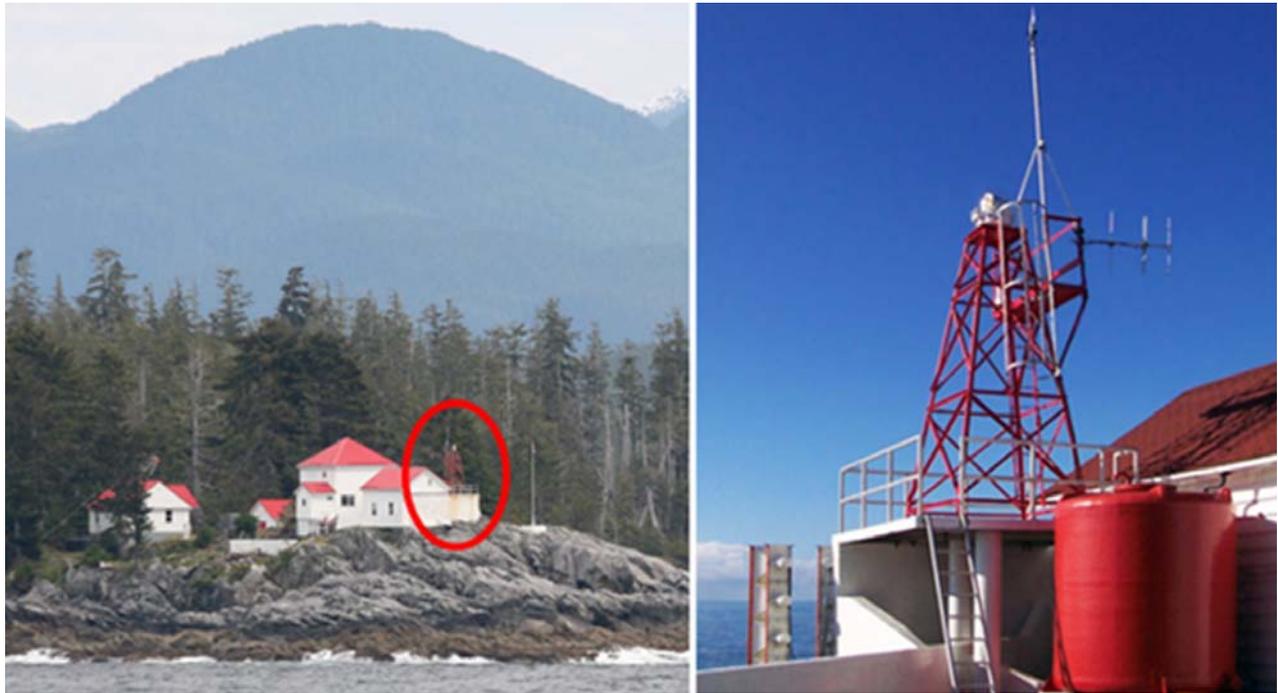
Seaforth Channel connects with Milbanke Sound between Cape Swaine and Ivory Island, 2.8 miles NNE.

Mohun Shoal, with a depth of 11.9m, lies at the N end of Emmaline Bank, about 2.5 miles WNW of Cape Swaine.

Susan Rock (52°17'N., 128°30'W.), 15m high, lies in the fairway of the inner passage, about 4 miles WNW of Ivory Island. This rock is bare, prominent, and marked by a light. Skinner Rock, 4m high and prominent, lies about 0.5 mile NNE of Susan Rock. Ada Shoal, with a least depth of 11.9m, and a rock, which breaks in bad weather, lie about 0.8 mile S and 0.3 mile SE, respectively, of Susan Rock.

Vessels approaching Milbanke Sound from the S, in clear weather, should keep Susan Rock and Helmet Peak in line, bearing 055°. This range leads through the entrance clear of all dangers.

Vessels bound N through Finlayson Channel should alter course to the N when Day Point bears about 285°. They should then stay in the fairway and pass between Price Island and Vancouver Rock Lighted Buoy. When abeam of the Gaudin Islands, vessels should steer to pass a prudent distance off



Ivory Island Light

Jorkins Point and into Finlayson Channel.

Vessels bound into Seaforth Channel from the SW should steer for Ivory Island Light on a course of 060°. This course leads 0.8 mile SE of Mohun Shoal. When Cape Swaine is abeam, they may turn into Seaforth Channel.

Vessels following the inner passage from Seaforth Channel should pass N and E of Susan Rock and Skinner Rock.

The coast to the N of the point is comparatively low and wooded with pine and cedar trees. Mathieson Channel and Moss Passage, two extensive channels, lie on the E side of the sound and branch E and N of Lady Douglas Island, respectively. Lady Douglas Island is low and wooded. The W shore of Dowager Island is wooded and flanked by high mountains.

Rankin Point (52°17'N., 128°24'W.) is located on the E shore of Milbanke Sound, about 1 mile N of Ivory Island. Several drying rocks extend up to 0.3 mile N of the point and an islet, 12m high, lies 0.3 mile S of it.

12.5 Cross Point (52°19'N., 128°26'W.), the SW extremity of Lady Douglas Island, is low and wooded. A rocky, wooded islet lies close S of this point. Numerous scattered, rocky islets and ledges extend SW from Cross Point and this area should be given a wide berth.

Cross Ledge, marked by a drying rock, lies about 0.8 mile SW of Cross Point. Foul ground extends between this ledge and the point. Boulder Ledge, with several drying rocks located on it, extends between Cross Ledge and Boulder Head.

Salal Island (52°20'N., 128°28'W.) is separated from the W side of Lady Douglas Island by Clam Passage.

Boulder Head (51°20'N., 128°29'W.), the S extremity of Salal Island, is a conspicuous, rocky headland.

Vancouver Rock (52°21'N., 128°30'W.) lies about 1.3 miles

W of Salal Point, the N extremity of Salal Island, and is marked by a lighted buoy moored on its W side.

Boulder Head and the islet lying close off Cross Point in line, bearing 129°, form a clearing range which leads SW of Vancouver Rock. Keith Point, the W extremity of Dowager Island, bearing 030° and just open to the NW of the Gaudin Islands also leads NW of the rock.

The **Gaudin Islands** (52°22'N., 128°30'W.) are a group lying about 1.3 miles N of Vancouver Rock. Fellowes Rock lies about 0.3 mile NW of the northernmost island in the group.

Dallas Island (52°22'N., 128°28'W.) lies about 0.8 mile N of Salal Island, on the N side of the entrance to Moss Passage.

Merilia Passage (52°22'N., 128°29'W.), a channel, lies E of Vancouver Rock and the Gaudin Islands. It is generally deep except for Boulder Bank and a shoal patch, with a depth of 12.8m, lying about 0.4 mile E of the largest island of the Gaudin Islands. Another shoal patch, with a depth of 18.3m, lies about 0.4 mile SSW of Keith Point.

Caution.—Considerable magnetic disturbances have been experienced between Vancouver Rock and Keith Point.

Milbanke Sound—West Side

12.6 Price Island (52°20'N., 128°40'W.), the E side of which forms the W shore of Milbanke Sound, has a conspicuous range of hills extending along its E coast. Many small bays indent the E side of this island. The W side of Milbanke Sound is deep to within a short distance of Price Island.

Higgins Passage (52°27'N., 128°37'W.) leads into Laredo Sound from the NW corner of Milbanke Sound. It passes between Price Island and Swindle Island. The E part of Higgins Passage is deep, but the W part is narrow, tortuous, and dries in

places.

Vessels with local knowledge can anchor, in depths of 12 to 14m, sand, about 3.5 miles NW of the NE extremity of Price Island and about 0.5 mile NE of the E narrows.

Caution.—A rock, with a depth of less than 2m, lies in the middle of the anchorage.

Mathieson Channel

12.7 Mathieson Channel (52°18'N., 128°25'W.) is an extensive arm of the sea extending N from the E side of Milbanke Sound. It passes E of Lady Douglas Island and Dowager Island.

This channel has depths of over 180m in the fairway, except in the vicinity of **Perceval Narrows** (52°20'N., 128°23'W.).

Promise Point (52°19'N., 128°21'W.), the N extremity of Cecilia Island, is located 1.3 miles NE of Bend Point. Tear Islet and several rocks lie in the bay located close SW of this point.

Leighton Island (52°20'N., 128°20'W.) lies 0.5 mile NE of Promise Point, on the NW side of the entrance to Lambard Inlet. The latter inlet has not been surveyed. A clear passage, about 180m wide, leads to Port Blackney or Lambard Inlet from Mathieson Channel. It passes between the SW extremity of Leighton Island and a rock, with a depth of 5.5m.

Oke Islet (52°20'N., 128°21'W.) lies 0.5 mile NE of Walter Islet and is surrounded by a ledge of rocks.

Lady Trutch Passage (52°21'N., 128°20'W.), which rejoins Mathieson Channel at the N end of Lake Island, lies NE of Oke Islet. This passage has not been surveyed. Bailey Point, located 0.5 mile NE of Oke Islet, is the SE entrance point. Hannah Island lies on the NW side of the entrance within a bight, near the middle of the S side of Lake Island. Nathan Island lies at the N end of the passage.

12.8 Port Blackney (52°19'N., 128°21'W.) consists of a small inlet used as an anchorage. It is entered between Promise Point and Schubert Point, 0.3 mile ESE. The head of this inlet connects with the N end of Reid Passage.

Anchorage can be obtained, in depths of 31 to 33m, mud, with Helmet Peak just open E of Promise Point and the islet lying close off Driver Point bearing 135°. This anchorage is sheltered from all winds.

Directions.—Vessels approaching Port Blackney from the SW should, when abeam of Rankin Point, keep Helmet Peak just open SE of Lang Point, bearing 042°. When within about 0.4 mile of Lang Point, they should steer for Oke Islet, bearing about 063°, until the N extremity of Lizzie Rocks is in line with the N extremity of Martha Island, bearing 299°. Vessels should then steer SE and maintain this bearing astern. The course will lead about 135m S of the SW extremity of Leighton Island. When this point is abeam, a clear view will be obtained through Reid Passage and the course should be altered to the S in order to enter the port with the SW extremity of Leighton Island astern, bearing 025°. Vessels should keep the view through Reid Passage clear as it will ensure passing SE of Cod Reefs and the rocks lying off Promise Point.

Vessels should pass about 90m W of Schubert Point and Kent Point, 0.3 mile SSW. When abeam of the latter point, they should alter course slightly to the W to bring Helmet Peak just open of Promise Point. This course will pass W of Diver Rock

and they may then proceed to the anchorage.

Mathieson Channel—Northwest Side

12.9 Between Cross Point and Lang Point, the steep-to SE extremity of Lady Douglas Island, the S side of Lady Douglas Island is indented.

Martha Island (52°20'N., 128°23'W.) lies 0.3 mile W of Grautoff Point, the S extremity of Lake Island.

Perceval Narrows, the navigable channel of which is deep and about 0.2 mile wide, lies E of Martha Island. It is bounded on the E side by Grautoff Point and Lizzie Rocks. Lizzie Rocks front the SSW side of Grautoff Point.

The tidal currents flowing through Perceval Narrows attain a rate of 3 to 5 knots at springs.

Mathieson Channel—North Part

12.10 To the N of Martha Island, the channel widens and several rocks lie on the E side within the bay entered between Brew Point, located 0.3 mile N of Grautoff Point, and Stapleton Point, 0.6 mile N.

Alec Islet (52°21'N., 128°23'W.) lies on the W side of the channel, about 0.5 mile N of Martha Island. It is connected to the W shore by rocky ledges which dry at LW.

Cockle Bay (52°21'N., 128°23'W.) indents the E side of Lady Douglas Island, close N of Alec Islet.

Anchorage can be obtained, in a depth of 37m, gravel, within this bay, about 0.2 mile N of Alec Islet. Care should be taken when approaching the anchorage because the depths in the bay decrease rapidly toward the shore.

Hyde Point (52°22'N., 128°21'W.), the N extremity of Lake Island, is steep-to.

Agnes Point (52°22'N., 128°23'W.), the NE extremity of Lady Douglas Island, forms the S entrance point at the E end of Moss Passage.

Oscar Passage (52°29'N., 128°20'W.) is described in paragraph 12.13.

Salmon Bay (52°29'N., 128°14'W.) lies on the E side of Mathieson Channel, opposite the E entrance of Oscar Passage. This bay is entered between Carmichael Point and Ursus Point, 0.5 mile NNW.

Anchorage can be taken, in a depth of 17m, near the head of the bay.

Between Oscar Passage and Counsel Point, Mathieson Channel continues N along the E side of Susan Island, Roderick Island, and Pooley Island for 25 miles to its junction with Sheep Passage and Mussel Inlet.

The depths lying between Oscar Passage and Counsel Point are, for the most part, over 360m and the shores are steep-to.

12.11 Griffin Passage (52°35'N., 128°17'W.), which has not been surveyed, leads N from the W side of Mathieson Channel into Sheep Passage. It is formed by Pooley Island, on the E side, and Roderick Island, on the W. Charles Head, the S extremity of Pooley Island, is located on the E side of the S entrance of Griffin Passage, 6 miles N of Oscar Passage. Griffin Passage has been reported unsuitable for navigation. Drying narrows, with hazardous tidal rapids, lie 1.8, 6.8, and 7.8 miles N of Charles Head.

James Bay, which lies with its entrance located 6 miles NNE of Counsel Point, indents the E side of Pooley Island and extends 2 miles NW.

Garvey Point (52°46'N., 128°08'W.), located on the E side of Mathieson Channel, lies 5.3 miles NNE of the N entrance point of Pooley Inlet. This point is prominent and forms a good leading mark up the center of Mathieson Channel.

Mathieson Channel, to the N of Garvey Point, is reduced to a width of about 0.8 mile. It further contracts to a width of only 230m abreast Mathieson Point, at the N end of Mathieson Narrows. The channel then connects with Sheep Passage and Mussel Inlet. The depths decrease to 44m at the S end of the narrows.

Heathorn Bay (52°50'N., 128°07'W.), lying to the E of the S end of the narrows, is clear of dangers, but too deep and confined for anchorage.

Kynoch Inlet (52°46'N., 128°07'W.), entered S of Garvey Point, extends 6 miles E and terminates in an extensive drying flat at its head.

Mussel Inlet (52°55'N., 128°06'W.) leads N and E for 6 miles from its junction with Sheep Passage and Mathieson Channel. High mountainous shores rise on either side of this inlet and it terminates in two small arms. The inlet has considerable depths throughout.

The flood tidal current flowing through Mathieson Channel meets that flowing through Sheep Passage in the vicinity of the narrows, causing some turbulence in the vicinity of Mathieson Point.

Moss Passage

12.12 Moss Passage (52°21'N., 128°27'W.) leads from Milbanke Sound into Mathieson Channel between Lady Douglas Island and Dowager Island. The passage is 0.8 mile wide at its W entrance located between Salal Island and Dallas Island. At a point about 3 miles within the entrance, it is contracted by Squaw Island. Sloop Narrows, the channel leading S of this island, is only about 90m wide.

The largest of the Gaudin Islands, bearing about 335°, open SW of Dallas Island forms a range which leads SW of Aurelia Rock.

The flood tidal current sets E in Moss Passage and the ebb sets W. Both currents attain a rate of 2 to 4 knots at springs.

Sloop Narrows has a least depth of 11.9m.

Morris Bay (52°21'N., 128°27'W.) is entered on the S side of Moss Passage, about 0.5 mile E of Salal Point.

Anchorage can be taken, in a depth of 24m, sand, within Morris Bay, about 200m from the W shore. A good berth lies with the W entrance point bearing 284° and Detached Rock, located close to the N shore of Moss Passage, bearing 000°. Winds from the W send a swell into this anchorage, but the bay has the advantage of enabling vessels to ascertain the state of the weather in Milbanke Sound.

Directions.—To the E of the entrance of Carter Bay, Sheep Passage leads into Mathieson Channel and Mussel Inlet. To the W of the entrance of Carter Bay, Finlayson Channel continues under the name of Hiekish Narrows and passes E of the NE end of Sarah Island. This island forms the W side of the N part of Finlayson Channel.

Vessels approaching Moss Passage from the SW and from a

position W of Susan Rock, should steer to pass between Vancouver Rock and Salal Island. They should then steer into the S part of Merilia Passage, keeping the E extremity of Swindle Island, bearing 006°, open W of Keith Point. Vessels should then keep a mid-channel course and pass between Aurelia Rock and Salal Point. If Vancouver Rock is uncovered, vessels should keep it bearing 261°, astern. This course will lead into the entrance fairway of Morris Bay or, if continued, into the W entrance of Sloop Narrows.

Vessels entering Sloop Narrows from the W should steer to pass S of Squaw Island and keep about 45m from the Lady Douglas Island side of the narrows. When past Squaw Island, vessels should steer into the middle of the channel and pass about 90m S of the rock, which dries 5m, lying close S of Guard Point.

12.13 Jane Island (52°38'N., 128°31'W.) and Cone Island lie close S of Sarah Island, on the W side of the channel. Reef Point, marked by a light, is the S extremity of Jane Island.

Susan Island (52°31'N., 128°20'W.) and **Roderick Island** (52°35'N., 128°25'W.) lie on the E side of Finlayson Channel.

The land on both sides of Finlayson Channel is high. The peaks closely approach the shores and rise precipitously from the water's edge.

Oscar Passage (52°29'N., 128°20'W.) which connects Finlayson Channel to Mathieson Channel, leads E between Dowager Island and Susan Island. It is entered about 4 miles NE of Keith Point. This passage, which is about 0.8 mile wide, joins Mathieson Channel between Miall Point, on the N side, and Buckley Head, on the S.

The shores of the passage are steep-to. The depths are great, with the exception of the E end, where the prevailing depths are 55 to 73m. A least depth of 17.8m lies about 0.3 mile NE of Buckley Head. Along the N shore along the Hyne Range elevations are in excess of 366m.

12.14 Bulley Bay (52°28'N., 128°19'W.) lies on the S side of Oscar Passage, about 3.5 miles within the W entrance. Although small, this bay affords anchorage, in a depth of 27m, about 180m offshore.

Nowish Cove (52°31'N., 128°26'W.) is a bight indenting the W side of Susan Island. It is sheltered by Nowish Island, the S extremity of which is located 3 miles N of Legace Point and marked by a light.

Anchorage can be obtained, in depths of 18 to 26m, sand, within the cove

The **Dodd Islets** (52°31'N., 128°26'W.) lie within 0.4 mile of the SW side of Nowish Island. The two westernmost islets lie about 0.2 mile apart and parallel with the channel. They are almost connected by drying ledges. Other islets and rocks lie between the Dodd Islets and the shore to the SE.

Charles Narrows (52°30'N., 128°26'W.) lead into Nowish Inlet, SE of Nowish Island. These narrows are obstructed by rocks and should not be used.

Nowish Narrows (52°31'N., 128°26'W.) lead into Nowish Inlet, NE of Nowish Island. These narrows can be used at slack water. Nowish Inlet extends about 4 miles E.

Jackson Passage (52°32'N., 128°20'W.), separating Susan Island from Roderick Island, joins Finlayson Channel and Mathieson Channel. It is entered about 1.3 miles N of the N

end of Nowish Island.

Jackson Narrows (52°31'N., 128°18'W.), lying near the E end of the passage, are very narrow and obstructed by rocks. Passage through these narrows should only be attempted at HWS with local knowledge.

Rescue Bay (52°31'N., 128°17'W.) lies on the S side of Jackson Passage, close within the E entrance. Anchorage can be taken, with good shelter, in a depth of 16.5m, within this bay.

Klemtu Passage (52°35'N., 128°31'W.) lies on the W side of Finlayson Channel, about 7 miles N of Jorkins Point. It passes between Cone Island and Swindle Island. There is a least depth of 14.6m in the passage and a least width of 180m about mid-way between either end. Anchorage can be taken throughout nearly the full length of this passage.

12.15 Klemtu (52°35'N., 128°31'W.) (World Port Index No. 18916), a small fishing settlement, is situated on the NW side of Trout Bay.

Depths—Limitations.—The bay is entered on the W side of Klemtu Passage, close N of Klemtu Point and about 1 mile N of Base Point. The settlement is fronted by a wharf. The berth is 61m long and has a depth of 9.1m alongside. There is also an oil float with a depth of 5.5m alongside.

Anchorage.—Vessels of moderate length can obtain anchorage in mid-channel. The berth, in a depth of 22m, sand and shells, lies abreast Clothes Bay and about 1.3 miles from the S end of the passage.

Caution.—Several outfall pipelines extend into the channel close N of the oil float. The longest pipeline extends up to about 0.1 mile S from Klemtu Point.

12.16 Jane Passage (52°37'N., 128°31'W.) lies between the N end of Cone Island and the S end of Jane Island. Jane Patch, marked by kelp, lies about 0.2 mile W of Reef Point. It consists of three rocks located on the N side of the passage. This danger is indicated by the red sectors of Reef Point Light and Wedge Point Light.

Jane Passage is 0.5 mile wide and has a least depth of 42m in the fairway. Klemtu Point bearing 176° and just open of Legge Point, on the W side of Cone Island, leads W of Jane Patch.

Sarah Passage (52°38'N., 128°31'W.) lies between the N end of Jane Island and the S end of Sarah Island. It is about 0.5 mile wide and deep in the fairway.

Tolmie Channel

12.17 Tolmie Channel (52°40'N., 128°32'W.) separates Sarah Island from Swindle Island and Princess Royal Island. This channel is less than 1 mile wide in places but is deep throughout.

Sarah Island (52°42'N., 128°31'W.) reaches its maximum height about 6 miles from its S extremity. Work Bay, entered W of Adze Point, is open to the S. The main part of this bay is deep and exposed, but a small cove lying at the NE end affords good anchorage, in a depth of 12m.

Tolmie Channel Light is shown from a framework tower standing on the W side of Sarah Island, about 0.8 mile NNE of Split Head Light. Parry Patch Light is shown from a structure standing 0.8 mile ESE of Split Head Light.

Tenas Island (52°42'N., 128°33'W.), marked by a light near its N end, lies near the E side of Tolmie Channel. This island is located about 2 miles N of Split Head, the N extremity of Swindle Island.

Cougar Bay (52°45'N., 128°35'W.) lies on the W side of Tolmie Channel, 3.5 miles N of Split Head. This bay, which is entered S of Ditmars Point, is about 0.3 mile wide and extends 1.5 miles NNW. A cove lying on the E side of the bay affords good anchorage, in a depth of 18m.

Alexander Inlet extends 5 miles SW and indents Princess Royal Island. The entrance of the inlet lies close W of the N entrance of **Meyers Passage** (52°36'N., 128°44'W.), about 1 mile WSW of Split Head.

Brown Cove (52°41'N., 128°35'W.) lies on the W side of Tolmie Channel, close N of the entrance to Alexander Inlet. The depths in this cove are too deep for convenient anchorage.

Caution.—Vessels proceeding S with the outgoing tide through Tolmie Channel and intending to pass through Sarah Passage, may, when the tide is on the port quarter, be set towards Hazard Rock. Therefore, it is recommended that such vessels proceed W of Jane Island and pass through Jane Passage using the island as a traffic separation barrier.

Finlayson Channel—East Side

12.18 Mary Cove (52°37'N., 128°26'W.) lies on the E side of Finlayson Channel, about 4 miles N of the N entrance point of Jackson Passage. This cove, which is about 180m wide at its entrance, extends about 0.5 mile NE and terminates in a sandy beach. There are depths of 12 to 38m in the fairway.

Vessels can obtain good anchorage, in a depth of 18m, about 0.3 mile within the entrance.

Watson Bay (52°41'N., 128°25'W.) lies on the E side of the channel, about 9 miles N of the Dodd Islets. This bay is about 0.8 mile wide at its entrance which lies between Bancroft Point and Howay Point. It extends E for about 3 miles and terminates in Roderick Cove, close E of Bolt Point.

Bottleneck Inlet (52°43'N., 128°25'W.), lying 1.5 miles N of Watson Bay, extends about 1.5 miles E and indents Roderick Island. Its entrance is only about 90m wide.

12.19 Wallace Bight (52°44'N., 128°26'W.), lying 2.5 miles N of Watson Bay, is 0.8 mile wide at its entrance and extends NE for about 1 mile. There are depths of over 180m lying between the entrance points of this bight.

Goat Cove (52°47'N., 128°25'W.), lying 4 miles N of Wallace Bight, is about 0.3 mile wide. It extends about 0.5 mile SE and terminates in a sandy beach. A passage leads from the SE corner of this cove into a basin, which extends about 0.5 mile farther SE. The passage is less than 90m wide and has a least depth of 9.1m. Goat Cove has depths of 11 to 59m. The basin within the cove affords sheltered anchorage, in a depth of 31m.

Kid Bay (52°48'N., 128°23'W.) indents the NW extremity of Roderick Island, about 0.8 mile N of Goat Cove. There is a depth of 71m in the entrance of this bay. The depths decrease slowly towards the head. A shoal patch, with a depth of 10.1m, lies close off the N entrance point. Shoals, with depths of 4.6m and 5.5m, lie close off the S entrance point. Another shoal, with a depth of 9.1m, close S of the shore of the bay, 0.4 mile within the entrance.

Sheep Passage

12.20 Sheep Passage (52°48'N., 128°25'W.) leads E from the head of Finlayson Channel along the N sides of Roderick Island and Pooley Island to the junction of Mussel Inlet and Mathieson Channel. The N entrance of Griffin Passage lies on the S side of Sheep Passage, about 2 miles within the W entrance.

Sheep Passage is deep throughout with no off-lying dangers and its shores are moderately steep-to.

Carter Bay (52°49'N., 128°24'W.) lies at the head of Finlayson Channel on the N side of the entrance of Sheep Passage. It is easily identified by the high cliffs standing on the W shore. The mouth of the Carter River lies at the head of the bay.

Temporary exposed anchorage can be obtained, in depths of 25 to 27m, mud, about 0.2 mile from the edge of the sand flat at the head of the bay.

Hiekish Narrows (52°52'N., 128°29'W.) is the continuation extending to the N of Finlayson Channel. These narrows are avoided by proceeding through Tolmie Channel. They are about 5 miles long and 0.3 to 1 mile wide. The fairway in the narrows is deep over a bottom of sand and shells, but there are dangers in places.

Graham Reach (52°55'N., 128°31'W.) is the continuation of the inshore passage leading N of the junction of Tolmie Channel and Hiekish Narrows. It is about 17 miles long, 0.5 to 1 mile wide, and generally very deep.

The N and S tidal currents setting through this reach meet abreast Aaltanhash Inlet.

Green Inlet (52°55'N., 128°30'W.) is entered on the E side of Graham Reach. It lies close N of Netherby Point, which is located 2.3 miles N of Sarah Head. The inlet extends 8 miles E and NE, but is navigable only as far as Baffle Point, about 4 miles within the entrance, where tidal rapids obstruct the passage.

12.21 Swanson Bay (53°01'N., 128°31'W.) is entered on the E side of the reach. It lies close S of Swanson Point, which is located 7.8 miles N of Sarah Head. The ruins of two mills stand on the bay shores and are conspicuous from Graham Reach. A conspicuous waterfall is located on the W side of the reach abreast the bay. Griffin Point, marked by a light, is located 3.5 miles N of Swanson Bay.

Khutze Inlet (53°05'N., 128°32'W.) is entered on the E side of Graham Reach, about 5 miles N of the entrance of Swanson Bay. The entrance of this inlet is about 0.8 mile wide and lies between Baudre Point, on the E side, and Asher Point, on the W. Both sides of this inlet are densely wooded.

The Khutze River is of considerable size and flows into the head of the inlet on the N side of an extensive mud flat. The depths within this inlet are generally unsuitable for satisfactory anchorage.

Aaltanhash Inlet (53°08'N., 128°35'W.) is entered on the E side of Graham Reach. It lies close S of Heddington Point, which is located 2.5 miles N of Khutze Inlet. This inlet extends about 4 miles E and has a width of 0.5 mile. The depths within the inlet are in excess of 120m.

Redcliff Point (53°09'N., 128°38'W.), the turning point from Graham Reach into Fraser Reach, is located on the W side of Graham Reach. It is marked by a light and lies 2.8 miles

NW of Heddington Point.

Fraser Reach

12.22 Fraser Reach (53°11'N., 128°42'W.), the continuation of the inshore passage NW of Graham Reach, extends about 13 miles NW from Redcliff Point to Kingcome Point. It is 0.5 to 1.3 miles wide and resembles Finlayson Channel because of the high land on both sides.

Work Island (53°10'N., 128°40'W.) lies in the fairway with its E extremity located 0.8 mile NNW of Redcliff Point. A light is shown from a structure standing near the W end of this island.

Malcolm Passage and Butedale Passage lead N and S of Work Island, respectively. These passages are clear of dangers and deep. Butedale Passage, the wider of the two, is almost exclusively used.

Klekane Inlet (53°11'N., 128°39'W.) lies on the N side of Fraser Reach with its entrance abreast the E end of Work Island. This inlet is about 0.5 mile wide and extends 4 miles NNW to its head, where it terminates in a steep-to flat. The flat consists of sand and mud and dries at LW. The depths within this inlet are too deep for anchorage.

12.23 Butedale (53°10'N., 128°41'W.) (World Port Index No. 18920), a settlement fronted by a wharf, is the site of a former cannery. It stands in a bight on the SW side of Butedale Passage, opposite the W end of Work Island. A waterfall lies on the W side of the bight and is conspicuous.

Kingcome Point (53°18'N., 128°54'W.) is the W turning point for proceeding from Fraser Reach into McKay Reach. It is marked by a light and is conspicuous. Ursula Channel leads N from abreast this point.

Caution.—Vessels approaching or leaving the wharf at Butedale should exercise care because the current caused by the nearby waterfall is reported to be strongly felt close N at LW.

McKay Reach

12.24 McKay Reach (53°19'N., 129°00'W.) connects Fraser Reach with Wright Sound. It then connects with Grenville Channel, continuing the inner passage NW to Chatham Sound and Prince Rupert Harbor. The reach is about 8 miles long and 1.5 to 2 miles wide. The land on the N side of the reach is high and bold. There are depths of over 360m in this reach.

Ursula Channel (53°20'N., 128°54'W.), the continuation N of Fraser Reach, is entered between Pilot Point, the SE extremity of Gribbell Island, and Angler Cove. This channel trends about 12 miles NNW and its N part is known as Boxer Reach. The mountains on either side of the channel rise abruptly from the sea.

Angler Cove (53°19'N., 128°53'W.), a small bight, is located on the E side of the entrance to Ursula Channel.

Anchorage can be taken, in a depth of 55m, with the S entrance point, which consists of a mound connected to the shore by a sandy neck covered at HW, bearing 210°. At this anchorage, the depths decrease suddenly from 55m toward the edge of the drying bank which fronts the head.

Goat Harbor (53°21'N., 128°53'W.), where there is a hot spring, lies on the E side of the channel, about 2.5 miles N of

Angler Cove. This harbor is entered close S of Kid Point. A booming ground, with a log dump and access road, is situated 1.1 miles NE of Kidd Point.

Bishop Bay (53°27'N., 128°54'W.), lying 5 miles N of Goat Harbor, is entered between Tomkinson Point and Riordan Point. This bay extends in a general NE direction for about 3 miles. It is deep and the shores are steep-to.

Bishop Cove (53°29'N., 128°58'W.) is a small indentation on the E side of Boxer Reach. It lies about 3 miles NW of Riordan Point and close S of Egerton Point. Good anchorage can be obtained in the NW part of this cove. The anchorage is formed by a narrow neck of sand which extends offshore and terminates in a mound covered with trees. The depths decrease gradually up to the sandy neck.

12.25 Wright Sound (53°20'N., 129°10'W.) consists of the junction of seven inlets or channels which lead in all directions. The principal of these channels are Grenville Channel, the continuation of the inner passage NW, and that leading through McKay Reach to Fraser Reach.

Point Cumming (53°19'N., 129°07'W.), marked by a light, is located on the SW extremity of Gribbell Island. This point lies on the N side of the junction of McKay Reach and Wright Sound.

Home Bay (53°17'N., 129°05'W.) lies on the SE side of Wright Sound at the N entrance of Whale Channel. The bay entrance, which is about 0.5 mile wide, lies 1 mile S of Nelly Point, the NW extremity of Princess Royal Island.

Vessels can obtain anchorage, in a depth of 25m, sand, close off the head of the bay.

Gil Island (53°13'N., 129°10'W.), lying on the S side of the sound, culminates near its N end in Mount Gil, a well defined and snow-clad peak.

Fisherman Cove (53°19'N., 129°16'W.) lies on the S side of Wright Sound, close SW of Turtle Point, the N extremity of Gil Island. The depths in this cove increase steadily from 36 to 91m from the head.

Coghlan Anchorage (53°23'N., 129°17'W.) lies on the NW side of Wright Sound in the channel leading between Promise Island and the mainland. Thom Point and Mount Gil in line, bearing 159°, indicate a course leading NE of Harbor Rock. Waterman Point, the W entrance point, bearing 164° and just open to the E of Observation Point, located 1 mile N, form a range leading W of the rock.

Anchorage can be obtained, in depths of 12 to 16m, sand, near the head of Coghlan Anchorage, with Mount Gil just open to the W of Thom Point and Letitia Point bearing 053°.

Vessels entering Coghlan Anchorage should keep in mid-channel to avoid the ledge fronting Thom Point.

Promise Island (53°23'N., 129°15'W.) lies on the N side of Wright Sound. It is wooded and surmounted by two dome-shaped peaks.

Cape Farewell (53°21'N., 129°14'W.), marked by a light, is the S extremity of the island and terminates in a high, bold cliff. A conspicuous white cliff rises along the S coast between Cape Farewell and Thom Point, the E entrance point of Coghlan Anchorage.

Verney Passage

12.26 Verney Passage (53°23'N., 129°08'E.) leads between Gribbell Island and Hawkesbury Island. It extends N and E for 18 miles to the junction with Devastation Channel and Gardner Canal. The shores of the passage are generally steep-to and the fairway is deep.

Money Point (53°23'N., 129°10'W.), marked by a light, is the S extremity of Hawkesbury Island. It is located on the W side of the S entrance of Verney Passage.

Jenkinson Point (53°27'N., 129°05'W.) is bold and located on the W side of Verney Passage, about 4.8 miles NE of Money Bay.

Fishtrap Bay (53°33'N., 129°01'W.) lies on the NW side of Verney Passage, close N of Amy Point.

Anchorage can be obtained, in a depth of 26m, off the middle of this bay.

Mary Point, marked by a light, is located on the SE side of Verney Passage, about 2 miles NE of Amy Point. A log dump is situated 1.5 miles NW of this point.

Danube Bay (53°35'N., 128°57'W.) lies on the N side of Verney Passage, close N of Mary Point.

Eva Point (53°34'N., 128°57'W.), the SE extremity of Hawkesbury Island, is conspicuous. It is located on the W side of the N entrance of Verney Passage, about 3 miles ENE of Mary Point.

12.27 Gardner Canal (53°34'N., 128°47'W.) is entered off the SE end of Hawkesbury Island. It lies close NE of Staniforth Point, which is located on the E side of the N entrance of Verney Passage about 5.5 miles ENE of Mary Point.

The canal extends SE for 45 miles from its entrance and has many bends. From W to E its reaches are known as Alan Reach, Europa Reach, Barrie Reach, Whidbey Reach, and Egeria Reach.

The depths in the canal exceed 92m to within 180m of the shore, in most places, and the various reaches are clear of dangers. Ice forms as far as 25 miles from the head of the canal during the winter.

The **Crab River** (53°34'N., 128°46'W.) flows into a bight on the NE side of the canal, close ESE of Staniforth Point.

Collins Point (53°32'N., 128°45'W.), located 3 miles SE of Staniforth Point, is the S extremity of a broad peninsula lying on the NE side of the canal. The E side of this peninsula forms the W side of Collins Bay.

12.28 Rix Island (53°31'N., 128°44'W.) lies in mid-channel with its N extremity located 0.8 miles SSE of Collins Point. The channels leading on either side of this island are clear of dangers. A light is shown from the NE part of the island.

Ochwe Bay (53°30'N., 128°43'W.) lies on the SW side of Gardner Canal, close SW of Rix Island.

Walkem Point is located on the SW side of the canal, about 0.6 mile S of the S extremity of Rix Island.

Anchorage is available, in depths of 28 to 33m, midway between Walkem Point and the S extremity of Rix Island.

Triumph Bay (53°28'N., 128°42'W.), entered close W of Walkem Point, is narrow and extends 3 miles SE. This bay is about 0.2 mile wide at the entrance and has a least depth of 20.1m in the fairway.

Anchorage can be taken, in a depth of 40m, within the wide part of this bay.

Barker Point (53°30'N., 128°40'W.) is located on the NE side of Gardner Canal, about 1.3 miles E of the S extremity of Rix Island.

Shearwater Point (53°28'N., 128°36'W.) is located on the NE side of Alan Reach, about 3.8 miles SE of Barker Point.

Anchorage can be taken, in depths of 28 to 37m, in the middle of the bight lying about 0.8 mile NE of Shearwater Point.

Europa Reach is that part of Gardner Canal lying between Europa Point and Cornwall Point. It is about 8 miles long.

Barrie Reach is that part of Gardner Canal lying between Cornwall Point and the entrance of Kemano Bay, about 8 miles E. Depths within this reach exceed 360m.

12.29 Kemano Bay (53°29'N., 128°08'W.) (World Port Index No. 18923) lies on the N side of Gardner Canal at the junction of Barrie Reach and Whidbey Reach. The port facilities within the bay have developed to serve the settlement of Kemano, which is the site of a large hydroelectric plant.

Depths—Limitations.—In the harbor, the depths vary from 145m near the entrance to 29m near the flats. There is a narrow pier with a depth of 6.4m alongside. There are also several pontoons, for use by small vessels, with depths up to 7.3m alongside.

Several mooring dolphins are situated close NW and in line with the face of the pier. A barge loading ramp is situated close E of the pier.

The currents within the bay are weak.

Anchorage.—Anchorage can be taken, in depths of 44 to 50m, in the bay about 180m from the edge of the drying flat.

12.30 Whidbey Reach (53°25'N., 128°05'W.) is that part of Gardner Canal lying between the entrance of Kemano Bay and Queen Point, 12 miles SE.

Chief Mathews Bay (53°20'N., 129°05'W.) lies on the SW side of the reach, about midway between the entrance to Kemano Bay and Queen Point. This bay extends about 3.5 miles SW from its entrance and dries for about 0.5 mile from its head.

Queen Point (53°19'N., 127°56'W.), located at the junction of Whidbey Reach and Egeria Reach, is conspicuous.

Egeria Reach (53°19'N., 127°56'W.) extends about 6 miles S and SE from Queen Point to the head of Gardner Canal.

Price Cove lies on the W side of the reach, about 3.3 miles S of Queen Point. Vessels can anchor, in depths of 28 to 37m, off the edge of a drying flat at the head of this cove.

Kitlope Anchorage (53°15'N., 127°55'W.) lies off the drying flat that extends about 1 mile from the head of Gardner Canal. This anchorage has silted in (2012) but can still be used while exercising caution due to changing depths.

Devastation Channel

12.31 Devastation Channel (53°40'N., 128°50'W.) lies between Hawkesbury Island and Loretta Island, on the W side, and the mainland, on the E. It extends 12 miles N from the

junction with Verney Passage and Gardner Canal to join with Kittmat Arm.

The shores of the channel are steep-to and the depths in the fairway are over 180m. Navigation of this channel presents no difficulty if a mid-channel course is maintained.

Kitsaway Island (53°36'N., 128°52'W.) lies on the W side of Devastation Channel, close to Hawkesbury Island to which it is joined by a drying flat.

Kitsaway Anchorage, lying between the N end of Kitsaway Island and Hawkesbury Island, affords sheltered anchorage, in a depth of 24m.

Dorothy Island (53°40'N., 128°51'W.) lies in mid-channel, about 1.8 miles N of Kitsaway Island. Dorothy Narrows, the channel passing E of Dorothy Island, is the passage generally used. A light is shown from a structure standing on the NE side of Dorothy Island.

Gaudin Point (53°42'N., 128°50'W.), the NE extremity of Hawkesbury Island, is bold. It is located on the W side of Devastation Channel, 3.3 miles NNE of Dorothy Island.

Kersey Point (53°46'N., 128°51'W.), marked by a light, is the W entrance point of Devastation Channel.

Hopkins Point (53°46'N., 128°48'W.), located on the mainland, is the E entrance point of Devastation Channel.

Douglas Channel

12.32 Douglas Channel (53°30'N., 129°12'W.) leads along the W side of Hawkesbury Island from Wright Sound to Kittmat Arm, at the N end of Devastation Channel. This channel is deep, but safe passage is insured by maintaining a mid-channel course.

The tidal currents set predominately S due to the large run of fresh water from the river emptying into the channel.

Hartley Bay (53°25'N., 129°15'W.) lies on the W side of Douglas Channel, 1.3 miles NW of Dawson Point. It is the site of an Indian reservation, a mission, and a post office.

Kiskosh Inlet (53°31'N., 129°15'W.) lies on the W side of Douglas Channel, 5.5 miles N of Hartley Bay. From 1.5 to 1.8 miles within its entrance, the inlet is shallow and the shores are fringed with drying banks that reduce the width of the channel to less than 180m.

A shoal, with a depth of 1.8m, lies close N of mid-channel, about 0.8 mile within the entrance. A rock, with a depth of less than 1.8m, lies in mid-channel, about 1.5 miles WNW of the shoal.

Anchorage can be taken, in a depth of 36m, about 0.4 mile within the entrance of the inlet with the N and S entrance points bearing 064° and 135°, respectively. Care must be taken not to anchor too far inside the inlet because the depths shoal suddenly.

Kitkiata Inlet (53°37'N., 129°15'W.) lies on the W side of Douglas Channel, 6 miles N of Kiskosh Inlet. It is entered between Helen Point and Gertrude Point. The inlet extends for about 2.5 miles in a WNW direction, but most of it dries.

A conspicuous waterfall is located on the W side of Douglas Channel, about 5 miles NE of Gertrude Point. A light is shown from the W side of Hawkesbury Island, 2 miles ESE of Gertrude Point.

Anchorage can be taken, in a depth of 40m, with Gertrude Point and Helen Point bearing 067° and 159°, respectively.

Sue Channel

12.33 Sue Channel (53°42'N, 129°00'W.) leads from the E side of Douglas Channel to Devastation Channel. It lies between Maitland Island and Loretta Island, on the N side, and Hawkesbury Island, on the S.

Sue Channel is about 10 miles long and has a least depth of 27.4m in the fairway, about 1 mile within the W entrance. The fairway is narrowed, 2 miles within the W entrance, to a width of only 180m by a gravel bank lying off the mouth of a small stream on the Hawkesbury Island side of the channel.

The bay lying on the S side of Sue Channel, close SSE of the SW extremity of Loretta Island, affords good anchorage, in a depth of 33m. Another bay, lying on the N side of Sue Channel, extends for about 1 mile NE and indents the S side of Loretta Island. This bay affords good sheltered anchorage, in a depth of 34m.

Loretta Channel

12.34 Loretta Channel (53°44'N., 128°53'W.) leads NE from Sue Channel between Loretta Island, on the E side, and Maitland Island, on the W, into the N end of Devastation Channel.

The fairway is deep and the shores are steep-to. A small islet lies 1.8 miles within the N entrance, close W of mid-channel. A shoal, with a depth of 6.7m, lies close NE of the NE extremity of this islet.

Vessels should maintain a mid-channel course and pass the islet on either side, although the passage to the E is wider and more direct.

Drumlummon Bay (53°45'N., 129°01'W.) lies on the NW side of Douglas Channel, about 12 miles NE of Kitkiata Inlet.

Foch Lagoon (53°46'N., 129°01'W.) extends about 5.5 miles NNW from its narrow entrance at the head of Drumlummon Bay. The least depth in the entrance is 3.7m, but the upper part of the lagoon has depths over 180m.

Emilia Island (53°45'N., 128°59'W.) lies close W of mid-channel, with its SW extremity located about 1 mile E of the NE entrance point of Drumlummon Bay. A light is shown from S side of this island.

Point Ashton (53°46'N., 128°57'W.), the E entrance point of Gilltoeyes Inlet, is located on the NW side of Douglas Channel, about 1 mile NE of the NE extremity of Emilia Island.

Gilltoeyes Inlet (53°50'N., 128°58'W.), entered close W of Point Ashton, extends N for about 7 miles to the edge of a dry-

ing bank. The bank fills the head of the inlet and extends seaward for about 1.5 miles.

Anchorage can be obtained, in depths of less than 36m, with the entrance of Gilltoeyes Inlet; however, care must be taken to avoid the shoals extending from the E shore, about 0.8 mile N of Point Ashton.

12.35 Miskatla Inlet (53°50'N., 128°56'W.) extends about 4 miles NNE from its entrance which is located about 1.5 miles N of Point Ashton. This inlet has submerged rocks and drying ledges close to its E shore.

Anchorage can be taken, in a depth of 27m, in the entrance of this inlet.

Kitimat Arm (53°50'N., 128°50'W.) extends about 13 miles NE from the junction of Douglas Channel and Devastation Channel. The port of Kitimat is situated at the head of this arm.

Hilton Point, conspicuous and marked by a light, is located on the NW side of the arm, 3.8 miles NE of Point Ashton. Jesse Falls, located about 0.8 mile N of Hilton Point, are conspicuous.

Caution.—A submarine pipeline from a sewer outfall extends 0.2 mile across the drying flats into Kitimat Arm.

Coste Island (53°50'N., 128°45'W.) fronts the entrance of Kildala Arm. Amos Passage leads between this island and the mainland to the entrance of Kildala Arm.

Anchorage can be obtained, in a depth of 20m, about 0.2 mile from the head of Eagle Bay, which lies on the SE side of Amos Passage. A submarine power cable extends from the shoreline 0.2 mile into Kitimat Arm and then 0.1 mile N to a submerged platform, with a depth of about 38m.

Kildala Arm (53°52'N., 128°39'W.) is approached through Amos Passage, either S or N of Coste Island. This arm extends about 7.5 miles E.

Gobeil Island lies on the N side of the entrance to this arm, about 0.2 mile offshore. Gobeil Bay lies on the N shore of the arm, close NE of the island.

Emsley Point (53°54'N., 128°46'W.) is located on the NW side of Kitimat Arm, about 2 miles NW of Coste Point.

12.36 Clio Point (53°54'N., 128°42'W.), the SW entrance point of Clio Bay, is located on the SE side of Kitimat Arm, opposite Bish Creek. A light is shown from the shore, about 0.4 mile SW of this point.

Anchorage can be taken, in depths of 11 to 18m, near the head of Clio Bay.

Kitimat—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
Dry Cargo Terminals							
Aggregate Terminal (Sandhill Project)							
Aggregate	300m	—	—	—	—	—	Aggregates. Under construction.
Terminal B							
No. 1 S	137m	14.0m	208.7m	11.6m	32.2m	56,816 dwt	Breakbulk.
No. 2 N	137m	10.9m	210m	9.75m	20.2m	7,536 dwt	Breakbulk.

Kitimat—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
Multipurpose Terminals (Terminal A)							
Caisson Wharf	230m	10.6m	229m	8.8m	32.2m	63,878 dwt	Dirty products and alumina.
Tanker Terminals							
LNG Canada	80m	12.8m	210m	—	32.2m	50,000 dwt	LNG facility. Berthing length of 300m (including dolphins).
Kitimat LNG	200m	—	—	—	—	—	LNG facility. Under construction.

Caution.—Kitimat Arm is a log storage area. numerous dolphins lie along the N and S shores at various locations and are used in conjunction with booming grounds.

A meteorological lighted buoy, equipped with subsurface floats, is moored about 1 mile E of Hilton Point. Vessels are requested to give this buoy a wide berth.

Kitimat (54°00'N., 128°41'W.)

World Port Index No. 18925

12.37 Kitimat is the third largest port in British Columbia situated at the head of Douglas Channel on the NW extremity of Kitimat Arm, approximately 405 miles NNW of Vancouver. The municipality of Kitimat is located 2 miles SE of the port on the E shore of Kitimat Arm. Kitimat is the site of a large aluminum smelter. There are currently two major development projects in progress in the Kitimat area to handle LNG products. Both terminals are nearing completion.

Kitimat Home Page
http://www.portofkitimat.com

Winds—Weather.—The prevailing winds are generally from the N and S during summer and winter, respectively. Strong S winds raise a choppy sea in Kitimat Arm. During S gales, the possibility of waves, up to 2.1m high, can be anticipated. The amount of ice is insufficient to hinder navigation and the port is usually open all year round.

Tides—Currents.—The mean tide rise is 4.8m, increasing to 6.73m during spring tide. The currents in the harbor are weak or negligible.

Depths—Limitations.—Vessels up to 50,300 dwt, with a maximum length of 213m in length and a maximum draft of 12.2m have been accommodated within the port. There are also facilities for small craft and yachts.

For further information, see the table titled **Kitimat—Berth Information**.

Aspect.—The towers of the power transmission line extending from Kemano are conspicuous. The line extends along the E shore and across the drying flat at the head of the arm. A church standing at the mission on the E side of the head of the arm is conspicuous. Several large, conspicuous cement tanks stand at the inshore end of Wharf No. 2, on the W side of the head of the arm.

Pilotage.—Pilotage is compulsory and is provided by the Pacific Pilotage Authority Canada (PPA). For details on reporting procedures and pilot boarding areas refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Regulations.—Kitimat lies within the Prince Rupert Vessel Traffic Service (VTS) System. For details concerning reporting procedures, refer to paragraph 11.1 (Regulations). For other regulations covering the Western Canada Traffic Zone, refer to Canada—Regulations and Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Contact Information.—The port can be contacted, as follows:

1. Telephone: 1-250-632-8900
2. Facsimile: 1-250-632-4995
3. E-mail: info@portofkitimat.com

Anchorage.—There are four holding areas for multiple vessels S of Kitimat and four inner harbor anchorages available within Kitimat Arm. There is no satisfactory anchorage outside the harbor at the head of Kitimat Arm, because it is exposed to the S and the depths are too deep. Vessels awaiting a berth and unable to secure alongside the mooring dolphins in the harbor are advised to select one of the anchorages in Douglas Channel such as Emilia Anchorage, 14 miles away, or Kitkiata Anchorage approximately 23 miles S of the harbor. Vessels may also anchor at Anger Island in Principe Channel or on Michael Bank in Esetevan Sound, but these anchorages are as far as 70 miles from the port.

Grenville Channel, Arthur Passage, and Malacca Passage

12.38 Grenville Channel (53°22'N., 129°20'W.) leads NW from Wright Sound and is about 45 miles long. It connects at the NW end with Arthur Passage, which leads into Malacca Passage, Chatham Sound, Telegraph Passage, and the Skeena River. The channel is also joined by Ogden Passage from the sea. It is the channel taken by vessels proceeding by the inner passage to Prince Rupert and other ports farther N.

The depths in Grenville Channel are over 90m in most places. In the N entrance, three shoal patches lie between Gibson Island and Pitt Point and are marked by lighted buoys.

Sainty Point (53°22'N., 129°19'W.), marked by a light, is the NE entrance point at the NE entrance of Grenville Channel.

Mosley Point (53°28'N., 129°29'W.) is located on the NW



Port of Kitimat

side of a cove on the NE side of Grenville Channel, about 8.8 miles NW of Sainty Point.

Low Inlet (53°32'N., 129°35'W.), on the NE side of Grenville Channel, 14.5 miles NW of Sainty Point, is entered between Hepburn Point, on the SE, and James Point, on the NW.

The entrance, lying near Hepburn Point, is about 0.2 mile wide, but a short distance within the inlet, the fairway is reduced to a width of about 0.1 mile by shoals on either side. Whiting Bank, with a depth of 17.3m, extends across the inlet between these shoals. The depths increase to the N of this bank.

Anchor Cone, a conical summit, rises 0.8 mile E of Hepburn Point and is conspicuous from the anchorage in Lowe Inlet.

Nettle Basin lies at the head of Lowe Inlet. Its entrance, located between Pike Point and Mark Bluff, is about 0.2 mile wide. Both the entrance points are fringed by reefs which extend seaward and reduce the fairway to a width of only 135m. There are general depths of 24 to 33m within the basin.

Vessels of up to 76m in length can obtain anchorage, in a depth of 31m, within the inlet, about 0.2 mile SW of Pike Point.

Nabannah Bay (53°40'N., 129°45'W.) is entered between Evening Point, located 9.5 miles NW of James Point, and Morning Point, about 0.5 mile N. The entrance of this bay is fronted by Barrier Rock and several reefs. There is a least depth of 6.4m within the bay.

Morning Reef extends up to about 0.2 mile W and NW of Morning Point. A light is shown from a structure standing on a drying rock located on the reef.

Klewnggit Inlet (53°41'N., 129°44'W.) is entered between Rogers Point, located 0.5 mile NE of Morning Point, and Harriot Island, about 0.5 mile NE.

Ship Anchorage indents the NE side of Harriot Island and has an entrance only about 0.1 mile wide. Vessels can obtain anchorage, in a depth of 39m, mud, within Ship Anchorage, off the NE side of Harriot Island. Vessels can also obtain anchorage, in a depth of 28m, at the S end of East Inlet.

Kxngeal Inlet (53°44'N., 129°49'W.) lies on the NE side of Grenville Channel, about 4 miles NW of Rogers Point. This inlet, which is entered E of Ormond Point, extends about 1 mile N and terminates in a drying flat. Anchorage can be obtained, in a depth of 31m, in mid-channel, near the head of the inlet.

Caution.—Vessels proceeding to Ship Anchorage should pass not less than 0.2 mile S of Harriot Island. If entering East Inlet, vessels should favor the E entrance point to avoid the reef extending S from the opposite side.

A safety zone has been established around a wreck with unexploded ordnance and leaking oil on the W side of Grenville Channel about 0.6 mile ENE of Sylvan Peak. Vessels should not anchor or fish within 200m.

12.39 Baker Inlet (53°48'N., 129°54'W.) is entered through



Port of Kitimat

Watts Narrows, the entrance of which lies on the NE side of Grenville Channel. This entrance is located close N of Griffon Point, about 6.5 miles NW of the entrance of Kxngal Inlet. A light is shown on the SE side of the entrance, 0.2 mile NNE of Griffon Point.

Watts Narrows are only about 60m wide and 210m long. There is a least depth of 18.3m in the fairway, near the N end.

A conspicuous white house stands on the W side of Grenville Channel, about 1.8 miles W of the entrance to Baker Inlet.

Kumealon Inlet (53°51'N., 130°00'W.) is entered about 3 miles NW of the entrance to Baker Inlet and on the same side of the channel. The entrance is about 0.3 mile wide and the inlet extends about 2 miles in a NE direction.

At Kumealon Inlet, the tides rise 6.2 to 7.2m at springs and about 4.9m at neaps. The fairway of the inlet is deep and clear of dangers to within about 0.8 mile of its head.

Vessels can anchor, in a depth of 55m, about 1 mile within the entrance of Kumealon Inlet.

Stuart Bight (53°49'N., 130°01'W.) lies SE of a high, bold projection on the SW side of Grenville Channel. Stuart Anchorage lies about 3 miles NW of the bight and on the same side of the channel. It is located on the NW side of a low peninsula which terminates in Bonwick Point.

Vessels can anchor, in a depth of 31m, close W of Stag Rock (53°52'N., 130°05'W.).

Pitt Point, the N entrance point of Stuart Anchorage, is located 1 mile NW of Stuart Anchorage.

Caution.—Vessels approaching the entrance of Kumealon Inlet from the S should take care to avoid the foul ground ex-

tending up to about 0.2 mile offshore, 0.4 mile S of McMurray Point, the E entrance point.

Arthur Passage and Telegraph Passage—South Approaches

12.40 The main route between Grenville Channel and Chatham Sound leads through Malacca Passage. It then follows through Telegraph Passage to the Skeena River.

Gibson Group (53°56'N., 130°10'W.) lies between 1.5 miles and 4 miles N of Pitt Island. The channel leading to Arthur Passage lies S and W of this group, while that leading to Telegraph Passage lies E of the group. Rocks lie in the channels leading N and S of Bedford Island and no attempt should be made to pass between the islands of the Gibson Group.

The mouth of the Oona River, which dries at LW, lies between Peninsula Point (53°57'N., 130°14'W.) and Oona Point. Two mooring buoys are situated at the river entrance. A wharf, situated 0.5 mile within the river mouth, is protected by a stone breakwater that extends half way across the river.

Gibson Island, the largest of the group, is wooded and indented. It lies at the S end of the group. Bloxam Island and Lamb Island lie close off the SE and NE sides of Gibson Island, respectively. Watson Rock, marked by a light, lies close SW of Gibson Island.

Bloxam Flat, with depths of less than 5.5m, extends up to about 1 mile E from Gibson Island and Bloxam Island.

Marrack Island (53°58'N., 130°09'W.) is the northernmost island of the Gibson Group.

12.41 Arthur Passage (54°00'N., 130°12'W.) leads between Kennedy Island, on the E side, and Lewis Island, Elliot Island, and McMicking Island, on the W. It is the continuation of the inside passage to the N of Grenville Channel.

Arthur Passage has a least width of 0.6 mile between dangers; its fairway is deep throughout.

Kennedy Island (54°02'N., 130°10'W.) is wooded and rises gradually, culminating near the middle in two conspicuous peaks. The W side of the island is bold with few indentations. The E side, which forms the W side of Telegraph Passage, has flats extending from it. Elizabeth Peak is the W summit of Kennedy Island. Lights are shown from the NE and SW sides of the island.

Cardena Bay (53°59'N., 130°10'W.) lies on the S side of Kennedy Island. A mudbank, with depths of from 8.2 to 12.8m, extends up to about 0.8 mile S from Cardena Bay.

Anchorage can be obtained, in a depth of 9.1m, good holding ground, on the mudbank to the S of Cardena Bay and about 0.5 mile SE of Seabreeze Point, the W entrance point of the bay. This is the best anchorage in case of fog existing in the vicinity of the Skeena River. It is sheltered from N winds and much frequented.

Lewis Island (54°00'N., 130°14'W.), high and wooded, lies on the W side of the S end of Arthur Passage.

12.42 Kelp Passage (54°00'N., 130°15'W.), which separates Lewis Island from Porcher Island, is connected at its N end with Chismore Passage. It is very restricted and shoal.

Herbert Reefs (54°01'N., 130°14'W.), which dry, consist of two patches, lying 0.2 mile apart. They are located on the W side of the fairway of Arthur Passage, about 0.3 mile E of the N end of Lewis Island. A depth of 8.2m lies between these two patches and a steep-to shoal, with a depth of 4.2m, lies about 0.2 mile N of the northernmost patch. A light is shown from the northernmost patch.

Lawson Harbor (54°01'N., 130°15'W.) lies on the N side of Lewis Island and the settlement of Lewis Island is situated on its S shore. The harbor affords anchorage, in a depth of 7.3m, in mid-channel.

Bloxam Passage (54°02'N., 130°15'W.), which connects Arthur Passage to Chismore Passage, lies between Lewis Island and Elliott Island. It is only about 180m wide and has a depth of 37m in the fairway.

12.43 Elliott Island (54°02'N., 130°16'W.) is separated from Porcher Island by Chismore Passage. Chalmers Anchorage lies on the N side of Elliott Island and affords anchorage to vessels with local knowledge, in a depth of 24m, midway between the entrance points.

Hanmer Island (54°04'N., 130°15'W.) lies on the E side of the fairway, at the N end of Arthur Passage. Its S extremity terminates in high cliffs. Lights are shown from the S and NE ends of this island.

Cecil Patch (54°04'N., 130°17'W.), with a depth of 6.4m, lies on the W side of the fairway of Arthur Passage, about 0.8 mile W of Hanmer Island. A lighted buoy marks this shoal patch.

McMicking Island (54°03'N., 130°18'W.) lies close NW of Elliott Island and a small light indents its NW end. Lamb Point, the W entrance point of the bight, is the NW extremity of Mc-

Micking Island.

The **Bamfield Islands** (54°04'N., 130°18'W.), two in number, are rocky and fringed by drying reefs. They lie about 0.2 mile off the NE side of McMicking Island.

Chismore Passage (54°03'N., 130°18'W.) lies parallel with Arthur Passage between Porcher Island, on the SW side, and Elliot Island and McMicking Island, on the NE. It has a least width of 0.2 mile and depths of 16 to 26m over a mud bottom in the fairway.

Anchorage can be obtained by vessels with local knowledge, in depths of 12 to 16m, good holding ground, in mid-channel. Excellent shelter is provided W of the SW side of Elliot Island. Anchorage can also be obtained, in depths of 12 to 18m, about 0.3 mile SW of Cocktail Point.

Malacca Passage

12.44 Malacca Passage (54°05'N., 130°20'W.), the continuation NW of Arthur Passage, lies between the Genn Islands and the Lawyer Islands, on the NE side, and the NE part of Porcher Island, on the SW. It connects the inner passage from the S with Chatham Sound and is deep throughout.

The **Genn Islands** (54°06'N., 130°17'W.), two in number, are surrounded by a reef and lie 2 miles NNW of Hanmar Island. A light is shown from the NW extremity of the largest island.

Bribery Islet, surrounded by a reef, lies about 0.8 mile W of the largest of the Genn Islands. Client Reefs lie about 0.4 mile NNW of this islet.

The **Lawyer Islands** (54°07'N., 130°20'W.) consist of two main islands and several islets. The northernmost and largest island is the tallest. The southernmost islet of the group lies about 0.7 mile WNW of Bribery Islet. Reefs and drying rocks fringe the W side of this group. The largest island is marked by a light and several white buildings, with red roofs, stand close S of it. These buildings are conspicuous from Malacca Passage.

Hunt Point (54°06'N., 130°25'W.), the N extremity of Porcher Island, is the W entrance point at the NW end of Malacca Passage. Grace Island lies close N of this point.

Mason Point is located 1.3 miles SE of Hunt Point and between them lies a bay with irregular depths.

The **Ada Islands** (54°05'N., 130°23'W.) lie near the SE end of the above-mentioned bay. A passage, 135m wide, leads between them and Mason Point. Humpback Bay lies close S of the Ada Islands. The settlement of Porcher Island stands on the W side of the entrance to this bay.

Ker Point (53°54'N., 130°05'W.) lies on the E side of the S entrance of Telegraph Passage, about 1.5 miles NE of Pitt Point.

Caution.—Two submarine cables cross the Marcus Passage and the Malacca Passage, starting about 2 miles N of Hazel Point on Smith Island to the N end of Lawyer Island and then ashore to Porcher Island, about 1 mile S of Hunter Point, as seen on chart.

The Skeena River

12.45 The Skeena River (54°10'N., 130°05'W.) is the largest river on the coast of British Columbia to the N of the Fraser



Photo copyright Mike Mitchell

Lawyer Islands Light

River. About 120 miles above Port Essington, the river divides into three branches. The principal branch takes a N direction while the others run NW and SE.

Ice.—The upper part of the Skeena River is frozen over during the winter. In severe winters, the whole river as far as Port Essington has also been frozen. Inverness Passage is sometimes encumbered with ice during the winter, but it seldom reaches down as far as Kennedy Island.

The greater part of the loose ice, which encumbers the Skeena River in the cold season, comes from the Ecstall River. Strong NE gales in winter interrupt communications with the shore.

Vessels cannot not remain off Port Essington during the months of December, January, February, and March and well into April. The snowfall reaches a depth of 1.8m on the level.

Depths—Limitations.—The entrance of the Skeena River, about 6 miles below Port Essington, can be approached by either Telegraph Passage, Marcus Passage, or Inverness Passage.

Telegraph Passage, the entrance from the S, has a least depth of 5.8m.

Marcus Passage has a least depth of 3.9m, across the SE bar leading between Parry Point and Marked Tree Bluff.

Inverness Passage has a least depth of 4.5m in the fairway. This channel is very narrow at its junction with the Skeena River off the NE side of Dehorsey Island.

The Skeena River is available to vessels with drafts up to 1.2m as far as 20 miles above Port Essington. Small sternwheel steamers of still shallower draft can ascend with difficulty for 15 miles farther, but only canoes can navigate beyond that point. The head of navigation for vessels with drafts over 1.8m terminates 6 miles above Port Essington.

Caution.—Although buoys and beacons have been established to assist in the navigation of the various passages, vessels without local knowledge are advised to employ a pilot.

In the summer, the river is encumbered with fishing nets which almost block it during June, July, and August.

Telegraph Passage

12.46 Telegraph Passage (54°00'N., 130°0'W.) leads N between the mainland shore, on the E side, and Kennedy Island, on the W. It joins the Skeena River E of DeHorsey Island. The passage can be entered from the S between the Gibson Group and the mainland shore, or from the W via the channel lying between Marrack Island and Kennedy Island; the latter channel is more preferable.

Buckley Point (53°56'N., 130°06'W.) is located on the E side of the passage opposite Gibson Island and about 2.5 miles NNW of Ker Point.

Daring Point (53°59'N., 130°09'W.) is the SE extremity of Kennedy Island. Grey Cliff is a conspicuous point located on the E side of Kennedy Island, about 2.3 miles N of Daring Point.

Hegan Point (54°04'N., 130°06'W.), marked by a beacon, is located on the mainland at the N end of Telegraph Passage, about 7.8 miles N of Buckley Point.

Anchorage can be obtained, in depths of 5.5 to 14.6m, in the S part of Telegraph Passage, E of Gibson Island, Bedford Island, and Marrack Island.

Caution.—The navigable channel in Telegraph Passage is subject to considerable change. Local knowledge is required.

Marcus Passage

12.47 Marcus Passage (54°05'N., 130°15'W.) forms the N entrance of the Skeena River from Chatham Sound. It lies between the Lawyer Islands, the Genn Islands, and Kennedy Island, on the S side, and Smith Island, Croasdaile Island, and DeHorsey Island, on the N.

The passage is obstructed by two bars. The westernmost bar has a least depth of 5.9m and lies between Croasdaile Island and Base Sand. The easternmost bar has a least depth of 4.6m in the fairway and lies between Marked Tree Bluff and Parry Point.

Smith Island (54°08'N., 130°11'W.) is the northernmost and largest of the islands fronting the entrance of the Skeena River. Mount McGrath stands near its W end and is very conspicuous.

Croasdaile Island (54°06'N., 130°13'W.) lies close off the S side of Smith Island and about 1 mile ESE of Hazel Point. Neill Islet lies close N of the W extremity of this island.

Georgy Point is the N extremity of the island. Base Sand Light is shown from a pile of dolphins situated about 2 miles W of this point.

DeHorsey Island lies about 1 mile off Croasdaile Island and close off the SE side of Smith Island. It is separated from

Smith Island by DeHorse Passage, most of which dries.

Osland, a settlement, stands on Smith Island at the S end of DeHorse Passage.

The channel lying about 0.3 mile SE of Georgy Point is reduced to a width of only about 0.1 mile by a projecting shallow flat.

Caution.—Because the shoals in Marcus Channel are subject to change, only vessels with local knowledge should use it.

Two submarine cables cross Marcus Passage and Malacca Passage, starting about 2 miles N of Hazel Point on Smith Island to the N end of Lawyer Island and then ashore to Porcher Island, about 1 mile S of Hunter Point, as seen on chart.

Inverness Passage

12.48 The W entrance of **Inverness Passage** (54°11'N., 130°12'W.) lies between the NW side of Smith Island and the banks fronting Kitson Island. The passage turns sharply E at Hicks Point, the N extremity of Smith Island, and leads to Eleanor Passage on the Skeena River. The least depth in the passage as far as Eleanor Passage is 4.5m.

Kitson Island (54°11'N., 130°19'W.) lies on the SW edge of Flora Bank, which separates Inverness Passage from the entrance of Porpoise Harbor.

Kitson Islet lies on Flora bank, about 0.2 mile NE of the island.

Lelu Island (54°12'N., 130°17'W.) has a conspicuous hill standing on Leer Point, its SE extremity.

Stapledon Island lies close NE of Lelu Island, from which it is separated by a narrow channel.

Tsum Tsadai Inlet (54°10'N., 130°15'W.), the entrance of which lies 1.5 miles E of Kitson Island, extends about 1.5 miles E.

Soar Point is the W extremity of a wooded island that lies 0.8 mile N of the N entrance point of this inlet.

Hicks Point (54°12'N., 130°15'W.) is the N extremity of Smith Island.

Good anchorage can be obtained, in a depth of 21m, mud, with the light on the mainland, situated 0.3 mile NW of Hicks Point, bearing 025° and Hicks Point bearing 100°.

Caution.—An overhead power cable, with a vertical clearance of 27m, extends across the entrance to Tsum Tsadai Inlet.

Two submarine cables cross Inverness Passage about 0.8 mile SE of Hicks Point, as seen on the chart.

12.49 Inverness (54°12'N., 130°15'W.), the site of a former cannery, is situated on the N side of Inverness Passage.

Tatenham Point (54°11'N., 130°13'W.) is located on the S side of the passage, about 1.2 miles ESE of Hicks Point.

North Pacific, Sunnyside, and Caspaca are three settlements, with former canneries, that stand on the N side of Inverness Passage within 3 miles E of Hicks Point. These settlements are now used as fishing bases, but the amount of activity varies with the fishing seasons.

Eleanor Passage has a width of 0.5 mile between Gust Point (54°09'N., 130°08'W.), on the mainland, and the NE side of DeHorse Island. However, the channel is contracted to a width of less than 180m by a drying mud flat, which extends S and SW from Gust Point, and by Clara Shoal, which dries. The

channel leading through Eleanor Passage has been dredged to a depth of 4.9m.

The N shore of the Skeena River as far as 9 miles above its entrance is formed by the S side of the Tsimpsean Peninsula. This peninsula is formed by Work Channel, which indents the mainland in a SE direction from the E side of the entrance to Portland Inlet to within about 4 miles of the Skeena River.

Mowitch Point (54°10'N., 130°02'W.) is located 3.8 miles ENE of Gust Point.

A wide bight lies between Veitch Point and Port Essington, 3 miles ENE. The E end of this bight is fronted by an extensive drying mudflat. Cunningham Peak, standing 1.3 miles S of the bight, is conspicuous. Mount Morrison rises about 1 mile farther S and is also conspicuous.

Port Essington (54°10'N., 129°58'W.), the site of a former cannery, is situated on the S shore of the Skeena River near the junction with the Ecstall River.

Anchorage can be obtained by vessels with local knowledge, in a depth of 8.2m, mud, close W of the point on which Port Essington stands. However, a heavy cross sea is caused here by strong winds from seaward and vessels are liable to foul their anchors at such times.

The Ecstall River flows into the Skeena River from the S, between Port Essington and Carthew Point, 1 mile NE.

Ecstall Island (54°10'N., 129°57'W.), marked by a light, lies on the W side of the entrance of the Ecstall River, close NE of the SW entrance point. This island is fringed by foul ground and rocks on the N side.

The **Raspberry Islands** (54°11'N., 129°57'W.), two in number, lie within 0.5 mile NW of Carthew Point, the NE entrance point of the Ecstall River.

Hotspring Point (54°10'N., 129°55'W.) is located on the S side of the river, about 1.5 miles NE of Raspberry Bluff.

12.50 Aberdeen Point (54°13'N., 129°53'W.) is located on the N side of the river. Khyex Point is located on the N side of the river on the E side of the entrance of the Khyex River, about 3 miles E of Aberdeen Point.

Windsor Point (54°13'N., 129°50'W.) is located on the S side of the river, close S of Khyex Point.

Ayton Island lies in the middle of the river, about 4 miles E of Windsor Point.

Snag Point (54°12'N., 129°42'W.) is located on the S side of the Skeena River, about 0.8 mile SE of Ayton Island and close S of the E end of Ayton Bank.

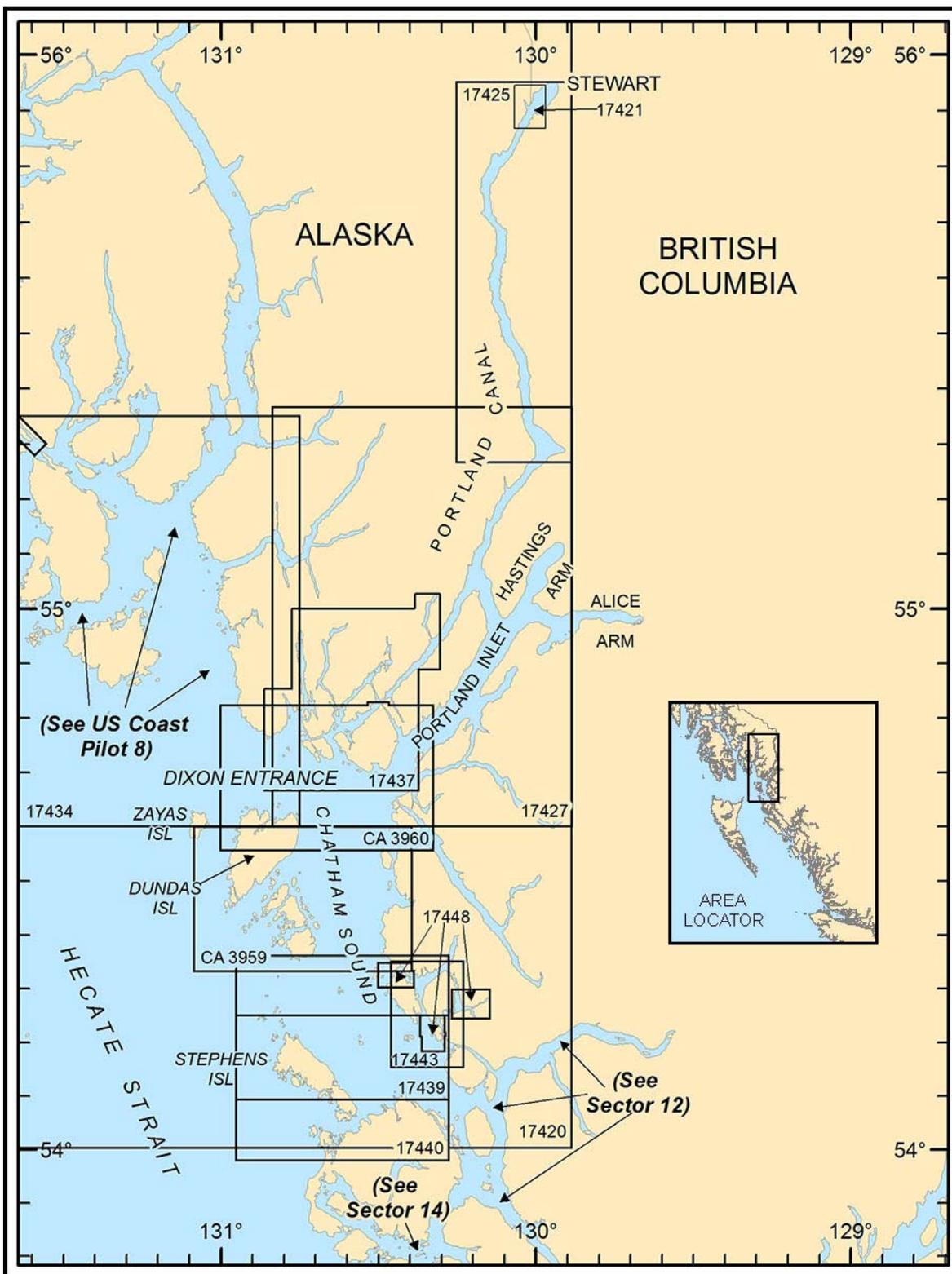
Telegraph Point is located on the N side of the river, about 1.8 miles ESE of Snag Point.

Carnation Island (54°11'N., 129°40'W.) lies on the S side of Carnation Bank and about 0.5 mile S of Telegraph Point.

The Scotia River flows into the Skeena River close S of the E end of Carnation Island.

Caution.—The channel lying N of Carnation Bank is very narrow and only about 135m wide in places. It should be navigated only at HWS as strong currents exist at any other stage of the tide.

Several overhead power cables, which may best be seen on the chart, extend across the Skeena River in the vicinity of Telegraph Point.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 13 — CHART INFORMATION

SECTOR 13

CHATHAM SOUND—HECATE STRAIT TO DIXON ENTRANCE

Plan.—This sector describes Chatham Sound and the NE part of Hecate Strait from the SW extremity of Porcher Island to the SE entrance of Revillagigedo Channel. It also includes the passages entering Chatham Sound from Hecate Strait. The NE part of Dixon Entrance is then described together with Portland Inlet, Observatory Inlet, and Pearse Canal. The Portland Canal is described as far as Stewart, British Columbia and Hyder, Alaska.

General Remarks

13.1 Chatham Sound lies between the islands lying off the Tsimpsean Peninsula, on the E side, and the islands lying N of Porcher Island including the Dendas Islands, on the W.

The sound communicates with Hecate Strait by three channels; namely Edye Passage, Bell Passage, and Brown Passage.

The N end of Chatham Sound joins the NE part of Dixon Entrance and affords a direct route via the inner passage to Alaska, Pearse Canal, and Portland Inlet.

The NE part of Hecate Strait forms the outside coastal route for vessels desiring to enter Dixon Entrance and Revillagigedo Channel. From this section of coast, Chatham Sound can be entered through the above-mentioned passages. It is used especially by those vessels desiring to enter Prince Rupert Port and the inner passage to the S.

The NE part of Dixon Entrance embraces the N end of Chatham Sound, to the S, and the inner channels, to the N, from which the ports of Hyder, Alaska and Stewart, British Columbia can be reached.

The islands, islets, and rocks lying in the S part of the sound are mostly wooded and of a conspicuous dark color, with the exception of Gull Rocks, a group of bare rocks, located close off the inner entrance to Edye Passage. The islands, islets, and rocks lying in the N part of the sound are bare and conspicuous, with the exception of Green Island.

The inner passage, after leaving Malacca Passage, follows the E side of Chatham Sound as far as Port Simpson. It then follows through the Main Passage to Portland Inlet or Alaska.

The least depth in the fairway of the inner passage through Chatham Sound is 55m. The depths lying in the inner channels to the N are deep.

Brown Passage provides the most direct route to Prince Rupert and the S part of Chatham Sound from Dixon Entrance. It also forms a convenient entry into Chatham Sound from Hecate Strait for large vessels.

Edye Passage is a convenient route leading between the N end of Hecate Strait and the S part of Chatham Sound. This passage has a least width of 0.6 mile and is easily navigated at all states of the tide. It also avoids the strong and irregular tidal currents experienced in Brown Passage.

Tides—Currents.—In the E part of Dixon Entrance between Cape Fox and Dundas Island, the channel is reduced to a width of 6.5 miles. The flood current runs E at a rate of 2 knots and the ebb current runs W at a rate of 3 knots. The turn of the

current apparently occurs near the time of HW and LW at Prince Rupert. These currents should be borne in mind when navigating through this portion of Dixon Entrance.

Occasionally in winter, N gales draw down Portland Inlet and across the NE end of Chatham Sound, and when heaviest, render the crossing between Dundas Island and Cape Fox hazardous for all except full-powered vessels. A heavy beam sea is encountered when crossing during SW gales.

The E current through Dixon Entrance, upon reaching the N end of Hecate Strait, divides at a point midway between Rose Spit (54°13'N., 131°35'W.) and Dundas Island. The weaker portion of the current sets N past Dundas Island, undoubtedly because of the indraft toward Portland Canal and the neighboring inlets. The main current turns SE in Hecate Strait. In winter, the E and W currents are very regular, but in late summer, the E current may attain a rate of 2.5 to 3 knots, with little appreciable W current or only slack water. These changes in the current are similar to the annual variation in the time of the tide itself, which gives rise to the tidal differences shown in the tide table.

Farther S, where the strait widens in the latitude of Porcher Island, the tidal current rarely exceeds a rate of 1 knot in the central portion of the strait. However, along the shore from Cape George, on Porcher Island, to Butterworth Rocks, the N current is the stronger and the SE current is hardly appreciable. Within 5 miles of the shore, the NW current may exceed a rate of 3 knots.

The tidal currents in Chatham Sound do not exceed a rate of 1 knot. In the S part of the sound, the E tidal current from Brown Passage and the NE tidal current from Edye Passage join the tidal current from Malacca Passage; the united current sets N up the main channel of the sound.

In the N approach to the sound between Dundas Island and Cape Fox, the E tidal current flows at a rate of 2 knots and the W tidal current at a rate of 3 knots. The change of the tidal current takes place apparently at about HW and LW at Prince Rupert.

The general direction of the flood current in Hecate Strait is to the N and that along the N coast of the Queen Charlotte Islands is to the E. This causes a great irregularity in the vicinity of their junction between Rose Spit, on the W side of the strait, and the W entrance of Brown Passage. At springs or during bad weather, the tide rips caused by the meeting of the currents are sometimes so great as to convey an appearance of broken water off Rose Spit. The flood current sets E and the ebb current W, both at a rate of 1.5 knots. The change of the currents takes place about the time of HW and LW by the shore. In Portland Inlet at the entrance of Nass Bay, the E current runs at a rate of 2 knots and the W current at a rate of 3 knots. Abreast Nass Bay, the S current runs at a considerable rate, the blue water being clearly defined when meeting the muddy waters from the Nass River.

Regulations.—The waters described in this sector lie within the Prince Rupert Vessel Traffic Zone. For further information,



Porpoise Harbor—Watson Island Pulp Terminal

see Regulations in paragraph 11.1.

Canadian modifications to 72 COLREGS are applied in waters under Canadian jurisdictions. See Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia for further information.

Prince Rupert Port and Porpoise Harbor—South Approaches

13.2 The S approach to Prince Rupert Port lies between Kitson Island, Lelu Island, and Ridley Island, on the E side, and Holland Rock, East Kinahan Island, and Digby Island, on the W.

Mount McGrath (54°10'N., 130°15'W.), on Smith Island, and **Mount Hays** (54°17'N., 130°19'W.), on Kaien Island, are conspicuous landmarks.

The general depths in the S approach to Prince Rupert Port are 31 to 82m. Vessels of any size can be accommodated.

Holland Rock (54°10'N., 130°22'W.), 3m high, is marked on its S end by a light mounted on a skeleton tower at an elevation of 9.1m. Foul ground extends up to about 0.1 mile N of this rock and a detached shoal, with a depth of 7.3m, lies close ESE of it.

Grace Rock, which dries 1.5m, and Dor Rock, with a depth of 0.4m, lie about 0.4 mile and 0.7 mile, respectively, WNW of Holland Rock.

Greentop Islet, with its summit covered with grass, lies 1.8 miles W of Holland Rock. It is gray, rocky, 6.7m high, and marked by a light. The islet is fringed by shoals and foul ground, covered with kelp, and lies close off the SW edge of a shoal.

A bank, about 1 mile long, lies midway between Holland Rock and Kitson Island. Shoals, with depths of 7.3 to 9.1m, lie



Photo copyright Mike Mitchell

Holland Rock Light

on this bank, parallel to the direction of the channel.

The **Kinahan Islands** (54°12'N., 130°24'W.), four in number, lie on the N side of the approach route to Prince Rupert. Elinor Rock, with a depth of less than 1.8m, lies about 0.4 mile E of the SE extremity of the easternmost island. A shoal, with a depth of 6.4m, lies about 0.3 mile NW of this rock.

Rocks and shoals extend up to about 0.2 mile W, SW, and S of the westernmost island. A shoal, with a depth of 6.4m, lies about 0.3 mile NW of the N end of this same island. Marion Rock, which dries 0.3m, lies near the outer end of the foul ground which extends about 0.4 mile WNW from the NW side of westernmost island.

Anchorage can be taken, in depths of 18 to 24m, in the bay

formed between the easternmost and westernmost of the Kinahan Islands. However, this anchorage is exposed to the SE and is not recommended during the winter.

13.3 Porpoise Harbor (54°13'N., 130°17'W.) (World Port Index No. 18942) is a nearly landlocked harbor formed by a narrow channel lying between Ridley Island and the Tsimpsean Peninsula. The harbor is entered by way of Porpoise Channel, which passes between Ridley Island and Lelu Island, and has a least width of about 180m. The entrance to the fairway leading to Porpoise Channel lies between the N side of Agnew Bank and the S edge of the detached shoal, with a depth of 4.3m, lying about 0.8 mile WSW of the S extremity of Ridley Island. A lighted range on Lelu Island marks the passage.

Porpoise Channel may also be entered from the NW between the above-mentioned shoal and the shoals extending SW from Ridley Island. This channel, although deeper, passes close outside the shoal lying on the E side of the fairway and necessitates a sharp course change to the NE in order to enter Porpoise Channel.

The settlement of Port Edward stands on the E shore of the harbor.

Tides—Currents.—Porpoise Channel, the navigable fairway of which narrows considerably, is subject to tides of up to 7.3m and currents with rates of 6 to 7 knots. A drying channel lying between Lelu Island and the mainland causes another 6 knot current to flow during the outgoing tide in a position where Porpoise Channel bends to the NNW.

Heavy winds often blow in a low, flat area of land between two relatively high hills NE of Port Edward. The effects of these winds are directed to the position at the bend of Porpoise Channel.

The tidal currents in the entrance to Porpoise Harbor attain considerable strength, and in addition, there is a very strong set N from the channel between Lelu Island and the Tsimpsean Peninsula during the falling tide. The combination of the tidal currents and the above-mentioned winds creates a serious navigational hazard requiring extreme caution when entering the harbor.

Entry to the harbor is usually restricted to HW slack during daylight hours; however, some vessels may occasionally enter at LW slack.

Depths—Limitations.—The fairway leading to Porpoise Channel has a swept depth of 7m. The channel leading from the NW has a least depth of 11.9m.

Porpoise Channel has depths of 12 to 26m in the fairway.

Port Edward has facilities for fishing vessels and is the winter base for a fishing fleet of up to 350 craft.

The Skeena Cellulose Pulp Mill is situated on Watson Island but has been closed since 2001. It is fronted by a berth, 360m long, with a depth of 9.4m alongside, with berthing only allowed during daylight hours at slack water.

The Porpoise Harbor Marina Complex is located close S of the pulp mill. A T-shaped pier, used by fishing vessels, is situated close S of the marina and extends a short distance W from shore. Both of these facilities front the village of Port Edward.

Aspect.—A lighted range, situated on the W side of Lelu Island, indicate the swept passage leading to Porpoise Channel.

A light situated close off the N extremity of Lelu Island and a beacon close NE of it, in line, from a range leading through

the SW part of Porpoise Channel. A conspicuous chimney stands close NW of the rear beacon of the Porpoise Channel range.

The SW extremity of Martini Island (54°15'N., 130°25'W.) in line, bearing 313°40' astern, with the S extremity of Digby Island leads through the NW approach to Porpoise Channel.

A beacon stands on the SE extremity of Gay Island and marks the turning point from Porpoise Channel into the harbor.

Caution.—Several submarine pipelines, which may best be seen on the chart, extend WSW from the N end of the berth at Watson Island to Ridley Island and also SW from a point located close off the berth.

A gas pipeline, which may best be seen on the chart, lies across the harbor, at the NW end of Watson Island.

Several areas in the harbor, which may best be seen on the chart, are used as booming grounds.

A submarine telephone cable, which may best be seen on the chart, crosses the harbor from the NE end of Ridley Island.

An unknown obstruction, at a depth of 1.9m, is located close N of the marina in position 54°13'47"N, 130°17'49"W.

Prince Rupert Port (54°19'N., 130°19'W.)

World Port Index No. 18950

13.4 Prince Rupert Port lies between Digby Island, Kaien Island, and the Tsimpsean Peninsula. It is entered from the S, between Lima Point, the S extremity of Digby Island, and Kaien Island, 1.5 miles E. The City of Prince Rupert stands 5 miles within the entrance, on the NW side of Kaien Island. It is the terminus of the Canadian National Railways.

Prince Rupert Home Page

<http://www.rupertport.com>

Ice.—Prince Rupert Port offers a safe ice-free harbor year round.

Winds—Weather.—At Prince Rupert, SE winds generally predominate. From October to April during the day, 40 to 50 per cent of all winds blow from the SE. From May to August, NW winds increase at the expense of SE winds, the frequency of each being about 25 per cent. At night, SE winds predominate except from May to July, when N winds become about equal in frequency.

Prince Rupert is subject to violent wind gusts from the mountain slopes during SE gales, which are prevalent in autumn and winter months. During these conditions it is necessary to take precautions against the anchor dragging; engines are to be on standby and a second anchor on standby for winds if 25 knots or more. Remaining in ballast is recommended.

Tides—Currents.—In the channel abreast Casey Point, the ebb current begins 1 hour after HW; the maximum rate is 2 to 3 knots. The tidal currents attain a rate of 2 to 3 knots in Venn Passage.

In Tuck Inlet, the tidal currents are weak. The tidal currents in Tuck Narrows change direction about the time of HW and LW, the current running out of Tuck Inlet shortly after HW and into it shortly after LW at Prince Rupert. There is very little slack water. The current attains a rate of 6 knots midway be-



Prince Rupert Port—Port Edward—Ridley Island Grain and Coal Terminal

tween this cycle.

The tidal currents run with considerable strength, creating eddies in the narrow part of Fern Passage.

At Prince Rupert, the tides rise about 6.4m at springs and 4.9m at neaps.

Depths—Limitations.—There are general depths of 37 to 79m within the harbor. Cargo operations are carried out at terminals and wharves on Ridley Island (E and SE of Lima Point) and in the Inner Harbor of Prince Rupert (N of Casey Point).

Within Prince Rupert Port, a vessel’s UKC should not be less than 10% of its maximum draft unless prior permission has been obtained from the Harbor Master.

Cargo is worked using the vessel’s own gear except for the container (Fairview) terminal at Prince Rupert. See the table ti-

led **Prince Rupert—Berth Descriptions** for details of these berths.

Aspect.—Ridley Island forms the W side of Porpoise Harbor and lies on the E side of the approach to Prince Rupert Port.

Coast Island (54°13'N., 130°20'W.), 36m high, lies on the outer edge of the coastal reef, about 0.3 mile W of Ridley Island. An islet, 31m high, lies close SE of this island. A drying reef, with an islet 1.8m high at the N end, extends up to about 0.2 mile NW from Coast Island. Bacon Rock, which dries 2m, lies about 0.3 mile NW of Coast Island.

Bishop Island, 14m high and wooded, lies 1.5 miles N of Coast Island. It is located at the S end of a reef which dries in parts and fronts the W side of a section of reclaimed land connecting the S end of Kaien Island to the N end of Ridley Island.

Prince Rupert—Berth Information							
Berth	Berth Length	Depth Alongside	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
Ridley Island							
Ridley Terminals	150m	22.0m	325m	20.0m	50.0m	250,000 dwt	Coal terminal. A dolphin berth with a length of 150m. Mooring dolphins extend the length to 370m.
Prince Rupert Grain Terminal	370 m	14.5m	280m	14.0m	—	145,000 dwt	A dolphin berth with a length of 118m. Two mooring dolphins extend the length to 240m.
Alaskan Marine Highway—Prince Rupert Terminal							
South Bend	94m	—	124m	5.2m	22.4m	2,400 dwt	Fast ferries.
BC Ferries—Prince Rupert Terminal							
North Berth	137m	—	150.7m	5.8m	23.0m	1,853 dwt	—

Prince Rupert—Berth Information							
Berth	Berth Length	Depth Alongside	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
Northland Cruise Terminal							
Passenger Berth	330m	21.2m	300m	15.0m	—	—	Fast ferries, ro-ro, and passengers.
Prince Rupert Grain Terminal							
Grain Dock	150m	14.5m	280m	14.0m	45.0m	145,000 dwt	Wheat and barley.
Westview Wood Pellet Terminal (Prince Rupert)							
Westview Berth	309m	11.8m	245m	10.0m	32.2m	77,500 dwt	Wood chips.
Fairview Container Terminal							
North Berth	400m	17.0m	400m	16.0m	51.2m	156,618 dwt	Containers and reefer.
South Berth	400m	17.0m	400m	16.0m	51.2m	156,649 dwt	Containers and reefer.
Ridley Terminal							
RTI Jetty	150m	22.0m	325m	20.0m	50.0m	250,000 dwt	Petcoke.
Tanker Terminals							
Pembina LPG Export Terminal							
Pembina Jetty	—	—	—	—	—	—	LPG.
Note. —UKC should not be less than 10% of maximum draft without prior permission of harbormaster.							



Photo courtesy of Prince Rupert Port

Prince Rupert Port—Ridley Island Coal Terminal

Barrett Rock, marked by a light, lies about 0.5 mile NW of Bishop Island, at the E side of the fairway.

Casey Point, located 2 miles NNW of Barrett Rock, is the W extremity of Kaien Island. A light is shown from a structure standing close SW of this point.

Ritchie Point is located 4.3 miles NE of Casey Point and is the N extremity of Kaien Island.

Sourdough Bay lies 0.5 mile SE of Ritchie Point. Shoal rocks and a drying reef lie in the entrance of this bay and local knowledge is essential for entering.

Georgia Rock, lying on the W side of the fairway, has a depth of 7.8m and is located about 1 mile W of Bacon Rock. A lighted buoy is moored close E of this rock.

Falcon Rock, with a depth of 6.4m, lies 0.2 mile NW of

Georgia Rock. Channels, about 0.2 mile wide, lie on either side of this rock and have least depths of 9.8m.

Kestrel Rock, with a depth of less than 1.8m, is marked close SW by a buoy. It lies about 0.3 mile NW of Falcon Rock. A clear channel lies between Kestrel Rock and the foul ground extending up to about 0.2 mile S of Lima Point. An islet, 8.8m high, lies on this area of foul ground. The channel is 0.4 mile wide and has a least depth of 7.4m.

Petrel Rock, lying about 1.3 miles WSW of Lima Point, has a depth of 4.6m. This rock lies in the middle of a bank and is marked by a lighted buoy moored about 0.2 mile SSW of it.

Chassepot Rock, 1.8m high, lies on the N end of a reef, about 0.8 mile WSW of Lima Point. A small reef, which dries 5.2m, lies close N of this rock.

The entrance to Delusion Bay lies between Lima Point and Frederick Point, 1.3 miles NNE. It is fronted by numerous islets, rocks, and drying reefs. The fairway is indicated by a lighted buoy and a lighted beacon situated about 0.5 mile SE and about 0.3 mile NE, respectively, of Frederick Point.

Casey Cove, lying 1.5 miles N of Frederick Point, is entered between Charles Point and Parizeau Point.

McIntosh Rock, which dries 2.1m and is marked by a beacon, lies about 0.3 mile off the shore of Digby Island, 1 mile N of Parizeau Point.

Venn Passage (Metalakatla Passage) leads from the W side of Prince Rupert Port, about 0.5 mile NW of McIntosh Rock, to the village of Metalakatla. It is available to small vessels with local knowledge and marked by lights and buoys.

Fern Passage leads SE from Ritchie Point through Butze Rapids into Morse Basin. Butze Rapids, encumbered with islets and rocks, lies about 2 miles SSE of the passage entrance. Small craft with local knowledge can pass through Butze Pas-



Prince Rupert Port—Port Edward—Prince Rupert Grain and Ridley Coal Terminal

sage at HWS. Only small boats can enter Morse Basin from Porpoise Harbor due to the bridges crossing the rapids on either side of Wainwright Basin.

From the entrance to Fern Passage, Prince Rupert Port extends NNE for about 4 miles to Tuck Narrows. This section of the harbor has a least width of 0.4 mile and depths of 40 to 61m in the fairway. The shore is high at the N end of the harbor on its N and NE sides. Tuck Inlet is joined to the head of Prince Rupert Port by Tuck Narrows and extends about 3.5 miles NW. Tuck Narrows is about 135m wide and has a least depth of 10m. Tuck Point, located on the SW and shoalest part of the narrows, is low. A rocky ledge, which dries, fronts the N side of this point. A rock, with a depth of 11m, lies about 0.3 mile NW of the point.

Both sides of the inlet are indented by a few bays in which exist drying mud and gravel flats. High hills stand on either side of the inlet and a thickly-wooded valley lies at its NW end.

Prominent landmarks when approaching the harbor include Mount Stewart, over 640m high, standing on the Tsimpsean Peninsula; Mount Hays, 707m high, standing 1.5 miles ENE of Casey Point with a television tower surmounting its summit; and Mount Oldfield, 549m high, standing at the NE end of Kaien Island.

The grain terminal storage buildings, situated close E of the wharf at Ridley Island, and the strobe lights, shown from the tops of the loaders at the coal terminal, are all conspicuous.

A radiobeacon is situated on the SW side of Digby Island, about 2.3 miles NW of Lima Point.

An aeronautical lighted beacon is situated at the airport, about 0.5 mile inland and 4 miles NW of Lima Point. Radio masts, 89m high, stand about 0.5 mile SE of this lighted beacon and are prominent.

The fairway of Prince Rupert Port is marked by buoys, some lighted and some not, plus lighted beacons. A range indicates the entrance to Dodge Cove, lying on the W side of the harbor. A prominent radio mast, 131m high, stands close SE of this cove, about 0.2 mile SW of Parizeau Point.

Pilotage.—Pilotage is compulsory for vessels over 350 gt and all passenger vessels over 500 gt. Pilotage is provided by the Pacific Pilotage Authority Canada (PPA). The vessel's ETA at the pilot boarding station should be advised to the Pacific Pilotage Authority at least 48 hours prior to expected arrival then reconfirmed at 12 hours before arrival. For further details on reporting procedures refer to Canada—Pilotage in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and South-east Asia.

Pilots should be requested via the Pacific Pilotage Authority Dispatch Department; helicopter pilotage is requested via the vessel's agent to Great Slave Helicopters Marine Operations Coordination Centre (MOCC).

Pilots will board in the following positions:

1. Via helicopter within a 1.5 mile limit of position



Prince Rupert Port—Fairview Container Terminal

54°19'00"N, 131°02'30"E.

2. Via pilot vessel at the Triple Island boarding station (54°18'57"N, 130°53'04"E.)

3. Via helicopter at the outer anchorages from No. 9 and lesser numbered anchorages.

Regulations.—Prince Rupert lies within the Prince Rupert Vessel Traffic Service (VTS) System. For details concerning reporting procedures, refer to paragraph 11.1 (Regulations). For other regulations covering the Western Canada Traffic Zone, please refer to Canada—Regulations and Pacific Ocean—Regulations in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Vessels must obtain clearance from the harbor master prior to proceeding to or leaving any berth in the harbor.

A speed restriction exists within Prince Rupert Harbor. All vessels shall proceed at safe speed within 0.6 mile of shore between Fairview Terminal and Ritchie Point. All wake must be eliminated when passing docks and floats, particularly at Metlakatla and Digby Island Floats in Venn Passage and within Porpoise Harbor.

Contact Information.—The Pacific Pilotage Authority can be contacted, as follows:

1. VHF: VHF channels 16, 17, and 77
2. Telephone: 1-604-666-6776
3. Facsimile: 1-604-666-6093
4. Web site: <http://www.ppa.gc.ca>

Great Slave Helicopters Marine Operations Coordination Center (MOCC) can be contacted, as follows:

1. VHF: VHF channel 9 (vessel/helicopter)
2. Telephone: 1-250-706-3235

3. E-mail: mocc.ypr@gsheli.com

The harbormaster/Port Security Officer can be contacted, as follows:

1. VHF: VHF channels 16 and 71
2. Telephone: 1-250-627-2517 (office)
1-250-627-2522
1-250-600-2955 (mobile)

The Duty Harbormaster and Port Security Operations Center (PSOC) can be contacted, as follows:

1. Call sign: Port Security Operations Centre
2. VHF: VHF channel 68
3. Telephone: 1-250-627-2522
4. Facsimile: 1-250-627-2622
5. E-mail: psoc@rupertport.com

The Port Authority can be contacted, as follows:

1. Telephone: 1-250-627-8899 (M-F 0800-1630)
2. Facsimile: 1-250-627-8980
3. E-mail: pcorp@rupertport.com

Anchorage.—Numerous anchorages are located in the vicinity of Prince Rupert. Details are given in the table titled **Prince Rupert and Vicinity—Anchorage Descriptions.**

Every vessel 50m or greater in length must obtain permission prior to anchoring in Prince Rupert harbor and approaches. While at anchor, every vessel shall maintain a bridge watch, keep a listening watch on VHF channels 16 and 71, have the engines on standby, and have a second anchor ready for letting go if the wind speed exceeds 25 knots.

Anchorages 2, 3, and 4 are anchorages where log loading has priority. If a vessel loading logs approaches the area and all anchorages are full, the first vessel to occupy one of the anchor-

ages for loading logs may be displaced to accommodate the vessel. Anchorages 9 and 10 are used for agricultural inspections for Asian gypsy moths. Such inspections take precedence over all other uses for these anchorages. Other anchorages are used for inspections by the Canadian Food Inspection Agency (CFIA).

Directions.—Vessels approaching the harbor from Arthur Passage should pass W of the Genn Islands. Vessels approaching from seaward through Edye Passage should pass at a prudent distance S of Gull Rocks. Vessels from the S should steer to pass 0.2 mile E of Holland Rock Light and then steer with Barrett Rock Light ahead, bearing 006°, until Georgia Rock is abeam. The course should be altered to pass about 0.1 mile W

of the rock. A course can then be steered to pass 0.2 mile W of Casey Point Light. When the latter is abeam, vessels should steer a course to pass midway between the lighted beacon standing SE of Elizabeth Point and Fairview Point. Vessels should proceed until abreast Pillsbury Point, when a course into Prince Rupert Port can be taken.

Vessels approaching from the NW, between the Lucy Islands and Digby Island, should steer for the SW extremity of Kinahan Islands, bearing about 135°. They should then pass between Kinahan Islands and Petrel Rock. Vessels should then pass S of Georgia Rock and alter course to the N to pass about 0.1 mile W of Barrett Rock. Thereafter, they should proceed as previously directed.

Prince Rupert and Vicinity—Anchorage Descriptions					
Anchorage	Center Position	Maximum LOA	Depth	Swing Radius	Use
Inner Harbor					
2	54°21'07"N, 130°16'32"W	225m	56m	550m	Logs and bulk cargo
3	54°20'26"N, 130°17'17"W	225m	48m	550m	Logs, bulk cargo, and limited dangerous cargo
4	54°19'43"N, 130°18'53"W	225m	39m	550m	Logs, bulk cargo, and limited dangerous cargo
5	54°19'23"N, 130°19'44"W	225m	42m	550m	Bulk cargo and CFIA inspections
6	54°19'02"N, 130°20'33"W	250m	37m	600m	Bulk cargo and CFIA inspections
7	54°18'48"N, 130°21'29"W	250m	55m	600m	Bulk cargo and CFIA inspections
Ridley Island					
8	54°11'50"N, 130°22'06"W	270m	38m	650m	Bulk cargo and CFIA inspections
9	54°09'13"N, 130°22'22"W	350m	66m	725m	Bulk cargo, LNG, dangerous cargo, and AGM
10	54°07'52"N, 130°21'09"W	350m	60m	725m	Bulk cargo, LNG, dangerous cargo, and AGM
Digby Island					
11	54°14'43"N, 130°26'43"W	270m	53m	600m	Short-term only
12	54°15'07"N, 130°27'46"W	270m	54m	600m	Short-term only
13	54°15'41"N, 130°28'46"W	270m	43m	600m	Short-term only
14	54°16'24"N, 130°29'46"W	270m	30m	600m	Short-term only
Rachel Islands					
15	54°11'51"N, 130°31'00"W	270m	41m	650m	Long-term bulk cargo
16	54°12'25"N, 130°31'15"W	270m	39m	650m	Long-term bulk cargo
17	54°12'41"N, 130°32'23"W	270m	42m	650m	Long-term bulk cargo
Lucy Islands					
18	54°16'36"N, 130°35'43"W	325m	60m	700m	Long-term bulk cargo
19	54°15'59"N, 130°36'36"W	325m	65m	700m	Long-term bulk cargo
20	54°15'26"N, 130°37'36"W	325m	52m	700m	Bulk cargo and AGM reinspection
21	54°15'23"N, 130°38'57"W	325m	54m	700m	Bulk cargo and AGM reinspection
22	54°16'07"N, 130°39'06"W	325m	42m	700m	Long-term bulk cargo

Prince Rupert and Vicinity—Anchorage Descriptions					
Anchorage	Center Position	Maximum LOA	Depth	Swing Radius	Use
23	54°16'48"N, 130°38'43"W	325m	30m	700m	Long-term bulk cargo
Stephens Island					
24	54°07'21"N, 130°33'09"W	350m	60m	725m	Long-term bulk cargo, LNG, and dangerous cargo
25	54°05'46"N, 130°33'55"W	325m	53m	700m	Long-term bulk cargo and dangerous cargo
26	54°06'22"N, 130°34'35"W	270m	50m	600m	Long-term bulk cargo
27	54°06'46"N, 130°35'32"W	325m	38m	650m	Long-term bulk cargo
28	54°07'15"N, 130°36'18"W	270m	54m	675m	Long-term bulk cargo
29	54°07'54"N, 130°36'44"W	350m	66m	675m	Long-term bulk cargo
30	54°08'48"N, 130°37'30"W	350m	80m	675m	Bulk cargo, LNG, and dangerous cargo
31	54°09'36"N, 130°38'24"W	350m	72m	675m	Bulk cargo, LNG, and dangerous cargo

Caution.—A section of the harbor in the vicinity of Ritchie Point is a designated water aerodrome.

Several ferries may be encountered within the harbor.

Several submarine cables, which may best be seen on the chart, lie across the harbor.

A submarine pipeline, which may best be seen on the chart, extends seaward close N of the grain wharf at Ridley Island.

A submarine pipeline extends from the shore near the Prince Rupert radiobeacon (on the SW shore of Digby Island) 0.3 mile to a platform submerged to a depth of 24m.

The harbor is subject to violent gusts of winds during SE gales, which are prevalent during autumn and winter.

Chatham Sound—East Side (Prince Rupert Port to Portland Inlet)

13.5 The W coast of Digby Island is fringed with ledges and islets which extend up to 0.8 mile offshore.

Snider Rock (54°16'N., 130°27'W.), which dries 4.5m, lies about 3 miles NNW of the S extremity of Digby Island. Snider Islet, 53m high, lies 0.2 mile NE of this rock. A shoal, with a depth 10m, lies about 1.3 miles W of the rock.

Caution.—A marine farm situated close NW of Snider Rock is contained within the area bounded by the lines joining the following positions:

- 54°15'28"N, 130°27'56"E.
- 54°15'46"N, 130°27'13"E.
- 54°16'40"N, 130°28'18"E.
- 54°16'22"N, 130°29'01"E.

Straith Point (54°18'N., 130°28'W.) is the NW extremity of Digby Island.

Cridge Island lies on a rocky ledge, about 1 mile S of Straith Point. Little Cridge Island, 28m high, lies about 0.2 mile W of this island. A shoal, with a least depth of 10m, lies about 1 mile SW of Little Cridge Island. Kerr Rocks, which dry 5.8m, lie 0.5 mile SE of Cridge Island, on foul ground extending S and SW from it. Quartermaster Rock, which dries 7m, lies 0.2 mile WNW of Kerr Rocks. It is located near the W extremity of the

rocks and shoals extending W from Digby Island. Several rocks, which dry 1.2 to 2.7m, lie about 0.2 mile SW of Quartermaster Rock.

13.6 Metlakatla Bay (54°19'N., 130°29'W.) is entered between Straith Point, the NW extremity of Digby Island, and **Tugwell Island** (54°20'N., 130°30'W.). This bay is protected from the W by Tugwell Island and a sandy ridge, which dries 3m. This ridge connects Tugwell Island with **Observation Point** (54°20'N., 130°28'W.).

The bay gradually narrows towards its head, where it connects with Venn Passage. This passage leads SE into Prince Rupert Port. Metlakatla, an Indian settlement, is situated on Mission Point, the NW entrance point of Venn Passage. The houses forming the mission at the settlement stand on a bank, 9m high, and are prominent. There is small public wharf.

Tugwell Island, wooded and 62m high to the tops of the trees, is fringed by a drying shorebank. Shoal patches, marked by kelp, and drying rocks extend up to 0.5 mile offshore, especially off the S end of the island.

Dawes Rock, which dries 2.1m, lies about 0.5 mile SW of Dawes Point, the SW extremity of Tugwell Island.

Enfield Rock, with a depth of 4.1m, lies about 1 mile SW of Dawes Point and is marked by a lighted buoy.

Tugwell Reef, which dries 1.8m, lies 0.5 mile SE of Dawes Point, near the edge of the rocky ground extending SE from Tugwell Island. A lighted buoy is moored close SE of this reef.

Alford Reefs consist of a group of rocks, which dry 0.6 to 1.5m, and others that do not uncover. They lie on the SE side of the entrance to the bay and about 1.3 miles SE of Dawes Point. A buoy marks the NW extremity of these reefs.

Cutch Rock, a dangerous below-water rock, lies about 0.4 mile W of Straith Point. A rocky patch, with a depth of 2.3m, lies near the S side of the fairway, about 0.2 mile NW of Cutch Rock. Another rocky patch, with a depth of 10m, lies about 0.2 mile WSW of Cutch Rock.

Devastation Island, 69m high and wooded, lies on the E side of the fairway leading to the anchorage. It is marked by a light and located about 1 mile NNW of Straith Point. Two above-

water rocks lie close off the S extremity of the island. A shoal area, with a drying reef, extends up to 0.4 mile E from the N end of the island.

Knight Island, 1.8m high with some stunted scrub, lies about 0.4 mile ESE of Devastation Island. Pike Island, 47m high and wooded, lies about 0.5 mile ENE of Knight Island.

Shrub Island, 25m high, lies close N of Pike Island. A light is shown from the N extremity of a drying bank of sand on which Pike Island and Shrub Island are located. This bank connects to the NW side of Digby Island at LW.

Carr Island, lying about 0.5 mile NE of Devastation Island, is 20m high and fringed by a reef.

Anchorage.—Anchorage can be obtained, in a depth of 20m, mud, about 0.3 mile NNW of Devastation Island. The berth lies with the SW extremity of the island in line with Little Cridge Island, bearing 174°, and the S extremity of Carr Island in line with the flagstaff on Mission Point, bearing about 070°.

Small craft can obtain anchorage, in a depth of 16.5m, about 0.4 mile E of Metlakatla Village. The channel leading to the latter anchorage is only about 50m wide at LW and at this time the dangers on either side can be seen. The channel should only be attempted by short vessels of light draft with local knowledge.

Directions.—To enter the bay, vessels should keep Knight Island midway between Pike Island and Shrub Island, bearing 052°. This course leads through the fairway between Tugwell Island and Alford Reefs. When Doolan Point, the E extremity of Tugwell Island, bears 003°, they should steer for it on that bearing until abeam of Devastation Island. The course should then be altered to steer for the anchorage, NW of Devastation Island.

Only vessels with local knowledge should proceed farther up the channel toward Metlakatla.

Duncan Bay is entered between Chapman Point, the N extremity of Tugwell Island, and **Ryan Point** (54°22'N., 130°29'W.), 1.5 miles NNE.

A flat, with depths less than 5.5m, extends up to about 0.7 mile NE of Chapman Point. Drying ledges and below-water rocks extend up to about 0.6 mile W, SW, and S of Ryan Point and front the N and E shores of the bay.

A light is shown from a rock, which dries 3.7m, lying 0.5 mile WSW of Ryan Point. A buoy is moored close SW of the rock to mark the W edge of the ledges.

13.7 Observation Point (54°20'N., 130°28'W.) is the N entrance point of Venn passage. A drying ridge, on which Carr Island lies, joins the point to Tugwell Island.

Hecate Rock, with a depth of less than 1.8m, lies about 0.4 mile NW of Observation Point and about 0.3 mile offshore.

Anchorage can be taken, in depths of 12 to 14m, mud, with Observation Point in line with Mount Hays (54°17'N., 130°19'W.), bearing 121°. Vessels should approach the anchorage on the above-mentioned range.

The coast between Ryan Point and Tree Bluff, 4 miles N, is low, wooded, and fronted by shallow flats.

Hodgson Reefs, which dry 3.4m near their S end and 4.9m near their N end, lie on a detached shoal with many below-water rocks. These reefs, as defined by the 5m curve, extend between 2 miles and 3.3 miles N of Tugwell Island. They lie between 1 mile and 1.8 miles offshore. A lighted buoy is

moored about 0.2 mile W of the reefs.

The W extremity of the Kinahan Islands, bearing 152°, just open of the S extremity of Tugwell Island leads SW of Hodgson Reefs. The E end of the Lucy Islands should not be brought to bear more than 196° until South Island, in Big Bay, is in line with Mount Griffin (54°32'N., 130°25'W.), bearing 032°.

Moore Shoal, a rocky patch with a depth of 12.8m, lies about 2 miles W of the S extremity of Hodgson Reefs.

Slippery Rock, 2.1m high, lies 2 miles S of Tree Bluff and is marked by a light.

A drying flat extends up to about 0.5 mile W from Tree Bluff. Rocks, which dry up to 5.8m, lie near the extremity of this flat. A lighted buoy is moored about 0.5 mile W of the drying rocks.

13.8 Big Bay (54°28'N., 130°26'W.), which provides good protection in all winds with little swell, is entered between Trenham Point and South Island, 2.5 miles N. The shores of the bay are low and densely wooded, except for Shattock Hill, which is 91m high and surmounts Shattock Point, near the head of the bay.

The bay can be entered either S or N of Ripple Bank and Escape Reefs, which lie in the middle of the entrance. Because of its greater width and its direct route to the large-vessel anchorage, the N passage is more generally used. The least depth through the fairway of the N passage is 10.9m. A least depth of 11.9m lies in the fairway of the S passage.

Trenham Point is located 1 mile NNE of Tree Bluff. Hogan Ledge, which dries 3m, lies about 0.6 mile W of this point.

Entry Rock, with a depth of 5.5m, lies about 1 mile N of Trenham Point.

Ripple Bank, with a least depth of 4.6m, lies about 1.3 miles SW of South Island and is usually marked by tide rips. A shoal patch, with depth of 10.4m, lies about 0.7 mile SSW of South Island.

Escape Reefs, formed by two rocky heads with depths of less than 1.8m, lie in the middle of the entrance to Big Bay. The westernmost reef lies about 1.3 miles N of Trenham Point. Both reefs are steep-to on their S sides and are marked by kelp in summer and autumn.

Anchor Shoal, with a least depth of 8.7m, lies about 0.5 mile N of Simpson Point.

13.9 South Island (54°29'N., 130°28'W.), 48m high, has a sharp summit. A bank, with a rock awash near its outer end, extends up to about 0.4 mile SW of this island.

Haycock Island, 14m high with a few trees, lies about 0.2 mile ESE of South Island.

Leading Shoal, with a least depth of 9.1m, lies about 0.5 mile S of Haycock Island.

Swallow Island is located about 0.7 mile SE of Shattock Point, close off the mainland. One Foot Rock, which dries 6.1m, lies about 0.1 mile SW of the island, near the end of a drying ledge.

Curlew Rock, 7.3m high, lies about 0.5 mile SW of Swallow Island. Foul ground, on which rocks dry up to 0.9m, extends up to about 0.2 mile NNE from this rock. The passage lying between the NE end of this foul ground and One Foot Rock is about 0.1 mile wide and has a least depth of 6.9m.

Anchorage.—Anchorage can be taken, in a depth of 22m,

mud, with Haycock Island in line with the NE extremity of South Island, bearing 324°, and White Cliff Island in line with Mount Griffin, bearing 013°. Farther in, good anchorage can be taken, in a depth of 16.5m, mud, with Shattock Point in line with Mount Griffin, bearing 006°, and One Foot Rock in line with a distant sharp peak, bearing 107°.

Confined anchorage can be taken, in a depth of 9m, S of Swallow Island with its SW extremity in line with Mount Griffin, bearing about 000°, and Simpson Point open N of Curlew Rock, bearing about 259°.

Directions.—Approaching Big Bay from the S and via the S passage, vessels should keep South Island in line with Mount Griffin, bearing 032°. This leads NW of Hodgson Reefs and the shoal extending W from Tree Point. They should continue on this range until the summit of Shattock Hill is in line with Basil Lump, bearing 068°. Vessels should then steer on the latter range, which passes between Escape Reefs and Entry Rock. The passage leading between the dangers is about 0.3 mile wide, but care must be taken not to open Basil Lump to the N of Shattock Hill. When Haycock Island is in line with the NE extremity of South Island, bearing 324°, vessels should alter course SE and steer with these marks in line astern. This course leads to the outer anchorage.

Approaching Big Bay from S and via the N passage, vessels should keep the N extremity of Burnt Cliff Island in line with Mount Griffin, bearing 042°, which will lead NW of Ripple Bank. When Swallow Island is open its own breadth N of a distant sharp peak bearing 106°, they should steer on this range between the dangers and directly to the desired anchorage.

Vessels proceeding from the outer anchorage to the anchorage S of One Foot Rock should keep the SW side of Whitecliff Island in line astern with the SW extremity of Burnt Cliff Island, bearing 318°. This course leads between the dangers on either side of the passage. One Foot Rock is a good guide when entering near HW.

Burnt Cliff Island, 64m high and wooded, lies 0.3 mile NNE of South Island. The N end of this island consists of high reddish cliffs.

Mist Island, 42m high with a wooded summit, lies 0.5 mile N of Burnt Cliff Island.

Sparrowhawk Rock, a pinnacle with a depth of 1.5m, is steep-to and lies 0.5 mile N of Mist Island. It is marked by kelp in the summer and autumn. A buoy is moored close NW of this rock. Shoals, with depths of 11.9 to 12.8m, front the S side of the rock.

The Flat Top Islands consist of two islands. The NE and largest island is 44m high at its SW end and has a green mound, 20m high, surmounting its NE end. The SW island, lying 0.1 mile SW of the larger island, is 30m high. Rocky ledges fringe this island and extend about 0.1 mile N.

A bank, with depths of less than 5.5m, extends about 0.2 mile S of these islands and no attempt should be made to pass between them. The channel leading between the islands and the mainland is very narrow and should also not be used.

13.10 Pearl Harbor (54°31'N., 130°27'W.), a secure anchorage, is protected from the W by drying reefs and Mist Island. It is also protected from the S by drying reefs that extend between the N end of Burnt Cliff Island and the mainland. The preferred entrance lies between the reef extending N from Mist

Island and the Flat Top Islands.

Good anchorage may be taken, in a depth of 20m, mud, near the middle of Pearl Harbor and, in a depth of 31m, about 0.2 mile N of the green mound on the NE island of the Flat Top Islands.

Cunningham Passage (54°34'N., 130°28'W.) leads between Finlayson Island, on the W side, and the mainland, on the E. The passage is unsuitable for large vessels and, although the depths in the fairway are 26 to 73m, the navigable channel is only about 0.1 mile wide between Pender and Centre Rocks.

Finlayson Island (54°32'N., 130°28'W.) is flat-topped and its S and SE sides are cliffy. Gordon Point, its N extremity, is comparatively low and drying ledges extend up to about 0.2 mile N of it. The entrance to an inlet, which dries, lies on the NW side of the island.

Dodd Rock (54°31'N., 130°28'W.), which covers only during the highest tides, lies at the extremity of the reef extending 0.2 mile S of Fortune Point, the S extremity of the island.

Pender Rock, with a depth of 4.9m, lies on the E side of the fairway of the S entrance to Cunningham Passage, about 0.4 mile E of Fortune Point.

Centre Rock, with a depth of 6.7m, lies nearly in the middle of the fairway and about 0.1 mile E of Duncan Point, the SE extremity of Finlayson Island. A shoal, with a depth of 4.6m, lies close NW of Centre Rock.

Redcliff Point, located on the E side of the passage about 0.4 mile E of Duncan Point, is faced with reddish-brown cliffs that are conspicuous only under certain conditions of light.

The currents run at a rate of 1 knot throughout Cunningham Passage, but probably somewhat faster in the narrower parts.

13.11 Port Simpson (54°34'N., 130°26'W.) (World Port Index No. 18960), the most spacious harbor on the N part of the coast of British Columbia, is easy of access with no tidal currents. It is also sheltered from all but W winds which seldom blow. Generally, NW and SW winds prevail.

Depths—Limitations.—Harbor Reefs, lying on the W side of Port Simpson, form a natural breakwater and protect the anchorage from NW winds. Vessels, other than those of light draft with local knowledge, must enter by Inskip Passage.

Inskip Passage, the N and main entrance to the port, leads between Harbor Reefs and Knox Point, the S extremity of Birnie Island. A least depth of 29m lies in the fairway. A bank, with a depth of 16.5m, lies about 0.3 mile SE of Knox Point.

Dodd Passage, leading between Village Island and the SE side of Harbor Reefs, is 0.1 mile wide between the 5m curves. It has general depths of 11 to 16.5m throughout the passage, except at the SW end of the fairway which is encumbered by shoal patches with depths of 3.7 to 6.4m. The passage is suitable only for small vessels with local knowledge.

Rushbrook Passage, leading between Birnie Island and the mainland, is encumbered with reefs and should only be used by vessels with local knowledge.

The harbor has depths of 20.1 to 48m. There is a small wharf with a berth, 70m long, which has a depth of 9.1m alongside. There are also facilities for small craft and fishing vessels.

Aspect.—Village Island (54°34'N., 130°26'W.), 27m high near its N end, is connected at its SE end to the town of Port Simpson by a drying flat spanned by a trestle bridge.

One Tree Island, 12m high with a few stunted trees, lies

close NW of the NW extremity of Village Island. A light is shown from the N side of this island.

Hankin Reefs, which partially dry, lie on the W side of Village Island and are marked by a buoy.

Harbor Reefs consist of two groups of drying rocks with a narrow and shallow passage lying between them. A conspicuous boulder stands on the W side of the outer reef and a rock lies near the S end of the inner reef, each dry 4.6m. Many other rocks in this vicinity dry 0.6 to 3.3m. A below-water rock lies at the N end of Harbor Reefs and is marked by a buoy moored close NNW.

Birnie Island has a drying ledge fronting Knox Point, the S extremity. A light is shown from an above-water rock lying close S of this point. At Picnic Point, the NE extremity of the island, a ledge with rocks, which dries 5.8m at its outer end, extends up to 0.3 mile ENE. Another ledge, which dries 5.8m, lies on the E side of the fairway leading through Rushbrook Passage and about 0.4 mile NE of Picnic Point.

Stumaun Bay, lying at the head of the harbor, dries up to about 0.3 mile seaward.

Anchorage.—Good anchorage, over a mud bottom, may be taken practically anywhere within the bay.

Large vessels may obtain anchorage, in a depth of 26m, off Port Simpson with Gordon Point (Finlayson Island) bearing 270°, the N end of One Tree Island bearing 249°, and with the pier head in line, bearing 190°, with the spire of a church.

13.12 Pointer Rocks (54°36'N., 130°32'W.) are a group of bare rocks lying in the outer approach to Port Simpson and located about 2.8 miles WNW of Birnie Island. A light is shown from the southernmost rock.

The **Parkin Islets** (54°37'N., 130°28'W.), two in number, are wooded and conspicuous. They lie close together on the same reef, about 2 miles N of Birnie Island. The S islet is 41m high and the N islet is 45m high. Drying rocks lie close N, E, and S of these islets.

A shoal, with a depth of 8.5m, lies about 0.1 mile E of the S extremity of the islets.

A jagged rock, 6.4m high, lies about 0.2 mile N of the Parkin Islets and a rock, which dries 4.2m, lies close N of it.

Barrat Shoal, with a depth of 18m, lies about 0.8 mile NW of the Parkin Islets.

Maskelyne Island, lying 0.5 mile NE of the Parkin Islets, is 173m high and cliffy. It is steep-to on the W side, except for a small bay indenting the coast.

13.13 Maskelyne Point (54°39'N., 130°27'W.), the N extremity of the island, is steep-to and a conspicuous white cliff stands 0.2 mile SW of it.

Dudevoir Passage, separating Maskelyne Island from the mainland, has a least depth of 0.9m and is suitable only for small boats with local knowledge.

Sager Rock, lying about 0.3 mile WNW of Maskelyne Point, covers a circular area about 0.1 mile in diameter and has a least depth of 5.8m.

Hogan Island (54°39'N., 130°25'W.) forms the NE shore of Work Channel. It is 326m high and the NW coast is steep-to.

Work Channel is entered between Maskelyne Point and **Father Point** (54°39'N., 130°26'W.), the NW extremity of Hogan Island. This channel extends for 27.5 miles in a SE direction,

reaching to within about 4 miles of the Skeena River. The land on both sides is high for the most part and the shores are generally steep-to. Several off-lying islets and rocks front the shores in places, but do not lie more than 0.1 mile seaward. The channel is deep throughout. Depths of 50 to 92m extend about 4 miles within the entrance. The depths then increase to over 180m as far as the entrance to Quottoon Inlet, when they decrease gradually to about 90m at the head.

The entrance to Work Channel is about 0.4 mile wide, but the fairway is narrowed to a width of 0.3 mile by a rock, with a depth of 0.3m and a drying rock lying close S of it, located about 0.1 mile SW of Father Point.

The tidal currents in the entrance of Work Channel attain a rate of 3 to 4 knots. Tide rips exist in the vicinity of Sager Rock and in the entrance to Work Channel. They are dangerous to small boats during the full strength of the tidal current.

It is advisable to enter Work Channel by passing N and E of Sager Rock. Care should be taken to avoid setting onto the dangers lying off Father Point during periods of flood tide.

Paradise Passage, separating the SE part of Hogan Island from the mainland, leads from Work Channel to Emma Passage. It is suitable only for small boats with local knowledge. The tidal currents reach a rate of 3 knots in this passage.

John Point (54°40'N., 130°23'W.), the NE extremity of Hogan Island, is low. A shoal patch, with a depth of 14.6m, lies close NE of this point.

Emma Passage, deep and unobstructed, is entered E of John Point and provides access to Union Inlet.

Union Inlet has no off-lying dangers and terminates in a moderately steep-to mud flat at its head. Portland Inlet is entered NW of John Point.

Anchorage.—Indifferent anchorage can be taken, in depths of 33 to 48m, mud, about 0.2 mile off a mud flat extending from a small bight on the E shore where the inlet turns sharply NE.

Small vessels with local knowledge can obtain anchorage, in depths of 31 to 35m, mud, in mid-channel, about 0.2 mile off the mud flats at the head of the inlet.

Chatham Sound—South and West Sides (Hunt Point to Holiday Island)

13.14 Hunt Point (54°06'N., 130°25'W.), the W entrance point of Chatham Sound, is located at the N end of the Malacca Passage. It is bordered by a reef that extends about 0.3 mile NNW and terminates at Grace Island. The coast between Grace Island and Island Point, 0.8 mile SW, is fronted an area of foul ground that extends up to 0.9 mile offshore. Alice Island lies on the NW edge of this foul ground. Brooks Rock, steep-to with a depth of less than 1.8m, lies about 0.4 mile W of this island.

Havelock Rock, which is marked by a light, dries 3m. It lies about 1 mile SW of Brooks Rock. A shoal, with a depth of 4.5m, lies close N of the rock.

Ettrick Rock, which dries 2.4m and is steep-to, lies about 1.8 miles WNW of Alice Island. It is marked close NW by a buoy.

Shoal patches, with depths of 11.9m and 10.5m, lie about 0.6 mile W and 1 mile WNW, respectively, of Ettrick Rock.

The Creak Islands extend about 0.8 mile WNW from **Creak Point** (54°05'N., 130°28'W.). A shoal, with a depth of 7.3m,

lies about 0.4 mile NE of the northeasternmost island and a shoal, with a depth of 7.3m, lies within 0.5 mile W of the westernmost and highest island.

Edye Passage, leading to Hecate Strait, is entered close WSW of the Creak Islands.

Gull Rocks (54°08'N., 130°31'W.) is a group of small rocks, the largest of which is 5.2m high. A light is shown from the highest rock of the group. A reef, with a depth of 5m and marked by kelp, lies about 0.5 mile NNW of the light. A rock, with a depth of 5.2m, lies 0.5 mile NNW of the light.

Colquhoun Shoal, a rocky head with a depth of 9.8m, lies about 1.5 miles N of the highest and largest of the Gull Rocks group.

Prescott Island (54°06'N., 130°36'W.), lying on the W side of the sound, is densely wooded. A range of hills, with several peaks, occupies the S part of the island. The tallest of these peaks is 250m high. Some large expanses of flat marshy land, from which several low hills rise, lie at the N end of the island.

Stephens Island, lying close NW of Prescott Island, has several hills at its N end. They stand close together and are difficult to distinguish from each other. Qlawd Hill, 335m high, is the tallest of these hills. Mount Stephens, standing at the SE end of the island, is 422m high and conspicuous. Congreve Hill, with a sharp summit, is 159m high and rises 2.3 miles NW of Mount Stephens.

Anchorage.—Qlawdzeet Anchorage, lying at the N end of Stephens Island, affords shelter to vessels from the strong SE winds prevalent in this vicinity. It is open to winds from the NW, but these are usually light. The entrance lies between Hooper Point, the N extremity of Stephens Island, and Avery Island, 0.8 mile ESE. Harris Rock, which dries 5.6m and is marked by a light, lies about 0.1 mile N of the NW extremity of Avery Island to which it is connected by several rocky ledges.

Anchorage can be obtained, in a depth of 22m, mud and sand, with the NW extremity of Avery Island bearing 062° and Hooper Point bearing about 306°, just open NE of Trunk Island, 0.2 mile SE.

13.15 The Rachael Islands (54°12'N., 130°33'W.), two in number, lie between 4 miles and 5 miles NNW of Gull Rocks. A shoal, with a depth of 3m, lies about 0.4 mile ESE of the SE extremity of South Rachael Island. A shoal, on which a rock dries 0.9m, lies about 0.2 mile NE of the NE extremity of this same island.

Lights are shown from the N side of the northernmost island and from the S side of the southernmost island. Pitt Shoal, with a least depth of 14.6m, lies 1.5 miles E of South Rachael Island.

Alexandra Bank, with a least depth of 4.2m, is formed by mud and sand. It lies about 1.5 miles N of North Rachael Island and is marked by kelp, which is seldom visible because of the tidal current. This bank is marked by a lighted whistle buoy which is equipped with a racon.

The **Lucy Islands** (54°18'N., 130°37'W.) consist of a group of wooded islets and bare rocks lying on an area of foul ground about 5.5 miles NNW of the Rachael Islands.

The E extremity of the easternmost and highest of the group is fairly steep-to. The N edge of the foul ground is marked by a group of small islets lying close N of the main islands.

A bank, with depths of 5.5 to 11m, extends about 1.5 miles S

from the main islands and another bank, with depths of 11 to 20m, extends about 1.3 miles farther SW.

A detached rock, with a depth of less than 1.8m, lies about 0.5 mile S of the westernmost islet and another rock, which dries 1.5m, lies on the W extremity of the foul ground.

Lights are shown from the NE extremity of the easternmost island and from the northernmost island.

The islands and banks lying in the vicinity of Bell Passage and Brown Passage are described with those features, in paragraph 13.21 and paragraph 13.22, respectively.

The **Dundas Islands** (54°30'N., 130°50'W.) consist of Melville Island, Dunira Island, Baron Island, and Dundas Island, together with numerous islets and rocks. This group forms the W side of the N part of Chatham Sound.

Vessels leaving Chatham Sound and bound N should keep the Lucy Islands bearing astern not more than 180° until they are past Moore Shoal. They should then steer for Pointer Rocks Light and pass between Connis Rocks and Pointer Rocks. The course should then be altered to NW in order to pass through the N entrance of Chatham Sound, S of Lord Rock. If bound for Alaskan ports, vessels should steer for the entrance of Revillagigedo Channel, which is described in U.S. Coast Pilot 8, Pacific Coast Alaska—Dixon Entrance to Cape Spencer.

At night, the light on Pointer Rocks bearing 121° astern leads NW through the N entrance of Chatham Sound and to within 1.3 miles SSW of Lord Rock.

The inner passage, after leaving Malacca Passage, follows the E side of Chatham Sound as far as Port Simpson. It then follows through the Main Passage to Portland Inlet or Alaska.

13.16 Melville Island (54°23'N., 130°44'W.) rises gradually near its center to a range of hills. The easternmost and highest of which is Knee Hill. Beaver Rock, marked by kelp and with a depth of 1.8m, lies about 1 mile SSE of Deans Point, the SE extremity of the island. A rocky head, with a depth of 9.1m, lies about 0.5 mile SSW of this rock. Cutter Rock, marked by kelp and with a depth of 2.7m, lies about 0.5 mile SE of Deans Point.

Dunira Island lies N of Melville Island and is separated from it by a narrow channel. It is densely wooded and has a range of hills rising in the center. **Coast Mound** (54°25'N., 130°47'W.), the oval summit of the island, is conspicuous from NE and SW.

Baron Island, lying close N of Dunira Island, is thickly wooded. A narrow channel, which separates the island from Dunira Island, may be used by small craft with local knowledge.

The Moffat Islands are a chain of small, wooded islands fringing the NE side of Melville Island and the E side of Dunira Island, from which they are separated by a narrow channel. This channel may be used by small vessels, with local knowledge, but it is not recommended. An area of foul ground, on which three islets lie, terminates in a rock, 6.1m high. This area extends up to about 0.5 mile S from the southernmost and highest island of the chain. A rock, with a depth of less than 0.6m, lies about 0.3 mile ESE of the southernmost islet of the above-mentioned three islets.

Hammond Rocks, formed by two heads close together, is marked by kelp. The N head has a depth of less than 1.8m and lies about 0.5 mile E of the SE extremity of the southernmost island of the Moffat Island chain.

Anchorage.—Good sheltered anchorage can be obtained by vessels with local knowledge, in a depth of 28m, in the center of the channel lying between Melville Island and the southernmost island of the Moffat Islands chain, about 1 mile within the S entrance. Vessels approaching this anchorage should keep within 0.3 mile of Melville Island. The tidal currents are weak at this anchorage.

Coghlan Rock, awash at LW and marked by kelp, lies 2 miles N of Hammond Rocks. A shoal, with a depth of 5.5m, lies about 0.2 mile SE of Coghlan Rock.

Randall Island, 55m high and wooded, lies 0.5 mile NE of the NE side of Baron Island.

Ducie Island, 40m high, lies 0.5 mile NNW of the N end of Randall Island. Foul ground and rocks extend SW and NE of this island and form the SE side of the entrance to Hudson By Passage.

Whitesand Island (54°31'N., 130°45'W.), 11m high, lies 0.5 mile NE of Randall Island and is marked by a light. Rocks and shoals extend up to about 1 mile N of this island.

Dundas Island (54°33'N., 130°53'W.) is surmounted by a number of conspicuous mountains of which Mount Henry is the highest. Mount Bonwick, rising 3 miles ENE of Mount Henry, is conspicuous from the SE side of the island. Table Hill stands about 1 mile S of Whitley Point, the NE extremity of the island. It has a prominent flat top and a knob at the N end.

Holliday Island (54°37'N., 130°45'W.), lying close NE of Dundas Island, is located on the E edge of the foul ground extending up to about 0.3 mile NE and 0.8 mile SE of Whitley Point. A light is shown from the N extremity of this island.

Hecate Strait—Northeast Side (Cape George to Dixon Entrance)

13.17 Cape George (53°51'N., 130°42'W.) is the SW extremity of the Porcher Peninsula. Joachim Rock, which dries 3.4m, lies about 0.5 mile W of this cape and a rock, which dries 1.5m, lies close N of it.

A shoal, with a depth of 3.4m, lies about 2.8 miles NW of the cape and about 1.5 miles offshore.

Fan Point, located 3.8 miles N of Cape George, is rendered conspicuous by Fan Island, which lies about 0.3 mile seaward of it. This island is green-topped, with trees on its N side, and is conspicuous from the NW or SE.

Conspicuous white cliffs stand on the coast between 1 mile and 1.5 miles S of Fan Point.

Oval Point, located 2 miles N of Fan Point, is bordered E by Oval Hill, which is conspicuous. This hill rises at the N end of the Porcher Peninsula and appears oval from all directions.

Oval Bank extends up to about 4 miles offshore between the conspicuous white cliffs and Oval Point. It has a depth of 7.3m about 0.5 mile from the shore and a depth of 17m near the W end.

Bass Rock, lying about 0.3 mile W of Oval Point, is bare and connected to the point by a narrow ridge of sand and boulders that dries. Oval Rock, which dries 5.2m, lies 0.6 mile NW of Bass Rock.

A group of above-water, drying, and below-water rocks extends up to about 1.3 miles N from Oval Point. The largest of these rocks is 0.9m high and lies on the N side of the group. Another rock, with a depth of less than 1.8m, lies about 0.3

mile WNW of this rock.

A heavy and continuous swell sets onto the coast between Cape George and Oval Point.

Oval Bay lies between Oval Point and Welcome Point, 4 miles NNE. The shore for about 1.3 miles S of Welcome Point is fringed with drying rocks extending up to 0.2 mile seaward. Foul ground extends up to 0.4 mile W of these rocks in places.

Anchorage can be taken, in depths of 29 to 33m, sand, with Oval Hill bearing about 190° and Seal Rocks bearing about 301°.

Seal Rocks (54°00'N., 130°47'W.) consist of an above-water rock, 2.1m high, lying near the SE end of a drying reef and two rocks, which dry up to 2.7m, lying close off the NE end and the SW side of the drying reef.

A light, equipped with a racon, is shown from the SE end of Seal Rocks.

Sainte Croix Rock, with a depth of 5.8m, lies about 2.5 miles SSW of Seal Rocks. Another rock, with a depth of 10.1m, lies about 0.4 mile SSE of this rock. Hall Rock, with a depth of 10.3m, lies about 1.3 miles NE of Sainte Croix Rock.

Wallace Rocks consist of three rocky heads, with depths of less than 1.8m, lying on a rocky bank about 1.5 miles NW of Seal Rocks. A detached rock, with a depth of 3.7m, lies about 0.4 mile S of Wallace Rocks. Foul ground, with many shallow and rocky heads, lies within 1 mile S of Wallace Rocks.

Warrior Rocks lie near the E edge of an extensive bank which has numerous rocky heads. They consist of two bare rocks, 4.6m and 1.5m high, lying about 0.8 mile apart. Foul ground densely covered with kelp extends between these rocks. The southeasternmost and lower rock lies about 3.5 miles NNW of Seal Rocks; foul ground, with numerous rocks and shallow heads, extends S from it to within 1 mile of Wallace Rocks.

Grenville Rock, with a depth of 6.1m, lies on the SW edge of an extensive rocky bank, about 2.5 miles SW of the higher of the Warrior Rocks. Shoal patches, with depths of 6.1m and 10.1m, lie about 0.5 mile ESE and about 0.8 mile SE, respectively, of Grenville Rock.

Gore-Langton Rock, with a depth of 2.7m, lies at the N extremity of the above-mentioned extensive bank, about 1.8 miles N of the higher of the Warrior Rocks.

Evelyn Rocks consist of several rocky heads lying close together and have a least depth of 3.2m. They lie in the NW approach to Edye Passage, about 2 miles E of Gore-Langton Rock. Foul ground and rocks, which dry 0.6 to 1.8m, extend up to 0.4 mile into Edye Passage. At times, heavy tide rips occur over the banks extending S from this foul ground. Shoal patches, with depths of 8.2m and 10.1m, lie about 0.5 mile E and ENE, respectively, of Evelyn Rocks. A shoal, with a depth of 5.6m, lies about 0.8 mile WNW of Evelyn Rocks.

13.18 Philip Island (54°09'N., 130°49'W.) lies close off the NW side of Stephens Island.

China Islet, 33m high, lies close SW of Philip Island. It is wooded with a white and conspicuous seaward face. A rock, which dries 5.2m, lies about 0.5 mile NW of this islet.

Roland Rocks consist of five large, bare rocks and several small rocks. They lie between 1 mile and 1.8 miles N of China Islet and extend up to about 1 mile from the W side of Stephens Island. A rocky shoal, with a depth of 4.6m, lies about 1 mile

WSW of the highest of the rocks. It is the outermost danger lying in the approach to this part of the island. The bottom is uneven in this vicinity and vessels should pass W of this shoal.

An islet, 35m high, lies about 1.8 miles SE of China Islet and forms the W entrance point of Skiakl Bay. The outermost of the rocks lying between China Islet and the W entrance point of the bay dries 1.8m. It lies about 1.3 miles SE of China Islet. Rocks, which dry 0.9m and 0.3m, lie about 0.2 mile SW and 0.3 mile S, respectively, of the W entrance point of Skiakl Bay.

Skiakl Bay is encumbered with numerous rocks and is available to small craft with local knowledge.

Skiakl Point (54°07'N., 130°45'W.) is conspicuous because of its white cliffs. A small, bare rock, 1.2m high, lies about 0.2 mile S of the point. Skiakl Rock, with a depth of 6.1m and marked by kelp, lies about 0.6 mile SSE of the point.

Joyce Island (54°06'N., 130°41'W.) is 97m high and wooded. This island is nearly connected by a chain of islets and rocks to Rod Island, 22m high, which lies close off its S extremity. A group of rocks, the highest of which dries 6.7m, lies about 0.2 mile NW of the SW extremity of Joyce Island. A rock, with a depth of less than 1.8m, lies about 0.1 mile NW of Rod Island and other dangers front its NW and NE sides.

Butler Cove, entered close N of Joyce Island, affords a convenient anchorage for small craft at its NE end, in a depth of 22m, mud. There are four mooring buoys situated within this cove. The anchorage is well sheltered, except with winds from S and SW, when a heavy swell sets in. Local knowledge is advised.

Edye Passage

13.19 Edye Passage lies between Arthur Island and Prescott Island, on the N side, and the NW shore of Porcher Island, on the S. It affords a convenient route by which to enter the S portion of Chatham Sound from Hecate Strait. This passage has a least width of about 0.5 mile and is easily navigated at all states of the tide. The passage also avoids the strong and irregular regular currents experienced in Brown Passage.

William Island (54°02'N., 130°42'W.) has foul ground extending up to about 0.8 mile from its W side. A rocky ledge extends about 0.3 mile N from Ibbetson Point, the N extremity of the island. Several rocks and an islet, 3.3m high, stand on this ledge.

Chearnley Passage separates William Island from Henry Island. It is about 0.3 mile wide and the fairway is deep.

Henry Island, 52m high and wooded, lies NE of Oval Bay, on the S side of the passage. A rocky ledge extends about 0.5 mile NW from Hearndon Point, the N extremity of Henry Island. A shoal, with a depth of 10.9m, lies about 0.8 mile NW of the same point. Truscot Rock, with a depth of 3.7m, lies about 0.8 mile ENE of Hearndon Point and a shoal, with a depth of 8.5m, lies about 0.3 mile NNW of it.

Arthur Island, 46m high, is located on the N side of the passage and is separated from Prescott Island by a narrow channel.

A small islet, with a shallow rock lying close S of it, is located close off View Point, the SW extremity of Arthur, Island. Foul ground, with rocks which dry 0.6 to 1.8m, extends up to about 0.4 mile off the SE side of Arthur Island and off the small, wooded island lying close S of Arthur Island. Kelp grows thickly in the vicinity of this foul ground during the

summer. At times, heavy tide rips occur over the bank that extends S from the foul ground.

Morrell Point, the SE extremity of Prescott Island, has foul ground extending about 0.2 mile S from it; some white bare rocks lie on this foul ground.

Useless Point, located on the S side of the passage, lies 1.5 miles S of Morrell Point and is marked by a light. There is a shallow bay lying close SW of the point. A rock, which dries 0.6m, lies about 0.3 mile NNW of the light.

13.20 Table Point (54°04'N., 130°32'W.) is located 1.8 miles NE of Useless Point.

Refuge Bay is entered between Table Point and Pearce Point, 0.8 mile WSW. A sandy flat extends 0.5 mile seaward from the head of the bay and foul ground fronts both entrance points and the sides of the bay. A shoal, with a depth of 5.8m, lies about 0.2 mile off the SW shore of the bay and about 0.5 mile E of Pearce Point. Knox Island, 12m high, lies 0.5 mile SE of Pearce Point and close off the SW shore of the bay.

Vessels proceeding W of William Island should, after rounding Seal Rocks, steer a course with the summit of Mount Stephens ahead, bearing about 026°, until View Point bears about 105°. The course should then be altered to 112° to pass about 0.4 mile S of View Point and about the same distance N of Edwin Point. When Morrell Point is abeam, bearing 022°, the course should be altered to pass midway between Pearce Point and the bare, white rocks lying S of Morrell Point.

Vessels approaching from the SW should do so with Seal Rocks Light bearing 041°, which leads W of Oval Bank. When Oval Hill bears 090°, the course should be altered to pass about 0.5 mile SE of Seal Rocks. They should then pass either through Chearnley Passage or W of William Island.

Tides—Currents.—The tidal current sets through both entrances of Edye Passage at a rate of 1 to 2 knots, running E and W. The current is probably stronger in the narrow part, abreast Pearce Point.

If using Chearnley Passage, vessels should keep within 0.2 mile of the W shore of the passage until the 36m high islet lying N of William Island is abeam. They should then steer for the NW extremity of Arthur Island, bearing about 057°, and when in mid-channel, alter course SE and steer to pass 0.4 mile off View Point. Vessels may then proceed to pass W of William Island.

Anchorage.—Anchorage can be taken by vessels of moderate size in the middle of Refuge Bay. A berth lies, in depths of 26 to 29m, sand, about 0.3 mile NNE of Knox Island. Heavy squalls are experienced at this anchorage during SE gales and a heavy swell sets in with N winds.

Barrett Island lies 0.4 mile NE of Table Point and close offshore. It is located on a drying ledge which fronts the N side of the island. Another ledge, which dries 4.6m, lies about 0.1 mile W of the island. Clode Patch, with a depth of 2.7m, lies about 0.3 mile WNW of Barrett Island. A rocky patch, with a depth of 5m and marked by kelp, lies about 0.2 mile farther WNW with irregular depths extending beyond it.

Bell Passage

13.21 Bell Passage is entered between the N end of Stephens Island and the Archibald Islands, on the S side, and the



Triple Islands Light

Tree Nob Group on the N. It is about 0.5 mile wide, deep in the fairway, and available for vessels of moderate size. However, due to the dangers in the vicinity, it is advisable for vessels to navigate this passage only when all landmarks are clearly visible.

The tidal currents in Bell Passage set E and W at a rate of about 2 knots.

Butterworth Rocks are located on the N side of the passage, about 6.8 miles WNW of Hooper Point, the N extremity of Stephens Island. The tallest rock is 2.1m high and lies at the S end of the group.

A light, equipped with a racon, is shown from this tallest rock. Another rock, which dries, lies at the N end of the group, about 1 mile N of the light.

The Archibald Islands, 12 in number, lie with the largest of the group located 1.5 miles WSW of Hooper Point. Most of the islands are wooded and fronted by numerous islets and rocks. Rocks, with depths of 2.4m and 4m, lie about 0.5 mile SE and 1 mile S, respectively, of the southernmost island. The latter rock has shoals, with depths of 4.9m and 10.4m, lying about 0.2 mile SE and 0.2 mile SSE, respectively, of it.

Except for the above dangers, the passage lying between the Archibald Islands and the NW side of Stephens Island is deep and clear in the fairway. A light is shown from the northwesternmost island of the group.

Vessels from the S should approach Bell Passage with Butterworth Rocks Light bearing 000°. When Archibald Islands Light bears 050°, they should alter course to 046°. This course should be maintained until the Harris Rock Light is open N of Hooper Point, bearing 095°. The course should then be altered to 087° in order to pass about 0.3 mile off Hooper Point and about the same distance to the N of Harris Rock.

The Tree Nob Group lies between Bell Passage and Brown Passage and consists of several small islands, numerous islets, and many rocks both above and below-water. At the SE extremity of the group, an islet, 36m high, lies with a rock, 6.4m high, located 0.2 mile E of it. Another rock, which dries 6.1m, lies about 0.2 mile SW of this islet. Two rocks, up to 3.4m

high, lie within 0.2 mile of the SW side of the islet.

Vessels should not attempt to navigate between the islands and islets of this group without local knowledge as the whole area is foul and the tidal currents are strong.

A shoal, with a depth of 2.7m, lies close off the S end of the group and about 1 mile WNW of Archibald Islands Light.

Kipcke Rock (54°15'N., 130°55'W.), which dries 1.8m, lies about 2 miles E of the rock, which dries, lying N of Butterworth Rocks. A rock, with a depth of 10.4m, lies about 0.5 mile ENE of Kipcke Rock. Vessels should not pass between Kipcke Rock and the W edge of the Tree Nob Group.

Brown Passage

13.22 Brown Passage, lying between the Tree Nob Group and the Dundas Islands, is the most direct route to Prince Rupert and the S part of Chatham Sound from Dixon Entrance. It is also a convenient entrance into Chatham Sound from Hecate Strait for large vessels. The depths throughout the passage are deep.

Vessels approaching Brown Passage from the W should steer for Lucy Islands Light, bearing 096°. This leads about 1 mile N of Triple Islands Light and about 0.8 mile S of Hammer Rocks.

Vessels bound for Prince Rupert or S through the inside passage should, from a position located about 1 mile SSE of Hammer Rocks, steer to pass about 1 mile N of Lucy Islands Light. They should then steer SE as desired.

Vessels bound N through Chatham Sound should, from a position located about 1 mile SSE of Hammer Rocks, steer a course of 080° until Lucy Islands Light bears 129°. The course should then be altered to 015° until clear of Moore Shoals.

In thick weather it is advisable to keep well to seaward before entering Brown Passage, unless the position of the vessel is known with certainty.

Tides—Currents.—In the approach to Brown Passage, the flood current sets at a rate of about 2 knots in the direction of the fairway and toward the Triple Islands. However, the currents set diagonally across the passage at a rate of 2 to 4 knots

between the Triple Islands and Hammer Rocks, the flood running SE and the ebb running NW. Farther E, the current again takes the direction of the channel.

The tidal currents are strong and irregular in the vicinity of the Triple Islands.

Pilotage.—The pilot boarding station for Prince Rupert and other N ports is situated about 1.3 miles N of Triple Islands Light.

13.23 The Triple Islands (54°18'N., 130°53'W.), lying at the N extremity of the Tree Nob Group, consist of three bare, white rocky islands. They form a good landmark and are 6 to 12m high. Drying reefs and shoal patches surround these islands. A light is shown from the northwesternmost island. A lighted buoy, marking the passage, is moored about 1.3 miles NW of the light.

The Osborne Islands are wooded and lie about 1 mile SE of the Triple Islands. Numerous drying reefs extend from these islands. A light is shown on the easternmost island of this group.

Rushton Island, 62m high and the largest of the Tree Nob Group, lies 2.8 miles SE of the Triple Islands. Lighted buoys moored about 0.5 mile NE and 1.3 miles NE of the N end of the island mark the passage.

Stenhouse Shoal, lying about 3.3 miles NW of the Triple Islands, consists of a rocky head, awash at LW, and is marked by kelp. This shoal lies near the S end of a bank, with depths of 7.3 to 9.1m, which is located on the NW side of the approach to the passage. The shoal breaks continuously during strong winds from seaward.

A lighted buoy, equipped with a racon, is moored close S of the shoal and indicates the passage. Another lighted buoy is moored 1.5 miles WNW of the Triple Islands and 0.2 mile NNW of a rocky shoal with a depth of 11m.

Hanmer Rocks, two in number, dry 4m and 5.5m and lie 0.4 mile apart. They are located about 2.8 miles NE of the Triple Islands. A ledge, with a depth of 9.1m, extends about 0.2 mile S and SE from the SE side of Hanmer Rocks. A shoal, with a depth of 3.7m, lies about 0.3 mile NW of the northwesternmost rock. Foul ground extends up to about 0.3 mile ENE of the same rock.

A light, equipped with a racon, is shown from the northwesternmost drying rock. Lighted buoys are moored about 0.5 mile SSE and 1.3 miles SSE of the light and indicate the channel leading S of the rocks.

13.24 Jackal Point (54°23'N., 130°50'W.), the S extremity of the southwesternmost islet of the group of wooded islets extending W from Melville Island, is 48m high to the tops of the trees. Foul ground and drying ledges extend up to 0.5 mile SW from this point. A shoal, with a depth of 2.7m, lies about 1.5 miles W of the same point.

Egeria Rock, lying about 1.5 miles SW of Jackal Point, breaks heavily with a W swell. It has a depth of 0.6m and is not marked by kelp. Shoals, with depths of 9.6m and 11.9m, lie about 0.8 mile SE and 1 mile S, respectively, of Egeria Rock.

Simpson Rock, 6m high, has an islet, 8m high, lying about 0.2 mile N of it. This rock is located about 2 miles NE of Hanmer Rocks at the outer end of foul ground extending S from Melville Island. Rocks, with depths of 5.9m and 10.7m, lie about 0.5 mile W and 1.5 miles WSW, respectively, of Simp-

son Rock.

Directions.—Two deep-draft routes lead through Brown Passage and Chatham Sound to Ridley Island and Prince Rupert.

The N route leads S of Stenhouse Shoal and Hammer Rocks; around the N and E sides of the Lucy Islands; and then SE to join the S route W of the Kinahan Islands.

The S route leads S of Stenhouse Shoal and passes along the NE sides of the Triple Islands, the Osborne Islands, and Rushton Island. It then leads ESE between North Rachael Island and Greentop Islet, to the S, and Alexandra Bank and the Kinahan Islands, to the N.

Hudson Passage

13.25 Hudson Bay Passage lies between Dundas Island, on the NW side, and Baron Island and the islands located SW of it, on the SE. This passage is encumbered by the Nares Islets in its NE part. A channel, 0.2 mile wide, leads NW of these islets, but is only suitable for small vessels. The passage lying SE of the Nares Islets is not recommended.

The NE current attains a rate of about 0.5 knot and the SW current a rate of 1 to 1.5 knots. In the NE entrance, both currents attain a rate of 1 knot. This rate is increased abreast the N group of the Nares Islets, where the channel narrows.

The **Connel Islands** (54°25'N., 130°55'W.) is a group of islands, 42 to 55m high. An island, 36m high and from which a drying reef extends up to 0.3 mile WNW, lies at the extremity of a large reef extending about 0.8 mile NW from this group. A rock, with a depth of 6.4m, lies about 0.8 mile NE of the island. Taylor Rock, lying 1 mile SW of the southernmost island of the group, consists of three rocky heads located close together and dries 3m.

Chearnley Island (54°26'N., 130°59'W.), 14m high, lies 0.4 mile S of Prince Leboo Island, which is wooded. A rock, awash and marked by kelp, and another rock, which dries 4.9m, lie about 0.8 mile WSW and about 1 mile WNW, respectively, of Chearnley Island. A rock, which dries 4m, and a conspicuous white rock, 26m high, lie about 0.3 mile S and 0.8 mile ENE, respectively, of the same island.

Gore-Langton Point (54°30'N., 130°53'W.) is fronted to the W by a bight in which several above and below-water rocks lie. The outermost of these rocks is 4m high. A rock, which dries 0.3m, lies about 3.5 miles NE of the point and about 0.2 mile offshore. Elsewhere, the NW shore of Hudson Bay Passage is free of off-lying dangers.

The Nares Islets, consisting of three groups of islets, are wooded. They lie in the fairway of Hudson Bay Passage. Each group is located on a separate area of foul ground with deep channels lying between them.

Caamano Passage

13.26 Caamano Passage lies between the W side of Dundas Island and Zayas Island, 3.5 miles W.

The W side of Dundas Island is rugged and indented with several off-lying islets and rocks, above and below-water, extending up to 0.8 mile seaward in places. Landing on this coast is difficult due to the continuous heavy swell.

A rock, awash at HW, lies in this vicinity about 0.6 mile off-



Green Island Light

shore and two shoals, with depths of 5.5m, are located within 0.4 mile N of it.

Several wooded islets lie about 0.5 mile off the NW side of Dundas Island. The tallest of these is 56m high and lies 1.5 miles W of Arniston Point, the N extremity of the island. A rock, awash, lies 0.8 mile N of this point.

The **Gnarled Islands** (54°38'N., 130°50'W.) lie off the middle of the N coast of Dundas Island. A shoal patch, with a depth of 2.7m, lies about 0.3 mile NE of the northeasternmost island. These islands are free of off-lying dangers and may be approached to a distance of 0.3 mile.

Brundige Inlet, the middle of three indentations located on the N side of Dundas Island, is entered close E of Prospector Point and S of the Gnarled Islands. This inlet extends about 3 miles SW and has a least width of 135m. Fitch Island lies close to the SE shore, about 1.3 miles SW of Prospector Point. A detached rock, which dries 2.4m, lies close offshore, 0.2 mile W of this island. A rock, with a depth of 2.1m, lies in mid-channel, about 0.7 mile SW of Fitch Island.

Anchorage can be obtained by small craft, in a depth of 28m, in mid-channel, NW of Fitch Island. Anchorage can also be taken, in a depth of 16.5m, at the head of the inlet.

13.27 Zayas Island (54°36'N., 131°04'W.) is wooded and flat-topped. A rock, which dries 3.7m, lies about 0.8 mile SE of the S extremity of the island. A rocky islet, 6m high, and a rock, with a depth less than 1.8m, lie near the outer edge of the foul ground extending up to 0.8 mile SW from Jacinto Point. Jacinto is the SW extremity of the island and is marked by a light.

Aranzazu Point, the NW extremity of the island, is a low point from which several rocks extend up to about 0.4 mile NW. The northernmost of these rocks is 0.9m high. A rock, with a depth of less than 1.8m, lies about 0.4 mile farther NNW and the sea usually breaks at LW over it.

McCulloch Rock, lying about 4 miles W of Jacinto Point, is

a pinnacle rock. It usually breaks and has a depth of 1.8m. Shoals, with depths of 5.5m, lie about 0.3 mile SSW and 0.3 mile ESE of McCulloch Rock. Another rock, with a depth of 9.1m, lies about 1.3 miles NNE of McCulloch Rock.

East Devil Rock (54°41'N., 131°04'W.), a pinnacle rock which dries 0.6m, is usually marked by breakers and lies about 3.3 miles N of Zayas Island. The channel lying between this rock and Zayas Island is free from dangers in the fairway, but the N coast of the island should not be approached within 1 mile.

Directions.—Vessels approaching Caamano Passage from SW should steer for the islet, 55m high, lying W of Arniston Point on a course of 037°. When Jacinto Point is abeam, they should alter course to 020° to pass about 1.5 miles WNW of the above mentioned islet. When it is abeam, a course of 061° should be steered to pass about 2 miles N of Arniston Point.

Vessels bound N by way of Revillagigedo Channel should, after passing 1.5 miles off the above-mentioned islet, steer a course of 357° in order to pass about 2 miles W of Tree Point.

Chatham Sound—North Entrance

13.28 The N entrance of Chatham Sound lies between the NE side of Dundas Island and Finlayson Island, 9.3 miles E. It is divided into three passages by Connis Rocks and Green Island.

Connis Rocks, consisting of two bare rocks lying close together on a steep-to drying reef, are located about 5 miles W of the N end of Finlayson Island.

Green Island, 11m high and grassy, lies 2.8 miles W of Connis Rocks and is surmounted by two hummocks connected by a low shingle beach. It is steep-to on the N side and fronted by foul ground extending up to 0.3 mile N. A light is shown from the SW side of the island.

Grey Islet, 9m high and bare, lies about 0.8 mile NE of Green Island, on the E edge of foul ground extending up to

about 0.5 mile W of it.

Bristol Rock, with a depth of 3m, lies about 0.8 mile NW of Grey Islet.

Holiday Passage lies between the NE side of Dundas Island and Green Island. It is deep and used by coastal vessels.

Oriflamme Passage lies between Green Island and Connis Rocks and is deep.

Main Passage lies between Connis Rocks and Pointer Rocks, 3.5 miles ENE. It is the widest and deepest passage. This passage is steep-to, free of dangers, and is preferred to the others.

Dixon Entrance—North Part

13.29 The approach from the Pacific Ocean to Chatham Sound is via Dixon Entrance, which extends in a general E direction for about 60 miles to Dundas Island. The International Boundary between British Columbia and Alaska is situated on the N side of Dixon Entrance. The off-lying dangers fronting the coast between the N entrance point of Dixon Entrance and the boundary to the NE of Dundas Island are mainly described in U.S. Coast Pilot 8, Pacific Coast Alaska—Dixon Entrance to Cape Spencer.

Cape Fox (54°46'N., 130°50'W.), located on the N side of Dixon Entrance, forms the W side of Nakat Bay and terminates in conspicuous high and white cliffs. Harry Saddle, a conspicuous saddle-shaped mountain, stands 2 miles N of the cape. Fox Island and several islets lie within 0.4 mile of the cape.

Lord Rock, 3m high and steep-to, lies about 2.5 miles S of Cape Fox and is marked by a light. A rocky shoal, with a depth of 8.7m, lies about 0.4 mile SE of this rock.

The Lord Islands, with their N extremity lying about 2 miles SE of Cape Fox, consist of two groups located 0.8 mile apart. The larger islands are wooded and 30 to 61m high. A clear channel lies between the groups, but several rocks, awash and below-water, fringe the islands. Fleece Rock, 3.4m high, lies about 1 mile E of Lord Rock. Thistle Rock, 2.1m high, lies about 0.5 mile W of the northernmost of the Lord Islands and a shoal patch, with a depth of 1.5m, lies about 0.3 mile SW of it.

Haystack Island (54°43'N., 130°37'W.), located 7.3 miles E of Lord Rock, is 137m high, wooded, steep-to, and conspicuous.

The Proctor Islands, 0.5 mile E of Haystack Island, are similar in character to the Boston Islands, 1.5 miles SE. The larger islands of the Boston Islands are wooded and about 45m high.

Wales Island (54°45'N., 130°30'W.) has a sharp conspicuous summit, named Entry Peak, standing about 0.8 mile N of Wales Point, its SE extremity. Another mountain, with a flat summit of the same height, rises 1.5 miles WNW of Entry Peak.

Tracy Island, wooded and 49m high, lies in the entrance of the deep bay located close W of Wales Point. A rock, 0.9m high, and a rocky ledge, which dries, lie in the middle of the passage leading between Wales Point and Tracy Island. The passages lying on each side of these rocks are deep and free of dangers. Anchorage for small vessels, sheltered from all but S winds, may be taken in this bay.

Tongass Passage and Pearse Canal

13.30 Tongass Passage is entered between Haystack Island

and Island Point, the SE extremity of **Sitklan Island** (54°45'N., 130°40'W.). It is deep with steep shores and has a least width of 0.6 mile. Sitklan Passage lies at the N end of Tongass Passage and N of Sitklan Island. It is deep and narrow with steep wooded shores. This passage forms the W approach to Port Tongass. Tongass Passage connects with Pearse Canal at Bartlett Point, the W extremity of Wales Island.

Pearse Canal, 25 miles long, is deep throughout, but its SW end is encumbered with many islets and rocks which reduce the navigable width to only a little more than 0.2 mile. There are no dangers in Pearse Canal between Wales Passage and its junction with Portland Canal, except for a rock, which dries 3m. This rock lies close SE of mid-channel and close off a bight which is located S of the entrance to Winter Inlet.

A rock, which covers at about half-tide, lies about 0.1 mile off **Phipp Point** (54°47'N., 130°37'W.).

Pearse Canal Light is shown from the S end of an islet, 45m high, which lies in mid-channel, about 0.7 mile NE of Phipp Point. The best channel leading into Pearse Canal passes between this islet and another islet, 48m high, which lies 0.2 mile SE of Male Point, the SW extremity of Fillmore Island. Shoal patches, with depths of 3m and 9.6m, lie about 0.1 mile N and about 0.5 mile NNE, respectively, of the light. A rocky shoal, with a depth of 6.4m, also lies about 0.1 mile SE of the light.

Two bare rocks, 3m high, lie about 1.4 miles E of Pearse Canal Light and within 0.5 mile of the NW side of Wales Island.

Anchorage.—Wales Harbor, lying S of the Safa Islands (54°47'N., 130°36'W.), affords good anchorage, in depths of 28 to 33m, soft bottom. However, its entrance is encumbered by islets and reefs, and only vessels with local knowledge should attempt to enter. The entrance channel, which is 0.2 mile wide, leads along the W shore.

Regina Cove, lying 2 miles NE of Male Point, provides anchorage, in a depth of 26m, mud, in its center. A shoal, with a depth of 3.2m, lies almost in mid-channel of Pearse Canal, about 0.3 mile SE of the SW entrance point of Regina Cove.

Winter Inlet, entered 1 mile NE of the entrance to Wales Passage, is landlocked and affords secure, though limited, anchorage for small craft with local knowledge. The holding ground is good and ample swinging room is available in the wider part of the inlet. Within 1.3 miles of the entrance, the inlet is only 0.1 to 0.2 mile wide. A rock, with a depth of 4.3m, lies in the middle of the entrance. A wooded islet lies in a bight about 1.4 mile within the inlet and a rock, awash at HW, lies close E of it. The inlet widens and affords anchorage, in a depth of 11m, mud, about 0.3 mile above the islet.

Edward Passage, lying opposite the N entrance to Wales Passage, is narrow, foul, and navigable only by small craft with local knowledge.

13.31 The **Yelnu Islets** (54°56'N., 130°20'W.), two in number, are prominent and lie 0.8 mile S of the entrance to Hidden Inlet.

Hidden Inlet can only be entered from the SW and is of no value as an anchorage. The tidal currents set through its entrance at a rate of 8 to 10 knots and form swirls that extend well into Pearse Canal.

Tree Point (55°02'N., 130°11'W.) is low, wooded, and conspicuous. High land rises about 1 mile S of this point. A rocky ledge, which dries 2.4m, extends up to about 0.2 mile N from

the point. The continuation to the NNE of Tree Point is via Portland Canal.

Directions.—Tongass Passage should be navigated on a mid-channel course until Point Mansfield, the NE extremity of Sitklan Island, bears about 270°. The course should be altered to pass not less than 0.2 mile N of Phipp Point. A course should then be steered to pass about midway between Pearse Canal Light and the islets lying on the S side of Male Point. Vessels should then steer to pass about 0.2 mile N of the rocks, up to 3m high, lying off the NW side of Wales Island.

Care should be used to avoid the shoal, with a depth of 9.6m, lying about 0.5 mile ENE of Pearse Canal Light. The shore of Wales Island should then be closed and followed at a distance of 0.2 mile until abreast the N end of Wales Passage. A mid-channel course should then be maintained.

Portland Inlet

13.32 Portland Inlet extends from the NE extremity of Chatham Sound in a general NE direction for about 20 miles from its entrance between Wales Island and Somerville Island. This inlet then divides into two arms. The W arm is known as Portland Canal and the E arm as Observatory Inlet.

Wales Passage, lying 3.5 miles NNE of **Wales Point** (54°42'N., 130°29'W.), leads NNW from Portland Inlet into Pearse Canal. York Island, lying in the middle of the S entrance, has clear passages leading on either side of it. Wales Passage is free of dangers in the fairway, but contracts to a width of only 0.1 mile at its N end.

Manzanita Cove, lying 0.5 mile SW of York Island, is free of dangers and provides anchorage for small vessels.

Pearse Island is located on the NW side of Portland Inlet. Mountains rise along its SE side and attain a height of 793m close N of Portland Point, the E extremity and the SW entrance point of Portland Canal.

Crag Point, located 3 miles NE of the S extremity of Pearse Island, terminates in white cliffs.

Lizard Point, located 3.3 miles NE of Crag Point, is prominent and marked by a light.

Somerville Island, 971m high, is heavily wooded with generally bold coasts. Truro Island, 218m high and wooded, is separated from Somerville Island by Truro Passage. This passage is about 0.1 mile wide in its narrowest part and deep in the fairway.

Nob Islet, 22m high, lies 1 mile NE of Truro Island. A conspicuous white cliff stands close S of Nob Islet.

Somerville Bay lies close E of Start Point. Start Point is bold, steep-to, and forms the N extremity of Somerville Island. Small vessels with local knowledge may obtain anchorage, in a depth of 22m, sand, near the head of this bay.

Steamer Passage, lying between Somerville Island and the mainland, is over 0.3 mile wide at its narrowest part. This narrow part is located between Spakels Point, the SE extremity of Somerville Island and Keemein Point, the S entrance point of Khutzeymateen Inlet. The passage has depths of over 37m in mid-channel and is free of offshore dangers, except for a gravel bank. This bank extends seaward from the S shore close W of Kumeon Bay, which lies W of Keemein Point.

Anchorage for small vessels can be taken, in a depth of 22m, sand and mud, within Kumeon Bay. However, care should be

used in order to avoid the above-mentioned gravel bank.

Khutzeymateen Inlet is entered between Keemein Point and Welgeegenk Point, 0.8 mile NE. It extends for 14 miles in a SE direction and terminates in an extensive drying flat over which flows the Khutzeymateen River. The inlet has an average width of 0.5 mile and, except for Walskakul Shoal, is deep throughout. The latter shoal, with a depth of 14.6m, lies near mid-channel, about 4 miles within the inlet. The shores for the most part are steep-to and rise to high, wooded mountains.

Crow Lagoon, entered about 0.5 mile E of Keemein Point, is obstructed by a drying flat that extends up to about 0.5 mile E and about 0.2 mile offshore.

Tsamspanaknok Bay lies on the S shore of Khutzeymateen Inlet and about 5 miles within the entrance. It provides anchorage for small craft about 0.1 mile off the drying flat at the head. The E shore of the bay should be favored when approaching the anchorage in order to avoid a drying flat extending from the W shore.

McGregor Point is the NE extremity of a prominent headland which forms the E shore of Tsamspanaknok Bay. Kwinamass Bay, extending E abreast the N entrance to Steamer Passage, is almost completely filled by a drying flat, which renders it useless as an anchorage.

Trefusis Point (54°50'N., 130°10'W.), the S extremity of the Mylor Peninsula, terminates in white cliffs. Ranger Islet, 12m high, lies on the foul ground extending up to about 0.5 mile S from the point. Nasoga Gulf, lying between the S end of the Mylor Peninsula and the mainland, is deep throughout with fairly steep-to shores and comparatively high land at its head.

Anchorage can be taken by vessels with local knowledge near the head of the gulf. A berth lies, in depths of 18 to 33m, gravel, in mid-channel and about 0.2 mile from the N shore.

Portland Canal

13.33 Portland Canal is entered W of **Ramsden Point** (54°59'N., 130°06'W.), the S extremity of the peninsula which divides Portland Canal from Observatory Inlet. A rocky ledge, which dries 4m, lies 0.1 mile E of Ramsden Point.

Portland Canal extends from its junction with Pearse Canal at Tree Point for 58 miles in a general N direction to the ports of Hyder, Alaska and Stewart, British Columbia. The canal is deep and clear. There are no dangers within it, except for a rock, bare at LW, lying about 0.2 mile off the Alaskan shore, about 2.3 miles above River Point (55°34'N., 130°08'W.).

The sides of the canal are precipitous and rise almost perpendicularly to snow-clad summits. They attain heights of 910 to 1,820m within 2 miles of the canal. The snow line, with the exception of a few wooded valleys at the mouths of streams, is low even in midsummer.

The tidal currents have an estimated maximum rate of 2 knots on the flood and 3 knots on the ebb, diminishing toward the head of the canal. The current turns shortly after HW and LW.

Reef Island (55°05'N., 130°12'W.) is marked by a light. A reef, with rocks awash at HW, and several below-water rocks, extend up to about 0.2 mile S of the island.

Dickens Point is located on the E shore, about 5 miles NNE of Reef Island. It is bordered close S by a black rock, 2.4m high. A drying ledge extends up to about 0.2 mile S from the

point.

Stopford Point, located about 3 miles NNE of Dickens Point, is bold and conspicuous from the S.

Halibut Bay (55°14'N., 130°06'W.) has generally bold shores. However, on each side of the entrance, sandy beaches and shoals front the shore and are backed by low, grassy land. Drying flats extend from the W shore of the bay all the way across, about 1 mile within the entrance.

Camp Point, located 4.5 miles NE of the entrance, is wooded and precipitous.

Anchorage can be obtained by vessels with local knowledge, in depths of 11 to 18m, mud, in mid-channel, about 0.3 mile within the entrance. The holding ground is good.

13.34 Hattie Island (55°17'N., 129°58'W.), covered with some stunted bushes, lies nearly in mid-channel. All sides of this island, except the N side, are steep-to but the channel passing to the W is recommended. A light is shown from the W side of the island, but it is obscured to the E. The island is not conspicuous from the S due to the lack of contrast from the high background. Belle Bay, lying E of Hattie Island, is too deep to afford anchorage.

Three conspicuous landslides are located 2 miles N of Hattie Island.

Breezy Point, located 5 miles NNW of Hattie Island, is conspicuous and Bluff Point, 1.8 miles farther NE, terminates in a high bold cliff.

Bay Islet (55°36'N., 130°07'W.) is wooded and joined to the E with a point located on the shore separating two sandy bights. A drying rock lies 1 mile W of this islet.

The **Green Islets** (55°38'N., 130°06'W.), two in number, are small, wooded, and lie close off the E side of the canal. A rocky ledge, which partly dries, fronts the N side of the islets.

Fords Cove, lying within the Green Islets, affords shelter from S winds, but no protection from N winds. The S part of this cove is bordered by shallow depths. Fair anchorage may be obtained by vessels with local knowledge, in a depth of 29m, about 0.2 mile from the Green Islets and the same distance from the E shore. Four conspicuous oil tanks are situated on the shore of this cove.

Glacier Point (54°49'N., 130°07'W.) is the termination of a small peninsula on which stands a conspicuous wooded hill, 107m high. Seal Rocks, the largest of which is 1m high, lie close offshore, about 0.8 mile NE of Glacier Point.

Lion Point, located 5 miles NE of Glacier Point, is low and fronted by a grassy flat. This point is fronted by a prominent old jetty with some ore-loading equipment on it. A government landing float is situated in Marmot Bay, about 0.5 mile NE of Lion Point. It has depths of 5.5m and 2.7m lying at the S and N ends, respectively.

13.35 Hyder and Stewart (55°56'N., 130°00'W.) (World Port Index No. 18980) are two closely connected settlements that lie at the mouths of the Salmon River and the Bear River, respectively. Hyder, where there is a U.S. Customs Station, stands on the Alaskan side and Stewart stands on the British Columbia side.

The Bear River and Salmon River, at the head of Portland Canal, are separated by the Reverdy Mountains. These mountains consist of a high ridge of bare peaks with Mount Dolly,

the southernmost, being conspicuous from seaward.

The Salmon River is fronted by an alluvial fan-like delta that is formed by a drying mud flat, the N portion of which extends about halfway across the canal. This mud flat is steep-to and the depths lying off it increase to over 90m within a distance of about 200m.

The Bear River flows through an extensive wooded flat and divides near its mouth into a delta. Several streams flow through this delta. During the summer when the snow is melting, a considerable body of water flows into the canal. The drying mud flat fronting the edge of the delta is fairly steep-to and on the E shore the depths increase to over 37m within a distance of about 100m.

Throughout the year, discolored water from the Bear River and the Salmon River extends as far S as Glacier Point.

Tides—Currents.—At the settlements, the tides rise about 6.7m at springs and 5.3m at neaps.

Depth—Limitations.—A wharf for small craft fronts Hyder, but is reported to be in poor condition. The approach to this wharf lies over the mud flats fronting the river mouth.

The Stewart Bulk Terminal Wharf is situated on the W shore, about 1 mile S of Stewart. It is 250m long and has a depth of 10.9m alongside. Mooring buoys are situated NW and SE of the wharf.

A public wharf situated close N of the Esso Minerals Wharf, 90m long with depths of 5.2m alongside, has been decommissioned (2016). A wreck, with a depth of 5.1m, lies alongside the wharf.

The Stewart Harbor Authority operates a public float with berthing length of 46m, in depths of 4.9m. The E end of the float is reserved for aircraft.

Anchorage.—Anchorage may be taken, in depths of 46 to 55m, near the head of the canal, about 0.3 mile from the E shore and about 0.2 mile S of the mud flat fronting the mouth of the Bear River. Caution is required approaching the anchorage as the flat is uncovered only at LW and is very steep-to. The bottom consists of soft mud with good holding ground, but the anchorage is exposed to N and S winds that blow through the canal.

Caution.—Extensive silting is reported to have taken place at the mouths of the Bear River and the Salmon River.

Ice forms at the head of Portland Canal in the vicinity of Stewart from November to February. It does not stop shipping, but can be a problem for small craft.

The waters lying in the vicinity of Stewart are a designated aerodrome.

Observatory Inlet

13.36 Observatory Inlet is entered between Ramsden Point and Nass Point, 4 miles ENE. It extends from the head of Portland Inlet for 27 miles in a general NNE direction. This inlet, which is deep, then divides into two arms, Hastings Arm continuing N and Alice Arm continuing E. The shores are low and wooded in some parts, the land rising to mountains of considerable height a few miles inland. The trees and underbrush, particularly on the W side of the inner end of the inlet, are bare of foliage due to the effects of fumes emanated from the former smelter at Anyox.

The tidal currents in Observatory Inlet seldom exceed a rate

of 2 knots, the greatest velocity being during the early summer when land drainage runoff is at its maximum. A rate of 1 to 2 knots may be encountered in the passages leading into Alice Arm, but in Sylvester and Granby Bays, they are negligible. The tidal currents in Hastings Arm are very weak and during the freshet period, nearly always set S with a marked overlay of fresh water.

In the vicinity of Nass Point, the currents are affected by the discharge from the Nass River and tide rips and eddies are nearly always present. The muddy stream from the river contrasts greatly with the blue water of the inlet.

Tide rips and eddies are noticeable throughout the S part of Observatory Inlet, particularly in the vicinity of the 25m depth lying 2.5 miles N of Nass Point.

Between Frank Point and Hans Point, the tidal currents attain a maximum rate of 2 to 3 knots, the ebb being the stronger. No appreciable eddies are encountered. When strong winds are in opposition to the tidal currents, extensive tide rips, dangerous to small craft, are formed.

Anchorage.—Anchorage can be taken with local knowledge, in a depth of 55m, in a bight about 2.5 miles NNE of Nass Point and about 0.3 mile offshore. The N entrance point of this bight should be given a berth of 0.3 mile as a narrow spit, with a least depth of 1.5m, fronts its SSW side.

Salmon Cove lies on the W side of the inlet, about 7.5 miles NNE of an islet. A sandy flat extends 0.2 mile seaward from the S shore at the entrance to the cove. The head of the cove is 0.3 mile wide. Dawkins Point is located on the E shore opposite Salmon Cove.

Richards Point, located 1.5 miles N of Dawkins Point, lies on the W side of the inlet and is marked by a light.

Anchorage may be taken, in depths of 57 to 64m, mud and stones, within the entrance of Salmon Cove.

Brooke Island, wooded and 148m high near its S end, lies with Brooke Point, its SW extremity located 4 miles NNE of Richards Point. Paddy Passage, separating the island from the mainland, is deep and free of off-lying dangers.

A rock, which dries 6.4m, lies at the extremity of a spit extending about 0.1 mile N from Williams Point, the NE extremity of the island. Brooke Shoal, which dries 5.8m, lies about 0.2 mile farther N and is marked by a light.

Frank Point, located 1.5 miles NW of Brooke Point, is the NE entrance point of Juggins Bay. This bay, in which lie three drying rocks, is shallow and affords shelter for small vessels with local knowledge.

Larcom Island, 155m high, lies close off **Thomas Point** (55°23'N., 129°45'W.), the S extremity of the island. Larcom Lagoon, which indents the W side of the island, almost dries at the entrance.

Aiskew Point, located 1.3 miles NNE of Frank Point, is the NE extremity of Aiskew Island. Vadso Rocks, which dry 0.6 to 0.9m, lie between this point and the SW extremity of Larcom Island. Vadso Island, 15m high, lies close off the latter extremity.

Strombeck Bay is entered between Aiskew Point and Fortier Point, 0.5 mile W. It is foul and obstructed by drying rocks.

Anchorage can be taken, in a depth of 37m, about 0.2 mile W of Aiskew Point.

Sylvester Bay is entered between Fortier Point and the Granby Peninsula. A rocky patch, with a depth of 6.9m, lies about

0.1 mile NNW of Fortier Point. A shoal, on which lies Cane Rock, extends up to about 0.3 mile S from the W entrance of the bay. Cane Rock dries 3.7m. Several drying rocks lie within 0.8 mile of the head of the bay. A shoal, with a depth of 9.1m, lies about 0.8 mile SW of Fortier Point.

Forward Shoals, lying about 1.5 miles N of Aiskew Point, have a least depth of 6.4m.

Granby Bay is entered between **Granby Point** (55°25'N., 129°48'W.), the N extremity of the Granby Peninsula, and Johnson Point, 0.8 mile NNE. Anyox Rock, which dries 6.7m, lies about 0.4 mile SE of Granby Point and about 0.2 mile offshore. Foul ground extends up to about 0.2 mile N from this rock. Granby Bay is deep and clear of dangers, except for the banks fronting the streams.

Two prominent chimneys are situated on Graves Point, 0.8 mile SW of Johnson Point. Two other chimneys, also prominent, stand 0.8 mile farther WSW. Smith Bluff, located 0.5 mile WSW of Graves Point, is fronted by a drying flat that extends up to about 0.2 mile SE. A slag dump from an abandoned mine stands near the inshore end of this flat.

Anyox, situated W of Graves Point, was once the port serving a thriving copper mine. It is now abandoned and the wharves are in ruins.

Anchorage.—Depths within Granby Bay are too deep for satisfactory anchorage. Temporary anchorage for vessels up to 76m in length lies, in a depth of 66m, about 0.2 mile SW of Graves Point. Temporary anchorage for larger vessels lies, in a depth of 77m, in mid-channel, about 0.4 mile SE of Smith Bluff.

Caution.—The channel lying between the N end of Larcom Island and the mainland to the W is encumbered by numerous islets, above and below-water rocks, and is navigable only by boats.

An abandoned submarine telegraph cable extends ESE between a point located close WSW of Johnson Point and Larcom Island.

A magnetic disturbance is reported to exist in Paddy Passage.

Observatory Inlet—Head

13.37 The Perry Peninsula (55°23'N., 129°41'W.) is 97m high. Perry Spit, which dries, extends about 0.2 mile W from the SW end of this peninsula. It is composed of gravel and stones and should be given a berth of at least 0.2 mile. A shoal, with a least depth of 1.8m, lies close W of the peninsula, 0.4 mile N of the spit.

Liddle Island (55°24'N., 129°42'W.) has an area of foul ground fronting its S extremity. A shoal, with a depth of 6.7m, and a rock, which dries 2.1m, lie about 0.4 mile SW and 0.2 mile W, respectively, of the S extremity. A shoal, with a depth of 3.7m, lies between the rock and the island.

Liddle Channel, lying between the N end of the Perry Peninsula and Liddle Island, has a least depth of 9.8m on the W side of the fairway at its inner end.

Perry Bay, lying close E of the Perry Peninsula, is 0.4 mile wide at its entrance. However, the navigable channel is narrowed to a width of only 135m by the shoals lying on either side. A least depth of 4.9m lies in the fairway channel. Sophy Island, lying close NE of Perry Peninsula, is 39m high. It is

surrounded by a shoal that extends up to about 0.1 mile seaward from the E side. Rocks, which dry 2.5m and 0.3m, lie on the E edge of this shoal. A shoal patch, with a depth of 2.7m, lies about 0.2 mile NE of Sophy Island. Hyde Rock, lying about 0.1 mile N of Sophy Island, dries 1.5m and is marked by a light.

Approaching Perry Bay from the SW, vessels should keep in the fairway of Liddle Channel and alter course around Hyde Rock Light at a distance of at least 0.2 mile. They should then pass midway between the shoal patch lying NE of Sophy Island and the E shore. Vessels may then steer for the anchorage.

Anchorage can be taken in Perry Bay. The berth lies, in a depth of 24m, mud, in mid-channel, about 0.2 mile SE of Sophy Island.

Hastings Arm extends about 14 miles N from its entrance located between the E side of Larcom Island and Liddle Island. This arm has a least width of 0.5 mile, is deep, and terminates in a wooded swamp fronted by a mud flat.

Foul ground, on which lie some wooded islets and drying rocks, extends up to 0.2 mile offshore, 0.5 mile NW of Davies Point. A rock, which dries 0.9m, lies about 0.2 mile N of Larcom Island. There are other drying rocks located in places, but these are widely separated and lie no more than 0.1 mile offshore. A bank consisting of sand and gravel extends about 0.2 mile seaward from the E shore, about 0.5 mile from the head of the arm.

Alice Arm, from its junction with Hastings Arm, extends N and E for 10 miles to the steep-to mud flat that fronts the mouth of the Kitsault River, at the head.

13.38 Alice Rock (55°25'N., 129°40'W.), with a depth of 1.5m, lies nearly in mid-channel. A ledge extends up to about 0.1 mile W from this rock.

Hans Point, located 0.8 mile NNE of Alice Rock, has an extensive drying flat lying close E of it.

Pearson Point, marked by a light, is shown from the W shore, about 1.8 miles from the head of the arm.

Entering Alice Arm, vessels should pass Thomas Point in mid-channel and then steer for the hill, 73m high, standing at the N end of Liddle Island, bearing 043°. When Brooke Shoal is abeam, a course of 071° should be steered until the extremity of Perry Spit is abeam. The course should then be altered to bring Hyde Rock Light ahead, bearing 052°. When the S end of Liddle Island is abeam, the course should be altered to bring Alice Arm Light ahead, bearing 023°. This course should be maintained until Alice Rock is abeam to port, after which, vessels should steer to pass 0.1 mile off Alice Arm Light. A mid-channel course may then be steered toward the head of the arm.

The settlement of Alice Arm is situated on the W side of the mouth of the Kitsault River. A government wharf and float are situated 1 mile N of Pearson Point. The head of the wharf is 30m long and has a depth of 7.3m alongside.

Kitsault, a newly established mining settlement, is situated at the mouth of Lime Creek.

Anchorage.—Temporary anchorage may be taken by small vessels, in a depth of 28m, about 0.3 mile NNE of Pearson Point Light or in a depth of 18m, about 0.2 mile ENE of the same light. Neither anchorage berth is recommended as they are close to rocks which dry 1.5m and 0.6m. In addition, the holding ground is bad. The bottom shoals rapidly and a depth

of 100m lies only about 0.2 mile offshore.

Caution.—A wide berth should be given the mouths of Roundy Creek and Lime Creeks, lying 0.8 mile S and 0.8 mile E, respectively, of Pearson Point. Extensive drying flats front these creeks and the depths lying off them shoal abruptly.

The flats at the head of the arm should be approached with care as the water is very muddy and it shoals abruptly.

An abandoned submarine cable lies across Hastings Arm in the vicinity of Larcom Island.

Nass Bay

13.39 Nass Bay (54°59'N., 129°59'W.) is entered between Low Point and Nass Point, 2 miles N, and forms the estuary of the Nass River. Extensive drying flats of mud and sand front the NE and E shores of Nass Bay on each side of the mouth of the Nass River. Governors Bar, fronting Kincolith, extends about 0.7 mile from the N shore and is steep-to on its W side.

Ripple Tongue is the W extremity of the flats projecting from the E shore of Nass Bay. These flats extend to within 0.4 mile of Double Islet Point. The Mud Islands, 36m and 49m high, lie on the S part of the flats.

A government wharf is situated about midway between Nass Point and Kincolith. It has a berth, 40m long, with a depth of 5.5m alongside.

Fort Point (54°59'N., 129°55'W.), the N entrance point of the Nass River, terminates in white cliffs. Leading Point, the S entrance point of the river, is located 2.8 miles E of Fort Point.

Anchorage, in good weather, can be taken, in depths of 18 to 28m, mud, about 0.8 mile SW of Kincolith with Leading Point just open S of Fort Point, bearing 090°. Care must be taken to anchor with Landslip Mountain bearing not more than 198° as Governors Bar is steep-to.

13.40 Iceberg Bay (54°56'N., 129°58'W.) is entered between Double Islet Point and Jaques Point, 1.8 miles S. It terminates in a steep-to sand flat that front the swampy ground at the head. There are depths within the bay of up to 77m. Depths of 9.1 to 40m over a mud bottom lie in an area located between a line joining the entrance points and the drying bank extending about 0.5 mile W to within 1.5 miles NW of the Mud Islands.

The Double Islets, 25m and 22m high, lie close off Double Islet Point. They are lightly wooded and connected to the shore at LW by a gravel and boulder bank.

Anchorage can be taken, in depths of 8 to 10m, mud, with Double Islet Point in line with Nass Point, bearing about 326°, and the S side of the southernmost of the Mud Islands bearing about 087°.

Directions.—Vessels proceeding to Iceberg Bay should keep about 0.2 mile off the S shore of Nass Bay between Low Point and Stevens Point, 0.8 mile E. They should then follow the fairly steep-to shore at a distance of about 0.1 mile. On approaching Double Islet Point, vessels should close the shore until the Double Islets are cleared. A course can then be steered for the anchorage.

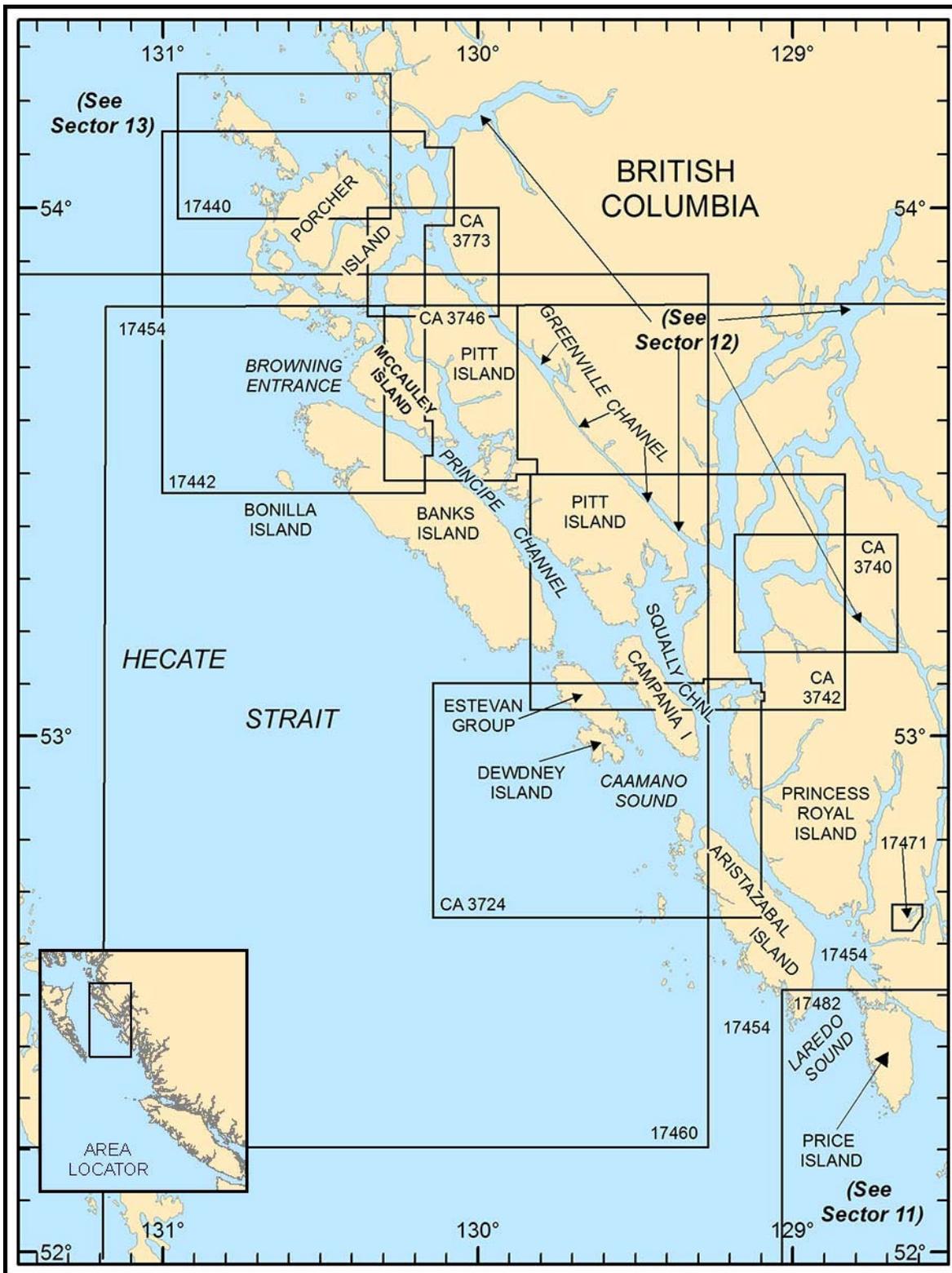
Caution.—A sewer outlet pipeline crosses the bar close SE of Kincolith.

Recent surveys indicate Governors Bar and Ripple Tongue

are subject to change and care should be taken when entering Iceberg Bay.

A strong set towards the S shore of Iceberg Bay, on the ebb

tide and in the opposite direction on the flood tide, has been observed and requires a course allowance of up to 10° in order to counteract the effects of the currents.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).
SECTOR 14 — CHART INFORMATION

SECTOR 14

HECATE STRAIT—EAST SIDE

Plan.—This sector describes the E side of Hecate Strait from Price Island, at its SE entrance, to Porcher Island, near its NE end. The description also includes those islands, sounds, channels, and passages lying W of the inner reaches discussed in Sector 12. The general descriptive sequence is from S to N.

General Remarks

14.1 Hecate Strait (53°00'N., 130°30'W.) lies between the numerous islands lying close off the mainland of British Columbia and the Queen Charlotte Islands. The strait is about 80 miles wide at its S entrance and gradually narrows to 30 miles at its N end. The depths within the strait decrease from over 200m in the S part to between 7.3m and 36m on Dogfish Bank, which stretches across the N entrance. There are depths of 54 to 109m lying E of this bank. Across the N part of the strait the depths are very irregular.

When navigating the strait, it is advisable to keep on the E side. From the S, the shortest and best route to Chatham Sound is via Edye Passage (54°03'N., 130°34'W.).

Tides—Currents.—At the S end of Hecate Strait, the N current attains a maximum rate of 1 knot at springs, which occurs 5 hours before HW at Prince Rupert. The direction of the current varies between NW and NE. At neaps, the maximum N current occurs 3 hours 30 minutes before HW at Prince Rupert and the maximum S current occurs 3 hours after HW. These currents attain rates of 0.5 knot. In general, the flood current coming in through Dixon Entrance turns SE and meets the flood current coming up from the S in the middle of the strait, at the latitude of Skidegate Inlet.

A change in this general behavior occurs with the season of the year. In winter and spring, the flood currents meet in latitude 53°43'N, but in the late summer from about the middle of July to the middle of September they meet 25 to 30 miles farther S. At springs or during bad weather, the tide rips caused by the meeting of the currents are sometimes so great as to convey an appearance of broken water.

The flood current flowing through Dixon Entrance, on reaching the N end of the strait, divides at a point midway between Rose Spit and Dundas Island. The weaker part of the current sets N past Dundas Island, probably because of the indraft between Portland Canal and the neighboring inlets. The main flood current turns SE into Hecate. In the winter, the flood and ebb currents are very regular here, but in the late summer the flood current greatly exceeds the ebb. In August, the flood may attain a rate of 2.5 to 3 knots with very little appreciable ebb current or only slack water.

These changes in the tidal current are similar to the annual variation in the time of the tides which gives rise to variations in the tidal differences.

Aspect.—Features of possible navigational interest to vessels making a passage through Hecate Strait include a peak, 223m high, rising on Price Island; Mount Johnston, standing near the center of Aristazabal Island; Mount Parizeau, rising

1.5 miles NNW of Mount Johnston; the Musgrave Peaks, standing on the northernmost of the Estavan Group; a peak, 378m high, rising at the SE end of Banks Island; another peak, 213m high, rising at the NW end of Banks Island; Bonilla Island; the summit of Goschen Island; and the peak standing at the S end of the Porcher Peninsula.

Regulations.—Canadian modifications to 72 COLREGS are applied in waters under Canadian jurisdictions. See Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and South-east Asia for further information.

Vessel Traffic Service (VTS).—The Vessel Traffic Services Zones Regulations require all vessels greater than 500 gt to file a VTS Offshore Report 24 hours prior to entering a Canadian VTS Zone from seaward, or as soon as practical where the ETA of the ship to a Canadian VTS Zone is less than 24 hours after the time the ship departed its last port of call. Send VTS Offshore Reports to a Canadian Coast Guard MCTS Center, free of charge, or to one of the following:

1. Telephone: 250-627-3071
2. E-mail: vts.rupert@innav.gc.ca

The waters described in this sector lie within Sector 1 of the Prince Rupert Vessel Traffic Zone. For further information, see General Remarks in paragraph 11.1.

Caution.—Fishing vessels of all types may be encountered in Hecate Strait. The heaviest concentrations, are during the herring fishery in March and during the salmon fishery from May until October.

During an occurrence of a large tidal range, when the barometric pressure difference between the coastal and inland high pressure system drops more than 7 millibars in one day, S sets with rates of 2 to 3 knots may be experienced.

Many islets, above and below-water rocks, small islands, and other dangers lie within about 13 miles of the W sides of the coastal islands located at the E side of Hecate Strait.

Gertrude Rock (52°25'N., 129°23'W.), the outermost danger, lies close off the W side of Aristazabal Island; Ness Rock (52°51'N., 129°44'W.) lies close off the SW side of the Estevan Islands.

McHarg Bank (53°17'N., 130°31'W.) is the outermost danger lying off the W side of Banks Island. It is the closest danger to the coastal track within the limits of this sector.

Hecate Strait—East Side

14.2 McInnes Island (52°16'N., 128°43'W.), wooded and conspicuous, lies on the NE side of the S entrance of Hecate Strait and is marked by a light.

The island is the westernmost of a group of wooded islands and dangers, which extend up to about 2 miles SW of Day Point, at the S extremity of Price Island.

Catala Passage leads through the numerous islets and rocks between McInnes Island and Price Island. It is narrow, but not too difficult. Linn Rock in line, bearing 118°, with the S extremity of Bray Island, leads about 135m SW of Mould Rock. The



Photo copyright Mike Mitchell

McInnes Island Light

passage lying S of Bray Island is about 0.2 mile wide.

Aristazabal Island

14.3 Aristazabal Island (52°40'N., 129°05'W.), lying on the NE side of Hecate Strait, is wooded and indented on its W side. Mount Johnston rises 10 miles NNW of its S extremity. This peak is saddle-shaped and conspicuous. Knight Range, a bare ridge of hills, stands near the middle of the island, about 4 miles from the N end. It has four conspicuous peaks, the highest of which is Mount Parizeau. Clifford Bay and Borrowman Bay are two good harbors indenting the island. These harbors are accessible via Beauchemin Channel, which lies between the NW coast and the off-lying islands. This channel joins Caamano Sound to the N of Aristazabal Island.

Lombard Point, located 2 miles NNE of the S extremity of the island, is steep-to and marked by a light. Several islets lie close offshore between the S extremity of the island and this point.

Weeteam Bay (52°31'N., 129°02'W.), providing summer anchorage, is entered between Ede Island and Colston Islet, 0.4 mile E. The fairway in the entrance has a minimum width of 0.2 mile and a least depth of 12.8m.

Ede Island is 53m high and wooded. Colston Islet is 22m high with some bushes on it. Cummins Islet, lying about 0.5 mile S of Colston Islet, is 11m high, bare, and reddish-brown in color.

Murray Rock lies on the S side of the fairway, about 0.4 mile S of Ede Island.

The Thistleton Islands lie on the W side of the entrance, close NW of Ede Island. Bruce Island, the easternmost, lies 0.3

mile NNE of Ede Island. Digby Rock, with a depth of 8.2m, lies on the W side of the fairway, about 0.2 mile NE of the N end of Ede Island.

Vessels approaching from the S should steer with Rogerson Rock in line, bearing 007°, with Mount Johnston. This leads about 0.7 mile W of Rylatt Rock. Then the S extremity of Ede Island should be steered on, bearing 040°, until the N end of Cummins Islet bears 100°. The course should then be altered to pass about 0.2 mile SE of Ede Island. Vessels should then steer to pass about 0.2 mile SE of Bruce Islet, clearing Digby Rock. They should then round Bruce Islet at 0.2 mile and set a course for the anchorage.

Anchorage can be obtained by vessels with local knowledge, in depths of 12 to 16.5m, sand, about 0.2 mile N of Bruce Islet. This is a good summer anchorage, but there is a swell with S gales. Vessels should not seek anchorage N of Soar Rock, the drying rock lying farther N, unless they have local knowledge because of the dangers located in the head of the bay.

14.4 Clifford Bay (52°36'N., 129°09'W.) is entered between Howse Island and the Dobbs Islets. It extends NE and terminates in a creek with mud flats. The fairway, which is free of dangers, is about 0.2 mile wide and has depths of 21.9 to 40m. Howse Island, conspicuous from the W, is bold on its N side. The Dobbs Islets, the tallest of which is 15m high, lie on a drying reef. Craft Island, located 0.5 mile ESE of Howse Island, is 29m high. A rock, with a depth of 3.2m and marked by kelp, lies about 0.1 mile NNE of Craft Island.

Vessels approaching Clifford Bay from the S should pass about 0.5 mile E of the Bowden Islands, on a N heading. When the N end of Howse Island is in line with Mount Johnston,

bearing 076°, they should alter course on this range and pass about 0.4 mile N of Hawkins Rock. Vessels should then pass midway between Howse Island and the Dobbs Islets, and then steer for the anchorage.

The Bowden Islands lie on the W side of the approach to Clifford Bay, about 2.8 miles SW of Howse Island. They are wooded and conspicuous.

Anchorage can be obtained by vessels with local knowledge, in depths of 27 to 31m, mud, about 0.3 mile ENE of the N extremity of Howse Island.

Borrowman Bay (52°44'N., 129°18'W.) is entered between Wriglesworth Point and Pearse Point, 1.5 miles N. Turtish Harbor lies on the N side of the head of this bay and Tate Cove lies on the S side. Morison Passage lies between Mesher Rock and the Trickey Islands. The fairway is about 0.3 mile wide and has a least depth of 11.9m. Meiss Passage, lying between the Trickey Islands and Pearse Point, has a least width of 0.2 mile and is deep in the fairway.

Mesher Rock, with a depth of 5m, lies about 0.8 mile N of Wriglesworth Point. The Wall Islets, the northernmost of which is 4m high, extend S from Mesher Rock. Wall Rocks lie close W of Wriglesworth Point. The Trickey Islands are wooded and surrounded by drying ledges.

Raby Rock, with a depth of 8.7m, and Sehl Rock, with a depth of 10.5m, lie 0.3 mile and 0.5 mile, respectively, E of Mesher Rock.

Anchorage can be obtained by vessels with local knowledge, in a depth of 38m, clay, with the N end of Wilks Island bearing 119° and distant 0.2 mile. Small vessels can anchor farther in. Vessels approaching from the S or W should enter via Morison Passage, keeping Fox Point, located on the N side of the creek at the head of Turtish Harbor, bearing 108° and just open N of the N end of Wilks Island. This course will lead N of Mesher, Raby, and Sehl Rocks in a least depth of 13.7m.

Caution.—Recent surveys (2008) have determined that shoaler depths than charted exist in Borrowman Bay and its approaches.

Wright Passage

14.5 Wright Passage (52°37'N., 129°26'W.), which is deep and clear of dangers in the fairway, leads E from Hecate Strait into Beauchemin Channel. This passage is about 1.5 miles wide between the dangers extending N from Conroy Island and those extending SW from the Moore Islands.

Willis Passage (52°42'N., 129°27'W.) leads E into Beauchemin Channel from Hecate Strait, N of the Moore Islands. Carter Rocks, Keith Rock, and Richards Shoal, which is marked by kelp, lie on the S side of the passage. Towner Bank, Schram Rocks, Verdier Shoal, and Knarston Rock, which is located at the junction of Willis and Leadman Passages, lie on the N side of the passage.

Vessels proceeding through Willis Passage should keep Mount Parizeau, standing near the N end of Aristazabal Island, bearing 064° and open S of the southernmost of the Anderson Islands. This course leads midway between Keith Rock and Verdier Shoal. When the E extremity of the Moore Islands, which consists of a steep and conspicuous cliff, bears 152°, the course should be altered to 093° in order to pass between Richards Shoal and Knarston Rock and into Beauchemin Channel.

Leadman Passage (52°45'N., 129°25'W.) leads S into Beauchemin Channel from Caamano Sound.

Cliffe Rock (52°50'N., 129°28'W.), Woods Shoal, Lombard Rocks, and Richards Shoal lie on its W side. The Beaven Islands and the Anderson Islands lie on the E side.

Parker Passage, the northernmost channel leading into Beauchemin Channel, lies between the N end of the Anderson Islands and Rennison Island. Laundry Rock, located at the W entrance of this passage, lies on the N side of the fairway.

In Leadman Passage, the flood and ebb currents set N and S, respectively, and attain rates of 2 to 3 knots. The currents change about the time of HW and LW.

Vessels from Caamano Sound approaching Beauchemin Channel via Leadman Passage, should steer from a position located 1.5 miles E of Cliffe Rock for the E extremity of the Moore Islands, bearing 174°. This course leads between Lombard Rocks and the rock, with a depth of 8.7m, lying close E. When the S extremity of the Anderson Islands is abeam, the course should be altered to 135° in order to pass midway between Richards Shoal and Knarston Rock and into Beauchemin Channel.

Beauchemin Channel

14.6 Beauchemin Channel (52°45'N., 129°20'W.) leads S from Caamano Sound along the NW coast of Aristazabal Island. McColl Rock, Hazel Shoal, and Bridgeman Rock lie on its W side and Thurgate Rock, Butler Shoal, and Bonson Rock lie on its E side. Farther to the N, the Anderson Islands, the Tuzo Islands, and Rennison Island lie on its W side. Hicks Island and several dangers, located off Borrowman Bay, lie off its E side.

The tidal currents in this channel set the same as for Leadman Passage.

Estevan Group (53°04'N., 129°40'W.), lying on the NE side Hecate Strait, consists of five large islands, which are separated by narrow passages, and numerous smaller islands. The group lies on the N side of the entrance of Caamano Sound. The four southernmost islands, which are low and deeply indented, are Dewdney Island, Lotbiniere Island, Barnard Island, and Prior Island. Trutch Island, the northernmost and largest of the group, is separated from the other islands by Langley Passage and Gillespie Channel. Both of these passages are suitable only for small craft with local knowledge.

Several microwave antennas, conspicuous from seaward, stand on the summit of the westernmost of the Musgrave Peaks which rises near the center of Trutch Island.

Caution.—Numerous islets, banks, and shoals lie off the W side of the Estevan Group. Cridge Banks, on which lies Cran Shoal, is the outermost of these dangers. MacDonald Island lies about 1 mile off the W coast of Dewdney Island and several shoals are located in the vicinity of these two islands.

14.7 Pemberton Bay (52°58'N., 129°36'W.), lying at the S end of Dewdney Island, affords sheltered anchorages for vessels of moderate draft. Gillen Harbor, located at the head of Pemberton Bay, affords shelter from all winds, but should not be entered in a SE gale, except in case of necessity. This bay is entered between the Jacinto Islands and Porter Island, 1.8 miles ENE. A light is shown from the Jacinto Islands. Within the bay,

the fairway is generally deep. The passage leading into Gillen Harbor has a least depth of 6.7m and a least width of about 90m.

Shannon and Sage Rocks lie on the E side of the entrance to the bay. Robertson Rock, 8.5m high, lies on the E side of the fairway, about 1.5 miles NNW of Shannon Rock. The bay is encumbered with numerous rocks, most of which dry, to the E of a line joining these two rocks.

Vessels approaching Pemberton Bay from the W should round the Jacinto Islands at a distance of 0.3 mile and steer to pass 0.2 mile off Thomson Point, which is low and steep-to. They should then pass 0.2 mile W of Robertson Rock. Approaching the bay from the E, vessels should steer for the entrance of the narrow passage leading to Gillen Harbor and pass about 0.2 mile W of Robertson Rock.

Vessels bound for Gillen Harbor should keep a mid-channel course until about 0.3 mile S of the **Peatt Islets** (52°59'N., 129°36'W.). They should then keep close to the E shore in order to avoid the 3.7m rock lying in mid-channel. Vessels may then pass about 35m W of the 1.2m rock lying on the W side of the Peatt Islets.

Anchorage may be obtained by vessels in good weather, in a depth of 38m, sand and shells, about 0.2 mile W of Robertson Rock. Anchorage may also be obtained by small craft, in a depth of 7m, mud, in the middle of Gillen Harbor.

Caution.—Pemberton Bay is sparsely sounded; recent surveys (2008) have determined that shoaler depths than charted exist in Gillen Harbor and its approaches.

14.8 Oswald Bay (53°01'N., 129°40'W.), lying on the SW side of the Estevan Group, is entered between Le Jeune Point and a steep-to point, 2 miles N. This bay is encumbered with islets and rocks in its N part.

Murray Anchorage affords good shelter to small craft with local knowledge, but foul ground extends about 0.5 mile W from the E entrance point of this anchorage.

A radiobeacon is situated at the N entrance point of Oswald Bay.

Bland Rocks, the southeasternmost and highest of which dries 3.7m, lie off the entrance to Oswald Bay and between 1 mile and 2 miles NW of Le Jeune Point. Numerous rocks, above and below-water, lie between Bland Rocks and the N entrance point of Oswald Bay.

Banks Island (53°25'N., 130°10'W.), lying on the NE side of Hecate Strait, is wooded and comparatively low along its SW side. It has numerous indentations and inlets, but they are all encumbered by dangers and are exposed to the open sea. The NW part of the island is swampy, undulating, and is sparsely covered with scrub.

Joseph Island (53°09'N., 130°02'W.) lies 3.3 miles WSW of Terror Point, the SW extremity of Banks Island. Noot Shoal, usually marked by kelp during the summer, lies about 2.5 miles WSW of this island. Several other dangers also lie between this shoal and Banks Island. McKenzie Shoal, North Danger Rocks, and Nicholas Shoal lie farther NW. They are all located within about 9 miles of the coast of Banks Island.

Grief Point (53°16'N., 130°05'W.), located 7.8 miles NW of Terror Point, is low and wooded. A flat-topped rock, 8.8m high, lies close off this point and is conspicuous from S. Philliskirk Hill, 192m high, stands about 2 miles E of the point and

is conspicuous from the S and SW.

14.9 Survey Bay (53°22'N., 130°15'W.) lies between the Wreck Islands and Kelp Point, 3.5 miles NW. It is fringed with dangers, which lie up to 0.3 mile offshore, but the middle of the bay is clear.

Anchorage by small vessels with local knowledge can be obtained, in a depth of 12m, about 0.3 mile NW of the N extremity of the largest of the Wreck Islands.

Stewart Passage lies between Banks Island and those dangers located SE and E of Bonilla Island. These dangers include Carlo Rock, Halibut Rocks, Surge Rocks, East Rock, and several shoals lying NW and SE of Surge Rocks. The passage is about 2.5 miles wide in the vicinity of Carlo Rock and narrows to a width of 0.5 mile between **Cliff Point** (53°28'N., 130°26'W.) and the dangers to the W. Cliff Point, the S extremity of the Antle Islands, is high and formed of conspicuous, white cliffs.

From a position located about 1 mile SW of Kelp Point, vessels should steer a course of 324° in order to pass about 0.3 mile off Cliff Point. They should then steer to clear Venn Shoal and Lonely Rocks, which lie in the approach to Rawlinson Anchorage.

The tidal currents in the approach channel to Rawlinson Anchorage and at the anchorage set at a rate of 1 to 1.5 knots.

Rawlinson Anchorage (53°35'N., 130°33'W.) lies at the NW end of Banks Island. It forms a safe and easily accessible stopping place for vessels with local knowledge bound to or from the Queen Charlotte Islands by way of Browning Entrance. From seaward, the approach to this anchorage is not easily identified.

The anchorage lies between Banks Island and a large area of islets, rocks, and shoals. Wells Islet and McCoy Rocks, extending NNW, are the outermost dangers in this vicinity. English Rock, located about 0.6 mile NNE of Wells Islet, lies on the N side of the fairway entrance. Webb Rock and Anderson Rock lie on the N side of the fairway and about 0.4 mile and 0.7 mile, respectively, ESE of English Rock. Webb Island, with Johnson Rocks lying close E of it, is located on the S side of the fairway, 0.6 mile E of Wells Islet.

Anchorage can be obtained by vessels with local knowledge, in a depth of 22m, sand, about 0.3 mile N of the Isnor Islets. This group of islets lies about 0.7 mile SE of Webb Island. Better holding ground can be obtained, in a depth of 14m, mud and sand, about 0.4 mile ENE of Webb Island.

14.10 Griffith Harbor (53°36'N., 130°33'W.) lies at the head of the of the narrow channel leading NE from Rawlinson Anchorage. The channel, entered E of Anderson Rock, is about 0.8 mile long and less than 90m wide at its narrowest part. There is a least depth of 6m in the channel, lying W of the Jewsbury Islets. These islets are located about 0.2 mile NNE of Kettle Rock, the SE entrance point of the channel.

Laird Rocks, which dry up to 3.4m, lie on the W side of the channel, WNW of the Jewsbury Islets. Deans Rocks, 0.9m high, lies 0.2 mile NE of Laird Rocks and on the same side of the channel. A rock, which dries 6.4m, lies 0.1 mile N of Deans Rocks. Appleby Island is located close NW of this rock.

The narrowest part of the channel is located abreast Deans Rocks. The channel opens out into the harbor above Appleby



Photos copyright Mike Mitchell

Bonilla Island Light

Island.

Entry, for which local knowledge is essential, is best effected, draft permitting, at or near LW, when most of the dangers are visible.

Anchorage by small vessels with local knowledge can be obtained, in a depth of 12m, about 0.3 mile NW of the N extremity of the largest of the Wreck Islands.

Bonilla Island (53°29'N., 130°37'W.), lying on the NE side of Hecate Strait, is located 4 miles off the NW coast of Banks Island. Dome Hill, 232m high, is the conspicuous summit of the island. The N and S sides of this hill fall away steeply, but on the W side the slope is gradual. The island is surrounded by ledges and rocks. South Rocks, lying about 3.5 miles S of the island, and Northwest Rocks, lying about 3.5 miles N of the island, form the outermost dangers.

A light is shown from the W side of Bonilla Island. A lighted beacon stands on Northwest Rocks.

Porcher Island (53°55'N., 130°30'W.), lying on the NE side of Hecate Strait, is nearly divided into two parts by Porcher Inlet. The Porcher Peninsula, at the W end of the island, together with Goschen Island, Dolphin Island, and the Spicer Islands, form the N side of Browning Entrance.

The Bell Range, standing at the NW end of the island; the Spiller Range, standing on the NE side of the island; and Egeria Mountain, the summit rising on the SE side of the island, are all conspicuous from Hecate Strait. Anchor Mountain and Mount Shields rise farther inland at the NW end of **Pitt Island** (53°30'N., 129°40'W.).

Laredo Sound

14.11 Laredo Sound (52°30'N., 128°53'W.) lies between Price Island and Aristazabal Island. It is entered from Hecate Strait between McInnes Island and Munro Island, 14 miles NW. The sound gradually narrows to a width of 3.8 miles and then opens out again at its N end. Meyers Passage leads E from

the N end, Laredo Inlet continues N, and Laredo Channel leads NW.

The land on either side of the sound is comparatively low with no conspicuous features, except for **Kitasu Hill** (52°30'N., 128°44'W.), which rises on the SW side of Swindle Island. Farther N, on the SE side of Princess Royal Island, stands a high range of mountains. This range includes Mount Learmonth (Learmonth Peak), South Needle Peak (Smyth Peak), and North Needle Peak (Simpson Peak). Mount Johnston, rising near the center of Aristazabal Island, is also prominent.

The tidal currents in Laredo Sound turn near the time of HW and LW, the N current beginning shortly after HW. Tide rips, dangerous for boats, are caused by the S current a few miles to the S of McInnes Island, at the junction of the currents from Laredo and Milbanke Sounds. Tide rips also occur on Moody Banks, especially during S winds.

Vessels bound for Laredo Sound from Hecate Strait should steer for Kitasu Hill, bearing 029°, until abeam of the N extremity of Munro Island. The course should then be altered to 352° in order to pass about 1 mile W of Jaffrey Rock and about 1.3 miles off Haig Rock, which lies at the SW entrance.

Luard Shoal (52°24'N., 128°53'W.), with a least depth of 11m, lies in the middle of the S entrance of Laredo Sound, near the NE end of Moody Banks. It is marked by a lighted buoy.

Nab Rock, which dries 1.5m, lies on the W side of the S entrance to Laredo Sound, about 3 miles SSE of Munro Island.

Shoal depths of 4.6m and 4.9m, over a rocky bottom, lie about 1 mile N of Nab Rock. Oldham Rock, which dries 5.5m, lies about 1.3 miles E of Munro Island. Lempier Bank, composed of rocks and gravel, extends for about 2 miles N. It has a least depth of 13m and lies between 2 miles and 3.3 miles W of Nab Rock.

Prior Passage separates Munro Island and the foul ground fronting its E side from the several islets and rocks lying off the S end of Aristazabal Island. This passage is about 0.2 mile

wide and has a least depth of 5.5m. It should be used only by small craft with local knowledge.

Jaffrey Rock, bare and 1.5m high, lies on the E side of Laredo Sound, about 2.3 miles off the NW end of Price Island. Seddall Shoals lie close E of this rock. Another rock, with a depth of 4.1m, lies about 2.8 miles SSE of Jaffrey Rock.

Meyers Passage

14.12 Meyers Passage (52°36'N., 128°44'W.), lying between the N side of Swindle Island and the S extremity of Princess Royal Island, leads E and then N into Tolmie Channel. Meyers Narrows, at the E end of the S leg of the passage, is less than 0.1 mile wide at its narrowest part and has a least depth of 0.9m in the fairway. Kelp grows thickly in the narrows during the summer and autumn.

Gaudin Rock and Ellard Rock lie off the W entrance of Meyers Passage. The Draper Islets lie about 0.4 mile SSW of Wingate Point, the S entrance point of the passage.

Several rocky patches, with least depths of 4 to 13.7m, lie 0.2 mile N and 0.4 mile E of Gaudin Rock. Several more rocky patches, with least depths of 6.4 to 11.9m, extend up to about 0.4 mile W and 0.2 mile N from Ellard Rock. All these dangers lie in the W approach to Meyers Passage.

Kitasu Bay (52°33'N., 128°45'W.), lying S of the W entrance of Meyers Passage, is entered between Wilby Point and Jamieson Point.

The tidal currents in Meyers Narrows attain a rate of 3 knots at springs. The E current begins about 5 hours 30 minutes after HW at Prince Rupert. The W current begins about 1 hour 25 minutes before HW at Prince Rupert.

Parsons Anchorage, at the head of Kitasu Bay, affords good shelter in SE winds to small vessels. The anchorage has depths of 27 to 36m, sand and gravel. Drying banks extend about 0.2 mile seaward from the head of the bay.

Anchorage can also be taken by small craft, in a depth of 18m, mud, about 0.3 mile SW of the W end of Meyers Narrows.

Vessels bound for Meyers Passage or Kitasu Bay should round Wilby Point at a distance of 1 mile.

Laredo Inlet (52°40'N., 128°45'W.), entered from Laredo Sound, extends 22 miles N into Princess Royal Island. High mountain ranges rise on both sides of this inlet, the most conspicuous of which are Mount Parry (52°53'N., 128°45'W.) and Nares Hills, standing close NE of the head of Trahey Inlet. These peaks are conspicuous from the entrance of Trahey Inlet and from within Laredo Inlet. The prominent peaks rising on the E side of the inlet were previously mentioned in paragraph 14.11 with the description of Laredo Sound.

Depths within the inlet are generally deep in the middle and **Burr Rock** (52°52'N., 128°43'W.) is the only danger. There are several small inlets on either side of the main inlet.

Alston Cove, on the E side of Laredo Inlet, has a narrow entrance with a depth of 6.4m. A creek runs into the head of this cove.

The Bay of Plenty (Underhill Inlet), on the W side of Laredo Inlet, dries about 1 mile within its entrance and is encumbered by several islets and rocks. Weld Cove, lying S of the Bay of Plenty, is sheltered by Pocock Island and Kohl Island. A rock, which dries 0.6m, lies about 0.5 mile S of Kohl Island.

Fifer Cove, on the E side of the inlet, is about 130m wide at its entrance and has a depth of 7.3m. Mellis Inlet lies NW of Fifer Cove, on the W side of the main inlet. It is 2.3 miles long and deep. Two creeks empty into the head of this inlet.

14.13 Brew Island (52°57'N., 128°40'W.), lying at the head of Laredo Inlet, is 238m high. The channels leading on either side of this island are deep.

The principal islands lying on the E side of the approach channel are Aitken Island, Croft Island, and Hastings Island. On the W side of the approach are the Laidlaw Islands and Jessop Island. Deas Rock, with two heads, lies about 0.5 mile SSE of Croft Island. Duffy Rock, with a depth of less than 1.8m, lies about 0.3 mile S of the southernmost and highest of the Laidlaw Islands. The foul ground extending SE from this same island is marked by kelp.

Anchorage may be obtained by small craft in Alston and Fifer Coves. Small vessels can also obtain anchorage, in a depth of 34m, shells, within the S entrance of Thistle Passage, which separates Hastings Island and Princess Royal Island.

Directions.—Vessels bound for Laredo Inlet from Laredo Sound should, when Haig Rock Light bears 308°, alter course NE to bring the S extremity of Croft Island to bear 047°. This course passes midway between Duffy Rock and the W extremity of the Aitken Islands. When the S extremity of the Laidlaw Islands is abeam to port, the course should be altered to bring Mansell Point, the S extremity of Jessop Island, ahead, bearing 005°. This course should be maintained until the N extremity of Croft Island is abeam to starboard, when the course should be altered NE to pass Hilbert Point in mid-channel. A mid-channel course may be steered up the inlet.

Burr Rock can be passed on either side, but the channel lying E of the rock is preferred as it is the straighter of the two.

Laredo Channel

14.14 Laredo Channel (52°44'N., 129°05'W.), lying between Princess Royal Island and Aristazabal Island, connects Laredo Sound with Caamano Sound to the NW. The coast of Princess Royal Island is steep-to, except for the foul ground fringing the shore between Dallain Point and a point located 3.3 miles NW. The coast of Aristazabal Island is fronted by foul ground that, in places, extends as far as 0.2 mile offshore. The fairway is deep.

Mount Irving (52°46'N., 128°54'W.), rising about 7 miles N of Dallain Point, is a conspicuous cone-shaped peak. Richardson Range stands about 3 miles NW of Dallain Point and about 1.5 miles inland. Mount Gillespie stands about 1 mile inland, 8 miles NW of Dallain Point.

In the wider portions of Laredo Channel, the tidal currents attain a rate of 1 to 2 knots. At the N end of the channel, midway between Ulric and McPhee Points, the N current from Laredo Channel meets the current passing around the N end of Aristazabal Island and at springs, causes dangerous tide rips to occur in this area.

The S current divides in mid-channel off Ulric Point. One portion sets around the NW end of Aristazabal Island and the other sets fairly down Laredo Channel, attaining a rate of 3 to 4 knots in the narrow parts. From abreast the Ramsbotham Islands, the ebb current sets directly S and then along the SW

shore, passing across Laredo Sound to Wilby Point, from where it is deflected and sets fairly to the S.

The current changes about the time of HW and LW by the shore.

Haig Rock (52°36'N., 128°55'W.), 6m high and bare, lies about 0.2 mile E of Tildesley Point, at the S entrance of Laredo Channel. A smaller rock lies close N of it.

Walsh Rock lies about 2 miles NNW of Tildesley Point and 0.3 mile offshore. It dries 4m and is marked by a light.

Wilson Rock, with a depth of 2.7m and marked by a large area of kelp in the summer and autumn, lies in mid-channel, about 4 miles NNW of Tildesley Point. A lighted buoy is moored close ENE of this rock.

On the NE shore, opposite Wilson Rock, is a peculiarly-shaped promontory with sandy beaches on either side of it, the site of an old Indian village. A shoal, with a depth of 7m, lies about 0.6 mile NW of Wilson Rock and is marked by a lighted buoy.

Caution.—Magnetic anomalies were reported (1980) to exist in Laredo Channel, about 2.5 miles WNW of Dallain Point.

A magnetic anomaly was reported (1980) to exist about 0.7 mile SE of Wilson Rock.

14.15 The Ramsbotham Islands (52°42'N., 129°02'W.), consisting of three islands and several islets, lie on the SW side of the channel, about 7 miles NW of Tildesley Point. The Louis Islands lie about 1 mile NW of this group.

An abandoned limestone quarry stands on the SW side of the channel, abreast the S end of the Ramsbotham Islands. It is conspicuous from the S and E. Kent Inlet, lying on the NE side of the channel, has a least depth of 2.1m in the entrance.

Morehouse Rock (52°46'N., 129°06'W.), with a depth of 1.2m and marked by kelp in the summer and autumn, lies on the NE side of the fairway abreast Helmcken Inlet. A shoal patch, with a depth of 10.6m, lies about 0.7 mile N of Morehouse Rock.

Helmcken Inlet, lying on the NE side of Laredo Channel, is obstructed in its entrance by Smithers Island. The passage lying N of the island dries at LW and the passage lying S has a least depth of 3.7m. Small boats may find shelter in a bight indenting the S shore of Smithers Island. This bight has a depth of 14m.

Evinrude Inlet, lying 1.8 miles NNW of Helmcken Inlet, is entered N of Hawkins Point. A depth of 21.9m lies between the SE shore of the inlet and a shoal, with a least depth of 2.3m, which extends from the NW shore. Farther NE, the inlet widens and deepens. Commando Inlet, entered S of Hawkins Point, has a depth of only 1.8m in its entrance.

Ulric Point, the N extremity of Aristazabal Island, is low and steep-to. Baker Point, located 2.5 miles SE of Ulric Point, is low, conspicuous, and sandy.

McPhee Point, located 5.8 miles NE of Ulric Point, is the NE entrance point of Laredo Channel.

Vessels bound for Laredo Channel from Laredo Sound on a course of about 352°, should, when Haig Rock is about 1.3 miles abeam to port, alter course to the NW and pass midway between Wilson Rock and the coast, 1 mile NE. A course of 309° should then be steered until Shotbolt Point is abeam. Vessels can then steer a course of 330° into mid-channel.

Caution.—A magnetic anomaly was reported (1980) to exist

about 1.5 miles WNW of Morehouse Rock.

14.16 Caamano Sound (52°53'N., 129°25'W.) is bounded on the S side by Rennison Island and Aristazabal Island and the islets and rocks lying SW of them. It is bounded on the N side by the Estevan Group and Campania Island and on the E side by Princess Royal Island. The main entrance to the sound lies between Rennison Island and Goodacre Point, the SE extremity of the Estevan Group, 9 miles NW.

On the S side of the approach to Caamano Sound, the hills on the N end of Aristazabal Island are the most conspicuous feature, with Mount Parizeau being the most prominent. On the N side of the approach, Mount Pender (53°03'N., 129°25'W.), the bare and dome-shaped summit of Campania Island, is a conspicuous landmark.

The tidal currents in Caamano Sound change at or near the time of HW and LW by the shore. The currents usually begin to set N and into the inlets after the LW.

Aranzazu Banks, with general depths of 15 to 91m, lie in the fairway of the entrance of Caamano Sound, S of the Estevan Group.

Ness Rock (52°51'N., 129°44'W.), awash, lies near the SW end of the banks and has a shoal, with a depth of 9.7m, located close E of it. A rock, with a depth of 8.2m, lies near the NE end of the banks, about 3.8 miles S of the Jacinto Islands.

Spencer Bank, with a least depth of 33m, lies SE of Ness Rock, about 11 miles WSW of Rennison Island.

Yates Shoal, with a depth of 13.7m, lies about 7.3 miles W of the N end of Rennison Island. Evans Rock and Janion Rock lie about 1.3 miles and 1.8 miles, respectively, SSE of Yates Shoal.

Cliffe Rock (52°50'N., 129°28'W.), with a depth of 2.7m, lies on the S side of the fairway, about 3.5 miles W of Rennison Island. Shakespeare Banks lie E of this rock.

Dupont Island (52°56'N., 129°26'W.), high and conspicuous, lies on the N side of the fairway, about 3.8 miles E of Goodacre Point. It is also located at the SW entrance of Estevan Sound. Foul ground fronts the SSE side of the island and extends up to 0.4 mile N of it.

Borthwick Rock, which dries 4.9m, lies about 3 miles WSW of Dupont Island. Cort Rock, with a depth of 2.7m, lies about 1 mile E of this rock.

14.17 Surf Inlet (52°54'N., 129°06'W.), lying at the E end of Caamano Sound, is entered between Johnstone Point and Mallandaine Point, 1 mile N. The inlet, which lies between high hills, is clear of dangers and is deep in the fairway. The only exception is a shoal, with a depth of 4.1m, which lies about 0.2 mile S of Mallandaine Point.

Wearmouth Rock, with a depth of 0.6m and marked by thick kelp in the summer and autumn, lies about 0.5 mile SW of Johnstone Point.

Within the inlet, a conspicuous white cliff stands on the NW shore opposite Argyh Cove. Farther NE, Adams Point is bold and also conspicuous. Adams Bay, lying on the S side of Adams Point, is deep and provides no anchorage.

Penn Harbor, located 1.8 miles NNE of Adams Point, is sheltered from all winds and affords good anchorage for small vessels, in depths of 20 to 22m, mud. The narrowest part of the channel is only 55m wide and has a least depth of 11m. Vessels

entering the harbor should keep in mid-channel until through the narrowest part. They should then keep on the NW side to the anchorage.

Indifferent anchorage, with limited swinging room, may be obtained at the head of Surf Inlet, in a depth of 31m, mud, about 0.2 mile offshore.

Caution.—Caution is necessary as the bottom of the harbor shelves steeply to depths of over 70m.

14.18 Racey Inlet (52°53'N., 129°06'W.), lying at the SE entrance of Surf Inlet, is entered between Johnstone Point and Bryant Point, 1.3 miles ENE. Hallet Rock, with a depth of 0.6m, lies in the middle of the entrance. The Jay Islands lie close off the SW side of the inlet.

Carne Bay, lying on the NE side of the inlet, is deep with high land rising to the N and a valley located to the E. This bay is not suitable as an anchorage.

A rock, awash, lies on the SW side of the inlet opposite the middle of Carne Bay and close offshore. Another rock, with a depth of 5.5m, lies in the middle of the channel, about 0.3 mile E of the above rock.

Cox Rocks, which dry 0.6 to 4m, lie at the entrance of the narrow channel leading to Bone Anchorage. The fairway leading on the SW side of these rocks is only 155m wide.

Bone Anchorage, lying about 0.8 mile from the head of Racey Inlet, affords anchorage to small vessels, in a depth of 32m, mud. A rock, with a depth of 5.5m, lies close W of the NW end of Wale Island. The approach to the anchorage can be made on either side of Hallet Rock. A mid-channel course can then be steered in order to pass NE of the rock, awash, lying opposite Carne Bay and SW of Cox Rocks. The anchorage should not be approached at night or during thick weather.

14.19 Chapple Inlet (52°54'N., 129°08'W.), entered W of Mallandaine Point, is narrow with moderate depths. The Sager Islands lie on the N side of the approach to Surf Inlet, about 1.3 miles W of Mallandaine Point. Holler Rock, which dries, lies on the W side of the fairway, about 0.5 mile W of Mallandaine Point. A beacon marks the S extremity of the southernmost of the Sager Islands.

Doig Anchorage, located 1.3 miles N of Mallandaine Point, lies between the coast of Princess Royal Island and Webber Island. The narrowest part of the approach, lying E of the islands to the S of Webber Island, is about 0.6 mile wide and has a least depth of 11.9m. Doig Anchorage affords good anchorage for small vessels, in a depth of 29m. Small craft can also obtain anchorage, in a depth of 12m, about 1.5 miles farther N within a small bay that lies W of the rocky ledge extending N from Chettleburgh Point.

Kiln Bay (52°58'N., 129°09'W.), at the head of Chapple Inlet, is approached W of Baile Island and is entered W of McKechnie Point. Small craft can obtain anchorage, in a depth of 20m, above the two islets lying on the W side of this bay, but the berth is exposed to SE gales.

Emily Carr Inlet, lying W of Webber Island, is encumbered by rocks and islets and should only be entered by small craft with local knowledge. Holgate Passage, which is foul, lies N of Webber Island.

Estevan Sound

14.20 Estevan Sound (53°04'N., 129°32'W.), lying between the Estevan Group and Campania Island, has a least width of 2.8 miles and is generally deep in the fairway. Vessels proceeding through the sound should give the coast of Campania Island a wide berth. Soundings give assistance in thick weather. Dupont Island, lying at the S entrance of the sound, may be passed on either side. Vessels passing through the channel to the W of Dupont Island should keep close to the islets located N of it in order to avoid the dangers extending S of the Glide Islands. Vessels should then keep in the fairway, favoring the W shore.

Caution.—Recent (2014) surveys have shown depths shallower than charted in the area of Estevan Sound.

Campania Island (53°05'N., 129°25'W.) has comparatively high mountains, some of which are bare, standing in its SE part. Mount Pender, the summit of the island, is separated from the NW sides of these mountains by a valley in which lie several lakes. From Mount Pender, the land slopes to the NW extremity of the island, which is comparatively low and wooded. The N coast is bold, but the SW is low, wooded, and indented by many small bays and inlets.

The SW shore of Campania Island is fronted by numerous islets, rocks, and areas of foul ground that extend up to about 0.8 mile seaward. None of the inlets and bays lying along this coast are suitable for anchorage, except by small craft with local knowledge.

The **Glide Islands** (52°58'N., 129°29'W.), on the SW side of the sound, lie between 2 miles and 3 miles NW of Dupont Island. The NE part of this group dries.

Blinder Rock, with a depth of less than 1.8m, lies about 0.5 mile S of the Glide Islands and about 1.5 miles NW of Dupont Island. Several rocks, one which dries, lie close N and about 0.4 mile SW of Blinder Rock.

The Hickey Islands lie NW of the Glide Islands and off the N entrance of a bay, which is encumbered with numerous rocks, above and below-water. Estevan Reef lies off the S entrance of this bay. Several passages, which have not been completely surveyed, lead NW from the head of the bay.

Cartwright Rocks, lying on the NE side of the sound, are located about 0.5 mile off the coast of Campania Island, SW of Mount Pender. This group consists of one large rock, 8.5m high, and several others, above and below-water, which extend up to about 0.5 mile W and N from it. An isolated shoal, with a depth of 6.4m, lies about 0.5 mile SW of the above large rock.

Logan Rock, with a depth of 4.6m, lies about 0.7 mile SSW of the S extremity of the **Jewsbury Peninsula** (53°03'N., 129°28'W.). Another group of rocks, above and below-water, lie about 0.4 mile S of Logan Rock.

A light is shown from a framework tower standing on a rock, which dries, lying about 0.4 mile SSW of Logan Rock.

Michael Bank, with a least depth of 39m, lies in the middle of Estevan Sound, about 2 miles W of the S end of the Jewsbury Peninsula.

Caution.—A depth of 2.7m has been reported (2004) about 0.5 mile SE of Logan Rocks.

14.21 McMicking Inlet (53°03'N., 129°27'W.) is entered W of Mount Pender and E of a chain of islets extending S from the S end of the Jewsbury Peninsula. The entrance is encumbered by rocks and shoal patches which are marked by kelp. Numerous other dangers lie in this vicinity.

Betteridge Inlet (53°06'N., 129°30'W.), suitable only for small craft, lies between the N end of the Jewsbury Peninsula and the Finlayson Peninsula. Numerous islets and rocks encumber the entrance. Clifford Rocks is, a chain of dangers, extends in a NW direction across the W entrance of the inlet. The recommended passage leading into the inlet lies between Hale Islet, located 3.4 miles NW of Mount Pender, and a rock, awash, lying close W of the S end of the islet. This rock is sometimes marked by kelp.

Caution.—Recent (2014) surveys have shown depths shallower than charted in the area of Estevan Sound.

Weinberg Inlet (53°07'N., 129°32'W.), suitable only for small craft, can be approached via Dunn Passage or Anderson Passage. These channels, which lie S and N of Langthorne Island, are narrow and intricate.

Harwood Bay, and Lindsay Bay, lying at the NW end of Campania Island, are open to the SW and too exposed for anchorage. Boyko Rock, with a depth of 5.5m, lies off the entrance to Lindsay Bay.

14.22 Devlin Bay (53°04'N., 129°36'W.), lying on the SW side of Estevan Sound, is located between the Prior Island and Trutch Island. The entrance to Gillespie Channel lies at the head of the bay. This channel leads to Hecate Strait via Langley Passage. It is narrow, encumbered with rocks, and should only be attempted at HWS.

An islet, 15m high, lies in the middle of Devlin Bay with a drying rock located close N of it. A rock, with a depth of less than 1.8m, and another rock, which dries 2.7m, lie close N and about 0.2 mile SSE, respectively, of the islet. The bay should be entered N of the islet. A float is moored near the middle of the bay.

Tides—Currents.—The N tidal current enters Campania Sound and divides off Ashdown Island, the greater portion passing up Squally Channel. The lesser portion, passing into Whale Channel, skirts the E coast of Gil Island and unites about 1 mile N of Turtle Point, with the main portion, which entered Wright Sound from Squally Channel via Lewis Passage.

In Casanave Passage, the tidal currents attain a rate of 3 to 4 knots at springs, with some eddies forming in the vicinity of Redfern Point. The currents change about the time of HW and LW.

The tidal currents in the narrowest part of Gillespie Channel attain a rate of at least 7 knots at springs. Slack at HW and LW occur 1 hour 25 minutes and 30 minutes after the time of HW and LW at Prince Rupert. The duration of HWS is from 30 to 45 minutes. The duration of LWS is from 10 to 15 minutes.

Anchorage.—Anchorage can be obtained by small vessels, in a depth of 14m, close N of the N end of Sekani Island.

Campania Sound

14.23 Campania Sound (53°00'N., 129°15'W.), lying between the SE shore of Campania Island and Princess Royal Is-

land, is deep and free of dangers. This passage, which from the S is entered via Caamano Sound, leads into Squally and Whale Channels at its N end. These channels in turn lead into Wright Sound and the inshore passages.

The **Duckers Islands** (52°56'N., 129°12'W.), lying at the SE entrance of Campania Sound, are located about 0.5 mile off the coast of Princess Royal Island. Numerous dangers lie between these islands and the coast. A rock, with a depth of 6.4m and marked by kelp, lies about 0.4 mile SSE of the southernmost of the Duckers Islands. Another rock, with a depth of 7.3m, lies about 0.1 mile S of the same island.

Murphy Range stands close to the coast, about 4 miles NNE of the Duckers Islands. Mount Cardin, the summit of another range, rises 3.5 miles farther ENE.

Clarke Cove, lying 2.3 miles N of the Duckers Islands, has a depth of only 1.2m in its narrow entrance. A strong tidal current sets through the entrance, which can only be used by boats at slack water.

Seabrook Point, located 2.8 miles N of the entrance to Clarke Cove, is bold.

The **Alexander Islands** (52°57'N., 129°18'W.), located at the SW entrance of Campania Sound, lie about 0.3 mile S of the SE extremity of Campania Island. Several drying rocks lie between these islands.

Dougan Point, located 5.5 miles N of the Alexander Islands, has a bold and conspicuous white cliff on its SE side.

Ashdown Island (53°04'N., 129°13'W.), separated from Princess Royal Island by Casanave Passage, lies at the junction of Campania Sound and Whale Channel. The passage has a least width of 0.5 mile and is deep in the fairway. Barlow Point, the SE extremity of Ashdown Island, is bold and fronted by cliffs. Several islets and dangers lie close off both sides of the passage.

Whale Channel

14.24 Whale Channel (53°10'N., 129°07'W.), lying between the NW end of Princess Royal Island and Gil Island, leads NE from Campania Sound and then N into Wright Sound. It has a least width of 1 mile and is deep in the fairway.

The tidal currents in Whale Channel run at a rate of 3 to 4 knots, the greatest velocity being in the S part.

Fish Bay (53°05'N., 129°16'W.) is located on the N side of the channel close E of Fawcett Point. This is a small bay, with depths of 10m or more extending only about 0.8 mile into the bay. There are no docking or mooring facilities in the bay. The mouth of the bay is blocked by a rock that uncovers, best shown on the chart, on the W side of the entrance. Many other rocks are found on either side of the bay.

York Point (53°06'N., 129°10'W.), located on the N side of the channel, is bold. Taylor Bight, lying W of the point, is deep and exposed. A wooded islet lies on the W side of this bight. Allatt Point, the SE extremity of Gil Island, is located 0.8 mile ENE of York Point and is bold.

Borde Island lies on the S side of the channel, about 1.3 miles SE of Allatt Point. This wooded island lies in the middle of the entrance to Barnard Harbor.

Camp Islet lies on the W side of the channel, about 2 miles N of Allatt Point. It is conspicuous and wooded. Shrub Point, located 4.5 miles farther N, is comparatively low and wooded.

Leading Point is located on the E side of the channel, about 2.3 miles SE of Shrub Point. This point is surmounted by a conspicuous hill. The River Bight, lying 2 miles NE of Leading Point, is located off the entrance to Cornwall Inlet.

Maple Point (53°17'N., 129°10'W.), the NW entrance of Whale Channel, is comparatively low and wooded. Mount Gil, standing 1.5 miles SSW of this point, is a defined peak.

14.25 Barnard Harbor (53°04'N., 129°07'W.), lying on the S side of Whale Channel, affords anchorage within Cameron Cove. The depths in the greater part of the harbor are too deep for a convenient anchorage. The harbor can be approached by either Aikman Passage or Burnes Passage.

Aikman Passage, leading between Borde Island and Claudet Point, has a least width of about 0.1 mile. It is steep-to on either side and deep.

Burnes Passage, leading between Borde Island and Flett Point, is about 0.1 mile wide. It has a least depth of 21.9m in the fairway. The navigable channel lying between the shoals on either side is about 100m wide. Mid-channel courses should be kept through both passages.

Cameron Cove, forming the S part of the W side of Barnard Harbor, is entered between Leighton Point and Goodfellow Point, 0.3 mile SSE. Leighton Point is low, bare, and fronted by a shoal extending on its E side. An islet, 24m high and wooded, lies on the W side of the cove, about 0.4 mile SW of Goodfellow Point.

Good anchorage can be obtained in the middle of Cameron Cove, in a depth of 32m, sand and mud, with the islet, 24m high, bearing 244°.

Caution.—It is reported that considerable magnetic disturbances exist in the vicinity of Aikman Passage and Burnes Passage.

14.26 Squally Channel (53°10'N., 129°25'W.), lying between Campania Island and Gil Island, is the NW continuation of Campania Sound. It has a least width of 2.3 miles and is deep in the fairway. Mount Gil, standing near the N end of Gil Island, is a good landmark.

Violent squalls, which descend from the high land of Campania Island, are often experienced within Squally Channel when calms or light winds and smooth water prevail in Whale Channel.

The **Skinner Islands** (53°06'N., 129°19'W.), three in number, lie on the E side of the channel, about 1.8 miles NW of Fawcett Point. A drying rock lies at the S end of an area of foul ground that extends up to about 0.4 mile SE from the southernmost island of this group.

Lewis Passage (53°16'N., 129°18'W.), lying between Gil Island and Fin Island, affords the best route from the N end of Squally Channel to Wright Sound. It has a least width of 13 miles and is deep in the fairway. The dangers within the passage all lie close inshore. Blackrock Point, the W extremity of Gil Island, is marked by a light. It is located at the junction of Squally Channel and Lewis Passage.

MacDonald Bay, lying 0.5 mile S of Blackrock Point, has a narrow entrance which dries at LW. Crane Bay, lying 2 miles NE of Blackrock Point, is sheltered by Williams Islet, but its depths are too great for anchorage.

Curlew Bay lies W of Plover Point, the NE extremity of Fin

Island. Small craft may find anchorage in the entrance of this bay, close SW of Blenkinsop Islet.

Cridge Passage (53°18'N., 129°21'W.), lying between Fin Island and Farrant Island, leads into Wright Sound from Squally Channel. It has a least width of 0.8 mile and has considerable depths throughout. Four islets, located close together along with several drying and below-water rocks, lie on the S side of the passage within 0.2 mile of the N shore of Fin Island. The N side of the passage is steep-to. Block Head, the SE extremity of Farrant Island, terminates in a high, bold, and white cliff. A light is shown from the SE point of this headland.

Tuwartz Inlet (53°17'N., 129°30'W.), lying on the SE coast of Pitt Island, is entered between Wilman Point and Leggeat Point, 0.5 mile N. The entrance of the inlet is obstructed by an islet, with some bushes on it, and several drying rocks. These dangers lie on a bar, with navigable depths of 18 to 36m, but entry should not be attempted without local knowledge. Within the bar, the depths increase rapidly to over 90m and shoal gradually toward Tuwartz Narrows.

The fairway, about 0.8 mile NNW of Leggeat Point, is reduced in width by some islands and rocks that lie off the W shore.

Tuwartz Narrows is only about 45m wide at its S end and is available to boats at or near slack water.

Union Passage

14.27 Union Passage (53°20'N., 129°25'W.), lying between Farrant Island and Pitt Island, leads from Squally Channel into Grenville Channel. The S entrance lies between Mollison Point and Blossom Point. Ascroft Islet, the southwesternmost of several islets and dangers extending from the coast of Farrant Island, lies about 0.8 mile N of Blossom Point. A shoal, with a least depth of 9.1m, lies about 0.2 mile SW of this islet.

Hinton Island, lying 2 miles NNW of Blossom Point, separates Union Passage from Payne Channel. Hale Point is the S extremity of the long and narrow peninsula located on the W side of this island. A drying reef and foul ground extend up to about 0.3 mile S of Hale Point. Edwards Islet lies off the E coast of Hinton Island.

Payne Channel, lying on the W side of Hinton Island, is about 0.3 mile wide and deep in the fairway. Hoey Narrows, the junction of Payne Channel and Union Passage, lies at the NW end of Hinton Island. The narrows are contracted by an island and a channel with a width of less than 45m leads between it and Hinton Island.

Peters Narrows, a narrow boat passage, gradually contracts Union Passage to a width of only 24m between the 5m curves. The least depth in the fairway is 6.4m. To the N of Peters Narrows, the shores on either side of Union Passage are greatly indented, affording good shelter for small craft in convenient depths. An islet, with a rocky ledge fronting its SE side, lies in the middle of the fairway, about 0.3 mile N of the narrows.

Hawkins Narrows (53°24'N., 129°25'W.), lying at the N end of Union Passage, is located at the junction of Union Passage and Grenville Channel. The S end of the narrows is contracted by several rocks, the northernmost of which has a depth of less than 1.8m.

In Peters Narrows, the tidal currents attain a rate of 7 knots at springs. In Hawkins Narrows, the currents attain a rate of 8

knots at springs.

Otter Passage (53°08'N., 129°46'W.), lying between the N end of the Estevan Group and the SE end of Banks Island, leads E from Hecate Strait into Nepean Sound. A light is shown from the S extremity of Man Island. The passage, about 2 miles wide, is contracted by the dangers lying on either side. The navigable width of the channel is reduced to about 0.3 mile. There are depths in the channel of over 70m.

The conspicuous microwave antennas standing near the summit of Trutch Island are a good landmark from the passage.

The channel leading through Otter Passage is made dangerous by the strong tidal currents. The greater portion of the ebb current finds its way out of Nepean Sound by this passage. At springs, the ebb current attains a rate of 5 to 6 knots, which when meeting the ocean swell at the W entrance, produces a most turbulent breaking sea, dangerous to vessels.

Slack water occurs about 40 minutes before HW and LW at Prince Rupert. The duration of slack water is about 11 minutes.

Caution.—Local knowledge or close attention to the chart is necessary in navigating Otter Passage, as the strong tidal currents and the large number of islands in the passage may be confusing to those vessels not acquainted with the passage.

An unmarked shoal area with least depth of 3.6m lies centered in position 53°08'16"N, 129°45'46"W.

14.28 Marchant Rock (53°05'N., 129°48'W.), which dries 2.7m, lies about 2.8 miles SW of the entrance of Otter Passage. Foul ground extends up to about 0.5 mile S from this rock, and a shoal, with a depth of 11m, lies about 1.3 miles NW of the rock.

Man Island and Laithwood Island lie on the N side of the W entrance of the main navigable channel leading through Otter Passage. The areas lying to the N and between these islands is foul. Shoals, with depths of 11m, lie up to 0.8 mile SSE of Laithwood Island.

Two shoals, with least depths of 10.1m and 11m, lie on the S side of the W entrance of the channel, about 1.3 miles S of Man Island.

The Block Islands consist of two main islands, numerous islets, and many rocks, above and below-water. This group lies on the N side of the main channel, at the E end. A ridge of foul ground, on which lie several islets, is located on the N side of the channel, almost midway between Man Island and the Block Islands.

The Trap Islands, lying on the S side of Otter Passage, are located on a reef of foul ground close off the N shore of Trutch Island. Trap Rocks consists of numerous rocks, both drying and above and below-water. This group is located on the S side of the E end of the main channel.

14.29 Nepean Sound (53°12'N., 129°40'W.) is located at the junction of Otter Passage, Estevan Sound, Principe Channel, and Otter Channel. It has general depths of over 140m.

Otter Channel, lying between the N end of Campania Island and the S end of Pitt Island, is the continuation E of Otter Passage across Nepean Sound. It has a least width of 1 mile and depths of over 180m in the fairway.

Marble Rock (53°11'N., 129°33'W.), small and white, lies on the S side of Otter Channel, about 0.5 mile off the NW end of Campania Island.

Principe Channel lies between Banks Island, on the SW side, and Pitt Island and McCauley Island, on the NE. It has a least width of 1 mile and depths of 128 to 400m in the fairway. The coast of Banks Island is bold and mountainous. The NE shore of the channel is indented by several bays and inlets, especially near the middle part.

Vessels navigating Principe Channel should keep a mid-channel course until nearing Anger Island, when the SW shore should be closed to avoid the dangers in this vicinity, and also when approaching Bush Islet off Port Canaveral.

In Principe Channel, the NW current is formed principally by the current flowing NW through Estevan Sound that is joined in Nepean Sound by the current which enters through Otter Passage. At the NW end of Principe Channel, this current is met by the NW current which passes outside Banks Island. The SE current runs out principally by Otter Passage. Both currents attain a rate of 2 to 3 knots.

Principe Channel—Southeast End

14.30 Deer Point (53°13'N., 129°45'W.) is located near the SE extremity of Banks Island, at the SW entrance of Principe Channel. It consists of a small peninsula, which from a distance appears to be an islet. Gale Point, located 4.5 miles farther NNW, is high, bold, and prominent.

Joseph Hill, standing 4.5 miles NW of Gale Point, has a prominent and bare summit. Kooryet Bay, lying ENE of Joseph Hill, is partly blocked by islets and rocks, and is suitable only for small craft. A light is shown from the NE side of Banks Island, 3.8 miles NNW of Kooryet Bay.

Ring Point, located 5.5 miles E of Deer Point, is the NW part of a double headland which forms the SW extremity of Pitt Island and the SE entrance point of Principe Channel. This point is high, bold and conspicuous. Fleishman Point, located 0.8 mile SE of Ring Point, is the SE part of the headland. It is lower and less conspicuous. A lighted buoy is moored about 0.8 mile SW of this point.

Nepean Rock, which dries 2.1m, lies about 0.5 mile SW of Ring Point. Two isolated shoals, with depths of 5.9m and 10.1m, lie 0.2 mile and 0.5 mile, respectively, SSE of Nepean Rock.

The Principe Islets, which are wooded, extend up to about 0.4 mile offshore. They lie about 1.8 miles NW of Ring Point. Several other dangers lie in the vicinity of these two islets.

14.31 Monckton Inlet (53°19'N., 129°40'W.), lying on the NE side of the passage, is entered about 6 miles NNW of Ring Point. This inlet, which extends about 4 miles E from Cranston Island, is 0.1 mile wide at its narrowest part and has a least depth of 20.1m in the fairway.

Anchorage can be obtained, in depths of 23 to 36m, mud, about 0.2 mile SE of Roy Island, which lies in the middle of the entrance of the arm extending N from the E end of the inlet. Anchorage can also be obtained, in depths of 20 to 25m, near the head of Monckton Inlet.

Port Stephens (53°20'N., 129°41'W.), lying NW of Monckton Inlet, is entered between Centre Point and Littlejohn Point, 0.4 mile WNW. Littlejohn Point is formed by a high, white cliff. Vessels should keep close to the NW side of the inlet in order to avoid the shoal, with a depth of 8.2m, lying about 0.3

mile N of Centre Point.

Anchorage can be obtained, in a depth of 36m, at the head of the inlet.

Buchan Inlet (53°22'N., 129°47'W.) lies on the NE side of the passage, about 3.8 miles NW of Port Stephens. This inlet is suitable only for small craft as it is narrow and encumbered with rocks.

Principe Channel—Central Part

14.32 Sewell Islet (53°25'N., 129°53'W.) lies on the NE side of the passage in the approach to Mink Trap Bay. It is 36m high and wooded. A shoal, with a depth of 5.5m, lies about 0.2 mile NNW of this islet. Nesbitt Rock, lying 0.9 mile NNW of the islet, is 24m high and wooded.

The Trade Islets, two in number, are 41m and 32m high. They are wooded and lie about 2.5 miles NW of Sewell Islet. These islets, which are joined together by a drying ledge, also lie in the approach to Ala Passage. A rock, which dries 6.4m, lies on the E end of a shoal patch located about 0.5 mile W of the Trade Islets.

Anger Island (53°30'N., 130°00'W.), located on the NE side of Principe Channel, lies in the SE approach to Petrel Channel. Ala Passage, which separates Anger Island from Pitt Island, is encumbered by islets and rocks. This passage is intricate, dangerous, and should only be attempted by small craft with local knowledge.

The SW side of Anger Island is foul and extensive drying ledges extend up to 0.4 mile seaward from it. The Ralston Islands, a fairly compact group, lie at the S end of this foul ground. Freberg Islet lies at the N end of the foul area.

Lundy Cove (53°25'N., 129°51'W.), lying on the NE side of Principe Channel SE of Sewell Islet, is narrow and extends E and S for 1 mile. Drying ledges, on which there are a number of islets, obstruct the cove, about 0.5 mile within its entrance.

Patterson Inlet, lying 1.3 miles N of Lundy Cove, is entered between Annie Point and Runge Island, 0.5 mile N. This cove is only about 90m wide at its narrowest part and extends about 2 miles NE from its entrance. The inlet then divides into two arms with small basins at their heads. The channel leading to the inner part of the inlet has depths over 18m. This inlet should only be entered by small craft.

Mink Trap Bay (53°27'N., 129°50'W.) is entered between Runge Island and a point on the opposite shore, 0.6 mile N. Several small islets, connected by a drying reef, lie close W and N of Runge Island. A shoal, with a least depth of 2.7m, lies about 0.2 mile W of the N end of Runge Island. Burns Bay and Moolock Cove lie at the NE end of Mink Trap Bay. The former bay is deep. The latter cove, with a narrow entrance, affords indifferently anchorage to small craft, in a depth of 45m.

During SE gales, furious gusts blow over the narrow neck of land separating Moolock Cove from Patterson Inlet.

Hodgson Cove, entered W of Mink Trap Bay, affords shelter for small craft with local knowledge. Numerous islands extend up to 0.5 mile seaward from its shores.

Principe Channel—Northwest End

14.33 Headwind Point (53°31'N., 130°06'W.) is located on the SW side of Principe Channel, about 3 miles W of Anger Is-

land. The coast to Deadman Islet, 15 miles NW, is bold and comparatively unbroken. End Hill stands close to the NE coast of Banks Island, about 2.8 miles SE of Deadman Islet.

Colby Bay, lying 2.5 miles NW of Headwind Point, is a narrow indentation extending about 0.8 mile WSW. Drying banks lie at the heads of the W and S arms of this bay. The bay widens about 0.4 mile within its entrance.

Small craft may obtain confined anchorage, in a depth of 9m, close S of a prominent point on the S side of the bay. The W side of the entrance should be favored when entering in order to avoid a reef that extend NW from the islet lying on the E side of the entrance.

McCauley Island (53°40'N., 130°15'W.) lies on the NE side of Principe Channel and is separated from Pitt Island by Petrel Channel. Wright Island, 106m high, lies close off Meet Point, the SE extremity of McCauley Island. This island, which is separated from McCauley Island by Dory Passage, forms the dividing point between Principe Channel and Petrel Channel.

Wheeler Island, 56m high and wooded, lies about 1.5 miles W of Wright Island. Several islets and below-water rocks lie within about 0.2 mile of its SE and N sides.

The Cliff Islands, two in number, are wooded. They are 59m and 71m high and lie about 0.5 mile W of Wright Island. Sherman Islet, 18m high and also wooded, lies 0.3 mile WSW of the Cliff Islands. Numerous islets, rocks, and shoals lie in this vicinity and within Squall Bay, which is located NW of the Cliff Islands. The depths in the bay are irregular throughout and no convenient anchorage is afforded.

Alexander Shoal, with a depth of 6.7m, lies about 0.3 mile SSW of Sherman Islet.

Dixon Island (53°34'N., 130°11'W.) lies on the NE side of the channel, 1.5 miles NW of Wheeler Island. The S shore of the island is foul and shoals extend up to about 0.3 mile seaward. Bush Islet, 21m high, lies close off the SW side of the island. Dark Islet, 51m high and wooded, lies 0.2 mile W of Dixon Island. Foul ground, on lies a small islet, extends up to about 0.1 mile S from this islet.

Baird Point (53°41'N., 130°24'W.), the NE entrance point of the NW end of Principe Channel, has low, flat land to the NE. An islet, 29m high, lies close S of this point and on an area of foul ground. Several other shoals lie within 0.3 mile of the point. Keswar Point, located 3 miles SE of Baird Point, is bold and Table Hill stands about 1 mile ESE of it.

14.34 Port Canaveral (53°34'N., 130°09'W.), an inlet, lies on the NE side of Principe Channel. It is located on the W side of the SE extremity of McCauley Island and N of Squall Island. The inlet has irregular depths and is entered between Squall Point, the bold and conspicuous W extremity of Squall Island, and Red Point, which has a reddish-brown cliff, 0.3 mile N.

The inlet is approached from Principe Channel between Wheeler Island and Dixon Island, and the shoals between these two islands. Twain Rocks, lying on the E side of the approach, consists of two shoals, each with depths of less than 1.8m. These shoals lie about 0.4 mile S and 0.3 mile SSW of Squall Point. Ethel Rock, lying on the W side of the approach, dries 1.2m and is located about 0.6 mile WSW of Squall Point. Kelp grows on this rock, but is visible only at slack water. A shoal, with a depth of 10.9m, lies about 0.1 mile ENE of Ethel Rock. Another shoal, with a depth of 10.6, lies about 0.1 mile SW of

the rock.

Other dangers include Clown Rock, which dries 2.4m, and Globe Rock, 0.6m high, lying about 0.2 mile SE and 0.3 mile WSW, respectively, of Tonkin Point, the SE extremity of Dixon Island. Alarm Rocks, with depths of 3m and 4.6m, lie between 0.1 mile and 0.2 mile NW of Squall Point. A detached rock, with a depth of 3.4m, lies nearly midway between Clown Rock and Alarm Rocks. Canaveral Rock, with a depth of 8.2m, lies about 0.2 mile NE of Squall Point.

Anchorage may be obtained by small craft with local knowledge, in depths of 25 to 27m, mud, about 0.2 mile SE of Red Point. The holding ground is good and the anchorage secure.

Petrel Channel

14.35 Petrel Channel, lying between Pitt Island and McCauley Island, leads N from Principe Channel to Ogden Channel. It has a least width of about 0.3 mile and is deep in the fairway. The E shore of the channel is backed by moderately-high mountains of which Noble Mountain (53°44'N., 130°09'W.) is the most conspicuous. The W shore is relatively lower.

The channel is entered from the S between Wright Island and Petrel Point, 2 miles ENE. Hevenor Inlet, Newcombe Harbor, and Captain Cove indent the E side of the channel.

Tidal currents, which attain a rate of 3 knots, set fairly through the channel.

Sine Island and Cosine Island lie SE of the entrance of Petrel Channel and in the W approach to Ala Passage. Markle Passage leads N of Sine Island and Evinrude Passage leads S of Cosine Island. Numerous islets, rocks, and dangers lie in this vicinity. Anger Anchorage, lying 1.3 miles NNE of the W extremity of Anger Island, affords anchorage, in depths of 43 to 49m. The holding ground is reported to be good.

Allcroft Point is located on the E side of the channel, about 2.8 miles NW of Petrel Point. It is prominent and the intervening coast is indented by a number of coves. The entrance of a creek lies on the W shore of the channel, opposite the entrance of Hevenor Inlet. Between 1 mile and 2 miles N of the creek, a shallow gravel bank, fringed by kelp, fronts the shore.

Hevenor Inlet (53°38'N., 130°03'W.), entered between Stark Point and Hevenor Point, is straight with widths varying from 0.2 to 0.6 mile. The depths vary from about 90m in the entrance to about 21m, 0.1 mile from the head. Hevenor Islet and Clark Islet lie close off the N shore of the inlet.

Anchorage can be obtained by small craft, in depths of 18 to 25m, at the head of the inlet, close E of two shoals lying SSE of Clark Islet.

Mathers Point is located on the E side of Petrel Channel, about midway between Hevenor Inlet and Newcombe Harbor. It is a prominent headland. Morrison Point is located on the W side of the channel, about 0.8 mile NW of Mathers Point. It is bold and also prominent. Robinson Point, located 1.3 miles NW of Morrison Point, is fronted by a drying rock. Petrel Channel narrows at this point and turns sharply NW. A conspicuous hill stands about 1.3 miles W of Robinson Point.

14.36 Newcombe Harbor (53°42'N., 130°06'W.), lying on the E side of Petrel Channel, is entered close E of McCutcheon Point. The entrance is about 90m wide. A shoal, with a depth of 7m, lies close S of McCutcheon Point. A conspicuous point,

fronted by two islets, is located on the NW side of the harbor, nearly 1.3 miles within the entrance.

Anchorage may be obtained by small craft, in a depth of 14m, about 0.2 mile SW of the above conspicuous point and in mid-channel.

Elbow Point lies on the NE side of Petrel Channel, about 4 miles WNW of McCutcheon Point. It is bold and steep-to. The channel turns N at this point. A gravel bank, which dries, fronts the shore and lies between 0.5 mile and 2 miles N of Elbow Point. A small boulder-filled indentation lies on the W side of the channel, about 1 mile WNW of Elbow Point.

Strouts Point, located 4.5 miles NNW of Elbow Point, is the NE extremity of McCauley Island. Petrel Channel widens at this point and turns sharply W to its junction with Ogden Channel.

Captain Cove (53°49'N., 130°13'W.), lying on the E side of Petrel Channel, is entered N of Captain Point. It is a good harbor, sheltered from all winds. About 0.5 mile within the entrance, the fairway is reduced to a width of 0.1 mile between the N shore and a group of islets. There is a least depth of 25.6m in the fairway.

Anchorage may be obtained, in depths of 21 to 23m, mud. The berth is located with the SE tangent of an islet, 25m high and lying 0.7 mile E of Captain Point, bearing 240° and a conspicuous boulder, 1.8m high and lying 0.4 mile ESE, bearing 145°. Vessels entering the cove should keep in mid-channel and proceed to the anchorage.

Browning Entrance

14.37 Browning Entrance (53°41'N., 130°30'W.), which is extensively used by tugs with tows when crossing from the Queen Charlotte Islands, lies between Banks Island and McCauley Island, on the S side, and Goschen Island, Dolphin Island, and Spicer Island, on the N. The entrance provides a convenient route to the inner passages from Hecate Strait. On its SE side is the NW end of Principe Channel, and at its E end are Beaver Passage and Schooner Passage, which lead into Kitkatla Channel, Petrel Channel, and Ogden Channel. The latter channel joins the principal inshore passage at the N end of Grenville Channel.

In addition to those mountain ranges which are conspicuous from Hecate Strait and which are mentioned along with Porcher Island, there are others that become conspicuous on nearer approach. Oval Hill, on the N end of the Porcher Peninsula, is conspicuous, as is **Passage Cone** (53°46'N., 130°24'W.) standing on the E side of Dolphin Island. False Cone, the wooded summit of the largest of the Prager Island, stands 1.5 miles W of Dolphin Island and should not be confused with the Passage Cone.

From the NW, the NW extremity of Banks Island has the appearance of low, bare land fringed with trees. About 3 miles inland, the land begins to rise to thickly wooded hills, about 213m high.

White Rocks (53°38'N., 130°34'W.) are 4m high, white, and conspicuous. They are the outermost of the numerous rocks and wooded islets lying off the NW end of Banks Island. Archie Rock, the southwesternmost danger, lies about 1.5 miles SW of White Rocks and about 1 mile offshore. A light is shown from the N end of the rocks.

Ludlam Rock, with a depth of 5.5m and marked by kelp, lies about 2.5 miles ENE of White Rocks and about 1.3 miles WNW of Deadman Islet, the N entrance of Principe Channel.

Larsen Harbor, lying SE of White Rocks, affords confined anchorage, in depths of 3 to 6m, to small craft with local knowledge. This anchorage lies between the N end of Larsen Island and the islets located to the W.

Beaver Passage

14.38 Beaver Passage (53°45'N., 130°20'W.), the wider and preferred of the two channels leading into Ogden Channel from Browning Entrance, lies between McCauley Island and the Spicer Islands. It is entered from the SW between Hankin Rock and the Ralph Islands.

The fairway is deep. A mid-channel course should be maintained throughout the passage, passing about 0.2 mile SE of Connis Islet to avoid Gurd Rock. When Bully Island Light bears about 014°, the course should be altered to pass midway between that island and the Kitkatla Islands. A course can then be shaped for Ogden Channel.

The tidal currents in the passage set N and S. In the S approach and the N entrance, the currents attain a rate of 2 to 3 knots. Within the passage, they attain a rate of 3 to 4 knots. The duration of slack water is about 13 minutes.

Hankin Rock (53°42'N., 130°25'W.), located at the S entrance of the passage, is fronted by a below-water ledge extending up to about 0.1 mile N from it. Channels lie on either side of this rock, but the one passing to the N side is the preferred. The rock is marked by a light.

A shoal, with a depth of 7.6m, lies about 0.8 mile W of Hankin Rock.

The Ralph Islands and Friday Island lie on the N side of Beaver Passage, about 0.6 mile NW and 1 mile NNE, respectively, of Hankin Rock. A rock, 0.3m high, lies between these two islands.

Spicer Island and South Spicer Island are separated from McCauley Island, on the E side, by Beaver Passage and from Dolphin Island, on the W side, by Schooner Passage.

Connis Islet, covered with bushes, lies 0.3 mile SSE of Spicer Point, the E extremity of Spicer Island. A flat-topped rock, which dries 6.1m, lies about 0.2 mile SW of this islet. The islet is marked by a light and a rock, awash, lies about 0.1 mile NW of it.

Gurd Rock, with a least depth of 3.7m, lies on the E side of Beaver Passage, about 0.3 mile SE of Connis Islet. Another rocky shoal, with a depth of 4.3m, lies close SE of this rock.

Connis Cove, lying 0.8 mile ESE of Connis Islet, affords anchorage to small vessels. The berth lies in a depth of 29m about 0.1 mile NE of the small wooded islet located close off the S entrance of the cove.

Bully Island (53°48'N., 130°19'W.) lies at the NE entrance of Beaver Passage, about 1 mile NE of McCauley Point, the NW extremity of McCauley Island. Jock Island, lying 0.5 mile S of Bully Island, is the outermost of the dangers located off McCauley Point. Bully Island is marked by a light.

The Kitkatla Islands, a chain of islets and rocks, lie at the junction of Beaver Passage and Kitkatla Channel. The fairway leading between Jock Island and a rock, 0.9m high, lying at the SE extremity of the chain is about 0.6 mile wide.

Schooner Passage

14.39 Schooner Passage (53°46'N., 130°24'W.), lying between the Spicer Islands and Dolphin Island, has a least width of about 0.4 mile. However, the navigable channel is contracted by shoals to a width of only 0.2 mile in places. From the SW, the channel is entered between the Christie Islands and the S end of Dolphin Island. Vessels should steer on a course with the Letts Islets ahead, bearing 049°. When the SW side of Christie Island is abeam, the course should be altered to pass about 0.2 mile SE of the southernmost of the Letts Islets. Then a course should be steered with the NW extremity of the islet lying off the N entrance of Welham Cove ahead, bearing 023°. When Passage Cone bears 270°, vessels will be clear of the dangers in mid-channel.

Vessels intending to proceed N through Ogden Channel should round the N side of Spicer Island in mid-channel and pass midway between it and the SE extremity of the Kitkatla Islands. A course of N may then be steered to pass midway between the Kitkatla Islands, on the W side, and Jock Island and Bully Island, on the E.

The tidal currents in Schooner Passage attain a rate of 1 to 2 knots in the S entrance and 3 to 4 knots in the N entrance, which is narrower. The currents set N and S.

In Schooner Passage, a drying rock lies on the E side of the fairway, 0.4 mile ESE of Letts Islet. Another drying rock lies 0.2 mile WSW of the islet that separates the two Spicer Islands. A rock, with a depth of 3.7m, lies 0.4 mile NNE of the Letts Islets. A rock, with a depth of 3.7m, lies about 0.4 mile NE of the Letts Islets; another rock, with a depth of 7.9m, lies 0.2 mile farther NE.

14.40 The Christie Islands (53°44'N., 130°25'W.) lie on the E side of the S approach to Schooner Passage, about 0.8 mile WSW of South Spicer Island. Christie Rock, with a depth of 7.9m, lies about 0.3 mile WNW of the southernmost island of the group. Two other shoal patches, each with depths of 8.5m, lie about 0.5 mile and 0.6 mile SW, respectively, of the same island.

Terry Rock, with a depth of 7.3m, lies on the NW side of the S approach to Schooner Passage, about 0.8 mile SW of Boys Point, the S extremity of Dolphin Island. Boys Rock, which dries 4.9m, lies about 0.2 mile S of the same point.

The Letts Islets, fringed by foul ground, lie on the N side of the fairway, about 0.8 mile E of Boys Point. Two drying rocks lie on the E side of the fairway, about 0.3 mile ESE of the Letts Islets.

Two rocks, with depths of 3.7m, lie in the fairway of Schooner Passage, about 0.4 mile NNE and 0.8 mile NE, respectively, of the Letts Islets. Another rock, with a depth of 7.9m, lies about 0.5 mile farther NE.

Browning Island lies on the W side of the N entrance of Schooner Passage, close off the NE end of Dolphin Island. A shoal patch, with a depth of 13.4m, lies about 0.3 mile SE of Browning Island, and another patch, with a depth of 9.1m, lies about 0.1 mile S of the same island.

Small craft may find shelter in a small cove lying S of Shibasha Island, which is located close SW of Browning Island. The narrow passage leading to this small cove has a least depth of 4.6m.

Shaman Cove and Totem Inlet, located on the SE side of Dolphin Island, offer shelter to small craft with local knowledge. The former is encumbered with rocks and the latter is entered via a narrow passage with a least depth of 8.2m in the fairway.

Willis Bay

14.41 Willis Bay (53°48'N., 130°32'W.), lying on the SE side of Goschen Island, affords good shelter during W winds. The bay is approached from the SW through a deep channel leading between Goschen Island and the Prager Islands and Moore Island. The Shakes Islands, lying between Goschen Island and Dolphin Island, are joined at LW by drying ledges. No attempt should be made, even by small craft, to pass between this chain into Kitkatla Channel.

The approach, which offers no difficulty in clear weather, can be made by steering on a course with the NW extremity of Moore Island ahead, bearing 054°. This course leads in mid-channel and clear of the foul ground fringing the SE shore of Goschen Island. When the S entrance of Willis Bay bears 000°, the course should be altered to pass about 0.2 mile W of Moore Island. Then the S entrance of the bay can be rounded at a prudent distance, avoiding the foul ground and a shoal, with a depth 11m, lying off it. A course may then be set for the anchorage.

Vessels may obtain anchorage, in a depth of 36m, in the middle of the bay.

Freeman Passage (53°50'N., 130°37'W.), which leads from Hecate Strait into Kitkatla Channel and Inlet, lies between the NW side of Goschen Island and the islands and rocks located off the SE end of the Porcher Peninsula. The fairway of this narrow and intricate channel has a least width of 90m, between the dangers lying on either side. This passage, in which the tidal currents are estimated to attain a rate of 3 to 4 knots, should be attempted only by small craft with local knowledge.

The mountains of Goschen Island, the only high land close to the sea in this area, are useful to locate the entrance to Freeman Passage. The peak rises 2 miles NNW of the S extremity of the Porcher Peninsula, is a good landmark during fair visibility, and is covered with small scattered patches of green timber.

Joachim Point, the W extremity of Goschen Island, is low and has a small islet lying close off its end. A shoal, with a depth of 10.3m, lies about 1 mile SW of this point. Joachim Spit, consisting of sand and drying boulders, extends about 0.7 mile NW from a position located close NE of the point. Shoals, with depths of less than 11m, lie up to about 0.1 mile seaward of the end of the spit and the channel narrows to a width of about 180m.

The channel hugs the NW shore of Goschen Island and passes S of Absalom Island, Coquitlam Island, and the islets and dangers fringing them.

Kitkatla Channel

14.42 Kitkatla Channel (53°47'N., 130°22'W.) leads between Porcher Island and several other islands lying off its S extremity, on the NE side, and Spicer Island, Dolphin Island, Shakes Island, and Goschen Island, on the SW side. The channel leads into Kitkatla Inlet and Porcher Inlet. It is entered be-

tween the SE extremity of the Kitkatla Islands and the N shore of Spicer Island. Generally, the depths in the fairway are deep. The channel has a least width of 0.4 mile between Browning Island and a drying rock lying off the SW end of the Kitkatla Islands.

Vessels proceeding NW through Kitkatla Channel from Schooner Passage should pass close around Browning Island if the flood current is running in order to avoid being set on to the rocks located at the SW extremity of the Kitkatla Islands.

Gasboat Passage (53°49'N., 130°23'W.) separates the Pelham Islands, which lie close N of the Kitkatla Islands, from the SE end of Porcher Island. Gilbert Island lies at the E end of the Pelham Islands and Ewart Island lies at the W end. The Billy Islands lie 0.8 mile NNW of Ewart Island; the **Gladstone Islands** (53°50'N., 130°27'W.) are located close NW. These islands lie on the W side of the entrance to Billy Bay, the approach to which is encumbered by rocks. Billy Bay is suitable only for small craft with local knowledge.

Kitkatla (53°48'N., 130°26'W.), a settlement, stands on the N shore of Dolphin Island. A mission and a large church, the spire of which is conspicuous, are situated at this settlement.

Anchorage can be obtained by vessels of moderate size in the vicinity of the settlement. The berth, in depths of 18 to 32m, lies 0.3 mile NW of the point on which the settlement stands.

An isolated rock, with a depth of 8.5m, lies on the S side of Kitkatla Channel, about 0.9 mile NW of Kitkatla.

Chief Point (53°50'N., 130°30'W.), located on the N side of Kitkatla Channel, is the SW extremity of a small peninsula, which is low except for the hill standing near its end.

The Cessford Islands lie on an extensive area of foul ground extending NW from Chief Point. Two rocks, which dry, lie on the NE side of the fairway of Kitkatla Channel, about 0.3 mile NW of Chief Point. Another rock lies about 0.2 mile farther NW.

On the SW side of the channel there are three reefs, each of which is marked by kelp. These reefs have depths of 3.7 to 5m and lie about 0.3 mile off the coast of Goschen Island.

Sheltered anchorage may be obtained by small vessels with local knowledge, in a depth of 12m, about 0.3 mile ENE of an islet, 33m high, which lies at the NW end of the Cessford Islands.

14.43 Kitkatla Inlet (53°55'N., 130°35'W.), lying in the SW part of Porcher Island, is entered NW of Nubble Point, the N extremity of Goschen Island. This inlet is approached via Kitkatla Channel or Freeman Passage, the latter being limited to small craft because of the dangers in it. Depths in the inlet are generally less than 45m over a mud bottom. Anchorage in convenient depths may be obtained by vessels of any size almost anywhere.

Gurd Island lies in the center of Kitkatla Inlet and divides it into two main channels. The Ness Islands lie in the entrance of the inlet on an area of foul ground. A reef, with a depth of 2.7m and marked by kelp, lies at the SW extremity of this foul ground. A rock, 2.4m high, lies at the E edge of the foul ground and another rock, which dries 1.2m, is located at the N edge of the area.

Winter Rock, 2.7m high, lies about 1 mile NNW of the Ness Islands. Drying rocks and foul ground extend E and SE from

this rock. The channel leading along the SE coast of Gurd Island to the NE part of Kitkatla Inlet has a least width of 0.3 mile located W of Winter Rock.

The SW shore of Gurd Island is indented and fronted by foul ground. The area lying between the NW side of Gurd Island and the shore of the Porcher Peninsula, to the NW, is foul.

Porcher Inlet (53°57'N., 130°27'W.), entered N of Whiteley Point, is encumbered by numerous dangers and should be attempted only by small craft with local knowledge at or near HWS. At Porcher Narrows, about 2.3 miles NE of Whiteley Point, the navigable channel is less than 90m wide. The tidal currents in the narrows attain a rate of 5 to 7 knots.

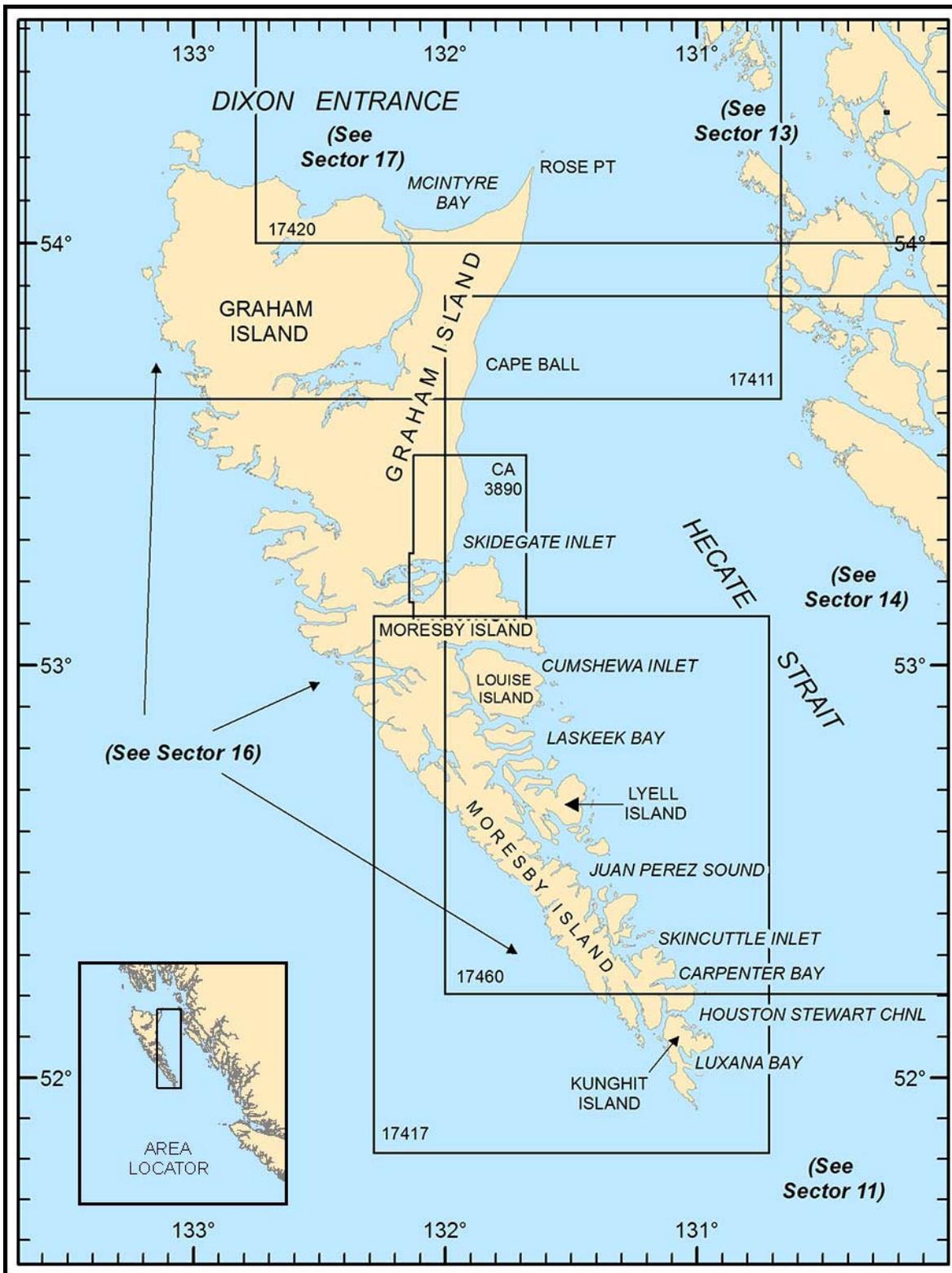
Ogden Channel

14.44 Ogden Channel (53°52'N., 130°18'W.), lying between the SE shore of Porcher Island and the NW shore of Pitt

Island, leads NNE from the junction of Beaver Passage and Petrel Channel. The S entrance of the channel lies between Comrie Head and Sparrowhawk Point, 1.8 miles W. The channel is deep and the fairway is free of dangers.

The channel leads N to Grenville Channel and Arthur Passage, which are part of the main inner passage. The N entrance of the channel lies between Rippon Point and Peninsula Point, 1.8 miles NW.

The N tidal current sets into Ogden Channel and divides near the N end. One part turns SE into Grenville Channel and the other continues N towards the Skeena River and Chatham Sound. The reverse tidal currents from Grenville Channel, the Skeena River, and Chatham Sound unite off the N end of Ogden Channel and pass through it. The muddy water from the Skeena River can usually be distinguished against the blue water of the channel.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 15 — CHART INFORMATION

SECTOR 15

THE QUEEN CHARLOTTE ISLANDS—EAST COAST

Plan.—This sector describes the E side of the Queen Charlotte Islands, including Skincuttle Inlet, Juan Perez Sound, Darwin Sound, Laskeek Bay, Cumshewa Inlet, and Skidegate Inlet.

General Remarks

15.1 The Queen Charlotte Islands consist of three principal islands, namely Kunghit Island, Moresby Island, and Graham Island. Graham Island, the northernmost, is the largest and Kunghit Island, the southernmost, is the smallest.

These islands form a compact archipelago lying between 51°50'N and 54°15'N, and 130°54'W and 133°10'W.

Houston Stewart Channel (see paragraph 16.3) and Skidegate Channel (see paragraph 16.20) separate the three principal islands. The former lies between Kunghit Island and Moresby Island and the latter lies between Moresby Island and Graham Island.

Winds—Weather.—Winds on the E coast of the Queen Charlotte Islands predominate from the SE year around. There are numerous calms averaging about 30 per cent of the time, but during winter the local squalls, which are known as williways, can cause problems to vessels at an anchorage.

Tides—Currents.—The tidal currents at the entrance of Skincuttle Inlet in the vicinity of Ikeda Point, Joyce Rocks, New England Rocks, and the Copper Islands attain a rate of up to 3 knots. The flood sets N and the ebb sets in the opposite direction. The turn of the tide takes place abruptly with virtually no slack water.

Eddies occur frequently between New England Rocks and the Cooper Islands. Heavy tide rips sometimes occur S of Cape St. James and over Gray Rock.

Between Cape St. James and Ramsey Island, the tidal currents turn abruptly with practically no slack water.

The flood and ebb currents, in the vicinity of Garcin Rocks, set N and S, respectively, at a rate of 1 to 3 knots. They are accompanied at times by considerable turbulence, particularly during spring tides.

Overfalls occur between Garcin Rocks and Benjamin Point and may be dangerous to small craft. They form quickly with the wind in opposition to the tidal currents. In this locality, the currents attain a rate of up to 4 knots.

The tidal currents in the N approach to Skidegate Inlet set N or S. They attain a rate of up to 3 knots on the spring flood. Outside Spit Point, the flood current sets NW and the ebb current SE.

The flood current sets up Juan Perez Sound from the S into the various inlets, and then E through Richardson and Logan Inlets. The ebb current sets in the reverse manner. The currents in the fairway abreast Shuttle Island attain a rate of 2 knots.

Regulations.—Canadian modifications to 72 COLREGS are applied in waters under Canadian jurisdictions. See Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and South-east Asia for further information.

Vessel Traffic Service (VTS).—The Vessel Traffic Services Zones Regulations require all vessels greater than 500 gt to file a VTS Offshore Report 24 hours prior to entering a Canadian VTS Zone from seaward, or as soon as practical where the ETA of the ship to a Canadian VTS Zone is less than 24 hours after the time the ship departed its last port of call. Send VTS Offshore Reports to a Canadian Coast Guard MCTS Center, free of charge, or to one of the following:

1. Telephone: 250-627-3071
2. E-mail: vts.rupert@innav.gc.ca

The waters described in this sector lie within Sector 1 of the Prince Rupert Vessel Traffic Zone. For further information, see General Remarks in paragraph 11.1.

Caution.—A restricted area, known as Gwaii Haanas National Park Reserve (National Marine Conservation Area and Haida Heritage Site), has been established within 6 to 7 miles from shore around most of Moresby Island beginning offshore from Dana Inlet (52°48'44"N, 131°39'15"W) and extending S to offshore from Cape St. James, then offshore from the W coast until Tasu Sound. The exact boundaries can best be seen on the chart.

The South Islands

15.2 Kunghit Island (52°03'N., 131°02'W.), the E part of which is described in this sector, is the southernmost of the main Queen Charlotte Islands. It attains a height of 454m about 2 miles NW of the S extremity and continues to rise gradually to a height of 546m in the NW part. This island is the first land to be sighted in clear weather when approaching the Queen Charlotte Islands from S. It can safely be approached with care from the NE or E to within 3 or 4 miles of the coast. The E coast of the island is bold and in many places bordered by steep cliffs.

Cape St. James (51°56'N., 131°01'W.), which is located close S of Kunghit Island, is the S extremity of St. James Island. This island is saddle-shaped, bare, and grassy. The N hummock is wooded and the S hummock is 85m high. A vertical cliff, 31m high, stands at the S extremity of the S hummock. A light is shown from a tower standing on the cape; several other towers, which make up a weather station, are nearby, and two white buildings stand close to it.

The Kerouard Islands consist of two groups of islands, islets, and rocks. They form a chain which extends about 2.5 miles SSE from Cape St. James. Some of the islands and islets are white and bare. The northwesternmost and southeasternmost groups attain heights up to 81m and are conspicuous. Some of the islets have rounded tops and vertical cliffs on all sides. The smaller ones have a pillar-like formation. The islands serve as breeding places for numerous sea birds and sea lions.

Gray Rock, with a depth of less than 1.8m, is an off-lying danger. It lies isolated about 6 miles SSE of Cape St. James. There are heavy tide rips over this rock and the sea breaks moderately on it during periods of moderate swell.

The E coast of Kunghit Island between the S extremity of



Photo copyright Mike Mitchell

Cape St. James Light and Weather Station

Kunghit Island and Ballard Point, 2 miles N, is indented by Woodruff Bay. The N and S shores of this bay are rugged and fringed with drying rocky ledges. An extensive sandy beach is located at the head of the bay. The bay is free of dangers, except for a small compact group of above-water rocks, surrounded by a drying rocky ledge, lying about 0.1 mile off the N shore. The depths within the bay gradually shoal towards its head.

Anchorage, partially sheltered from W winds, is available within Woodruff Bay.

Howe Bay, lying on the N side of Ballard Point, and Luxana Bay, located farther N, are separated by a narrow peninsula. This peninsula is 3 miles long and Annis Point forms its SE extremity. An islet, with a small rock lying close NE, is located about 0.3 mile NE of this point.

Howe Bay and Luxana Bay both afford shelter from W winds, but they are seldom free of swells. Anchorage can be taken in either bay, in depths of 18 to 27m.

15.3 Prevost Point (52°06'N., 130°57'W.), the NE extremity of Kunghit Island, is located about 1 mile NNW of Lyman Point. Gull Islet, small and wooded, lies close N of the point and is joined to it by a rocky ledge, which dries 3m. A rock, awash, and a rock, which dries 1.2m, lie close off the N end of the islet.

Keeweenah Bay, lying close W of Gull Islet, can be used by vessels up to about 45m in length. Anchorage can be taken, in a depth of 20m, about 0.1 mile E of Marshall Island, which is located in the middle of the bay.

Montserrat Bay, entered close W of Jenkins Point, lies 0.8 mile WNW of Gull Islet. It is too deep for satisfactory anchorage, except close to the head where small craft can proceed. A rock, with a depth of 9.1m, lies in the approach to this bay, almost midway between Jenkins Point and the NE extremity of the

Rainy Islands.

The Rainy Islands, consisting of four principal islands, form a chain which extends between 0.3 mile and 0.7 mile NE of Blackburn Point. Some of the islands are wooded and fringed by above and below-water rocks. These islands form the NW part of Montserrat Bay.

Gull Banks lie between 0.4 mile and 1.5 miles NW of Gull Islet. A shoal patch, with a depth of 10.7m, lies about 1 mile N of Jenkins Point and is the least depth in the vicinity of the banks.

Grant Bank extends about 0.5 mile NW from the Rainy Islands and Blackburn Point.

Christian Rock, with a least depth of 2.7m, lies on the N side of the bank, about 0.8 mile N of Blackburn Point. Germania Rock, 5.5m high and bare, lies near the W end of Grant Bank, about 0.3 mile S of the SE extremity of High Island.

High Island is 177m high, wooded, and conspicuous from NE. It lies on the N side of the approach to Heater Harbor, about 0.8 mile NNW of Blackburn Point.

Heater Harbor (52°07'N., 131°02'W.), the westernmost inlet of the group within Gull Islet, is entered between Orion Point, on the N side, and Gaowina Point, to the S. This inlet has an inner basin about 0.5 mile wide, which forms an excellent anchorage for vessels that can safely enter. It also provides good shelter on most occasions.

The harbor is secure from all winds, except those from the E. Violent downward gusts or williwaws occur in this harbor during S gales, as well as other harbors within the Queen Charlotte Islands.

Vessels approaching the harbor should steer a course of about 240° for the SE extremity of High Island until the N extremity of the island bears 270°. Then the course should be altered to pass about 0.2 mile off the SE extremity of High Island. A mid-channel course can then be steered toward the anchorage.

Vessels with moderate drafts proceeding from the SE may steer to pass about 0.1 mile off the Rainy Islands and Germania Rock. They may then maintain a mid-channel course for the anchorage.

Anchorage can be taken in depths of 20 to 27m, mud, within Heater Harbor, about 0.4 mile from the head.

Balcom Inlet is entered close W of Blackburn Point, about 0.8 mile ESE of Gaowina Point. This inlet extends about 0.8 mile S, where it is divided into two arms by Larson Point. Depths within this inlet are suitable for anchorage; however, it is not recommended because strong winds from the SE and SW quadrants, often accompanied by williwaws, funnel down the valley at the head causing violent yawing.

Moore Head to Point Langford

15.4 Moore Head (52°09'N., 131°03'W.), the NE extremity of Kunghit Island and the S entrance point of Houston Stewart Channel, is moderately steep-to and may be approached to within 0.2 mile.

Haydon Rock, 6.4m high, lies on the S side of the E approach to Houston Stewart Channel, about 0.7 mile ESE of Moore Head and about 0.4 mile offshore. A rock, with a depth of less than 1.8m, lies about 0.2 mile ENE of Haydon Rock and midway between them lies a rock which dries 1.5m. A shoal,

with a depth of 6.4m, lies about 0.2 mile WNW of Haydon Rock.

Point Langford, the N entrance point of the E entrance to Houston Stewart Channel, is located about 1 mile NNE of Moore Head. Langford Shoals, with a least depth of 8.2m, extend up to 0.6 mile SSE of the point and are marked by kelp.

Benjamin Point (52°13'N., 131°00'W.), the E extremity of Moresby Island, is located about 3.5 miles NNE of Point Langford, the SE extremity of the island. It is a small promontory surrounded by an area of rocks and foul ground. This area extends up to about 0.4 mile SE from the shore and is bordered by extensive kelp.

Garcin Rocks (52°13'N., 130°58'W.), located about 1.3 miles ESE of Benjamin Point, consist of three large and conspicuous rocks, up to 15m high. These rocks are closely grouped and, together with numerous other drying and below-water rocks, form a reef which is about 0.5 mile long and 0.2 mile wide. A light is shown from the S end of the middle of the three large Garcin Rocks.

Huff Rock, 3m high and bare, lies about 0.9 mile off the coast of Moresby Island, about 0.8 mile NNW of Garcin Rocks. This rock is surrounded by foul ground, which, on its SW side, extends about 0.4 mile seaward. The foul ground terminates in a rock, which dries 1.2m. A great amount of kelp exists on this foul ground during summer and autumn.

Langtry Island, sparsely wooded and 49m high, lies about 2 miles NW of Garcin Rocks. This island is surrounded by reefs and rocks which extend up to 0.3 mile N and 0.1 mile S of it.

Caution.—The inshore passage leading W of Garcin Rocks, Huff Rocks, and Langtry Island is subject to considerable tide rips, eddies, and overfalls and should not be attempted without local knowledge.

15.5 Carpenter Bay (52°14'N., 131°03'W.), which recedes about 5 miles in a general W direction, is entered between Ingraham Point, located 0.9 mile W of Langtry Island, and Iron Point, 2.3 miles NW.

The bay is 1.3 miles wide in the vicinity of Kiju Point, located 2.5 miles W of Ingraham Point. However, farther W, in the vicinity of Hancock Point and 1.5 miles WNW of Kiju Point, it narrows to a width of 0.6 mile. The head of the bay is encumbered by numerous islands and rocks, above and below-water.

South Cove is available to small craft with local knowledge. A rocky ledge extends about 0.2 mile N from the W entrance point of this cove. A rock, 1.5m high, lies on this ledge. Several rocks, which dry 1.2m, lie close off the extremity of the same point.

Strong winds from the SE and SW quadrants funnel through the valley in the S shore from Rose Inlet. The numerous above-mentioned dangers, combined with these strong winds, render anchorage within Carpenter Bay unsafe.

The tidal currents within the bay are regular and attain a rate of up to 2 knots in the outer part, decreasing to 1 knot towards the head.

The Rankine Islands, two in number, are wooded and lie on the N side of the approach to Carpenter Bay. The SW end of the westernmost island lies about 1 mile NE of Iron Point. Within 0.2 mile of the N extremity of the westernmost island are three above-water rocks, the outermost of which is 5.8m

high. There is also a rock which dries 4.6m. Both islands are fronted by foul ground.

Oliver Rock, 1.2m high, lies about 0.8 mile N of the westernmost island. Other rocks, which dry 0.3 to 0.9m, lie between 0.3 mile and 0.5 mile S of Oliver Rock with extensive kelp in the vicinity.

Numerous dangers lie in the entrance to and within Carpenter Bay and may best be seen on the chart.

A rock, awash, lies about 0.6 mile NE of Kiju Point. It is marked by kelp and breaks occasionally. A shoal patch, with a depth of 9.5m, lies about 0.4 mile farther NE and is also marked by kelp.

A rock, with a depth of 5.2m and marked by kelp, lies about 0.5 mile E of Iron Point. A shoal, with a depth of 11.9m and marked by kelp, lies about 0.5 mile SSW of the same point.

A rock, with a depth of 6.7m, lies about 0.8 mile NW of Kiju Point.

Crowell Rock, which dries 4.3m, and a rock, with a depth of less than 1.8m, lie nearly in mid-channel, about 0.4 mile NE of Hancock Point. Another rock, with a depth of 4m and marked by kelp, lies about 0.3 mile E of Crowell Rock.

Samuel Rock, 3.7m high, lies about 0.3 mile off the N shore of Carpenter Bay to which it is joined by a drying ridge of rocks, 1.5 miles W of Iron Point. A drying shoal, with rocks which dry 0.6 to 3.4m along its outer edge, extends up to about 0.1 mile seaward between Samuel Rock and the shore to the NE. A rock, which dries 2.7m, lies about 0.1 mile W of Samuel Islet.

Two wooded islets, 27m and 40m high, lie within 0.2 mile N of Hancock Point.

15.6 Goodwin Point (52°17'N., 131°05'W.), the S entrance point of Collinson Bay, is a low, bluff, but rises rapidly a short distance inland. Goodwin Rock, 4m high and bare, lies about 0.8 mile E of the point and is generally steep-to.

Marion Rock, 3m high and bare, lies close off the entrance to Collinson Bay, about 0.6 mile W of Goodwin Point. A rock, which dries 5.5m, lies in the fairway of the entrance to Collinson Bay, about 0.3 mile W of Marion Rock. Two rocks, which dry 0.6m and 3.7m, lie off the SE shore of Collinson Bay, about 0.3 mile and 0.7 mile, respectively, SW of Marion Rock.

The Nest Islets, two in number, lie close together. The larger islet is wooded and the other is covered with scrub growth. They lie between 0.5 mile and 0.7 mile WNW of Marion Rock. A wooded island lies close off the W shore of the bay, about 0.2 mile WSW of the Nest Islets. A rock, 2.7m high, lies close S of this island. The passage leading between the island and the Nest Islets is deep and free of dangers. Another wooded island, connected to the shore by a drying rocky ledge, is located off the SE shore of the bay, about 0.4 mile from its head. There is no suitable anchorage in Collinson Bay.

Ikeda Cove is a narrow inlet entered between Awaya Point, located 2.5 miles NW of Goodwin Point, and Ikeda Point, 0.2 mile N.

Small vessels with local knowledge can anchor in the inner part of this cove, but care is necessary as S and SE gales cause heavy squalls and turbulence in the entrance.

Approaches to Skincuttle Inlet

15.7 The Copper Islands (52°21'N., 131°10'W.), consisting of five principal wooded islands and numerous islets and rocks, form a chain which extends up to 0.9 mile E of Pelican Point, the SE extremity of Burnaby Island. East Copper Island, 78m high, is the easternmost island of the group and forms a good landmark in the approach. A light is shown from the SE extremity of this island, but it is obscured on some bearings.

The main passage leading into Skincuttle Inlet is about 1 mile wide between East Copper Island and the dangers lying SE. It is marked and is the most used. The general trend of the fairway is SW and there are no sharp turns within the entrance.

Joyce Rocks, a compact group of five, lie about 1.8 miles SE of the light on East Copper Island. They are bare and up to 8.2m high.

New England Rocks, two in number, lie close together and dry up to 0.9m. They are located about 0.8 mile NW of Joyce Rocks and a buoy is moored about 0.4 mile NW. A rock, with a depth of 2.1m, lies about 0.1 mile S of them.

Two shoals, with a least depth of 7.9m, lie about 0.6 mile E of New England Rocks and are marked by kelp in summer and autumn. Bishop Rock, 1m high and bare, is located almost midway between Deluge Point and Joyce Rocks, about 0.8 mile S of New England Rocks. A rock, which dries 1.2m, lies close E of this rock.

Inner Low Rock, 5m high and bare, lies about 0.5 mile NW of Ikeda Point. A reef extends 0.2 mile N from Inner Low Rock and terminates in a rock with a depth of 2m. Farther W, a rock, which dries 0.3m, and another rock, with a depth of 4.3m, lie about 0.1 mile N and 0.3 mile NW, respectively, of Deluge Point.

The tidal currents in the approach and in the general vicinity of Ikeda Point, Joyce Rocks, New England Rocks, and the Copper Islands attain a rate of up to 3 knots. The flood current sets N and the ebb sets in the opposite direction. The turn of the tide takes place abruptly with virtually no slack water.

Eddies occur frequently between New England Rocks and the Copper Islands.

The Northern Passage into Skincuttle Inlet, located NW of the Copper Islands, has a minimum width of 0.3 mile between the rocks that extend from Pelican Point, on Burnaby Island, and Rock Islet, the westernmost islet of the Copper Islands. It is bordered by numerous dangers and local knowledge is necessary.

Caution.—A local magnetic anomaly has been reported to exist between Pelican Point and Rock Islet.

Skincuttle Inlet

15.8 Deluge Point (52°20'N., 131°10'W.), the S entrance point of Skincuttle Inlet, is located about 4 miles SE of Poole Point, the N entrance point. The entrance is encumbered by the Copper Islands and numerous dangerous rocks.

A shoal, with a depth of 11.9m, lies about 0.6 mile SE of Poole Point and several more shoal patches, with depths of 10.4 to 12.8m, extend in a WSW direction from it toward the shore.

The Bolkus Islands consist of one large island, 79m high; several small islands; and numerous rocks and reefs. This group lies

in the middle of Skincuttle Inlet and extends between 0.9 mile and 2.8 miles E of Smithe Point, the S extremity of Burnaby Island. Foul ground, on which lie several drying and below-water rocks, extends up to about 0.3 mile S from the westernmost and largest of the Bolkus Islands. Numerous shoals lie in the vicinity of this group.

Elswa Rock, which dries 2.4m, lies nearly in the middle of the passage leading S of the Bolkus Islands, about 0.8 mile N of Kankidas Point. A rock, with a least depth of 7.3m, lies about 0.2 mile ENE of Elswa Rock. Another rock, with a depth of 6.1m, lies about 0.4 mile WSW of Elswa Rock and about the same distance NE of Bush Rock.

Large vessels and vessels from the NE should steer to round the dangers lying off East Copper Island at a distance of about 0.3 mile and then set a course for Harriet Harbor or Huston Inlet.

Vessels with moderate drafts proceeding from the SE may steer for East Copper Island Light in order to pass between Joyce Rocks and Bishop Rock. They may then alter course to the W to intersect the headings for Harriet Harbor or Huston Inlet.

15.9 Harriet Harbor (52°18'N., 131°13'W.), lying on the S side of Skincuttle Inlet, is entered between Funter Point, located 2 miles SW of Deluge Point, and Jedway Point, about 0.6 mile W. Harriet Island, 45m high and wooded, is located in the middle of the entrance to the harbor. This island is surrounded by a drying bank and a drying spit extends about 0.2 mile SE from it. The island is not conspicuous as its colors blend into the high background, but some oil tanks can be seen when the harbor becomes visible. There are depths in the harbor, to the SE of Harriet Island, of 5.5 to 12.8m.

Bush Rock, 5m high, is covered with sparse scrub on its summit. This rock lies about 0.2 mile N of the northernmost of two islands, 67m and 69m high, which form a large part of the W side of Jedway Bay and the NE side of Huston Inlet. Numerous rocks lie between Bush Rock and the above islands.

Low Black Rock is located 1 mile SSW of the W extremity of the Bolkus Islands. This rock is 0.6m high and another rock, which dries 0.3m, lies close NE of it. Numerous shoals extend S from this rock into Huston Inlet.

Huston Inlet is entered between Bush Rock and Huston Point, 1 mile W. This inlet recedes 3.5 miles SE. Boulder Island lies about 0.6 mile within the entrance and about 0.2 mile off the W shore. Sea Pigeon Island lies about 0.4 mile farther SE. Green Rock, 3.4m high and grass covered, is located in the middle of the inlet, about 0.3 mile E of Boulder Island.

The Swan Islands consist of one large island, two small islands, and several islets and rocks. They extend between 0.4 mile and 1.3 miles ENE of Smithe Point, the S extremity of Burnaby Island. The passage leading between these islands and the westernmost of the Bolkus Islands is free of dangers, with the exception of a shoal, with a least depth of 8.5m, located about 0.3 mile SW of the S extremity of the largest of the Swan Islands. Swan Bay, lying N of the Swan Islands, is too exposed to SE winds for satisfactory anchorage, although there are depths of 3 to 29m within it.

Anchorage for vessels about 60m long and under can be taken, in a depth of 12m, sand and mud, in the middle of the harbor, about 0.3 mile SSE of Harriet Island. Anchorage can also be tak-

en, in a depth of 22m, mud, about 0.5 mile from the head of Huston Inlet. Small vessels can anchor in shallower depths nearer the head of the inlet, but care must be taken to avoid the numerous dangers, especially along the W shore. Heavy squalls from the valley at the head of Huston Inlet may be expected during S gales.

Caution.—Care is necessary in determining a safe anchorage, because the head of the harbor is subjected to heavy squalls from the valley during strong S gales.

Abnormal magnetic variation has been reported to occur in the vicinity of Harriet Harbor.

Burnaby Strait

15.10 Burnaby Strait (52°19'N., 131°20'W.), the S end of which is entered W of Smithe Point, leads N between Burnaby Island and Moresby Island. It extends for 9 miles from Skincuttle Inlet to Juan Perez Sound.

The strait, from its S entrance to the N end of Dolomite Narrows, is narrow and encumbered by numerous rocks and a drying bank. It can be navigated only at HW by small craft with local knowledge. From the N end of Dolomite Narrows, the strait abruptly broadens to a width of more than 1 mile as it continues N towards Juan Perez Sound.

The tidal currents in Burnaby Strait, from limited observations, are indicated to be very irregular in both direction and strength. They vary appreciably with spring and neap tides and also with weather conditions in Hecate Strait. The currents are relatively weak and seldom exceed a rate of more than 1.5 knots within Dolomite Narrows.

Dolomite Narrows, at its narrowest part, is a little less than 0.1 mile wide between the HW lines on either side. The S entrance to the narrows lies about 2 miles N of the S entrance to Burnaby Strait. The narrows completely dry at LW near the S end. Near the middle of the drying area are two above-water rocks, 0.3m and 0.9m high, with numerous other rocks which dry 1.5 to 4m, lying N and S. Numerous scattered boulders also lie on this drying area.

15.11 Poole Point (52°22'N., 131°15'W.), the SE extremity of Burnaby Island, is formed by a conspicuous white, granite crag. It is backed by low land that rises gradually inland.

Rebecca Point, located 1.5 miles WNW of Poole Point, is the N extremity of a peninsula. This peninsula is 120m high and separates Francis Bay and Poole Inlet. The N and NE sides of the peninsula are fringed with rocky ledges extending up to about 0.1 mile offshore. Several rocks, 0.3 to 1.5m high, lie on these rocky ledges.

A large rock, the highest part of which dries 1.2m, lies about 0.2 mile NE of Rebecca Point. Foul ground lies between the point and the rock. A shoal, with a least depth of 10.1m, lies about 0.4 mile N of Rebecca Point.

Poole Inlet, entered W of Rebecca Point, extends about 2 miles in a SW direction. The shores on both sides of the inlet are generally rugged and indented with above-water and drying rocks lying close offshore in places. The fairway is obstructed by a group of islets and rocks lying about 0.7 mile within the entrance. A passage, about 0.1 mile wide and suitable only for small vessels, lies on the NW side of this group. Depths within the inlet, N of the above-mentioned group of islets and rocks,

vary from 13 to 24m. Depths of 20m lie S of the group and gradually shoal to a depth of 9m near the head.

Howay Island, 88m high and wooded, lies with its SW extremity located 0.8 mile NE of Rebecca Point. Its shores are moderately steep-to. The passage lying on the NW side of the island is deep and free of dangers.

The E shore of Burnaby Island, to the N of Howay Island, is fringed with drying rocky ledges which extend up to about 0.1 mile offshore. Several above-water rocks lie on these ledges. This coast is free of off-lying dangers, with the exception of a rock, which dries 0.9m, lying about 0.2 mile offshore and about 1 mile S of Scudder Point.

Juan Perez Sound—South Side

15.12 Scudder Point (52°27'N., 131°14'W.), the NE extremity of Burnaby Island and the S entrance point of Juan Perez Sound, has a drying rocky ledge extending about 0.2 mile NE from it. Several detached rocks, which dry 0.6 to 3.7m, lie up about 0.2 mile farther NE. A wide stretch of comparatively low land extends back from this point with an open growth of large but gnarled spruces.

Scudder Point, from which a light is shown, should not be closely approached because of the numerous rocky ledges lying NE and NW of it.

Juan Perez Sound extends about 12 miles in a general NW direction. It is about 6.5 miles wide at the entrance which lies between Burnaby Island and Ramsay Island. Several smaller inlets and bays branch off from this sound. Darwin Sound, the continuation to the NNW, is about 13 miles long.

The tidal currents at Scudder Point are very irregular, both in direction and strength. Rates of up to 3 knots have been encountered. The wind direction and force appear to affect the rate considerably. Some turbulence can be expected in the vicinity of Scudder Point and overfalls have been encountered on the shoal areas lying about 4 miles E.

The tidal currents become quite regular and attain rates up to 1 knot within the confines of Juan Perez Sound. The flood current and ebb current set to the NW and SE, respectively.

The currents are quite regular, with rates of up to 1 knot, along the shore of Ramsay Island and in the passages NW.

Saw Reef is a large drying rocky patch with several above-water heads, the highest of which dries 1.2m. This reef lies with its N extremity located about 0.3 mile offshore, nearly 2 miles W of Scudder Point.

Alder Island, wooded and nearly flat, lies with its S extremity located about 0.3 mile off the N shore of Burnaby Island, about 1 mile W of Saw Reef. A small wooded islet and a rock, 3.7m high, lie about 0.1 mile off the N side and about 0.2 mile off the NW extremity, respectively, of Alder Island. Rocks, which dry 1.5 to 4.3m, lie within 0.2 mile N of this wooded islet.

The passage lying S of Alder Island should be used only by small craft with local knowledge.

Huxley Island lies close off the NW point of Burnaby Island with its S extremity located 0.6 mile N of Section Island. Huxley Island is bold and conspicuous, rising steeply from the beach on its E side to a height of 434m.

Several shoal patches, with a least depth of 5.9m, lie within 0.5 mile of the E shore of Huxley Island. A rock, 1m high, lies

close off the NW extremity of the island and several drying rocks lie within 0.1 mile SE of it.

Arichika Island, 84m high and wooded, lies about 0.5 mile off the NE extremity of Huxley Island. Arichika Shoal, with a least depth of 4.3m, lies about 0.5 mile NW of Arichika Island. Monument Rock, 23m high, is bare and resembles a pillar. It is located nearly midway between the shoal and the N extremity of Huxley Island. Two rocks, which dry about 5m, lie close SE of it.

Burnaby Strait, the N part of which lies W of Huxley Island and Burnaby Island, is entered between the NW extremity of Huxley Island and Newberry Point, 1.8 miles WNW. It is navigable for about 6 miles to the S before being blocked by Dolomite Narrows, which as stated before, is available only to small craft at HW. Wanderer Island, Park Island, and Kat Island, along with numerous islets, lie in this part of the strait. Rocks, with depths of 2m or less, lie within about 0.2 mile of the shore of Burnaby Island on the E side of the fairway.

Wanderer Island, 142m high and wooded, lies with its S extremity located 0.3 mile NNE of Wanderer Point. Center Island, 49m high, lies 0.1 mile off the SE extremity of Wanderer Island.

Nomad Islet, wooded and 75m high, lies close NE of Wanderer Point to which it is connected by a drying shoal. A narrow passage, available to small craft, separates this island from the S extremity of Wanderer Island.

Park Island, 53m high and wooded, is separated from the N side of Wanderer Island by a passage about 0.3 mile wide. This passage has a least depth of 7.3m.

Sels Islet, 49m high, lies about 0.8 mile SSW of Park Island. Its S extremity lies about 0.2 mile NW of a small promontory which projects from the W side of Wanderer Island.

A rocky ledge, on which lie two above-water rocks, fronts the NW side of Sels Islet. A shoal, with a least depth of 7.6m, lies about 0.3 mile NW of Sels Islet.

15.13 Skaat Harbor (52°25'N., 131°25'W.), entered W of Park Island, extends SW between high mountains for about 1.5 miles from Wanderer Point.

Haida Rock, awash, lies about 0.2 mile off the W shore of Skaat Harbor, about 0.5 mile SW of the S end of Sels Islet.

A group of rocks, which dry from 0.6 to 5.5m, lie within 0.1 mile N of an islet located close off the E shore, about 0.5 mile from the head of Skaat Harbor. A small islet and three rocks, which dry 0.3 to 5.5m, fringe the SW shore, near the head of the harbor. Vessels can anchor, in depths of 22 to 24m, generally mud, about 0.2 mile W of the small promontory lying on the W side of Wanderer Island. Anchorage for vessels up to 76m in length is available, in depths of 20 to 22m, mud, about 0.6 mile from the head of the harbor. Smaller vessels can anchor in shallower depths, closer inshore.

The anchorage at the head of the harbor provides the best shelter from all but N winds.

Vessels entering the harbor should proceed W of Park Island and then between Sels Islet and Haida Rock.

Limestone Rock, which dries 2.4m, lies about 0.7 mile E of Wanderer Point, the N extremity of the peninsula separating Burnaby Strait from Skaat Harbor. A rock, which dries 0.9m, lies close SE of Limestone Rock.

Kat Island, 75m high and wooded, lies with its N extremity located about 1.8 miles SSE of Wanderer Island. An island, which

is connected to the W shore by a drying shoal, lies between this island and the W entrance point of Island Bay. Another small island, 56m high, lies close off the NW extremity of Kat Island to which it is connected by a drying shoal. Several rocks, which dry 0.9 to 3m, lie close off the N side of Kat Island and extend up to about 0.5 mile NW of it.

The passage lying on the W side of Kat Island is foul and should not be attempted.

Island Bay, entered S of Kat Island, extends about 2 miles SW from its entrance. The entrance is obstructed by several small islands and numerous rocks, above and below-water. Entry into the bay can be made only to the W of these obstructions via a narrow and tortuous passage for which local knowledge is required. The head of the bay is encumbered with several islets and rocks.

Juan Perez Sound (continued)

15.14 All Alone Stone (52°29'N., 131°24'W.), a dome-shaped wooded island, is 37m high and lies about 1.8 miles NW of the N extremity of Huxley Island. It is steep-to, conspicuous, and forms a good landmark for entry into the N end of Burnaby Strait. The channels lying on each side of All Alone Stone are clear of dangers, except for a dangerous below-water rock located close N of it.

Werner Bay lies on the SW side of the sound between Newberry Point and Werner Point, 2.3 miles NW. It is open to the NE and has a least depth of 16.5m in the entrance.

Newberry Cove, lying close W of Newberry Point, provides temporary anchorage to small vessels, in a depth of 31m.

Matheson Inlet and Marshall Inlet, two narrow bodies of water, extend in a SW direction from the head of Werner Bay and are available to small craft with local knowledge. The two inlets are separated by a hilly peninsula, of which Gottlob Point is the NE extremity. Marshall Inlet is partially blocked at its entrance by several shoals and a rock that dries.

Marco Island lies with its W extremity located about 0.2 mile N of the E entrance point of Hutton Inlet, which is described below. Marco Rock, 7.9m high, lies about 0.2 mile E of the E end of Marco Island. A drying reef extends about 0.2 mile NW from the rock.

The narrow passage lying S of Marco Island is partially obstructed by numerous shoals and requires local knowledge.

Hutton Inlet, available to small craft with local knowledge, is entered between the W end of Marco Island and Hutton Point. It extends SW for 3 miles. Hutton Island, from which a shallow spit extends N for 0.2 mile, lies in the middle of the entrance to Hutton Inlet. A rock, which dries 4.3m, is located at the N extremity of the spit. Several islets and rocks obstruct the passage lying SE of the island. The inlet narrows about 1 mile within its entrance to a width of about 0.2 mile and has a least depth of 7m in this part.

Anchorage for small vessels with local knowledge can be taken, in a depth of 13m, mud, about 0.8 mile from the head of the inlet.

The Hoskins Islets, two in number, lie 0.8 mile NW of Hutton Point. They are located about 0.1 mile apart with drying rocks between. The passage lying between these islets and the shore to the SW is free of dangers, is about 0.4 mile wide, and has a least depth of 12m.

15.15 Hoskins Point (52°32'N., 131°34'W.), located about 1.5 miles WNW of Hutton Point, is the E entrance point of a large bight. Haswell Bay and De la Beche Inlet lie at the head of this inlet.

Perez Shoal, with a least depth of 4.6m and usually marked by kelp, lies in the approach to the above-mentioned bight, about 0.7 mile N of Hoskins Point. A shoal patch, with a depth of 14.3m, lies about 0.3 mile NE of Perez Shoal.

Haswell Bay is approached through a deep channel leading between Hoskins Point and Sivart Island, about 0.5 mile W. The bay narrows to a width of about 0.3 mile about 1.3 miles SSW of Sivart Island. The fairway is further narrowed toward the head by an islet. This islet lies close off the SE shore to which it is connected by a drying flat.

A detached rock, with a least depth of 8.8m, lies about 0.5 mile S of the SW extremity of Sivart Island.

Sivart Rock, which dries 3m, lies about 0.4 mile SW of Sivart Island and a rock, with a depth of 4.6m, is located nearly midway between them.

Anchorage is available for small craft, in a depth of 12m, near the head of Haswell Bay. Larger vessels can anchor, in depths of 21 to 29m, about 0.4 mile SSW of Sivart Island.

The approach to De La Beche Inlet, which is located close WNW of Haswell Bay, is encumbered by drying and below-water rocks. Two islands lie close NE of the S entrance point. Entry should be attempted only by small craft with local knowledge.

Skittagetan Lagoon, lying on the NW side of the approach to this inlet, is very narrow and almost completely filled with drying rocks.

Juan Perez Sound—North Side

15.16 Ramsay Island (52°34'N., 131°23'W.) is densely wooded and fringed with drying reefs and detached rocks on its SE and E sides. Two bold hills, 411m high, rise near its S shore. Numerous above-water rocks are scattered on the drying reefs and dense masses of kelp that fringe the shores. The NW side of the island is indented and several islets and rocks lie close offshore. None of the indentations on this side of the island are suitable for anchorage except by small craft with local knowledge.

Kloo Rock, 11m high, lies about 0.5 mile ENE of Andrew Point, the N extremity of Ramsay Island. A rock, with a depth of less than 1.8m, lies almost midway between Kloo Rock and the point. A bare rock, 3m high, lies about 0.2 mile N of Andrew Point and a smaller rock, 1.2m high, is located close E of it.

A bare rock, 7m high, lies about 0.2 mile offshore, nearly midway between Andrew Point and Yadus Point, the E extremity of Ramsay Island. This rock is connected to the shore by a drying reef with several above-water rocks lying on it. Another rock, with a depth of 5.2m, lies about 0.3 mile NE of this bare rock.

Tatsung Rock, 13m high and bare, lies about 0.4 mile seaward of the SE shore of Ramsay Island. A rock, with a depth of 3m, lies between it and the shore, about 1 mile S of Yadus Point. Two smaller rocks lie about 0.3 mile WSW of Tatsung Rock.

An isolated rocky shoal, with a least depth of 10.4m, lies about 1.5 miles ENE of Yadus Point. This off-lying danger

should be avoided especially in periods of heavy swell.

15.17 Ramsay Rocks (52°34'N., 131°28'W.) lie about 0.9 mile W of Ramsay Point, the W extremity of Ramsay Island. They consist of an above-water rock, 6.4m high, a rock, awash, and several rocks which dry 1.2 to 4.3m.

Hotspring Island, with House Island lying 0.4 mile ENE of it, is located nearly midway between Ramsay Island and Murchison Island. A spring lies on the S side of Hotspring Island and can easily be identified by a green mossy patch which can be seen for some distance. Steam generally hovers over this patch and the spring has a slight odor of hydrogen sulphide. The water has a barely perceptible saline taste.

A group of five islets lies within 0.5 mile NE of Hotspring Island, to which it is connected by a drying flat. A drying reef extends about 0.2 mile W from the W side of Hotspring Island. Two rocks, 3.3m high, lie at its outer end and a detached rock, 1.5m high, lies close N of it.

Numerous drying rocks fringe the flats surrounding the above-mentioned islands and islets.

Murchison Island and Faraday Island, 144m and 224m high, are both wooded and lie NW of Ramsay Island. These islands are separated from each other by a passage which is completely blocked by above-water and drying rocks.

Ramsay Passage leads between Ramsay Island, on the SE side, and Ramsay Rocks, Hotspring Island, and House Island, on the NW. It is navigable, but care is necessary to avoid the reef which extends N from Ramsay Island and a rock, with a depth of 2.7m, lying about 0.2 mile S of the islets located on the E side of House Island. A shoal, with a depth of 10.1m, lies in the NE end of the fairway, about 1 mile W of Andrew Point.

15.18 Faraday Passage, lying between Faraday Island and Lyell Island, is not recommended except for small craft with local knowledge. Several dangers exist in the fairway.

Murchison Passage, lying between Murchison Island and Hotspring Island, is considered dangerous and is not recommended.

Sedgewick Bay, which indents the S side of Lyell Island, is deep and free of dangers, but is too exposed to afford anchorage, because S winds blow directly up Juan Perez Sound.

The Bischof Islands, which consist of one large and several small islands, form a compact group located close off Richardson Point, the SW extremity of Lyell Island. They are all wooded and fronted by numerous rocks. The largest island is located on the NW side of the group; a conspicuous dome-shaped hill, 87m high, stands in its SW part.

The passage lying between Bischof Islands and Lyell Island has a least width of 0.3 mile. It is deep and free of dangers in the fairway, with the exception of a rock, with a depth of 2.1m, lying about 0.3 mile SE of the E entrance point of Beresford Inlet.

Beresford Inlet is very narrow and indents the S side of Lyell Island between Sedgewick Bay and Darwin Sound. The narrowest part of the inlet, about 1.5 miles within its entrance, is only about 90m wide and is completely blocked by above-water and drying rocks.

Entry into the inlet should be attempted only by small craft with local knowledge, and then only at or near HW.

Darwin Sound

15.19 Darwin Point (52°34'N., 131°37'W.) and Richardson Point, 1.5 miles ENE, form the S entrance to Darwin Sound. This sound leads between Moresby Island and Lyell Island from Juan Perez Sound to Laskeek Bay.

A light is shown from the shore, about 0.8 mile NW of Darwin Point.

The flood current sets up Darwin Sound from the S into the various inlets, and then E through Richardson and Logan Inlets. The ebb current sets through in the reverse manner. The currents in the fairway abreast Shuttle Island, on either side, attain a rate of 2 knots.

Stevenson Cove, lying on the W side of the sound close within the S entrance, is too deep and confined to provide satisfactory anchorage, except for small craft, near its head.

Kostan Inlet, lying 2.5 miles NE of the S entrance on the W side, has a least depth of 1.2m in its entrance and is suitable only for small craft.

Bigsby Inlet is entered S of Jeremiah Point, which is located 1.8 miles NNW of Kostan Inlet. It is about 0.4 mile wide and extends about 3 miles NW between high, precipitous, and wooded mountains. No dangers exist in the fairway, but the depths are too great for anchorage.

Two rocks, with least depths of 11m and 11.9m, lie about 0.4 mile NE and 0.5 mile ESE, respectively, of Finger Point.

Shuttle Island, 155m high and wooded, lies nearly in the middle of Darwin Sound with its SW extremity located 1.3 miles N of Finger Point. This island appears dome-shaped when approached from the S.

A patch of foul ground, with a rock which dries 0.6m in its S part, lies close off the S end of Shuttle Island. The S end of this foul ground lies about 0.2 mile ESE of a small islet located close off the SW point of Shuttle Island.

A rock, with a depth of 9.1m, lies about 0.2 mile off the SE extremity of the island.

A rock, 2.4m high, lies about 0.2 mile off the N extremity of Shuttle Island, with a rock, which dries 2.4m, located between it and the N extremity. A detached rock, with a depth of 9.1m, lies about 0.3 mile farther N.

Shuttle Passage, the fairway lying on the E side of Shuttle Island, is preferable, as it is the widest. This passage has a least depth of 17.3m located over a small bank in the middle of the S entrance.

Hoya Passage, lying on the W side of Shuttle Island, is narrowed to a width of about 0.3 mile at its S end by two rocks. These rocks, which have depths of 7m and 7.6m, lie about 0.2 mile off the W shore of Moresby Island. The fairway is further narrowed to a width of 0.2 mile at its N end by a rock, which dries 4m. This rock lies on the W side of Moresby Island, about 0.3 mile SSW of the N extremity of Shuttle Island. A rock, with a depth of 10.1m, lies about 0.1 mile off the W shore of Moresby Island.

15.20 The Topping Islands (52°40'N., 131°40'W.), two in number, are 73m and 59m high and have a passage leading between them. They lie on the E side of the fairway of Shuttle Passage, about 0.8 mile NW of the W entrance point of Lyell Bay. Foul ground lies between the easternmost island and the shore of Lyell Island. A rock, with a depth of 10.4m, lies about

0.2 mile NW of the westernmost island.

An unnamed island, 40m high, lies about 0.2 mile off the coast of Lyell Island, about 0.5 mile WNW of the westernmost of the Topping Islands. Drying rocks lie close NNW and SSE of this island.

Lyell Bay, lying on the W side of Lyell Island, is entered E of the S end of Shuttle Island. The bay extends about 0.8 mile from its entrance and is foul at its head. A scrub-covered islet, 6m high with a single stunted tree, lies about 0.3 mile NW of the W entrance point of the bay. A rock, with a depth of 5.5m and marked by kelp, lies about 0.2 mile NW of this islet. A shoal patch, with a depth of 9.4m, lies about 0.2 mile N of the W entrance point and another shoal, with a depth of 6.4m, lies 0.2 mile farther N.

The bay affords anchorage to small vessels up to 46m in length, in depths of 24 to 27m, about 0.5 mile from its head. However, the anchorage is not recommended during SE gales, because the wind draws strongly through it from Beresford Inlet.

15.21 Shuttle Reef lies in the middle of Darwin Sound with its NW extremity located 1.3 miles NNW of the N extremity of Shuttle Island. A rock, 0.9m high, lies at the NW end of this reef and another rock, which dries 2.1m, lies at its SE end. Several other drying and below-water rocks lie in the vicinity of the reef.

The passages leading on either side of Shuttle Reef are clear of dangers.

Echo Harbor, lying on the W side of Darwin Sound, is entered between Amur Point, located 2 miles NW of Shuttle Island, and Echo Point, 0.3 mile NW. The harbor extends 0.8 mile S and is backed by hills which rise to rugged mountains towards the head.

A rock, with a depth of 4.6m, lies in the outer part of the entrance to the harbor, about 0.2 mile N of Amur Point. The channel narrows within the entrance to a width of only about 90m between abrupt rocky shores. Farther S, the channel opens out into a basin, about 0.2 mile wide. This basin has depths up to 24m, decreasing gradually towards the head where a steep to drying mud flat fronts a narrow grassy beach.

Good anchorage is available for small craft, in a depth of 14m, soft mud, good holding ground, near the head.

Gil Islet, 70m high and wooded, lies close off the W side of Darwin Sound, midway between Amur Point and Bent Tree Point, 1.5 miles NW. This islet is connected to the shore by a drying boulder reef. A drying shoal, with a small rock, lies about 0.3 mile SE of the islet.

15.22 Klunkwoi Bay is entered from the NW side of Darwin Sound between Bent Tree Point and Crescent Point, 1.5 miles N. McEchran Cove and Anna Inlet, which are separated by a peninsula about 0.6 mile wide, extend S from the head of this bay and are suitable only for small craft.

Klunkwoi Rocks, lying on the E side of the main approach to Klunkwoi Bay, consist of two drying rocks. They lie about 0.4 mile N of Bent Tree Point. The southernmost rock dries 0.9m and the northernmost rock dries 3m.

Morgan Rock, with a depth of less than 1.8m, lies SE of the S Klunkwoi Rocks, about 0.3 mile NE of Bent Tree Point. Another rock, which dries 1.5m, lies about 0.1 mile off the point.

The passage leading between these two rocks, although deep, should not be attempted without local knowledge.

Commodore Rock, with a depth of less than 1.8m, lies about 0.1 mile off the W shore of Klunkwoi Bay, about 0.8 mile SW of the northernmost of Klunkwoi Rocks.

Crescent Inlet, entered from the NW end of Darwin Sound, lies between Crescent Point and Triumph Point, 0.8 mile N. It is about 4 miles long and trends NW. The inlet then turns gradually W and then SW between steep wooded mountains with considerable stretches of beach.

The inlet, for about 2.5 miles within the entrance, is about 0.5 mile wide and is deep and free of dangers. It narrows to a width of 0.1 mile farther W, where a least depth of 14.3m is available in the fairway. The inlet opens out into a basin, 0.3 mile wide, SW of this narrow part where anchorage can be taken, in depths of 14 to 22m. The inlet turns abruptly SE about 1 mile from its head and diminishes in width with gradually decreasing depths. A mud flat, with a stream flowing through it, extends about 0.5 mile from the head. Small craft can anchor, in a depth of 7m, about 0.1 mile N of the mud flat.

Lyell Island—East Side

15.23 Agglomerate Island (52°38'N., 131°25'W.), 82m high and wooded, is the southernmost of a group of islands that is separated from the E coast of Lyell Island by Gogit Passage. Two scrub-covered islets lie within 0.2 mile of the S extremity of this island.

A bare rock, 6m high, lies about 0.4 mile ENE of the S extremity of the island with drying rocks located between. A detached shoal, with a depth of 11.9m, lies about 0.5 mile farther E.

Two detached shoal patches, with depths of 6.1m, lie close W and SW of Agglomerate Island. Another detached shoal patch, with a depth of 7.9m, lies in Gogit Passage and narrows the S end to a width of 0.3 mile.

The Kawas Islets, a group of five islets, extend, together with numerous rocks, between 0.2 mile and 0.9 mile N of Agglomerate Island. Tar Rock, 3m high and bare, lies about 0.6 mile N of the N end of this group. A rock, with a depth of less than 1.8m and marked by kelp, lies about 0.1 mile SW of Tar Rock. Two shoal patches, with depths of 7.9m and 9.7m, lie about 0.2 mile NE and 0.2 mile WSW, respectively, of the same rock.

The Tar Islands, a scattered group of islands and islets, lie between 0.8 mile and 2 miles N of the Kawas Islets. Numerous rocks are located between and around them. The northernmost and southernmost islands of the group are wooded and 40m and 66m high, respectively.

Gogit Passage, entered between Murchison Island and Agglomerate Island, leads for 4 miles to the N between the outer and inner islands off the E coast of Lyell Island. Although the passage carries a least depth of 11m in the fairway, it is not recommended, except to small vessels with local knowledge because of the numerous dangers.

Gogit Point, the E extremity of Lyell Island, is located about 1 mile NW of the N end of the Tar Islands.

The coast of Lyell Island from 1 mile SW of Gogit Point to Fuller Point, 1.8 miles N, is indented and fringed with rocky ledges and rocks on which masses of kelp are present during summer. Many islets lie on the drying reefs and ledges in sev-

eral places. A small bay, which completely dries at LW, lies close N of Gogit Point.

Skaga Island, 34m high, has a few stunted trees and some scrub on its summit. It lies about 1.8 miles E of Gogit Point and is steep-to on all sides.

The Tuft Islets, three in number, are connected to one another by drying reefs. They lie parallel to the coast of Lyell Island with their N extremity located about 1 mile E of Fuller Point. The southernmost and tallest islet, is 40m high and has a few trees and some scrub on its summit; the other islets are bare. The passages lying on the W and SE sides of the group, are deep and free of dangers.

Laskeek Bay—Outer Island

15.24 Dodge Point (52°44'N., 131°29'W.), located 2.5 miles NW of Fuller Point, is the N extremity of Lyell Island.

A steep-to rock, with a depth of 6.7m and marked by kelp, and a shoal, with a depth of 11.6m, lie about 0.3 mile N and about 1.5 miles E, respectively, of Dodge Point.

A reef, in the middle of which lies a rock which dries 0.9m, is located between 0.5 mile and 0.8 mile NE of Dodge Point; another reef, which dries 5.5m, lies about 0.8 mile W of the point. A rock, which dries 5.5m, lies about 0.8 mile W of Dodge Point and 0.3 mile offshore.

Laskeek Bay is formed within Dodge Point and Vertical Point, 11 miles NNW. It is a wide indentation from which five inlets lead to the W. The southernmost, Atli Inlet, has two arms extending S; the two next to the N, Richardson Inlet and Logan Inlet, open out into the head of Darwin Sound and on either side of Tanu Island; and the two northernmost, Dana Inlet and Selwyn Inlet, are joined at their heads to W of Talunkwan Island by Dana Passage.

Kunga Island, 450m high and wooded, has its NE extremity located 3 miles NW of Dodge Point and is a good landmark for making the entrance of Laskeek Bay. Its shores are fringed with low rocky reefs, which, in places, extend up to nearly 0.1 mile offshore. Detached rocks lie close off these reefs.

A detached rock, with a depth of 7.6m, lies about 0.6 mile SSE of the NE extremity of the island; a small rock lies about 0.1 mile off the middle of the N shore of the island.

Kelo Rocks, the highest of which is 5.5m high, extend about 0.3 mile from the SE extremity of Kunga Island. A ridge of foul ground, on the outer end of which is a rock with a depth of less than 1.8m, extends about 0.3 mile off the S side of the island, about 0.5 mile W of its SE extremity.

Titul Island, 72m, high and wooded, with low limestone cliffs, lies with its S extremity located about 0.2 mile N of the NW extremity of Kunga Island. A rock, which dries 5.8m, lies close off the S end of Titul Island.

Nob Rock, about 0.9 mile NE of the NE extremity of Kunga Island, is 5m high, bare, steep-to, and has the appearance of a submarine on the surface from some directions.

15.25 The Lost Islands (52°48'N., 131°29'W.), lying about 3 miles NE of Kunga Island, consist of three islands, two of which are wooded, and several small islets and rocks; the largest island is 53m high. The only off-lying danger is a rock, which dries 0.3m, lying about 0.1 mile SE of the S extremity of the islands. Otherwise, deep depths lie on all sides up to a dis-

tance of 0.1 mile off its shores.

Reef Island lies about 3.5 miles N of the Lost Islands. It is 174m high, wooded, and cliffy in places on the S side.

A chain of islets and rocks, above and below-water, the outermost of which is 1.5m high, extends about 0.6 mile SE from the E end of the island. A group of islets and some rocks extend about 0.5 mile offshore, about midway between the S and E extremities of Reef Island; several shoal patches, with depths of 10.7 to 14m, lie within 0.7 mile SE and ESE of the above-mentioned group.

Two rocks, with depths of 10m and 3.7m, lie about 0.2 mile and 0.4 mile, respectively, SE of the S extremity of Reef Island.

The fairway lying N of Reef Island is deep and free of dangers. South Low Island, 38m high, lies about 1.5 miles NW of the W extremity of Reef Island. A rock, 3.7m high, lies close off the NW extremity of the island to which it is connected by a drying reef. Another rock, which dries 5.5m, lies close N of the NW part of the island.

Low Island, 69m high and wooded, with a rock which dries 5.8m close off its SE end, and another rock which dries 5.5m close off the middle of its E side, lies about 1.8 miles N of Reef Island. The W side of the island is steep-to.

An islet, from which a light is shown, lies about 0.1 mile NW of the NW extremity of Low Island; a drying ridge lies between the island and islet. The light is obscured by the high land and trees on some bearings.

Laskeek Bay

15.26 Atli Inlet (52°42'N., 131°35'W.), formed between the N side of Lyell Island and a peninsula which extends E from the NW end of the same island, is entered SE of Tsinga Point, the NE extremity of the above-mentioned peninsula. The inlet recedes about 3.5 miles W and terminates in Takelley Cove, which is deep and free of dangers. Depths within this inlet are great and its shores are generally steep-to.

An islet, 47m high and with a rock which dries 5.2m lying close SE, is located close off Ustas Point, the SE extremity of the aforementioned peninsula.

Two arms lead S from the S side of Atli Inlet; Powrivco Bay, the E arm, recedes about 1.3 miles S with a rock, with a depth of 6.7m and marked by kelp, lying about 0.3 mile off the E shore at its entrance. Foul ground extends up to about 0.2 mile off its shore near the head. Beljay Bay, the W arm, which is entered W of Powrivco Point, the W entrance point of Powrivco Bay, recedes about 1.3 miles SW and is deep and free of dangers.

Anchorage is available to vessels of moderate size, in a depth of 46m, about 0.3 mile from the head of Beljay Bay. Anchorage is also available for vessels of moderate size, in a depth of 42m, mud, about 0.2 mile from the head of Takelley Cove.

Anchorage in Powrivco Bay is not recommended as there is insufficient swinging space in the location where depths are suitable.

Richardson Inlet, entered between Tsinga Point and Kelo Rocks, is about 2.8 miles wide and leads about 5 miles W. It lies between Kunga Island and Tanu Island, on the N side, and the N side of the peninsula extending E from the NW end of Lyell Island, on the S. The shores of the inlet are generally steep-to and depths in the fairway are great.

Kul Rocks lie about 1 mile within the E entrance of the inlet and between 0.4 mile and 0.5 mile off the S shore. They consist of two large rocks, 19m and 10m high, and some drying rocks; the highest rock has a few stunted trees and some scrub on its summit.

The Stansung Islets, lying close SW of Kul Rocks, extend about 0.3 mile N from the S shore of the inlet. The northernmost of these islets is 38m high with a shoal, with a depth of 10m, extending about 0.1 mile N from it. Dog Island, 105m high and wooded, the N extremity of which is almost in the middle of the inlet, lies about 0.4 mile WNW of the northernmost of the Stansung Islets. The fairway lies to the N of these dangers.

A rock, 0.3m high, lies about 0.1 mile off the N shore of the inlet, about 1.3 miles W of Klue Point, the SE point of Tanu Island.

Klue Passage, lying between the E side of Tanu Island and the W side of Kunga Island, is about 0.5 mile wide between the dangers at the N end of the fairway. Tanu Rock, which dries 0.9m and from which foul ground marked by kelp extends about 0.2 mile N and S, lies on the NW side of the passage, about 1 mile N of Klue Point. A rocky ledge, with rocks located close off it, lies about 0.3 mile SW of Tanu Rock and extends up to about 0.1 mile off the shore of Tanu Island. A clearing, which marks the former site of the Indian village of Tanu, is situated close W of this ledge; some totem poles mark the site.

A shoal, with a depth of 11m, lies on the E side of the S entrance of Klue Passage, about 0.5 mile E of Klue Point. Farther N, on the E side of the passage and abreast Tanu Rock, a ridge of foul ground projects about 0.2 mile from the shore of Kunga Island.

15.27 Richardson Passage, lying between the SE side of Richardson Island and the NW side of Lyell Island, leads SW from the W end of Richardson Inlet into the N end of Darwin Sound and connects with the latter abreast Echo Harbor. The SW end of the passage narrows to a width about 0.2 mile between and the navigable width is further reduced to less than 0.1 mile by an islet and a rock, which dries 5.5m, lying NW of Lyell Point, the NW extremity of Lyell Island. The passage should be used only by small craft with local knowledge.

Tanu Passage, which leads between Richardson Island and Tanu Island, connects Richardson Inlet with Logan Inlet. It is deep and free of dangers in the fairway. The E shore of the passage lying between Tanu Point, the SW extremity of Tanu Island, and Stalkungi Cove, 1.8 miles NW, is fronted with boulders and stones.

Stalkungi Cove, which has depths of 7.3 to 31m, is free of dangers, but care is necessary in order to avoid a rock, which dries 5.2m, lying close S of the W entrance point.

Logan Inlet is formed between the N sides of Tanu Island and Richardson Island, to the S, and the Tangil Peninsula, to the N. It leads 6 miles W and SW from the entrance and connects with Darwin Sound at a position between Triumph Point and Kwun Point, the NW extremity of Richardson Island.

Both Tanu Island and Richardson Island are bold and fringed by some good gravel beaches, though most are rocky. Tanu Island is 637m high and Richardson Island is 524m high.

Flower Pot Island, 78m high, lies near the S side of the en-

trance of Logan Inlet, with its N extremity located nearly 1.3 miles S of Porter Head. A rock, which dries 0.9m and a rock, with a depth of less than 1.8m, lie within 0.2 mile E of the island.

Logan Inlet is entered between the E end of the Tangil Peninsula and the above-mentioned island. An islet, 28m high, from which a drying ledge extends about 0.1 mile NW, lies about 0.2 mile off the S shore of Logan Inlet, about 1.5 miles WSW of Flower Pot Island; otherwise, the inlet is free of dangers, with great depths, and is the recommended approach into the N part of Darwin Sound.

Vessels entering Logan Inlet should keep in mid-channel and pass N of Flower Pot Island.

Caution.—Tidal currents of considerable strength are encountered in the narrow part of Richardson Passage.

15.28 Dana Inlet, which lies N of Logan Inlet, is separated by the Tangil Peninsula, on the S side, and Talunkwan Island, on the N. The inlet is 7 miles long and its shores are high and bold. The fairway is deep with gradual shoaling towards the entrance of Dana Passage at its W end.

Helmet Island (52°49'N., 131°40'W.), 111m high, lies nearly in the middle of the entrance of Dana Inlet. An islet, 56m high, lies close SE of it.

Care should be taken to avoid mistaking this island for Flower Pot Island. A narrow passage lying between Helmet Island and the islet located close SE is not visible from most approaches.

Dwight Rock, with a depth of 5.2m, and another rock, with a depth of 6.4m, lie on the N side of the entrance to the fairway, about 0.4 mile NW of Helmet Island. A large patch of kelp covers both rocks.

Vessels entering Dana Inlet should pass not more than 0.2 mile NW of Helmet Island and then keep in mid-channel throughout.

Dana Passage, lying between Moresby Island and the W side of Talunkwan Island, leads from Dana Inlet into the SW part of Selwyn Inlet. The fairway has a least width of about 90m; a least depth of 9.1m lies about 0.4 mile within the S entrance.

Beatrice Shoal, with a depth of 4m, lies nearly in mid-channel at the N end of Dana Passage. Shallow water extends S from this shoal to the shore.

There are no dangers in the fairway, except for the above-mentioned shoal, and the passage can be navigated by small vessels on a mid-channel course, until the S shore of Pacofi Bay begins to open up. At this time the E shore should be favored so as to pass safely E of Beatrice Shoal. The passage is more easily navigated at or near HW.

Caution.—A restricted area, known as Gwaii Haanas National Park Reserve (National Marine Conservation Area and Haida Heritage Site), has been established within 6 to 7 miles from shore around most of Moresby Island beginning offshore from Dana Inlet and extending S to offshore from Cape St. James, then offshore from the W coast until Tasu Sound. The exact boundaries can best be seen on the chart.

15.29 Selwyn Inlet (52°51'N., 131°41'W.) is entered between Heming Head, the E extremity of Talunkwan Island, and Haswell Island, about 1.8 mile NW. It is the largest and most easily entered inlet of the Laskeek Bay group. This inlet extends about 6.5 miles W and then 5 miles NW before being

blocked to deep-water navigation by Louise Narrows. When entering, care is necessary in order to avoid confusing the bold aspects of Heming Head with the similar features of Porter Head, 1.8 miles S.

Haswell Island, 59m high and wooded, lies 0.2 mile SE of a small promontory, which extends from the S shore of Louise Island and which forms the W side of Breaker Bay. A light is shown from a small tower standing on the S shore of the island.

Kingsway Rock, 10m high and bare, lies about 0.4 mile E of Haswell Island. A rock, with a depth of less than 1.8m and marked by kelp, and another rock, with a depth of 6.1m, lie about 0.1 mile ESE and 0.2 mile S, respectively, of Kingsway Rock.

Thurston Harbor, a small inlet about 1.5 miles long, is entered from the S side of Selwyn Inlet, about 2.5 miles W of Heming Head. The N side of the harbor is formed by a peninsula, 437m high, which projects E from the N extremity of Talunkwan Island. Thompson Point is the SE extremity of this peninsula. The entrance is deep; the depths shoal gradually toward the head, from which a drying flat extends about 0.3 mile.

Good anchorage may be taken, in a depth of 29m, mud, about 0.3 mile SE of Thompson Point, or in a depth of 24m about 0.2 mile SW of the same point; the latter anchorage is more suited for small vessels. Small craft can anchor, in a depth of 18m, about 0.5 mile W of Thompson Point. The holding ground in these anchorages is good, but strong gusts of wind or williwaws are prevalent during stormy weather.

Rockfish Harbor is a narrow bay lying on the N of Selwyn Inlet, about 4.5 miles within the entrance. It is formed by a projection of comparatively low land which terminates at Alfred Point, the E extremity. Foul ground fronts the E and S sides of the latter point and the shores of the harbor are fringed with sand and stony beaches. A drying rock lies almost in mid-channel, about 1.2 miles W of Alfred Point.

Anchorage can be taken by small vessels, in depths of 16 to 20m, about 0.8 mile within the entrance. There are five mooring buoys in the harbor.

15.30 Pacofi Bay, lying at the SW limit of Selwyn Inlet, is a square-shaped bay surrounded by high land. It is entered SE of Alford Point, about 6.5 miles within Haswell Island. McConachie Shoal, lying nearly in the middle of the entrance to the bay, has a least depth of 5.2m and can be passed on either side. The passage lying to the N provides the safest approach. Numerous rocks and reefs border the S shore of the bay, but good anchorage off the N shore can be taken by small vessels with local knowledge, in depths of 16 to 22m, mud.

The NW branch of Selwyn Inlet is about 5 miles long and is entered between Kilmington Point and Selwyn Point. It is deep in the fairway and for the most part steep-to. This branch, together with Carmichael Passage, leads into the SW side of Cumshewa Inlet. However, the channel lying in Carmichael Passage at Louise Narrows is blocked to ocean-going vessels as it is narrow and limited in depth.

Selwyn Rocks, which dry up to 2.1m, lie parallel to the E shore of the NW branch and are the main danger in this part of the inlet. Care is necessary when passing these rocks as the ebb currents sets down on them from the lagoons to the N and W.

Sewell Inlet is entered S of Sewell Point, about 3.5 miles within the NW branch of Selwyn Inlet. It recedes about 4 miles

WSW and has an average width of 0.5 mile. The fairway as it approaches the head of the inlet is reduced to a width of 0.2 mile by a drying shingle spit projecting from a wooded point on the N shore. The inlet is generally deep and gradually shoals toward its head, but a shoal patch, with a depth of 6.4m, lies nearly in mid-channel, about 2.5 miles from the entrance and must be avoided. The shores are fringed with beaches of stones and boulders.

Sewell Inlet affords anchorage, in depths of 25 to 27m, mud, near the middle of the fairway, about 0.5 mile E of the wooded point located on the N side of the inlet and about 0.5 mile from its head.

Lagoon Inlet, entered about 1 mile N of Sewell Point, extends 2.5 miles WNW. Its shores are fringed with stone and boulder beaches. The inlet contracts from a width of 0.5 mile to a very narrow and obstructed passage about 1.5 miles within the entrance. This passage leads to a small lagoon that can only be entered by small craft at HW.

Lagoon Inlet affords anchorage, in a depth of 46m, mud, about 0.5 mile within its entrance or, in a depth of 29m, mud, within its W part and about 0.3 mile E of the ruins of an abandoned cannery.

Carmichael Passage, connecting Selwyn Inlet and Cumshewa Inlet, leads NNW between Moresby Island and Louise Island. It has steep mountainous shores rising on both sides. The S end of the passage is restricted to small craft by Louise Narrows, which has a boat passage with a depth of 0.6m cut through its drying mud flats.

15.31 Vertical Point (52°54'N., 131°37'W.), the SE extremity of Louise Island, is a conspicuous limestone point rising nearly vertically from the sea. It is surrounded by rocks and foul ground, and bordered on the N side by the Limestone Islands, two in number. These islands are separated from the point by a foul channel in which a tide race occurs during the S ebb current.

The channel lying between the southernmost of the Limestone Islands and South Low Island is encumbered with rocks and shoals. A passage, about 0.4 mile wide, is available to small vessels and passes close SE of South Low Island.

Skedans Bay, the S entrance point of which lies about 1 mile N of the Limestone Islands, has an island located on its S side and several shoals and drying patches in its approaches. Skedans Creek, a large creek with a conspicuous waterfall, flows into the head of the bay. The shores are bordered by extensive drying ledges with numerous rocks upon them. Skedans Point, the N entrance point of Skedans Bay, is bordered by reef and has an islet, 39m high, lying 0.3 mile SSE of it. A rock, 6.4m high, lies 0.4 mile SSW of the same point.

The **Skedans Islands** (52°54'N., 131°37'W.) is a group of widely separated islands with foul ground extending between them. The northernmost and tallest island of the group is 61m high. There is a navigable channel leading between the westernmost island of the group and the island, 14m high, lying off Skedans Point. Local knowledge is required due to the dangers lying in the approach and the tide races which are formed within it.

Cumshewa Inlet

15.32 Cumshewa Head (53°02'N., 131°36'W.), located about 4 miles N of Skedans Point, forms the N entrance point of Cumshewa Inlet. Cumshewa Island, 4m high and conspicuous, lies about 0.2 mile SE of the head and forms a good landmark in the approach from the N and E.

Cumshewa Rocks, the main danger lying in the approach to Cumshewa Inlet, consist of several widely scattered drying rocks extending between 1 mile and 2 miles S of Cumshewa Head. The southernmost rock, which dries 6.7m, is usually uncovered to some extent, but the others cover and uncover regularly.

Several rocky patches, with a least depth of 7.9m, extend SW from Cumshewa Rocks to the S shore.

Kingui Island, located on the SW side of Cumshewa Head and joined to it by foul ground, lies on the N side of the channel leading into Cumshewa Inlet. It forms the southernmost danger at this side of the entrance. A light is shown from the W end of the island.

The channel leading into Cumshewa Inlet is narrow and tortuous, and large vessels are advised to use it at slack water only. The main approach, which can be made in daylight only, leads between Cumshewa Island and Cumshewa Rocks, to the S of Kingui Island, and then W between McLean Shoal and Haans Islet. The latter reach of the channel, which is only 0.2 mile wide between the dangers, is indicated by the light shown S of McCoy Cove.

Vessels with local knowledge and light draft can enter from the S with Haans Islands Light ahead, bearing 305°. This course leads over the outer shoal patches and into the main channel.

Large vessels should enter Cumshewa Inlet only at slack water due to the narrow and tortuous nature of the channel. Great care is needed in passing between Haans Island and McLean Shoal to the S.

Fairbairn Shoals, a large area of foul ground, extends almost nearly across the entrance of Cumshewa Inlet and terminates in a dangerous shoal, with a depth of 3.3m, known as McLean Shoal. Vessels rounding the latter shoal must exercise extreme care so as not to be set down on this danger, or be carried on to the drying rocks lying S of Haans Island.

Thick kelp extends over Fairbairn Shoals, McLean Shoal, and Davies Shoal during summer and autumn.

15.33 Renner Point (53°02'N., 131°53'W.) is located on the S side of Cumshewa Inlet, about 10 miles within the entrance. It is high, bold, and forms the W extremity of a wide, steep headland which extends to Kitson Point, 3.5 miles E.

A logging camp is situated in a small bay lying 1.3 miles SW of Renner Point. A drying ledge extends 0.2 mile E from the W side of the bay; an islet, 11m high, and a smaller islet lie at the edge of this ledge. A rock, which dries 5.2m, lies 0.1 mile NW of the islets.

Duval Rock, with a depth of less than 1.8m, lies on the N side of the channel nearly 1 mile N of Renner Point. Vessels proceeding to Gillatt Arm should take care not to allow themselves to be set on to this rock by the flood current.

Gillatt Arm, entered at the W end of Cumshewa Inlet between Barge Point and the N shore, is divided by Oliver Islet at its entrance. This islet is wooded and should be passed on its N side. Within the arm, several drying rocks and gravel spits project from the shores, the most dangerous being the spit which extends 0.2 mile N from the S shore, about 0.5 mile WNW of Barge Point. The Davey Islets, steep-to on their S side, lie on the S extremity of a gravel spit which dries and extends about 0.3 mile from the N shore; vessels should favor these islets when rounding the spit lying WNW of Barge Point.

Aero and Moresby Camp, formerly sites of large logging operations, have now been closed down. All facilities have been removed.

Although reported (1988) to be unoccupied, Moresby Camp, at the head of Gillatt Arm, is a supply base for logging camps situated S of Louise Narrows. An uncharted rock, with a depth of 5.5m, lies about 0.1 mile offshore in the approach to Moresby Camp.

Anchorage.—Anchorage in Cumshewa Inlet can be taken, in a depth of 27m, mud, by vessels with local knowledge. Vessels can also lie in all weather at Beattie Anchorage, about 1.3 miles SW of Renner Point.

Temporary anchorage, during good weather, can be taken, in depths of 18 to 25m, off the entrance to Dawson Cove.

Gillatt Arm affords anchorage, in a depth of 26.8m, mud, near mid-channel, about 0.5 mile from its head. A private mooring buoy is situated near the head of this arm.

15.34 Gray Point (53°07'N., 131°39'W.), located about 5 miles NNW of Cumshewa Head, is low and surrounded by a boulder beach with an islet lying on its seaward end. Foul ground, marked by kelp, extends up to 1 mile from the point and the depths in this area are quite irregular.

Gray Bay, lying close W of Gray Point, is bordered by a sandy beach which extends up to 0.4 mile from the shore. Farther NW, Dogfish, Sheldons, and Copper Bays indent the coast, but numerous dangers lie in their approaches and local knowledge is required. A pillar rock, 19m high, is located on the NW shore of Copper Bay and is prominent.

Spit Point, the NE extremity of Moresby Island and the S entrance point of Skidegate Inlet, is low, wooded, and composed of sandy deposits that extend up to 2.5 miles N and NW of the point.

An aeronautical lighted beacon is situated about 0.5 mile ESE of Spit Point, at the airport. This light is shown during periods of low visibility on request to Prince Rupert Coast Guard Radio. Numerous prominent towers are also situated at Sandspit Airport.

A radiobeacon is situated about 3.8 miles SSE of Spit Point.

Caution.—Navigation within depths of 11m lying to the N of Cumshewa Head requires extreme care due to the possibility of uncharted shoals existing in this area.

Skidegate Inlet

15.35 Lawn Point (53°26'N., 131°55'W.) is located on the E side of Graham Island, about 12 miles NNW of Spit Point. It lies near the N entrance of the Skidegate Inlet Approach Channel. Lawn Point is generally green in appearance with a sandy cliff standing at its extremity. A large boulder, with a white conspicu-

ous patch on it, lies close off the shore and about 0.5 mile S.

Double Mountain, rising to a height of 436m about 11 miles SSW of Lawn Point, consists of two wooded peaks which form a good landmark from the NW.

Mount Poole is a flat-topped hill, 491m high. It stands on the N end of Moresby Island, about 5 miles SW of Spit Point.

Slatechuck Mountain, with several peaks, rises to a height of 1,009m about 16 miles SW of Lawn Point. This mountain forms an excellent landmark in clear weather.

Dead Tree Point, the N entrance point of Skidegate Inlet, is located 4.5 miles S of Lawn Point. The land within this point is low and swampy.

Dead Tree Point Radiobeacon is situated 0.7 mile SW of Dead Tree Point.

The channel leading into Skidegate Inlet is entered over a bar, with a least depth of 5.8m, located about 1.5 miles ESE of Lawn Point. Two lighted beacons stand about 0.4 mile S of Lawn Point and from a range that leads over the bar to the N of the shallow spit extending from Spit Point. The shallow spit extending from Spit Point. The front lighted beacon is fitted with a racon.

The depth over the bar and the range line are subject to change. The channel lying S of Lawn Point is deep and marked by lighted buoys.

Bar Rocks, two in number, are located about 3 miles ENE of Dead Tree Point and do not always break. They can be dangerous to small vessels attempting to cut the channel at HW and care is advised.

Foul ground extends about 0.8 mile E of Dead Tree Point and lies on the W side of the channel.

15.36 Sandspit (53°15'N., 131°49'W.), situated on the E side of Shingle Bay and along the W shore of Spit Point, is a small town with an airport. There is a T-head wharf, 49m long, with a depth of 5.5m alongside. It is suitable for small vessels. Larger vessels can anchor, in a depth of 44m, about 0.3 mile W of the head of the wharf.

Vessels approaching Shingle Bay from the N should head for Gillatt Island, near the S shore, and then steer for the anchorages with the aid of a conspicuous aluminum water tower situated close SW of Sandspit.

Anchorage can be taken in the S part of the bay, in a depth of 33m, mud, where there is good protection from S winds.

Torrens Island (53°15'N., 131°59'W.), wooded and conspicuous from the NE, lies on the W side of Skidegate Inlet, close off the SE end of Graham Island. A shoal, with a depth of 2.4m, lies close S of the W extremity of this island. A rock, which dries to 0.9m, lies close E of the same island. Jewell Island, lying 0.5 mile farther SSW, is also wooded, but it is lower and located closer to the shore.

Image Point, the SE extremity of Graham Island, is moderately high, wooded, and forms the E side of Skidegate Harbor.

Caution.—A submarine telephone cable lies between Image Point and Kwuna Point, about 1.8 miles SSE.

15.37 Skidegate Harbor (53°15'N., 132°01'W.) is entered between Image Point and Haida Point, 0.4 mile W. It is a small harbor serving the town of Skidegate and the mission, located 1.5 miles NE.

A rock, with a depth of less than 1.8m, lies 0.1 mile S of

Haida Point. There is a small T-head pier situated at the head of the harbor. It has a depth of 10.5m alongside, but space is limited to all but small vessels. A conspicuous microwave tower stands on Haida Point.

Vessels approaching from the entrance of Skidegate Inlet should steer in a SW direction for the summit of Transit Island. They should then alter course to round Jewell Island and pass 0.5 mile off Haida Point.

Bearskin Bay is entered between Haida Point and Maude Island, 1.5 miles SW. It is the N part of the first section of Skidegate Inlet. The entrance and E part of this bay are open and generally free of dangers, but the W part is shoal and encumbered with rocks. Several wooded islands, surrounded by drying reefs, lie off the N shore. The easternmost of these is Maple Island, which is small and 14m high.

15.38 Queen Charlotte (53°15'N., 132°05'W.) (World Port Index No. 19050), situated on the N shore of Bearskin Inlet, is the principal port in Skidegate Inlet. The harbor consists of a small craft basin formed by two piers. The E pier, Government Wharf, extends from Beattie Point. It has berthing head, 59.4m long, with depths of 4.9 to 7m alongside. A float, 12m in length, used by small craft, is attached to the N side of the head of the wharf. A floating breakwater, extending about 183m from the center of the W end of the government wharf, is marked at the W extremity with a light equipped with a radar reflector. and forms the S and E sides of the basin.



Queen Charlotte Harbor

When proceeding into the anchorage at Queen Charlotte from a position 0.5 mile S of Haida Point, vessels should steer for Smith Point and then round Maple Island.

The tides rise up to 7m at the port and vessels proceeding to the anchorage at HW should take care not to anchor in depths that will be shoal at LW.

Vessels of moderate draft can obtain anchorage, in depths of 7 to 9m, mud, about 0.2 mile S of Government Wharf. Larger vessels can obtain anchorage in the middle of Bearskin Bay, in depths of 18 to 29m, mud, about 0.5 mile SSW of Maple Island.

Caution.—Care should be observed by vessels approaching and leaving Government Wharf in order to avoid a drying rock lying about 0.1 mile E of the wharf.

15.39 Alliford Bay (53°12'N., 131°59'W.) (World Port Index No. 19055) lies on the S side of Skidegate Inlet, about 2 miles SSE of Haida Point. The entrance lies between Flowery Islet and Bush Island and has a least depth of 13.4m. The port facilities, which are situated 1 mile SSE of Kwuna Point, consist of an L-head pier. This pier has a berth, 91m long, with depths of 6.4 to 7.6m alongside. A wharf used by small craft and a small pier are situated close S of the berth.

Oliver Point is located at the head of the bay. Logging operations take place along the coast in this area and up to 0.5 mile SSE of Kwuna Point.

When proceeding to Alliford Bay from a position 0.5 mile S of Haida Point, vessels should steer to round Flowery Islet at 0.2 mile and then pass midway between Bush Island and the dangers lying to E. They should then round the island at 0.3 mile and steer for the anchorage.

Sheltered anchorage can be taken almost anywhere within Alliford Bay. The best position for large vessels lies in the middle of the bay about 0.4 mile NW of Oliver Point, in a depth of 15m, mud. It was reported (1987) that this anchorage was fouled by old logging cables.

Maude Island, which separates the N part of Skidegate Inlet from its S part, is 418m high and wooded. It lies with Belle Point, the N extremity, located about 1.8 miles SW of Haida Point.

Robber Island, 8m high and from which foul ground extends about 0.2 mile NE, lies at the E extremity of Maude Island; a rock, which dries 1.2m, lies at the outer end of the above-mentioned foul ground.

Lina Island, 230m high and wooded, lies at the head of Bearskin Bay and is separated from the N shore by a passage which dries.

Maude Channel lies between Maude Island, to the S, and Lina Island, to the N. It is about 1 mile wide and leads from Bearskin Bay to Kagan Bay and then into Long Inlet.

The Balch Islands, three in number, are 26 to 31m high and wooded. They lie at the E end of the channel. These islands, together with some rocks above and below-water, extend about 0.8 mile SE from the E extremity of Lina Island. A narrow but deep passage leads between them and the shore of Maude Island.

Several dangers lie up to 0.4 mile off the shore of Lina Island and it should not be approached within the same distance.

Fleury Island, 38m high, lies about 1 mile W of the southernmost Balch Island and close off the shore of Lina Island to which it is connected by a drying flat.

Two rocks, which dry 0.9 to 2.1m, lie about 0.2 mile S and 0.5 mile ESE, respectively, of Fleury Island. A shoal, with a least depth of 8.8m, lies about 0.5 mile WSW of the same island.

Withered Point, the S extremity of Lina Island, is the termination of a small promontory, 85m high. It is connected to the island by a narrow neck of land. A rock, which dries 0.6m, lies about 0.3 mile SE of Withered Point and shoals lie between it and the point. Good anchorage can be obtained, in a depth of 22m, about 0.6 mile SE of the point.

Caution.—Several submarine cables and submarine pipelines lie within Bearskin Bay.

15.40 Kagan Bay is entered at the W end of Maude Channel.

The bay and the entrance are both encumbered by islands, rocks, and shoals. Access to the bay is confined to narrow passages suitable for only small vessels with local knowledge.

A passage, which is narrow and shoal at its N end, lies on the W sides of Maude Island and Sandilands Island. The passage is entered from the N at the SW end of Maude Channel and provides a convenient route to and from Skidegate Channel for small vessels with local knowledge. A rock, which dries 2.7m, lies on the NE side of the passage and is marked on its W side by a buoy.

Tree Islet, 11m high, lies at the SW end of Maude Channel, about 0.3 mile NW of the NW extremity of Maude Island; a rock, which dries 3m, lies midway between the islet and island. A rocky ledge, with a depth of 7.3m at its extremity, extends about 0.3 mile NW from Tree Islet; a rock, with a depth of 3.7m, lies on the middle of the extension of this rocky ledge.

Angle Island, 21m high, lies about 0.5 mile NW of Tree Islet and a shoal, with a depth of 3.3m, lies close S of it.

A channel, about 180m wide and with a depth of 31m, lies between the 3.3m shoal and the extremity of the rocky ledge extending from Tree Islet.

Claudet Island, 91m high, and Burnt Island, 76m high, together with several small islets form a chain that extends about 1.3 miles NW from Angle Island; the NW end of this chain lies about 0.7 mile SW of Dyer Point, the W extremity of Lina Island.

The passage lying between Angle Island and Claudet Island is blocked by a drying spit which extends ESE from the latter island. No passage exists between Claudet Island and Burnt Island.

Meyer Island, 0.3m high, lies about 0.9 mile WNW of Dyer Point. Noble Rock, which dries 5.8m, lies nearly midway between Myer Island and Burnt Island.

An extensive shoal, with depths of 7 to 11m, extends about 0.4 mile N and E from the N end of Angle Island; this shoal leaves a narrow passage between it and the shoals extending S from Withered Point.

Numerous islets and rocks, above and below-water, lie within an area enclosed by a line extending from the N end of the promontory on which is located Withered Point, to the N end of Burnt Island and then to Meyer Island; the area has not been completely surveyed.

Legace Island, 116m high, lies about 1 mile W of Burnt Island. A rock, with a depth of 2.4m, lies nearly 0.2 mile E of the NE extremity of the island. Danube Rock, which dries 1.5m, lies about 0.3 mile N of the same point.

Treble Island, 49m high, lies near the W shore of Kagan Bay, about 0.5 mile WNW of Legace Island. Several islets lie between it and the NW shore of the bay. Slatechuck Creek flows into the bay in the vicinity of these islets.

Christie Bay, with islands and rocks fronting its E and W entrance points, lies about 0.5 mile S of Treble Island. Canoe Point is the N extremity of the easternmost of these islands. The bay has not been completely surveyed.

Anchor Cove is a small indentation on the SW shore of Kagan Bay, about 1 mile S of Slatechuck Creek. Hallet Island, lying off the W shore of Kagan Bay, is located midway between the cove and the creek. Long Inlet is entered between Anthracite Point, on the S side of Anchor Cove, and Scalus Island, about 0.5 mile E. It has not been completely surveyed. The in-

let trends S from the SW end of Kagan Bay and then W and NW to its termination, 4.8 miles from Anthracite Point.

Mount Seymour, 643m high, stands 1.8 miles NW of Anthracite Point.

Anchorage.—Small vessels can obtain anchorage, in depths of 11 to 16m, about 0.2 mile N of Treble Island or, in a depth of 9m, within Anchor Cove and about 0.2 mile E of the head.

Good anchorage is also available, in a depth of 15m, about 0.6 mile SW of Burnt Island.

Skidegate Channel—Northeast Approaches

15.41 Flowery Islet ($53^{\circ}13'N.$, $132^{\circ}00'W.$), 3.4m high, lies near the middle of the entrance to the S part of the inlet, about 0.6 mile NW of Kwuna Point. Rocks, which dry 1.8 to 4.6m, lie close off the NW and E sides of this islet. A light is shown from the summit of the islet.

A detached rock, with a least depth of 9.1m, and a shoal patch, with a depth of 13.4m, lie about 0.4 mile NNW and 0.2 mile SSW, respectively, of Flowery Islet.

The passage lying between this islet and the extremity of the rocks extending from Kwuna Point is about 0.1 mile wide.

Bush Island, 2m high, lies at the N end of a narrow shoal, about 0.5 mile WSW of Kwuna Point. Bare Rocks, which dry 1.2 to 7.3m, extend about 0.3 mile S from Bush Island. These dangers can be passed on either side when entering Alliford Bay, but the passage on the N side is the most frequently used.

Transit Island, 99m high and wooded, forms the W side of Alliford Bay; this island when seen from the NE has a dome-shaped appearance. It is joined to the shore at the S end by a drying flat on which lie several islets.

A shoal, with a least depth of 2.7m, lies about 0.1 mile off the N end of Transit Island; shallow depths lie between the shoal and the island.

Lillihorn Island lies about 0.3 mile offshore, about 0.7 mile SW of the SW end of Transit Island. It is 38m high, wooded, and steep-to. A rock, which dries 2.8m, lies close NE of the island.

A small bay, which lies SE of Lillihorn Island, is encumbered by rocks, the outermost of which dries 2.1m.

15.42 Sandilands Island, 186m high in its SW part, lies close S of Maude Island. The N extremity of the island and the SW extremity of Maude Island are connected at LW. Two islets, about 0.6 mile apart, lie close off the NW side of the island. Between these islets, rocks extend up to about 0.3 mile offshore; the outermost rock dries 3.6m.

A small promontory, 78m high, extends from the SE extremity of Sandilands Island.

Shallow water extends nearly 0.2 mile offshore on the W side of Sandilands Island and a rock, with a depth of less than 1.8m, lies close off its SW extremity.

A rock, which dries 5.8m, lies about 0.2 mile off the S shore of Sandilands Island, about 0.6 mile ESE of its SW extremity; deep water lies N and S of this rock. A beacon stands on the above-mentioned drying rock. A mooring buoy is situated about 0.5 mile ESE of the E extremity of Sandilands Island.

Two shoals, with depths of 8.2m and 11.9m, lie in mid-channel about 0.4 mile S and 0.4 mile SSE, respectively, of the SW extremity of Sandilands Island.

Anchorage, sheltered and clear of the tidal currents, can be obtained, in a depth of 31m, on the NE side of Sandilands Island, with the SE extremity of the island bearing 180° and the N extremity bearing 270°.

South Bay, into which the Deena River flows, lies on the N side of Moresby Island, about 0.8 mile S of the S side of Sandilands Island. Drying flats extend about 0.4 mile off the mouth of the Deena River and an islet, 24m high, lies near the NW side of the drying flats. A similar flat extends about the same distance off the SE shore of South Bay. Anchorage can be taken in the middle of South Bay, in depths of 31 to 33m, about 0.4 mile offshore.

A light is shown from an islet lying about 0.8 mile ESE of the SE extremity of Sandilands Island. A booming ground is situated in South Bay, inshore from the light.

The approach to Skidegate Channel, S of Maude Island and Sandilands Island, is deep and free of dangers as far as South Bay. The channel leading to the W of the above islands is described in paragraph 16.20.

Lawn Point, previously described in paragraph 15.35, marks the S limit of the more or less lower land that extends N from Skidegate Inlet. The coast along this part of Graham Island forms a long easy bight and lacks the indentations and inlets so common to the rest of the Queen Charlotte Islands.

Dogfish Banks, extensive and extending a considerable distance offshore, lie between Lawn Point and Rose Point, 45 miles NNE. General depths of 5.5 to 9.1m lie between 4 miles and 18 miles offshore and a shoal, with a depth of 3.7m, the position of which is doubtful lies about 5.5 miles ESE of Cape Ball.

The tidal currents attain a rate of 0.8 to 2 knots over Dogfish Banks. The flood current sets S and the ebb current sets N.

The Tlell River enters the sea about 11 miles N of Lawn Point. The river, from its mouth, runs nearly parallel to the coast for 3 miles and is then separated from the sea by a low swampy strip of land, about 0.5 mile wide. This land is of comparatively-modern formation, being composed of sand and gravel, and partly covered with spruce trees.

Tlell is a small settlement situated about 2 miles S of the mouth of the Tlell River.

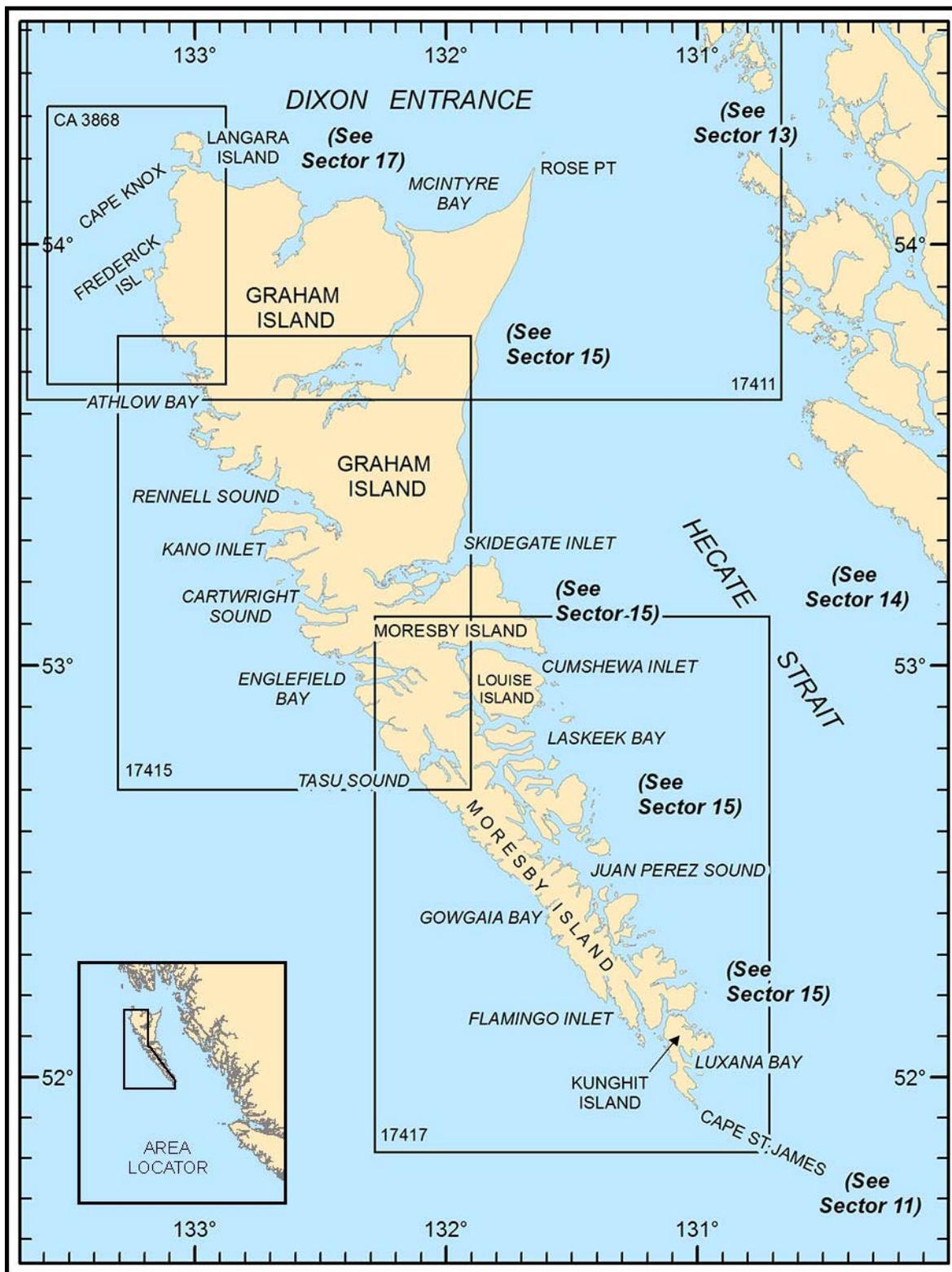
15.43 Cape Ball (53°43'N., 131°52'W.) is located about 6 miles NNE of the mouth of the Tlell River. Some conspicuous sand cliffs, 128m high, stand about 1 mile farther N. The tidal currents in the vicinity of the cape are irregular.

Drying gravel patches extend up to 2 miles E and SE from Cape Ball. Some large boulders, which dry 0.3 to 0.9m, lie on these patches.

Argonaut Hill, rising 21 miles NNE of Cape Ball, is flat-topped, 163m high, and densely wooded to its summit. A group of hills, 140 to 162m high, stand between 1.5 miles and 4 miles SW of Argonaut Hill. All these hills are conspicuous and are the first landmarks sighted when approaching this otherwise low and featureless portion of the coast from the E.

Fife Point, located 3.8 miles NNE of Argonaut Hill, can only be distinguished by Swan Hill, 70m high and thickly wooded, rising above it.

Rose Point (54°09'N., 131°40'W.), located 3 miles N of Fife Point, is described with its associated dangers in paragraph 17.18.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 16 — CHART INFORMATION

SECTOR 16

THE QUEEN CHARLOTTE ISLANDS—WEST COAST

Plan.—This sector describes the W coast of the Queen Charlotte Islands, between Cape St. James and Cape Knox. The descriptive sequence is NW.

General Remarks

16.1 The W coast of the Queen Charlotte Islands is rugged, bold, and indented by numerous inlets, some of which extend inland for a considerable distance. The larger inlets have been surveyed, but many of the others have not been examined or are only partially surveyed.

The coast located close inland is generally mountainous and rises to heights in excess of 510m. Farther inland, the numerous ranges and peaks rise to heights in excess of 910m. Some of these peaks are conspicuous and easily identified from seaward.

The entrances to many of the inlets are not readily distinguished at night, even in good weather with bright moonlight, because of the high land in the background and the heavily-breaking seas.

Numerous enclosed anchorages are available in some of the inlets, but during SE gales, violent squalls may be encountered. Although no heavy seas are raised within the inlets, the force of these squalls induces excessive yawing. Care should be taken at such times to guard against dragging. Rennell Sound provides the most accessible shelter for large vessels.

Depths off the W coasts of the islands are quite uniform and deep with no off-lying dangers. Seaward of the 200m curve, which lies between 1 mile and 5 miles off the salient points, the depths increase rapidly.

A depth of 24.3m lies over a sharp pinnacle on **Bowie Bank** (53°18'N., 135°40'W.), about 100 miles W of Graham Island.

During heavy weather, vessels are recommended to give Bowie Bank a wide berth as wave studies indicate that a shallow water effect can be experienced in this vicinity.

Hodgkins Seamount lies about 20 miles NW of Bowie Bank and Dickens Seamount lies about 65 miles farther NNW. These banks rise sharply from the ocean floor.

Winds—Weather.—The prevailing winds, from about 1 October to the latter part of December, are from the SE and E, and are usually strong gales accompanied by heavy rainfall. The change to offshore winds from the NW or N and NE occurs, in most years, from the latter part of December to February. The prevailing winds during February, March, and April are from the SE and E. Winds from the W generally occur during May; the more usual winds from S, SW, and W occur during June, July, August, and September. No fixed rules can be applied as strong SE or NW breezes may occur at any season. Winds from the NE during the summer are rare.

Williwaws are violent squalls with strong gusty winds that are encountered in the northernmost inlets of British Columbia and in particular off the W coast of the Queen Charlotte Islands. Williwaws, unlike the Squamish, are usually of short duration. They are encountered during the winter and are caused

by the drainage of cold air which sweeps down the mountain slopes with great force in these narrow inlets. When sailing close to the coast in stormy weather, williwaws may be encountered near the mouth of these inlets. Vessels at anchor should keep a watch. Williwaws come up suddenly and the successive strong gusts of wind from varying directions may cause vessels to yaw badly with the possibility of dragging.

Tides—Currents.—The current sets NW along the NW coast of the Queen Charlotte Islands at a rate of 0.5 knot during normal weather. The current increases to rates of 1 to 1.5 knots with strong SE gales.

Regulations.—Canadian modifications to 72 COLREGS are applied in waters under Canadian jurisdictions. See Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia for further information.

Vessel Traffic Service (VTS).—The Vessel Traffic Services Zones Regulations require all vessels greater than 500 gt to file a VTS Offshore Report 24 hours prior to entering a Canadian VTS Zone from seaward, or as soon as practical where the ETA of the ship to a Canadian VTS Zone is less than 24 hours after the time the ship departed its last port of call. Send VTS Offshore Reports to a Canadian Coast Guard MCTS Center, free of charge, or to one of the following:

1. Telephone: 250-627-3071
2. E-mail: vt.srupert@innav.gc.ca

The waters described in this sector lie within Sector 1 of the Prince Rupert Vessel Traffic Zone. For further information, see General Remarks in paragraph 11.1.

Anchorage.—There are several enclosed anchorages on the W coast of the Queen Charlotte Islands, but they are subject to violent yawing caused by severe squalls during strong SE gales. Vessels should be guarded from dragging.

Caution.—Ocean Data Acquisition System (ODAS) data collecting superbuoys are moored off the coast and may best be seen on the chart.

Kunghit Island

16.2 Cape St. James (51°56'N., 131°01'W.), together with the islands and dangers lying to the SE of it, has been described in paragraph 15.2.

Kunghit Island (52°05'N., 131°00'W.), if the weather is clear, will be the first land sighted when approaching the Queen Charlotte Islands from the S. This island rises to a height of 454m about 2 miles NW of its S extremity. The tallest peak, which is 546m high, stands on the NE part of the island.

The W side of the island between its S extremity and Arnold Point, 10.3 miles NNW, is indented by several small exposed inlets of no commercial importance. Depths along this section of coast are fairly deep within 0.5 mile of the shore. However, **Barbers Point** (52°00'N., 131°06'W.), located about midway between the S extremity of Kunghit Island and Arnold Point, should be passed at a distance of at least 1 mile.

The **Gordon Islands** (52°06'N., 131°09'W.) are a group of

several small, wooded islands, fringed by kelp. They are separated from Arnold Point by a narrow and deep channel. The southernmost and largest island is 57m high.

Ibbertson Banks (52°06'N., 131°10'W.), two in number, lie about 1.5 miles WSW of the Gordon Islands. A least depth of 16.5m lies on the northernmost bank.

Flatrock Island (52°07'N., 131°10'W.) is bare and lies almost in the middle of a narrow rocky ridge. This island has a flat top and its N and S sides are steep-to. A light is shown from a structure, 21m high, standing on the island.

MacLeod Shoal (52°07'N., 131°11'W.) is detached, kelp-covered, and rocky. This shoal has a least depth of 11m and is steep-to on all sides.

Anchorage can be taken by vessels up to 76m in length, in a depth of 30m, about 0.4 mile WNW of Arnold Point. The swinging room is restricted, but the holding ground is good. Strong N or NW winds in opposition to a strong flood render this anchorage unsafe.

Cape Fanny (52°07'N., 131°11'W.), the S extremity of Moresby Island, rises to a height of 291m about 0.8 mile N. A rock, 4.9m high, lies close S of this cape.

Houston Stewart Channel

16.3 Houston Stewart Channel (52°07'N., 131°08'W.), entered from the S between the Gordon Islands and Cape Fanny, is bordered by bold, densely wooded shores on both sides. A bare summit, 657m high, rises 5 miles N of Cape Fanny. This summit is conspicuous from the SW and serves as a convenient landmark for identifying the approach. Two other bare summits, 678m and 692m high, stand 1 mile and 1.3 miles, respectively, farther NNW.

The channel lying between the Gordon Islands and **Hornby Point** (52°09'N., 131°07'W.) has a navigable width of 0.5 mile and is deep to seaward of the fringing dangers which lie close offshore.

Washington Rock (52°07'N., 131°08'W.), the only known off-lying danger, is 0.9m high and bare. It lies on the E side of the channel. Another rock, with a depth of less than 1.8m, lies close NW of this rock.

The channel turns E close N of Hornby Point and leads 2.5 miles to its junction with Hecate Strait. Several dangers lie near the middle of this section of the channel. During the summer and autumn, most of these dangers are marked by kelp, which may be drawn under when the currents are strong.

Ross Island (52°10'N., 131°07'W.), 64m high at its S end, lies on the N side of this channel, directly opposite of Hornby Point. A detached shoal, with a depth of 6.7m, lies close S of the island.

The N side of Houston Stewart Channel, between Ross Island and Point Langford, is indented by two small bays of no importance. Both bays are fronted by foul ground and several detached shoal patches extend well into their fairways.

Quadra Rocks (52°09'N., 131°06'W.), two in number, lie close apart in mid-channel, about 0.5 mile NE of Hornby Point. The northernmost rock is awash; the southernmost rock has a least depth of 1.8m. Numerous detached rocky patches lie in close proximity to these dangers. Quadra Rocks are marked by tide rips and overfalls during the strength of the currents, and by kelp on the SW side.

Trevan Rock (52°09'N., 131°05'W.), which dries 3m, is surrounded by shoals and marked by a beacon. A ridge of detached rocky patches, with depths of 9m and less, lie within 0.3 mile NE of the rock.

Ellen Island (52°09'N., 131°06'W.), 50m high on its W side, lies close S of Trevan Rock and is separated from it by Gaudin Passage. This passage, although narrow, is deep and clear.

16.4 Rose Harbor (52°09'N., 131°05'W.) is entered between Ellen Island and Annette Island and Fairfax Island, 0.5 mile E. It provides sheltered anchorage to vessels of moderate size. The ruins of a former whaling station are situated at the head of the harbor.

Anchorage can be taken, in a depth of 25m, about 0.2 mile E of Ellen Island, but care should be taken to avoid the foul ground found lying along the E and S sides of the harbor.

The **Charles Islands** (52°09'N., 131°04'W.), two in number, are small and lie close together in an area of foul ground, about 0.3 mile E of Annette Island.

Moore Head and Point Langford, which mark the S and N sides of the E entrance to Houston Stewart Channel, are described in paragraph 15.4.

Caution.—Houston Stewart Channel, lying E of Hornby Point, should only be attempted during daylight hours and at slack water. It should only be used by vessels less than 60m in length with drafts up to 6.1m. The best time to pass through Gaudin Passage is at LW slack. Trevan Rock will then be visible and provide a good mark for clearing Quadra Rocks. Local knowledge is required at other times.

The E current sets through Houston Stewart Channel at a velocity of 3 to 5 knots, and from 2 to 4 knots in the opposite direction. At times, a velocity of 5 knots is experienced at the E end of the channel.

Heavy overfalls occur over the shoals lying S of Point Langford when strong SE winds are in opposition to the flood.

Rose Inlet

16.5 Rose Inlet (52°10'N., 131°08'W.) is entered from the N side of Houston Stewart Channel between Catherine Point and Ross Island, 1 mile NE. This inlet is navigable up to 2 miles N of the entrance points, but above this position to its head, the inlet is encumbered by numerous rocks, islets, and areas of foul ground. The W shore rises boldly and is fairly steep-to; whereas, the E shore is bordered by kelp and fronted by shoals extending up to 0.3 mile seaward in places.

Denny Rocks (52°10'N., 131°07'W.), which consists of several drying rocks, lie in the middle of an area of shoal ground which extends about 0.4 mile NW from Ross Island.

Pincher Rocks (52°11'N., 131°08'W.), a group of barely visible rocks, lie on the S part of the shoal ground which fouls the head of the inlet.

Anchorage can be taken, in depths of 14 to 18m, in the middle of Ross Inlet, about 1 mile N of Ross Island.

Louscoone Inlet (52°07'N., 131°13'W.) is entered between Fanny Point and Louscoone Point, 2 miles WNW. It indents Moresby Island for a distance of 8 miles. Depths throughout the inlet are considerable, but gradually shoal near its head.

Anthony Island (52°05'N., 131°13'W.), lying on the W side of the approach to the inlet, is 108m high, wooded, and bor-

dered by some white cliffs on its W side. A few totem poles stand on its E side.

A group of islets and above-water rocks lie on the shoal ground which extends up to about 0.8 mile S and 1 mile W of the S end of the island. Several detached shoals lie within 0.5 mile S of the latter group. A similar group extends about 0.8 mile NW from the NW side of the island.

Adam Rocks (52°07'N., 131°14'W.), consisting of a group of above and below-rocks, lie about midway between the islets located off the NW side of Anthony Island and Louscoone Point. The largest rock is covered by scrub and the rest are bare.

Caution.—Strong currents set through the channels lying N and S of Adam Rocks. Vessels entering or leaving Houston Stewart Channel or Louscoone Inlet are advised not to use the channels which pass N and S of Adam Rocks under any circumstances.

16.6 Tuga Point (52°09'N., 131°14'W.), located on the W shore, is steep-to and lies about 1.7 miles N of Louscoone Point. The intervening bight lying between the two points is fronted by foul ground extending up to 0.2 mile offshore. The remainder of the W coast to the N of Tuga Point is fairly steep-to and clear of dangers, except near the head of the inlet.

Ninstints Point (52°08'N., 131°12'W.), located on the E side of the inlet opposite Louscoone Point, is bordered by several above and below-water rocks close offshore. The two small bights, which lie on either side of the point, are foul. Crooked Point is located on the N side of the northernmost bight.

Etches Point (52°10'N., 131°13'W.), located N of Crooked Point, is low with two drying rocks lying close off its W side. The fairway lying between these rocks and Tuga Point is 0.4 mile wide and fairly deep.

The coast to the N of Etches Point is fronted by several islets and foul ground which extend up to 0.4 mile offshore in places. Cadman Point, a slight projection, is located along this section of coast, about midway between Etches Point and Skindaskun Island, 2 miles NNW.

Skindaskun Island (52°12'N., 131°14'W.), low and wooded, has its NE end joined to the shore by a drying sandbank. A compact group of drying rocks lie within 0.3 mile N of this island.

Head Rock (52°12'N., 131°16'W.), a steep-to drying rock, lies in the center of the fairway, about 1 mile NW of Skindaskun Island. The inlet lying NW of the rock gradually narrows to its head. Several detached shoals, with depths of 11m and less, lie in the middle of the inlet, about 0.5 to 1 mile above Head Rock.

Anchorage can be taken, in a depth of 31m, about 0.5 mile NNW of Skindaskun Island. Anchorage can also be taken, in a depth of 29m, about 0.3 mile SSE of Head Rock or, in a depth of 23m, about 0.5 mile NW of the rock.

Flamingo Inlet

16.7 Flamingo Inlet (52°11'N., 131°21'W.), which lies on the W side of the high peninsula separating it from Louscoone Inlet, is entered about 6.5 miles NW of Anthony Island.

Cape Freeman (52°09'N., 131°19'W.), an irregular-shaped projection which extends about 0.8 mile from the general line

of the coast, is located 4 miles NW of Anthony Island. Numerous islets and rocks lie off the S side of this cape.

Billington Rocks (52°10'N., 131°20'W.) consist of an above-water rock, 0.3m high, another rock, which dries 0.6m, and several others, both awash and below-water. They form a group which lies about 1.3 miles NW of Cape Freeman.

The **Henderson Islets** (52°10'N., 131°20'W.), two in number, are small and bare. They lie about 0.5 mile NW of Billington Rocks. Several above and below-water rocks lie close S and E of the easternmost islet.

Snub Point (52°11'N., 131°19'W.), the E entrance point of Flamingo Inlet, is fronted by several bare islets and drying rocks. Several drying rocks lie between the point and the Henderson Islets.

Naggers Point (52°11'N., 131°22'W.), the W entrance point of the inlet, is fronted by a group of kelp-covered drying rocks, about 0.3 mile E. A light is shown from the point.

Naggers Rocks (52°11'N., 131°21'W.), the outermost dangers lying on the W side of the approach to the inlet, consist of a group of above-water and drying rocks. The largest rock is 15m high.

To the N of Naggers Point, the W side of the inlet is bold and comparatively steep-to as far N as Stake Point, about 3.3 miles above the entrance. The E shore is greatly indented and fronted by several above and below-water dangers. Anvil Cove and Short Inlet, two small indentations of no importance, lie along the E shore within 1.3 miles NW of Snub Point.

Anvil Rock (52°12'N., 131°21'W.), 3m high and bare, lies about 1 mile NW of Snub Point.

Sargison Reef (52°12'N., 131°21'W.), consisting of two above and two below-water rocks, lies about 0.5 mile NNW of Anvil Rock.

16.8 Sperm Bay (52°13'N., 131°21'W.), entered about 0.8 mile N of Sargison Reef, has not been surveyed, but it has been reported that anchorage can be taken by small craft in its NW part.

Stake Point (52°14'N., 131°21'W.), the E entrance point of Stake Bay, lies at the W end of the narrowest part of the inlet, about 1.3 miles above the entrance to Sperm Bay. A detached shoal, with a depth of 10.1m, lies in the middle of the fairway, about 0.3 mile SW of the point.

Stake Bay (52°15'N., 131°22'W.), a long and narrow body of water, is encumbered by numerous dangers. It extends about 2.3 miles N of Stake Point.

Anchorage can be taken by small vessels with local knowledge, in a depth of 14m, about 0.5 mile N of Stake Point. Anchorage can also be taken, in a depth of 7m, close S of the drying flat at the head of the bay.

McLean Fraser Point (52°13'N., 131°25'W.), located about 2.5 miles NW of Naggers Point, is a slight projection marked by tide rips. The coast between the two points is indented by two small exposed bays, fronted by drying rocks.

The coast between McLean Fraser Point and the entrance to Gowgaia Bay, 13 miles NW, is bold and steep-to. The three small bays which indent this section of the coast have not been surveyed. Wells Cove, the northernmost bay, is encumbered by several rocks, islets, and a reef.

Gowgaia Bay

16.9 Gowgaia Bay (52°24'N., 131°36'W.) is entered between the Gowdas Islands, on the S side, and the Nangwai Islands, on the N. It indents the coast for about 2 miles and then divides into two bays. A light is shown from Gowgaia Point. Anchorage is provided in both bays, but the SE bay is preferred.

The **Gowdas Islands** (52°24'N., 131°36'W.), two in number, are wooded and, together with some above-water and drying rocks, lie close offshore on the S side of the entrance of Gowgaia Bay. A bay, with depths of 18 to 36m, lies between these islands and Gowgaia Point, 0.5 mile NE, but it is too exposed to provide sheltered anchorage.

Gowdas Rocks (52°24'N., 131°37'W.), the largest of which is 5m high, lie about 0.5 mile W of the northernmost of the Gowdas Islands. Two drying rocks lie about 0.3 mile SE of the these rocks.

The **Nangwai Islands** (52°24'N., 131°37'W.), two in number, are wooded and lie off the N side of the entrance of Gowgaia Bay. A reef, which terminates in drying rocks, extends about 0.2 mile SSW from the southernmost island and is usually marked by breakers at or near HW.

Nangwai Rock (52°24'N., 131°36'W.), which dries 2.4m, lies about 0.5 mile E of the southernmost of the Nangwai Islands. Several islands, islets, and numerous rocks and shoals lie between this rock and the shore to the N and NE.

Goski Bay (52°25'N., 131°34'W.) lies on the N side of Gowgaia Bay, about 2 miles within the entrance. It has general depths of 20 to 31m in the central part and drying flats at the head. The E half of the bay to the N of Goski Islet has several detached patches, with depths of 10.1m and less.

Goski Islet (52°25'N., 131°33'W.), sparsely wooded and light gray in color, is steep-to on its S and W sides. It lies about 0.3 mile off the E entrance point of Goski Bay. The passage leading between this islet and the shore is shoal.

Although the depths are ample, Goski Bay is not recommended as an anchorage, except during N and NW winds.

Soulsby Cove (52°24'N., 131°33'W.), entered between Commander Point and Yakulanas Point, lies about 1 mile S of Goski Bay. This cove has general depths of 18 to 34m in its central part, shoaling gradually toward its head.

Anchorage can be taken, in a depth of 27m, about midway between the entrance points and 0.3 mile offshore.

Yakulanas Bay (52°24'N., 131°31'W.), entered between Yakulanas Point and the shore to the N, extends 1.5 miles SE to its head. Depths range from 36 to 58m in its central part, decreasing rapidly toward the shores. A shoal, with a least depth of 7.9m, extends about 0.3 mile offshore, 1 mile E of Yakulanas Point.

Anchorage can be taken, in a depth of 42m, about 0.8 mile E of Yakulanas Point or, in a depth of 34m, about 0.5 mile farther SE.

Gowgaia Bay to Tasu Sound

16.10 The coast between Gowgaia Bay and Tasu Sound, 28 miles NW, is bold, rugged, and indented by numerous small inlets. Depths close offshore are deep with no known off-lying dangers.

Several conspicuous landmarks are found along this section of coast. A conspicuous cone-shaped islet, 149m high, lies close offshore, about 7 miles NW of the Nangwai Islands. The high, bare, and rugged peaks of the San Cristoval Range rise to heights in excess of 910m, about 14.5 miles NW of the same islands. A summit, with a conspicuous white scar, rises close N of Pocket Inlet.

Mount de la Touche (52°42'N., 132°02'W.), with a conspicuous sharp and bare summit, is 1,123m high and stands close inland, about 4 miles SE of the entrance of Tasu Sound.

Mike Inlet (52°32'N., 131°47'W.), lying 9.5 miles NW of the entrance of Gowgaia Bay, extends about 1.8 miles E. This inlet has not been surveyed and should be entered with caution. The inlet can be entered by passing on either side of an islet, with some rocks located close ENE of it, lying close within the entrance. The northernmost channel is preferred. The inlet contracts to a width of only 135m for a short distance, about 1 mile within the entrance and then opens out into a basin. The surrounding land is high and with a strong breeze heavy squalls occur.

A conspicuous, bare summit, 862m high, rises about 1 mile E of the head of the inlet.

Anchorage can be taken at the head of the inlet by small craft with local knowledge, in depths of 29 to 45m.

Caution.—The coast between the entrance of Gowgaia Bay and Mike Inlet, 10 miles NW, has not been surveyed inshore and should not be approached within 2 miles.

16.11 Barry Inlet (52°34'N., 131°50'W.), unsurveyed and of little importance, lies about 2.5 miles NW of Mike Inlet. The intervening coast is steep-to close offshore and indented by a small open bay about midway between the two inlets.

The entrance to Barry Inlet, which is about 0.2 mile wide, lies between a low, rocky point on the SE side and a sloping point on the opposite side. A bare high granite bluff stands inside the entrance on the S side. A depth of 23m lies just within the entrance and a depth of 40m lies close to the above bluff. The land surrounding the inlet is generally high and rises steeply from its head to bare, high mountains.

Anchorage can be taken on the NW side of the inlet, opposite the granite bluff, by small craft with local knowledge.

Murray Cove (52°35'N., 131°54'W.), lying 2.5 miles NW of Barry Inlet, indents the coast and extends about 0.8 mile E. A high, conspicuous pinnacle rock lies close SE of the SE entrance point. The cove provides no shelter.

Pocket Inlet (52°37'N., 131°54'W.), the next inlet NW of Murray Cove, has no known dangers and is surrounded by high bare land. A low, bare ridge forms the SE side of the entrance, whereas the NW entrance point is high and extends well S. The high bare peaks of the San Cristoval Mountains rise close E of the head of the inlet and a conspicuous white scar is located close N of the entrance.

Sunday Inlet (52°39'N., 131°57'W.) indents the coast and extends about 2 miles E. It is entered about 2.5 miles NW of Pocket Inlet. The intervening coast is high, rugged, and cliffy with large detached pinnacle rocks lying close offshore. Kwoon Cove, which lies along this section of coast, is exposed and of little importance.

Two rocks, about 0.3 mile apart, lie in the middle of the approach to Sunday Inlet, about 0.5 mile SW of the entrance



The San Cristoval Mountains

points.

An unnamed inlet indents the coast about 0.8 mile NE of the above rocks, but is unsurveyed and of no importance.

Sunday Inlet contracts to a width of only about 60m, about 0.8 mile within the entrance between a low flat rock, on the S side, and an islet, on the N side. A small cove lies at the head of the inlet on the S side.

Anchorage can be taken in the entrance of the inlet, in a depth of 27m, by small craft with local knowledge.

The coast between Sunday Inlet and Tasu Sound, 7.5 miles NW, continues bold and steep-to. The small indentations found along this section of coast are exposed and provide no shelter. Mount de la Touche, which rises about 4 miles NW of the entrance of Sunday Inlet, has been previously described in paragraph 16.10.

Tasu Sound

16.12 Tasu Sound (52°44'N., 132°07'W.), entered between Tasu Head and Davidson Point, extends 4 miles NE into its central part and then branches out into four inlets. The entrance is narrow and difficult to detect from seaward, even in clear weather, Mount de la Touche is an excellent landmark by which it may be identified.

The SE shore of the entrance is cliffy, steep-to, and backed by land which rises to heights of over 790m. A small, rocky islet lies close W of Tasu Head, the S entrance point. The NW shore is heavily wooded and backed by hills and cliffs.

A light is shown from Davidson Point, the N entrance point of the inlet.

Tasu Narrows, which lead from the entrance points into the inlet, are about 0.3 mile wide and have considerable depths. A heavy swell, when accompanied by W winds, is usually present in the entrance, but moderates before reaching the N end of the narrows. The currents in the narrows are relatively weak, rarely exceeding a rate of 1.8 knots on the flood and 1.5 knots on the ebb. The maximum flood and ebb are reached about 2 hours 30 minutes before HW and LW, respectively. A rate of less than 0.5 knot has been observed from about the time of local HW and LW to about 1 hour 30 minutes after. Strong winds affect the rates and times of slack water. Seaward of the entrance, current tends to set in and out of the narrows, rather

than parallel to the coast.

Caution.—A restricted area, known as Gwaii Haanas National Park Reserve (National Marine Conservation Area and Haida Heritage Site), has been established within 6 to 7 miles from shore around most of Moresby Island beginning offshore from Tasu Sound extending S to offshore from Cape St. James, then offshore from the E coast to Dana Inlet (52°48'44"N, 131°39'15"W). The exact boundaries can best be seen on the chart.

Lomgon Bay (52°47'N., 132°05'W.) lies on the N side of Tasu Sound, about 2 miles above the narrows. It is obstructed by the Lomgon Islets and some drying rocks in its S part and several rocks in its N part. Anchorage is not advisable in this bay.

16.13 Newcombe Inlet (52°48'N., 132°03'W.), entered about 1 mile NE of Lomgon Bay, extends about 4 miles N from Shearer Point, its W entrance point. Although obstructed by some rocks and shoals at the entrance and off McAlmond Point, 1.3 miles N, the depths in the inlet are generally fairly deep in the fairway.

A light is shown from McAlmond Point, on the W shore near the narrows of Newcombe Inlet.

Shearer Rock (52°47'N., 132°04'W.), with a depth of 5.5m and marked by kelp, lies about 0.3 mile SW of Shearer Point.

Ariel Rock (52°48'N., 132°03'W.), 2m high and with a drying rock located close S of it, lies in the middle of the fairway, about 0.8 mile NE of Shearer Point. Winnifred Rocks, a compact group of drying and below-water rocks, lie about 1 mile ENE of the same point. A light is shown from these rocks.

The narrows leading into the upper reaches of the inlet are constricted to a width of 0.2 mile by the foul ground which extends from McAlmond Point. The depths are deep off Blunt Point, on the E side of the narrows.

Anchorage can be taken, in depths of 20 to 32m, about 0.3 mile S of the peninsula extending from the head of the inlet or, in a depth of 42m, off the E shore.

The N shore of Tasu Sound, up to 2.5 miles E of Newcombe Inlet, is indented by Two Mountain and Barrier Bays.

Two Mountain Bay (52°48'N., 132°00'W.), small in extent but deep, is protected on its S side by a narrow peninsula. Flyaway Islet lies close off its outer extremity. The narrow entrance channel leading into the bay passes E of this islet, but is obstructed in mid-channel by a detached rocky patch, with a depth of 2.7m. A reef, with a drying rock at its outer end, extends about 0.2 mile E from the E part of the islet.

Vessels with local knowledge can anchor W of a small islet lying off the N shore of the bay, in a depth of 23m.

Barrier Bay (52°47'N., 131°59'W.), the next bay to the E, is greatly indented with considerable depths in its central part. A drying flat borders its NE side.

Horn Island (52°46'N., 132°04'W.), 48m high and wooded, lies off the S shore of Tasu Sound, about 1.8 miles NW of Tasu Narrows. A light is shown from the N end of this island.

Two privately-maintained floats are situated at the head of the small bay which lies between Horn Island and Magneson Point, close ESE. Two detached rocky patches, with depths of 6.4m and 3.7m, lie in the approach to the bay about 0.1 mile and 0.2 mile, respectively, ESE of the NE end of Horn Island.

Horn Rock (52°46'N., 132°02'W.), 2m high and bare, has

drying rocks located close off its SE and SW sides. It lies about 0.5 mile N of Magneson Point.

Gowing Island (52°46'N., 132°02'W.) lies close E of Magneson Point and forms the W side of the entrance leading into Fairfax Inlet. The island is connected to the shore by a rock-filled causeway. It has been reported that all mining operations were terminated and associated marine facilities were dismantled.

16.14 Fairfax Inlet (52°46'N., 132°02'W.), entered close E of Gowing Island, extends about 3.5 miles SE to the head. It has considerable depths throughout, but has no value as an anchorage, because of the steep-to shores. Hunger Harbor, lying close S of Gowing Island, has depths too great to be used as a satisfactory anchorage.

Reid Point (52°47'N., 132°01'W.), the NW extremity of the narrow peninsula separating Fairfax Inlet from Botany Inlet and Wilson Bay, lies about 1.5 miles NE of Magneson Point.

Botany Island (52°46'N., 131°58'W.), 214m high and wooded, lies across the entrance of Botany Inlet, about 1.8 miles SE of Reid Point.

Botany Inlet (52°45'N., 131°58'W.), entered through the two passages which lie on either side of Botany Island, extends about 3 miles SE to its head. The channels lying at the S end of the island are narrow, encumbered by rocks, and can only be used by small craft. The inlet located S of the island, although narrow, had considerable depths.

Wilson Bay (52°47'N., 131°58'W.), lying E of Botany Island, has considerable depths, gradually shoaling near its head.

Amethyst Rock (52°46'N., 131°58'W.), with a least depth of 2.7m, lies about 0.8 mile ENE of Wester Point, the N extremity of Botany Island. Other shoal patches lie within an area bounded by Amethyst Rock, Wester Point, and Wilson Islet, close off the E side of Botany Island. Several other drying rocks and shoals lie S of a line drawn SE from Wilson Islet to the head of the inlet.

Anchorage can be taken at the head of Wilson Bay, in a depth of 34m, about 0.3 mile offshore. This anchorage is secure, but care should be taken to avoid a detached shoal, with a depth of 6.4m, lying about 0.5 mile ESE of Wilson Islet.

16.15 Portland Bay (52°47'N., 132°11'W.), entered about 4 miles NW of Davidson Point, is exposed and of little importance. A lake, with a waterfall, is located at the head of the bay.

Chads Point is located 1.5 miles NW of Portland Bay and Kootenay Point is located 2.5 miles farther NNW. The mountain ranges inland in this area rise to bare summits, up to 914m high, and stand about 1.5 miles from the shore.

Kootenay Inlet (52°52'N., 132°15'W.), entered 1.3 miles NNE of Kootenay Point, has not been surveyed. No attempt should be made to enter this inlet when a heavy sea is running. The entrance fairway passes E of the two detached islets which lie in the middle of the entrance. Reefs, awash, lie in the middle of the channel farther in. A narrow channel leads into an inner basin in which there are depths of 14 to 18m over the greater part. The entrance of an arm leading NE, about 1 mile within the entrance of the inlet, is obstructed by some islets.

Bottle Inlet (52°54'N., 132°19'W.), entered N of Bottle Point about 3.8 miles NW of Kootenay Inlet, has not been surveyed but appears to be clear of dangers. The inlet indents the coast and extends 2.5 miles ENE. It has a very narrow entrance

with a depth of only 46m. There is a depth of 73m lying close outside the mouth, although it has been reported (2001) that a rock, with a depth of less than 2m, lies in the approach to Battle Inlet.



Bottle Point

Cape Henry (52°56'N., 132°22'W.), located on the S side of the approach to Englefield Bay, lies about 2 miles NW of Bottle Inlet. Antiquary Bay, small and exposed, lies about midway between the two.

Englefield Bay

16.16 Englefield Bay (52°58'N., 132°24'W.) is entered between Cape Henry and Annesley Point, 7.5 miles NW. It extends E and is indented by several inlets along the S shore and by Security Inlet along the N shore.

Several islands and rocks lie within the limits of the bay. Hibben Island, the largest of the group, occupies almost all of the central part of the bay and rises to a height of 783m near its E end.

Denham Shoals (52°57'N., 132°24'W.), an area of irregular depths, extends about 2.5 miles W from the coast between Cape Henry and Denham Point, 1 mile N. Two detached shoals, with depths of 3.7m and 9.1m, form the outermost dangers and lie about 2.5 miles W of Denham Point. Several shoal heads, which lie between the above dangers and the coast, have not been examined.

Cape Kuper (52°58'N., 132°20'W.), the SW extremity of Hibben Island and the N entrance point of Moore Channel, is located 1.5 miles NNE of Denham Point. Several islets, rocks, and dangers lie within about 0.5 mile of this cape.

Bone Point, the W extremity of Hibben Island, has Augustus Rock lying about 0.8 mile S of it and Lihou Island about 0.5 mile W of it. There are considerable depths between this point and the latter island.

Carswel Island, Helgesen Island, Saunders Island, and Willie Island lie off the N shore of Englefield Bay to the N, and NW of Lihou Island. Several detached rocky patches lie within 0.5 mile S and SW of Willie Island.

Kaisun Harbor and Boomchain Bay, which lie N of the above group of islands, have not been surveyed and should be used with great caution.

Moore Channel and Adjacent Inlets

16.17 Moore Channel (52°58'N., 132°19'W.), entered between Denham Point and Cape Kuper, extends about 7 miles E and is deep in the fairway. The channel has not been completely surveyed.

Douglas Inlet (52°58'N., 132°14'W.), entered between Herbert Head and Bell Point, extends about 3 miles SE.

Mitchell Inlet (52°58'N., 132°12'W.), separated from Douglas Inlet by the Josling Peninsula, is entered between Work Point and MacNeill Point. The inlet extends about 3 miles SE and has several off-lying dangers. Thorn Rock lies on the W side of the inlet, about 1.5 miles SE of Work Point, and has a depth of less than 1.8m. Three rocks, with similar depths, lie close off the N side of the inlet, W and SE of MacNeill Point.

Sansum Island lies in the middle of the inlet, about 2.5 miles within the entrance. That part of the inlet lying SE of the island is known as Thetis Anchorage. A dangerous rock, with depths of less than 1.8m, was reported (1987) to lie in the middle of this anchorage.

Anchorage can be taken, in a depth of 23m, about 0.5 mile SE of Sansum Island. This anchorage is completely landlocked, but at times is subject to rainy squalls of considerable force.

Mudge Inlet (52°58'N., 132°10'W.), entered between Recovery Point and Colton Point, recedes about 2 miles SE and is deep. A chain of above and below-water rocks lies close offshore, within about 0.5 mile W of Recovery Point.

Colton Islet, small and wooded, lies close within the entrance of the inlet. The passage lying W of the islet has considerable depths. The inlet located S of the islet has not been thoroughly examined, but a mid-channel chain of soundings give no indication of any dangers.

Anchorage can be taken by small vessels with local knowledge, in a depth of 33m, at the head of the inlet.

Caution.—Vessels using Mitchell and Mudge Inlets should experience no difficulty, but it should be borne in mind that they have not been thoroughly examined. The winds in the inlets usually blow directly through them, and during periods of bad weather, violent squalls may be expected.

Inskip Channel and Adjacent Inlets

16.18 Inskip Channel (53°01'N., 132°21'W.), entered between Bane Point and Fairlie Point, extends about 6.5 miles ESE and then E and SE into Peel Inlet. The channel is deep and clear, except for a detached shoal, with a depth of 10.4m, lying about 0.5 mile SSE of Fairlie Point.

The Leopold Islands, consisting of a group of wooded islets and some rocks, lie on the N side of the channel, about 0.5 mile NE of Sangster Point, the E extremity of Hibben Island. A rock, with a depth of less than 1.8m, lies at the W end of this group, about 0.5 mile NNE of Sangster Point.

Peel Inlet (52°59'N., 132°09'W.), entered between Peel Point and the shore to the N, is deep and clear up to 0.8 mile within the entrance. Elsewhere, the fairway is encumbered by

several islets and above and below-water rocks.

Security Inlet (53°02'N., 132°22'W.), entered between Percy Point and the shore to the W, extends 3.8 miles ENE. The fairway, although narrow, is fairly deep, with no off-lying dangers. All of the known dangers lie close offshore along the S side of the inlet. The N side is deep as far NE as Security Point, at the entrance of Security Cove. Depths in this cove range from 18m at the entrance to 7m and less at the head.

Buck Point (53°06'N., 132°34'W.), high and bold, is the S entrance point of Buck Channel and is located 2.5 miles NW of Kitgoro Inlet. Drying rocks and a detached below-water reef lie within 0.2 mile W and NNW of the point. A rock, which breaks in a heavy sea, lies about 0.5 mile N of the reef and almost in the center of the entrance of Buck Channel.

Anchorage can be taken by small vessels, in a depth of 11m, about 0.5 mile ENE of Security Point.

Kitgoro Inlet (53°04'N., 132°32'W.) is entered about midway between Annesley Point and Buck Point, 5 miles NW. It is small with a narrow shoal channel leading into it. Anchorage is provided only for small craft with local knowledge during good weather.

16.19 Buck Channel (53°06'N., 132°34'W.), entered between Buck Point and Chaatl Island, extends 5 miles E to Chaatl Narrows and Armentieres Channel, and then N into Skidegate Channel. Part of the narrows dries, but small craft can pass through at half tide.

Buck Channel has not been surveyed and should be used only by vessels with local knowledge.

Chaatl Island (53°07'N., 132°32'W.), long and narrow, separates Buck Channel from Skidegate Channel, to the N. The summit of this island is 718m high and rises in its SW part. The W side of the island, N of Buck Point, is fringed by foul ground which extends up to 0.2 mile offshore. A number of kelp patches also extend a considerable distance offshore. The N side of the island is steep-to within a short distance of the shore. A light is shown from the N side of Tcenakun Point, the NW extremity of the island.

A bank, with irregular depths, extends about 2 miles WNW from Tcenakun Point. A shoal patch, with a depth of 14.6m, forms the outermost danger on this bank and lies about 1.5 miles WNW of the point. Two detached shoal patches, with depths of 8.2m and less, lie about 0.8 mile W of the point.

16.20 Skidegate Channel (53°10'N., 132°35'W.) is entered between Tcenakun Point and Ells Point, 1.8 miles NNE. It extends about 8 miles E to Downie Island, then through West Narrows, S of Trounce Inlet, and then through East Narrows to its E entrance.

For a description to the E of the E entrance of Skidegate Channel, including the Sandilands Island, see paragraph 15.42.

Depths in Skidegate Channel, as far E as Downie Island, are deep in the fairway. All of the known dangers which do exist lie close offshore.

A shoal, with a depth of 3.7m, and another shoal, with a depth of 8.2m, lie about 0.5 mile WSW of Ells Point. Between these two shoal patches and Tcenakun Point, the W entrance of Skidegate Channel is constricted to a width of 1.3 miles.

Caution.—The channel is winding with strong tidal streams. It is shallow, especially in the eastern and central portions and

best navigated only with significant local knowledge and at higher water levels. Siltation, dredging and deposition may produce drying flats in some areas at lower water levels. Aids to navigation have been placed to provide the safest channel at higher water levels. Mariners are advised to exercise extreme caution when navigating in this area.

Dawson Islet (53°09'N., 132°30'W.), entered between Mercer and Newton Point, extends about 4.5 miles N. Dawson Harbor lies in the E arm of the inlet, about 1 mile N of the entrance. Dawson Inlet to the N of this E arm has not been surveyed.

Depths within Dawson Harbor are too great for anchoring.

Armentieres Channel (53°07'N., 132°23'W.), which lies at the E end of Chaatl Island, connects Skidegate Channel with Buck Channel to the S. The channel is entered between Georgianna Point and Demariscove Point, 0.5 mile E. A reef, marked with kelp and with a depth of 3.7m, extends up to about 0.1 mile NW from Demariscove Point. Depths in the channel decrease gradually from 53m in the entrance to 12.8m near the junction with Chaatl Narrows. The narrows begin to dry about 1 mile within the entrance.

Anchorage can be taken by small vessels in the middle of the fairway, in a depth of 45m, about 0.3 mile S of the entrance or, in a depth of 27m, farther S.

West Narrows—Southwest Approaches

16.21 Downie Island (53°09'N., 132°21'W.), 61m high and connected by a drying bank to the shore E, lies on the E side of the approach to West Narrows.

West Narrows, entered between Downie Island and the shore to the W, extends N and then E into the deep area lying S of Trounce Inlet. The channel is encumbered by numerous shoals, rocks, and other dangers. It is constricted to a navigable width of less than 0.2 mile by Downie Island. It is further reduced to a width of only 90m by the above and below-water dangers lying W of this island. A beacon stands on the W shore of the narrows, W of the N end of Downie Island. The channel turns abruptly E abeam of this beacon and continues for 1 mile to deep water. Care should be taken to avoid the foul ground which extends N into the channel from the NE end of Downie Island. A rock, 2m high, lies in mid-channel off the SW side of Downie Island and another rock, 1m high, lies close NE of it.

Caution.—Due to the narrow and tortuous nature of the fairway leading through West Narrows and East Narrows and the dangers lying within them, navigation of these waters is confined to small vessels with local knowledge. Transit should be made only at or near HW.

16.22 Trounce Inlet (53°10'N., 132°19'W.), entered to the E of West Narrows, indents Graham Island for 2.3 miles. The inlet has considerable depths and is free of dangers.

Anchorage can be taken by small vessels at the head of the inlet, in depths of 14 to 18m, about 0.1 mile off a steep-to drying flat.

East Narrows, the narrowest part of Skidegate Channel, is 3 miles long. The channel narrows to a least width of only about 60m in the vicinity of McLellan Point (53°09'N., 132°17'W.). The channel widens to the E of this point, but drying banks extend a considerable distance from both shores, leaving only a

narrow, tortuous fairway.

Several beacons have been established to assist in the transit of East Narrows. West Beacon stands on the S shore, close W of McLellan Point. A pair of beacons, in line bearing 113.5°, stands on a conspicuous point located about 0.7 mile ESE of McLellan Point. A beacon stands on the N shore, about 0.3 mile ENE of the conspicuous point mentioned above.

A dolphin, equipped with white reflectors, stands about 0.3 mile E of the same conspicuous point and marks the N side of the fairway. A pair of beacons, in line bearing 118.5°, stands on the S shore, about 0.3 mile W of Mid Beacon. Mid Beacon, which marks the S side of the fairway, stands on a mid-channel rock, about 0.8 mile E of the same conspicuous point. Another beacon, which marks the N side of the fairway, stands close off the N shore on a rock, 3m high, about 0.2 mile ENE of the mid-channel rock mentioned above.

East Beacon, 4m high, stands on the N side of a rock, which dries 3m, lying near the N shore at the E end of East Narrows. The fairway passes on the N side of this beacon.

A beacon, nearly in mid-channel, stands on a rock, which dries 6.4m, lying about 1 mile ENE of East Beacon.

Tides—Currents.—There is a great difference in the tidal range between the E and W sections of Skidegate Channel. To the E of East Narrows, on a large tide, the range is 7.9m, and to the W of West Narrows, the range is only 4.3m. As a result, at HW and LW there are differences of several meters creating a strong W current in conjunction with HW, and an E current near LW. The currents attain a velocity of 7 knots in the vicinity of McLellan Point.

Slack water occurs at West Beacon at 3 hours to 3 hours 30 minutes after HW and LW at Queen Charlotte. At East Beacon, slack water occurs at 1 hour 30 minutes to 2 hours 30 minutes after HW and LW at Queen Charlotte.

Caution.—Caution is necessary in East Narrows because the levels to which the tides rise above datum are much less than those shown for Queen Charlotte.

Vessels intending to pass through Skidegate Channel should remember that, as slack water occurs about 2 hours after HW in East Narrows, the tide will have fallen considerably by that time, thus placing a limitation on the draft at which a vessel may pass through safely.

The pairs of beacons marking the fairway have been erected close together; hence, causing the range lines to be very sensitive. Care is necessary to keep the ranges properly aligned.

Cartwright Sound

16.23 Cartwright Sound (53°12'N., 132°40'W.) is entered between Tcenakun Point and Hunter Point, on Graham Island, about 7.8 miles NW. The W entrance of Skidegate Channel, on the SE side of the sound, has been previously described in paragraph 16.20. Tana Bay and Gudal Bay lie in the E part; Van Inlet lies in its NE part.

Mount La Perouse, the tallest peak on the W side of Graham Island, rises to a conspicuous, bare summit, 1,120m high, about 2 miles E of Gudal Bay.

Marble Island (52°12'N., 132°39'W.), 144m high and wooded, lies almost midway between the entrance points of Cartwright Sound. A light is shown from the W side of the island. Marble Rock is low, bare, and white. It lies about 0.3 mile

SW of the island. Gagi Rock, bare and 12m high, lies about 0.3 mile NE of the island. A reef extends up to about 0.4 mile NW from the island and a detached shoal, with a depth of 11.9m, lies about 0.8 mile farther N. This latter shoal patch is marked by kelp during the summer.

Tana Bay and Gudal Bay are exposed and do not afford anchorage. A shoal, with a depth of 7.3m, lies in the entrance of Tana Bay, about 0.5 mile SE of Tana Point, the N entrance point. The shoal, with a depth of 3.7m, lying WSW of Ells Point has been previously described in paragraph 16.20.

Stiu Rock, 20m high, lies in the middle of the entrance of Gudal Bay and a below-water rock is located close S of it.

Van Inlet (53°15'N., 132°37'W.), a narrow passage, is about 5 miles long. It has high land on both sides and is entered about 2 miles N of Stiu Rock. The entrance channel is 0.2 mile wide between the fringing dangers which lie off the entrance points. A group of rocks lie about 0.5 mile within the entrance. No known dangers lie NE of this group, but care should be taken because the inlet has not been fully examined.

Small vessels with local knowledge can anchor, in a depth of 18m, off a flat at the head of the inlet.

16.24 Hunter Point (53°15'N., 132°43'W.), low and wooded, is fringed by foul ground and beds of kelp extending up to 0.5 mile offshore. A drying rock lies about 0.5 mile W of the point. Vessels rounding Hunter Point should give it a berth of at least 1 mile.

Kano Inlet (53°17'N., 132°45'W.) is entered between Hunter Point and Kindakun Point, 4.5 miles NNW. It extends about 7 miles E and then S to the anchorage at the head.

Anchorage may be obtained in the approach to Givenchy Anchorage, in a depth of about 38m, about 0.3 miles N of the wooded islet.

Small vessels may obtain a well sheltered anchorage within Givenchy Anchorage, in a depth of about 22m, about 0.2 mile from its head.

Kindakun Point (53°19'N., 132°46'W.), marked by a light, is low but can be identified by several bare islets which lie on the foul ground extending about 0.5 mile SW from it. Kindakun Rock, 0.6m high, lies about 1 mile W of the point and a dangerous rock is located about 0.3 mile N of it. The sea breaks continuously over these dangers.

Kano Inlet, seaward of the fringing dangers which lie close off both shores, is deep and clear.

16.25 Cadman Island (53°18'N., 132°39'W.), which lies in the entrance of Carew Bay on the S side of the inlet, is fringed by several islets and dangers on all except its E side.

Anchorage can be taken in Carew Bay, in depths of 36 to 51m, within the inlet lying on the E side of Cadman Island.

Kano Inlet, lying N of Carew Bay, contracts to a width of 0.8 mile and then gradually narrows towards the anchorage at its head.

Givenchy Anchorage, which lies at the head of Kano Inlet, is obstructed in the approach by a fairly high, wooded islet. The passages lying on either side of the islet are obstructed by rocks on the W side and a projecting drying reef on the E side. Anchorage can be taken, in a depth of 38m, about 0.3 mile N of the islet. Small vessels can anchor, in a depth of 21m, about 0.3 mile from the head of the inlet.

Rennell Sound

16.26 Rennell Sound (53°25'N., 132°49'W.) is entered between Kindakun Point and Kunakun Point, 10.3 miles NW. It recedes about 10 miles E and then 7 miles SE to Shields Bay and Clapp Basin. A light is shown from Kunakun Point. The N shore of the sound is indented by Seal Inlet and Tartu Inlet.

Rennell Sound and Shields Bay provide the most accessible shelter for large vessels on the W coast of the Queen Charlotte Islands. The physical features of its approach render it more easily identified than most of the other sounds and inlets, which for the most part are narrow and difficult to distinguish.

Hippa Island, lying 4.5 miles NW of Kunakun Point, and Mount Emmons, rising on the S side of the sound, are very conspicuous in clear weather. Mount Emmons, 535m high, has a pyramidal peak which appears symmetrical from all directions except N. Kunakun Point has a prominent hump surmounting its extremity, which appears as a detached rock from seaward. Kindakun Point is marked by a light.

Depths within Rennell Sound are deep and, with few exceptions, it is clear to within about 0.5 mile of the shores.

Freeman Rock (53°26'N., 132°56'W.), which occasionally breaks, lies about 2.3 miles SW of Kunakun Point.

Rennell Reef (53°23'N., 132°45'W.) consists of a rock, which dries 1.5m, and three rocks, with depths of 4.2 to 8.7m. It lies about 1.3 miles NW of Cone Head. The passage leading between the reef and the shore is deep and clear.

Gospel Island (53°23'N., 132°35'W.), fairly high and wooded, lies on the S side of an area of foul ground. Two detached shoals, with depths of 11m and 8.2m, lie within 1.5 miles W of the island. A rock, which dries 4.3m, lies about 1 mile NW of Gospel Point. Rocks, with depths of 2.1m and 5.5m, lie 0.3 mile SW of the above drying rock. On the S side of Gospel Point there is a pier and a logging boom.

Seal Inlet (53°28'N., 132°48'W.) is entered about 3.5 miles E of Kunakun Point, on the N side of the sound. It extends about 5 miles N to the head. The entrance is fouled by numerous rocks and reefs. A channel, about 0.3 mile wide, leads through these dangers and into the inlet, but local knowledge is essential for entering. The fairway, to the N of these dangers, is clear. The depths are too great for anchoring, except for small craft at the head of the inlet.

16.27 Tartu Inlet (53°26'N., 132°41'W.), entered about 4 miles E of Seal Inlet, extends about 3.5 miles N to its head. A shoal, with a depth of 8.2m, lies about midway between the entrance points. Clonard Point, the E entrance point of the inlet, is fringed by foul ground extending up to 0.3 mile offshore.

Anchorage can be taken by small vessels with local knowledge, in a depth of 23m, about 1.3 miles from the head of the inlet. Anchorage can also be taken in lesser depths near the head.

The small bay lying about 2 miles NE of Gospel Island is obstructed by some detached shoal patches and a rock which dries 4.3m. During strong W winds, a heavy sea breaks over these dangers and the shores of the bay.

Shields Bay (53°22'N., 132°32'W.), entered about 2.3 miles SE of Gospel Island, extends about 5 miles SE. It then turns S and leads into Clapp Basin. Richardson Head, located 1 mile within the bay along the S shore, is bold and steep-to. Clonard

Bay, a small indentation, lies close S of Richardson Head and is fronted by foul ground.

Anchorage can be taken in this bay, in a depth of 27m, about 0.5 mile offshore.

Shields Island (53°20'N., 132°27'W.), high and wooded, is joined to the shore to the S by a drying reef. Shields Rock, which dries 4.3m, lies about 0.8 mile W of Dawson Head, the NE extremity of the island. Two rocky shoal patches lie between Shields Rock and the island to the S. A detached rocky shoal patch, with a depth of 11.9m, lies about 0.3 mile NNW of Dawson Head.

Ells Bay (53°19'N., 132°28'W.), which has considerable depths, lies close S of the W end of Shields Island. Ells Rocks, above-water, lie near the middle of the entrance. The passages leading on both sides have considerable depths. The easternmost passage is preferred.

Anchorage can be taken in this bay to the S of the W extremity of the Shield Islands, but the depths are great.

The **Clapp Islands** (53°19'N., 132°26'W.), several in number, extend SE from the SE side of Shields Island across the entrance of Clapp Basin. Mackenzie Passage, lying on the E and S sides of these islands, leads into the basin. This passage, which has a least depth of 18m, is constricted to a width of 135m by a drying bank extending N from the S side of the channel. Local knowledge is required.

Anchorage can be taken by small vessels, in a depth of 16.5m, in the middle of Clapp Basin.

Rennell Sound to Athlow Bay

16.28 Skelu Bay (53°30'N., 132°55'W.) and its approaches, which lie between Kunakun Point and Skelu Point to the NW, have not been examined and should be approached with caution. The bay lies N and E of Sadler Island, about 2 miles N of Kunakun Point, but is unsuitable as an anchorage, being fully exposed to the W and SW.

Hippa Island (53°32'N., 132°58'W.), 486m high near its SE end, is separated from Skelu Point by Hippa Passage. The island is conspicuous and readily distinguished from a considerable distance in clear weather. A light is shown from the W side of the island. Foul ground extends up to 0.3 mile from the S and SW sides of the island.

Quequitz Reefs, a large area of foul ground, is about 0.8 mile wide and lies off the NW extremity of Hippa Island. Numerous above and below-water rocks, and several islets lie within the limits of these reefs. Some of the rocks and shoal patches are marked by kelp.

Hippa Passage (53°31'N., 132°57'W.), entered between Hippa Island and Skelu Point to the SE, extends N and then NW along the N coast of the island. A conspicuous pinnacle rock, 35m high, stands on the E side of the passage, about 0.5 mile N of Skelu Point. A rock, 7m high, lies in the middle of the fairway, about 0.3 mile offshore. Another rock, with a depth of 7m, lies about 0.5 mile farther W. Several drying and below-water rocks lie between the two.

Hippa Rocks, two in number, lie close together on an area of foul ground, about 0.8 mile N of the NW extremity of Hippa Island. The tallest rock is 4m high. The passage leading S of these dangers is narrow but deep.

Marchand Point (53°34'N., 132°59'W.), low and fringed by

foul ground, is located 0.5 mile E of Hippa Rocks. The passage leading between the foul ground fringing the point and Hippa Rocks is about 0.4 mile wide and deep.

16.29 Nesto Inlet (53°33'N., 132°56'W.), entered about 1 mile NE of Hippa Island, is deep and clear in its central part, but foul at its head. A narrow ridge of foul ground extends about 0.5 mile SW from the W entrance point of the inlet.

A rock, with a depth of 6.4m, lies at the outer end of this ridge. The depths within Nesto Inlet are too great for anchoring, but small craft with local knowledge can shelter off the beach at its head.

Selvesen Point (53°35'N., 133°00'W.), fronted by a reef which has not been examined, lies about 1.8 miles N of Marchand Point. The bay lying between the two points is exposed and of no importance. A detached shoal, with a depth of 8.5m and marked by kelp, lies in the middle of the entrance of this bay, about 0.5 mile NNW of Marchand Point.

The detached reef lying W of Selvesen Point has by a rock, 3m high, located at its S end. Kelp beds lie at the opposite end of the reef, about 13 miles N.

Athlow Bay

16.30 Athlow Bay (53°38'N., 133°00'W.) is entered between Selvesen Point and an unnamed point, 4.5 miles N. It has not been completely surveyed. Port Chanal lies in its SE part.

Selvesen Island (53°36'N., 133°00'W.), small and wooded, lies close N of Selvesen Point and a rock, which dries 4m, is located about 0.5 mile N of it.

Hughes Point, high and cliffy, is located 1 mile ENE of Selvesen Point and a rock, which dries 0.9m, lies about 0.3 mile NE of it.

Flamingo Rock (53°38'N., 133°00'W.), which breaks in heavy weather, lies about 2.3 miles NW of Hughes Point.

Gillan Point (53°38'N., 132°58'W.), the SW extremity of an irregular shaped peninsula which extends about 1 mile W from the general line of the coast, lies in the middle of Athlow Bay. Hosu Cove, encumbered by numerous islets and rocks, lies N of this peninsula.

Barry Island (53°37'N., 132°56'W.), 77m high and wooded, lies about 1.5 miles SE of Gillan Point. Some islets lie close off the N and S extremities of this island.

Freeman Island (53°36'N., 132°56'W.), located 0.5 mile S of Barry Island, is irregular in shape and moderately high. A drying rock and some shoals lie within 0.2 mile of the NW part of the island.

16.31 Port Chanal (53°36'N., 132°53'W.), located in the SE part of Athlow Bay, is entered through the channel which lies between Barry Island and Freeman Island. The channel, to the E of the entrance, is deep, but anchorage can be taken about 1 mile from the head.

The Cameron Range, a conspicuous group of bare peaks, rises about 1 mile N of Port Chanal. The tallest peak is 791m high. Mount Hobbs, with a bare summit 716m high, stands 1 mile SE of the port.

Mallard Rock, 1.8m high and with two shoal patches located close N of it, lies on the S side of the channel, about 1.3 miles

from the head of Port Chanal. Chanal Rock, 1.2m high, lies on the same side of the channel, about 0.8 mile ENE.

Anchorage can be taken, in a depth of 42m, close N of Mallard Rock. Small vessels with local knowledge can anchor, in a depth of 9m, near the head of the port.

No attempt should be made by vessels to enter Port Chanal except in clear weather.

Empire Anchorage (53°35'N., 132°54'W.) lies in a small bay about 0.5 mile SE of Freeman Island. Both shores and the head of the bay are foul, providing only restricted, temporary anchorage space for small vessels with local knowledge.

Athlow Bay to Cape Knox

16.32 Louis Point (53°42'N., 133°02'W.) is the N extremity of an islet which lies close off the outer end of the peninsula forming the N side of Athlow Bay. This point is fronted by several detached, rocky shoal patches which lie up to 1.5 miles SW, 0.5 mile N, and 0.8 mile NW of it.

Heavy breakers are reported to mark the southwesternmost of these dangers. This area should be given a wide berth when passing, because of the approximate positions of some of these dangers.

Louis Rocks (53°42'N., 133°03'W.), consisting of two very low above-water rocks, lie about 0.8 mile NW of Louis Point with several drying heads in between. A rock, which dries 3.4m, lies at the outer edge of the foul ground extending N from Louis Point.

Several islets lie within 0.5 mile of the shore between Louis Point and Kiokathli Inlet, about 1 mile ESE.

Taylor Shoal (53°42'N., 133°01'W.), a bank about 0.8 mile long and 0.3 mile wide, lies about 0.8 mile NE of Louis Point. Two separate shoal areas, with depths of 3.3 to 6.4m, lie within the limits of this bank and break with a W swell. A similar breaking shoal, with a depth of 5.5m, lies about midway between the S end of Taylor Shoal and an islet located to the S. The channel leading to Kiokathli Inlet passes E of these shoals.

Kiokathli Inlet (53°41'N., 133°00'W.) is entered through a narrow channel, with a depth of 12.8m, which passes W of the Brock Islands and Mackenzie Island. A shoal patch, with a depth of 6.4m, lies in the middle of this channel, close SW of the northwesternmost of the Brock Islands. The basin within the inlet is about 0.3 mile wide, but is encumbered by shoals.

The **Solide Islands** (53°42'N., 132°59'W.), four in number, lie across the approach to Port Louis to the E. Numerous shoals lie in the vicinity of these islands.

16.33 Port Louis (53°42'N., 132°57'W.), entered between the Solide Islands and Chanal Point, provides sheltered anchorage for vessels in its central part. Ironside Mountain, 796m high, stands about 1.5 miles NE of the head of the port.

The S side of the channel between the Solide Islands and Queen Island, about 1 mile E, is bordered by irregular depths and some shoal rocky patches. A detached shoal patch, with a depth of 6m, lies about 0.3 mile N of Queen Island.

The N side of the channel between Chanal and Turner Points is bordered by foul ground, which extends up to 0.5 mile offshore in places. Several islets and drying rocks lie within the limits of this foul ground. Tingley Cove, a small foul bay, lies S of Port Louis.

Anchorage can be taken in the central part of Port Louis, in a depth of 25m, mud, about 0.5 mile E of Queen Island.

Otard Bay (53°45'N., 133°01'W.), entered between McIntosh Point and Beavis Point to the W, extends about 1.8 miles N.

Benson Rock, with a depth of less than 1.8m, lies 1 mile SSW of Beavis Point. Shoals, with depths of 4.2m and 8.2m, lie close WNW and 0.3 mile SSW, respectively, of this rock.

The Beavis Islets, surrounded by shoals, lie close S of Beavis Point. Thomas Rock, which dries 3m, lies in the middle of the entrance of the inlet. Several detached shoal patches front all except the N side of this rock.

Anchorage can be taken, in a depth of 10m, sand, near the head of the bay, but a heavy swell sets in with SE or SW gales.

Tian Bay (53°45'N., 133°04'W.), entered between Beavis Point and the Tian Islets to the W, is deep and clear in its central part. The Tian Islets, bare and conspicuous, serve to identify the entrance. They lie on a narrow area of foul ground which extends up to about 1.3 miles S from the coast. A rock, 1.2m high, lies near the S edge of this foul ground.

16.34 Tian Head (53°47'N., 133°07'W.), a prominent point with a conspicuous wooded summit rising 0.8 mile NE of it, is located 2 miles NW of Tian Bay. Tian Rock, 7m high and surrounded by foul ground, lies about 0.3 mile SW of Tian Head. A detached shoal, with a depth of 11m, lies about 1 mile W of the head. A detached rock, which dries 0.3m, lies about 1.3 miles NW of the head.

Joseph Rocks (53°49'N., 133°08'W.), up to 9m high, lie about 2.5 miles NNW of Tian Head. The foul ground which surrounds these rocks extends up to 0.4 mile from their N and S sides.

A rock, with a depth of less than 1.8m, lies about 1 mile W of Joseph Rocks. Several detached shoal patches, some marked by kelp, lie within 1 mile W and 0.8 mile N of the rock. Another rock, with a depth of 4.6m, lies about 1 mile N of Joseph Rocks.

Ingraham Bay (53°49'N., 133°06'W.) lies NE of Joseph Rocks. The central part of the bay is fouled by several detached shoal patches and a drying rock, and is of little use as an anchorage.

Kennecott Point (53°55'N., 133°09'W.), which is located 5.3 miles N of Ingraham Bay, rises about 1 mile inland to Omega Mountain. This conspicuous mountain has a summit, 372m high.

Frederick Island (53°56'N., 133°11'W.), high and densely wooded, is separated from Kennecott Point by a shallow, foul passage. In clear weather, the island is conspicuous from the W. The N and S extremities of the island are fringed by foul ground. A detached shoal patch, with a depth of 5.5m and marked by kelp, lies about 1.5 miles SW of the S extremity of the island. A light is shown from Hope Point, the NW extremity of the island.

16.35 Peril Bay (53°56'N., 133°08'W.), entered between Frederick Island and Morgan Point to the E, shoals gradually to its head. Beehive Hill, conspicuous and 130m high, stands close S of Morgan Point.

Temporary anchorage can be taken in the central part of the bay, in a depth of 11m. Vessels should be prepared to leave if a

heavy swell sets in during N winds.

Boussole Rock (53°58'N., 133°09'W.) lies in the approach to Peril Bay, about 1.5 miles N of the entrance. This rock, which breaks heavily with a moderate sea, has a depth of 5.5m. A detached shoal patch, with a depth of 8.2m, lies about 0.3 mile farther N.

White Point (54°00'N., 133°07'W.) rises about 1.8 miles SE to a conspicuous cone, 345m high. Pivot Mountain, also conspicuous, is 585m high and stands 4.3 miles ENE of the point. Some conspicuous white cliffs line the shore, about 0.3 mile NE of White Point.

La Perouse Reef (54°01'N., 133°11'W.), which dries 2.4 to 2.7m, lies between 2 miles and 2.3 miles W of White Point. A detached shoal, with a least depth of 7.3m, lies about midway between the point and the reef. Kelp marks this latter danger.

Beresford Bay (54°03'N., 133°06'W.), entered between White Point and Sadler Point to the N, is exposed and of no use as an anchorage. Its shores are fronted by foul ground marked by kelp.

Lauder Point (54°07'N., 133°06'W.) lies 1.3 miles N of Sadler Point. Newcombe Point, 165m high and conspicuous, is located close to the shore, 1.3 miles NE of this point.

Gatenby Rock (54°07'N., 133°09'W.) lies about 1.5 miles W of Lauder Point. It is awash and usually breaks. The area bounded by Sadler Point, Gatenby Rock, and Lauder Point is fouled by several detached rocky patches and some above-water rocks, and should be avoided.

Lepas Bay (54°10'N., 133°03'W.) shoals gradually to its head and is free of dangers. Because of the prevailing heavy

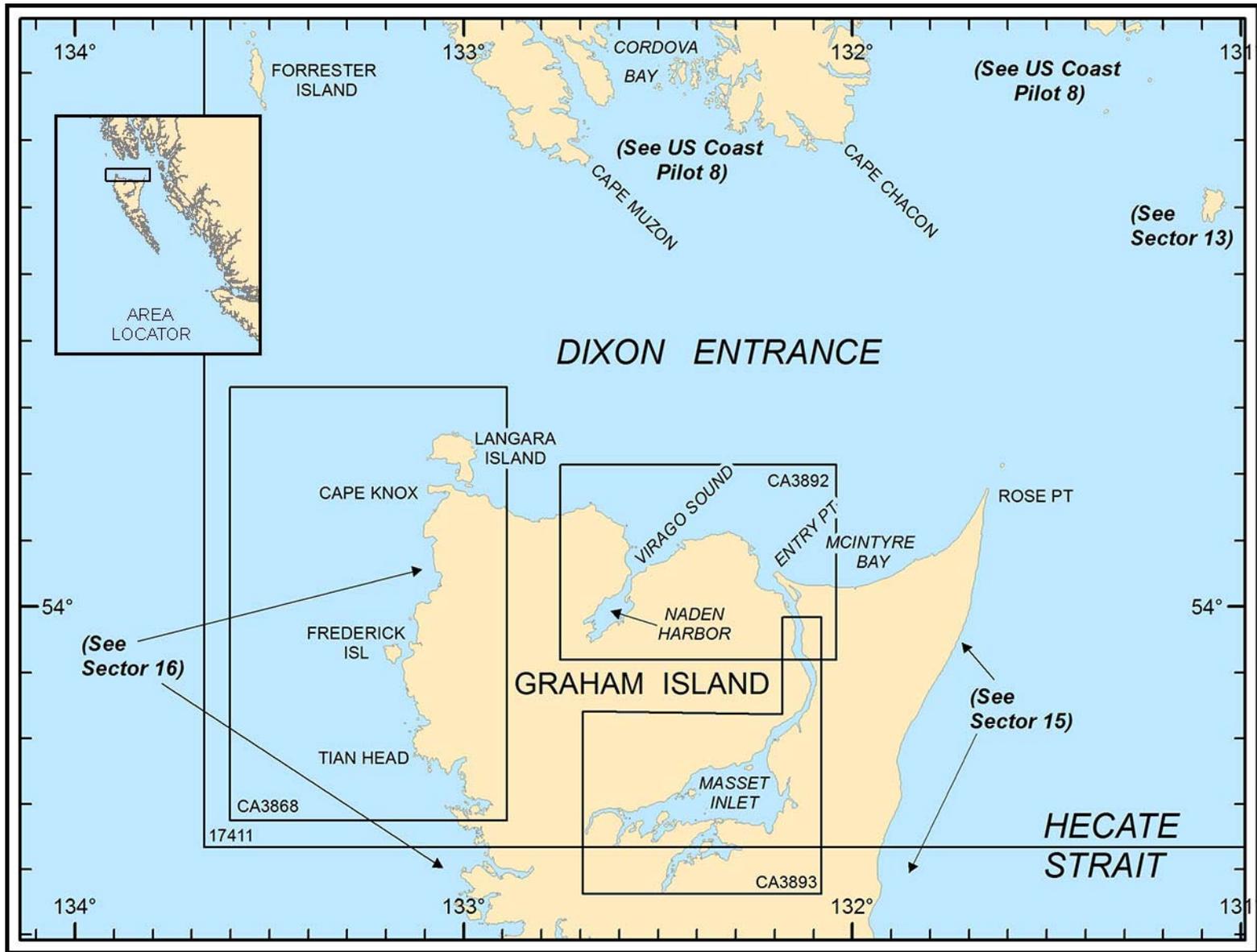


Lauder Point

swell, the bay is unsuitable as an anchorage even in good weather.

Carew Rock (54°10'N., 133°08'W.), 4m high, lies about 2 miles W of the entrance of Lepas Bay. Turner Reef, 1.5m high, lies close E of Carew Rock. The passage leading between this reef and Cape Knox, to the NE, is not recommended although it is deep and clear.

Cape Knox (54°11'N., 133°05'W.) is fully described in paragraph 17.3.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 17 — CHART INFORMATION

SECTOR 17

DIXON ENTRANCE

Plan.—This sector describes the N coast of Graham Island from Cape Knox to Rose Point including Virago Sound, Masset Sound, and Masset Inlet. The salient features on the N side of Dixon Entrance are only mentioned herein, full details are given in U.S. Coast Pilot 8, Pacific Coast Alaska—Dixon Entrance to Cape Spencer.

General Remarks

17.1 Dixon Entrance (54°30'N., 133°00'W.), the N approach from the Pacific Ocean to the inner channels of British Columbia and the S approach to those of SE Alaska, is entered from the W between the Queen Charlotte Islands, on the S side, and Dall Island, on the N.

Masset is the principal port described within the limits of this sector. This port is small, but it can accommodate ocean-going vessels.

Cape Muzon, Point Marsh, Point Nunez, and Cape Chacon are prominent features which lie on the N side of Dixon Entrance and N of the International Boundary. U.S. Coast Pilot 8, Pacific Coast Alaska—Dixon Entrance to Cape Spencer, should be consulted for complete details of these features.

Winds—Weather.—Winds from the SW predominate by day from May to September. In November and December, S and E winds become roughly equal to the SW winds and in January and February exceed them in frequency. By night, E and S winds vie with the SW ones for supremacy in winter, but from June to September, SW and W winds together account for some 40 per cent of the winds and E and SE ones become few.

Tides—Currents.—In Dixon Entrance, the tidal currents are the reversing type; the flood sets E and the ebb sets W. The mean maximum velocity is about 1.5 knots along the S side and about 2 knots along the N side. The currents are strongest around headlands where rips and overfalls often occur. In mid-channel, the current velocities are weaker, and the mean maximum rate is about 1 knot. The flood branches N into Clarence Strait and S into Hecate Strait.

In the narrows, the flood current attains a maximum rate of 2 knots and the ebb current 2.5 knots. The turn of the tidal current occurs about 15 and 20 minutes after HW and LW, respectively, by the shore.

At Masset, the N current, which attains rate of 5.5 knots at springs, runs for nearly 6 hours 30 minutes until about 2 hours 30 minutes after LW by the shore. The S current, which attains a rate of 5 knots at springs, runs for nearly 6 hours until 2 hours 15 minutes after HW by the shore.

The duration of slack water is brief, particular at spring tides.

The tidal currents attain a rate up to 2.5 knots off Cape Muzon. Between Cape Muzon and Point Marsh and S of the International Boundary, the E current attains a rate of 1.3 knots and the W current about 1.8 knots.

The tidal currents off Cape Chacon and Numez Rocks are irregular and attain a rate up to 3 knots. Weather conditions affect the currents.

The tidal currents attain a rate of 3.5 knots at springs in the channel lying between the drying part of Rose Spit and Overfall Shoal. The turn of the tidal currents in the vicinity of Rose Spit occurs approximately at the same time as HW and LW at Prince Rupert.

At times, the currents attain a maximum rate of 4 knots in the vicinity of Rose Spit, which causes heavy overfalls having the appearance of breakers, principally on its N side near the edge of the deep water.

In the inner straits and passages, the tidal currents follow the general directions of the channels, flooding into the many bays and inlets. The ebb usually sets in the opposite direction to that of the flood and generally is stronger. Mean rates at springs are fairly strong and generally range from about 1 to 3 knots. Velocities often exceed 5 knots in some of the narrow channels and strong rips may form.

In semi-enclosed inlets, the rate of the tidal current decreases toward the head and the current turns at or near the time of HW and LW.

Along the S side of the entrance, the flood sets E around the N end of Langara Island at a rate of up to 2.5 knots. In the area lying about midway between Rose Spit and Dundas Island, the current divides; the weaker part sets N towards Portland Inlet and the main flood turns SE into Hecate Strait.

Regulations.—Canadian modifications to 72 COLREGS are applied in waters under Canadian jurisdictions. See Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia for further information.

Vessel Traffic Service (VTS).—The Vessel Traffic Services Zones Regulations require all vessels greater than 500 gt to file a VTS Offshore Report 24 hours prior to entering a Canadian VTS Zone from seaward, or as soon as practical where the ETA of the ship to a Canadian VTS Zone is less than 24 hours after the time the ship departed its last port of call. Send VTS Offshore Reports to a Canadian Coast Guard MCTS Center, free of charge, or to one of the following:

1. Telephone: 250-627-3071
2. E-mail: vts.rupert@innav.gc.ca

The waters described in this sector lie within Sector 2 of the Prince Rupert Vessel Traffic Zone. For further information, see General Remarks in paragraph 11.1.

Caution.—The navigation of Dixon Entrance is difficult at night or during thick fog, when extreme care is required because of the dangers and irregular currents.

Magnetic anomalies of as much as 4° have been reported to occur along the N side of Dixon Entrance.

Off-lying Islands and Dangers

17.2 Forrester Island (54°48'N., 133°32'W.), located about 30 miles WNW of Cape Muzon, is a prominent mark for vessels approaching Dixon Entrance from the W or N. This island is wooded and mountainous, the summit, 429m high, rising near the center. Petrel Island, lying 0.5 mile S of Forrester

Island, has two wooded summits, which from a distance appear as islands. A small islet lies close N of Forrester Island and is marked by a light.

Learmonth Bank (54°30'N., 133°05'W.), about 13 miles long and 5 miles wide, lies in the fairway of the W entrance to Dixon Entrance. The bank is contained within the 200m curve and has a least depth of 36.6m. Strong tide rips and overfalls occur near the SW part of this bank.

Nunez Rocks, which dry 2.1m, lie about 1.5 miles S of Point Nunez. The rocks are often marked by breakers and marked by kelp in the summer. Shoals, with depths of 2.7m, lie up to about 0.3 mile NE and SE of Nunez Rocks. The passage leading between Nunez Rocks and Point Nunez is clear. Vessels should give Nunez Rocks a berth of at least 1 mile when passing to the S, because the tidal currents are irregular in their vicinity.

Barren Island (54°45'N., 131°21'W.), marked by a light, is a bare rock, about 9m high.

West Devil Rock, which dries 3.4m, lies about 10 miles WSW of Barren Island. A rock, with a depth of less than 1.8m and on which the sea breaks almost continuously in moderate weather, lies about 0.5 mile NNW of West Devil Rock. Foul ground, on which the sea breaks, extends up to about 0.5 mile SW from the rock and a shoal, with a depth of 11m, lies about 2.3 miles SE of it. These dangers are all steep-to.

Celestial Reef (54°31'N., 131°28'W.) consists of three rocky heads, one with a depth of less than 1.8m and the other two with depths of 3m and 17.4m. The reef lies on the SE part of a bank, which has depths of 18 to 36.6m. Shoal patches, with depths of 29m and 15.8m, lie about 4 miles NNW and 2 miles S, respectively, of the reef.

Dixon Entrance—South Side

17.3 Cape Knox (54°11'N., 133°05'W.) is a narrow tongue of densely wooded land which extends about 2 miles W from the NW extremity of Graham Island.

The coast between Cape Knox and Cape Naden, 18 miles E, is rocky and fronted by occasional low cliffs and gravel beaches. The land behind this part of the coast is generally low, rising gradually to the mountainous country in the NW part of Graham Island. Pivot Mountain (see paragraph 16.35), which stands in the NW part of Graham Island, is conspicuous from the NE part of Dixon Entrance.

Virago Sound, the approach to Naden Harbor, lies between Cape Naden and Wiah Point, 9 miles E. The coast on each side of the sound is low and wooded, with occasional open grassy spaces. The entrance of Masset Sound lies on the E side of Wiah Point. The coast between Wiah Point and Rose Point, 23 miles E, is low, densely wooded, and swampy with low sand hills fringing the woods. Tow Hill is the only prominent landmark rising on this part of the coast.

Langara Island (54°14'N., 133°02'W.), the SW extremity of which is located 2.5 miles N of Cape Knox, is the northernmost of the Queen Charlotte Islands. The island is irregularly shaped and densely wooded. A succession of rounded hills, up to 160m high, stands in the central part of the island and the W and N shores are rocky and precipitous. These rugged shores are fully exposed to the prevailing ocean swell and it is only on the calmest days that landing can be effected. The cliffs on the

W side of the island rise in high pinnacles of sandstone.

Thrumb Islet, 20m high with some stunted bushes on it, lies on a drying rocky ledge which extends close off the NW extremity of the island. A rock, awash and on which the sea breaks in moderate weather, lies about 0.4 mile SW of the islet, with foul ground between.

17.4 Langara Point (54°15'N., 133°04'W.), marked by a light, is located 0.8 mile NE of Thrumb Islet. A square white building stands near the light structure.

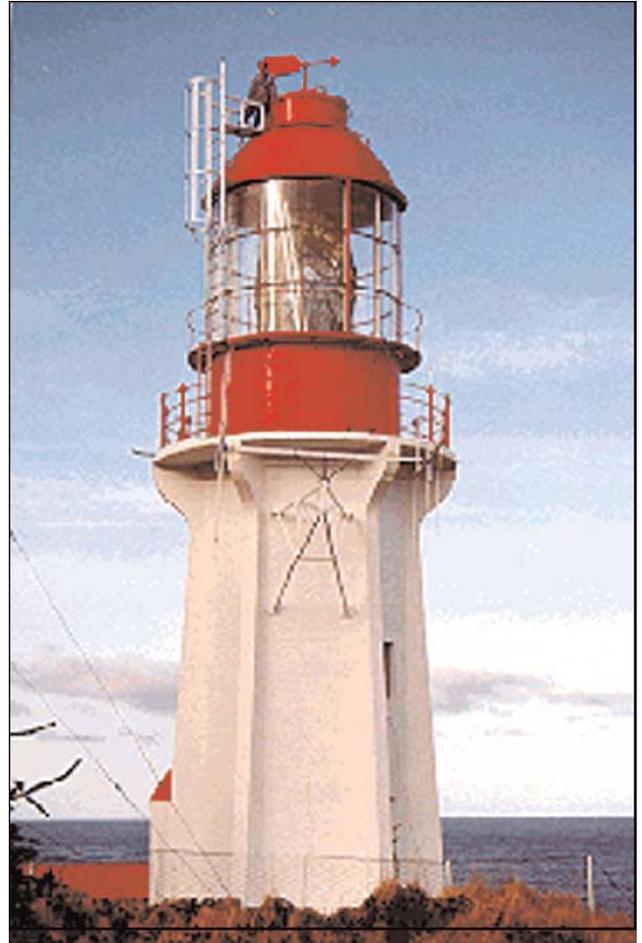


Photo copyright Chris Mills

Langara Point Light

Langara Rocks, lying about 1.3 miles E of Langara Point, are two bare, somewhat prominent rocks, 8m and 9m high. These rocks, located about 0.4 mile apart, lie about 0.4 mile offshore and there is foul ground between and close around them.

A shoal, with a depth of 7.3m, was reported (1962) to be marked by kelp and to lie about 0.6 mile ENE of Langara Point. Kelp, indicating a series of shoals, lies between this reported shoal patch and Langara Rocks.

Andrews Point projects 0.3 mile from the E shore of Langara Island and the tidal currents off it run strongly. A ledge of

above-water rocks extends about 0.2 mile NE from the point. Explorer Bay and Dibrell Bay are two bights lying on the N and S sides, respectively, of Andrews Point; these bays are deep, fully exposed to the N and E, and afford indifferent anchorage.

Egeria Bay, which affords the best anchorage in this vicinity, recedes about 1 mile SW between Cohoe Point, the S entrance point of Dibrell Bay, and a point located 1.5 miles SSW. This bay is sheltered from all except E winds, which, if strong enough, raise a sea sufficiently heavy to render the anchorage untenable. A rock, with a depth of 31.1m, lies about 1.8 miles ESE of Cohoe Point.

Anchorage can be taken in depths of 26 to 28m, mud, with the head of the bay bearing about 287° and Cohoe Point bearing 017°. Large vessels should anchor farther out in a depth of 33m with the above-water rocks lying off Andrews Point open E of Cohoe Point.

During the summer and autumn, kelp is visible growing in depths of up to 15m along the shore of Egeria Bay to the E entrance of Parry Passage.

Parry Passage

17.5 Parry Passage (54°12'N., 133°02'W.) separates Langara Island from the NW end of Graham Island. This passage has a least width of 0.3 mile between the dangers lying on either side. It trends generally ESE for about 5 miles from Ocean Shoal to Gunia Point. Depths of more than 33m lie in the fairway.

Ocean Shoal, with a least depth of 13.7m and on which the sea breaks heavily with a moderate swell, lies in the W entrance of Parry Passage, about 0.8 mile N of Cape Knox. Vessels should pass N of this shoal.

Meares Point, located 2 miles E of Cape Knox, is low and partly cleared. Totem poles standing in the clearing on the shore to the SE of the point mark the sites of two deserted Indian villages.

Chanal Reef, nearly covered at HW and on which the sea always breaks, lies with its N side located about 0.3 mile N of Meares Point. It is steep-to on the N or channel side. Foul ground, marked by large fields of kelp, extends up to about 0.5 mile W from the highest part of the reef. A rock, 1.5m high, lies on the NE edge of this reef.

Marchand Reef, a rocky ledge which dries, extends E from the shore between the deserted Indian villages and terminates in a shallow spit. Astrolabe Rock, with a depth of less than 1.8m, lies near the E extremity of this reef.

Bruin Bay occupies a bight that recedes less than 0.5 mile SE from a point on the coast located about 1.8 miles ESE of Meares Point. A rock, with a depth of 6.5m, lies in the middle of the bay.

Anchorage in the bay is not recommended, as the flood tidal current forms eddies which cause considerable yawing.

Gunia Point, the S entrance point of the E end of Parry Passage, is somewhat conspicuous because of the high land rising behind it.

Douglas Rock, which dries 2.4m, lies close WNW of Gunia Point and is fronted by an area of foul ground that extends to the shore of the bight lying to the S.

Coneehaw Rock, 0.6m high, lies about 0.4 mile ENE of Gunia Point. It is located on the N side of a shoal with depths

of less than 5.5m. The channel leading between Gunia Point and the shoal is deep and free from dangers. A detached shoal patch, with a depth of 8.2m, lies about 0.2 mile ESE of the rock, but is reported to be unsurveyed. A rock, with a depth of 18.3m, lies in the fairway, about 0.3 mile NW of Coneehaw Rock.

17.6 Lacy Island (54°13'N., 133°05'W.), 20m high and bare, lies off the SW extremity of Langara Island, with foul ground between. This island is the N point of approach to the W entrance of Parry Passage.

Cloak Bay occupies the outer part of the bight which lies between Rhodes Point and Iphigenia Point, on the SW side of Langara Island. Foul ground, marked by kelp, extends about 0.1 mile offshore in places from the N side of the bay, between Rhodes Point and Hart Point, 1 mile E. A rock, 3m high, lies at the end of the drying reef which extends about 0.3 mile SW from Hart Point. Entry to the bay is best affected from the S, between the SE end of Swanton Bank, described below, and the W side of Iphigenia Point.

Swanton Bank (54°12'N., 133°02'W.), with general depths of 1.8 to 17m and on which kelp is present during the summer and autumn, occupies a large part of the entrance of Cloak Bay. A rock, with a depth of 5.8m, lies close to the SE extremity of Swanton Bank.

Harvey Rock, with a depth of less than 1.8m and which generally breaks, lies near the N end of the bank, about 0.5 mile S of Rhodes Point. The bank breaks heavily with a SW swell, which is felt almost as far as Hazardous Cove. Under these conditions, vessels cannot reach the cove. The passage leading between the SE end of Swanton Bank and the foul ground lying W of Cox Island is about 0.2 mile wide.

Sunday Reef, a rocky ledge, lies about 0.3 mile S of Hart Point and at the entrance of Hazardous Cove. This reef is steep-to, awash at HW, and dries 3.7m at LW.

Cox Island, 115m high and densely wooded, lies in the E part of Cloak Bay. The island is precipitous on its W and S sides with sheer cliffs; some prominent rock pillars lie close off the cliffs.

In calm and settled weather, temporary anchorage can be taken in a depth of 27m. The berth lies with the summit of Cox Island bearing 044°, distant 0.5 mile, and the extremity of the land near Iphigenia Point bearing 147°. A more sheltered berth lies in a depth of 33m with the summit of Cox Island bearing 107°, distant 0.5 mile, and the SW extremity of the land near Iphigenia Point bearing 158°. These anchorages are exposed to the W and are seldom free from the prevailing ocean swell, which at times may become heavy without any apparent cause.

Iphigenia Point, located 1.5 miles S of Hart Point, is the S extremity of a steep, rounded bluff, which rises to a height of 122m a short distance inland. Some conspicuous rock pillars lie close off the SW face of the bluff. The S side of the point is steep-to. A light is shown from Iphigenia Point.

17.7 Lucy Island (54°11'N., 132°59'W.), lying close off the S extremity of Langara Island, is densely wooded and rises to a well-defined summit, 69m high. A rock, which dries 4.3m, lies about 0.2 mile SW of the E end of the island and a shoal, with a depth of 2.9m, lies close S of it. Below-water reefs, with rocks up to 1.5m high, extend about 0.3 mile E from the E end

of the island. A light, which is obscured to the W, is shown on the E end of the island.

Solide Passage, which separates Lucy Island from the S extremity of Langara Island, has a least width of 90m between the shoals lying on either side. The fairway has a least depth of 5.5m, near its E end. The passage is bordered by rocky ledges on both sides, and its use is recommended only for small vessels with local knowledge.

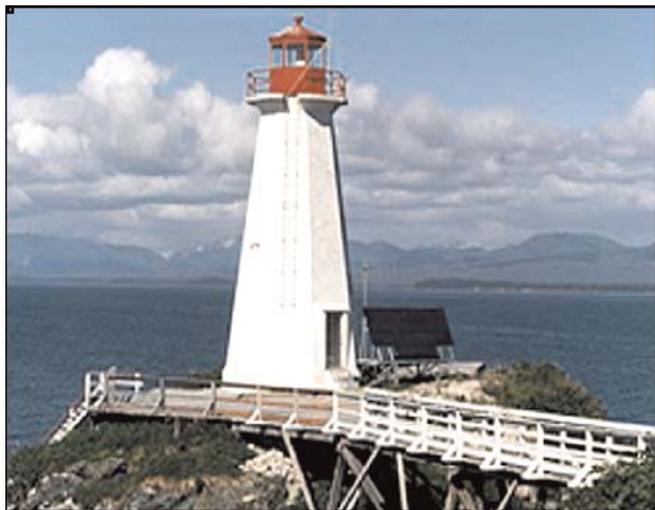


Photo copyright Mike Mitchell

Lucy Island Light

Vessels should make their approach with Lucy Island bearing no less than 040°. The course should then be altered to head for Iphigenia Point Light bearing 113°. When clear of Channel Reef, the course should be altered to 123° in order to pass 0.1 mile off the land to the NW of the point.

When Iphigenia Point Light bears 316°, astern, the course should be altered to 136° until Lucy Island Light bears 070°. A heading of 104° toward Gunia Point should then be taken. With Lucy Island Light bearing 000°, the course should be altered to a safe heading in order to clear Douglas Rock and the dangers lying SE.

Caution.—Parry Passage presents no difficulties in clear weather and is suitable for ocean-going vessels. During thick or foggy weather, vessels approaching from the S must take care not to mistake Lepas Bay for the entrance to the passage, the opening of which is not very apparent until past Cape Knox.

The currents S and W of Lucy Island run strong and vessels should have full power available, so as to be able to swing against them in the narrow part of the passage.

17.8 Pillar Bay (54°09'N., 132°55'W.), which affords a temporary shelter with W and offshore winds, recedes about 1 mile SE between a point located 0.8 mile SE of Gunia Point and Seath Point, 1.5 miles ESE. Pillar Rock, a prominent columnar mass of sandstone and conglomerate rock, is 29m high. It is surmounted by bushes and lies in the E part of the bay near the edge of a rocky ledge which extends from the shore at LW.

Anchorage can be taken in a depth of 24m with Pillar Rock bearing about 152°, distant 0.8 mile. Boats may find shelter behind some of the rocky points in the bay.

Nankivell Point, located 3.5 miles ESE of Seath Point, is the entrance point of the Jalun River, which affords shelter to boats at HW close within its mouth. Drying rocks encumber the entrance of this river.

Klashwun Point, a conspicuous promontory of uniform height with a distinct summit rising near its W part, is located 5 miles ENE of Nankivell Point. The summit, 164m high, is visible from a considerable distance and provides a useful landmark due to the low, flat character of the adjacent coast. The site of the deserted village of Yats is situated close SE of the point.

Shag Rock, which dries 4m and from which a light is shown, is steep-to. It lies about 0.4 mile NE of Klashwun Point.

Caution.—Caution is required when approaching this part of the coast as it is fronted by dangers and vessels are recommended not to approach within depths of less than 26m. Numerous shoals lie within 1 mile of the shore, especially in the vicinity of Nankivell Point.

Virago Sound and Naden Harbor

17.9 Virago Sound (54°06'N., 132°30'W.) is entered between Cape Naden, on the W side, and Cape Edensaw, a low and somewhat conspicuous point, 5.3 miles ESE.

The high promontory of land at Klashwun Point, visible for some distance, is a useful guide for the approach to the sound. The highest part of Langara Island is also visible in clear weather from the entrance of the sound. The Mazarredo Islands and the entrance to Alexandra Narrows, both of which are described below, can be seen as the entrance of the sound is approached.

Hanna Bay and Hussan Bay, with Jorey Point between, lie on the W side of the sound between Cape Naden and Mary Point, 4.5 miles S. Foul ground fronts the shore of Hanna Bay and is fringed by large kelp fields growing in depths of up to 11m. The outermost danger, a small ledge which dries 1.8m, lies near the middle of the bay and about 1 mile SSE of Cape Naden. Hussan Bay is encumbered with drying rocks and flats, and is fronted by a dense kelp field.

The Mazarredo Islands, two in number, are wooded and lie within 0.6 mile E of Jorey Point to which they are connected by a stony ridge that covers at about half tide. A rock, 2.5m high, lies about 0.1 mile NE of the outermost island.

The Bar, composed of stones and gravel, is covered in most parts with kelp during the summer and autumn. It extends from Inskip Point, located 4 miles SW of Cape Edensaw, towards the central part of Hussan Bay. There is seldom any appreciable swell on The Bar.

Hastings Reef, nearly awash at its NW end during the lowest tides, lies close S of the middle of The Bar. Vessels can pass about 0.3 mile on either side of this reef, but Smyth Passage, lying on the E side, is favored.

Alexandra Narrows, which have a least width of 0.1 mile abreast of Haswell Reef, lead from Virago Sound into Naden Harbor. The narrows, free of eddies, are not difficult to navigate, but careful attention is required when rounding George Point.

Richard III Bank, which dries 1.2m near its central part, lies close S of George Point and fronts the E side of the narrows.

The tides rise about 4.6m at springs and 3.8m at neaps. The flood current attains a maximum rate of 2 knots and the ebb current 2.5 knots. Slack water occurs about 5 minutes after HW and LW at Prince Rupert.

A buoy, moored on the N side of the bar, marks a shoal with a depth of 3.2m. Hodgson Passage, which passes W of the bar, is indicated by a lighted range. However, use of this range is recommended only to small vessels with local knowledge.

17.10 Naden Harbor (54°00'N., 132°37'W.) (World Port Index No.18990), lying close S of Alexandra Narrows, consists of a large and nearly landlocked basin. The shores of the basin are low and wooded. The basin affords good shelter to all vessels which can enter and provides excellent anchorage for an extended stay.

A cannery is situated on the S side of George Point. There is no permanent settlement; however, the village of Kung, standing on Mary Point, is usually occupied in the summer.

A wharf, 170m long, fronts an abandoned whaling station on the W side of Naden Harbor. It was reported that this wharf is in a bad state of repair and unfit for use.

Small vessels waiting to cross the bar can anchor in a depth of 11m about 1.3 miles NNW of Inskip Point with Mary Point in line with Bain Point, bearing 209°. Larger vessels can anchor farther out in the same depth, to the E of the Mazarredo Islands.

Naden Harbor affords sheltered anchorage from all winds in depths of 11 to 22m, mud, almost anywhere within it. Craft Bay, lying on the E side of the harbor, provides even better shelter for small vessels.

The Naden River, flowing into the head of the harbor, drains Roy Lake. Its mouth is fronted by extensive flats that dry, but the river is navigable by boats through a difficult channel for 2 miles. A number of creeks flow into the S portion of the harbor and Tee Island, high and wooded, lies off the SE shore.

17.11 Cape Edensaw (54°06'N., 132°26'W.) is the W extremity of a section of low, wooded coast. This section is fringed with a rocky ledge for 4 miles to Wiah Point. The land backing this part of the coast is considerably lower than that to the W of Cape Naden and provides a good contrast when approaching from the N.

Wiah Point, from which a rocky ledge extends about 0.3 mile N, has no distinguishing features, particularly when seen from the N. A light is shown from the outer end of the reef which extends NE from the point. A lighted buoy is moored about 0.1 mile N of the reef.

Refuge Island, lying less than 0.5 mile E of Wiah Point, is located at the SW end of a large, rocky ledge which dries. The Indian village of Mia-Kwun is situated at the head of a boat harbor which lies between Refuge Island and Wiah Point. A light is shown from the head of this boat harbor. Floating fish camps are situated in the boat harbor during the fishing season, approximately May 1 to September 15.

Hidden Island, wooded and from which a drying ledge extends about 0.4 mile NE, lies 1.5 miles ESE of Wiah Point. Foul ground, with above and below-water rocks, extends up to about 0.3 mile N and E from the drying rocky ledge.

The Striae Islands, lying 2.8 miles SE of Wiah Point, are located on some drying rocky ledges off a bight in the coast to which they are connected at LW. The northwesternmost and largest of the islands is 38m high, thickly wooded, and somewhat conspicuous when approaching Masset Harbor. A light is shown from the easternmost of the Striae Islands.

17.12 Masset Harbor (54°01'N., 132°09'W.) (World Port Index No. 19000) is entered between Westacott Point, located 3.5 miles SE of Wiah Point, and Entry Point, 2.5 miles SE. The entrance of the harbor is difficult to identify from the NE as the coast in the vicinity is low and featureless.

Winds—Weather.—Winds from the SE predominate from October to April, generally occurring on 30 per cent of the observations. Winds from the N and NE are also fairly common during this period.

From May to September, winds from the W and NW are reported about 50 per cent of the time, with SE winds now averaging about 25 per cent. The mean number of days per month with gales averages about 1 from October to March. Gales are rarely encountered in the summer, but calms are also infrequent.

Tides—Currents.—The tides rise about 3.6m at springs and 3m at neaps.

The N current, which attains a rate of 5.5 knots at springs, runs for nearly 6 hours 30 minutes until about 2 hours 30 minutes after LW by the shore. The S current, which attains a rate of 5 knots at springs, runs for nearly 6 hours until about 2 hours 15 minutes after HW by the shore.

The duration of slack water is brief, particularly at spring tides.

Depths—Limitations.—Venture Banks, the outermost dangers lying off the harbor, have a least depth of 1.8m located about 3.5 miles NNE of the N extremity of Entry Point. These banks are fairly steep-to on their N sides and the sea frequently breaks heavily over them.

Outer Bar, a narrow ridge of sand and gravel, extends up to about 2.5 miles NE from Westacott Point. The least depth in the fairway over the Outer Bar is 5.8m.

Inner Bar, a narrow ridge of gravel, extends about 2.5 miles NNE from a position lying about 0.8 mile NW of Entry Point. The least depth in the fairway over the Inner Bar is 4.6m.

Troup Bank, which dries in patches, extends 1.5 miles N from the NE side of Entry Point. A shingle spit, 0.7m high, extends about 0.5 mile N from the N extremity of the same point.

Davy Ledge, which dries 1.5m, lies about 0.3 mile ENE of Westacott Point.

Susan Bank, which nearly dries, and Wimble Rocks, which dry 2.7m, front the SE part of Sturgess Bay on the W side of the harbor.

Entry Point, the E entrance point of the harbor, is the NW extremity of a low, rounded, and densely wooded promontory. The W side of the promontory between Entry Point and Camp Point, 4.5 miles SE, forms the E shore of the harbor which is fairly steep-to.

A wharf, with a T-head, provides a berth, 30m long. It has a depth of 4.9m alongside and is situated at the Indian village of old Masset.

A government wharf, 147m long, is situated at 0.3 mile NW of Harrison Point. It is L-shaped and has a head, 18m long,

with a depth of 7.3m alongside. There are two landing floats at this wharf and a loading ramp for ro-ro vessels.

Another wharf, 96m long, is situated close N of the government wharf. It has a T-head, 46m long.

Delkatla Inlet is entered between Harrison Point, located 3 miles SE of Entry Point, and Skaga Point, 0.5 mile S. This inlet dries with the exception of a dredged channel, 25m wide and 0.3 mile long. This channel leads to a dredged boat basin, 73m wide and 0.1 mile long. The least depth in the channel and the boat basin is 1.5m. Buoys mark the entrance to the channel. A mooring buoy is situated close NW of the seaplane landing at Skaga Point.

Aspect.—The deserted Indian village of Yan stands about 1 mile S of Westacott Point. Several totem poles, which are conspicuous, are situated in the area.

A lighted range, which may best be seen on the chart, indicates the channel leading over the bars.

Anchorage.—Anchorage can be taken on the entrance range line with Striae Islands Light bearing 213°, distant about 0.8 mile. The berth lies in a depth of 12m, sand and mud, but is exposed to the tidal currents making it unpleasant, especially during N winds, to which it is fully exposed.

Vessels usually anchor in a depth of 25m, poor holding ground, off the Indian village of Old Masset for purposes of communication. This anchorage is fully exposed to the strength of both tidal currents. Vessels should not remain here during the night.

Small vessels can anchor in a depth of 14m about 0.3 mile S of Skaga Point. This anchorage is somewhat out of the main strength of the tidal currents, but the swinging room is limited.

Small craft can find shelter within the dredged boat basin in Delkatla Inlet.

Caution.—Slightly shallower depths than charted may exist on the range over Inner Bar and caution is advised.

Vessels should not enter the harbor during the strength of the tidal currents. Anchorage within the bars is not recommended overnight. Larger vessels should cross the bars just before HW.

Care must be taken not to be set down on to the shoals lying off Rooney Point.

Submarine pipelines, which may best be seen on the chart, lie offshore between Entry Point and Harrison Point.

17.13 Masset Sound, a narrow passage lying between Masset Harbor and Masset Inlet, trends S for 15 miles. This sound leads from Crowell Point and Camp Point, its NW and NE entrance points, to Ship Island at its junction with Masset Inlet.

The tidal currents, which follow the general trend of the sound, are strong because this narrow passage expands into the large body of water of Masset Inlet.

Masset Sound has a navigable channel, about 0.3 mile wide, extending as far as Cook Point, located 3 miles from the S end of the sound. The channel here is reduced to a width of about 0.1 mile. The fairway has general depths of over 12m and a least depth of 8.8m, lying about 1 mile SSE of Griffith Point.

Griffith Point, which is steep-to, is located 3 miles S of Camp Point.

The site of the deserted Indian village of Watun is situated at the mouth of the Watun River, 2.3 miles SSE of Griffith Point. A rock, with a depth of less than 1.8m, was reported to lie about 0.1 mile offshore, about 0.3 mile NW of the mouth of the

Watun River.

The site of the deserted Indian village of Nadu is situated at the mouth of the Nadu River. A shoal patch, with a depth of 9.8m, lies in the center of the channel and 0.4 mile NW of Nadu.

Hogan Point, the N extremity of Kumdis Island, is located 0.5 mile SW of Nadu. Kumdis Island forms the S part of the E shore of Masset Sound and the NE part of Masset Inlet. Kumdis Slough, a narrow and shoal passage, dries near its central part and separates Kumdis Island from the main island.

Cub Island, lying 2.5 miles SW of Hogan Point, is 20m high. This island is the outermost of four islands lying close off the W side of Kumdis Island. Foul ground, with a rock which dries 1.5m at its W extremity, extends up to 0.8 mile W from a position on the W side of Kumdis Island, 1.8 miles SW of Hogan Point.

A drying flat occupies the bight which lies about 3 miles S of Crowell Point. Shoals, marked by kelp, extend up to about 0.2 mile E from the edge of the drying flat.

Allan Point is located 8.5 miles S of Crowell Point. A rock, with a depth of less than 1.8m, lies about 0.2 mile offshore, about 2 miles SW of this point.

Cook Point is located 3.5 miles SW of Allan Point. A drying bank extends about 0.1 mile E from the point and a light is shown from its E extremity.

Collison Point is located 1.5 miles SSW of Cook Point. Ship Island, 84m high and wooded, lies 2 miles SW of Collison Point and at the S end of Masset Sound at its junction with Masset Inlet. Ship Kieta Island is connected with the W side of Ship Island by a drying bank. Stubbs Rock, which dries 1.8m, lies about 0.5 mile SW of Ship Island. Foul ground lies between Ship Island and Stubbs Rock, which is marked by a buoy.

Sloop Islet, from which a light is shown, lies 0.3 mile E of Ship Island. A rock, with a depth of 3.7m, lies about 0.3 mile SSW of this islet.

Caution.—The tidal currents in Masset Sound are strong, but generally follow the line of the channel. Vessels usually have no trouble maintaining their position in the fairway, except in the vicinity of Cook Point, where the channel narrows considerably, and this part should be navigated at or near slack water.

17.14 Masset Inlet is entered between Ship Island and the W side of Kumdis Island. The E part of the inlet is encumbered by Borrowman Shoals and its shores are low. The W part of the inlet is deep and its shores rise steeply to heights of more than 610m.

Dinan Bay lies at the W extremity of Masset Inlet. Dinan Bay extends 5 miles W and SW. Mutus Island, 58m high, lies in the middle of the entrance. Foul ground and drying rocks extend 0.5 mile SE of the island to an islet, 33m high. Foul ground also extends NW of Mutus Island to the shore. A rock, awash, lies close S of Mutus Island.

Range beacons are situated close to the shore, within 1 mile of the entrance. These beacons, in line, lead through a very narrow passage close to the S shore. McClinton Bay lies close E of Dinan Bay. It is deep and clear of danger to within 0.8 mile of the head and to within 0.2 mile of the shore. There are several groups of islands which lie within Masset Inlet, the most

central group being the Dawson Islands. Juskatla Inlet is a large recess in the shore on the S side of Masset Inlet.

The tidal currents in Masset Inlet seldom attain a rate of more than 1.5 knots.

Borrowman Shoals, which occupy nearly the whole of the E part of Masset Inlet, consist of two extensive shoals lying N and S of each other with a deep channel between. These shoals are contained within the 5m curve, which lies up to 2 miles off the E shore. The northernmost shoal has a least depth of 0.9m and the southernmost shoal has a least depth of 2.7m.

17.15 Port Clements (53°41'N., 132°11'W.) (World Port Index No. 19030), situated on a small promontory at the SE end of Masset Inlet, affords shelter for small craft.

A breakwater, marked by a beacon at its E extremity, extends NW and E from the N side of the promontory. Two L-shaped floats, with depths of 3.1m alongside, are situated inside the breakwater. A mooring buoy is situated close N of the breakwater. A wharf, situated on the W side of the promontory, has a depth of 5.2m alongside.

Good anchorage can be taken by vessels waiting to berth at Port Clements off the S shore of Masset Inlet. The berth lies in a depth of 13m, mud, about 2 miles WSW of the settlement.

Small craft can obtain shelter from W winds in Ferguson Bay, under Echinus Point, about 1.5 miles farther W. Rocks, with a least depth of 1.2m, lie about 0.4 mile E of Echinus Point.

The **Dawson Islands** (53°43'N., 132°21'W.), a group of islands up to 29m high, lie near the central part of Masset Inlet. A number of drying rocks lie within this group. A light is shown from the southeasternmost island of the group.

Mackie Rock, awash at HW and drying about 2.4m at LW, lies about 1.5 miles NW of Echinus Point and is marked by a beacon.

The Cowley Islands, 56m high, lie about 1.5 miles SSW of the Dawson Islands. Cowley Rock, which dries 0.3m, lies about 0.2 mile E of the easternmost of the Cowley Islands. Powell Island, 8m high, lies about 0.5 mile SSW of the westernmost of the Cowley Islands. Two rocks lying close together, with depths of 5.2m, are located 1 mile W of Powell Island.

Kwaikans Island, 133m high and wooded, lies about 1.5 miles W of the Dawson Islands. Above-water rocks lie between these islands.

Gray Island, 83m high, lies about 0.8 mile W of Kwaikans Island. Several islets and above and below-water rocks lie between these two islands.

McCreight Island, 54m high and wooded, lies about 0.5 mile SW of Gray Island. An islet, 25m high, and a rock, which dries 2.7m, lie midway between these islands. McCreight Rock, with a depth of less than 1.8m, lies about 0.1 mile NW of McCreight Island.

Ross Islet, 17m high, lies about 0.4 mile off the S shore of Masset Inlet and about 1.5 miles W of Makai Point, the W entrance point of Juskatla Inlet.

A rocky patch, with a depth of 7.6m, lies between 0.3 mile and 0.4 mile off the S side of McCreight Island.

Shannon Bay occupies the bight that recedes about 3 miles SW from a position on the S shore of Masset Inlet, about 3 miles W of Makai Point. Several wooded islands, the largest of which is Wathus Island, front the entrance of this bay. Wharton

Island, Smyth Island, and Simpson Island lie between Wathus Island and the shore of the bay to the SE. The passage leading between Wathus Island and Wharton Island is encumbered with rocks and is not recommended. The recommended passage leads W of Learmonth Island and then between Wharton Island and Smyth Island. It is narrow and shoals, with depths of 6.4m, lie on each side. The fairway leading between these two shoals is deep. An islet, 16m high, lies close S of Smyth Island. A rock, with a depth of 8.8m, lies in mid-channel, about 0.1 mile SW of Smyth Island. Learmonth Island

A light is shown from a rock lying close N of Learmonth island.

A mooring buoy, which is privately maintained, is situated in the middle of Shannon Bay, about 0.5 mile from the head.

Local steamers call regularly at Shannon Bay with supplies for the logging operations in the vicinity.

Wiah Island, 87m high and wooded, lies between the S end of Wathus Island and the coast, which forms the W shore of Shannon Bay. A rock, with a depth of 3.7m, lies in the passage leading N of Wiah Island, close SW of the S extremity of Wathus Island. The passage leading S of Wiah Island is encumbered by an islet, 23m high, and rocks which dry 0.9 to 1.5m.

Awun Bay, lying close W of Shannon Bay, is deep. The bay has no dangers, except a shoal lying 0.1 mile off its W entrance point to which it is connected by a drying reef. Large vessels can enter the bay by passing W of Wathus Island. Small vessels can enter this bay from Shannon Bay via the passage lying N of Wiah Island.

17.16 Juskatla Inlet (53°39'N., 132°21'W.) is entered through Juskatla Narrows on the S shore of Masset Inlet, about 5.5 miles W of its E end. An E arm of the inlet leads to Cowhoe Bay and Mamin Bay. Datlamen Creek flows into the head of Juskatla Inlet.

The entrance is divided into two channels by Fraser Island, Richards Island, and Deasy Island. Numerous small islets and rocks lie in the vicinity of these three islands.

Koutz Rock, which dries 0.6m and is marked by a buoy, lies about 0.3 mile NNE of Richards Island and forms a danger in the approach.

Juskatla Narrows, the channel lying W of Fraser Island and Deasy Island, has a least width of 135m and a least depth of 1.8m in the fairway. The narrows, a restricted and shoal passage with strong tidal currents, should only be attempted at HW. Extensive kelp beds cover the shoals in the narrows.

The channel leading E of Fraser Island and Deasy Island is encumbered with islets and drying shoals, and should not be attempted.

Due to the restricted and shoal entrance of Juskatla Inlet, the tidal rapids form in Juskatla Narrows. The tidal currents attain a rate of 6 to 9 knots with much broken water on the ebb. The ebb velocity may increase considerably when the rivers and creeks flowing into the inlet are in flood.

The rise of the tides within Juskatla Inlet varies from 1.5m at spring tides to 0.9m at neap tides, as compared with 3m at spring tides to 1.7m at neap tides at Richards Island. A higher tide may be expected when currents flowing into Juskatla Inlet are in flood and the general level of the inlet is raised in consequence.

The Harrison Islands, located in the middle of Juskatla Inlet,

consist of several small islands, numerous rocks, and one large island, 125m high. This group generally divides the inlet to the E and W and leaves a narrow channel leading N and S.

The Mamin Islets, two in number, lie in the E arm of the inlet, about 2.3 miles E of the S end of the largest of the Harrison Islands. A rock, which dries 0.3m, lies about 0.4 mile SW of the westernmost of the Mamin Islets.

Cowhoe Bay and Mamin Bay, both of which afford good anchorage almost anywhere within them, occupy the N and S bights, respectively, in the E extremity of Juskatla Inlet.

Juskatla, a small settlement which is engaged in logging operations, is situated at the head of Mamin Bay. Boat service is available to Shannon Bay where vessels call regularly.

The SW part of Juskatla Inlet forms a long bight which is encumbered with numerous islets and shoals. The general depths are deep and the area is not suitable for good anchorage.

Caution.—Vessels should enter Juskatla Narrows at HW only. Because of the tortuous nature of the narrows and the numerous rocks and shoals within the inlet, local knowledge is required.

17.17 McIntyre Bay (54°05'N., 132°00'W.) forms a large bight between Wiah Point and Rose Point, 24 miles E. This bay is shoal in its W part with depths of less than 5.5m lying up to 4 miles offshore.

Skonun Point, located 10.8 miles ESE of Wiah Point, is fronted by a small cliff from which a rocky ledge extends close N. The Sangen River and the Skonun River flow into a brook which empties into the bay about 2.5 miles E of Skonun Point.

Several conspicuous radio towers, 33m high, stand about 0.4 mile W of Skonun Point.

Tow Hill (54°04'N., 131°48'W.), 152m high to the tree tops, rises on the W side of the entrance of the Heillen River. This hill serves as a prominent landmark and is radar conspicuous, rising above the low and featureless land along this stretch of the coast. It rises close to the coast and is fronted by a cliff, 122m high.

Anchorage can be taken in a depth of 13m, good holding ground, about 2 miles N of Tow Hill.

17.18 Rose Point (54°09'N., 131°40'W.), the NE extremity

of Graham Island, is a prominent and low promontory. The point itself is distinguished by the termination of the trees. The promontory gets lower and tapers to a needle point, 2.5 miles NNE of the trees. It then terminates in Rose Spit. The inner portion is covered with low bushes surmounting grass-covered sandy hills, which constantly change their position. The outer portion is covered, above the HW mark, with heaps of drifting sand and large quantities of bleached logs and stumps. A shoal, with a depth of 4.2m, was reported (1988) to lie about 4.8 miles NNE of Rose Point.

Anchorage can be taken in depths of 13 to 16.5m about 2 miles WNW of the end of the trees on Rose Point.

Rose Spit (54°13'N., 131°35'W.), upon which the sea generally breaks with heavy overfalls, dries in places and extends about 2.5 miles NE beyond the extremity of the high water mark of Rose Point. The drying part of this spit terminates in a narrow sandbank, about 0.8 mile long, on which lies an islet, 1.5m high. The spit then extends about 3 miles NE with general depths of 5.5 to 8.2m.

A racon is situated on Rose Spit, about 0.5 mile NNE of Rose Point. A lighted buoy is moored at the N end of the spit, about 4 miles from Rose Point.

A narrow sandspit, the outer extremity of which has a depth of 4.6m, extends about 1 mile W from the drying part of Rose Spit and about 2 miles N of the extremity of the trees on Rose Point. Rose Spit is otherwise steep-to on its NW side, but it should be given a wide berth.

Overfall Shoal, with a depth of 2.7m, is sandy and lies at the NE extremity of Rose Spit, about 7 miles NE of Rose Point. A lighted buoy is moored close NE of this shoal.

Caution.—Great care is necessary when navigating in the vicinity of Rose Spit, especially at night or in fog, as the tidal currents set strongly across it. The lighted buoy should be given a berth of at least 3 miles, and when approaching from the W, it should be kept in mind that, as the spit is steep-to on its NW side, the soundings do not indicate the danger in sufficient time to take avoiding action.

In daylight, during clear weather with Tow Hill in sight, navigation is somewhat less difficult. Tow Hill is sufficiently high to be seen from seaward over the low land for some distance to the S of Rose Point.

How to use the Index—Gazetteer

Geographic names of navigational features are generally those used by the nation having sovereignty and are listed alphabetically. Diacritical marks, such as accents, cedillas, and circumflexes, which are related to specific letters in certain foreign languages, are not used in the interest of typographical simplicity.

Geographic names or their spellings do not necessarily reflect recognition of the political status of an area by the United States Government. Positions are approximate and are intended merely as locators to facilitate reference to the charts.

To use as a Gazetteer note the position and Sector number of the feature and refer to the Chart Information diagram for the Sector. Plot the approximate position of the feature on this diagram and note the approximate chart number.

To use as an Index of features described in the text note the paragraph number at the right. To locate this feature on the best scale chart use the Gazetteer procedure above.

Index—Gazetteer

	Position				Sec. Para		Position				Sec. Para
	°	'	°	'			°	'	°	'	
A											
AAKLELE LAGOON	52	13	N	128	26	W	12.4				
AALTANHASH INLET	53	08	N	128	35	W	12.21				
ABERDEEN POINT	54	13	N	129	53	W	12.50				
ACLAND ISLANDS	48	49	N	123	23	W	4.24				
ACTIVE PASS	48	52	N	123	20	W	2.22				
ADA ISLANDS	54	05	N	130	23	W	12.44				
ADAM ROCKS	52	07	N	131	14	W	16.5				
ADAMSON ROCKS	48	54	N	125	08	W	9.13				
ADDENBROKE ISLAND	51	36	N	127	51	W	11.14				
ADMIRAL GROUP	52	01	N	128	16	W	11.42				
AGAMEMNON CHANNEL	49	40	N	124	05	W	5.28				
AGGLOMERATE ISLAND	52	38	N	131	25	W	15.23				
AGNES POINT	52	22	N	128	23	W	12.10				
AHCLAKERHO CHANNEL	51	17	N	127	25	W	11.8				
AHOUSAT	49	17	N	126	04	W	9.36				
AIRACOBRA ROCK	51	45	N	128	13	W	11.38				
ALACCA PASSAGE	54	05	N	130	20	W	12.44				
ALARM ROCK	48	58	N	123	40	W	4.13				
ALBERNI INLET	48	57	N	125	00	W	9.7				
ALBERT HEAD	48	23	N	123	29	W	1.7				
ALBION POINT	49	46	N	124	24	W	5.26				
ALCALA POINT	49	00	N	123	35	W	4.31				
ALDEN BANK	48	49	N	122	50	W	3.2				
ALDEN POINT	48	48	N	122	58	W	2.10				
ALDER POINT	50	52	N	126	52	W	8.26				
ALEC ISLET	52	21	N	128	23	W	12.10				
ALERT BAY	50	35	N	126	56	W	7.26				
ALEXANDER ISLANDS	52	57	N	129	18	W	14.23				
ALICE ROCK	55	25	N	129	40	W	13.38				
ALL ALONE STONE	52	29	N	131	24	W	15.14				
ALLAN ROCKS	51	02	N	127	38	W	8.54				
ALLEY ROCK	48	54	N	125	26	W	9.18				
ALLIFORD BAY	53	12	N	131	59	W	15.39				
ALLISON HARBOR	51	03	N	127	31	W	8.56				
ALMA RUSSELL ISLAND	48	57	N	125	13	W	9.16				
ALPHA PASSAGE	48	54	N	125	32	W	9.22				
AMAI INLET	50	02	N	127	08	W	10.19				
AMETHYST ROCK	52	46	N	131	58	W	16.14				
AMOS ISLAND	50	01	N	127	21	W	10.18				
AMPHITRITE POINT	48	55	N	125	32	W	9.24				
ANCHOR BIGHT	51	17	N	127	38	W	11.8				
ANCHORAGE ISLAND	50	18	N	127	49	W	10.28				
ANDERSON POINT	49	39	N	126	28	W	10.8				
ANGER ISLAND	53	30	N	130	00	W	14.32				
ANGLE POINT	49	12	N	123	55	W	4.40				
ANGLER COVE	53	19	N	128	53	W	12.24				
ANNACIS ISLAND	49	10	N	122	56	W	3.12				
ANTHONY ISLAND	52	05	N	131	13	W	16.5				
ANVIL ISLAND	49	32	N	123	18	W	3.31				
ANVIL ROCK	52	12	N	131	21	W	16.7				
APPROACH ROCK	50	59	N	127	31	W	8.51				
ARIEL ROCK	52	48	N	132	03	W	16.13				
ARISTAZABAL ISLAND	52	40	N	129	05	W	14.3				
ARMENTIERES CHANNEL	53	07	N	132	23	W	16.20				
ARRAN RAPIDS	50	25	N	125	08	W	6.15				
ARROW PASSAGE	50	43	N	126	40	W	8.17				
ARTHUR PASSAGE	54	00	N	130	12	W	12.41				
ASHDOWN ISLAND	53	04	N	129	13	W	14.23				
ASSITS ISLAND	48	56	N	125	02	W	9.6				
ATCHISON ISLAND	50	35	N	126	13	W	8.15				
ATHER CHARLES CHANNEL	49	08	N	125	58	W	9.30				
ATHLOW BAY	53	38	N	133	00	W	16.30				
ATKINS COVE	50	30	N	127	35	W	10.35				
ATKINS REEF	48	53	N	123	28	W	4.29				
ATKINSON ISLAND	50	53	N	126	51	W	8.26				
ATLI INLET	52	42	N	131	35	W	15.26				
ATREVIDA POINT	49	39	N	126	26	W	10.8				
ATTWOOD BAY	50	19	N	124	40	W	6.6				
AUSETH POINT	49	07	N	125	48	W	9.35				
B											
BAERIA ROCKS	48	57	N	125	09	W	9.13				
BAIRD POINT	53	41	N	130	24	W	14.33				
BAJO REEF	49	35	N	126	49	W	10.11				
BAKER INLET	53	48	N	129	54	W	12.39				
BAKER ROCK	50	06	N	127	42	W	10.25				
BALLENAS CHANNEL	49	20	N	124	09	W	5.4				
BALLENAS ISLANDS	49	21	N	124	09	W	5.4				
BALLINGALL ISLETS	48	54	N	123	28	W	4.29				
BAMBERTON	48	33	N	123	31	W	4.7				
BAMFIELD INLET	48	50	N	125	08	W	9.4				
BAMFIELD ISLANDS	54	04	N	130	18	W	12.43				
BANKS ISLAND	53	25	N	130	10	W	14.8				
BANKS REEF	50	05	N	127	51	W	10.25				
BANTER POINT	50	30	N	127	37	W	10.34				
BARBER PASSAGE	50	24	N	125	09	W	6.15				
BARBERS POINT	52	00	N	131	06	W	16.2				
BARE ISLAND	49	47	N	126	55	W	10.12				
BARE POINT	48	56	N	123	42	W	4.17				
BARE ROCK	49	47	N	126	55	W	10.12				
BARFLEUR PASSAGE	49	23	N	123	29	W	3.28				
BARKER POINT	53	30	N	128	40	W	12.28				
BARKLEY SOUND	48	50	N	125	25	W	9.2				
BARNARD HARBOR	53	04	N	129	07	W	14.25				
BARREN ISLAND	54	45	N	131	21	W	17.2				
BARRIER BAY	52	47	N	131	59	W	16.13				
BARRIER ISLANDS	49	55	N	127	15	W	10.16				
BARRY INLET	52	34	N	131	50	W	16.11				
BARRY ISLAND	53	37	N	132	56	W	16.30				
BARTLETT ISLAND	49	13	N	126	05	W	9.32				
BATCHELOR POINT	49	21	N	123	17	W	3.26				
BATE PASSAGE	50	54	N	127	50	W	8.46				
BATT ROCK	48	49	N	123	25	W	4.24				
BATTLE BAY	50	07	N	127	35	W	10.23				
BAWDEN BAY	49	17	N	126	01	W	9.36				
BAXTER SHOAL	50	46	N	126	30	W	8.18				
BAY ISLET	55	36	N	130	07	W	13.34				
BAYNES PEAK	48	48	N	123	31	W	4.2				
BAYNES SOUND	49	30	N	124	50	W	5.11				
BEACON POINT	49	59	N	127	18	W	10.18				
BEAUCHEMIN CHANNEL	52	45	N	129	20	W	14.6				
BEAVER	51	33	N	127	36	W	11.13				
BEAVER COVE	50	33	N	126	51	W	7.24				
BEAVER HARBOR	50	43	N	127	25	W	8.4				

BEAVER INLET	50	30 N	125	35 W	6.21	BOYLES POINT	50	49 N	127	01 W	8.23
BEAVER PASSAGE	53	45 N	130	20 W	14.38	BRABANT CHANNEL	49	12 N	126	05 W	9.31
BEAVER POINT	48	46 N	123	22 W	2.17	BRABANT ISLANDS	48	56 N	125	19 W	9.16
BEAZLEY PASSAGE	50	14 N	125	08 W	6.12	BRAMHAM POINT	51	03 N	127	36 W	8.56
BECHER BAY	48	19 N	123	37 W	1.3	BRAZA ISLAND	50	40 N	126	15 W	8.22
BEDWELL HARBOR	48	45 N	123	15 W	2.7	BREADNER GROUP	51	48 N	128	12 W	11.39
BEDWELL SOUND	49	17 N	125	49 W	9.33	BREAKWATER ISLAND	49	08 N	123	41 W	4.37
BEECHEY HEAD	48	19 N	123	39 W	1.3	BREM BAY	50	26 N	124	40 W	6.6
BELLA BELLA	52	10 N	128	09 W	11.31	BRENTWOOD BAY	48	35 N	123	28 W	4.6
BELLA COOLA	52	22 N	126	48 W	11.19	BREW ISLAND	52	57 N	128	40 W	14.13
BELLE CHAIN ISLETS	48	50 N	123	11 W	3.34	BRITANNIA BEACH	49	37 N	123	12 W	3.32
BELLEISLE SOUND	50	55 N	126	25 W	8.32	BROCKTON ISLAND	50	29 N	127	46 W	10.33
BELLEVUE POINT	48	32 N	123	10 W	2.3	BRODIE ROCK	48	24 N	123	17 W	1.11
BEN MOHR ROCK	48	52 N	123	23 W	4.27	BROKEN ISLANDS	50	31 N	126	18 W	7.18
BENJAMIN POINT	52	13 N	131	00 W	15.4	BROOKS BAY	50	14 N	127	56 W	10.26
BENSINS ISLAND	52	13 N	126	55 W	11.20	BROOKS PENINSULA	50	10 N	127	46 W	10.25
BENSON ISLAND	48	53 N	125	23 W	9.14	BROUGHTON ISLAND	50	46 N	126	45 W	8.6
BENSON POINT	49	47 N	126	52 W	10.12	BROUGHTON STRAIT	50	35 N	127	00 W	7.23
BENTINCK ISLAND	48	19 N	123	33 W	1.3	BROWN CHANNEL	49	59 N	127	27 W	10.20
BERE POINT	50	40 N	127	03 W	8.3	BROWN COVE	52	41 N	128	35 W	12.17
BERESFORD BAY	54	03 N	133	06 W	16.35	BROWN POINT	50	47 N	126	12 W	8.21
BERGH COVE	50	32 N	127	37 W	10.33	BROWN ROCK	50	27 N	127	59 W	10.31
BERMINGHAM ISLAND	50	48 N	126	32 W	8.31	BROWNING ENTRANCE	53	41 N	130	30 W	14.37
BERRYMAN POINT	49	09 N	125	41 W	9.34	BROWNING PASSAGE	49	08 N	125	52 W	9.35
BERSFORD ISLAND	50	47 N	128	47 W	10.42	BROWNING PASSAGE	50	50 N	127	39 W	8.45
BETTERIDGE INLET	53	06 N	129	30 W	14.21	BRUCE PEAK	48	46 N	123	31 W	4.2
BEWARE PASSAGE	50	35 N	126	32 W	8.11	BUCCANEER BAY	49	30 N	123	59 W	5.9
BICKLEY BAY	50	27 N	125	24 W	6.17	BUCCLEUGH POINT	51	06 N	127	40 W	8.62
BIG BAY	50	24 N	125	08 W	6.15	BUCHAN INLET	53	22 N	129	47 W	14.31
BIG BAY	54	28 N	130	26 W	13.8	BUCHHOLZ CHANNEL	50	30 N	127	38 W	10.34
BILLARD ROCK	50	26 N	127	58 W	10.31	BUCHHOLZ ROCK	50	29 N	127	34 W	10.35
BILLINGTON ROCKS	52	10 N	131	20 W	16.7	BUCK CHANNEL	53	06 N	132	34 W	16.19
BIRCH POINT	48	57 N	122	49 W	3.2	BUCK POINT	53	06 N	132	34 W	16.18
BIRDS EYE COVE	48	48 N	123	36 W	4.9	BUCKINGHAM ISLAND	50	55 N	126	52 W	8.33
BIRTHDAY CHANNEL	49	52 N	126	59 W	10.14	BUCKLE GROUP	50	56 N	127	39 W	8.48
BISHOP BAY	53	27 N	128	54 W	12.24	BUCKLEY POINT	53	56 N	130	06 W	12.46
BISHOP COVE	53	29 N	128	58 W	12.24	BUKELY ISLAND	50	26 N	125	44 W	6.22
BLACK POINT	49	46 N	124	24 W	5.26	BULL HARBOR	50	55 N	127	56 W	8.42
BLACKFISH SOUND	50	35 N	126	42 W	7.22	BULLEY BAY	52	28 N	128	19 W	12.14
BLACKNEY PASSAGE	50	34 N	126	41 W	7.21	BULLY ISLAND	53	48 N	130	19 W	14.38
BLAINE	49	00 N	122	45 W	3.3	BUNSBY ISLANDS	50	06 N	127	32 W	10.23
BLAND ISLAND	50	30 N	127	40 W	10.34	BURCHELL HILL	49	00 N	123	41 W	4.15
BLENKINSOP BAY	50	29 N	126	00 W	7.17	BURDWOOD BAY	50	10 N	125	06 W	6.11
BLIGH ISLAND	49	40 N	126	30 W	10.8	BURDWOOD GROUP	50	48 N	126	28 W	8.19
BLIND CHANNEL	50	25 N	125	30 W	6.20	BURDWOOD POINT	49	35 N	126	34 W	10.3
BLIND REEF	49	48 N	127	01 W	10.13	BURGOYNE BAY	48	48 N	123	32 W	4.9
BLINKHORN PENINSULA	50	32 N	126	47 W	7.21	BURIAL ISLET	48	46 N	123	34 W	4.9
BLOXAM PASSAGE	54	02 N	130	15 W	12.42	BURKE CHANNEL	52	00 N	127	40 W	11.16
BLUNDEN HARBOR	50	55 N	127	16 W	8.24	BURNABY STRAIT	52	19 N	131	20 W	15.10
BLUNDEN ISLAND	49	11 N	126	04 W	9.31	BURR ROCK	52	52 N	128	43 W	14.12
BLUNDEN POINT	49	15 N	124	05 W	5.2	BUTE INLET	50	26 N	125	05 W	6.14
BOAT HARBOR	49	06 N	123	48 W	4.34	BUTEDALE	53	10 N	128	41 W	12.23
BOATSWAIN BANK	48	43 N	123	32 W	4.8	BUTRESS ISLAND	51	05 N	127	31 W	8.61
BOCA DEL INFIERNO BAY	49	37 N	126	38 W	10.4	BYERS CONE	50	07 N	127	36 W	10.22
BODEGA HILL	48	58 N	123	32 W	4.29	BYRON POINT	50	54 N	127	01 W	8.36
BOLD BLUFF POINT	48	47 N	123	33 W	4.9						
BOLIVAR PASSAGE	50	53 N	127	32 W	8.49						
BOND SOUND	50	50 N	126	11 W	8.21						
BONES BAY	50	35 N	126	21 W	8.13						
BONILLA ISLAND	53	29 N	130	37 W	14.10	CAAMANO SOUND	52	53 N	129	25 W	14.16
BONWICK ISLAND	50	42 N	126	38 W	8.16	CACHALOT INLET	50	00 N	127	08 W	10.19
BOOT POINT	51	06 N	127	34 W	8.60	CADBORO POINT	48	27 N	123	16 W	1.11
BORDELAIS ISLETS	48	49 N	125	14 W	9.5	CADMAN ISLAND	53	18 N	132	39 W	16.25
BORROWMAN BAY	52	44 N	129	18 W	14.4	CALL INLET	50	35 N	126	11 W	7.19
BOSCOWITZ POINT	52	16 N	127	47 W	11.24	CALL SHOAL	50	36 N	126	08 W	7.19
BOSTON POINT LIGHT	49	40 N	126	37 W	10.4	CALM CHANNEL	50	15 N	125	01 W	6.13
BOSWELL INLET	51	21 N	127	30 W	11.9	CALMUS PASSAGE	49	13 N	126	00 W	9.33
BOTANY INLET	52	45 N	131	58 W	16.14	CAMELEON HARBOR	50	20 N	125	19 W	6.19
BOTANY ISLAND	52	46 N	131	58 W	16.14	CAMERON ROCKS	49	47 N	126	55 W	10.12
BOTTLE INLET	52	54 N	132	19 W	16.15	CAMOSUN ROCK	51	20 N	127	31 W	11.9
BOTTLENECK INLET	52	43 N	128	25 W	12.18	CAMP POINT	50	23 N	125	50 W	7.15
BOULDER HEAD	51	20 N	128	29 W	12.5	CAMPANIA ISLAND	53	05 N	129	25 W	14.20
BOULDER ISLAND	49	19 N	122	56 W	3.24	CAMPANIA SOUND	53	00 N	129	15 W	14.23
BOULDER POINT	48	57 N	123	45 W	4.19	CAMPBELL BAY	48	51 N	123	16 W	3.35
BOULDER POINT	50	08 N	124	54 W	6.3	CAMPBELL RIVER	50	01 N	125	14 W	7.3
BOULDER POINT	50	41 N	125	59 W	8.12	CANOE ISLET	49	02 N	123	35 W	4.32
BOUNDARY BAY	49	03 N	122	55 W	3.3	CANOE PASSAGE	49	05 N	123	08 W	3.7
BOUNDARY PASS	48	47 N	123	00 W	2.9	CANOE PASSAGE	50	50 N	126	54 W	8.25
BOUSSOLE ROCK	53	58 N	133	09 W	16.35	CAPE ANNE	51	18 N	127	23 W	11.8
BOWEN ISLAND	49	22 N	123	22 W	3.26	CAPE BALL	53	43 N	131	52 W	15.43
BOWIE BANK	53	18 N	135	40 W	16.1	CAPE BEALE	48	47 N	125	13 W	1.2
BOYLE ISLAND	50	51 N	127	33 W	8.48	CAPE CALVERT	51	25 N	127	54 W	11.2

CAPE CAUTION	51	10 N	127	47 W	11.2	CHIEF MATHEWS BAY	53	20 N	129	05 W	12.30
CAPE COCKBURN	49	40 N	124	12 W	5.25	CHIEF POINT	53	50 N	130	30 W	14.42
CAPE COOK	50	08 N	127	55 W	10.26	CHISMORE PASSAGE	54	03 N	130	18 W	12.43
CAPE EDENSAW	54	06 N	132	26 W	17.11	CHOP BAY	50	39 N	126	30 W	8.11
CAPE FANNY	52	07 N	131	11 W	16.2	CHRIS ROCK	49	57 N	125	00 W	9.7
CAPE FAREWELL	53	21 N	129	14 W	12.25	CHRISTIE BAY	48	53 N	125	02 W	9.6
CAPE FLATTERY	48	23 N	124	44 W	1.1	CHRISTIE ISLANDS	53	44 N	130	25 W	14.40
CAPE FOX	54	46 N	130	50 W	13.29	CHRISTIE ISLET	49	30 N	123	18 W	3.31
CAPE FREEMAN	52	09 N	131	19 W	16.7	CHRISTIE PASSAGE	50	50 N	127	36 W	8.44
CAPE GEORGE	53	51 N	130	42 W	13.17	CHROW ISLANDS	48	55 N	125	28 W	9.21
CAPE HENRY	52	56 N	132	22 W	16.15	CHUP POINT	48	57 N	125	02 W	9.13
CAPE JAMES	50	56 N	127	50 W	8.48	CINQUE ISLANDS	50	18 N	125	24 W	7.11
CAPE KEPPEL	48	43 N	123	29 W	4.3	CITY POINT	51	02 N	127	31 W	8.55
CAPE KNOX	54	11 N	133	05 W	17.3	CLAM BAY	48	59 N	123	39 W	4.30
CAPE KUPER	52	58 N	132	20 W	16.16	CLANNINICK COVE	50	02 N	127	24 W	10.21
CAPE LAZO	49	42 N	124	52 W	5.7	CLAPP ISLANDS	53	19 N	132	26 W	16.27
CAPE MARK	52	09 N	128	32 W	11.44	CLARA ISLET	50	05 N	127	35 W	10.23
CAPE MCKAY	52	24 N	127	25 W	11.26	CLARKE ISLAND	48	53 N	125	23 W	9.14
CAPE MUDGE	50	00 N	125	11 W	7.2	CLARKE ROCK	49	14 N	123	56 W	4.42
CAPE PALMERSTON	50	36 N	128	18 W	10.40	CLAYDON BAY	50	56 N	126	54 W	8.33
CAPE PARKINS	50	27 N	128	03 W	10.30	CLAYOQUOT	49	09 N	125	55 W	9.29
CAPE ROGER CURTIS	49	20 N	123	26 W	3.27	CLAYOQUOT SOUND	49	05 N	126	00 W	9.26
CAPE RUSSELL	50	41 N	128	23 W	10.41	CLEAR PASSAGE	49	54 N	127	13 W	10.16
CAPE SCOTT	50	47 N	128	26 W	10.41	CLELAND ISLAND	49	10 N	126	05 W	9.31
CAPE ST. JAMES	51	56 N	131	01 W	15.2	CLERKE ISLET	50	12 N	127	50 W	10.26
CAPE SUTIL	50	53 N	128	03 W	8.44	CLERKE POINT	50	05 N	127	48 W	10.25
CAPE SWAINE	52	14 N	128	26 W	11.34	CLERKE REEFS	50	12 N	127	53 W	10.26
CAPILANO RIVER	49	19 N	123	08 W	3.17	CLIFF BLUFF	52	05 N	128	02 W	11.29
CAPTAN ISLAND	48	57 N	125	17 W	9.16	CLIFF PEAK	50	11 N	124	56 W	6.3
CAPTAIN COVE	53	49 N	130	13 W	14.36	CLIFF POINT	53	28 N	130	26 W	14.9
CAPTAIN ISLAND	49	47 N	123	59 W	5.27	CLIFFE POINT	50	28 N	127	56 W	10.32
CAPTAIN PASSAGE	48	49 N	123	25 W	4.24	CLIFFE ROCK	52	50 N	129	28 W	14.16
CARDALE HEAD	50	52 N	126	44 W	8.27	CLIFFORD BAY	52	36 N	129	09 W	14.4
CARDENA BAY	53	59 N	130	10 W	12.41	CLIO CHANNEL	50	38 N	126	20 W	8.13
CAREW ROCK	54	10 N	133	08 W	16.35	CLIO POINT	53	54 N	128	42 W	12.36
CARLSON INLET	52	35 N	127	14 W	11.27	CLOVER POINT	48	24 N	123	21 W	1.10
CARMANAH POINT	48	37 N	124	45 W	1.2	CLUSTER REEFS	51	18 N	127	47 W	11.5
CARNATION ISLAND	54	11 N	129	40 W	12.50	COACH ISLETS	50	43 N	126	42 W	8.8
CAROLINA CHANNEL	48	55 N	125	32 W	9.22	COAL HARBOR	50	36 N	127	35 W	10.39
CARPENTER BAY	52	14 N	131	03 W	15.5	COAST HILL	51	00 N	127	30 W	8.51
CARRIDEN BAY	50	54 N	126	54 W	8.33	COAST ISLAND	54	13 N	130	20 W	13.4
CARTER BAY	52	49 N	128	24 W	12.20	COAST MOUND	54	25 N	130	47 W	13.16
CARTER PASSAGE	50	50 N	126	54 W	8.25	COAST NIPPLE	51	12 N	127	40 W	11.2
CARTER POINT	50	27 N	125	46 W	6.22	COASTER CHANNEL	48	53 N	125	17 W	9.14
CARTWRIGHT SOUND	53	12 N	132	40 W	16.23	COCKLE BAY	52	21 N	128	23 W	12.10
CASCADE HARBOR	50	55 N	127	44 W	8.46	COFFIN ISLAND	48	59 N	123	45 W	4.21
CASTLE ISLAND	48	57 N	125	22 W	9.18	COGHLAN ANCHORAGE	53	23 N	129	17 W	12.25
CATALA ISLAND	49	50 N	127	03 W	10.13	COLBURN PASSAGE	48	42 N	123	24 W	2.16
CATFACE RANGE	49	16 N	125	58 W	9.26	COLE ROCK	50	02 N	127	27 W	10.21
CATTLE POINT	48	26 N	123	18 W	1.11	COLES BAY	48	37 N	123	28 W	4.6
CATTLE POINT	48	27 N	122	58 W	2.3	COLLINGWOOD CHANNEL	49	21 N	123	27 W	3.27
CAYETANO POINT	49	01 N	123	36 W	4.30	COLLINS POINT	53	32 N	128	45 W	12.27
CECIL PATCH	54	04 N	130	17 W	12.43	COLLINSON BAY	50	55 N	127	05 W	8.37
CEEPPECEE	49	52 N	126	43 W	10.7	COLLINSON POINT	48	52 N	123	21 W	2.22
CELESTIAL REEF	54	31 N	131	28 W	17.2	COMMERELL POINT	50	34 N	128	15 W	10.40
CELIA REEFS	48	43 N	123	23 W	2.16	COMORANT CHANNEL	50	36 N	126	52 W	7.31
CENTRE BAY	49	28 N	123	23 W	3.29	COMOX HARBOR	49	40 N	124	55 W	5.15
CENTRE ISLAND	49	51 N	126	56 W	10.14	COMPTON POINT	50	53 N	126	54 W	8.26
CENTRE ROCK	50	54 N	127	04 W	8.37	CONCEPCION POINT	49	40 N	126	29 W	10.9
CHAATL ISLAND	53	07 N	132	32 W	16.19	CONCONI REEF	48	50 N	123	17 W	2.21
CHAIN ISLANDS	48	50 N	123	27 W	4.26	CONNALLY POINT	50	54 N	126	47 W	8.27
CHANNE PASSAGE	50	27 N	125	20 W	6.17	CONNEL ISLANDS	54	25 N	130	55 W	13.25
CHANNEL ISLAND	50	19 N	124	45 W	6.6	CONSTANCE BANK	48	21 N	123	22 W	1.5
CHANNEL ISLANDS	48	48 N	123	23 W	4.24	CONUMA PEAK	49	50 N	126	17 W	10.3
CHANNEL REEF	49	52 N	126	59 W	10.15	CONVOY PASSAGE	51	35 N	127	48 W	11.14
CHAPPLE INLET	52	54 N	129	08 W	14.19	COOK CHANNEL	49	38 N	126	36 W	10.4
CHARLES BAY	50	25 N	125	29 W	6.20	COOLIDGE POINT	52	21 N	127	43 W	11.24
CHARLES ISLANDS	52	09 N	131	04 W	16.4	COOMES BANK	49	13 N	126	00 W	9.32
CHARLES NARROWS	52	30 N	128	26 W	12.14	COOPER INLET	52	04 N	128	04 W	11.30
CHARLES REEF	49	20 N	122	54 W	3.24	COOPER ISLAND	48	52 N	125	21 W	9.14
CHARMER POINT	48	41 N	123	22 W	2.15	COOPTE POINT	49	42 N	126	35 W	10.5
CHATCHANNEL POINT	50	00 N	127	14 W	10.17	COPPER CLIFFS	50	06 N	125	16 W	7.7
CHATHAM CHANNEL	50	35 N	126	15 W	8.14	COPPER ISLANDS	52	21 N	131	10 W	15.7
CHATHAM ISLANDS	48	26 N	123	14 W	2.2	COQUITLAM RIVER	49	14 N	122	48 W	3.14
CHATHAM ISLANDS	48	26 N	123	15 W	1.11	CORDERO CHANNEL	50	24 N	125	10 W	6.15
CHATHAM POINT	50	20 N	125	26 W	7.12	CORDERO POINT	49	08 N	123	42 W	4.36
CHEARNLEY ISLAND	54	26 N	130	59 W	13.25	CORDOVA BAY	48	31 N	123	20 W	2.11
CHECLESSET BAY	50	02 N	127	40 W	10.22	CORDOVA CHANNEL	48	34 N	123	21 W	2.12
CHEMAINUS	48	55 N	123	43 W	4.18	CORMORANT ISLAND	50	35 N	126	56 W	7.25
CHEMAINUS BAY	48	56 N	123	43 W	4.17	COSTE ISLAND	53	50 N	128	45 W	12.35
CHENEY POINT	52	12 N	128	28 W	12.4	COSTELLO PEAK	51	03 N	125	30 W	8.13
CHERRY POINT	48	43 N	123	33 W	4.7	COUGAR BAY	52	45 N	128	35 W	12.17

KID BAY	52	48 N	128	23 W	12.19	LAMA PASSAGE	52	05 N	128	00 W	11.29
KIDDIE POINT	49	48 N	124	38 W	5.17	LAMBERT CHANNEL	49	30 N	124	43 W	5.10
KILDALA ARM	53	52 N	128	39 W	12.35	LANGARA ISLAND	54	14 N	133	02 W	17.3
KILDIDT SOUND	51	46 N	128	10 W	11.38	LANGARA POINT	54	15 N	133	04 W	17.4
KILDONAN	49	00 N	125	00 W	9.7	LANGDALE	49	26 N	123	28 W	3.27
KILN BAY	52	58 N	129	09 W	14.19	LANZ ISLAND	50	49 N	128	41 W	10.42
KIMSQUIT BAY	52	50 N	126	59 W	11.28	LAPWING ISLAND	51	51 N	127	53 W	11.15
KIMSQUIT NARROWS	52	49 N	126	58 W	11.28	LAREDO CHANNEL	52	44 N	129	05 W	14.14
KINAHAN ISLANDS	54	12 N	130	24 W	13.2	LAREDO INLET	52	40 N	128	45 W	14.12
KINDAKUN POINT	53	19 N	132	46 W	16.24	LAREDO SOUND	52	30 N	128	53 W	14.11
KING PASSAGE	49	38 N	126	23 W	10.8	LASCELLES POINT	51	05 N	127	39 W	8.58
KINGCOME INLET	50	52 N	126	35 W	8.31	LASQUETI	49	29 N	124	21 W	5.6
KINGCOME POINT	53	18 N	128	54 W	12.23	LASQUETI ISLAND	49	30 N	124	16 W	5.5
KINGHORN ISLAND	50	05 N	124	51 W	6.4	LAUDER POINT	54	07 N	133	06 W	16.35
KINNAIRD ROCK	50	55 N	126	53 W	8.33	LAURA BAY	50	49 N	126	34 W	8.30
KIOKATHLI INLET	53	41 N	133	00 W	16.32	LAURA POINT	48	52 N	123	18 W	2.23
KIPCKE ROCK	54	15 N	130	55 W	13.21	LAWN POINT	53	26 N	131	55 W	15.35
KIRBY ROCK	49	01 N	125	19 W	9.20	LAWRENCE ISLETS	49	13 N	126	04 W	9.31
KISKOSH INLET	53	31 N	129	15 W	12.32	LAWSON HARBOR	54	01 N	130	15 W	12.42
KITASU BAY	52	33 N	128	45 W	14.12	LAWYER ISLANDS	54	07 N	130	20 W	12.44
KITASU HILL	52	30 N	128	44 W	14.11	LEADMAN PASSAGE	52	45 N	129	25 W	14.5
KITCHING POINT	51	06 N	127	31 W	8.60	LEARMONTH BANK	54	30 N	133	05 W	17.2
KITGORO INLET	53	04 N	132	32 W	16.18	LECHE ISLET	50	54 N	126	58 W	8.36
KITIMAT	54	00 N	128	41 W	12.37	LEDGE POINT	50	36 N	127	05 W	7.27
KITIMAT ARM	53	50 N	128	50 W	12.35	LEDGE ROCK	50	42 N	126	42 W	8.8
KITKATLA	53	48 N	130	26 W	14.42	LEEKE ISLETS	49	14 N	126	04 W	9.31
KITKATLA CHANNEL	53	47 N	130	22 W	14.42	LEESON HARBOR	50	31 N	128	01 W	10.32
KITKATLA INLET	53	55 N	130	35 W	14.43	LEESON POINT	50	32 N	127	37 W	10.33
KITKIATA INLET	53	37 N	129	15 W	12.32	LEIGHTON ISLAND	52	20 N	128	20 W	12.7
KITLOPE ANCHORAGE	53	15 N	127	55 W	12.30	LELU ISLAND	54	12 N	130	17 W	12.48
KITSAWAY ISLAND	53	36 N	128	52 W	12.31	LEMON POINT	50	51 N	127	46 W	8.40
KITSON ISLAND	54	11 N	130	19 W	12.48	LENNARD ISLAND	49	07 N	125	55 W	9.27
KIWASH ISLAND	51	52 N	127	53 W	11.15	LEONARD ROCK	50	36 N	126	59 W	7.27
KLASKINO ANCHORAGE	50	18 N	127	49 W	10.28	LEPAS BAY	54	10 N	133	03 W	16.35
KLASKINO INLET	50	18 N	127	52 W	10.28	LEWIS CHANNEL	50	07 N	124	53 W	6.3
KLASKISH INLET	50	14 N	127	49 W	10.27	LEWIS ISLAND	54	00 N	130	14 W	12.41
KLEKANE INLET	53	11 N	128	39 W	12.22	LEWIS PASSAGE	53	16 N	129	18 W	14.26
KLEMTU	52	35 N	128	31 W	12.15	LEWIS ROCKS	50	48 N	127	03 W	8.2
KLEMTU PASSAGE	52	35 N	128	31 W	12.14	LEWIS ROCKS	50	49 N	127	03 W	8.23
KLEWNUGGIT INLET	53	41 N	129	44 W	12.38	LIDDLE ISLAND	55	24 N	129	42 W	13.37
KLIKTSOATLI HARBOR	52	09 N	128	05 W	11.32	LION ISLETS	48	54 N	123	20 W	2.25
KNIGHT INLET	50	38 N	126	35 W	8.11	LIONS GATE BRIDGE	49	19 N	123	08 W	3.17
KNIGHT ISLAND	51	00 N	127	32 W	8.51	LIPPY POINT	50	28 N	128	06 W	10.39
KOKWINA COVE	50	31 N	127	35 W	10.37	LITTLE GROUP	48	40 N	123	22 W	2.14
KOOH ROCK	48	54 N	125	04 W	9.3	LOMGON BAY	52	47 N	132	05 W	16.12
KOOTENAY INLET	52	52 N	132	15 W	16.15	LONE CONE	49	13 N	125	55 W	9.26
KOPRINO HARBOR	50	30 N	127	51 W	10.33	LONG HARBOR	48	51 N	123	27 W	4.25
KOSKIMO BAY	50	28 N	127	52 W	10.32	LONGBACK ROCKS	50	07 N	127	33 W	10.23
KULLEET BAY	49	01 N	123	47 W	4.21	LOOKOUT ISLAND	50	00 N	127	27 W	10.20
KULTUS COVE	50	29 N	127	37 W	10.34	LOOKOUT POINT	49	23 N	123	17 W	3.26
KUMEALON INLET	53	51 N	130	00 W	12.39	LORD ISLAND	49	47 N	126	51 W	10.12
KUMLAH ISLAND	50	44 N	126	10 W	8.22	LORENZ POINT	50	10 N	127	38 W	10.25
KUNGHIT ISLAND	52	03 N	131	02 W	15.2	LORETTA CHANNEL	53	44 N	128	53 W	12.34
KUNGHIT ISLAND	52	05 N	131	00 W	16.2	LOST ISLANDS	52	48 N	131	29 W	15.25
KUPER ISLAND	48	56 N	123	38 W	4.23	LOUDOUN CHANNEL	48	53 N	125	25 W	9.17
KWAKIUTL POINT	50	21 N	128	00 W	10.30	LOUGHBOROUGH INLET	50	27 N	125	36 W	6.21
KWAKSHUA CHANNEL	51	39 N	128	00 W	11.38	LOUIS POINT	53	42 N	133	02 W	16.32
KWAKUME INLET	51	42 N	127	53 W	11.14	LOUIS ROCKS	53	42 N	133	03 W	16.32
KWATNA BAY	52	06 N	127	24 W	11.18	LOUSCOONE INLET	52	07 N	131	13 W	16.5
KWATNA INLET	52	05 N	127	30 W	11.17	LOWE INLET	53	32 N	129	35 W	12.38
KWATSI BAY	50	51 N	126	16 W	8.20	LUARD SHOAL	52	24 N	128	53 W	14.11
KWOMAIS POINT	49	02 N	122	52 W	3.2	LUCY ISLAND	54	11 N	132	59 W	17.7
KXNGEAL INLET	53	44 N	129	49 W	12.38	LUCY ISLANDS	54	18 N	130	37 W	13.15
KYNOCH INLET	52	46 N	128	07 W	12.11	LULL BAY	50	42 N	126	01 W	8.13
KYNUMPT HARBOR	52	13 N	128	10 W	11.33	LUND	49	59 N	124	46 W	5.34
KYUQUOT	50	02 N	127	22 W	10.21	LUNDY COVE	53	25 N	129	51 W	14.32
KYUQUOT BAY	49	59 N	127	17 W	10.18	LYALL HARBOR	48	48 N	123	12 W	2.20
KYUQUOT CHANNEL	49	58 N	127	17 W	10.17	LYALL ISLAND	50	27 N	125	36 W	6.18
						LYALL POINT	48	58 N	125	19 W	9.18
						LYCHE ISLAND	48	57 N	125	33 W	9.23
L											
LA CROIX GROUP	49	09 N	126	00 W	9.30	M					
LA PEROUSE REEF	54	01 N	133	11 W	16.35	MACKENZIE SOUND	50	56 N	126	45 W	8.35
LABOUCHERE CHANNEL	52	25 N	127	13 W	11.18	MACLEOD SHOAL	52	07 N	131	11 W	16.2
LACY ISLAND	54	13 N	133	05 W	17.6	MACNICOL POINT	51	15 N	127	47 W	11.2
LADY ISLANDS	50	39 N	126	25 W	8.12	MACOAH PASSAGE	48	59 N	125	23 W	9.19
LADY TRUTCH PASSAGE	52	21 N	128	20 W	12.7	MAGIN ISLETS	50	52 N	126	38 W	8.29
LADYSMITH	48	59 N	123	49 W	4.19	MAHOPE POINT	50	06 N	127	34 W	10.22
LADYSMITH HARBOR	48	59 N	123	47 W	4.19	MAKWAZNIHT ISLAND	50	33 N	127	33 W	10.38
LAGOON HEAD	49	14 N	123	57 W	4.42	MALASPINA INLET	50	02 N	124	46 W	6.4
LAKKEN POINT	50	30 N	127	36 W	10.34						

