



ATL 106

Canadian
**Sailing
Directions**

Gulf of Maine and Bay of Fundy

2023/09



Fisheries and Oceans
Canada

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Canada

Pictograph legend



Anchorage



Current



Radio calling-in point



Wharf



Caution



Lifesaving station



Marina



Light



Pilotage

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PREFACE

The First Edition of *Sailing Directions, ATL 106 — Gulf of Maine and Bay of Fundy*, 2001, has been compiled from Canadian Government and other information sources. All hydrographic terms used in this booklet are in accordance with the meanings given in the *Hydrographic Dictionary* (Special Publication No. 32), published by the International Hydrographic Bureau.

General information for the Atlantic Coast is grouped within one booklet, *Sailing Directions, ATL 100 — General Information, Atlantic Coast*, 1992. It contains navigational information and a brief description of the main port facilities as well as geographic, oceanographic and atmospheric characteristics.

The detailed description of the geographical areas is given in a series of volumes and booklets. Their limits are printed on the back cover of the booklets. **The appropriate descriptive booklet(s) should be consulted in conjunction with the ATL 100 — General Information booklet.**

The photographs are by Fisheries and Oceans Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia.



Canadian *Sailing Directions* expand charted details and provide important information of interest to navigation which may not necessarily be found on charts or in other marine publications. They are intended to be read in conjunction with the charts quoted in the text.

Remarks

Buoys are described in detail only where they have special navigational significance, or where the scale of the chart is too small to clearly show all the details.

Chart references, in *italics*, refer to the largest scale Canadian chart. Occasionally a smaller scale chart may be quoted where its use is more appropriate.

Tidal information relating to the vertical movements of the water is not given and the *Canadian Tide and Current Tables* should be consulted. However, abnormal changes in water level are noted.

Names have been taken from the most authoritative source. Where an obsolete name still appears on the chart or is of local usage, it is given in brackets following the official name.

Wreck information is included where drying or submerged wrecks are relatively permanent features and are of navigation or anchoring significance.

Units and terminology used in this booklet

Latitude and **longitude** given in brackets are approximate, and are intended to facilitate reference to the chart quoted.

Bearings and **directions** refer to True North (geographic) and are given in degrees from 000° clockwise to 359°. The bearings of conspicuous objects, ranges and light sectors are given from seaward. **Courses** always refer to the course to be made good.

Tidal streams and **currents** are described by the direction towards which they flow. The **ebb** stream is caused by a falling tide and the **flood** stream is caused by a rising tide. **Winds** are described by the direction from which they blow.

Distances, unless otherwise stated, are expressed in nautical miles. For practical purposes, a nautical mile is considered to be the length of one

minute of arc, measured along the meridian, in the latitude of the position. The international nautical mile is equal to 1,852 m (6,076 ft).

Speeds are expressed in knots, which mean 1 nautical mile per hour.

Depths, unless otherwise stated, are referred to chart datum. As depths are liable to change, particularly those in dredged channels and alongside wharves, it is strongly recommended these be confirmed by the appropriate local authority.

Elevations and **vertical clearances** are given above Higher High Water, Large Tide. In non-tidal waters they are referred to chart datum.

Heights of objects, distinct from elevations, refer to the heights of the structures above the ground. A statement, “a hill 18 m high” is occasionally used when there could be no confusion and in this case the reference will signify an elevation.

The *List of Lights, Buoys and Fog Signals* number is shown **in brackets** after the navigational aid (light, leading lights, buoy). The expression “seasonal” indicates that it is operational for a certain period during the year; mariners should consult the *List of Lights, Buoys and Fog Signals* to determine the period of operation. The expression “private” means that the navigational aid is privately maintained; it will not necessarily be mentioned in the *List of Lights, Buoys and Fog Signals* and its characteristics may change without issuance of a *Notice to Shipping*.

Time, unless otherwise stated, is expressed in local standard or daylight time. For the waters described in this booklet, local time is Atlantic Standard Time (AST Z+4).

Deadweight tonnage and **masses** are expressed in metric tonnes. The kilogram is used to describe relatively small masses.

Public wharf is a wharf that is available for public use, though certain fees may be charged by local authorities. It may be shown as “Government wharf” or “Gov’t whf” on older charts.

Conspicuous objects, natural or artificial, are those which stand out clearly from the background

and are easily identifiable from a few miles offshore in normal visibility.

The expression “**small craft**” refers to pleasure craft and small vessels with shallow draught.

Diagrams are large scale cartographic representations of harbours, wharves, anchorages, or marinas.

Pictographs are symbols shown at the beginning of the paragraphs to allow quick reference to

information or to emphasize details. The Pictograph Legend is shown on the inside front and back covers of this booklet.



References to other publications:

Canadian Hydrographic Service

- *Catalogue of Nautical Charts and Publications (Atlantic Coast)*
- *Canadian Tide and Current Tables*
- *Atlas of Tidal Currents — Bay of Fundy and Gulf of Maine*

Canadian Coast Guard

- *List of Lights, Buoys and Fog Signals*
 - *Radio Aids to Marine Navigation, Atlantic and Great Lakes*
 - *Annual Edition of Notices to Mariners*
-

Units

| | |
|-----|----------------------|
| °C | degree Celsius |
| cm | centimetre |
| h | hour |
| ha | hectare |
| fm | fathom |
| ft | foot |
| HP | horsepower |
| kHz | kilohertz |
| km | kilometre |
| kn | knot |
| kPa | kilopascal |
| m | metre |
| mb | millibar |
| min | minute |
| MHz | megahertz |
| mm | millimetre |
| NM | nautical mile |
| t | metric tonne |
| ° | degree (plane angle) |
| ' | minute (plane angle) |

Directions

| | |
|-----|-----------------|
| N | north |
| NNE | north northeast |
| NE | northeast |
| ENE | east northeast |
| E | east |
| ESE | east southeast |
| SE | southeast |
| SSE | south southeast |
| S | south |
| SSW | south southwest |
| SW | southwest |
| WSW | west southwest |
| W | west |
| WNW | west northwest |
| NW | northwest |
| NNW | north northwest |

Various


| | |
|--------|--|
| A.P.A. | Atlantic Pilotage Authority |
| CCG | Canadian Coast Guard |
| CHS | Canadian Hydrographic Service |
| DFO | Department of Fisheries and Oceans, Canada |
| DWT | deadweight tonnage |
| ETA | estimated time of arrival |
| ETD | estimated time of departure |
| HF | high frequency |
| HW | high water |
| LW | low water |
| M | million, mega |
| MCTS | Marine Communications and Traffic Services |
| NAD | North American Datum |
| No. | number |
| SAR | Search and Rescue |
| U.S.A. | United States of America |
| VHF | very high frequency |
| VTS | Vessel Traffic Services |

Cape Sable to Yarmouth

Chart 4012

1 From Cape Sable, the SW extremity of Nova Scotia, the coast trends 34 miles NW to Cape Forchu at the entrance to Yarmouth Harbour. The coast is indented with many islands and numerous dangers, the outer of which lie 15 miles offshore at Seal Island. These waters are actively fished during all times of the year, especially during the lobster harvest that is usually from the end of November to the end of May.


2 Through these islands are several passages for small vessels and small craft. Owing to the very strong currents in this area, these should only be used with local knowledge. Schooner Passage, through the Tusket Islands, is the most commonly used.

 3 West of Cape Sable Island towards Yarmouth, there is a NW set on the **flood stream** and SE set on the **ebb stream**. Extreme **caution** should be exercised when navigating this area, especially during periods of reduced visibility.

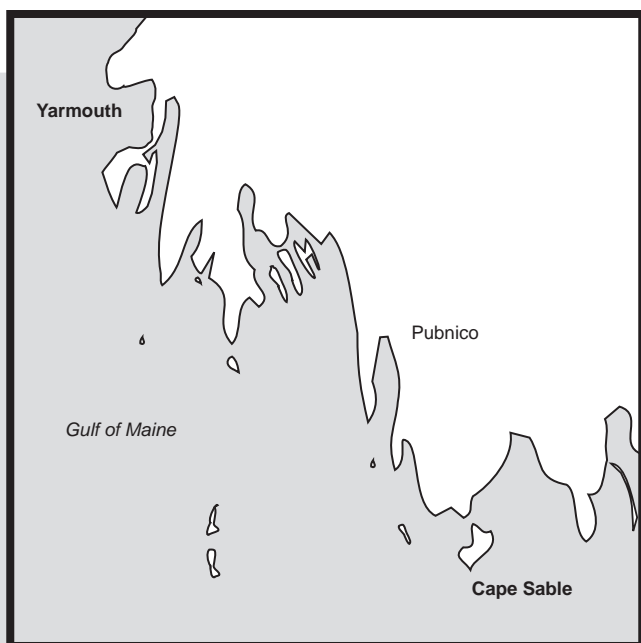
4 For information on offshore tidal streams, consult the *Atlas of Tidal Currents — Bay of Fundy and Gulf of Maine*.

Cape Sable

Charts 4210, 4241, 4242

 5 **Cape Sable** ($43^{\circ}23'N$, $65^{\circ}37'W$) is the south point of an island that is composed of shifting sand dunes 2 to 6 m high. It is almost joined to the south end of **Cape Sable Island** by a sandy beach, through which **Hawk Channel** is mostly dry at low water. **Hawk Inlet** is the east part of the channel. A **light** (327) is shown at an elevation of 29.6 m from a white octagonal tower on the cape. A **fog signal** of one blast every minute is sounded from a horn close to the light; the horn points 150° . A **racon** (—•—•) operates from Cape Sable light. Fairway light **buoy N** (325) is moored 4.1 miles SSW of Cape Sable.

6 **Black Point** is the west extreme of these sand dunes, 1.5 miles WNW of Cape Sable.





CAPE SABLE (2000)



7 **Dangers.** — **Horse Race**, an extensive shoal with depths of less than 10 m, extends nearly 2 miles SSE from Cape Sable. **Outer Shoal**, least depth 3.7 m, lies on this bank between 1.3 and 1.7 miles SSE of the cape. **Columbia Rock**, at a depth of 0.9 m, is the shoalest part of Inner Shoal, 1 mile SSE of Cape Sable. **Black Rock**, 1 m high, lies 0.3 mile east of the cape.


8 **The Rip**, comprising several rocks, some of which dry, extends 1.8 miles south of Black Point to **Southwest Ledge**, which has a depth of 0.6 m. **Tail of the Rip** is the outer end of a bank extending 1.7 miles further south.

9  **Tidal streams** of up to 4 knots have been reported in the waters south of Cape Sable, occurring with heavy tide rips. Extreme **caution** in navigation is essential as Cape Sable often presents a poor radar image.

10  A community, known as **The Hawk**, population 170 in 1991, lies near the south tip of Cape Sable Island. There is a Public wharf 104 m long which dries alongside. A prominent white church with a small spire is situated about 0.3 mile north of the wharf. Port hand light **buoy JS53 (328)** is moored 1.25 miles NE of Cape Sable.

Seal Island

Chart 4242

11  **Seal Island** is the outermost part of southwest Nova Scotia, lying about 14 miles west of Cape Sable. About 2.3 miles long and 0.5 mile wide, it is the largest and the south of a group of five off-lying islands which extend north for 7.5 miles. The middle of Seal Island is low and sandy with a pond on its west side, while the north and south ends are thickly wooded and about 15 m high. The island is inhabited by fishermen throughout the year. A **light (289)** is shown at an elevation of 31.1 m, from a white octagonal tower 20.7 m high, with two red bands, near the south point of the island. A **fog signal** of three blasts every minute is sounded from a horn close to the light; the horn points 183°.

12 **Blonde Rock** dries and generally breaks and forms the highest part of a rocky bank 3.3 miles SSE of Seal Island light. A shoal 0.9 mile west of Blonde Rock, at a depth of 8.2 m, is marked by very heavy tide rips which show like a breaker. East Cardinal light **buoy NK (290.2)** is moored 0.3 mile east of Blonde Rock.

SEAL ISLAND (2000)



13 At **Crowell Cove**, on the west side of Seal Island, there is a breakwater 73 m long with a depth of 0.3 m at the outer end. A small slip is situated close east of the breakwater. A landing slip is situated on the east side of Seal Island at East Cove.

14 Between Blonde Rock, Seal Island and the group of islands to the north, there are many isolated shoal patches. Due to the prevalence of fog and the strong tidal currents, extreme **caution** is necessary in this area.

15 **Elbow Rock**, at a depth of 0.9 m, forms the least depth over **The Elbow**, a shoal 1.3 miles south of Seal Island. **Zetland Shoal**, at a depth of 6.1 m, lies to the west of Elbow Rock.

16 **Purdy Rock**, at a depth of 4.6 m, steep-to, and on which the sea breaks in heavy weather, is situated 1.8 miles SE of Seal Island. In fair weather, during the strength of the tidal streams, a ripple shows over this rock.

17 **Devils Limb** is a rocky islet 2 m high lying 0.8 mile off the west side of Seal Island. **Limbs Limb**, a rock drying 3 m, lies about 0.6 mile north of Devils Limb.

18 **Mud Island**, 7.6 m high, with the south half wooded, lies 2.8 miles NNE of Seal Island. **Noddy Island**, 5 m high,

lies 0.4 mile south of Mud Island. The channel between these islands is obstructed by rocks. **Noddy Island Bar**, a rocky bank with a tide rip and a depth of 7.3 m at its outer end, extends 1.5 miles south of Noddy Island.

19 **The Hospital**, the channel separating Seal Island from Noddy and Mud Islands, can only be navigated with extreme **caution**. The direction of the tidal streams, NW and SE, and having a maximum rate of 4 knots, should be followed as closely as possible.

20 **Round Island**, 7.6 m high, and **Flat Island**, 4 m high, lie north and NW of Mud Island. West of Mud Island, within 2.3 miles, lie **Turbine Shoal**, at a depth of 4.3 m, which breaks in very heavy weather, **Alcor Rock** and **Black Ledge**, which dries 3 m.

21 **Soldiers Ledge**, which dries 2.7 m and generally breaks, lies 2.2 miles NW of Flat Island. **Jacquards Ridge**, least depth 7.3 m, situated 4.5 miles west of Soldiers Ledge, is marked by a long tide rip in fine weather and is reported to break in a heavy sea. South Cardinal light **buoy** NSA (274.2) is moored 1.4 miles south of Soldiers Ledge. North Cardinal light **buoy** NSB (274.4) is moored almost 1 mile north of Soldiers Ledge.



22 There is temporary **anchorage** in about 7 m, rock and sand, off the east side of Seal Island. Temporary **anchorage** is also available off the west side of the island, in about 5 m, 320°, 0.5 mile distant from **Scratch All Point**. Vessels may also find temporary **anchorage** in 15 m, mud, off the east side of Mud Island. These anchorages are only recommended in fine weather or in an emergency.

Cape Sable to Pubnico Harbour

Chart 4210

23 **Fish Island**, 7 m high, lies close north of the sand dunes that extend 0.8 mile north from **Black Point** ($43^{\circ}24'N$, $65^{\circ}39'W$). **Cornwall Rock**, at a depth of 4.3 m, lies 2.3 miles SW of Black Point. **Green Island Rock**, at a depth of 1.2 m, lies 1.3 miles west of Black Point, and forms the highest part of **Green Island Ledge**; there is a tide rip over this ledge. A bank, on which there are numerous ledges and rocks, extends nearly 1.4 miles west of Fish Island. **Green Island**, 8 m high, lies on the outer part of the bank, 1.3 miles NW of Black Point. **Cooks Rock**, at a depth of 3 m, is situated 0.7 mile west of Green Island. **Doddys Shoal**, least depth 7.9 m, lies 1.4 miles west of Green Island.

CLARK'S HARBOUR (2000)



24 The common approach to The Sound, Clark's Harbour and Barrington Passage, lies between Green Island and **Southern End**, the south extreme of **Outer Island**, 3.5 miles to the NW. **Stoddart Island** lies to the ENE of Outer Island, from which it is separated by **The Sound**. **West Head** is the west point of Cape Sable Island, 2.4 miles ESE of Stoddart Island. Most of the west side of Cape Sable Island is composed of low, grassy sand dunes.





25 A **light** (307) is shown from a white square tower 14 m high, on the corner of a white building, on Southern End ($43^{\circ}27'N$, $65^{\circ}45'W$). Fairway light buoy C (306) is moored 1 mile south of Southern End.

26 A **light** (320) is shown from a circular tower, 6.1 m high, with red and white bands, on West Head. A **fog signal** of two blasts every minute is sounded from the light tower; the horn points 254°.



27 **Clark's Harbour** is a secure small craft harbour opening to the SE of West Head. The harbour is entered by a **buoyed** channel, through many rocks and obstructions, leading from **Hospital Reef**, which at a depth of 4.9 m, lies 1 mile SW of West Head; starboard hand light **buoy** C2 (321) is moored close north of Hospital Reef. A **light** (323.7) is shown from a mast on **Phinneys Rock**, situated 0.15 mile west of **Northern End** on Fish Island.

28 The town of **Clark's Harbour**, population 980 in 1996, lies on the NE side of the harbour. Water, fuel, ice and provisions are available.



  29 An L-shaped Public wharf extends 235 m from the north shore to an outer end 23 m long with a depth of 2 m alongside. A breakwater extends 336 m from the shore close to the west. There are two wharves attached to the breakwater: the outer one extends 79 m to a depth of 2.1 m, the inner one extends 67 m to a depth of 1.5 m. The area between the Public wharf and the breakwater has depths of 1.2 to 1.8 m. A **light** (323) is shown from a skeleton tower on the outer end of the breakwater.

30 At **Swims Point**, on the north shore near the inner end of the harbour, there is a Public wharf 70 m long. There is fair shelter along the inside face of the outer end, 55 m long, with a least depth of 2.4 m alongside. A **light** (323.5) is shown from a mast on the outer end of the wharf. Close to the east, there are several private wharves and a floating breakwater.

31 On the north side of **West Head**, a breakwater extends 274 m NE and 91 m NW. At the outer end of the NE section is a Public wharf extending 122 m to the east. There is a least depth of 4.9 m in this area. The elevation of the breakwater is 3.4 m, and a **light** (319.5) is shown from a mast at its outer end; the wharf is lighted. A T-shaped Public wharf, 91 m long, lies on the east side of the breakwater; there

is a depth of 2.7 m in this area. From the south side, another Public wharf extends 77 m to an outer end 30 m long with a depth of 3 m alongside.

32 **Barrington Passage** is the channel separating Cape Sable Island from the mainland. It is entered between **Bear Point**, on the north shore 1.4 miles north of West Head, and **Newell Head**, 1.2 miles NE of West Head. The channel is partially **buoyed** and is only navigable by small craft to the causeway linking the island and the mainland. **Apple Rock**, at a depth of 2.4 m, lies 0.4 mile NW of West Head; it is marked by port hand light **buoy** C5 (319.3).

  33 At Newell Head, there is a T-shaped Public wharf extending 142 m to an outer end 88 m long with a depth of 2.4 m alongside. The elevation of the wharf is 0.9 m. An L-shaped breakwater gives shelter from the north and west. A **light** (318.5) is shown from a skeleton tower on the outer end of this breakwater. Lobster holding tanks are located 24 m SE of the wharf; a floating breakwater, elevation 1.2 m, is attached to these tanks.

34 There is a T-shaped Public wharf 0.3 mile north of Bear Point. The outer end is 115 m long with depths of 1 to 2 m alongside. A **light** (316) is shown from a triangular tower on the south end of the wharf.

35 **Shag Harbour** lies to the NE of Stoddart Island. Though open to the SE, the strength of the sea from the SE

SWIMS POINT (2000)



WEST HEAD (2000)



is broken by Cape Sable Island and the ledges surrounding it. **Inner Island** lies about 0.3 mile north of Stoddart Island. There is a narrow, **buoyed** channel between Inner Island and the mainland; the rock, mud and weed in this area mostly dries.



36 There is temporary **anchorage** for vessels in about 15 m, hard bottom, in The Sound, about 0.5 mile NW of Stoddart Island light. There is good small craft **anchorage** in about 3.4 m, mud, in a cove formed between Inner and Stoddart Islands, close NE of the Stoddart Island light.



37 At **Prospect Point**, 0.8 mile north of Stoddart Island, there is an L-shaped breakwater-wharf 101 m long. The inside face of the outer end is 18 m long with a depth of 2.1 m alongside. A **light** (311) is shown from a mast on the outer end of the breakwater.

38 Between Prospect Point and **Squaw Point**, 0.9 mile further east, there is an F-shaped Public wharf 164 m long, with sides extending 40 m to the east. There is a least depth of 2 m alongside the outer face. A **light** (309) is shown from a mast on the outer end of this wharf.

39 **Lower Woods Harbour** is a settlement 2 miles north of **Maggie Garrons Point** that is sheltered from the west by

the several islands, reefs and ledges north of Outer Island. Navigation in this area, the continuation of The Sound, is made difficult by the strength of the tidal currents. Starboard hand light **buoy** D2 (305) is moored at the north extreme of **Outer Island Bar**, on the north side of Outer Island, and marking passage to the west. A submarine power **cab**le is laid between the north end of Outer Island and the mainland.



40 A **light** (312) is shown at an elevation of 6.3 m from a white square tower, with a red upper portion, on a concrete pier on **Big Ledge**, 0.3 mile off the east shore. A **fog signal** of one blast every 30 seconds is sounded from the light tower; the horn points 201°.



41 **Anchorage**. — There is good holding ground in about 7 m, 0.7 mile south of Big Ledge. There is also anchorage in 9 to 13 m, mud, about 0.3 mile SW of Big Ledge.




42 At **Lower Woods Harbour**, there is an L-shaped breakwater and a Public wharf extending 116 m north and 25 m east, with a depth of 2.1 m alongside the face. A **light** (313) having red and white day-marks is shown from a mast on the outer end of the breakwater.

43 At **Falls Point**, 0.7 mile north of Big Ledge, there is a Public wharf 216 m long with four finger piers extending 38, 61, 78, and 91 m in a SE direction to form three sheltered basins with depths of 1.5 to 2.1 m. A **light** (315) is shown from a mast on the outer end of the wharf. A roughly C-shaped rock breakwater protects this wharf, with its three sides extending over 460 m. A **light** (315.4) having red and white daymarks, is shown from a mast on the NW corner of the breakwater. Three white oil tanks are situated close north of the wharf. Fuel, water and ice are available.

44 At **Forbes Point**, 0.4 mile north of Falls Point, there is an L-shaped wharf 62 m long, with an outer end 21 m long and a depth of 2.7 m alongside. A submarine power **cable** is laid from Forbes Point to the opposite shore. A **light** (315.2) is shown from a mast with a red and white triangular daymark, on the NW end of a ledge, situated about 0.2 mile NNW of Falls Point.

45 The south entrance to **Cockerwit Passage** is to the west of Big Ledge. This inshore passage, between The Sound and Pubnico Harbour, is **buoyed** and has a least depth of 1.8 m. Local knowledge is necessary for this passage.

 46 **Lights.** — A light (315.5) is shown from a mast on **Northern End Ledge**, on the west side of the passage, 0.4 mile north of **Vigneau Island**.

47 **Duck Island**, drying 3 m, lies 0.7 mile off the west side of Outer Island.

48 **Johns Island**, 11 m high and thickly wooded, lies 4 miles NNW of Outer Island. **Johns Island Ledge**, which dries 0.6 m and generally breaks, is situated 1.5 miles south of Johns Island. Starboard hand light **buoy** ND4 (303) is moored 0.6 mile SW of Johns Island Ledge.

49 **Pubnico Harbour** is entered between **Pubnico Point** (43°35'N, 65°48'W), which is low and treed, situated 2.4 miles north of Johns Island, and the mainland 0.9 mile to the east.

50 For Pubnico Harbour, **aids to navigation** are provided to mark hazards, turns and identify landfall. Landfall is made on Pubnico fairway light and whistle **buoy P**. The **level of service** depth standard has been established to accommodate vessels of 5.5 m draft. This depth standard recognizes an under keel allowance of 1.2 m. Visual and aural aids to navigation provide landfall and confined water travel for all vessels until visibility is reduced to below 0.5 mile.



51 From Pubnico fairway **buoy P** to Beach Point, the aids to navigation system will support continuous visual pilotage for daytime navigation until visibility is reduced to below 1.5 miles, and nighttime navigation until visibility is reduced to below 2 miles. Below these levels of visibility the uncertified mariner shall rely on a short distance of dead reckoning.

52 From Beach Point to the inner limit of navigation, the aids to navigation system will support continuous visual pilotage for daytime and nighttime navigation until visibility is reduced to below 0.5 mile. The passage between buoys P10

and P12 will require dead reckoning of 0.2 mile at nighttime by the uncertified mariner.

53 When visibility drops to below 0.5 nautical mile, reduce speed and exercise extreme caution. Under these conditions vessel movement should be supported by other means including electronic navigation and local knowledge. (Canadian Coast Guard, 1999)

54 A **light** (299) is shown from a red and white cylindrical tower, 8.7 m high, on Beach Point.

  55 At **Lower East Pubnico**, population 181 in 1991, on the east side 0.5 mile north of Beach Point, a Public wharf extends 186 m to an outer face 13 m wide with a depth of 4.3 m alongside. A **light** (300.5) is shown from a mast on the outer end of this wharf. Near the inner end, a wharf extends south 67 m to an outer end 40 m long. There are depths of 1.5 to 2.7 m along the west face and a least depth of 0.9 m along the inside face.

56 The fisherman's harbour near **Dennis Point** is situated on the west side of the harbour 1.2 miles north of Beach Point. The harbour has two boat basins formed by three L-shaped wharves. A 0.6 m shoal lies close off the north wharf.

57 The outer end of the south wharf is 96 m long with a least depth of 5.7 m alongside. The outer end of the middle wharf is 45 m long with a least depth of 4.4 m alongside. The outer end of the north wharf is 47 m long with a depth of 3 m alongside. The outer part of the south basin has depths of 2 to 6 m, and the outer part of the north basin has depths of 1 to 3 m. A submarine power **cable** crosses the harbour 0.4 mile north of this facility.

58 Near the community of **Middle East Pubnico**, population 436 in 1991, is a fish plant and wharf situated 2.6 miles north of Beach Point. The wharf is L-shaped, 46 m long and 30 m wide at the outer end, with a least depth of 7.9 m alongside. There is a mooring crib close south of the wharf and **conspicuous** buildings and tanks close east of it.

 59 There is **anchorage** in about 17 m, mud, about 1 mile north of Beach Point.

Pubnico Point to Tusket Islands

Chart 4244

60 Between Pubnico Point and Outer Bald Tusket Island, 9.5 miles to the west, lies an extensive inshore area, encumbered by numerous islands and shoals, among which small vessels can find shelter. This area, which comprises Goose Bay on the west side, the Tusket River and approaches, and **Lobster Bay** on the east side, is heavily fished.

61 **The Peak**, with a least depth of 4 m and over which there is a **tide rip**, is situated 1.8 miles NW of Pubnico Point.

PUBNICO HARBOUR AT BEACH POINT (2000)



PUBNICO HARBOUR — LOWER EAST PUBNICO (2000)




PUBNICO HARBOUR — DENNIS POINT (2000)




The Brothers are two similar islands 3 m high lying close to the mainland, 2.6 miles NNW of Pubnico Point.


62 **Abbotts Harbour**, a small harbour affording good shelter to small craft, lies between **Abbotts Harbour Island**, 4.2 miles north of Pubnico Point, and the mainland close to the east. A disused **light** is shown from a white square tower on the east side of Abbotts Harbour ($43^{\circ}39'N$, $65^{\circ}49'W$).



 63 An L-shaped breakwater extends from the NE side of Abbotts Harbour Island. An L-shaped Public wharf, having an outer end 50 m long with a depth of 3.9 m alongside, extends 61 m from the east side of the harbour. Adjacent to this wharf is a wharf and fish plant.



64 **Rams Ledge**, drying 2.9 m, and on which there is a breakwater, is joined to the mainland NE by a rocky ledge 0.5 mile south of Abbotts Harbour. At **Ledge Harbour**, close to the east, a Public wharf 81 m long and 6 m wide extends to a depth of 4 m.

 65 **Whitehead Island**, 22 m high, with **conspicuous** red cliffs on its south side, is situated 1.7 miles west of Abbotts Harbour Island. A **light** (295) is shown at an elevation of 30 m from a white square tower on the corner of a building at the south end of the island ($43^{\circ}40'N$, $65^{\circ}52'W$). A **fog signal** of one blast every 30 seconds is sounded from the tower; the horn points 190° . A submarine power **cable** is

laid from the island to the mainland north of Abbotts Harbour Island.

 66 **Whitehead Breaker**, drying 0.3 m, lies midway between Whitehead and Abbotts Harbour Islands and is marked by a **buoy**. **Western Shoal**, least depth 3.8 m, lies 0.3 mile off the west side of Whitehead Island. **Pumpkin Island**, 10 m high, lies 0.5 mile north of Whitehead Island. **Foul Ground**, drying 0.2 m, lies 0.4 mile east of the Pumpkin Island. A **light** (297.12) is shown from a mast having a green and white daymark, on **Black Ledge**, 1.7 miles NNW of Pumpkin Island.

  67 At the community of **Lower Argyle**, population 294 in 1991, situated 4 miles north of Abbotts Harbour, there is an L-shaped Public wharf 110 m long with an outer face 70 m long. The outer end has depths of 3.4 m on the outer face and 2.4 m on the inner face. The wharf is sheltered by breakwaters on its south and north sides. A **light** (295.5) is shown from a mast at the outer end of the south breakwater.

  68 **Jones Channel** and **Hog Island Channel** lead from the east side of **Jones Island**, which lies 0.8 mile NNW of Pumpkin Island, 2.7 miles to **Muise Head**, the SE end of **Morris Island**. **Jones Ledge** dries 0.7 m and lies 0.3 mile south of Jones Island. At the


ABBOTTS HARBOUR (2000)





LOWER ARGYLE (2000)





fisherman's harbour at Muise Head, a Public wharf extends south to an outer end 28 m long and 10 m wide, with a depth of 1.2 m alongside. A rock breakwater, 87 m long, lies close east of the wharf. A **light**, privately maintained, is shown from the outer end of the breakwater.

 69 There is **anchorage** in 11 m at **Jones Anchorage**, 1.6 miles NNW of Pumpkin Island, and within Hog Island Channel, 1 mile further NNW.


  70 The channel on the west side of Jones **Surettes Island**, where there is a Public wharf with an outer end 18 m long and a depth of 1.5 m alongside. A **light** (294.6) is shown on a mast on the outer end of a breakwater close south of the wharf.



71 The **Tusket River** affords good shelter to small vessels. The two narrow entrance channels are obstructed by dangers:

 72 **Gull Island**, only 2 m high, lies 2 miles west of Whitehead Island and from it **Gull Island Bar**, a stony spit which dries, extends 0.6 mile north. A **light** (295.9) is shown from a skeleton tower at the south end of Gull Island. **Gull Ledge**, at a depth of 4 m, **Dollard Rock**, at 3.7 m, **Gull Island Shoal**, at 4.6 m, and **Angus Shoal**, at 5.5 m, lie almost in line between 2.1 miles south and 1.1 miles SW of Gull Island. Starboard hand light **buoy** NE2 (285.2) is moored 0.4 mile south of Gull Ledge.

 73 The Tusket River is **buoyed** for entry between Gull Island and **Snipe Island**, a small island 2.6 miles to the west. Bifurcation light **buoy** TA (293.55) is moored 0.3 mile SSE of Snipe Island. **Western Bar Island**, 7 m high, lies 0.7 mile north of Snipe Island; port hand light **buoy** TA3 (293.6) is moored 0.6 mile SE of the island. A **light** (293.2) is situated on a reef 0.8 mile NNW of Snipe Island.



74 **Wedge Point**, 0.8 mile NNW of Western Bar Island, is the south tip of **Tusket Wedge**, and separates the Tusket River from Goose Bay. **Big Fish Island**, 14 m high and mostly wooded, lies 1.5 miles NE of Wedge Point. **Big Fish Rocks**, at a depth of 0.3 m, lie 0.2 mile NW of this island.


 75 A **light** (294) is shown at an elevation of 18.6 m from a white square tower on the SW side of Big Fish Island. A submarine power **cable** is laid from the island to Tusket Wedge.

  76 On the east side of Tusket Wedge, a curved rock breakwater, about 0.2 mile long, protects a small fishing harbour. There is an L-shaped wharf 220 m long with an outer end 81 m long. The harbour entrance is 55 m wide with a depth of 1.6 m. A **light** (294.3), having a green and white daymark with a black square in the centre, is shown from a mast at the outer end of the breakwater.


 77 **Tucker Island**, 19 m high, lies 0.5 mile north of Big Fish Island. **Tucker Island Ledge**, at a depth


of 1.5 m, lies on the west side of the channel 0.3 mile west of Tucker Island. There is **anchorage** in about 11 m, mud, about 0.4 mile north of Tucker Island. There is also **anchorage** in 11 m, 1.6 miles further up the river.


  78 **Indian Sluice Bay** is a NE branch of the Tusket River that opens to the north of **Wilson Island**. A **buoyed** channel 2.5 miles long leads to a fisherman's harbour at **Sluice Point**. The Public wharf is 90 m long with an outer face 15 m long and a depth of 2.2 m alongside. Three wave breaks are moored 30 m off the outer end of the wharf. A **light** (294.55) is shown from a mast at the outer end of the wharf.


 79 The **tidal streams** 1.5 miles north of Tucker Island have a rate of 2 knots; in the narrows 5 miles above the island, the rate is 5 knots.

80 **Goose Bay** is entered by way of three channels between Wedge Point, Western Bar Island, Snipe Island and **Lobster Island**. Lobster Island, 10 m high, lies 0.4 mile east of **Big Tusket Island**.

 81 A channel 0.3 mile off the west side of Tusket Wedge, marked by **lighted** dolphins (292, 293), leads to a fisherman's harbour at **Lower Wedgeport** (*Tuna Wharf*). The harbour is enclosed by two L-shaped wharves, having outer ends 37 m long (north wharf) and 61 m long (south wharf). The channel between the wharves is 13 m wide with a depth of about 1 m. The harbour dries at its inner end. The community of **Wedgeport**, population 1,297 in 1996, lies near the head of Goose Bay.

 82 **The Sluice**, a small boat passage that dries, leads from Goose Bay to the west side of the Tusket Islands. **Lights** (281, 282) are shown from skeleton towers near the centre of The Sluice.

 83 **Tusket Islands**. — This group of islands, the highest of which has an elevation of 34 m, are situated about 10 miles west of Pubnico Point, and 6 miles north of Flat and Round Islands. Schooner Passage and Ellenwoods Channel lead through the group in the general direction of the tidal streams. **Ellenwoods Channel** is used by local fishermen and should not be entered, however, Schooner Passage can be navigated by small vessels but extreme **caution** is necessary during poor visibility. Submarine **cables** are laid between many of the Tusket Islands and the mainland to the north.

 84 **Tidal Streams**. — Among the Tusket Islands, the general direction of the flood stream is NW and the ebb stream SE, but this is much affected by the land; heavy tide rips and eddies are numerous. The average rate of the tidal streams in Ellenwoods Channel runs 4 knots, and in Schooner Passage 3 knots.

85 **Outer Bald Tusket Island** (43°36'N, 66°01'W), 16 m high and bare, is the south island of the group. With a steep cliff and a single dwelling at its south end, the island, which

TUSKET WEDGE — EAST SIDE (2000)




LOWER WEDGEPORT — TUNA WHARF (2000)



TUSKET ISLANDS (1984)



is radar **conspicuous**, is easily recognized from the others of a smaller group known as the **Bald Islands**.

86  **Cleopatra Shoal**, at a depth of 3 m, 1.6 miles SSE of Outer Bald Tusket Island, forms the least depth in the passage between Outer Bald Tusket Island and Soldiers Ledge. There are other shoal areas, and owing to strong tidal currents and the large number of tide rips, navigation must be with great **caution**.


87 The **Spectacle Islands**, 10 and 7 m high, 2.4 miles NW of Outer Bald Tusket Island, are the west islands of the group. **Spectacle Ledge**, least depth 3 m, lies 0.8 mile south of these islands. **Harriet Ledge**, which dries 1.5 m, is situated 0.8 mile NW of Outer Bald Tusket Island. Fairway light **buoy** NSC (288) is moored 0.7 mile south of Spectacle Ledge.

88 **Holmes Island** is situated 0.35 mile north of the Spectacle Islands, and from it **Holmes Spit**, with a least depth of 1.8 m, extends 1 mile to the NNW. **Murder Island**, 2.4 miles north of the Spectacle Islands, is the north island of the group. **Murder Island Bar**, least depth 3.2 m, lies 0.6 mile SW of Murder Island at the NW entrance to Schooner Passage.

89 **Schooner Passage** has a total length of 2.7 miles and is much used by small craft. The channel is **buoyed** for a passage from SE to NW. Numerous fishing stages, seasonally used, are located among the islands which surround the passage.


90 The lower end of the passage is entered from the SE of **Peases Island**, which lies 0.6 mile SW of Big Tusket Island. **Old Man**, a ledge drying 1.5 m, lies 1 mile NE of Outer Bald Tusket Island; it is marked by port hand light **buoy** T1 (287.5). **Old Woman**, a rock drying 3.4 m, lies 1 mile ESE of Big Tusket Island; it is marked by south cardinal light buoy TT (285.5).

91 The NW end of the passage is entered between **Candlebox Island**, 0.4 mile SSE of Murder Island, and **Owls Head**, the north extreme of **Owls Head Island**, 0.3 mile to the SSW. Fairway light **buoy** NSH (275) is moored 0.25 mile from the SW side of Murder Island. Port hand light **buoy** NS11 (276) is moored about 0.25 mile north of Owls Head.

92  **Lights**. — A light (283) is shown from a white circular tower at the SE end of Peases Island. A **fog signal** of two blasts every minute is sounded from the tower; the horn points 130°.

93 Two lights (282.5, 284) are shown from masts on rocks close off the south point of Big Tusket Island.

94 A light (280) is shown from a white tower 11.6 m high, on the corner of a white building on Candlebox Island. A **fog signal** of one blast every 30 seconds is sounded from the building; the horn points 295°.

95  There is good **anchorage** in 22 m between **Eagle Island** and **Deep Cove Island**, to the NE of Candlebox Island.

SCHOONER PASSAGE (FROM THE SOUTH) (2000)



96 **Pinkneys Point** ($43^{\circ}42'N$, $66^{\circ}04'W$) lies 1.4 miles north of Murder Island. Port hand light **buoy** NS17 (277) is moored 0.3 mile SSE of Pinkneys Point.



97 On the east side of Pinkneys Point, a rock breakwater protects a small boat harbour enclosed by two L-shaped wharves, the entrance between them being 24 m wide. The north wharf has an outer end 59 m long, and the south wharf has an outer end 55 m long; both have depths of 0.9 to 1.5 m alongside. A **light** (278) is shown from a mast having a green and white daymark, on the outer end of the breakwater.



98 **Ram Island**, treeless and strewn with boulders, lies in the entrance to **Little River Harbour**, between Pinkneys Point and the mainland to the east. Another **light** (279) is shown from a mast on a small island close west of the village.



99 At Little River Harbour, there is a Public wharf 79 m long with a depth of 1.8 m at the outer end. The wharf is protected by a breakwater 57 m long. A **light** (279.5) is shown from a mast on the outer end of the breakwater.

Tusket Islands to Yarmouth

Chart 4243

100 **Gannet Rock** ($43^{\circ}38'N$, $66^{\circ}09'W$) lies 3.6 miles west of the Spectacle Islands. It has a remarkable sugar-loaf peak 15 m high near its south end, and a hillock almost the same height near its north end. Two rocks, the higher of which dries 3.9 m, lie together close south of the peak. **North Rock**, which dries 2.1 m and generally breaks, lies 0.2 mile north of Gannet Rock. **Peter Stewarts Rock**, drying 1.4 m and which usually breaks, lies 0.6 mile south of Gannet Rock. **Southeast Breaker**, least depth 1 m, lies 1.1 miles SSE of Gannet Rock and breaks in a heavy sea. **Gannet Dry Ledge**, drying 3 m, is situated 1.7 miles SW of Gannet Rock. **Gannet South Shoal** and **Gannet Southwest Shoal**, least depths of 4.6 and 3.6 m, and which lie 3.4 miles SE and 1.6 miles SSE of Gannet Dry Ledge, show a small ripple in fine weather but break in heavy seas. Starboard hand light and bell **buoy** N6 (273) is moored 1.7 miles west of Gannet Dry Ledge.




101 **Green Island**, 17 m high and grass covered, is situated 3 miles north of Gannet Rock. Several

GREEN ISLAND (2000)



shoal patches lie between Green Island and North Rock. A **light** (272), with red and white daymarks, is shown at an elevation of 25 m from a white tower on a white building near the centre of Green Island. A submarine power **cable** is laid from the island to the mainland north of Pinkneys Point.

102 **Chebogue Point**, flat and treeless, and on which there is a **conspicuous** silo, is the south headland of the Yarmouth Harbour approach, 2.8 miles NNE of Green Island. Radio **towers**, with elevations of 46 to 64 m, are situated 0.6 mile north of Chebogue Point; the highest towers are marked by red **lights**. South Cardinal light **buoy** E (271) is moored off Chebogue Point.

 103 **Chebogue Harbour** affords good shelter to small craft and is entered between Chebogue Point and **Reef Island**, 16 m high, 1.4 miles to the SSE. A **buoyed** channel passes either side of **Crawleys Island**, close within the entrance, and continues to an L-shaped Public wharf which is situated 3 miles north of Reef Island. The wharf has an outer end 53 m long with a least depth of 3.4 m along its outer face and 1.8 m along the inside face. From the wharf, the winding **Chebogue River** may be navigated with caution for another 2 miles.

104 **Reef Shoal**, at a depth of 2.8 m and over which there is a tide rip, is situated 1 mile SW of Reef Island. **Reef Ledge**, drying 2 m, lies 0.5 mile west of Reef Island. **Chebogue**

Ledge, drying 0.7 m, and **Chebogue Point Shoal**, at a depth of 3.7 m, lie from 0.8 to 1 mile SSW of Chebogue Point.


105 **Yarmouth Approach**. — A **vessel traffic services system** is in operation for the Gulf of Maine and Bay of Fundy, including Yarmouth Harbour and approaches. For more information, consult the *Annual Edition of Notices to Mariners*.

106 **Foul Ground**, at a least depth of 1.9 m and over which there is a **tide rip**, and **Roaring Bull**, a rock drying 0.2 m, lie from 1.1 to 1.8 miles NW of Chebogue Point. Starboard hand light **buoy** Y2 (268) is moored 0.4 mile west of Roaring Bull.

Yarmouth Harbour

Chart 4245

107 **Yarmouth Harbour**, open all year, is entered by way of **Yarmouth Sound**, between **East Cape** (43°48'N, 66°09'W), the south extreme of **Cape Forchu**, and **Sunday Point**, about 0.7 mile to the SE.

 108 Cape Forchu, high, rocky, well treed and almost an island, has a greatly different appearance from the surrounding coast. It derives its name from having two narrow, rocky forks that extend to the south. **West Cape**,

APPROACH TO YARMOUTH HARBOUR (2000)



the west fork, is joined to East Cape by a low, narrow beach and between them lies **Outer False Harbour** which is open to the south. A private **light** (260) is shown from a red and white hexagonal tower, 23.4 m high, on East Cape. A **racon** (—•••) operates from Cape Forchu light.

109 **Kelleys Cove**, almost dry at low water, opens to the east of Sunday Point. There is a breakwater 107 m long near the east entrance point to the cove. The NE face, with depths drying to 1 m at its outer end, is used for small fishing boats. A Public wharf, 33 m long which dries, is situated close NE of the breakwater.

110 The town of **Yarmouth**, population 7,581 in 1996, lies on the east side near the head of the harbour. Yarmouth is the commercial centre of southwestern Nova Scotia. There is a large fishing industry in the town, and it is a terminus for motor vehicle ferries that operate to Maine, U.S.A. There is a large regional hospital and airport. Yarmouth Harbour is a Public Harbour. There is a **Customs Office** in Yarmouth.



111 Yarmouth Harbour is subject to silting and all charted depths should be checked with local author-

ities. **Pilotage** is not compulsory, but a local pilot is available and advisable for mariners not having local knowledge.



112 The **tidal stream** changes direction shortly after high and low water near the shore. Between the Tusket Islands and Yarmouth Sound, the inshore flood streams run NW at a maximum rate of 3 knots.



113 There is no safe **anchorage** in Yarmouth Harbour. The channel is narrow and affords no swinging room. In fine weather, **anchorage** is available outside the harbour in varying depths in the anchorage area situated about 1.5 miles west of Cape Forchu. The holding ground is reported to be good.




114 **Inner approaches.** — **Hen and Chickens**, a group of rocks, one of which dries 2.8 m, lie close to the east side of the entrance, 0.6 mile east of Cape Forchu light; this danger is marked by starboard hand light **buoy** Y4 (267). **Ships Stern**, 15 m high, is a **conspicuous** headland that resembles the stern of a ship, 0.9 mile north of Cape Forchu light on the west side of the channel. A **light** (261) is shown at an elevation of 9.4 m from a mast on the north end of Ships Stern.

YARMOUTH HARBOUR (2000)



115 **Bunker Island**, 22 m high, lies to the NE of Ships Stern on the opposite side of the channel. A group of white oil tanks lie near the centre of the island. At the NW end of the island is a private wharf, 55 m long and 12 m wide, with a least depth of 2.1 m along its SW face.


 116 **Little Bunker Island**, 6 m high, extends SW from Bunker Island. A drying spit, with a rock that dries 0.6 m at its outer end, extends 110 m SW of Little Bunker Island. A **light** (263) is shown from a white square tower, 9.1 m high, with a red stripe, on a red circular base and concrete foundation, situated SW of Little Bunker Island. A small fish wharf that dries and a building are situated on the NW side.

117 To the west of Bunker Island, there is a small boat passage into the Bay of Fundy. The channel passes under a bridge in a breakwater, where there is a clearance of 2.3 m. Several small wharves and buildings are situated east of the bridge.

118 **Sollows Rock** dries 0.5 m and lies on the west side of the main channel opposite Bunker Island. A monument, 5 m in elevation, stands on **Johnsons Point**, about 0.4 mile north of Little Bunker Island light.


119 **Elders Head** and **Wyman Head** lie 0.5 mile and 0.8 mile north of Bunker Island on the west side of the harbour. A **radar reflector** on a yellow mast marks the outer end of a sewer outfall pipe off the east side of the main channel, 400 m SE of Elders Head.

120 The head of the harbour is an extensive drying flat. **Doctors Island**, 5 m high, lies near the centre of this flat about 0.3 mile NE of Wyman Head.

 121 **Berthing**. — Lobster Rock Public wharf is situated 0.4 mile NE of Elders Head. The wharf is 152 m long with a least depth of 5.7 m along its outer face. The elevation of the wharf is 1.8 m. The wharf is lighted, water and power are available.

122 The *Nova Star Cruises* ferry terminal is situated close north of Lobster Rock wharf. The wharf is 122 m long with a stern loading ramp at its south end.

123 North of the ferry terminal is a Public wharf 122 m long. The wharf is lighted, water and power are available. The Marginal wharf, 107 m long, is located on the inside and forms a sheltered basin for small craft.

 124 The Killam Brothers Marina and the Parker-Eakins Wharf and Marina lie to the north of the Marginal wharf. Both facilities have floating piers, which are removed during winter. There are depths of 1.2 to 1.8 m alongside the Killam Brothers piers. The Parker-Eakins Wharf and Marina have five floating wharves with depths of 1.2 to 4.4 m alongside. Water is available dockside, showers and laundry nearby and fuel is available by truck.

125 Sweeney's wharf, 183 m long with a depth of 3 m alongside, is situated 0.15 mile further NNE. The Kennebec Fisheries wharf is located close north of Sweeney's wharf.

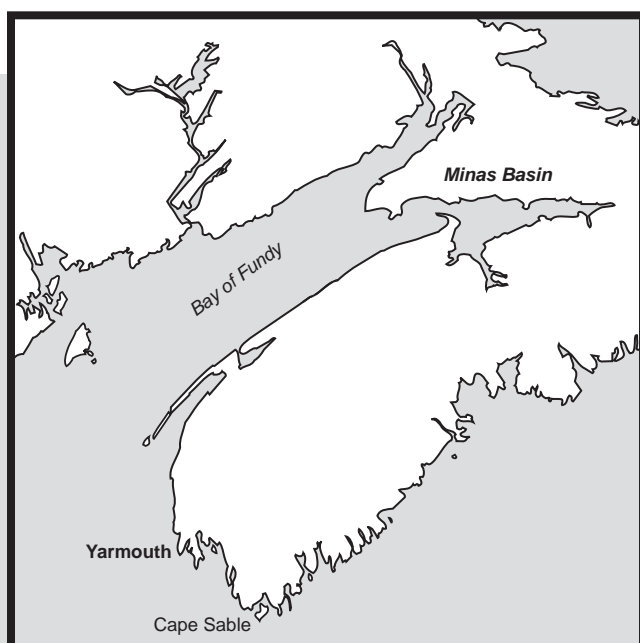
126 Diesel oil and most marine stores and supplies are available.

Bay of Fundy

Yarmouth to Minas Basin

Bay of Fundy

Charts 4011, 4010




1 The **Bay of Fundy**, the name of which is thought to be a corruption of Fond de la Baie or Baya Fonda (deep water), lies between the coast of New Brunswick and the west part of Nova Scotia.

2 From its entrance between Brier Island, 28 miles NNW of Cape Forchu, and the coast of Maine, 41 miles to the NW, the bay trends NE for 90 miles to Cape Chignecto ($45^{\circ}20'N$, $64^{\circ}57'W$), where it divides into two arms, Chignecto Bay and Minas Basin.

3 Passamaquoddy Bay, close inside of the entrance on the NW side of the Bay of Fundy, forms part of the boundary between Canada and the United States of America.


4 Grand Manan Island, together with its off-lying shoals, occupies nearly half the width at the entrance to the bay, which divides into two channels. Grand Manan Channel, to the west of the island, is 5.5 miles wide and free of dangers. The SE channel is much obstructed by rocks and shoals. The navigable passage between Old Proprietor Shoal and Northwest Ledge is 17 miles in width.

5  Owing to the strong tidal streams, the prevalence of fogs, and the difficulty of obtaining anchorage due to the depth of water, navigation in the Bay of Fundy calls for unremitting attention.

6 A **vessel traffic services** system is in operation for the Bay of Fundy and approaches. For vessels entering or leaving the Bay of Fundy through the SE channel, a **traffic separation scheme** is in effect. For further information, consult the *Annual Edition of Notices to Mariners*.

7 Fairway light **buoy M** (251.8) is moored at the seaward end of the traffic separation scheme. A **racon** (—•••) operates from this buoy.

8 A **conspicuous tower** showing quick flashing lights is situated in position $43^{\circ}56'N$, $66^{\circ}06'W$.

9  Large concentrations of **fishing vessels** may be encountered throughout the year in the south approaches to the Bay of Fundy and within the area of Grand Manan Basin. Vessels navigating these areas should do so with extreme caution to avoid risk of collision.

10 **Ice** forms at the head of the Bay of Fundy and in most sheltered harbours and anchorages, sometimes as early


as December and clearing in late April. Saint John Harbour is always ice-free. Navigation in Head Harbour Passage, Passamaquoddy Bay and Quoddy Roads is not hindered by ice. Minas Basin and the north part of Chignecto Bay are ice-covered in average years from late December to late March.

11 **Coastal aspect.** — On the SE side of the Bay of Fundy, between Cape Forchu and Morden, 93 miles NE, are two inlets, St. Marys Bay and Annapolis Basin. St. Marys Bay, a deep inlet, is entered 23 miles north of Cape Forchu and extends 32 miles NE. Good anchorage is available, but the inlet is exposed to the SW.

12 Annapolis Basin is entered through Digby Gut, 38 miles NE of the entrance to St. Marys Bay. There is good anchorage but shelter is only fair during gales.

13 Except for the shoals which extend 3.5 miles NW from Brier Island, the 10 fathom (18.3 m) contour lies within 1 mile of the SE coast of the Bay of Fundy from Brier Island to Morden.

Charts 4243, 4230


 14 **Lurcher Shoal** is an off-lying danger 14 miles WNW of Cape Forchu. It comprises two separate shoal heads: **Southwest Shoal**, the larger of the two, has a least depth of only 2.1 m. From this, a bank with depths of less than 20 m extends 1.4 miles NNE to **Mackerel Shoal**, and 0.3 mile to the south. **Northeast Shoal**, at a least depth of 8.5 m, lies 2.3 miles NNE of Southwest Shoal. **The Nubble** and **Pollack Shoal** form part of an uneven bottom extending 0.7 mile south and 1 mile north from this shoal. **Little Lurcher**, least depth 22 m, lies 3.7 miles SE of Southwest Shoal. There are heavy **tide rips** over Lurcher Shoal.

15 **Buoys.** — Bifurcation light and whistle NM (251) is moored 1.4 miles SSW of Southwest Shoal. A **racon** (—•—) operates from this buoy. Port hand light buoy N9 (251.5) is moored 1.2 miles NE of Northeast Shoal.



Cape Forchu to Cape St. Marys

Chart 4243



16 **Chegoggin Point**, 13 m high, is situated 2.3 miles north of Cape Forchu; between them is an open bight near the north end of which the **Chegoggin River** discharges. Port hand light **buoy** NQ1 (256) is moored 0.8 mile SW of Chegoggin Point. Three radio **towers**, marked by red **lights**, elevations 45, 47 and 48 m, are situated 1 mile SE of Chegoggin Point. A tower with red and white bands is situated 5.2 miles east of Chegoggin Point.

 17 Chegoggin Point and West Cape, Cape Forchu, appear almost identical on a radar display at



short range. **Caution** should be exercised when navigating this part of the coast.



  18 At Chegoggin Point, there is a breakwater 168 m long which extends to a depth of 2.4 m; a **light** (255.7) is shown from a mast at the outer end of this breakwater. A breakwater extends 91 m from the south side of the entrance to the Chegoggin River. Inside this breakwater is a Public wharf 101 m long with a depth of 3 m alongside at high water.

19 From Chegoggin Point to **Cranberry Point**, 2.5 miles north, rocks and shoals extend 0.6 mile from the low and partially wooded coast.

  20 The settlement of **Sandford**, population 274 in 1991, lies 1.5 miles NNE of Cranberry Point. There is a breakwater-wharf 197 m long. On the east side of the breakwater, a second breakwater protects a Public wharf 68 m long and a spur 41 m long. In 1995, there were depths of 0.8 to 1.5 m alongside the spur. The south end of the wharf dries. Starboard hand light **buoy** NT2 (252) is moored 1.3 miles NW of the Sandford breakwater. A sector **light** (253) is shown from a tower near the inner end of the wharf; the white sector indicates the preferred channel.

21 Between Cranberry Point and Sandford, the hills rise to an elevation of about 33 m a short distance from the coast. From Sandford to **Burns Point**, 3.2 miles to the north, the coast is generally 12 to 20 m high. At **Short Beach**, 1.2 miles north of Sandford, there is a breakwater that shelters an entrance between two parallel piers to a boat basin that dries at low water.

  22 **Black Point**, 6 m high, lies 3.5 miles north of Burns Point; between them is an open bight from which a shallow bank extends 0.7 mile. **Port Maitland**, population 503 in 1991, is situated near the south end of a bight about 1 mile NE of Burns Point. Three breakwaters form an outer and inner harbour, both of which dry. A **light** (247) is shown from a skeleton tower having a green and white rectangular daymark, at the outer end of the east breakwater. A **light** (250.1) is shown from a mast having a red and white triangular daymark, on the outer end of the west breakwater. Fairway light **buoy** NU (246) is moored 0.7 mile NW of Port Maitland.


  23 **Trinity Ledge**, 6 miles west of Burns Point, breaks in a heavy sea. It comprises three rocks close together. **Boudreaus Rock** dries 0.9 m; the other two have depths of 0.3 and 0.6 m. Another rock, at a depth of 0.9 m, lies 0.1 mile SW of Boudreaus Rock. A heavy **tide rip** over Trinity Ledge extends 1.5 miles to the NE. Near Trinity Ledge, the flood **tidal stream** sets north and the ebb **tidal stream** south at a rate of 2.5 knots. Bifurcation light **buoy** NP (245) is moored 0.9 mile south of Trinity Ledge.

 24 **Cape St. Marys** lies 3.5 miles NNW of Black Point. Foul ground, over which there is a heavy tide rip,

CAPE ST. MARYS (2000)



extends 0.7 mile SSW from the cape. **Mavilette Shoal**, least depth 6.7 m, lies 2.6 miles NW of Black Point. A **light** (241) is shown at an elevation of 31.8 m from a white square tower on the corner of a white building on Cape St. Marys. A **fog signal** of one blast every minute is sounded from the building; the horn points 251°. Fairway light **buoy** (242) NV is moored 0.8 mile south of the cape.


 25 On the east side of Cape St. Marys there is a T-shaped Public wharf 13.7 m long with a depth of 0.9 m at the outer end. Close to the south, a Public breakwater-wharf 166 m long extends to a depth of 0.9 m. A rubble breakwater is situated to the south of the breakwater-wharf; a **light** (243) is shown from a mast, having green and white daymarks, on the outer end of this breakwater.


St. Marys Bay

Chart 4118

26 **St. Marys Bay** is entered between Cape St. Marys and **Brier Island**, which lies 11 miles to the NW. From the west, the bay is protected by Brier Island, Long Island and Digby Neck, through which Grand Passage and Petit Passage



may be navigated by small vessels. Winds from the SW raise, and NE winds lower, the level of water in the bay.

 27 **Whipple Point** is the SW extreme of Brier Island. From the SE Point, **Gull Rock Bars**, most of which dry, extend 1.5 miles SW to **Gull Rock**, 2 m high. **Brier Island Southwest Ledge**, at a least depth of 4.1 m, is situated 1.9 miles SW of Gull Rock. A heavy **tide rip** extends from Gull Rock to 1.5 miles SSW of the ledge.

 28 A **light** (223) is shown from a white tower, 18 m high, with three red bands, on a point 0.8 mile north of Whipple Point (44°15'N, 66°24'W).

29 **Buoys**. — Starboard hand light M2 (225) is moored 1.8 miles SW of Brier Island Southwest Ledge. Port hand light HA1 (224) is moored 0.4 mile south of Gull Rock.

30 **St. Marys Bay — east side**. — From Cape St. Marys to **Meteghan**, about 7 miles NNE, the coast is from 20 to 30 m high and clear of off-lying dangers. Starboard hand light **buoy** HC2 (239) is moored 1.4 miles west of Meteghan.



  31 At Meteghan, population 984 in 1991, an L-shaped breakwater 295 m long, constructed of large boulders, protects an L-shaped Public wharf. The wharf is 213 m long with an outer end 152 m in length; alongside depths are from 2.1 to 4.2 m. The deck of the wharf has an elevation of 1.5 m. A **light** (239.5) is shown from a skeleton tower having red and white rectangular daymarks,

BRIER ISLAND — SW SIDE (2000)







on the outer end of the breakwater. Close east of the wharf is a marine railway with a lift of 900 tonnes and a machine shop for minor hull and other repairs. The wharf is lighted, water and gasoline are available. The harbour is open all year.

32 A **wreck** lies 1.8 miles NW of the Meteghan breakwater. Another wreck, above water, lies 1.5 miles NNW of the breakwater.

  33 At the entrance to the **Meteghan River**, about 2 miles NNE of Meteghan, there is a small harbour protected by two breakwaters which dry. A **light** (238) is shown from a mast at the inner end of the west breakwater. In the protected area there is a Public wharf with a depth of 6 m at the outer end, and two other wharves with depths of 4.6 m, at high water. There is a small shipbuilding yard with three marine railways — the largest has a lift of 305 tonnes.

34 From Meteghan to Church Point, 8.5 miles NNE, houses and villages are scattered along the coast which is bordered by low cliffs and flat land. Rocky shoals, with depths of less than 9 m, extend 1.8 miles west from the coast. A **conspicuous** yellow church with a steeple is situated at **Lower Saulnierville**, 3.4 miles NNE of Meteghan.

  35 At **Saulnierville**, about 2.5 miles north of Meteghan River, two breakwaters protect a small boat harbour. The south breakwater extends west for 166 m, and north for 230 m. The north breakwater extends NW from shore for 330 m. The harbour entrance is 35 m wide, and **lights** (237.5, 237.6) are shown on either side of the entrance. Portions of the harbour are dry at low water. There is a wharf on the inside of the south breakwater, with depths of 0.7 to 1.1 m alongside. Fairway light **buoy** HE (237) is moored 0.8 mile WNW of the harbour entrance.

  36 An L-shaped breakwater-wharf extends 120 m from the shore at **Comeauville**, population 300 in 1991, 1.7 miles north of Saulnierville. The wharf dries, but at high water, there is a depth of about 3 m alongside. A **light** (236.5) is shown from a skeleton tower on the outer end of the breakwater.


37 At **Church Point**, population 487 in 1991, a **conspicuous** steeple rises from a large grey church to an elevation of 63 m. There are two **conspicuous** wind turbines situated on the point about 0.4 mile WSW of the church. There is a small boat harbour at **Ticken Cove**, about 0.8 mile NNE of Church Point.

METEGHAN (2000)




CHURCH POINT (2000)



 38 A **light** (234) (*privately maintained*) is shown from a square skeleton tower on the outer end of a breakwater at **Belliveaus Cove**, about 4.3 miles NE of Church Point.

39 **Weymouth Harbour** ($44^{\circ}26'N$, $66^{\circ}01'W$) is entered about 8 miles NNE of Church Point. This shoal estuary of the **Sissiboo River** should only be entered a short time before high water.

 40 A dredged, **buoyed** channel, about 30 m wide, leads from the river entrance to a wharf at Weymouth, about 0.8 mile upstream. The least charted depth is 2.1 m in mid channel, but depths are subject to change from silting; local knowledge is necessary. A breakwater 134 m long is situated at the south entrance point to the river. The *J.D. Irving* wharf at Weymouth is L-shaped, with an outer face 85 m long and 12 m wide, and a least depth of 2.1 m alongside.

WEYMOUTH CHANNEL (2000)



The harbour is open all year, forest products are exported. Weymouth had a population of 380 in 1991.

41 A disused **light** tower is situated on **Gilberts Point**, 4 miles NE of Weymouth Harbour. The low and marshy head of St. Marys Bay lies 6.5 miles further to the NE.

42 **St. Marys Bay — west side.** — From the entrance to Petit Passage ($44^{\circ}23'N$, $66^{\circ}12'W$), the bold NW shore of St. Marys Bay, broken by three small coves, trends NE for about 17 miles to its head.



43 **Little River Cove** lies about 5.5 miles NE of Petit Passage. There is a wharf 46 m long extending to a depth of 3 m, which is sheltered by a breakwater 53 m long, at the south entrance to the cove. A **light** (230) is shown from a mast on the outer end of the breakwater. The village of **Little River** had a population of 190 in 1991.

44 A fish meal plant, visible from seaward, is situated at **Mink Cove**, about 1.5 miles NE of Little River Cove.



45 **East Sandy Cove** is situated 1.5 miles NE of Mink Cove. A dredged channel, with a least depth of 4 m in mid channel, leads to a T-shaped concrete wharf on the east side of the cove. The outer face is 110 m long with a depth of 4 m along most of its length. A 3.5 m depth lies

close off the south corner. The inside face is 76 m long with a least depth of 3 m alongside. This wharf is used by large fishing vessels of drafts 3 m or less. The dredged area extends to 55 m off the outer face of the wharf.



46 A wooden wharf 34 m long and 12 m wide is situated to the SE of the concrete wharf. There is a depth of 2.4 m at the outer end; the dredged area lies 37 m off the outer corner. A **light** (230.2) is shown from a mast with a red and white triangular daymark, on the outer end of this wharf. The village of **Sandy Cove** had a population of 129 in 1991.

47 **St. Marys Bay Shoal** lies about 0.5 mile off the NW side of the bay, from which it is separated by **Deepwater Channel**. The shoalest patch is a rock situated 2.6 miles NW of Gilberts Point, at a depth of 2.9 m. **Red Head** is a prominent headland at the head of St. Marys Bay.



48 There is **anchorage** in 18 to 22 m between East Sandy Cove and the mouth of the Sissiboo River. There is also anchorage in 10 m, about 0.6 mile NNW from the entrance to the Sissiboo River, and in 7 m about 0.6 mile north of Gilberts Point. Small vessel anchorage is available at the entrance to Little River Cove or Mink Cove.

WEYMOUTH (2000)




LITTLE RIVER COVE (2000)




EAST SANDY COVE (2000)




Grand Passage and Petit Passage

 49 The principal difficulty in navigating **Grand Passage** is the strength of the **tidal streams**, which attain a maximum rate of 6 knots on the flood flow and 5 knots on the ebb flow. High water slack occurs 57 minutes before the time of high water at Saint John. Low water slack occurs 1 hour 18 minutes before low water at Saint John. **Extreme caution is necessary.**



 50 From the south, the passage is entered between **South Point**, on Brier Island, and **Dartmouth Point**, the SW extreme of **Long Island**, 0.65 mile SE. **Peter Island** lies close NE of South Point. A drying reef extends 0.1 mile north from the island. The channel passes east of Peter Island and either side of Passage Shoal. A **light** (227) is shown from a skeleton tower, having red, white and green daymarks, on Peter Island. A **fog signal** of one blast every 20 seconds is sounded from the light tower. A **light** (227.5) and a radar reflector are shown from a mast, on the rocky intertidal shore, situated 0.2 mile north of the above-mentioned light tower.

Starboard hand light **buoy** HA2 (226) is moored 0.3 mile SSW of Dartmouth Point.

 50.1 A flashing yellow **light** marks an **underwater turbine**, which is situated mid-channel, north of Peter Island. **Caution** is advised.

 51 **North Point** is the west entrance point to the passage from the north, 1.7 miles north of Peter Island. A **light** (221) is shown at an elevation of 14 m from a white tower on North Point.



52 **Passage Shoal**, at a depth of 2.6 m, lies in the middle of Grand Passage almost 0.35 mile north of Peter Island; it is marked by a **buoy**. **Cow Ledge**, which dries, extends 0.2 mile north from the east side of the passage, SE of North Point. **Bald Rock** is at the south end of Cow Ledge. **Cow Ledge Shoal**, at a depth of 5 m, lies 0.2 mile north of Cow Ledge; it is marked by starboard hand light **buoy** HA4 (222).




  53 **Northeast Cove**, dry at low water, indents Long Island on the east side of Grand Passage. The village of **Freeport**, population 367 in 1991, lies at the head of the cove. On the south side, a breakwater protects a Public wharf 73 m long. A **light** (228.5) is shown

GRAND PASSAGE (FROM THE SOUTH) (2000)



from a skeleton tower on the other end of the breakwater. On the north side there is a Public wharf 130 m long.

  54 Near **Sand Point**, the west extremity of Long Island, there is a Public wharf 107 m long and 13 m wide, with a depth of 4.2 m at the outer end. A **light** (229) is shown from a mast on the outer end of this wharf. A ferry wharf with a number of supporting cribs is situated close south of this wharf. Submarine power **cables** are laid across Grand Passage from Sand Point.

   55 The village of **Westport**, population 310 in 1991, lies on the SW side of Grand Passage. Westport Harbour is open all year. There is secure **anchorage** for small vessels in 9 to 13 m, sand, about 0.4 mile NW of Peter Island. Mooring buoys, privately placed, are located closer to shore. There is an L-shaped Public wharf 142 m long. The outer face, 18 m long, has a depth of 2.6 m. The north face of this outer end, 18 m long, has a depth of 3.9 m. The outer 32 m length of the south face has 1.9 to 3 m alongside. A **light** (228) is shown from a mast having a port hand daymark, on the outer end of the wharf.


56 Another wharf, protected on the south side by a rock breakwater, is situated 0.3 mile west of Peter Island. It extends 122 m to a depth of 0.3 m.

57 A self-propelled automobile **ferry** crosses Grand Passage between Freeport and Westport. The *Joshua Slocum*,

32 m long, is double-ended with a white hull. It operates on a 24 hour basis and may be contacted on VHF channel 14 (156.7 MHz). At Westport, the ferry wharf is 114 m long, and is situated 0.1 mile north of the Public wharf. The ferry ramp is on the north side of the wharf. A **light** (*privately maintained*) is shown from a mast on the outer end of the wharf.

58 There are no off-lying dangers along the east side of Long Island, which is formed of steep sedimentary rock rising to wooded and partially cleared peaks.

59 **Petit Passage**, between Long Island and **Digby Neck**, is entered 9.5 miles NE of Grand Passage and presents the shortest route between Cape Forchu and Saint John. The passage is almost straight and the land on either side is high, rising to heights of 73 m on the east side. The navigable channel narrows to a little more than 0.1 mile in the vicinity of **Tiverton** on Long Island. Overhead power **cables**, vertical clearance 39 m, cross the passage near its narrowest point.

 60 **Boars Head** ($44^{\circ}24'N$, $66^{\circ}13'W$) is the west entrance point to the passage from the north, 0.7 mile north of Tiverton. A **light** (216) is shown at an elevation of 18 m from a white square tower on Boars Head. A radar **tower**, used by *Fundy Traffic*, elevation 75 m, is situated nearly 1 mile SSW of Boars Head. A microwave **tower**, elevation 110 m, is situated close to the north.

GRAND PASSAGE (FROM THE NORTH) (2000)



WESTPORT (2000)





PETIT PASSAGE (FROM THE SOUTH) (2000)





PETIT PASSAGE (FROM THE NORTH) (2000)



 61 **Tidal streams.** — High water slack occurs 1 hour before the time of high water at Saint John. Low water slack occurs 1 hour 3 minutes before low water at Saint John. The maximum flood flow is 8 knots, the maximum ebb is 7 knots.

 62 At Tiverton, population 261 in 1991, there is a Public wharf 152 m long and 12 m wide, with a depth of 5.5 m at the outer face. A **light** (217) is shown from a mast on the outer end of the wharf. There is a ferry ramp on the south side of the wharf.


 63 A T-shaped Public wharf, 36 m long and 17 m wide, is situated close south of the ferry ramp. There is a reported depth of 4.6 m at the outer end. There are numerous fish stages and breakwaters to the south of this wharf.


 64 At **East Ferry**, population 98 in 1991, on the east side of Petit Passage, there is a Public wharf 73 m long and 11 m wide, with a depth of 4.9 m at the outer end. The ferry ramp is on the south side of the wharf.

65 The self-propelled automobile **ferry Joe Casey** crosses Petit Passage. The 37 m long vessel is double-ended with a white hull. It operates on a 24 hour basis and may be contacted on VHF channel 14 (156.7 MHz).

66 Due to submarine **cables**, anchorage is prohibited in Petit Passage.

Brier Island to Annapolis Basin

 67 **Northwest Ledge** lies about 3 miles NW of Brier Island. Its shoalest spot, **Northwest Rock**, at a depth of 2.6 m, is situated 3.2 miles NW of North Point; it is marked by a **buoy**. **Beatson Rocks**, each at a depth of 4.7 m, are situated near the west end of the ledge, 0.9 mile SW of Northwest Rock. **Frenchmans Elbow** has a least depth of 9.6 m, 2.2 miles NW of North Point. **Middle Shoal**, at a depth of 8 m, lies 0.6 mile east of Northwest Rock. Starboard hand light and bell **buoy** M4 (220) is moored 0.5 mile SW of Beatson Rocks.


 68 The **tidal streams** set at a maximum rate of 4 knots over Northwest Ledge, setting north on the flood tide and south on the ebb. There are heavy **tide rips** over the ledge, Frenchmans Elbow and the uneven body between them. There is a heavy **tide rip** over **Moore's Ledge**, which is situated 3.4 miles north of North Point.

Charts 4011, 4118

69 **Coastal aspect.** — From the north entrance to Grand Passage, the bold and wooded NW coasts of Long Island and Digby Neck, with no outlying dangers, trend NE for 26 miles to **Gullivers Head** (44°37'N, 65°56'W). The coastal hills increase in elevation from about 50 m, near the south end of Long Island, to over 120 m near Gullivers Head. The summits

appear unbroken, except at Sandy Cove and Gullivers Cove, where they drop steeply to form low, flat valleys.

70 From Gullivers Cove the coast continues to trend in a NE direction to Point Prim (Prim Point) (44°42'N, 65°47'W). This section of the coast is bold with coastal hills rising to over 120 m in elevation.

 71 **Tidal streams.** — Between Grand Passage and Point Prim, the tidal streams set parallel to the shore. South of Gullivers Head, the rate is from 2 to 2.5 knots, while between Gullivers Head and Point Prim, the rate is from 1.5 to 2 knots.






  72 At **Whale Cove**, about 2.5 miles NE of Boars Head, there is a breakwater-wharf with a berthing face 35 m long and a reported depth of 1.8 m alongside. A **light** (215) is shown from a mast on the outer end of the breakwater.

Chart 4011

 73 **Sandy Cove**, 5 miles NE of Whale Cove, dries, but affords good shelter to small craft from south winds. A rock at a depth of 1.8 m lies about 0.3 mile NNE of its west entrance point. At the east side of the cove, there is a breakwater-wharf 90 m long and 9 m wide, with a depth of 5.5 m at the outer end at high water. A vessel bed, for small vessels, lies alongside the wharf.

  74 **Trout Cove** lies 4.3 miles NE of Sandy Cove. A west breakwater extends north for 100 m. From about 50 m east of the breakwater, Fishermans wharf extends 70 m west to within 8 m of the outer end of the west breakwater, forming a small basin that dries at low water. From a position 60 m north from Fishermans wharf, the east breakwater extends 120 m in a NW direction, then 80 m SW, forming with the west breakwater a second and larger basin that is mostly dry at low water. There is little shelter at Trout Cove during strong NW winds and access to the cove is difficult with a SW swell. There is a depth of 1.2 m at the outer end of the east breakwater. A **light** (214) is shown from a skeleton tower, having a red and white day-mark with a green square in the centre, on the west side of the cove. Fairway light **buoy** MA (213) is moored 0.4 mile NW of Trout Cove. The settlement of **Centreville**, population of 206 in 1991, lies near the head of the cove.




 75 **Gullivers Cove**, close east of Gullivers Head, affords good **anchorage** in 12 to 15 m, sheltered from south winds. Weir fishing is carried out in the cove and a small community is situated at the head of the cove.

Chart 4396

 76 At **Broad Cove**, situated 2.5 miles SW of Prim Point, there is a breakwater-wharf 331 feet (101 m) long and 30 feet (9 m) wide, with a depth of 3 feet (0.9 m) alongside the face.


Annapolis Basin

77 **Prim Point (Point Prim)** ($44^{\circ}42'N$, $65^{\circ}47'W$), a rocky headland, is the west entrance point to **Digby Gut**. This deep water passage, 0.4 mile wide between high steep shores, leads into the **Annapolis Basin**. Through Digby Gut, a course of $161^{\circ}/341^{\circ}$ can be made favoring the east shore and following the centre of the deep water channel. **Man of War Rock**, at a depth of 22 feet (6.7 m), lies about 0.1 mile off the west side of the passage, 1 mile SE of Prim Point.

 78 A **light (201)** is shown from a white tower with red stripes on the corner of a square building on Prim Point.



79 A light (202) is shown from a skeleton tower on the east side of the entrance to Digby Gut.


80 A **conspicuous tower**, elevation 987 feet (301 m), is situated near the peak of the east entrance to Digby Gut, 2.5 miles SSE of Prim Point. It is visible within the Annapolis Basin and from a considerable distance in the Bay of Fundy.

 81 **Tidal streams.** — In the Bay of Fundy and across the entrance to Digby Gut, the tidal streams run parallel to the shore, with a maximum rate of about 2.5 knots, turning inshore a little before, and offshore a little after local high and low water. The stream sets to the NE with a rising tide, and to the SW with a falling one.

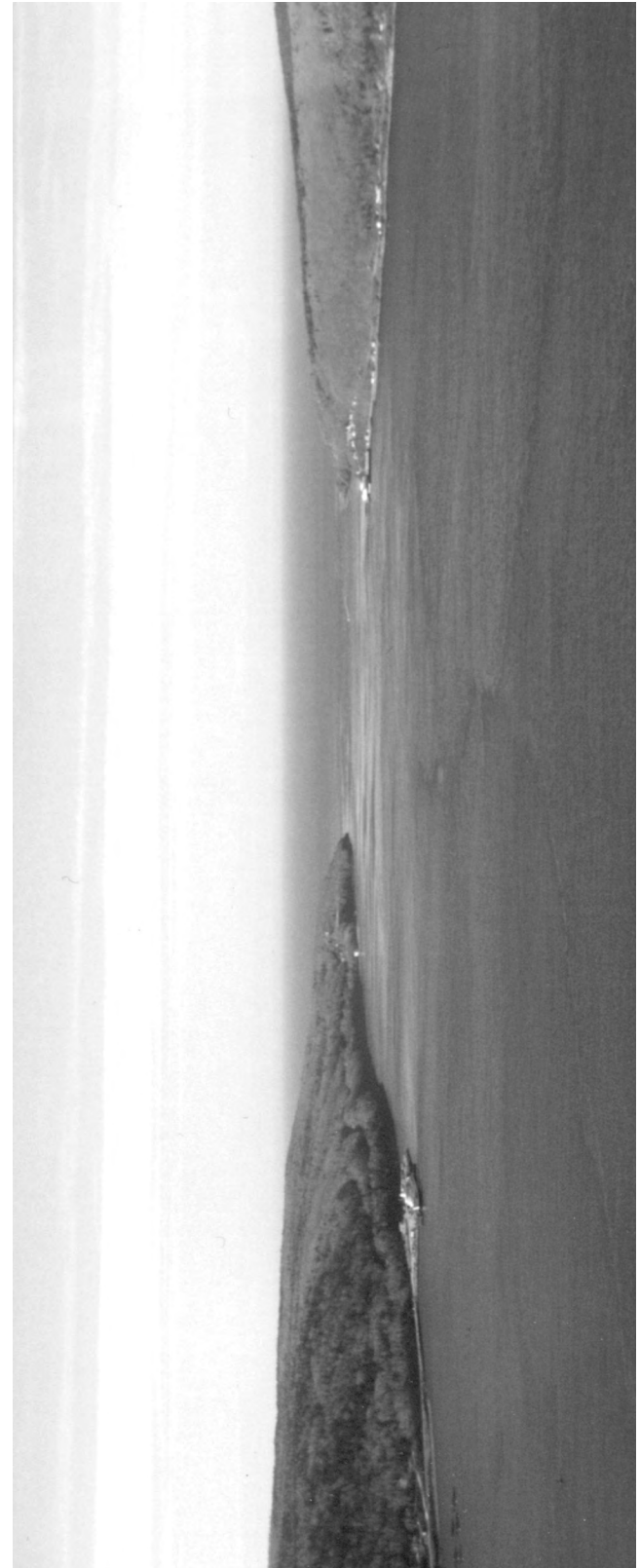
82 In Digby Gut, the times of high water slack and low water slack are almost the same as the times of high and low water at Saint John. The flow is weak for about 15 minutes before and after the time of slack water. The maximum flow in Digby Gut is about 5 knots. Both streams cause whirlpools and eddies, which are particularly strong on the west side of the channel in the vicinity of Man of War Rock.

83 A SW swell in the Bay of Fundy will propagate into Digby Gut and when combined with the ebb tidal stream, large waves will be encountered on the seaward side of Man of War Rock. This effect is reported to be at its greatest strength about $2\frac{1}{2}$ hours before low water.

  84 At **Victoria Beach**, on the east side of Digby Gut, two breakwaters form a protected basin, which dries at low water. The north breakwater is 377 feet (115 m) long and the south is 333 feet (101 m) long. A fish plant, a large white building, is situated adjacent to the north breakwater. There is a groyne, 200 feet (61 m) long, situated close north of the north breakwater. A **light (203.5)** is shown from a skeleton tower having green and white day-marks, on the outer end of the west breakwater.

 85 The *Bay Ferries* terminal is situated at **Rattling Beach**, 0.9 mile south of Victoria Beach. The *M/V Princess of Acadia*, 480 feet (146 m) long, sails regularly to Saint John. The wharf is 460 feet (140 m) long with a least depth of 16 feet (4.9 m) in the berth.

DIGBY GUT (FROM THE SOUTH) (2000)



DIGBY FERRY TERMINAL (2000)



86 **Annapolis Basin**, the estuary of the Annapolis River, is open throughout the year. Although landlocked, it provides only fair shelter during gales. In winter, with exceptionally cold weather, ice will develop on tidal flats and will be carried to the lee shore by wind and tide. Movement of ice can be hazardous to a small vessel while buoys can be moved from their charted positions.

87 Due to large tides and the sandy bottom in most of the Annapolis Basin, many fish weirs are built along the shore, especially to the SE of port hand light **buoy V1 (204)**. As these weirs cover at high water, mariners are **cautioned** to remain in the buoyed channel.

88 There is a sharp change in currents at the confluence of the Annapolis River and the Digby approach north of buoy V1. A tide rip is often visible.

89 The settlement of **Port Wade**, population 209 in 1991, lies on the NW side of the basin 1.8 miles east of Victoria Beach. A wharf in ruins has an elevation of 4 feet (1.2 m).

90 **Black Point** and **Schafners Point** are situated 2.7 and 4.5 miles ENE of Port Wade. A **light (210)** is shown at an elevation of 44 feet (13 m) from a white square tower 36 feet (11 m) high on Schafners Point. **Port Royal**, a replica of Samuel de Champlain's habitation of 1605, is situated about 0.4 mile east of Schafners Point.

91 **Goat Island**, 25 feet (7.6 m) high and wooded, lies at the NE end of the basin at the mouth of the **Annapolis River**. **Marsh Point** lies on the north shore of the river about 2 miles above Goat Island. A cemetery is located close west of Marsh Point.


92 The Annapolis River is navigable as far as **Annapolis Royal**, about 5 miles above Goat Island, where there is a hydroelectric power station and a causeway. The station operates by the rising and falling tide into the head of the Annapolis River. The historic town of Annapolis Royal had a population of 583 in 1996. A **light (211)** is shown from a white square tower in the town.

93 At the town, there is a Public wharf, 385 feet (117 m) long, which dries. A small


ANNAPOLIS ROYAL (2000)






marine railway is situated close north of the wharf. Vessels may **anchor** 1 mile below the town in 6 fathoms (11 m), however, owing to tidal eddies, it is a poor anchorage. Small craft anchor at the head of navigation just below the causeway where tidal eddies are less noticeable.

 94 Changes in currents in the Annapolis River may occur without notice due to the operation of turbines and sluice gates at the hydroelectric power station. Off the station, a current of up to 4 knots can occur.

95 *Cornwallis Park*, a former military base, is located on the SE shore of the basin about 2.2 miles SSE of Black Point. **Bear Island**, wooded, lies 3.3 miles SW of Cornwallis Park. It is joined to the mainland on its south side by an extensive mud bank, which dries. **Winchester Point**, 1 mile SE of Bear Island, is the west entrance point to the **Bear River**. A disused **light** tower is shown at an elevation of 64 feet (20 m) from a white square tower 30 feet (9.2 m) high on Winchester Point. On the NE side of the river entrance, a warehouse and a pier are in a state of disrepair. A railway bridge, vertical clearance 10 feet (3 m), and a highway bridge, vertical clearance 11 feet (3.4 m), cross the river near Winchester Point.

 96 There is **anchorage** for small craft in the area close north of Winchester Point, and off the SW side of Bear Island.

97 The town of **Digby**, population 2,199 in 1996, is situated at the SW end of Annapolis Basin, 1.9 miles west of Bear Island. A large green water tower is **conspicuous** from the NE. Commercial fishing is the major industry in the town. There is a least depth of 20 feet (6.1 m) in the narrow approach channel to the wharves. A local **pilot** is available and may be arranged with the harbourmaster.

   98 The Digby Public **wharf** is L-shaped, concrete decked, and has three floating wharves which extend SW from the 900 foot (275 m) stem. The facility is operated by the *Digby Harbour Port Association*. The L-end of the main wharf is 328 feet (100 m) long, with depths of 10 feet (3 m) on the outside face, and depths of 13 feet (3.9 m) on the inside face. The Digby wharf, and a 900 foot (275 m) rock breakwater close NE, form two sheltered boat harbours. There are no berths along the breakwater, but there are berths along the outer portion of the east face of the wharf stem. A **light** (206.2), having a red and white triangular daymark, is shown from a mast at the outer

DIGBY (2000)



end of the breakwater. At the head of the protected harbour, on the west side of the Digby wharf, is a marginal **wharf** face 230 feet (70 m) long, with a floating wharf extending SE. Close SW of the marginal wharf, the *Royal Western Nova Scotia Yacht Club* operates an 80-berth **marina**.

99 On the south side of **The Raquette**, a drying bay north of the town, there are several wharves in ruins.

100 **Facilities.** — Stores and fuel are available. Fresh water is available on the Public wharf. A small boat repair shop is situated west of the Public wharf. There is a hospital in Digby.



101 There is good **anchorage** for small vessels, in 6 to 8 fathoms (11 to 14.6 m), about 1 mile north of Digby. Larger vessels can anchor in various depths in the central part of Annapolis Basin. **Caution** must be exercised during strong winds.

Digby Gut to Morden

Chart 4010

102 From Digby Gut, the SE shore of the Bay of Fundy, with no outlying dangers, trends NE in an almost straight line for 22 miles to Chute Cove. The ridge separating the coast from the Annapolis River valley rises to heights of 500 to 700 feet (152 to 213 m) and is partially covered with trees.







103 **Delap Cove** is a small boat harbour 7.9 miles NE of Prim Point. The entrance is through a narrow inlet about 50 feet (15 m) wide that is between a breakwater-wharf 475 feet (144 m) long and a rocky headland sloping to the shore. There are depths of 13 to 18 feet (4 to 5.5 m) alongside the wharf at high water, and at extreme high tides, it is reported to be awash. A **light** (199.5) is shown at the west entrance to the cove.







104 **Parkers Cove** is situated 5 miles NE of Delap Cove. A concrete breakwater extends 385 feet (117 m) from the shore. East of this, another breakwater, with a total length of 525 feet (160 m), extends from the shore and bends to the west to form a small boat basin, the

entrance to which has a depth of 2 feet (0.6 m). With extreme high tides, the breakwaters are awash. A T-shaped wharf lies inside the basin. It is 280 feet (86 m) long, 21 feet (6 m) wide, with an outer end 110 feet (34 m) long which dries 7 feet (2.1 m) alongside. A pier extends 40 feet (12 m) from the east side of the wharf. Between this wharf and the east breakwater is another wharf 137 feet (42 m) long and 15 feet (4.6 m) wide, with a depth of about 12 feet (3.7 m) at its outer end at high water. A **light** (199) is shown at an elevation of 26 feet (8 m), from a mast on the outer end of the east breakwater. Parkers Cove had a population of 417 in 1991.


   105 **Chute Cove**, a small boat harbour, is situated 9.6 miles NE of Parkers Cove. The entrance to the harbour is 40 feet (12 m) wide between a breakwater-wharf 340 feet (103 m) long and 25 feet (7.6 m) wide on the west side, and a small wharf on the east side. At high water, there are depths of 13 to 17 feet (4 to 5.2 m) on the west side of the harbour. A privately maintained **light** (198) is shown from a white square tower at the inner end of the harbour. The settlement of **Hampton**, population of 158 in 1991, is situated close to the cove. With offshore winds, small vessels can **anchor** in 4½ fathoms (8 m), mud, about 0.4 mile NW of the light.



 106 **Tidal streams**. — Between Parkers Cove and Chute Cove, the tidal streams, with a rate of 1.7 to 2 knots, turn a little before the local high and low water. The stream runs to the NE on a rising tide and to the SW when the tide is falling. In the offing, the tidal streams turn about a half hour later.

 107 **Ste. Croix Bay** lies about 1.5 miles NE of Hampton Cove. There is good **anchorage** in 4 fathoms (7 m), mud, about 0.4 mile NE of the west entrance point of the bay.

   108 **Port Lorne** is a small settlement 2.5 miles NE of Ste. Croix Bay. There is a breakwater-wharf 430 feet (131 m) long with a depth of about 18 feet (5.5 m) at high water at the outer end. A **light** (197.3) is shown from a mast, having a red triangular daymark, near the outer end of the breakwater. There is **anchorage** in 6 to 7 fathoms (11 to 13 m), 0.25 to 0.5 mile north of the breakwater.

109 **Port George** lies 5.7 miles NE of Port Lorne. A church spire is **conspicuous**. There is **anchorage** in 5 fathoms (9 m) about 1 mile NE of Port George, however a **submarine cable** is laid about 0.5 mile to the NE. At Port George, there is a white disused **light** tower.



 110 **Margaretsville**, population 176 in 1991, is situated 4.5 miles NE of Port George. A church at Margaretsville is **conspicuous**. At the settlement, there is a Public breakwater-wharf, 229 feet (70 m) long with depths of 10 to 13 feet (3 to 4 m) along the outer 100 feet (30 m) at high water.


  111 **Margaretsville Bank**, with a least depth of 1 foot (0.3 m), lies parallel to and about 0.5 mile from the shore; the shoalest spot is situated about 0.8 mile NE of **Margaretsville Point**. A **light** (195) is shown from a white square tower with a black band on Margaretsville Point. There is **anchorage** in 6 fathoms (11 m), close to NE.



112 **Morden**, population 181 in 1991, is situated 6 miles NE of Margaretsville. A shoal, least depth 3½ fathoms (6.4 m), lies 0.7 mile NW of Morden. There is **anchorage** in about 6 fathoms (11 m) close to the NE. A **conspicuous tower**, marked with red **lights**, is situated 4.5 miles ESE of Morden.


Minas Channel

113 **Cape Chignecto** (45°20'N, 64°56'W), a bold **conspicuous** headland, is the SW extreme of the promontory dividing Chignecto Bay from the **Minas Channel**, the approach to the Minas Basin. The land near the cape rises rapidly to over 700 feet (213 m).

  114 **Ile Haute**, 320 feet (98 m) high, lies 5 miles SSW of Cape Chignecto. There are cliffs all round the island except at the east and west ends. A stony spit extends about 0.4 mile ENE from the east end of the island, but elsewhere, it is clear of dangers. A **light** (164) is shown from a skeleton tower on the highest point of the island. The visibility of this light may be obscured when the mariner is closer than 2.5 miles. There is **anchorage** in 12 fathoms (22 m) about 0.3 mile north of the east point of the island. There are **tide rips** close north and south of the island.



 115 **Advocate Bay** opens between Cape Chignecto and Cape d'Or, 7.5 miles to the ESE. With winds from the north, the bay affords good **anchorage** in less than 15 fathoms (27 m), but **caution** should be exercised if the wind shifts to the south, when it frequently veers to the west and increases in force.


  116 **Advocate Harbour**, which is muddy and dries from 1 to 2 feet (0.3 to 0.6 m), lies on the NE side of the bay. It is protected from the south by a natural wall of stones, 10 feet (3 m) high, which extends the length of the shore from about 4 miles east of Cape Chignecto, almost continuously to Cape d'Or. Near the east end there is an opening through which boats can enter at high water. A **light** (166) is shown from a skeleton tower having red and white daymarks on the south side of this opening. Fairway light and bell **buoy** MM (165) is moored 0.7 mile west of the light. The settlement of Advocate Harbour, population 196 in 1991, is situated on the NE side of the harbour. There is a wharf used by local fishermen.


 117 **Cape d'Or**, low and green, is the south extremity of a ridge, 500 feet (152 m) high, that is


separated from the promontory to the north by a deep valley. The west side of the ridge, north of the cape, consists of cliffs 200 feet (61 m) high. With a flood tidal stream, there is a heavy **tide rip** close south of the cape. A **light** (167) is shown from a white square tower on the corner of a white building on the cape.


118 **SE side of Minas Channel.** — From Morden, the coast continues 17 miles NE to **Shoal Point** ($45^{\circ}13'N$, $65^{\circ}35'W$), from which rocks extend about 0.25 mile to the north. A high, steep, reddish cliff is situated about 1 mile NE of Morden.

  119 **Harbourville** is a small fisherman's harbour 6.5 miles NE of Morden. The harbour, with wharves all around it, has an entrance 50 feet (15 m) wide with depths of 6 feet (1.8 m) alongside at high water. A **light** (194) is shown from a skeleton tower at the outer end of the breakwater. The settlement of Harbourville had a population of 165 in 1991.


 120 **Black Rock** dries 17 feet (5.2 m) and lies close to the shore 2.6 miles ENE of Harbourville. A **light** (193) is shown from a white cylindrical tower with red bands on the mainland south of the rock.

 121 At **Canada Creek**, population 15 in 1991, situated 0.8 mile east of Black Rock, a rock breakwater extending to the NE protects a small boat harbour. There are depths of 11 to 14 feet (3.4 to 4.3 m) at high water alongside a wharf 165 feet (50 m) long. Between Canada Creek and **Chipman Brook**, 4 miles to the NE, a bank with depths of less than 3 fathoms (5.5 m) extends about 0.5 mile offshore.

 122 **Halls Harbour**, which dries, is a good small craft harbour 6 miles NE of Black Rock. The entrance channel, about 100 feet (30 m) wide between two breakwaters, can be approached about 2 hours before high water. The west side of the channel should be favored. A **light** (192) is shown from a skeleton tower on the outer end of the west breakwater.

 123 The west breakwater-wharf is 380 feet (116 m) long, with depths of 15 to 18 feet (4.6 to 5.5 m) alongside at high water. The harbour is almost surrounded by wharves with depths of 11 to 13 feet (3.4 to 4 m) at high water. The settlement of Halls Harbour had a population of 77 in 1991; provisions and water are available in small quantities.

124 **Cape Spencer** lies on the north side of the entrance to Minas Basin, 3.3 miles ENE of Cape d'Or. A remarkable sugar-loaf rock, 20 feet (6.1 m) high, isolated from the remainder of the cape at high water, is **conspicuous**. A rock, which dries, lies 300 feet (91 m) east of the cape.

 125 **Spencer Island**, 180 feet (55 m) high and wooded, lies 1 mile NE of Cape Spencer. The channel west of the island has a depth of 6 feet (1.8 m). There is **anchorage** in 5 fathoms (9 m) about 0.8 mile NNW of the island. **Spencers Island**, a settlement of 71 people in 1991, is situated on the mainland 1.5 miles NNW of the island.

A disused **light** tower is situated on a shale beach near the settlement.


126 **Port Greville**, population 98 in 1991, is situated at the mouth of the **Greville River**, 8.5 miles NE of Cape Spencer. From the mouth of the Greville River, the north shore trends ESE 7 miles to Cape Sharp. The **Diligent River** empties into a small bay 4 miles ESE of Greville River. Near the mouth of this river is a wharf in a state of disrepair.

127 **Black Rock**, 15 feet (4.6 m) high, lies nearly 0.5 mile from the shore, 0.8 mile west of Cape Sharp.


128 **Cape Split** ($45^{\circ}20'N$, $64^{\circ}30'W$) is the termination of a remarkable tapering promontory 400 feet (122 m) high. It consists of cliffs, 200 feet (61 m) high, that are divided by deep fissures, or, splits. Two small rocks, which dry, lie 0.2 and 0.3 mile NW of the cape. During the strength of the tidal streams, there is a heavy **tide rip** over these rocks and for a considerable distance NW of them.

129 The bight south of Cape Split forms **Scots Bay**, the inner part of which dries. A bank, with depths of less than 3 fathoms (5.5 m), extends 2 miles west from the head of the bay.

130 East of Cape Split, the wooded south shore of the channel to the basin consists of cliffs 200 to 600 feet (61 to 183 m) high. **Cape Blomidon**, 570 feet (174 m) high and steep-to, lies 7.5 miles ESE of Cape Split. A **conspicuous** radio **tower**, elevation 1,015 feet (309 m), marked with red lights, is situated about 6.3 miles SSW of Cape Blomidon.

 131 Vessels **anchor** in 12 fathoms (22 m), 0.5 to 1 mile from the shore, anywhere between Digby Gut and the mouth of Scots Bay. East of Morden, a strong westerly wind lasting more than six hours causes a heavy sea with the first part of the east-going tidal stream that will render the anchorage bad, especially for small vessels. Strong SW winds make the anchorage uncomfortable for small vessels during the west-going stream.


132 Vessels waiting for a favorable tide to enter Minas Basin can anchor in 5 fathoms (9 m), about 0.5 mile from the shore in **Greville Bay**, the bight between Spencer Island and Port Greville. They may also anchor in 10 fathoms (18 m), about 1 mile SE of Cape Split, but this anchorage is not recommended during autumn months when easterly gales frequently shift to the west.

 133 **Tidal streams.** — Between Chute Cove and Halls Harbour, the directions of the inshore tidal streams continue parallel to the shore, the rates increasing from 2 knots at the former to 3 knots abreast the latter. As Scots Bay is approached, the rates of both streams decrease. Between Digby Gut and Halls Harbour, the inshore streams turn a little before, and those in the offing a little after, the times of local high and low water, the streams setting NE with a rising tide and SW when the tide is falling.

134 From near Cape Chignecto, the east-going stream sets towards Cape d'Or, where it meets an eddy and causes a tide rip which extends about 1 mile south from the cape. With the west-going stream there is an eddy west of the cape.


135 Round Cape d'Or and Cape Spencer, the rate of both streams is from 5 to 6 knots, and north of Cape Split, outside the tide rip, the rate is from 7 to 8 knots.

136 In the Minas Basin, the rate is 3 to 4 knots. For detailed information, consult the *Atlas of Tidal Currents — Bay of Fundy and Gulf of Maine*.

 136.1 **Caution** is advised along the shores of Greville Bay, within the waters of Minas Channel, as well as along the north shore of Minas Basin west of Parrsboro. These areas contain sites for ongoing experimentation with in-stream tidal turbines. Installation support vessels may be on site, and infrastructure including turbines and submarine cables is being installed.


Minas Basin

Chart 4399

 137 **Cape Sharp** is surmounted by a remarkable sharp hill, 383 feet (117 m) high, from which the name is derived. A **light** (171) is shown from a white square tower with a dwelling attached on the cape. A manually activated **fog signal** of one blast every minute is sounded close to the light; the horn points 250°. To activate: depress radio microphone switch 5 times within 10 seconds, on VHF channel 65A (156.275 MHz). The fog signal will sound for 15 minutes, and if additional signal time is required, this procedure can be repeated. The fog signal can be activated within a 1 NM distance.


138 **Partridge Island**, 265 feet (81 m) high, lies about 2 miles east of Cape Sharp, and is an island only at high water. A local **magnetic anomaly** has been experienced in the vicinity of the island. There are strong **tide rips** to the south and SE of the island.



139 **West Bay** is the west part of **Parrsboro Roads**, the large bight between Cape Sharp and Partridge Island, and **East Bay** is the east part. **Dickson Bar**, 0.9 mile WNW of Partridge Island, is a detached sandy shoal which dries at extreme low water. Shoal water extends nearly 0.8 mile to the west of the bar.

 140 There is good **anchorage** in 27 feet (8.2 m) between Dickson Bar and Cape Sharp, and also to the north of the bar. There is also good anchorage in East Bay in 25 feet (7.6 m) about 0.3 mile ESE of Dickson Bar.

141 **Crane Point** lies about 0.7 mile NE of Partridge Island. A gravel spit extends 0.4 mile in a ESE direction from the point. **McLaughlin Bluff**, 90 feet (27 m) high, is

situated 1.1 miles ENE of Crane Point. A ledge, which dries 12 feet (3.6 m), extends 0.25 mile south from the bluff. **Clarke Head**, rising to a height of 380 feet (116 m), is situated about 2 miles east of the bluff. There is a **conspicuous** light grey cliff 190 feet (58 m) high on the south part of this headland.

 142 **Parrsboro Harbour**, at the mouth of the **Parrsboro River**, is entered between Crane Point and McLaughlin Bluff. **Lighthouse Bar**, which covers at extreme high water, and a breakwater extend almost 0.5 mile from the west shore near Crane Point. A **light** (172) is shown from a white square tower on the corner of a white square building near the NE end of the breakwater. A **fog signal** of one blast every 30 seconds is sounded from the tower; the horn points 170°.

  143 Parrsboro Harbour is dry at low water, but with high tides, the rise is from 37 to 41 feet (11.3 to 12.5 m). There is a least depth of about 22 feet (6.7 m) in the middle of the entrance opposite the breakwater at high water neap tides. Vessels awaiting the tide **anchor** in depths of about 60 feet (18 m), 2.1 miles SE of the breakwater light. The town of **Parrsboro**, population 1,617 in 1996, is situated on the west bank of the river. Forest products are exported. The navigation season is from early April to late December. Ice usually forms in January and breaks in late March. A local **pilot** is available and will board vessels off Ile Haute or Spencer Island.




  144 There is a Public wharf on the east side of the river with a berthing length of 328 feet (100 m). There is a vessel bed of wood, 328 feet (100 m) long and 52 feet (16 m) wide, for ships to lie upon at low water. A **light** (173) is shown from a mast on the outer end of this wharf. Electricity and water are available on the wharf. Ships stores and fuel are available in the town.

Chart 4010

145 **North side of Minas Basin**. — From Clarke Head, the north side of Minas Basin trends east 14 miles to the mouth of the **Economy River**, thence south and east to **Economy Point**, situated 2.2 miles SE of the river mouth. A shore bank with depths of less than 3 fathoms (5.5 m), the inner part of which dries, extends from Clarke Head to Economy Point. **The Brothers** are two wooded islets, the larger one 260 feet (79 m) high, 1.2 miles ENE of Clarke Head.

 146 **Red Head** is situated about 7.5 miles east of Clarke Head. **Five Islands** are a group of small islands that lie to the west of Red Head. **Moose Island** is the east island of the group, 0.5 mile WSW of Red Head. It is 350 feet (107 m) high and thickly wooded, with steep earth cliffs on its south side. There is a floating wharf on the north side of the cove to the north of Red Head, near the mouth of the **East River**. The floating section is 100 feet (30 m) long.

PARRSBORO (2000)



A disused **light** tower, a white square structure, is situated at the west entrance point to this cove.

147 Between Red Head and Economy Point the shore is composed of high red cliffs. **White Rock**, 10 feet (3 m) high, is situated about 4 miles west of Economy Point. **Brick Kiln**, a square islet 50 feet (15 m) high, lies 2 miles SE of White Rock. **Brick Kiln Ledges**, the west one of which dries about 12 feet (3.7 m), are situated 0.5 mile south and 0.8 mile SW of the islet. There are several rocks between these ledges and White Rock.

148 The entrance to **Bass River** lies about 5.5 miles ENE of Economy Point. From the mouth of the Bass River, the north coast trends east for another 18 miles to where the **Salmon River** empties into the head of the basin. This part of Minas Basin east of Economy Point is known as **Cobequid Bay**. The head of Cobequid Bay is obstructed by loose shifting sand banks which dry.



149 In moderate weather, vessels **anchor** anywhere along the shores of Minas Basin and Cobequid Bay, but off the north shore, the bottom is hard. Various shoals and banks in Minas Basin and Cobequid Bay are composed of loose shifting sand which can move by the strong tidal streams, gales, and the breaking up of ice in spring.

Chart 4140

150 **West and south sides of Minas Basin.** — From Cape Blomidon, the west side of Minas Basin trends generally south for about 10 miles to **Starrs Point**, the west entrance point to the **Cornwallis River**.




151 **Pereau Creek** is a drying cove 4 miles SSW of Cape Blomidon. On the north side of this cove, there is a wharf 100 feet (30 m) long and 20 feet (6 m) wide, connected to a seawall 150 feet (46 m) long. The wharf is used by local fishermen. There is a depth of about 10 feet (3 m) along the west side at high water. Stakes and **lights** mark the channel leading to the wharf. A **light** (191) is shown from a mast at the outer end of the wharf. Another **light** (189.5) is shown from a mast close SE of the wharf.



152 There is good **anchorage** in 5 fathoms (9 m), 3 miles east of Pereau Creek, however a wreck with 18 feet (5.5 m) of water over it is charted close to this anchorage.




153 The town of **Wolfville**, population 3,833 in 1996, lies on the south side of the **Cornwallis River** nearly 2 miles south of Starrs Point. There is a small basin here, with a wharf 74 feet (23 m) long at the face and a depth of about 9 feet (2.7 m) alongside at high water.

 154 Wide bends in the Cornwallis River are marked by **daybeacons** to **Port Williams**, population 856 in 1996, situated on the north side 2 miles west of Wolfville. A wharf 270 feet (82 m) long lies just below a highway bridge. Alongside the wharf is a vessel bed 335 feet (102 m) long and 40 feet (12 m) wide, with a depth of about 28 feet (8.5 m) over it at high water. A fertilizer plant is situated on the wharf. This wharf has been closed to commercial traffic for several years.

155 From **Long Island Head**, the east entrance point to the Cornwallis River, 1.7 miles ENE of Starrs Point, the south side of Minas Basin trends east along **Evangeline Beach** for 2.8 miles to **Boot Island**, 45 feet (14 m) high, which lies off the mouth of the **Gaspereau River**.

Avon River

 156 The **Avon River** is entered between **Horton Bluff**, 2.5 miles SSE of Boot Island, and **Indian Point**, situated about 1.5 miles to the NE. The river dries about 5 miles above its mouth, but owing to the large tides, amounting to over 42 feet (12.8 m), it may be navigated to **Windsor**, where a causeway crosses the river 8 miles from the mouth. There is good **anchorage** for small vessels off the mouth of the Avon River in 27 feet (8.2 m), about 1.4 miles NNW of Horton Bluff.

157 **Western Bar**, which dries, is composed of shifting sand. It lies on a bank extending about 4 miles north from Boot Island on the west side of the channel in the approach to the Avon River. **Middle Ground** dries 22 feet (6.7 m) on


HANTSPORT (2000)




the east side of the channel. **Cross Bar**, with a depth of 5 feet (1.5 m), is also composed of shifting sand and lies near the north end of Eastern Bar.

158 A former light structure stands on Horton Bluff, on the west side of the Avon River.

159 The small community of **Summerville** can be seen on the east side of the river, 2.3 miles SE of Horton Bluff.

 160 The town of **Hantsport**, population 1,252 in 1996, lies on the west side of the river, 3.2 miles upstream from Horton Bluff. Hantsport is a tidal port. Vessels arrive and depart on a suitable tide and normally arrive in the vicinity of Cross Bar 4 hours before high water. A vessel with a draft of 32 feet (9.8 m) has used the port. The normal navigation season is from early April to late December, but the port is open all of the year. **Pilotage** is not compulsory, but recommended for mariners without local knowledge. A pilot can be arranged through the *Fundy Gypsum Company*, which maintains a listening watch on VHF channels 16 and 7A (156.8 and 156.35 MHz).

 161 The Minas Basin Pulp and Paper Company wharf is 450 feet (137 m) long; it has a vessel bed 450 feet by 60 feet (137 m by 18 m), which dries 16 feet (4.9 m). The Minas Basin Pulp and Power Company plant lies near the wharf.

162 Close north of the Public wharf is the Fundy Gypsum Company wharf with a large, **conspicuous** grey warehouse. The wharf is 500 feet (152 m) long and dries 13 feet (4 m) alongside. There is no vessel bed alongside. Vessels dock 3 hours before high water and depart at high water on the same tide. The wharf is equipped with conveyors capable of loading 20,000 tonnes of ore during this period. Between the wharves is a small wharf used by a tug.

163 Electricity and fresh water are available at the wharves. Most types of ships stores can be obtained. Fuel is available by truck.

164 **Coast.** — From Indian Point, the coast trends north for about 1 mile NE to Cheverie Point. **White Head** is situated about 1 mile NE of Cheverie Point. There is a **conspicuous** gypsum bank, 0.6 mile NE of White Head. From **Split Rock**, situated 1.7 miles north of White Head, the coast trends ENE for 6.5 miles to **Stubborn Head**.

165 **Clarke Point** is the west entrance point to the **Walton River**, 1 mile east of Stubborn Head. **Cambridge Flats**, which dry, extend about 1 mile offshore between Split

Rock and Stubborn Head. **The Hogsback** is a drying sand bank 1.7 miles long in an east-west direction, which lies 0.8 mile north of the Cambridge Flats.


166 **Walton Harbour**, at the mouth of the Walton River, is a tidal harbour which dries at low water. The settlement of Walton had a population of 228 in 1991. A disused **light** tower is situated on the north side of the river entrance opposite Clarke Point.

167 Once an important shipping port for gypsum, ore and barytes, a vessel last called at Walton in 1979. The Public wharf is no longer in use and parts of it have been dismantled. A gypsum wharf adjacent to the Public wharf is in ruins, and is reported to cover at high water. A breakwater-wharf 245 feet (75 m) long extends from the north shore near the harbour entrance. The west side is used by local fishermen.

Chart 4010

168 From Walton Harbour, the south coast of Minas Basin trends ENE for 6 miles to **Cape Tenny**, the west entrance point to **Tennycap River**. **Burntcoat Head**, 110 feet (33 m) high and prominently red in colour, is situated 3 miles NE of Cape Tenny. Between these points, the coastal bank dries for about 0.5 mile offshore. In the vicinity of Burntcoat Head, the tide rises 44 feet (13.5 m) at neaps to 51 feet (15.5 m) at spring tides.

169 **Noel Head** lies 3.5 miles east of Burntcoat Head; **Noel Bay**, which dries, is situated close west of Noel Head. From Noel Head, the coast trends east for 8 miles to **Salter Head**, 46 feet (14 m) high, the west entrance point to the Shubenacadie River.

 170 At **Lower Selmah**, 2.2 miles SW of Salter Head, there is a Public wharf, 228 feet (69 m) long and 20 feet (6.1 m) wide, with depths of 4 to 6 feet (1.2 to 2.1 m) at the outer end at high water. A rock crib extends 172 feet (52 m) from the end of the wharf. A provincial park is located adjacent to the wharf.

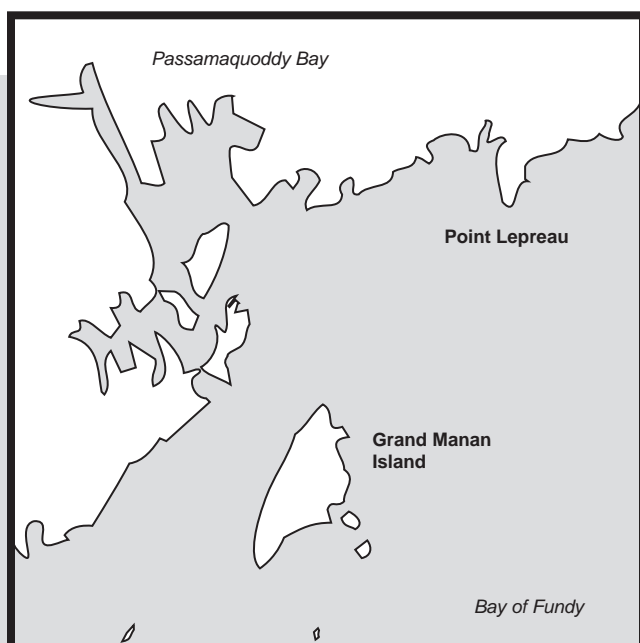
171 The village of **Maitland**, population 250 in 1991, lies on the west side of the entrance to the Shubenacadie River, about 2 miles SE of Salter Head. **Shubenacadie River** is navigable by boats, at low water, for about 13 miles to within 2 miles of the village of **Shubenacadie**.

172 From **Lockherds Point**, the east entrance point to the Shubenacadie River, the coast trends ENE for about 6 miles to the entrance of the Salmon River.

Bay of Fundy Grand Manan Island to Point Lepreau

Grand Manan Island

Charts 4340, 4011



1 **Grand Manan Island**, about 13 miles long and 6 miles across at its widest point, lies in the entrance to the **Bay of Fundy**. Its north end, **Northern Head** ($44^{\circ}48'N$, $66^{\circ}47'W$), is situated about 7 miles east of **West Quoddy Head** in the State of Maine, United States of America. The west side of the island has steep rocky cliffs rising to a height of nearly 120 m near **Northern Head**, to about 60 m near **Southwest Head**, at its SW end. From this high west ridge, the island, which is thickly wooded, slopes gradually to its east side where it is partially cleared and settled. **Customs** services are available on Grand Manan.

1.1 **Aquaculture**. — The waters around Grand Manan Island, as well as its coves and shorelines, sustain many fishing weirs and aquaculture operations. Mariners are cautioned that these can present surface dangers and underwater hazards, which can damage vessels or result in fouling.

2 **Machias Seal Island** ($44^{\circ}30'N$, $67^{\circ}06'W$) and **Gannet Rock** ($44^{\circ}31'N$, $66^{\circ}47'W$) are two of the outermost features south of Grand Manan. There are several rocks and shoals between them, which render the approach to Grand Manan difficult from the south. In view of the many dangers, the deep and irregular soundings and the strong tidal streams in this area, mariners should keep well south of Machias Seal Island and Gannet Rock.


3 **Tidal streams**. — Over the Grand Manan Banks, which lie 18 to 33 miles SSW of Grand Manan, the flood tidal stream sets to the NNE and the ebb stream SSW at a rate of about 1.5 knots, causing an extensive tide rip. Near Machias Seal Island, the flood tidal stream sets to the NNE, and the ebb stream sets SSW at a rate of about 3 knots. For more information, consult the *Atlas of Tidal Currents — Bay of Fundy and Gulf of Maine*.

4 **Machias Seal Island**, 9 m high and steep-to on its west side, lies about 10 miles SW of Southwest Head. A drying reef and islet extends 0.3 mile NE from the island. Several detached shoals lie within the 40 m contour east of the island. A 4.3 m patch, over which there is a tide rip, lies about 0.3 mile east of the SE extreme of the island. A 6.1 m shoal is situated 0.6 mile ENE of the same point, and a 9.1 m

MACHIAS SEAL ISLAND (2000)



patch lies about 1.2 miles NE of this point. A 13.7 m shoal is situated nearly 6 miles west of Machias Seal Island.

 5 A **light** (6) is shown from a white octagonal tower with a red top, 18.3 m high, on the summit of the island.

6 **Note.** — Machias Seal Island is a designated Migratory Bird Sanctuary administered by the Government of Canada. See the appendix at the end of this booklet for further information.

7 **North Shoal**, least depth 2.7 m, on which the sea breaks in heavy weather, is situated about 1.6 miles NNW of the light on Machias Seal Island. A shoal, with depths of less than 20 m, extends about 3.7 miles west of North Shoal; there is a depth of 9 m on the outer end of this shoal.


 8 **North Rock**, 1.2 m high, lies 1 mile NE of North Shoal. A **light** (5.8) is shown at an elevation of 14 m, from a white cylindrical tower with two red bands situated on the rock. A shoal having depths of less than 10 m surrounds North Rock to a distance of 0.5 mile. There is a tide rip over this shoal. A rock at a depth of 7.6 m lies 1.4 miles east of North Rock.


Chart 4340

9 **Southeast Shoal**, least depth 2.7 m, which breaks in heavy weather and over which there is a tide rip, lies nearly 1.2 miles SE of Machias Seal Island. **Southeast Ledge**, at a depth of 5.2 m, is situated 5.7 miles SE of Machias Seal Island. It breaks only in a heavy sea but is marked by tide

rips. **Middle Breaker**, at a depth of 11 m, lies nearly 1.4 miles NW of Southeast Ledge. There are tide rips over this shoal, and between it and Southeast Ledge. **Bull Rock**, which dries 0.3 m and usually breaks, lies 6.7 miles east of Machias Seal Island. Port hand light and whistle **buoy** XA1 (7) is moored 0.3 mile NE of Bull Rock.

10 **Little Shoal**, least depth 8.5 m, lies midway between Machias Seal Island and Bull Rock. Two rocks, at depths of 8.8 and 9.4 m, lie 1.2 miles SSW and SW of Bull Rock. This area is known as **Guptill Grounds**. **Middle Shoal**, least depth 5.2 m, which breaks in very heavy weather and over which there is a tide rip, lies 4.3 miles NW of Bull Rock.

11 **Gannet Rock**, 4.6 m high and bare, lies 7.5 miles SE of Southwest Head. The west side of the islet is steep-to, but a 2.1 m shoal lies 0.25 mile SE, and a 3.4 m shoal lies 0.3 mile east of it. A boat landing can be effected on the north side of the islet in fine weather, the best time being at low water. Dangerous rocks lie within 0.5 mile to the east and SE of Gannet Rock. **Half Tide Rock** dries 1.2 m, 0.5 mile west of Gannet Rock.

 12 A **racon** (— — •) (8) operates from a white octagonal tower with black stripes 23 m in elevation, on Gannet Rock. A **light** (8.1) is shown at an elevation of 12.9 m from a mast north of the light tower; it is visible from 058° through east, south and west to 348°. A second **light** (8.2) is shown at an elevation of 13.6 m, from a mast south of the light tower; it is visible from 193° through west, north and east to 164°.

GANNET ROCK (2000)

13 **Murr Ledges**, most of which dry, lie between Bull Rock and Gannet Rock. The highest ledge is **Yellow Ledge**, 3 m high, 3.3 miles SW of Gannet Rock. A rock, at a depth of 1.2 m, which breaks in a moderate swell, lies about 0.2 mile east of this ledge. **White Ledge**, 1.8 m high, lies 2.2 miles NNW of Yellow Ledge and is marked by a **radar reflector**. **Wallace Ledge** dries 2.7 m and is situated 0.7 mile north of White Ledge. Starboard hand light and bell **buoy** XA2 (7.5) is moored almost 0.5 mile NNW of Wallace Ledge.

14 **Kent Shoal**, at a depth of 3.4 m, lies 2.1 miles NNE of Gannet Rock. Rocks, with depths of 10.7, 4.9 and 7.6 m, lie 0.4, 1 mile and nearly 1.4 miles SW of Kent Shoal. The latter two are known as **Outer Kent Shoal**.

15 **Magnetic anomalies**. — Two areas of magnetic disturbance exist south of Grand Manan. One area is situated midway between Bull Rock and Wallace Ledge. The other, about 137 m in diameter, lies about 0.5 mile NW of Kent Shoal.

Chart 4124

16 **Seal Cove** ($44^{\circ}37'N$, $66^{\circ}51'W$) is entered between **Columbia Head**, a headland 0.9 mile east of Southwest Head,

and **Western Green Island**, 1.6 miles to the east. The cove affords good shelter except from south gales which send in a heavy sea. Two groups of **conspicuous** boulders, locally known as the **Upper and Lower Flock of Sheep** lie on the peak of the cliff along the south part of Columbia Head.

17 A **light** (11) is shown at an elevation of 47.5 m from a white square tower attached to a white building on Southwest Head ($44^{\circ}36'N$, $66^{\circ}54'W$).

18 **MacGregors Reef**, with a depth of 7.2 m, lies 0.9 mile south of Southwest Head. A shoal area, least depth 6.7 m, lies near the middle of the entrance to the cove, 0.75 mile ESE of Columbia Head. **Black Rock**, drying 2.2 m, lies 0.25 mile east of **Pats Head**, which is situated 0.3 mile NE of Columbia Head. Port hand light and bell **buoy** XA3 (7.7) is moored close east of Black Rock.

19 **Outer Wood Island** lies 0.7 mile east of Western Green Island and is the SE island of the group sheltering Seal Cove from the east. A rocky ledge, parts of which are above water, extends about 0.5 mile south from the SE extreme of the island; **White Horse Islet** lies on this ledge. A **light** (15) is shown from a mast with a red and white

SOUTHWEST HEAD (2000)



daymark having a black square in the centre on White Horse Islet.

20 Rocks and shoals, some of which dry, extend about 0.3 mile SW and south from **Shag Head**, the SW end of Outer Wood Island. **Shag Head Breaker** dries 1.5 m and lies about 0.2 mile SSW of Shag Head.

21 **Western Green Island**, 12 m high, lies on a rocky shoal which extends south of Wood Island. **Green Island Breaker** dries 1.5 m and lies on the SE end of this shoal. **Wood Island**, at one time settled, forms the west side of Seal Cove.

22 **Joes Point** is the NE point of Wood Island, 1.4 miles north of Outer Wood Island. **Bigwood Rock**, drying 0.9 m, lies 0.2 mile off the NW shore of the island and 0.6 mile WSW of Joes Point.

23 The NE entrance to Seal Cove lies between Joes Point and **Red Point**, on Grand Manan, 0.7 mile to the north. The channel has a least depth of 3.6 m. Rocks, stones and boulders, which dry, extend 0.25 mile south from Red Point. **Pond Point Ledges** extend 0.4 mile east off Wood Island, 0.5 mile south of Joes Point.



24 The village of Seal Cove, population 549 in 1991, is situated at the NW corner of the cove. There

are two boat harbours. The inner harbour, which dries, has an entrance 28 m wide between two curved breakwaters; there are many fishing sheds and small wharves.



25 The outer boat harbour is to the SW of the inner harbour. This is protected by an outer breakwater and wharf, 280 m long, and a breakwater with a wharf close to the north; the entrance between them is 26 m wide. There are depths of 1.5 to 3.4 m along the inner faces, and 4 to 3.4 m along the outer 110 m length of the outer breakwater. A **light** (16.8) is shown from a mast at the outer end of the breakwater.



26 There is **anchorage** in 11 m, mud, about 0.2 mile SE of the outer breakwater, and in 18 m, 0.8 mile west of Joes Point.

27 Abandoned submarine **cables** are laid from the village of Seal Cove to Wood Island, about 0.2 mile west of Joes Point.

Chart 4340



28 **SE side. — Grand Manan Island. — White Head Island** (44°38'N, 66°42'W) lies off the SE side of Grand Manan Island. **White Head**, 21 m high, has **conspicuous** white cliffs and lies close west of the island, to which it

SEAL COVE (2000)



is joined by a flat. **Long Point** is the south extreme of White Head Island. A **light** (25) is shown from a square tower on Long Point. A **fog signal** of one blast every 20 seconds is sounded from a horn that points 180°.

29 **Old Proprietor Shoal** (44°33'N, 66°40'W) is a ledge which dries 1.5 m, situated 4 miles SSE of Long Point. Port hand light and whistle **buoy** X1 (9) is moored 0.8 mile SE of the shoal.

30 **Proprietor Shoal**, with less than 1.8 m of water over it, lies about 0.4 mile WNW of Old Proprietor Shoal. **Crawley Shoal** extends 0.8 mile NNW from Proprietor Shoal. East Cardinal light and bell **buoy** XK (9.5) is moored about 0.8 mile east of Crawley Shoal.

31 **Clarks Ground**, with a least depth of 9.1 m, and over which are heavy tide rips with the SW-going tidal stream, is situated about 2.5 miles NE of Old Proprietor Shoal. Between Crawley Shoal and White Head Island are several rocks and shoals. **Black Rocks**, 3 m high, are situated 0.8 mile off White Head Island, 1.5 miles east of Long Point. A **radar reflector** stands on Black Rocks. **Bulkhead Rip** is a very heavy tide rip with a SW-going tidal stream caused by the uneven rocky bottom between Clarks Ground and White Head Island.

32 **Tidal Streams**. — In a position 3.5 miles south of Old Proprietor Shoal, the flood tidal stream sets to the NE at 2.6 knots, and at mid ebb it sets to the SW at 3.9 knots for average tides. In the vicinity of Crawleys Shoal, the tidal streams have a maximum rate of 4 to 6 knots.

33 **Grand Harbour Approaches**. — Grand Harbour is approached by the various channels between White Horse Islet and Long Point. **Kent Island**, **Hay Island** and **Sheep Island**, joined by flats and ledges, are **Three Islands** together in the south approach, about 2.3 miles SW of Long Point. **Constable Ledge** dries 2.7 m and lies near the west end of a shallow bank that extends almost 0.5 mile west from Hay Island; it is marked by starboard hand light and bell **buoy** XJ2 (16).

34 **Green Islands**, each 6.1 m high, lie in the fairway to Grand Harbour about 1 mile north of Hay Island. A ledge dries 1.8 m nearly 0.2 mile south of the south island.

35 **White Head Harbour** lies in the bight between White Head and White Head Island. The fairway into this small harbour is between **Pumpkin Islet**, 6.1 m high and 0.9 mile NW of Long Point, and **Long Ledge** and **Sand Bar Ledge**, which together lie 0.4 mile further to the west. Port hand **buoy** XM3 (21) is moored off of White Head, and starboard hand light **buoy** XN2 (20) is moored off the north side of Sand Bar Ledge. A **light** (24) is shown from a skeleton tower mounted onto a dolphin, 0.1 mile north of the breakwater at White Head.

36 White Head Harbour is protected by a breakwater 115 m long that extends from the north extremity of White Head. There is a Public north wharf 115 m long with a depth of 1.2 m alongside the outer face. A Public south wharf, L-shaped, 130 m long, has an outer face 12 m in length, which dries. A ferry ramp is located on the north side of the Public south wharf. There is ferry service between

GRAND HARBOUR (2000)



White Head Harbour and Ingalls Head, Grand Manan. A green **beacon** with a radar reflector is situated about 0.3 mile NE of the outer end of the White Head Harbour breakwater.


 ³⁷ **Cheney Island** and **Ross Island**, each 15 m high, lie about 0.7 and 1.3 miles NNW of White Head Island. **Half Tide Rock** lies on the drying flat between Cheney and Ross Islands. **Cheney Passage**, between these islands, is used by small boats at high water. A **light** (23) is shown from a skeleton tower with black and white rectangular daymarks on Half Tide Rock. There is a **fog signal** at this light remotely activated by VHF Radio. To activate: depress the radio microphone switch 5 times within 10 seconds, on VHF channel 65A (156.275 MHz). This must be done within a range of 1 mile. A fog signal of one blast every 15 seconds will activate for 15 minutes. If additional time is required, this procedure can be repeated.

Chart 4342

³⁸ **Grand Harbour** is sheltered from the east by Ross Island. A **radar reflector** is situated on **Sams Islet**, which lies close south of Ross Island at the west entrance to Cheney Passage. **Ox Head Ledges** dry 5 feet (1.5 m) and extend more than 0.5 mile south from **Ox Head** near the west entrance point

to Grand Harbour. Port hand light and bell **buoy** XK7 (19) is moored to the south of these ledges.

³⁹ The depth in the entrance to Grand Harbour is 12 feet (3.7 m) until **Fish Fluke Point**, situated 1.2 miles north of Sams Islet, and on which stands an abandoned lighthouse. Most of the sheltered space in the harbour dries, so it is only available to small vessels.



⁴⁰ At **Ingalls Head**, at the west entrance to the harbour, there are two small boat basins enclosed by two piers and a breakwater. The centre pier is 672 feet (205 m) long with a least depth of 8 feet (2.4 m) at its outer end. The south breakwater-wharf has a total length of 1,026 feet (313 m). There is a least depth of 6 feet (1.8 m) along the outer part of the inside face. A **light** (22) is shown from a skeleton tower on the outer end of this breakwater. The north breakwater is rock and has a total length of 700 feet (213 m). A **ferry** operates from Ingalls Head to White Head Harbour. The ferry ramp is on the north side of the south breakwater-wharf.


Chart 4340




⁴¹ **East side of Grand Manan**. — **Prangle Point** is the NE point of White Head Island and the north entrance point to **Gull Cove**, a bight on the east side of


the island. Port hand light and bell **buoy** XP3 (28) is moored close NE of Prangle Point. There is good **anchorage** for small vessels in Gull Cove in 10 m, sand, sheltered from all winds except those between north and SE.


42 **Great Duck Island** ($44^{\circ}41'N$, $66^{\circ}42'W$), treeless, lies 1.5 miles east of Grand Manan. Its south end is its highest point, and it has a gentle slope to its north end. Ledges, which dry, extend about 0.1 mile north and 0.5 mile south from the island. **Great Duck Ledge**, 0.3 m high, is situated 0.8 mile SSE of Great Duck Island. A **submarine power cable** is laid from the south end of Great Duck Island in a west direction to Ross Island.

 43 A **light** (29) is shown at an elevation of 16.5 m, from a skeleton tower, having red and white rectangular daymarks. It is located at the south end of the island, near a white square building which housed the former light. A **fog signal** of one blast every minute is sounded from the skeleton tower; the horn points 120° . Starboard hand light and whistle **buoy** XP4 (28.6) is moored 0.8 mile SSE of Great Duck Ledge.

44 A **conspicuous microwave tower**, elevation 101 m and marked by red **lights**, is situated 2.7 miles NW of the light on Great Duck Island.

 45 **Andys Ledge**, which dries, and **Edmonds Rock**, which dries 2.7 m, lie near the outer end of foul ground which extends more than 0.5 mile east from Ross Island. A **light** (33.5) is shown from a mast on a rock which lies between Edmonds Rock and Ross Island.


 46 There is good **anchorage** in 9 to 18 m in the bight formed by Great Duck Island, Ross Island, Cheney Island and White Head Island.

 47 **Nantucket Island**, 12 m high, lies 0.9 mile NW of Great Duck Island. Ledges extend about 0.1 mile east from this island. The west side of the island is joined to Grand Manan Island by ledges and flats. **Gull Islet**, white rock with grass, is 4.3 m high and lies on the south part of these ledges. A **light** (30) is shown from a mast on a ledge 0.2 mile WSW of Gull Islet.

48 The community of **Woodwards Cove**, population 198 in 1991, is situated on Grand Manan near the north end of the cove inside Nantucket Island. There is a Public wharf which dries.


49 **Low Duck Island** and **High Duck Island**, 4.6 and 18 m high, and joined by ledges, lie off the east side of Grand Manan between Great Duck Island and Long Island.

Charts 4342, 4340


 50 **Long Island**, 75 feet (23 m) high, lies 2 miles NNW of Great Duck Island. A rock, which dries 15 feet (4.6 m) and marked by a **buoy**, is situated nearly 0.3 mile east from the south point of the island. A 16 foot (4.9 m) patch lies 0.25 mile south of this rock. **Farmer Ledge**,

4 feet (1.2 m) high, lies nearly 0.5 mile west of the south end of Long Island. A **light** (30.5) is shown from a mast on the ledge. An abandoned submarine **cable** is laid from Long Island in a SW direction to **Bancroft Point** on Grand Manan, about 0.9 mile distant.


Chart 4342

 51 **Long Island Bay** is a bight formed by Long Island, **Swallow Tail** ($44^{\circ}46'N$, $66^{\circ}44'W$), a narrow and bold point about 1.5 miles further north, and the east side of Grand Manan Island. There is shelter from all winds except those between NE and SE. **Buoys** mark shallow patches off the north side of Long Island. A **light** (33) is shown from a white octagonal tower, 53 feet (16.2 m) high, with a white dwelling nearby, on Swallow Tail. A **fog signal** of one blast every 20 seconds is sounded from Swallow Tail; the horn points 100° .

52 **Pettes Cove** is a bight between Swallow Tail and **Net Point**, situated 0.5 mile WSW. **Net Rocks**, the highest of which dries 16 feet (4.9 m), extend 0.2 mile SE from Net Point. Starboard hand light and bell **buoy** XV6 (32) is moored 0.1 mile south of Net Rocks.

 53 The village of **North Head**, population 711 in 1991, is situated at **Flag Cove**, on the north part of Long Island Bay west of Net Point. The sheltered area is formed by wooden wharves. **Ferry Wharf**, the SE wharf, is used by the **ferry** that operates to Blacks Harbour on the mainland.

54 The NW wharf, **Fisherman's Wharf**, is T-shaped. The outer face is 695 feet (212 m) long, 40 feet (12 m) wide, with a least depth of 9 feet (2.7 m) alongside. Several floating piers are located on the inside face for smaller vessels on the west side of the approach to the wharf.

 55 A **light** (31) is shown on the outer end of the freight shed on the Ferry Wharf. A **light** (30.8) is shown from a skeleton tower on the west end of Fisherman's Wharf.


 56 There is good **anchorage** in 3 fathoms (5.5 m), mud, about 0.4 mile SW of the north end of Long Island. This anchorage is exposed to winds between north and NE. There is also anchorage in 11 fathoms (20 m), mud, about 0.35 mile off Fisherman's Wharf, but this is exposed to east and SE winds.

Chart 4340

57 From Swallow Tail to **Fish Head**, situated 1.1 miles to the NNW, the coast is bold with steep cliffs. **Whale Cove** is a bight to the SW of Fish Head that affords good temporary **anchorage** in about 9 m, sheltered from south winds. From Whale Cove, the coast continues in a NNW direction for 1.8 miles to **Northern Head** ($44^{\circ}48'N$, $66^{\circ}47'W$). **Long Eddy Point**, so named from a remarkable tide rip that darkens the

SWALLOW TAIL (2000)



water in the vicinity of the coast, is the extreme NW point of Grand Manan Island close west of Northern Head.

58 A **light** (34) is shown from a white square tower on the corner of a white building on Long Eddy Point. A **fog signal** of one blast every minute is sounded from the light; the horn points 335°.

59 **West side of Grand Manan Island.** — From Southwest Head to the entrance to **Dark Harbour**, 9 miles NNE, the coast of Grand Manan is wooded with steep rocky cliffs from 90 to 110 m high. **Bradford Cove**, a small bight in the coast nearly 2 miles NNE of Southwest Head, affords temporary **anchorage** in 15 to 18 m, with offshore winds.

60 Dark Harbour is a remarkable inlet with depths of 9 to 13 m, the mouth of which is almost closed by a shingle beach. Between Dark Harbour and Long Eddy Point, the coast continues to be bold and wooded, with an elevation of about 120 m.

Grand Manan Channel

61 **Grand Manan Channel** lies between the west side of Grand Manan Island and the coast of Maine, U.S.A. The south entrance to the channel lies between **Western Head** (44°39'N, 67°11'W) and Southwest Head. There are no dangers in the fairway.



62 In Grand Manan Channel, the rate of the **tidal stream** ranges from about 0.5 to 4 knots. The stream sets approximately parallel to the channel, the flood stream setting to the NE and the ebb stream to the SW. Predictions of the times of slack water, the maximum rates of tidal streams and when they occur are listed in the daily tables of the *Canadian Tide and Current Tables*.

63 The coast of Maine, between Western Head and **West Quoddy Head** (44°49'N, 66°57'W), the eastern most point of the United States, is for the most part high, rocky, precipitous and thickly wooded. The shore is steep-to and may be safely approached to a distance of 0.5 mile. **Sail Rock** lies 0.25 mile SE of West Quoddy Head. A heavy tide rip extends for about 0.25 mile SE from the rock.



64 A **light** (38) is shown from a red and white banded tower on West Quoddy Head. A **fog signal** of two blasts every 30 seconds is sounded from the light. A port hand light and whistle **buoy** is moored nearly 0.4 mile SE of Sail Rock.

65 An abandoned lookout **tower**, with an elevation of 70 m, situated 0.55 mile west of West Quoddy near the summit of a ridge, is the most **conspicuous** object in the approach to Quoddy Narrows.

66 A **submerged power cable** is laid across the Grand Manan Channel between Little Whale Cove on Campobello Island and Long Eddy Point on Grand Manan.

NORTH HEAD (2000)



Passamaquoddy Bay Approaches

Charts 4011, 4114, 4115, 4124

67 The main shipping channel into Passamaquoddy Bay and the St. Croix River is via Head Harbour Passage and Western Passage.



68 **The Wolves** (Chart 4115), a group of wooded islands from 15 to 33 m high and steep-to, lie in the north approach to Passamaquoddy Bay. **Southern Wolf Island** ($44^{\circ}56'N$, $66^{\circ}44'W$), the south island of the group, lies 8.4 miles NNE of Northern Head, Grand Manan. **Eastern Wolf Island**, the NE and largest of the group, lies about 1.5 miles NNE of Southern Wolf Island. Between these two islands are three smaller islands; the passages between these islands are suitable for boats only. A **light** (36) is shown from a white circular tower on the south end of Southern Wolf Island.



69 **Tidal streams.** — The main flood stream sets from the Grand Manan Channel directly towards Point Lepreau ($45^{\circ}03'N$, $66^{\circ}28'W$), and the ebb stream sets in the opposite direction. On both tides, an indraught is often experienced into the indentation between Grand Manan and Point Lepreau.

70 The west branch of the flood tidal stream passes along the east side of Campobello Island, and near East Quoddy Head it divides, with one part continuing to the east and the other through the various entrances into Passamaquoddy Bay.

71 **Head Harbour Passage.** — As the flood stream rounds East Quoddy Head, it will set strongly westwards onto Spruce Island and Black Rock before following the general direction of the passage southwards. Rates of up to 5 knots have been attained, but the westward flow weakens considerably during the last hour of the flood.

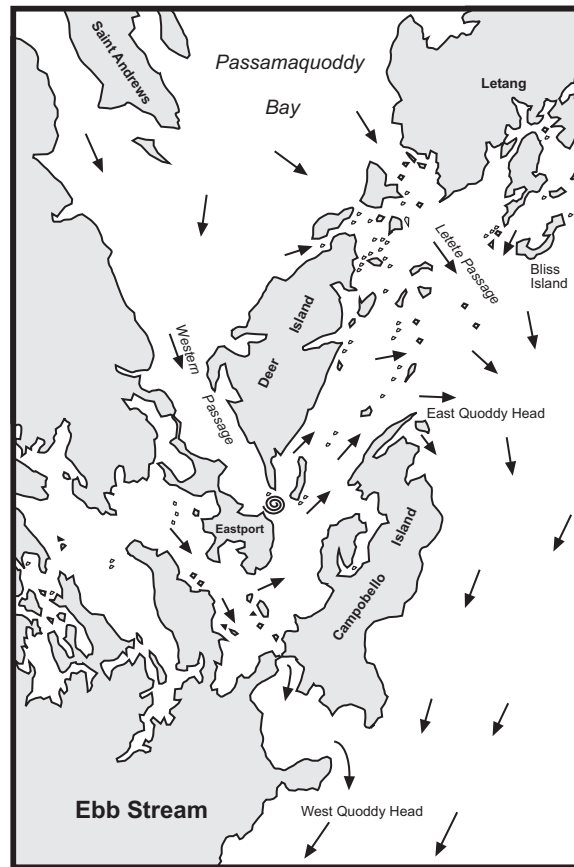
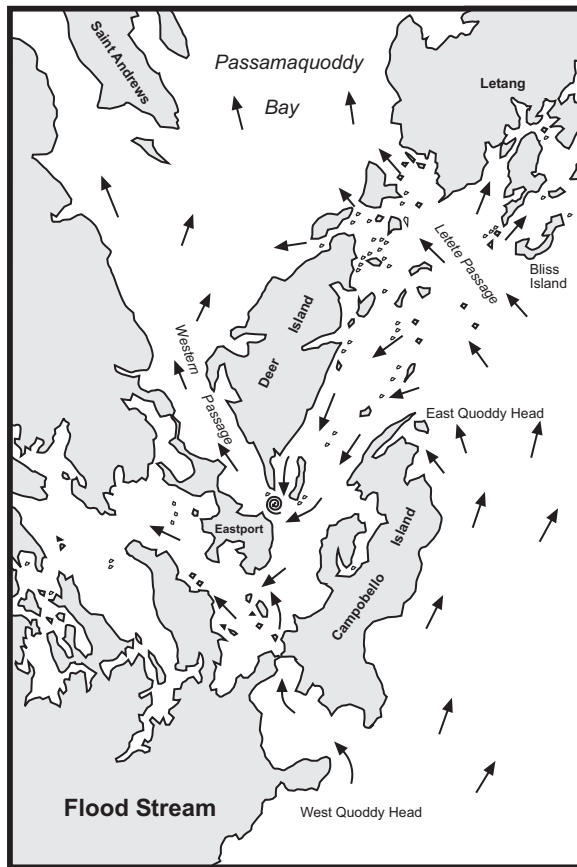
72 **Quoddy and Lubec Narrows.** — At about 2 miles off the entrance to Quoddy Narrows, the set of the flood stream is more northward. At about 1 mile off West Quoddy Head, the flood sets directly into the narrows.

73 Through Lubec Narrows, the flood stream follows the general trend of the channel. In the narrows, the flood attains a rate of 6 knots and the ebb a rate of up to 8 knots. South of Lubec Narrows, both streams have a rate of about 4 knots. The currents form dangerous eddies on both sides of the channel in the narrows, and these are avoided by keeping in mid-channel. The period of slack water in the narrows is only 5 to 15 minutes long.

74 **Friar Roads.** — The flood stream setting southwards through Head Harbour Passage splits. One part sets south of Eastport into Cobscook Bay, but the greater part sets northwards into Western Passage.



75 **The Old Sow**, a whirlpool between Deer Island Point and Dog Island, is formed when the flood stream, having passed on both sides of Indian Island, turns sharply and sets into Western Passage. This is believed to be the largest whirlpool in the world, and at times it is dangerous to small craft. It is reported to be most active about 3 hours



before high water. Off Deer Island Point, a current of over 6 knots has been experienced. The least motion is about 275 m north of Dog Island, where the current is more direct between the whirlpools and eddies on either side.

76 The flood stream from Lubec Narrows first sets along the west shore of Campobello Island, east of Popes Folly. Afterwards it sets westwards passing south of Popes Folly, and to the west of Treat Island, it joins the flood stream from Head Harbour Passage setting into Cobscook Bay.

77 *Western Passage.* — Above Deer Island, the flood sets through the passage with decreasing strength. The flood and ebb stream usually run at about 3 knots, but a rate of 5 knots has been attained. Strong countercurrents and eddies form close to the shore where the conformation of the land is favourable.

78 *Letete Passage.* — The tidal streams through this passage have considerable strength making swirls, eddies and boils. They attain rates of about 5 knots and are strongest both 3 hours before and 3 hours after high water.

79 *Passamaquoddy Bay.* — With the exception of the waters near its entrance passages and at the mouth of the St. Croix River, tidal streams in the bay seldom exceed ½ knot.

Quoddy Narrows and Lubec Channel

Chart 4114



80 **Quoddy Narrows** is the usual **anchorage** for vessels seeking shelter or waiting a favorable tide to pass through **Lubec Narrows**. The entrance, between West Quoddy Head and **The Boring Stone**, is about 0.8 mile wide. There are depths of 5 to 10 m in Quoddy Narrows, which is always ice-free. Winds from east to south generate rough seas in the entrance, while protection is reported to be poor from northeast gales. Local knowledge is essential for a passage through Lubec Narrows. A fairway bell **buoy** is moored 0.4 mile NE of West Quoddy Head.

81 In this area are numerous orange pylon boundary markers that define the international boundary between Canada and the United States.

82 The Boring Stone, 1 m high and bare, lies 0.25 mile off **Liberty Point**, a bold headland and the south extremity of **Campobello Island**. Both **Sugar Loaf Rock**, an islet close SE of Liberty Point, and **Ragged Point**, 0.4 mile to the NNE are reported to be **conspicuous**.

LUBEC CHANNEL (2000)



LUBEC (2000)



83 **Lubec Channel** and **Lubec Narrows** are marked by lights and buoys. The least charted depth in these channels is 2.7 m. The **Franklin D. Roosevelt International Memorial Bridge** crosses from the town of **Lubec**, Maine, to **Charleys Point** on Campobello Island. There is a vertical clearance of 13.6 m beneath the bridge and a horizontal clearance of 31 m between the piers in the channel. The centre of the navigable span is marked by a fixed green **light**. The east and west extremities of the span are marked by fixed red **lights**. These lights are visible from both sides of the bridge. A disused light tower stands on **Mulholland Point**, 0.2 mile NNW of Charleys Point.



84 Lubec has two fish canning factories with wharves that dry alongside. An L-shaped wharf, 76 m long, situated 0.2 mile north of the bridge, has 0.6 m alongside. It is used to unload fishing boats.



85 At the north side of the town is an L-shaped concrete wharf, 52 m long and 19 m wide at the face,

with a least depth of 4.3 m alongside. *Lubec Marina* is a full-service marina that operates from a position close west of this pier. In 2001, there were 42 floating slips in place with a least reported depth of 2.4 m alongside. Each slip is reported to be 9 m long.

East Side of Campobello Island


86 From Liberty Point, the east side of Campobello Island trends NNE for 0.8 mile to **Owen Head**, thence NNW for 0.9 mile to the south entrance point to **Herring Cove**, where there is good temporary **anchorage** in 10 to 15 m, about 0.5 mile offshore. **Eastern Head**, a bold headland, is the north entrance point to the cove.






87 A local **magnetic anomaly** exists 0.7 to 1 mile SE of Liberty Point. Abnormal variation of the compass has also been reported 2 miles east of Herring Cove.

HEAD HARBOUR (2000)





 88 From Eastern Head, the coast trends for 2.5 miles to **Nancy Head**. On this stretch of the coast, **Schooner Cove**, 1.5 miles NNE of Eastern Head, affords temporary **anchorage** to small vessels in 10 m. From Nancy Head, the coast trends NNW for 1.2 miles to **Scott Head**, the south entrance point to **Mill Cove**, where there is **anchorage** for small vessels in 7 to 11 m. A 0.8 m patch lies nearly 0.3 mile NNW of Scott Head. This danger is marked by an east cardinal **buoy**.

  89 **Head Harbour** ($44^{\circ}57'N$, $66^{\circ}55'W$) is well sheltered with secure **anchorage** for small vessels. The harbour is entered from the north or south of **Head Harbour Island**, which is 24 m high. The north channel, partially buoyed, is the preferred entrance. The south channel is shoal and partially obstructed by fish weirs. A **light** (44.5) is shown from a mast from the west side of the harbour entrance, 0.3 mile west of Head Harbour Island.

 90 On the west side of the harbour is an L-shaped Public wharf with an outer face 97 m long, 12 m wide, and with a least depth of 5.2 m alongside. The wharf is frequently used by large fishing vessels having drafts of 2.7 m or more. Numerous mooring buoys are located to the south and east of the wharf. Supplies and fuel are available at Wilsons Beach, 1 mile distant.

Head Harbour Passage

 91 **Head Harbour Passage**, the main shipping channel leading to Passamaquoddy Bay, is entered from seaward between East Quoddy Head and White Horse Island. Strong east to NE winds against an ebb stream will create a breaking sea off East Quoddy Head.

 92 **East Quoddy Head** ($44^{\circ}57'N$, $66^{\circ}54'W$) is the narrow NE extreme of Campobello Island. A **light** (44) is shown from a white octagonal tower with a red band and a red stripe. A **fog signal** of one blast every minute is sounded close to the light; the horn points 116° .

93 **White Horse Island**, 2.3 miles NNE of East Quoddy Head, is 24 m high, bare, rocky, of whitish appearance, and is easily identified. **Little White Horse Ledges** includes a rock at a depth of 0.7 m, 0.1 mile NE of White Horse Island. **North Rock**, at a depth of 0.6 m, and steep-to except on its north side, lies 0.45 mile NW of White Horse Island; it is marked by an isolated danger light **buoy** SA (52.55).

94 On the NW side of the passage, **White Island** and **Spruce Island** lie 1.5 and 0.9 miles north of East Quoddy Head. Ledges surround **Sandy Island**, situated 0.15 mile west of Spruce Island. Many of these ledges are marked by **radar reflectors**.

EAST QUODDY HEAD (2000)





WILSONS BEACH (2000)





95 **Casco Bay Island**, 26 m high and steep-to on its SE side, lies 1 mile SW of Spruce Island. There are several shoals and ledges in this area. **Black Rock** covers at high water and lies midway between Spruce Island and Casco Bay Island; it is marked by a **radar reflector**. **Green Island** lies 0.4 mile SW of Casco Bay Island. **Green Island Shoal**, at a depth of 7.5 m, lies in mid channel 0.3 mile ESE of Green Island; it is marked by starboard hand light **buoy** UH2 (43.5). **Sandy Ledge**, 4 m high, lies 0.25 mile west of Green Island; its south end is marked by a **radar reflector**.


96 **Popes Island**, 21 m high, with **The Nubble**, 16 m high, close south of it, lie 0.5 mile SW of Green Island. **Popes Shoal**, with a least depth of 2.9 m, lies 0.1 mile to the SE of Popes Island. Two shoals, at depths of 7.5 and 7.6 m, lie to the east and NE of Popes Shoal. These are marked by starboard hand conical **buoy** UH4.



97 The community of **Wilson's Beach**, population 925 in 1991, is situated close NE of **Windmill Point**, on the NW side of Campobello Island, 2.3 miles SW from East Quoddy Head.

  98 This small harbour is protected by a breakwater-wharf that extends 75 m to an outer part 57 m long and about 37 m wide. The harbour is shoal, however there is a depth of 2.1 m along the outer 24 m on the inner side. A **light** (43) is shown from a mast on the outer end

of the wharf. Crib remains are reported to lie about 60 m off the west side of the outer part. Caution should be exercised.

  99 At **Curry Cove**, close east of Windmill Point, there is an L-shaped Public wharf extending 108 m from the shore. There are depths of 2 m along the outer face, and 1.5 m along the inner face of the L-end, which is 46 m long and 13 m wide. This wharf is not considered safe during strong SW winds. There is a floating slip on the north end of the wharf.

 100 **Harbour de Lute** affords good shelter and is entered between Windmill Point and **Man of War Head**, 0.6 mile to the south. The harbour trends south for about 2 miles. There is **anchorage** in 22 m to the north of Man of War Head. Much of the remainder of the harbour is obstructed by fish cages. A submerged telephone **cable** crosses the harbour close SE of Man of War Head. **Stovers Ledge**, with a depth 6.1 m, lies 0.3 mile west of Man of War Head.


  101 Close west of Man of War Head, a Public breakwater-wharf extending 90 m to the north, then 98 m to the east, protects a small craft cove with a narrow entrance. There are depths of 1.5 to 3 m along the inside face of the L-end. A **light** (39) is shown from a skeleton tower on the outer end of the wharf.

 102 **Indian Island**, 33 m high near its north end, lies 1 mile west of Windmill Point. **Cherry Island**,

16 m high, lies close SE of Indian Island. **Thumb Cap**, 18 m high, lies 0.2 mile north of Cherry Island. A **light** (41) is shown from a red and white banded circular tower on the south side of Cherry Island. A **fog signal** of one blast every 20 seconds is sounded from Cherry Island light.

Friar Roads

103 **Bald Head**, on Campobello Island, is a prominent circular hill 0.75 mile SW of Cherry Island at the entrance to **Friar Roads**. This roadstead is well sheltered and free from ice. The water is deep, the bottom uneven and the tidal streams are strong. From the north it is a continuation of Head Harbour Passage. From the south, it is entered from Lubec Narrows.

 104 From Bald Head, the west side of Campobello Island trends south for 1.2 miles to **Deer Point**, the north entrance point to **Friars Bay**. The south entrance point, **Friars Head**, 55 m high and wooded, lies about 1 mile further SSW. There is good **anchorage** in the bay in 22 m, with the surrounding shore 0.5 mile distant.



105 Small vessels can lie alongside the Public wharf at the village of **Welshpool**, population 247 in 1991, close SE of Deer Point. The wharf has a face 65 m long with a depth of 4.3 m alongside. The wharf has an elevation of 1.2 m and there is a floating slip on the east side of the inner section. A vessel bed 17 m long and 12 m wide lies on the shore close east of the wharf.

Eastport, Maine, U.S.A.

106 The city of Eastport, Maine ($44^{\circ}54'N$, $66^{\circ}59'W$) and the wharves of this port are located along the extreme east shore of **Moose Island**, on the west side of Friar Roads. Fishing, textiles and port activity represent the main commerce of the city. An automobile **ferry** connects Eastport with Deer Island during summer months. Eastport is a **US Customs** port of entry. Lighter carrying vessels in the range of 36,000 GRT call at Eastport to load forest products. Commercial shipping activities in Eastport are managed by the *Eastport Port*

WELSHPOOL (2000)



EASTPORT (2000)



Authority, tel. (207) 853-6414. The **harbour-master** may be contacted through city hall, tel. (207) 853-2300.



107 U.S. authority has made **pilotage** compulsory at Eastport, Cobscook Bay, Penamaquam River and Friar Roads when entered through Head Harbour Passage for vessels which are:

- foreign vessels
- U.S. vessels registered in foreign trade with a draft over 2.7 m (9 feet).

108 *Eastport Pilots USA* will board off West Quoddy Head (44°49'N, 66°57'W) or off East Quoddy Head if arriving from the Bay of Fundy. The pilots use VHF channel 16 (156.8 MHz). Arrangements for a pilot can be made through the port authority.

109 Prominent objects at Eastport include the custom house with a square tower, the spire of a church about 275 m WSW of the custom house, a tower on a hill overlooking the city, and numerous orange pylon boundary markers on tops of hills.



110 A dredged basin for small vessels is situated off the custom house. This basin is protected on the north and east sides by the *Eastport Breakwater Pier*, a concrete L-shaped breakwater-wharf, and from the south by a concrete breakwater extending to the east and joining **Margie Rock**. Depths of 4 and 2.9 m are reported in the south and north parts of the basin. Floating piers inside the basin provide for several berths for small craft.

111 The seaward face of the Breakwater Pier can accommodate vessels up to 128 m long and drafts to 12 m. Mooring dolphins, 4 m in elevation, are situated 43 m north and 24 m south of the Breakwater Pier. The deck of the breakwater pier has an elevation of 2.1 m and is lighted; electricity and fresh water are available.

112 The *Estes Head Terminal*, situated on the west side of **Estes Head** near the south point of Moose Island, was completed in 1998. The terminal is L-shaped, extending 73 m from the shore to an outer end 195 m long and 31 m wide. The outer berth can accommodate vessels up to 274 m in length and a draft of 19.5 m. The inner berth can accommodate vessels to 168 m in length; there are depths of not less than 12 m within 12 m from the inside face. Mooring dolphins are placed in line with the centre of the outer end, 33 m from both the NW and SE ends.

113 A small craft facility for pleasure craft is located in a small cove about 0.2 mile north of the breakwater pier, adjacent to the Deer Island ferry landing. Most of the other wharves at Eastport are in poor repair and dry at low water.



114 Large vessels **anchor** in about 29 m with Cherry Island bearing 017°, 1.1 miles distant, about 0.5 mile off the city. The bottom here is broken and rocky, and the tidal streams are strong. This anchorage is not recommended during easterly winds. Good anchorage during such conditions is found off the opposite shore in **Friars Bay** or off **Broad Cove** on the west side of Moose Island. An **abandoned**

EASTPORT — ESTES HEAD TERMINAL (2000)



cable is laid from **Buckman Head**, the SE point of Moose Island, to Campobello Island.


115 Tug and line handling services are available. Ice, provisions and marine supplies are available. A machine shop can make repairs to small engines. Electrical repairs can be made. There is a private facility for the hauling of vessels up to 12 m in length for repairs.


116 There is a United States Coast Guard Search and Rescue Station at Eastport. *Station Eastport* has a 13 m **lifeboat** having a white hull marked with a red, white, and blue stripe on each bow. A continuous radio watch is maintained by *Coast Guard Station Jonesport* on VHF channels 16 and 83 (156.8 and 157.175 MHz). Station Eastport's area of responsibility is east and north of Long Point, Maine ($44^{\circ}40'N$, $67^{\circ}10'W$), to the international boundary in the Grand Manan Channel and the St. Croix River.

117 **Treat Island**, 41 m high, is the largest of a group of islands to the west of Friars Head between Lubec Narrows and Eastport. **Dudley Island**, 24 m high and wooded, lies close south of Treat Island, and is joined to it by a stony ridge above water. **Popes Folly** is 17 m high and lies less than 0.2 mile west of Campobello Island.

East Side of Deer Island

118 **Nubble Island** ($45^{\circ}00'N$, $66^{\circ}54'W$), 29 m high and 0.4 mile north of White Island, is one of a group of islands that lie off the east side of **Deer Island**. The **Spectacle Islands** and **Hospital Islands** lie towards to the SW. A shoal area lies to the south of the Hospital Islands; it is marked by starboard hand light **buoy** UP2 (51.5).

 119 **Dinner Island** lies at the entrance to **Northwest Harbour**, a narrow inlet suitable for small vessels, one mile west of the Hospital Islands. There are depths of 5 to 15 m, but the harbour contains many fish weirs. A **light** (51) is shown from a mast on the **Pompey Ledges**, which lie on the south side of the entrance channel from the south of Dinner Island.

 120 The community of **Richardson**, population 72 in 1991, lies 0.5 mile north of the entrance to Northwest Harbour. Two channels can be used between Deer Island, **St. Helena Island** and **Beans Island** in the approach; the west channel from north of Dinner Island is the preferred. There is a Public wharf 55 m long with a face 27 m long with a depth of 2.1 m alongside. A **light** (52) is shown from a tower on the outer end of the wharf. A **light** (51.1), having a radar reflector, with a white and black

square daymark, is situated on a rock about 0.1 mile SE of the wharf. A **light** (54), having a radar reflector, is shown from a mast on **Bag Ledge**, off the west side of Beans Island. A **radar reflector** is shown in the east channel of the approach to Richardson, on a rocky ledge 0.2 mile south of Bag Ledge.



121 **Bar Island** lies close off Deer Island less than 0.5 mile south of the entrance to

Northwest Harbour and shelters **Leonardville Harbour** from the east. A **light** (46) is shown from a white square tower on a cliff at the west entrance to the harbour, south of Bar Island. A stone breakwater extends SW from Bar Island, at the harbour entrance, which has a depth of 2.5 m. The Public wharf, with an outer end 87 m long and depths of 2.4 to 5.5 m alongside, lies on the west side of the harbour. There are several other small wharves and a few lobster pounds in the harbour. A **light** (47) is shown from a mast on the Public wharf.



122 At **Chocolate Cove**, 1.7 miles SSW of Leonardville Harbour, a Public wharf extends 147 m to an outer end 20 m long and 14 m wide, with a least depth of 2.4 m alongside. There is a floating slip on the south side of the wharf.

123 **Chocolate Shoal**, at a depth of 2.4 m, lies mid-way between Chocolate Cove and Popes Island. A submarine power **cable** is laid from Chocolate Cove to Campobello Island.

124 **Quoddy River** and **Indian River** are the names of the two channels along the east side of Deer Island from Bar Island to Deer Island Point.

Western Passage

125 **Western Passage**, between Deer Island and Moose Island, connects Friar Roads to Passamaquoddy Bay. It is entered between **Deer Island Point** (44°55'N, 66°59'W), the south point of Deer Island, and **Dog Island**, which lies near Eastport, off the NE end of Moose Island. Dog Island is 13 m high with a grassy summit.

126 To best avoid the whirlpools off Deer Island Point, the Dog Island side of the channel should be favoured.



127 A **light** (49) is shown from a circular tower on Deer Island Point. A **light** (49.2) is shown from a mast with a green square daymark on Dog Island. A red sector in the light covers **Clark Ledge**, which lies close to the shore to the SE. A **fog signal** is sounded every 30 seconds from the Dog Island light.


128 **Johnson Cove** and **Kendall Cove** are on the north-east side of Moose Island. An elevated silver tank just south of Johnson Cove, a blue tank and another tank close northwest of it at **Quoddy** are all prominent.



WESTERN PASSAGE (2000)



129 Earth and rock causeways block the shallow passages north and south of **Carlow Island**, which is 0.2 mile NW of Moose Island and 0.6 mile south of **Pleasant Point**. A prominent red brick church with square belfry and numerous houses are on Pleasant Point.

130 **Frost Island** and **Frost Ledge** are at the northern end of Western Passage and between Pleasant Point and **Gleason Cove**, 0.9 mile to the north. Between Carlow Island and Frost Island, foul ground extends as far as 0.2 mile from shore.

 131 From Deer Island Point, the coast of Deer Island trends NNW for about 1 mile to **Cummings Cove**. **Clam Cove Head** lies 2.7 miles NNW of Deer Island Point. **Clam Cove**, which lies close east of this headland, provides good, though limited **anchorage** in 17 m. A **radar reflector** marks a few rocks that lie close south of Clam Cove Head.

  132 At the community of **Fairhaven**, in Clam Cove, there is a Public wharf 76 m long and 26 m wide at the outer face with depths of 1.8 to 2.4 m alongside. There is a floating slip on the SE side of the wharf. A **light** (48) is shown from a mast on the outer end of the wharf.


LETETE PASSAGE (2000)




Letete Passage

Chart 4124

133 **Letete Passage**, the north entrance to Passamaquoddy Bay, lies between **Macs Island**, off the NE side of Deer Island, and the mainland of New Brunswick to the east. Although the passage is relatively deep, strong tidal streams and unmarked dangers render its navigation difficult. Letete Passage is not recommended for vessels larger than 1,200 GRT, which should enter Passamaquoddy Bay through Head Harbour and Western Passages.

 134 Two automobile **ferries** cross Letete Passage between **Butler Point** on Deer Island and **Matthews Cove (Letete)** on mainland New Brunswick. The *John E. Rigby* (35 m long) and the *Deer Island Princess* (47 m long) are self-propelled, double-ended and red in colour with white trim. The ferries operate on a near continuous basis and may be contacted on VHF channel 14 (156.8 MHz) and on General Service Radio (citizen's band).

 135 **Bliss Island** (45°01'N, 66°51'W) and **White Horse Island**, 1.7 miles to the SW, lie in the outer approach to Letete Passage. A **light** (77) is shown from a white square tower on the corner of a white building at the

BACK BAY (2000)



SW end of Bliss Island. Fairway light and bell **buoy** S (77.5) is moored 0.7 mile SSW of Bliss Island light.

136 **White Head Island** lies 0.5 mile WNW of Bliss Island. It is 59 m high, wooded with steep cliffs and is steep-to on its south side. A shoal at a depth of 6.4 m lies 0.2 mile south of the island.

137 **Back Bay** opens to the NE between White Head Island and **Greens Point**, 1.35 miles to the NW. **Califf Rocks** dry 3.4 m and lie 0.4 mile NNW of White Head Island. Starboard hand light **buoy** SE2 (72.5) is moored close NW of these rocks. A rocky patch, with a least depth of 2.2 m, lies 0.3 mile north of Califf Rocks; it is marked by a **buoy**.

138 There are numerous fish weirs, rearing cages and fishing stakes in Back Bay, and **caution** should be used when navigating the inshore areas.



139 From the west side of the bay, at the village of Back Bay, population 559 in 1991, there is a curved breakwater 0.2 mile long. A **light** (72) is shown from a skeleton tower on the outer end of the breakwater. Inside the breakwater, there is a Public wharf with an L-end 111 m long. A finger pier 42 m long extends outwards from the L-end. There are depths of 3.7 to 4.3 m in this area. There are numerous mooring spars on the north side of the breakwater.



140 There is **anchorage** for small vessels in 11 to 13 m about 0.25 mile south of the breakwater. Larger vessels anchor in the outer part of the bay. Two submarine power **cables** are laid across Back Bay to Bliss Island; the westernmost one is active, the easternmost inactive.

141 **Lords Cove** (45°00'N, 66°57'W) is a community on the NE side of Deer Island that is sheltered from the east by several islands. **Adam Island**, 1.4 miles WSW of White Head Island, and **Barnes Island**, close south of it, are the two outermost islands on the west side of the approach to Letete Passage. Port hand light and bell **buoy** S3 (75) is moored 0.25 mile NE of Adam Island.



142 At Lords Cove, population 155 in 1991, the main Public wharf is 100 m long and 12 m wide, and extends to a depth of 2.3 m. An L-shaped wharf extends 55 m to the east, then 55 m to the south from a position midway along the main wharf to form a small boat basin. Several fish cages are located on both sides of the channel leading to the wharf. Each corner of each group is marked by a cautionary **buoy**. A **light** (53.5) is shown from a mast in the channel leading to the wharf at Lords Cove.




143 **Letete Passage**. — **Macs Island** rises to a height of 107 m on the west side of Letete Passage. **Greens Point** (45°02'N, 66°54'W) is the SE entrance point, and **Morgan Ledge** extends 0.1 mile SW of Greens Point. A disused **light** is shown from a white tower, 12 m high, on Greens Point. A **fog signal** (71) of one blast every 30 seconds is sounded close to the light; the horn points 180°. A **light** (73)

LITTLE LETETE PASSAGE (2000)





is shown from a skeleton tower on Morgan Ledge having a red and white daymark with a red triangle.


144 **Mohawk Island**, 22 m high, lies in mid channel 0.5 mile west of Greens Point. Ledges and rocks extend nearly 0.2 mile SE of this island. **Mohawk Ledge** dries 6.2 m and extends 0.15 mile north from the island. Port hand light **buoy S5 (70.6)** is moored close east of a 1.2 m shoal situated 0.15 mile east of Mohawk Island. North Cardinal light **buoy SAA (70.5)** is moored on the north side of Mohawk Ledge.



 145 **Parker Island**, 29 m high, lies about 0.4 mile south of Macs Island, and between them is a channel leading to Little Letete Passage. **Pomeroy Ledge** dries 2.8 m and lies on the north side of this channel, 0.15 mile off the SE point of Macs Island. A **light (74.35)** is shown from a tower on Pomeroy Ledge.

146 **Black Ledge** dries 7.2 m and lies 0.4 mile east of Parker Island. It is marked by a **radar reflector**. **Black Ledge Rocks**, depths of 0.6 and 1.3 m, extend 0.2 mile east of Black Ledge. There is no passage between Black Ledge Rocks and Black Ledge. **New Lid Ledges**, at depths of 0.9 and 1.4 m, lie 0.1 to 0.2 mile south of Black Ledge. Starboard hand **buoy SK2** is moored close south of New Lid Ledges.

  147 **Little Letete Passage** is narrow, shallow and has very strong currents. The passage is suitable only for small vessels and is used by the **ferry** to Deer Island. A **light (57.3)** is shown from a skeleton tower on the north side of **Jameson Island**, the south entrance point from the east. An overhead power **cable**, vertical clearance 41 m, crosses the west side of Little Letete Passage at the entrance to Passamaquoddy Bay.

148 **Butler Point** is the NE extreme of Deer Island 0.5 mile SW of Jameson Island. A ferry wharf 98 m long and 8 m wide, with a concrete ramp on each side, is situated about 0.2 mile south of Butler Point. The ferry operates to Matthews Cove on the mainland.

 149 **Two Hour Rock** lies on the west side of the ferry track almost midway between Butler Point and Jameson Island. A **light (57.2)** is shown from a skeleton tower on the rock. A second **light (57.25)** is shown 0.2 mile NNE, from a mast on the western end of Jameson Island.

  150 On the shores of **Stuart Cove**, 0.5 mile south of Butler Point, there is an L-shaped Public wharf 105 m long and 17 m wide across the outer face, extending to a depth of 0.9 m. A floating slip is

located on the north side of the wharf near the pier head. The cove is protected from the south by a breakwater that joins **Little Island**, and from another breakwater that extends 133 m NE from Little Island. A **light** (56), having red and white daymarks, is shown from a skeleton tower on the outer end of the NE breakwater. Radar reflectors are situated on rocky ledges, 0.2 and 0.4 mile ESE of the breakwater.

151 From Greens Point, the indented east side of Letete Passage trends north for about 1 mile to the entrance to **Matthews Cove**, then another 1.5 miles NW to **McMahon Point**, the west entrance point to Passamaquoddy Bay. Fairway light **buoy** SQ (70) is moored in the entrance to Matthews Cove. **Matthews Rock**, at a depth of 2 m, lies on the east side of the approach to the cove.



152 In Matthews Cove, the Deer Island ferry wharf is 70 m long and 9 m wide with a concrete ramp on each side. To the south of the ferry wharf is a combined breakwater and wharf which extends 70 m from the shore to a depth of 2.4 m. A **light** (79.8) is shown from a mast on the ledge close north of the breakwater. A second **light** (80), having red and white daymarks, is shown on the ledge close south of the breakwater.

153 **Dry Ledge**, 1.2 m high, lies in the centre of Letete Passage, 0.25 mile NE of **Ship Harbour Head**, on the east side of Macs Island. An overhead power **cable** runs from the mainland to Dry Ledge, to Ship Harbour Head. The minimum vertical clearance above Letete Passage is 42 m.

154 **Whorls Rock**, at a depth of 2.6 m, lies 0.15 mile off Macs Island, about 0.3 mile ESE of the steep **Macs Head**, the north extreme of the island. **Thumb Island**, 3 m high, lies near the middle of the north entrance to the passage, 0.4 mile NE of Macs Head. Port hand light and bell **buoy** S9 (68) is moored close north of Macs Head.

155 **Directions**. — Letete Passage is best approached from $\frac{3}{4}$ hour before to $\frac{3}{4}$ hour after high water. From the south, a passage is made keeping east of Mohawk Island, altering course to pass either side of Dry Ledge, and then keeping south of Thumb Island. If passing north of Dry Ledge, which is preferred at high water, a steady course can be made by navigating between the shoal NNE of Mohawk Island and Matthews Rock. At all times, large course changes should be avoided.

Passamaquoddy Bay

Chart 4115

156 **Passamaquoddy Bay**, well protected by a group of islands across its entrance, is surrounded by a high and bold shoreline of jutting promontories and steep cliffs. Because of

this, it is often clear when fog abounds the Bay of Fundy, and air temperatures are usually warmer than along the coast.



157 Aquaculture cages and fish weirs are located in many of the small coves of Passamaquoddy Bay and adjoining waters. Some of these coves provide good **anchorage** for small craft and **caution** should be exercised when approaching them. Corners of aquaculture cages are marked by small yellow **buoys**. Fish weirs may not show at or near high water.

158 **East side of Passamaquoddy Bay**. — Between McMahon Point (45°04'N, 66°55'W) and **Clark Point**, 1 mile to the north, the coast recedes to form a bight where there is temporary **anchorage**. **Midjic Bluff** is a steep rock face red in colour situated 1.6 miles NNE of Clark Point.



159 The **Magaguadavic River** is entered between Midjic Bluff and a gentle sloping point nearly 0.5 mile to the NE. There is **anchorage** for small vessels in the river entrance. With caution, the river is navigable by small craft, the minimum depth is 1.4 m. At low water, the direction of the river is apparent. The cliffy banks and high hills on both sides of the river cause some wind funneling. An overhead power **cable**, clearance 31 m, crosses the river 4 miles above the entrance near the town of **St. George**, population 1,414 in 1996. Waterfalls produce a strong current at the head of the river, but good small craft **anchorage** is found in shallow depths at the river's widening, away from the falls and with diminished current.

160 **Pendleton Island** (45°02'N, 66°57'W), 77 m high, lies close north of Deer Island, from which it is separated by **Doyles Passage** (chart 4124), a shallow, narrow passage much obstructed by rocks. Two overhead power **cables** cross Doyles Passage with clearances of 15 and 21 m.

161 The west side of Deer Island, from Pendleton Island to **Calders Head**, 4 miles to the SW, is free of dangers, except for a few rocks off **Oak Head**, at the entrance to **Northern Harbour**, a small inlet which mostly dries.




162 **North shore of Passamaquoddy Bay**. — The north shore between Midjic Bluff and **Bocabec Cove** (45°09'N, 67°02'W) is indented by **Digdeguash Harbour** and **Bocabec River**. **Long Island**, 29 m high, and **Hog Island**, 12 m high with a smaller island joined to its east side by ledges, lie at the entrance to Digdeguash Harbour. The channel west of Long Island leads to an **anchorage** for small vessels in about 13 m, 0.2 mile NNW of Long Island. The channel east of Long Island is shoal.



163 **Hardwood Island** (45°07'N, 67°00'W), 9 m high, lies 3.5 miles WNW of Midjic Bluff in the entrance to **Big Bay**. **Hospital Island** lies close west of Hardwood Island, to which it is almost joined by ledges. There is **anchorage** in Big Bay to close north of Hardwood and Hospital Islands. The bottom is mud and the holding ground

good. Good anchorage is reported in 17 m, 0.6 mile SW of **Creighton Point**.

164 **Ministers Island**, 50 m high, lies 1.1 miles west of Hospital and Hardwood Islands. A spit, which dries, is used as a causeway to the west side of the island from the mainland. A **conspicuous** round stone tower is situated on the south point of the island.


 165 **Chamcook Harbour** is entered between the north side of Ministers Island and **Craig Point**, which forms the west side of **McCann Cove**. There is good **anchorage** in the centre of McCann Cove in 15 to 20 m.

166 The entrance channel into Chamcook Harbour is about 90 m wide with a depth of 5.5 m. A cannery and a wharf are in ruins along the west side of the harbour. Currents are reported to be weak inside the harbour, where there is good **anchorage** for small vessels in 15 m. Secure **anchorage** for small craft is reported in the inner harbour which is entered to the south through a narrow channel over a shallow bar. Aquaculture facilities are situated in Chamcook Harbour.

St. Andrews Harbour

167 This small harbour is open all year. **Navy Island**, 12 m high, shelters the harbour from the south. The SE end of the island is a wedge-shaped white cliff 11 m high, which is **conspicuous** from the south or east. The main entrance

channel is the east channel, which is **buoyed** and has a least depth of 3 m, though there are lesser depths inside the harbour.

 168 **Navy Island Shoal**, a stony flat which dries up to 3.8 m, extends about 0.4 mile NE from the NE side of the island. Port hand light and bell **buoy** SX3 (66) is moored 0.7 mile ENE of the SE end of Navy Island. A stony flat extends about 0.5 mile SE from **Indian Point**, the SE extreme of the peninsula north of Navy Island. **Tongue Shoal** dries 5.2 m and lies from 0.7 to 1.2 miles ESE of Indian Point. A **light** (67), having daymarks with red and white bands, is shown from a skeleton tower on the east end of Tongue Shoal.

169 **North Point** lies on the north side of the east entrance 0.4 mile west of Indian Point. A disused light tower is situated at the outer end of a seawall on North Point. The seawall, built from the ruins of a former wharf, dries alongside. A **light** (64), having red and white daymarks, is shown from a skeleton tower to the south of this seawall.

170 The **Western Channel**, also **buoyed**, leads between the flats extending south from **Joes Point** and NW from Navy Island. The channel is narrow and has a least depth of 2.1 m. Starboard hand light **buoy** SY4 (63) is moored at the entrance to the channel. **Niger Reef** dries 2 m and lies about 0.3 mile WNW of the NW point of Navy Island; it is marked by a **buoy**. A **light** (62) is shown on the north side of Western Channel from a mast on the drying flat that extends south from **Pottery Cove**.

ST. ANDREWS HARBOUR (FROM NAVY ISLAND) (2000)



ST. ANDREWS HARBOUR (2000)



171 There is **anchorage** in 18 m, clay, about 0.3 mile south of Joes Point.



172 The Public wharf at Saint Andrews, with a breakwater close east of it, extends 250 m from the shore, 0.4 mile NW of North Point. The outer face is 46 m long with a least depth of 2.4 m alongside. The wharf has an elevation of 1.2 m and there is a floating slip with a least depth of 0.9 m on the east side near the outer end. Fresh water and electricity are available during summer.

173 The town of **Saint Andrews**, population 1,752 in 1996, is a popular summer resort. The *Algonquin Hotel*, with a red roof, and a water tower close to the west are **conspicuous**. Mooring buoys for small craft are placed to the south of the wharf. Supplies and provisions, water and fuel are available.

174 There are numerous craft shops and dining areas in the town. Many of the homes and churches in Saint Andrews have historic backgrounds. An aquarium is open to visitors at the Huntsman Marine Laboratory near Joes Point.

175 **West side of Passamaquoddy Bay.** — From **Gleason Point** ($44^{\circ}58'N$, $67^{\circ}03'W$), at the west entrance to Western Passage, the coast of Maine, with no off-lying dangers, trends NNW for 6 miles to **Liberty Point**.

St. Croix River

176 From its entrance between Joes Point and Liberty Point, the **St. Croix River** trends NNW for 6 miles to **Devils Head**, which is 104 m high. From Devils Head, the river turns to the WNW and with decreasing width and depth, winds a farther 6 miles to the head of navigation. Navigation during winter is not hindered by ice. A shoal area, with a least depth of 3.9 m situated 0.3 mile WNW of Joes Point, is marked by starboard hand light and bell **buoy** S10 (57.8).



177 About 0.3 mile north of Joes Point is the Department of Fisheries and Oceans Biological Station. There is an L-shaped wharf connected to the land by a stem 91 m long. The west face is 49 m long with a least depth of 5.1 m. The north face is 30 m long with a depth of 4.6 m alongside.

178 **Apple Point** is situated 1.4 miles NNW of Joes Point. A microwave tower is located about 0.25 mile NNE of Apple Point.



179 **St. Croix Island** lies near the centre of the river, 3.8 miles NNW of Joes Point. The island is partially wooded and is surrounded by rocks and shoals. Several drying ledges lie on a bank which extends 0.5 mile south from


ST. CROIX RIVER (FROM ST. CROIX ISLAND) (2000)


the island. The river channel is **buoyed** for passage east of the island. A **light** (58) is shown from a platform on a skeleton tower on the island.

180 **Note.** — St. Croix Island is an international park of historical significance. This is where Samuel de Champlain and Sieur de Monts established the first European settlement

ST. CROIX RIVER — BAYSIDE MARINE TERMINAL (2000)


in the northern half of North America in 1604.

 181 The *Bayside Marine Terminal* is situated about 1.2 miles north of Sandy Point. The wharf extends 70 m from shore and has an outer face 242 m long, with a reported depth of 8.5 m alongside. The inside berth is 80 m long with a reported depth of 7 m alongside. The wharf is concrete and lighted, and fresh water is available. Fuel, provisions and **Customs Services** are available. The Bayside Marine Terminal is owned and operated by the *Bayside Port Corporation*.


 182 Approximately 75 ships dock annually. Frozen fish products, potatoes, lumber and wood pulp, and construction aggregates are exported. Gypsum, fish and other products are imported. **Pilotage** for **Bayside** is not compulsory, but is highly recommended. Local pilots will board off East Quoddy Head.


183 The St. Croix River affords a good turning area. Vessels are usually docked against the tidal stream. During the ebb tidal stream, there is a set against the outside face of the wharf and this is reported to be most extreme at low water.


184 **Todds Point** lies 0.9 mile north of Devils Head on the west side of the entrance to **Oak Bay**, a shallow inlet which extends north for about 3.5 miles. The *St. Croix Yacht Club* is located close west of Todds Point. There are several moorings and a float at the shore near the clubhouse.

 185 Local knowledge is necessary for navigation beyond **Spruce Point**, which lies 1 mile west of Todds Point. A circular tower with red and white bands is situated on Spruce Point. Another tower with red and white bands is situated on **Mark Point**, 1.1 miles west of Spruce Point. A **light (61)** is shown from a white conical tower at **The Narrows**, 0.8 mile WSW of Mark Point, on the United States side of the river.

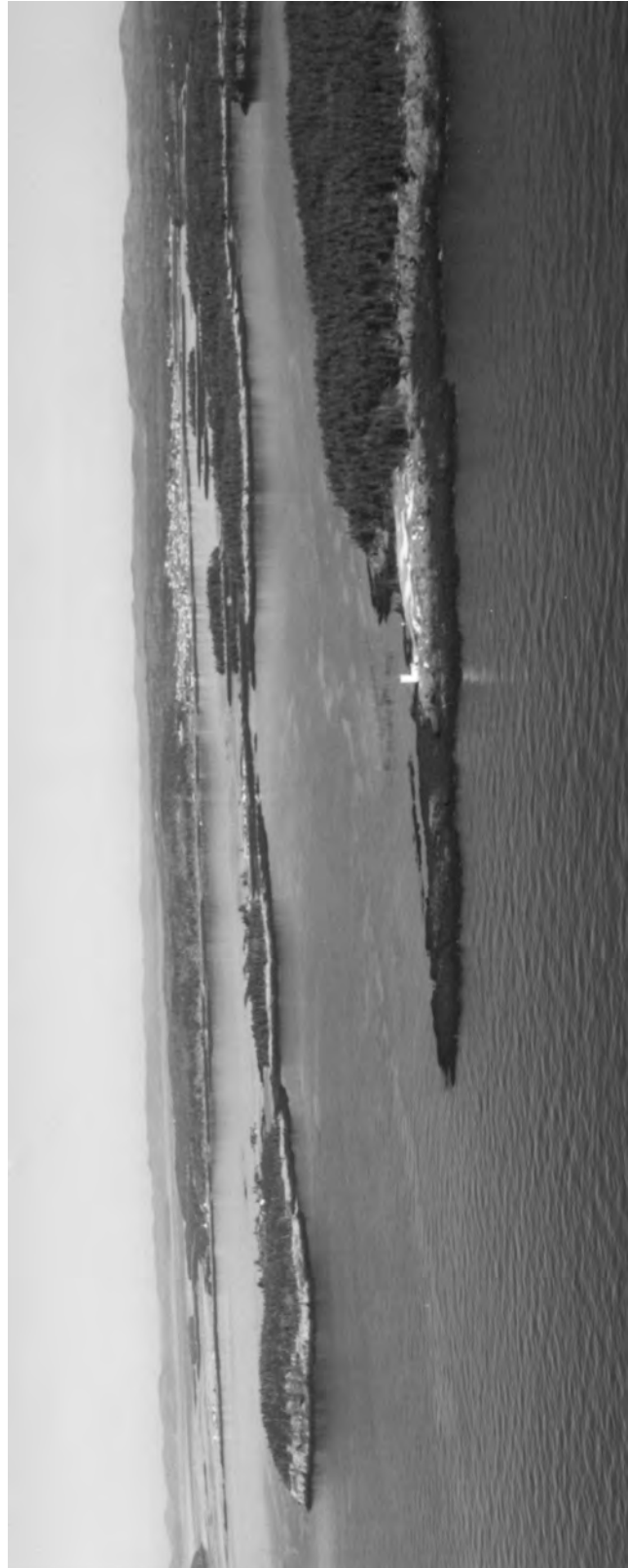
186 From the Narrows, the narrow, **buoyed** channel meanders to St. Stephen and Calais with depths of 1 to 2.5 m. It shoals to 0.7 m close east of the International Bridge.

 187 The town of **St. Stephen**, New Brunswick, had a population of 4,961 in 1996. A Public wharf with a float, maintained from June to September, is located in the business part of the town. There are depths of 0.9 to 1.8 m alongside the float. Provisions and stores are available and minor repairs can be made. There is a hospital and **Customs Services** are available.

 188 **Calais**, Maine, is a small city on the south side of the river. A town wharf, 13 m long at the outer face with a depth of 1.2 m, is located opposite the wharf at St. Stephen. The Customs and Immigration Office is located at the International Bridge. Gasoline, provisions and supplies can be obtained in Calais.

 189 The **tidal stream** at **Sandy Point**, measured during spring tide, reaches about 1 knot. Between Devils Head and St. Stephen, the rate is reported to be from

BLISS HARBOUR (2000)



PEA POINT (2000)




3 to 4 knots. In the river, the flood tidal stream sets north with counterstreams inshore on both sides where the conformation of the land is favourable for them. The ebb stream sets south with lesser counterstreams.

Bliss, Letang and Blacks Harbours


Chart 4124

190 **Bliss Harbour** ($45^{\circ}02'N$, $66^{\circ}51'W$) can be entered from the SW between Bliss Island and White Head Island. The harbour is protected from the NW by **Frye Island**. **Man of War Island**, 24 m high, lies in the SW entrance to the harbour, 0.7 mile NE of White Head Island. **Man of War Rock**, which dries 4.3 m, lies 0.1 mile SE of Man of War Island and is marked by two **buoys**. Several islands lie off the east side of Frye Island at the NE end of the harbour.



 191 There is **anchorage** in 12 m at the entrance to **Fisherman Cove**, which lies in the bight formed on the north side of Bliss Island. There is also anchorage in 11 m in the bight formed on the south side of Frye Island, to the NE of Man of War Island.

 192 Blacks and Letang Harbours are approached from the south by a narrow channel between **Pea Point**

and the NE end of Bliss Island. A **light** (81) is shown from a white tower on the corner of a white building on Pea Point. The light is visible from 251° to 161° , through north and east. A **fog signal** of two blasts every minute is sounded from Pea Point; the horn points 180° . Fairway light and bell **buoy** KA (81.2) is moored 1.2 miles south of Pea Point. Starboard hand light and bell **buoy** KA2 (78) is moored 0.2 mile SW of Pea Point.

 193 **Roaring Bull** is a rock which dries on the east side of the channel 0.2 mile WNW of Pea Point. A **light** (79) is shown from a mast on the west side of Roaring Bull.

194 **Mink Island**, **Mare Rock** and **Colt Rock**, on which stands a **radar reflector**, lie on the west side of the entrance to the harbour. **Letang Head**, nearly 60 m high, is the west extreme of a peninsula that separates Blacks Harbour from Letang Harbour.

  195 **Blacks Harbour** provides temporary **anchorage** for small vessels. Near the head of the harbour is an L-shaped Public wharf with an outer face 55 m long. There are depths of 2.1 to 2.7 m along both sides of the outer face. A **light** (81.12) is shown from a skeleton tower on the outer end of this wharf.

BLACKS HARBOUR (SOUTH) (2000)**BLACKS HARBOUR (NORTH)** (2000)

196 A T-shaped Public wharf is situated 0.2 mile SW of the L-shaped wharf. The outer face is 67 m long with a least depth of 3 m alongside. The elevation of the wharf is 0.3 m. A fish plant stands adjacent to the wharf, and there is

an overhead conveyor and lights on the wharf.




197 The L-shaped ferry wharf, 122 m long with a depth of 4.6 m alongside, lies on the south side of the harbour near its entrance. A passenger terminal and freight

APPROACH TO BEAVER HARBOUR (2000)



shed are located on the wharf. A **light** (81.1) is shown from a skeleton tower on the outer end of the wharf. The ferry operates to North Head, Grand Manan Island.


198 A **marine railway** with repair facilities is located on the north side of Blacks Harbour. Vessels up to 20 m in length may be accommodated. An outfitting berth adjacent to the slip dries at low water. The village of Blacks Harbour had a population of 1,148 in 1996.

 199 **Hills Island**, 45 m high, lies opposite Letang Head and is the east and largest island that separates Letang and Bliss Harbours. There is **anchorage** anywhere in Letang Harbour. There is a good **anchorage** in 15 m, 0.5 mile ENE of **Ray Point**, the south extreme of the **Letang Peninsula**.

200 **Deadmans Harbour** is a bight that opens on the north side of **Deadmans Head**, to the ENE of Pea Point. **Halftide Rock** dries 4 m close SW of Deadmans Head; it is marked by a **buoy**.

Beaver Harbour



Chart 4115

 201 **West Head** (45°04'N, 66°44'W) lies at the entrance to **Beaver Harbour**, 2.3 miles east of Deadmans Head. **East Head** lies 0.7 mile east of West Head. A **light** (83) is shown from a white circular tower, 8.6 m high, on **Lighthouse Point**, 0.4 mile NNE of West Head. A **fog**

signal of one blast every minute is sounded from the light; the horn points 159°. Fairway light and bell **buoy** KEA (82) is moored in the entrance to the harbour, 0.5 mile SE of West Head.

202 The community of **Beaver Harbour**, population 344 in 1996, is situated on the west shore of the harbour. Fishing is an important activity. **Pilotage** is not compulsory, but recommended, and local pilots will board off Lighthouse Point.

202.1 A large stone breakwater protects the wharves in Beaver Harbour. A **light** (84) is shown from a mast having a green and white daymark with a black square in the centre, on the outer end of the breakwater.

  203 There are two Public wharves in the harbour. The south wharf is 133 m long and 11 m wide, with a depth of 2.7 m at the outer end. There is a good berth on the west side of the wharf, where there is a least depth of 5.5 m for the outer 70 m. There are lesser depths in the approaches.

204 Close west of the south wharf is another Public wharf. The outer section is 61 m long and 12 m wide, with a depth of 1.8 m at the outer end.

205 To the W, there is a **conspicuous** fish plant building. A submerged pipeline extends 137 m from the NE corner.

BEAVER HARBOUR (2000)



Beaver Harbour to Point Lepreau

Chart 4116

206 **Seeleys Head** ($45^{\circ}05'N$, $66^{\circ}39'W$) lies 3.3 miles ENE of East Head. Port hand light and bell **buoy K1 (86)** is moored 0.5 mile SSE of Seeleys Head.



207 **Seeleys Cove**, to the NW of Seeleys Head, has **anchorage** in its SE part, in 9 m, sheltered from SW winds. On the east side of **Seeleys Basin**, 1 mile NE of Seeleys Head, is a Public wharf with a pierhead 27 m long and 12 m wide, which dries alongside.

208 **Red Head**, 3 miles ENE of Seeleys Head, is a wooded headland with steep cliffs, 68 m high.



209 **Maces Bay** lies between Red Head and **Point Lepreau**, 5.8 miles SE. There is **anchorage** in the west part of Maces Bay.

210 From Point Lepreau, the east shore of Maces Bay, which consists of steep cliffs, trends north for 4 miles to the entrance to **Little Lepreau Basin**, a narrow inlet which dries at low water. **Salkeld Islands**, joined by ledges which dry,

are two grass covered, flat islands with overhanging cliffs, situated 3.5 miles NW of Point Lepreau. The largest island is 24 m high.

211 A shingle bar, which dries, extends 1 mile ENE almost to the shore from the Salkeld Islands. **Maces Bay Ledges**, upon which there are several islets, extend about 1.7 miles SSW from the shore east of the Salkeld Islands. Port hand light and bell **buoy K3 (88)** is moored 0.2 mile SW of Maces Bay Ledges.



212 A breakwater wharf in ruins is situated 1.2 miles ENE of the Salkeld Islands in the entrance to Little Lepreau Basin; **caution** is advised.

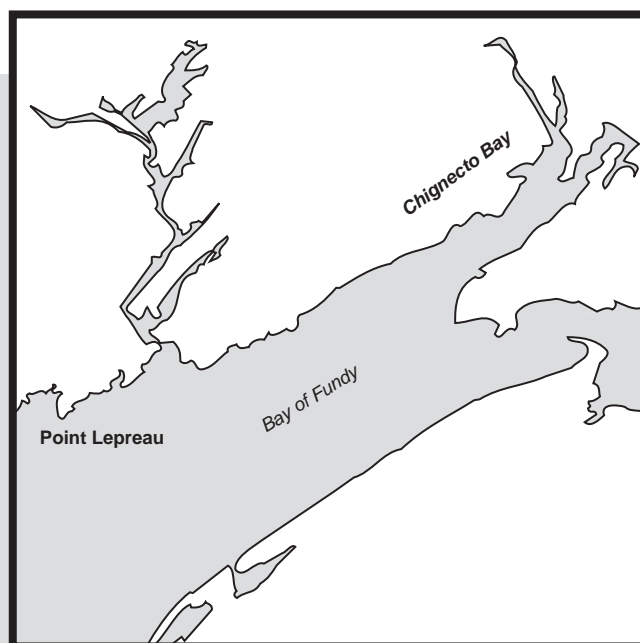


213 **Barnaby Head** lies 0.7 mile NW of the Salkeld Islands in the approach to **Lepreau Harbour**, the north arm of Maces Bay, about 1.5 miles north of the Salkeld Islands. Port hand light and bell **buoy KJ1 (87)** is moored 0.3 mile south of Barnaby Head. Close inside **Ragged Point** is a Public wharf 100 m long and 12 m wide at the outer face, with a depth of 1.7 m alongside. There is a floating slip on the east side of the wharf.

Bay of Fundy Point Lepreau to Chignecto Bay

Point Lepreau to Saint John Harbour

Chart 4116



1 **Point Lepreau** ($45^{\circ}04'N$, $66^{\circ}28'W$) is the south extreme of a peninsula on the mainland. It is the site of a nuclear power station operated by the *New Brunswick Power Corporation*. The 44 m concrete dome of the nuclear power plant is **radar conspicuous**. A microwave tower, elevation 60 m, is situated 2.5 miles north of Point Lepreau.



2 A **light** (90) is shown from a red and white banded tower, 17.6 m high, on Point Lepreau. A **fog signal** of three blasts every minute is sounded from a horn near the light; the horn points 190° .



3 **Point Rip**, a tide rip, extends south of Point Lepreau in an area of intense lobster fishing. Mariners should stay well offshore when wind and tidal conditions are in conflict.



4 **Dipper Harbour** ($45^{\circ}06'N$, $66^{\circ}25'W$), open to the SE, provides secure small craft **anchorage**. **Fishing Point**, rather bold, is the south entrance point to the harbour 2.6 miles NE of Point Lepreau. **Campbells Point** is the north entrance point 0.4 mile north of Fishing Point. Fairway light and bell **buoy** KN (91) is moored 0.4 mile SE of Fishing Point.



5 Inside Dipper Harbour, a rock break-water extends 244 m from the west side. A **light** (92) is shown from a mast on the outer end of the break-water. Close inside is a Public wharf 88 m long with depths of 1.4 to 3.5 m along both sides. There is a floating slip on each side of the wharf at the inner end. Dipper Harbour had a population of 173 in 1991.



6 **Lighthouse Point** lies 3.3 miles NE of Fishing Point in the entrance to **Chance Harbour**. A **light** (93) is shown at an elevation of 12.4 m from a red and white banded circular tower on Lighthouse Point ($45^{\circ}07'N$, $66^{\circ}21'W$). Fairway light and bell **buoy** KS (94) is moored 0.7 mile ESE of Lighthouse Point. To the SW of Lighthouse Point, the entrance to **Little Dipper Harbour** is obstructed by ledges and rocks.




7 **Chance Harbour**, open to the SE, is entered between Lighthouse Point and **Cranberry Head**, 0.8 mile ENE. The village of Chance Harbour lies on the west side of the harbour,




POINT LEPREAU (2000)





about 0.3 mile NW of Lighthouse Point. There is a breakwater-wharf 132 m long, with a depth of 1.4 m at the outer end, which is 12 m wide. A floating slip is located on the west side of this breakwater at the inner end. A **light** (93.5) is shown from a mast at the south end of the breakwater-wharf. There is **anchorage** for small vessels in 5.5 m in the inner part of the harbour.

 8 **Haleys Cove** and **Little Musquash Cove** lie 0.5 and 1.7 miles ENE of Cranberry Head. Small vessels **anchor** in these inlets with shelter from north winds. **Pork Ledge** is a drying flat with a small islet 3 m high extending 0.1 mile south of the east entrance point to Haleys Cove.

9 **Musquash Harbour**, the estuary of the **Musquash River**, is entered between **Western Head**, 3.5 miles ENE of Cranberry Head, and **Musquash Head**, a farther 0.5 mile east. The harbour is open to the south and is only available to small vessels. **Gooseberry Cove** lies between Western Head and **Gooseberry Island**, 21 m high, which is situated 0.3 mile to the SW. **Split Rock**, 8 m high, lies close to the shore 0.8 mile east of Musquash Head. **Tide rips** extend 0.1 mile south of Split Rock.

 10 A **light** (97) is shown from a white tower with a red band on Musquash Head (45°09'N, 66°14'W). A **fog signal** of one blast every minute is sounded from a horn adjacent to the light; the horn points 180°. A rock, least depth 0.8 m, lies close east of Western Head; it is marked by port hand light and bell **buoy** KT1 (96).

11 A **conspicuous** grey chimney, elevation 192 m and marked by white flashing lights, is situated close to the shore about 1 mile NE of Split Rock at **Coleson Cove**.

  12 The shallow Musquash River may be navigated by small craft during high water. The channel is **buoyed** to a wharf at **Five Fathom Hole**, off which there are greater depths, 2.6 miles north of Western Head. The channel almost dries between 1.9 and 2.3 miles north of Western Head. The wharf is 12 m wide at the outer face with a least depth of 4.6 m alongside. A floating slip is located on the north side of the wharf. A **light** (97.5) is shown from a skeleton tower on the outer end of the wharf. There are few residents nearby.

Saint John Harbour

13 The Port of Saint John is a port of call for shipping all year. Ice is never a problem. Saint John serves as the largest point of shipping for crude and refined oil products in eastern Canada, and the only shipping point for potash mined in southern New Brunswick. The greater Saint John area forms the largest commercial centre in New Brunswick, and in 1996 had a population of 125,705. There are many industries, including two pulp and paper mills, a ship building yard, and the largest oil refinery in Canada. There is a **Customs Office** in Saint John, and Saint John is a quarantine station.

14 Over 19 million tonnes of cargo pass through the port from the more than 600 foreign vessels that call each

DIPPER HARBOUR (2000)



year. Potash, forest products, containerized and break bulk cargo and salt are other goods shipped through Saint John in large quantities. Saint John is a leading port of call for cruise ships operating in eastern North America. The port is served by road, rail and air transportation to major destinations in North America.

15 The Port of Saint John is managed by the Saint John Port Authority. Vessels manoeuvring or otherwise underway in **Saint John Harbour**, and also while alongside berth or at anchor, are subject to *Operating Regulations and the Practices and Procedures for Saint John* (copies may be obtained from the Port Authority or the ship's agent). The harbour limit extends across the entrance to the harbour, 270° (T) from a point 3.7 miles south of the light on Cape Spencer.

16 The Port's Practices and Procedures identify requirements related to speed, use of tugs, berthing requirements, Pilotage, safety of operations and protection of the environment.

17 Vessels are regulated with respect to cargo handling operations and the equipment and lighting used. There are instructions for signalling, action in the event of accidents, cargo or gear lost overboard and safety requirements. There are specific requirements and permitting for the carriage and handling of explosives and dangerous goods, discharges,

bunkering and hot work as identified in the Regulations and Practices and Procedures.

18 For vessels arriving or leaving Saint John Harbour, a **traffic separation scheme** is in effect. A **vessel traffic services system** is in operation for the approaches to and in Saint John Harbour. Details are listed in the *Annual Edition of Canadian Notices to Mariners*.



19 **Pilotage** is compulsory in Saint John Harbour. Masters of vessels entering the harbour shall report their ETA to the Atlantic Pilotage Authority (APA), either directly, telephone 1-877-272-3477, or through the ship's agent, 12 hours before arrival at the pilot boarding station (position 45°10'48"N, 66°03'42"W).

20 The master of a vessel that is to depart or move must request a Pilot from the APA 4 hours before the ETD.



21 **Anchorage**. — There are three lettered anchorage areas within the limits of Saint John Harbour. Pilotage is compulsory when proceeding to anchorage area A, while anchorage areas B and D are outside the compulsory pilotage area. Anchorage area B has eight designated anchor berths, while anchorage area D has six designated anchor berths. All vessels at anchor should be maintained in a state of readiness to proceed at short notice, and maintain a continuous VHF listening watch on Ch. 12, 156.6 MHz.

COLESON COVE POWER STATION (2000)



22 Fishing operations may take place between mid November and the end of June in the outer harbour.

23 The west shore of the Saint John approach, from Split Rock to **Negro Head**, 4 miles to the NE, is bold and wooded, with steep cliffs. A radio tower, elevation 195 m, marked with red lights, is situated 2.4 miles NW of Negro Head.

24 **Mispec Bay** lies between **Cape Spencer** and **Mispec Point** ($45^{\circ}12'N$, $65^{\circ}59'W$) along the east shore of the Saint John approach.





   25 **Cape Spencer** ($45^{\circ}12'N$, $65^{\circ}55'W$) is bold and wooded. A **light** (146) is shown at an elevation of 62 m from a red and white circular tower on the cape. Off Cape Spencer, there is a strong tide rip with a west wind and a west going tidal stream. Mispec Bay, open to the south, offers little protection, however **anchorage** is available in 7 to 9 m.

Chart 4117


26 **Mispec Point** is a bold projection rising to an elevation of 87 m. A red and white radar **tower**, used by *Fundy Traffic*, elevation 157 m, is situated 1.6 miles north of Mispec Point. Numerous white oil tanks are situated at Mispec Point. These tanks are **radar conspicuous**.

26.1 See notes on Canaport LNG in the APPENDICES.

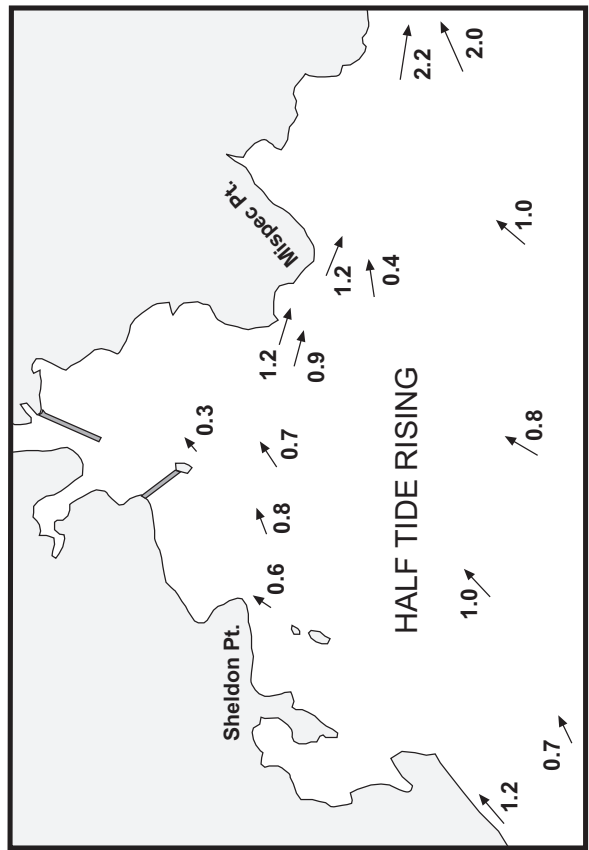
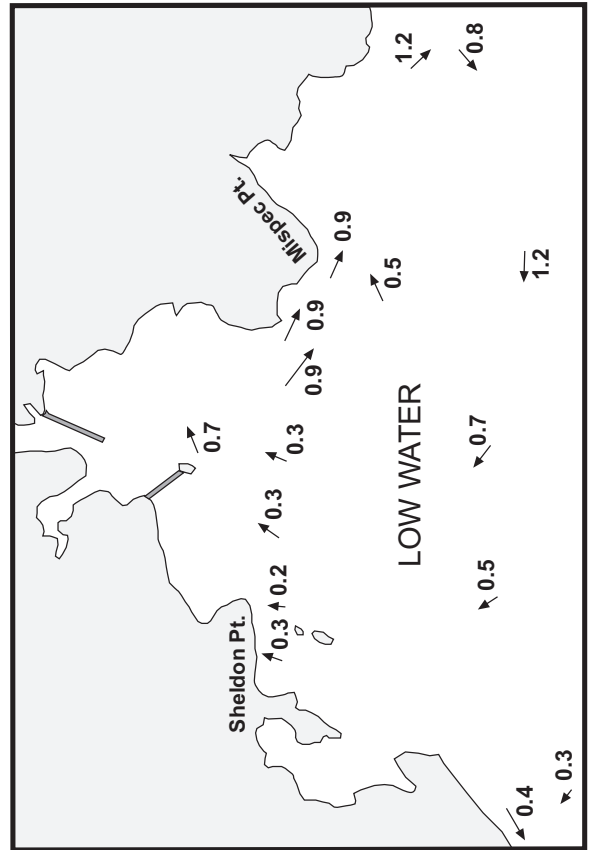
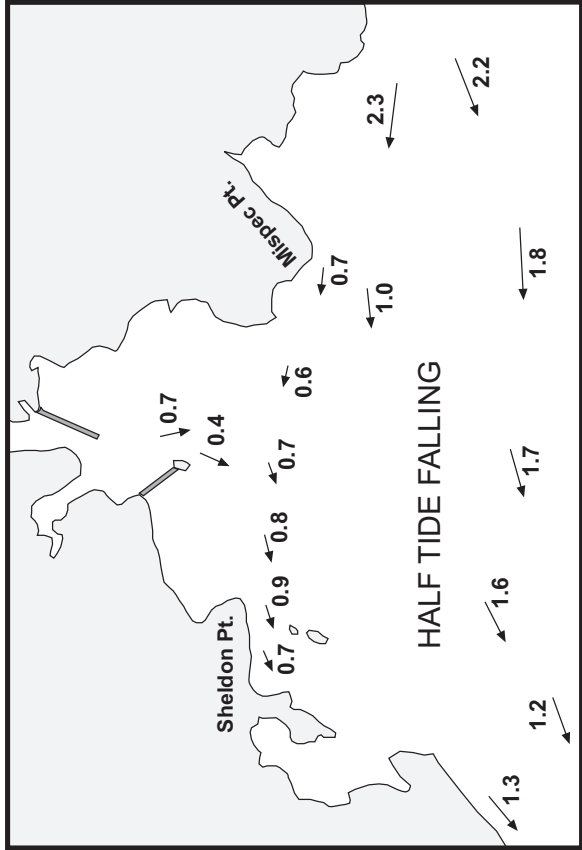
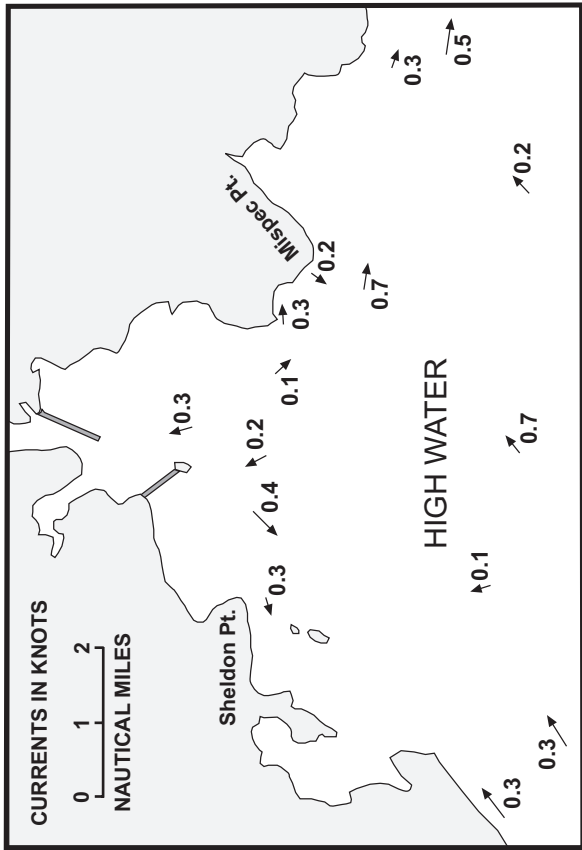
 27 **Deepwater oil terminal**. — A private, single point mooring **buoy**, equipped with a **light** (145.6) and **fog signal**, is moored about 0.6 mile south of Mispec Point. The buoy has a 290 m *free floating* discharge hose, whose relative direction to the buoy is dependent on the wind and tidal stream. This terminal enables bulk carriers to perform cargo unloading and de-ballasting operations. This deepwater terminal is known as **Canaport**.

28 Two submarine pipelines are laid between the buoy and the Irving Oil tank farm at Mispec Point. The discharge rate is about 9.1 million litres (2 million gallons UK) per hour. Tugs are used to assist the mooring of vessels and to carry out maintenance and surveillance, on the monobuoy, its hoses and equipment.

29 During mooring operations, tug assistance is rendered while the ship is secured to the buoy. The ship is secured by two 0.53 m nylon bridles, 81 m long. Once secured, a tug will tow on the stern until discharge is complete. Tug assistance is rendered until the ship is clear of the buoy. Discharging operations are suspended when weather conditions make it impossible for the support tugs to function safely.

 30 An exclusion zone exists with a radius of 0.5 mile, centred on the monobuoy, during times when a tanker is approaching, discharging or departing the

MEAN SET AND RATES OF TIDAL CURRENTS IN THE APPROACHES TO SAINT JOHN



CANAPORT DEEP WATER OIL TERMINAL (2000)



buoy (*see the Practices and Procedures*). Additional exclusion zones are charted both around the pier east of Mispéc Point and in the vicinity of the storage tanks and flame tower to the NE.

31 **Manawagonish Island** ($45^{\circ}12'N$, $66^{\circ}06'W$), 2 miles NE of Negro Point, lies off the west side of the Saint John Harbour approach. It is long and narrow, 30 m high and covered with scrub. **Thumb Cap** is an islet 11 m high, 0.2 mile north of Manawagonish Island. Drying rocks extend 0.2 mile SSW from Thumb Cap.

32 **Lorneville Harbour** is entered between **Lorneville Point**, 0.6 mile north of Negro Head, and **Seely Point**, the south end of a peninsula 1.1 miles west of Manawagonish Island. Most of the harbour dries at low water, and there are many fishing stages along the shore. A rock, least depth 1.8 m, lies 0.2 mile east of **Barbours Point**, which is to the SSE of Lorneville Point; it is marked by port hand light and bell buoy JA1 (98).



33 A rock breakwater extends 160 m north from Lorneville Point. A **light** (99) is shown from a mast on the outer end of the breakwater. A wharf, 43 m long and 7.6 m wide, with a depth of 4.6 m alongside at high water, lies on the west side of the breakwater. A floating slip is located at the inner end of the wharf.

34 Between Seely Point and **Sheldon Point**, which lies 2.2 miles NE, the coast recedes forming a bight. Two

coves, separated by a small headland 35 m high, are situated along this bight. **Radio towers**, with elevations to 116 m, are situated 0.5 mile NW of Sheldon Point.



35 **Inner approach to Saint John**. — The channel into the harbour lies to the east of **Partridge Island** ($45^{\circ}14'N$, $66^{\circ}03'W$), 24 m high, which is situated 2.6 miles NE of Manawagonish Island. A drying reef surrounds the island, and a rock breakwater joins the west side of the island to **Negro Point**, 0.5 mile NNW. A **light** (100) is shown from a tower 13.6 m high, with red and white vertical stripes, on the highest point of the island. Fairway light and whistle **buoy J** (145) is moored 1.3 miles SSE of Partridge Island. A **racon** (—•) operates from this buoy.

36 **Leading lights** (100.5, 100.6) in line bear $333\frac{1}{2}^{\circ}$ into the main harbour at Saint John and are shown from red daymarks with black stripes from the head of the harbour.

37 **Black Point** lies 1.1 miles NW of Mispéc Point. A shoal patch, mud, lies 0.5 mile SW of the point. This patch is a dumping ground for dredge spoils. A **light** (145.3) is shown from a red and white tower on Black Point. Cautionary light and bell **buoy JB** (145.4) is moored close S of the dumping ground.

38 Between Sheldon Point and Negro Point, a bank with less than 5 m extends 0.8 mile from the shore. **Shag**

APPROACH TO SAINT JOHN HARBOUR (2000)




Rocks, the highest at 1 m, lie on this bank 0.9 mile west of Partridge Island.

39 **Cranberry Point**, 3.7 m high, lies 1.5 miles north of Black Point. A wreck, with 7.6 m over it, lies 0.75 mile WNW of Black Point. **Red Head**, 19 m high with steep cliffs, and near which are several radio towers, is situated about 1 mile NW of Cranberry Point.

40 The main harbour of Saint John is at the mouth of the Saint John River, the largest river flowing through New Brunswick. The main channel is dredged to a depth of 8.4 m, however depths are subject to change due to silting.

41 A highway **bridge** crosses the Main Harbour near its head with a minimum clearance of 21 m. Fixed red and green **lights** are fitted to masts beneath the bridge deck, on each side of the channel, on both the upstream and downstream sides of the bridge.


42 For details of the river above the bridge, see Sailing Directions, Saint John River (ATL 107).

43  **Courtenay Bay**, the east arm of Saint John Harbour, is protected on its east side by a breakwater almost 1 mile long. A **light** (104) is shown at an elevation of 13 m from a white tower on the outer end of the breakwater.

44 The channel into Courtenay Bay is dredged annually to a depth of 5.2 m. Depths are subject to change due to silting. The channel is marked by **buoys**.

45 A **sector light** (110.8), situated on the front side of the **conspicuous** sheds of the potash terminal, marks the outer entrance into Courtenay Bay. The light is shown from a skeleton tower with a red and white daymark; the white sector indicates the preferred channel.

46 **Leading lights** (110.3, 110.4), situated near the east side of Courtenay Bay, bear 021° into the inner channel. Each light is shown with a red daymark and black stripe.

47  **Tidal streams and currents.** — The currents and eddies within Saint John Harbour are very complex and unpredictable. The harbour has extremely high tides (the maximum range being 9.1 m) and strong currents that are caused by the inflow and outflow of water from the Saint John River at the **Reversing Falls**, about 0.8 mile upstream from the head of the harbour.

48 The flow through the Reversing Falls is entirely dependent on the difference in water levels between the river and the harbour. At high water, there is a strong inflow into the river. As the tide falls and after a short period of slack water, the flow reverses and there is a strong outflow from the falls with a strong boiling motion at the head of the harbour.

49 Slack water at the Reversing Falls occurs twice during every tide. Ordinarily, it has a duration of only 10 minutes and occurs about 2 hours and 25 minutes after high water and 3 hours and 50 minutes after low water in the harbour.

MAIN HARBOUR — SAINT JOHN (2000)



50 During the spring freshet that usually occurs between the beginning of April and the middle of May, the rising waters of the river from the melting of snow control the flow at the falls. The great volume of water discharging from the river causes an almost constant outgoing surface flow which can attain a rate of 5 knots. During the freshet, certain restrictions on berthing and departing will be in effect.

51 The salinity of the water in the harbour varies with the state of the tide and the depth of the water. During the freshet, the water in the harbour is practically all fresh.

52 For further information on conditions in Saint John Harbour, see the Appendix.

53 **Berthing.** — Berthing accommodation in Saint John Harbour extends along both sides of the main harbour and in Courtenay Bay. Fresh water is available at all berths. Fuel can be delivered by truck to anywhere, except the Barrack Point Potash Terminal. Stores and provisions of all kinds are available in Saint John.

54 The Canadian Coast Guard marine depot is situated on the east side of the main harbour, 0.4 mile ENE of the bridge. The wharf is 165 m long with a depth of 6.8 m alongside.

55 The sugar refinery wharf, no longer in service, is situated at the south end of the east side of the main harbour. The wharf is 134 m long, with depths of 5.3 to 8.3 m alongside. There are two rail mounted shore cranes.

56 The *Bay Ferries* terminal is situated at the south end of the west side of the main harbour, 0.9 mile from Partridge Island. The wharf is 253 m long. The *M/V Princess of Acadia* makes scheduled crossings of the Bay of Fundy to Digby, Nova Scotia.

57 The Potash Terminal is located on the west side of Courtenay Bay Channel at **Barrack Point**. The dock consists of four berthing dolphins extending over a distance of 150 m, with two mooring dolphins at each end. A vessel berth 290 m long and 38 m wide is dredged annually to a depth of 13 m. Vessels normally dock starboard side to, and are loaded by a conveyor system. The maximum outreach of the loader from the fender is 30 m. A shore gangway and fresh water are available.

COURTENAY BAY — SAINT JOHN (2000)



Saint John Port Authority

| Berth | Length | Width | Min. Water Depth | Apron Width | Shedded Area | |
|-----------------|--------|-------|------------------|-------------|--------------|------------------|
| | m | m | m | m | | m ² |
| 1 A/B | 378 | 37 | 10.4 | 23 | 1A 1B | 12,900 14,200 |
| 2 | 191* | 37 | 10.4 | open | | |
| 3 | 313 | 37 | 10.4 | open | C D | 10,000 11,100 |
| Rodney Slip | 293 | 45 | 12.2 | 37 | | |
| Rodney Marginal | 439 | 45 | 12.2 | 37 | 8 | 4,120 |
| Pier 10 | 167 | 45 | 12.2 | 31 | | |
| Pier 11 | 134 | 37 | 10.4 | 30 | | |
| Pier 12 | 263 | 28 | 9.1 | 17 | Shed 12 | 6,900 |
| Long Wharf Slip | 182 | 27.5 | 9.1 | Open | | |
| Long Wharf Face | 280 | | 10.4 | 15 | LW | 5,520 |
| Pugsley A/B | 388 | | 10.7 | 10.5 | A/B | 7,970 |
| Pugsley C | 234 | | 10.7 | 10.5 | C | 4,090 |
| Lower Cove | 224 | 35 | 10.7 | open | | |
| Barrack Point** | 290 | 38 | 13 | dolphin | Potash | 9,750 12,561 |

Floating dock in berth, berth length excluded floating dock
 * Capable of berthing vessels to 290 m LOA
 All the above berths have a height above Chart Datum of 9.7 m.

Cape Spencer to Chignecto Bay

Chart 4010

58 From Cape Spencer ($45^{\circ}12'N$, $65^{\circ}55'W$) the coast trends ENE for about 54 miles to Cape Enragé, which lies on the NW side of Chignecto Bay. This coast is bold and thickly wooded, from 400 to 900 feet (122 to 274 m) high, and intersected by numerous valleys through which small rivers enter the Bay of Fundy. The mouths of these rivers are very similar, being composed of bars of shingle and gravel, with a narrow passage on one side, through which small boats can enter at high water and berth on mud, generally sheltered from all winds.



59 During summer, vessels **anchor**, at a reasonable distance from the shore, anywhere between Cape Spencer and Cape Enragé.



60 Between Cape Spencer and **McCoy Head**, about 8 miles ENE, the coast recedes forming a bight, at the head of which lies **West Bay**, and into which flows the **Black River**. McCoy Head is a rounded headland about 200 feet (61 m) high and covered with trees. Vessels proceeding past Cape Spencer should, with a west-going tidal stream, pass either close to the cape or well south of it to avoid **tide rips**.



61 The entrance to the Black River dries at low water, but is accessible at certain stages of the tide to small vessels. It is reported to be unsafe at high water during SW gales. A **light** (147) is shown from a skeleton tower on the SW side of the river entrance. Near the east entrance point is a Public wharf 164 feet (50 m) long that extends to a depth of 25 feet (7.6 m) at high water.

62 **The Sisters** are a small group of rocks in West Bay, situated about 0.6 mile from the shore and 0.8 mile south of the entrance to **Emerson Creek**. The outer rocks dry about 11 feet (3.4 m), but the inner rock, which lies about 0.1 mile nearer to the coast, only shows at low water. South cardinal light and bell **buoy** KB (148) is moored close south of The Sisters.



63 **East Red Head**, composed of red cliffs about 50 feet (15 m) high, lies about 2.5 miles ENE of McCoy Head. The receding coast forms **East Bay**. **Rogers Head**, 4.2 miles ENE of East Red Head, is 400 feet (122 m) high, thickly wooded and steep-to. It has high perpendicular cliffs on its west side and a steep slope on its south side. There is good temporary **anchorage** in 5 to 6 fathoms (9 to 11 m), sheltered from north and west winds, about 0.5 mile NE of McCoy Head, with East Red Head in line with Rogers Head.



64 **Quaco Head**, 250 feet (76 m) high, is situated about 2 miles NE of Rogers Head, from which it is separated by a treeless valley; there is a tide-rip off Quaco Head. A **light** (150) is shown from a white square tower on

the corner of a white building on Quaco Head. A **fog signal** of one blast every 30 seconds is sounded from the light; the horn points 130° . **Quaco Head Reef**, on which stands a rock, extends about 0.5 mile SE from Quaco Head. It is marked on its SE side by port hand light and bell **buoy** K15 (151).

65 **Quaco Ledge**, 8.8 miles ESE of Quaco Head, consists of a small ridge of rocks surrounded by deep water, the highest of which dries 13 feet (4 m) and which is marked by a heavy **tide rip** when covered. North Cardinal light and bell **buoy** KW (149) is moored about 0.3 mile NW of the ledge.



66 **Quaco Bay** is situated between Quaco Head and **Macomber Point**, which lies 2 miles further north. **Quaco Shoal**, with a least depth of 6 feet (1.8 m), lies from about 0.5 to 1.5 miles NNE from Quaco Head; the south end and west ends of the shoal are marked by **buoys**. There is **anchorage** in 5 to 6 fathoms (9 to 11 m), mud, between Quaco Shoal and the head of Quaco Bay. This anchorage is unsafe with east winds.



67 The village of **St. Martins**, population 386 in 1996, is located at the head of the bay. The entrance to the **Irish River**, available only to small vessels, is protected by two small breakwaters 0.7 mile west of Macomber Point. Close north of the entrance is a Public wharf, 230 feet (70 m) long at the outer face with depths of 5 to 8 feet (1.5 to 2.4 m) alongside at high water. Small vessels may also secure along the inside face of the west breakwater, which dries. A **light** (152) is shown from a mast on the outer end of the west breakwater.

68 **Fownes Head**, 3 miles ENE of Macomber Point, is distinguished by red perpendicular cliffs 300 to 400 feet (91 to 122 m) high.

69 The mouth of the **Salmon River** lies 3.3 miles NE of Fownes Head. Lumber was once shipped from a number of wharves that form a basin inside the river entrance. All wharves and breakwaters protecting the entrance are in ruins.


70 **Melvin Beach** lies between Fownes Head and the Salmon River entrance. A coastal bank, with depths of less than 3 fathoms (5.5 m), extends nearly 0.5 mile from this shore. A shoal, with depths of 5 fathoms (9.1 m) and less, extends 1.3 miles south from the mouth of the Salmon River.

71 **Tufts Point**, a headland 30 to 50 feet (9 to 15 m) high and partly cleared, lies about 1.5 miles NE of the mouth of the Salmon River. A coastal bank, with depths of less than 3 fathoms (5.5 m), extends about 0.8 mile from this shore.

72 **Martin Head** ($45^{\circ}29'N$, $65^{\circ}11'W$) is a small bare hillock, 100 feet (30 m) high, 8.6 miles ENE of Tufts Point. It is connected to the mainland 0.5 mile to the WNW by a gravel and sand causeway. From a distance, it resembles an island.

73 Between Martin Head and **Wolf Brook**, which lies about 2.3 miles to the west, a coastal bank with depths of less than 5 fathoms (9 m) extends about 0.7 mile offshore. A

2½ fathom (4.6 m) shoal lies on the south part of this bank about 1 mile WSW of Martin Head, and a patch of rocks, which dry 5 feet (1.5 m), lies about 0.3 mile WSW from the head.

 74 **Tidal streams.** — Between Cape Spencer and Martin Head, the tidal streams set parallel to the coast at an average rate of 2 knots. In the vicinity of Cape Spencer, the west-going stream commences about 2 hours before high water, and the east-going stream 2 hours before low water by the shore. Off Quaco Head, the streams change their direction about 45 minutes before high and low water. With the exception of the first hour of the east-going stream, both streams sweep around Quaco Bay from the east, passing out between Quaco Shoal and the head.

75 In the offing, the east-going stream runs for about 15 to 45 minutes after high water, and the west going stream for the same period after low water by the shore. In the vicinity of Quaco Ledge, the tidal streams have a maximum rate of about 2 knots. For detailed information, consult the *Atlas of Tidal Currents — Bay of Fundy and Gulf of Maine*.

Chignecto Bay



76 **Chignecto Bay** lies between the coasts of Nova Scotia and New Brunswick, and is clear of dangers. **Cape Maringouin** (45°43'N, 64°32'W), 12.5 miles NE of Cape Enragé, divides the bay into two arms. The west arm, comprising **Shepody Bay** and the **Petitcodiac River**, is navigable at high water as far as Moncton, almost 24 miles above the cape. The east arm, **Cumberland Basin**, is navigable at high water as far as Sackville and Amherst Basin, which lie about 12 miles NNE and NE of Cape Maringouin.

Chart 4337

77 **Matthews Head** (45°34'N, 64°58'W) lies on the NW side of Chignecto Bay, 10.5 miles ENE of Martin Head. It is a bold rounded point, about 150 feet (46 m) high, which has been partly cleared of trees. Close behind this headland, a thickly wooded hill rises to an elevation of about 700 feet (213 m).


78 The mouth of the **Point Wolfe River** lies close west of **Pointe Wolfe**, which is situated 2.7 miles SW of Matthews Head. **Squaws Cap**, an islet 40 feet (12 m) high, lies close to the shore almost 1 mile SW of Matthews Head.

79 The **Upper Salmon River**, which dries, is entered 2.2 miles NNE of Matthews Head. Fairway light and bell **buoy KX** (155.5) is moored off the entrance to the river. Stakes, with radar reflectors, mark a channel leading to the mouth of the river where there are two breakwaters.

  80 The north breakwater-wharf is 228 feet (70 m) long, with depths of 11 to 16 feet (3.4

to 4.9 m) at the outer end at high water. A **light** (155), having a red and white daymark, is shown from a mast on the outer end of this breakwater. A highway bridge, with a vertical clearance of 5 feet (1.5 m), spans the river close upstream. A wharf, 100 feet (30 m) long and 30 feet (9.1 m) wide, has been constructed parallel to the north shore close east of the bridge. The village of **Alma**, population 312 in 1996, is a resort area. It lies at the road entrance to **Fundy National Park**.

81 Three radio towers, 168 feet (51 m) high, are situated 3.2 miles to the north of Alma. The towers are fitted with red **lights** at an elevation of 1,141 feet (348 m).


 82 **Rocher Bay (Salisbury Bay)** lies between **Owls Head**, a thickly wooded point 1.7 miles ENE of Alma, and **Cape Enrage**. Cape Enrage is 100 feet (30 m) high, thickly wooded and with perpendicular rocky cliffs. A rocky spit, which dries, extends nearly 0.3 mile SSW from the cape. A privately maintained **light** (157) is shown from a white square tower on the cape. A **fog signal** of three blasts every minute is sounded from a horn close to the light; the horn points 220°. Port hand light and bell **buoy K19** (156) is moored 0.6 mile SSW of the cape.

83 Rocher Bay is very shallow towards its head and entirely open to the prevailing south and west winds. It is not recommended for anchorage. **Red Head**, with earth cliffs 50 to 100 feet (15 to 30 m) high, is situated near the head of Rocher Bay.

Chart 4010

84 From Cape Chignecto, the SE shore of Chignecto Bay, which is steep-to, trends north 6.3 miles to **Squally Point**. The mouth of the **Eatonville River** lies nearly 1 mile south of Squally Point. The entrance to this river, across which there is a bar at a depth of 13 feet (4 m), is protected by two breakwaters which dry about 17 feet (5.2 m). A wreck lies 1.2 miles NW of Cape Chignecto.

85 A coastal bank, with depths of less than 3 fathoms (5.5 m), extends nearly 0.5 mile from the shore between Squally Point and **Pudsey Point**, 2.8 miles to the NE. **Dudgen Rock** lies on this bank about 0.2 mile NE of Squally Point. **Spicer Cove**, close NE of Squally Point, affords temporary **anchorage** to small vessels.

 86 The entrance to **Apple River** lies between Pudsey Point and **Cape Capstan** (45°28'N, 64°51'W), 0.7 mile NNE. A **light** (163) is shown from a white square tower on the corner of a white building on Cape Capstan. The river dries just above its entrance. The narrow and crooked channel from Cape Capstan to the settlement of Apple River, population 78 in 1991, situated 3.4 miles east of Pudsey Point, is navigable at high water by small vessels and should not be attempted without local knowledge.

87 **Lower Point**, 14 miles NE of Cape Capston, is the west entrance point to the **Shulie River**.



88 **Ragged Point**, 4.7 miles NE of Lower Point, and **Ragged Reef Point**, 1 mile further NE, form a bight which dries. At the head of this bight is a small fisherman's harbour with a wharf 150 feet (45 m) long.

Chart 4130

89 **Shepody Bay**. — **Grindstone Island** ($45^{\circ}43'N$, $64^{\circ}37'W$), 117 feet (36 m) high, is the west entrance point to **Shepody Bay**. There are abandoned quarries on the island. A drying flat extends 0.5 mile north of the island. **Jones Ledge** dries 9 feet (2.7 m) and lies on the west side of this flat. A disused **light** is shown at an elevation of 61 feet (19 m) from a white tower on the west side of the island.

90 **Grindstone Shoal**, least depth 9 feet (2.7 m), extends for 1.2 miles to the SSW, from 0.3 mile south of Grindstone Island.



91 **Marys Point**, 0.9 mile WSW of Grindstone Island, forms the NE side of a bight containing the **New Horton Flats**, which dry 22 feet (6.7 m). Marys Point Reef dries 28 feet (8.5 m) and extends 0.6 mile NE from Marys Point. The **Shepody River** entrance and **Daniels Flats**, all of which dry, form the west side of Shepody Bay as far north as **Cape Demoiselle**. **Shepody Mountain**, 1,074 feet (327 m) high, is the highest point of land along this shore and is situated 4.6 miles north of Grindstone Island. Cape Demoiselle, 5.5 miles NNE of Grindstone Island, rises to 227 feet (69 m). There is a restricted **anchorage** for small vessels in the channel between Grindstone Shoal and Marys Point.

92 **Maringouin Flats** and **Grand Anse** are drying flats which extend off the east side of Shepody Bay between Cape Maringouin and the reddish-brown cliffs of **Dorchester Cape**, 100 feet (30 m) high, 7 miles to the north.

93 **Middle Ground** dries 6 feet (1.8 m) and extends in a north-south direction for 2.7 miles off the west of the channel through Shepody Bay; its south end lies 2 miles SSE of Cape Demoiselle. In the channel, there are two shoal patches, with depths of 14 and 15 feet (4.3 and 4.6 m), situated about 2.2 and 2.5 miles SSE of Cape Demoiselle.

94 **Calhoun Flats** dry and extend nearly 0.7 mile east of **Hopewell Cape**, which lies 2 miles north of Cape Demoiselle. **Memramcook Spit** consists of rocky ledges which dry 12 feet (3.7 m) and lie 0.4 mile west of Dorchester Cape.

95 The **Memramcook River** is entered between **Cole Point**, situated close north of Dorchester Cape, and **Fort Folly Point**, 0.7 mile to the NW. The river dries completely about 1.3 miles above its mouth. Close north of Cole Point is an abandoned concrete pierhead, 80 feet (24 m) wide at the face, which dries 30 feet (9.1 m).



96 In Shepody Bay, the **tidal streams** have a maximum rate of 3 to 4 knots. **Tide rips** extend from the vicinity of Grindstone Island in a NNE direction for a distance of 5 miles.

Chart 4010

97 In good weather, vessels **anchor** anywhere off the NW shore of Chignecto Bay between Martin Head and Grindstone Island. These anchorages are not secure with winds of any strength.



98 Between Martin Head and Grindstone Island, the tidal streams run parallel to the shore at an average rate of 2 knots, causing eddies near the salient points. In Rocher Bay (Salisbury Bay), the tidal stream generally sets towards Cape Enragé.

Chart 4130

99 **Petitcodiac River**. — From Fort Folly Point, the Petitcodiac River winds its way for about 18 miles to the head of navigation at the city of **Moncton**, where a causeway crosses the river. The river bed almost dries about 2 miles above Fort Folly Point; and local knowledge is necessary. In 1996, **Moncton** had a population of 59,313; it is an important business centre in New Brunswick.



100 There is **anchorage** in about 4 fathoms (7.6 m), mud, about 0.5 mile west of Fort Folly Point, but the wind in opposition to the tidal stream creates a heavy sea in the area.

101 At **Hillsborough**, on the west side of the river 5.3 miles from Hopewell Cape, there are two **conspicuous** concrete silos and a water tower. Ruins of a wharf and gypsum plant lie adjacent to the concrete structures.



102 On the east side of the river opposite to Hillsborough, there is a wharf 24 feet (7.3 m) wide at the face with a depth of 16 feet (4.9 m) at high water.



103 The Petitcodiac River is noted for its bore, which occurs between **Stoney Creek**, situated 10.5 miles upstream from Hopewell Cape, and Moncton. The bore, with a breaking face, occurs in this section of the river about 3 hours before high water. At Moncton, its rate of progress at spring tides is about 8 knots, and its average height about 3.2 feet (1 m). After its passage, the tide rises very rapidly until high water. During neap tides, the breaking face of the bore is only a few inches high.

104 **Cumberland Basin** is entered between **Ward Point** ($45^{\circ}44'N$, $64^{\circ}29'W$), 2.6 miles east of Cape Maringouin, and **Boss Point**, 1.8 miles further to the east. **Maringouin Shoal**, least depth 1 foot (0.3 m), lies on the SE part of a bank having depths of less than 3 fathoms (5.5 m) which extends 1.5 miles south of Cape Maringouin.

105 A drying bank extends 0.1 to 0.7 mile from the shore between **Pecks Point**, 0.8 mile NNE of Ward Point,

and **Black Point**, 4 miles further to the NE. Between Black Point and **Wood Point**, the last treed point on the west shore 3.5 miles further NE, a bank drying 12 feet (3.7 m) extends about 0.5 mile from the shore.

106 On the east side of the basin, between Boss Point and **Downing Head**, 1.2 miles to the NE, the coast consists of cliffs from which rocky ledges extend for about 0.2 mile. From Downing Head to **Minudie Point**, 3.2 miles to the NE, the coast recedes forming a drying cove. Rocky ledges extend 0.3 mile west from Minudie Point. To the NE of Minudie Point, the low and marshy **Elysian Fields** extend for about 3.7 miles; flats, which dry, extend about 2 miles NW from the low land.

107 **Westmorland Point** ($45^{\circ}52'N$, $64^{\circ}18'W$), on which **Fort Beausejour** stands, lies 3.2 miles ENE of Wood Point; between them is a large inlet, almost entirely occupied by marshes and flats, which dry, and through which the shallow **Tantramar River** flows into Cumberland Basin.

108 Numerous radio towers, with elevations of 400 to 460 feet (122 to 140 m) and marked by red **lights**, are situated about 2.3 miles NW of Fort Beausejour.



109 In Cumberland Basin, the **tidal streams** set parallel to the shore with a rate of 4 to 5 knots.



110 There is **anchorage** for small vessels in 6 fathoms (11 m), about 1 mile NE of Pecks Point. Small vessels may also anchor in about 3 fathoms (5.5 m), 1 mile NE of Wood Point.

Sail Plan

Adapted from Transport Canada Publication TP 511E.

Fill out a sail plan for every boating trip you take and file it with a responsible person. Upon arrival at your destination, be sure to close (or deactivate) the sail plan. Forgetting to do so can result in an unwarranted search for you.

Sail Plan

Owner Information

Name: _____

Address: _____

Telephone Number: _____ Emergency Contact Number: _____

Boat Information

Boat Name: _____ Licence or

Registration Number: _____

Sail: _____ Power: _____ Length: _____ Type: _____

Colour _____ Hull: _____ Deck: _____ Cabin: _____

Engine Type: _____ Distinguishing Features: _____

Communications

Radio Channels Monitored: HF: VHF: MF:

MMSI (Maritime Mobile Service Identity) Number: _____

Satellite or Cellular Telephone Number: _____

Safety Equipment on Board

Lifejackets and PFD's (include number): _____

Liferafts (include type and colour): _____ Dinghy or Small Boat
(include colour): _____

Flares (include number and type): _____

Other Safety Equipment: _____

Trip Details — Update These Details Every Trip

Date of Departure: _____ Time of Departure: _____

Leaving From: _____ Heading To: _____

Proposed Route: _____ Estimated Date and

Stopover Points (include date and time): _____ Time of Arrival: _____

_____ Number of People on Board: _____

Search and Rescue Telephone Number: _____

The responsible person should contact the nearest Joint Rescue Coordination Centre (JRCC) or Maritime Rescue Sub-Centre (MRSC) if the vessel becomes overdue.

Act smart and call early in case of emergency. The sooner you call, the sooner help will arrive.

JRCC Victoria (British Columbia and Yukon) 1-800-567-5111

+1-250-413-8933 (Satellite, Local or out of area)

727 (Cellular)

+1-250-413-8932 (fax)

jrcvictoria@sarnet.dnd.ca (Email)

JRCC Trenton (Great Lakes and Arctic) 1-800-267-7270

+1-613-965-3870 (Satellite, Local or Out of Area)

+1-613-965-7279 (fax)

jrcctrenton@sarnet.dnd.ca (Email)

MRSC Québec (Quebec Region) 1-800-463-4393

+1-418-648-3599 (Satellite, Local or out of area)

+1-418-648-3614 (fax)

mrscqbc@dfo-mpo.gc.ca (Email)

JRCC Halifax (Maritimes Region) 1-800-565-1582

+1-902-427-8200 (Satellite, Local or out of area)

+1-902-427-2114 (fax)

jrcchalifax@sarnet.dnd.ca (Email)

MRSC St. John's (Newfoundland and Labrador Region) 1-800-563-2444

+1-709-772-5151 (Satellite, Local or out of area)

+1-709-772-2224 (fax)

mrscsj@sarnet.dnd.ca (Email)

MCTS Sail Plan Service

Marine Communications and Traffic Services Centres provide a sail plan processing and alerting service. Mariners are encouraged to file Sail Plans with a responsible person. In circumstances where this is not possible, Sail Plans may be filed with any MCTS Centre by telephone or marine radio only. Should a vessel on a Sail Plan fail to arrive at its destination as expected, procedures will be initiated which may escalate to a full search and rescue effort. Participation in this program is voluntary. *See Canadian Radio Aids to Marine Navigation.*

Metric Conversion Table

| metres | feet | fathoms |
|------------|-------------|---------|
| 0.1 | | |
| 0.2 | | |
| 0.3 | 1 | |
| 0.4 | | |
| 0.5 | | |
| 0.6 | 2 | |
| 0.7 | | |
| 0.8 | | |
| 0.9 | 3 | |
| 1.0 | 3.28 | |
| 1.1 | | |
| 1.2 | 4 | |
| 1.3 | | |
| 1.4 | | |
| 1.5 | 5 | |
| 1.6 | | |
| 1.7 | | |
| 1.8 | 6 | 1 |
| 1.9 | | |
| 2.0 | | |
| 2.1 | 7 | |
| 2.2 | | |
| 2.3 | | |
| 2.4 | 8 | |
| 2.5 | | |
| 2.6 | | |
| 2.7 | 9 | |
| 2.8 | | |
| 2.9 | | |
| 3.0 | 10 | |
| 3.1 | | |
| 3.2 | | |
| 3.3 | | |
| 3.4 | 11 | |
| 3.5 | | |
| 3.6 | | |
| 3.7 | 12 | 2 |
| 3.8 | | |
| 3.9 | | |
| 4.0 | 13 | |
| 4.1 | | |
| 4.2 | | |
| 4.3 | 14 | |
| 4.4 | | |
| 4.5 | | |
| 4.6 | 15 | |
| 4.7 | | |
| 4.8 | | |
| 4.9 | 16 | |
| 5.0 | | |

| metres | feet | fathoms |
|------------|------------|---------|
| 5.1 | | |
| 5.2 | 17 | |
| 5.3 | | |
| 5.4 | | |
| 5.5 | 18 | 3 |
| 5.6 | | |
| 5.7 | | |
| 5.8 | 19 | |
| 5.9 | | |
| 6.0 | | |
| 6.1 | 20 | |
| 6.4 | 21 | |
| 6.7 | 22 | |
| 7.0 | 23 | |
| 7.3 | 24 | 4 |
| 7.6 | 25 | |
| 7.9 | 26 | |
| 8.2 | 27 | |
| 8.5 | 28 | |
| 8.8 | 29 | |
| 9.1 | 30 | 5 |
| 9.8 | 32 | |
| 10.4 | 34 | |
| 11.0 | 36 | 6 |
| 11.6 | 38 | |
| 12.2 | 40 | |
| 13.4 | 44 | |
| 14.6 | 48 | 8 |
| 15.8 | 52 | |
| 17.1 | 56 | |
| 18.3 | 60 | 10 |
| 21.3 | 70 | |
| 24.4 | 80 | |
| 27.4 | 90 | 15 |
| 36.6 | 120 | 20 |
| 45.7 | 150 | 25 |
| 50 | 164 | |
| 55 | 180 | 30 |
| 64 | 210 | 35 |
| 73 | 240 | 40 |
| 91 | 300 | 50 |
| 100 | 328 | |
| 110 | 360 | 75 |
| 150 | 492 | 82 |
| 183 | 600 | 100 |
| 200 | 656 | |
| 250 | 820 | |
| 274 | 900 | 150 |
| 366 | 1200 | 200 |
| 549 | 1800 | 300 |

SEARCH AND RESCUE

In eastern Canada, **Search and Rescue (SAR)** operations are conducted from the **Joint Rescue Coordination Centre** at Halifax (**JRCC Halifax**). The Canadian Forces and the Canadian Coast Guard maintain a continuous watch at JRCC Halifax with all agencies involved in Search and Rescue operations. JRCC Halifax has direct communication with the United States Rescue Centres in Boston and Norfolk, and functions with these centres to provide Search and Rescue coverage to the entire eastern seaboard of North America.

A Marine Rescue Sub-Centre (MRSC) is located in Québec City. The Centre initiates the necessary response measure during SAR incidents in their surrounding waters.

All distress situations and requests for assistance should be directed to JRCC Halifax via the nearest Canadian Coast Guard Marine Communications and Traffic Services Centre (MCTS) or by any other available means.

All Canadian Government ships and aircraft are available for Search and Rescue duties when required, as are all Canadian registered ships in accordance with the Canada Shipping Act.

Along the east coast of Nova Scotia, and the Bay of Fundy, the Canadian Coast Guard operates six **lifeboat stations**. These multi-tasked, high endurance lifeboats are 16 m in length, 5.2 m in breadth, and carry a draft of 1.25 m. They are manned from 0800 to 1600 hrs. daily, with the crew on standby from 1600 to 0800 hrs. These lifeboats operate within a 100 mile radius from their base. During the summer months, 5.8 m Coast Guard Inshore Rescue Boats are based in Halifax Harbour and Mahone Bay, in Nova Scotia, and at Hardings Point on the Saint John River, in New Brunswick.

The **Canadian Coast Guard Auxiliary** is a volunteer organization of fishermen and recreational boaters that assists in SAR operations, and also in the promotion of boating safety. Members display a Coast Guard Auxiliary pennant from their vessels.

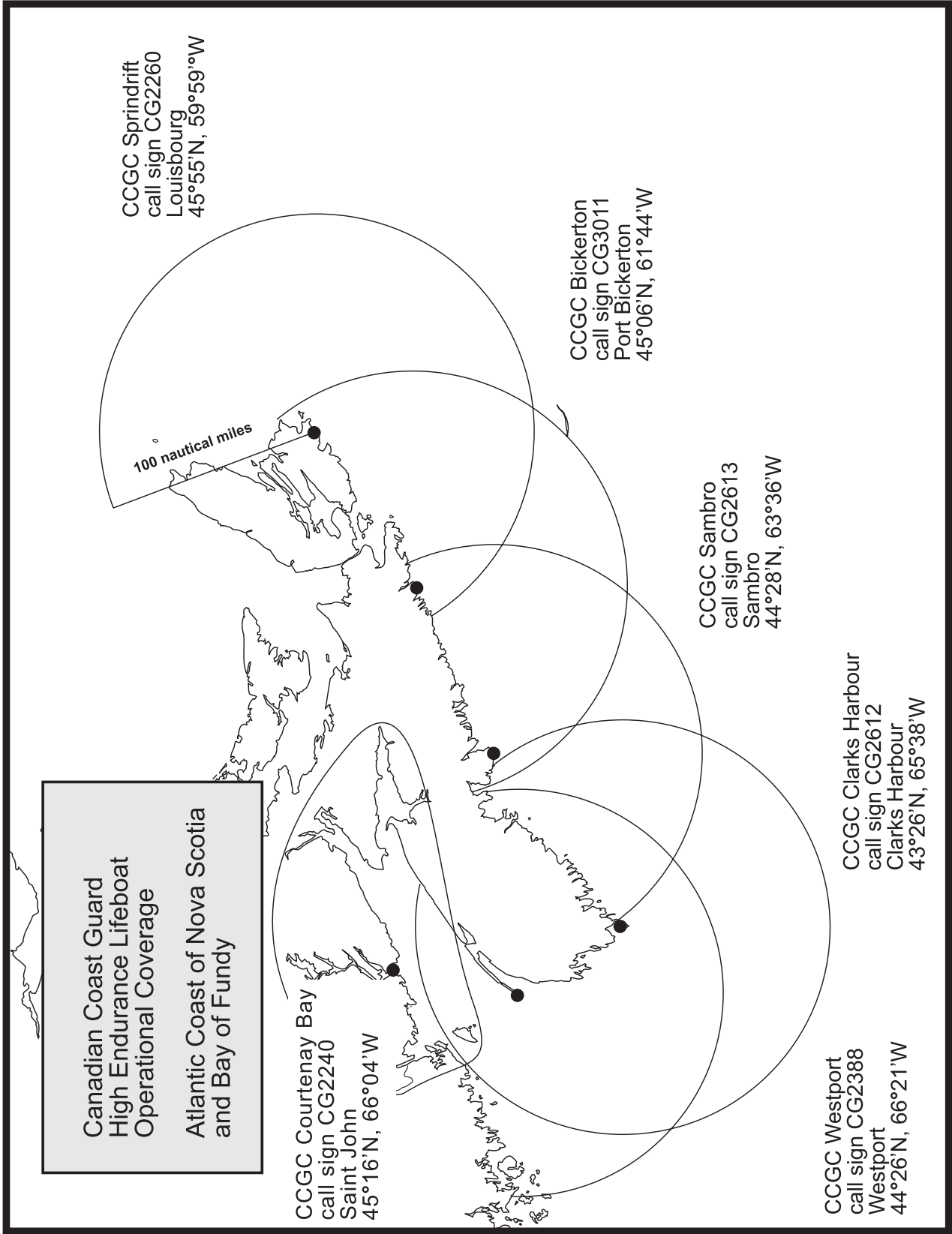
When necessary, **SAR Helicopters** and **Fixed Wing Aircraft** are deployed to assist in SAR operations. These are capable of dropping inflatable liferafts, survival equipment and pumps, and helicopters are equipped with a rescue hoist and can deploy rescue specialist personnel and metal stretchers for evacuation operations.

When a helicopter is deployed, all instructions from JRCC Halifax and/or the pilot should be carefully obeyed. SAR helicopters have effectively carried out airlift rescues in winds of up to 60 knots. A surface visibility of at least ½ mile is required to conduct an effective search by helicopter, and 1 mile by fixed wing aircraft.

When evacuation of personnel by helicopter is planned, prepare a suitable hoisting area, preferably aft, with a minimum radius of 15 m if possible. Booms, flagstaffs, stays, running rigging, antenna wires, etc., must be removed and stowed. At night, light the pick-up area, but shade the lights so as not to blind the pilot. When the helicopter arrive, turn the vessel 30 – 40 degrees to the right of the wind (wind on the port bow) and maintain a slow speed forward. Allow the basket or stretcher from the helicopter to touch the deck before handling to avoid static shock. Do not secure any line from the helicopter to your vessel. Attempt to contact the aircraft on channel 16 VHF (156.8 MHz), 2182 kHz, or on channel 9 GRS (citizen's band).

AMVER (the Automated Mutual Vessel Rescue System) is operated by the United States Coast Guard. It is an international program which provides important aid to SAR efforts in offshore areas of the world. On the east coast of Canada, merchant vessels that wish to report to AMVER may address their message to **AMVER HALIFAX** through any Canadian Coast Guard Marine Communications and Traffic Services Centre (MCTS) free of charge.

It is wise for small craft operators to prepare a **sailing plan** before starting on a trip and to leave it with a responsible adult, or to advise any Canadian Coast Guard Marine Communications and Traffic Services Centre (MCTS). A checking-in procedure by telephone or radiotelephone for each point specifically identified in the plan is highly recommended. This could prevent a needless alert that could initiate a comprehensive air and marine search.



Données météorologiques pour

SAINT JOHN (NOUVEAU-BRUNSWICK) — 45° 19'N, 65° 53'W

| | | Janv. | Févr. | Mars | Avril | Mai | Juin | Juil. | Août | Sept. | Oct. | Nov. | Déc. | Année |
|------------------------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Température | | | | | | | | | | | | | | |
| Température max. quotidienne | °C | -2,6 | -2,2 | 2,1 | 7,9 | 14,4 | 19,2 | 22,2 | 21,7 | 17,6 | 12,1 | 6,3 | -0,1 | 9,9 |
| Température min. quotidienne | °C | -12,9 | -12,8 | -7,1 | -1,5 | 3,6 | 8,4 | 11,6 | 11,4 | 7,7 | 3,1 | -1,6 | -9,3 | 0,1 |
| Température quotidienne | °C | -7,8 | -7,5 | -2,5 | 3,2 | 9,0 | 13,8 | 16,9 | 16,6 | 12,7 | 7,6 | 2,3 | -4,8 | 5,0 |
| Température max. extrême | °C | 14,0 | 11,1 | 13,9 | 22,8 | 30,0 | 31, | 32,8 | 34,5 | 28,9 | 25,6 | 21,7 | 16,1 | 34,5 |
| Température min. extrême | °C | -31,7 | -36,7 | -30,0 | -16,7 | -7,8 | -2,2 | 1,1 | -0,6 | -6,7 | -10,6 | -15,3 | -30,9 | -36,7 |
| Précipitation | | | | | | | | | | | | | | |
| Totale | mm | 148,8 | 115,7 | 114,1 | 107,3 | 107,7 | 94,2 | 103,4 | 102,0 | 111,8 | 127,7 | 145,7 | 166,0 | 1444,4 |
| Précipitation record en 24 heures | mm | 83,0 | 95,0 | 74,0 | 125, | 66,5 | 54,1 | 72,6 | 125,2 | 74,9 | 85,3 | 154,4 | 105,7 | 154,4 |
| Jours de | | | | | | | | | | | | | | |
| Pluie | | 6 | 5 | 7 | 10 | 13 | 14 | 12 | 12 | 12 | 12 | 13 | 8 | 124 |
| Neige | | 13 | 12 | 11 | 5 | 1 | 0 | 0 | 0 | 0 | 1 | 4 | 12 | 59 |
| Précipitation | | 16 | 14 | 14 | 13 | 13 | 14 | 12 | 12 | 12 | 12 | 14 | 17 | 163 |
| Brume | | 3 | 3 | 5 | 6 | 10 | 12 | 17 | 14 | 13 | 9 | 5 | 3 | 100 |
| Tonnerre | | 0,1 | 0,1 | 0,3 | 0,4 | 1,2 | 2,4 | 2,9 | 2,3 | 1,1 | 0,5 | 0,2 | 0,1 | 11,6 |
| Pression au niveau moyen de la mer | kPa | 101,3 | 101,2 | 101,2 | 101,3 | 101,4 | 101,4 | 101,4 | 101,5 | 101,7 | 101,6 | 101,5 | 101,4 | 101,4 |
| Humidité relative | % | 77 | 75 | 76 | 74 | 74 | 79 | 81 | 81 | 81 | 80 | 81 | 79 | 78 |
| Nébulosité | dixièmes | 6,4 | 5,9 | 6,3 | 6,5 | 6,8 | 7,0 | 6,5 | 6,0 | 5,7 | 5,7 | 6,8 | 6,2 | 6,4 |
| Vent | | | | | | | | | | | | | | |
| Pourcentage des observations | N | 23 | 20 | 19 | 18 | 12 | 9 | 7 | 9 | 13 | 15 | 18 | 21 | 15,2 |
| | NE | 9 | 9 | 11 | 10 | 7 | 7 | 3 | 5 | 7 | 7 | 9 | 9 | 7,7 |
| | E | 6 | 7 | 8 | 8 | 9 | 7 | 4 | 5 | 6 | 5 | 6 | 5 | 6,2 |
| | SE | 5 | 5 | 6 | 8 | 9 | 8 | 7 | 6 | 6 | 6 | 7 | 6 | 6,5 |
| | S | 5 | 7 | 9 | 13 | 20 | 26 | 31 | 26 | 18 | 15 | 11 | 7 | 15,6 |
| | SW | 6 | 8 | 10 | 13 | 18 | 23 | 24 | 21 | 19 | 16 | 10 | 7 | 14,5 |
| | W | 17 | 16 | 13 | 10 | 8 | 6 | 8 | 8 | 10 | 14 | 16 | 16 | 11,8 |
| | NW | 24 | 23 | 19 | 14 | 10 | 6 | 7 | 9 | 12 | 15 | 18 | 23 | 15,6 |
| | Calme | 5 | 5 | 5 | 6 | 7 | 8 | 9 | 11 | 9 | 7 | 5 | 6 | 6,9 |
| Vitesse moyenne | nœuds | 11,1 | 10,9 | 11,3 | 10,3 | 9,9 | 9,3 | 8,4 | 8,1 | 8,9 | 9,9 | 10,7 | 11,1 | 10,0 |
| Vitesse horaire max. | nœuds | 77 | 79 | 74 | 65 | 71 | 70 | 57 | 50 | 70 | 75 | 68 | 78 | 79 |

YARMOUTH (NOUVELLE-ÉCOSSE) — 43° 50'N, 66° 05'W

| | | Janv. | Févr. | Mars | Avril | Mai | Juin | Juil. | Août | Sept. | Oct. | Nov. | Déc. | Année |
|------------------------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Température | | | | | | | | | | | | | | |
| Température max. quotidienne | °C | 0,9 | 0,4 | 3,7 | 8,4 | 13,3 | 17,6 | 20,4 | 20,5 | 17,7 | 13,3 | 8,6 | 3,3 | 10,7 |
| Température min. quotidienne | °C | -6,2 | -6,8 | -3,2 | 0,9 | 5,0 | 9,2 | 12,1 | 12,3 | 9,5 | 5,6 | 1,8 | -3,9 | 3,0 |
| Température quotidienne | °C | -2,7 | -3,2 | 0,3 | 4,7 | 9,2 | 13,4 | 16,3 | 16,4 | 13,6 | 9,5 | 5,2 | -0,3 | 6,9 |
| Température max. extrême | °C | 12,8 | 12,8 | 16,1 | 20,0 | 24,4 | 28,3 | 30,0 | 29,4 | 29,4 | 25,0 | 18,8 | 16,1 | 30,0 |
| Température min. extrême | °C | -21,1 | -17,2 | -30,0 | -9,4 | -2,2 | 1,7 | 5,8 | 5,0 | -2,3 | -3,9 | -8,2 | -20,0 | -21,1 |
| Précipitation | | | | | | | | | | | | | | |
| Totale | mm | 141,0 | 114,2 | 98,5 | 96,3 | 92,4 | 81,3 | 77,8 | 97,3 | 89,4 | 116,5 | 134,7 | 142,2 | 1281,6 |
| Précipitation record en 24 heures | mm | 69,6 | 61,4 | 96,0 | 72,4 | 72,4 | 77,7 | 92,5 | 101,1 | 103,4 | 172,5 | 111,3 | 110,7 | 172,5 |
| Jours de | | | | | | | | | | | | | | |
| Pluie | | 9 | 7 | 8 | 11 | 12 | 10 | 9 | 9 | 9 | 11 | 13 | 11 | 119 |
| Neige | | 14 | 12 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 11 | 49 |
| Précipitation | | 20 | 17 | 14 | 13 | 12 | 10 | 9 | 9 | 9 | 11 | 15 | 18 | 157 |
| Brume | | 5 | 5 | 6 | 8 | 12 | 14 | 20 | 19 | 13 | 9 | 6 | 4 | 121 |
| Tonnerre | | 0 | 0 | 0,5 | 0,4 | 1,1 | 2,1 | 2,3 | 2,0 | 1,3 | 1,0 | 0,4 | 0,3 | 11,4 |
| Pression au niveau moyen de la mer | kPa | 101,3 | 101,3 | 101,3 | 101,3 | 101,5 | 101,5 | 101,5 | 101,6 | 101,8 | 101,7 | 101,5 | 101,4 | 101,5 |
| Humidité relative | % | 82 | 80 | 79 | 80 | 82 | 86 | 88 | 87 | 85 | 82 | 81 | 82 | 83 |
| Nébulosité | dixièmes | 8,1 | 7,4 | 6,7 | 6,5 | 6,3 | 6,6 | 6,5 | 6,1 | 5,1 | 5,6 | 7,1 | 8,1 | 6,6 |
| Vent | | | | | | | | | | | | | | |
| Pourcentage des observations | N | 18 | 16 | 16 | 12 | 8 | 6 | 4 | 5 | 10 | 12 | 15 | 16 | 11,5 |
| | NE | 9 | 8 | 8 | 7 | 4 | 3 | 2 | 3 | 6 | 7 | 9 | 9 | 6,2 |
| | E | 11 | 10 | 10 | 10 | 9 | 7 | 4 | 5 | 8 | 9 | 11 | 13 | 8,9 |
| | SE | 5 | 6 | 7 | 8 | 8 | 9 | 8 | 7 | 6 | 7 | 7 | 6 | 7,0 |
| | S | 6 | 7 | 9 | 12 | 17 | 22 | 24 | 19 | 15 | 13 | 10 | 7 | 13,4 |
| | SW | 7 | 7 | 7 | 10 | 15 | 19 | 19 | 19 | 15 | 12 | 9 | 7 | 12,2 |
| | W | 15 | 16 | 17 | 19 | 20 | 19 | 21 | 21 | 18 | 17 | 15 | 13 | 17,6 |
| | NW | 25 | 25 | 22 | 18 | 14 | 9 | 10 | 13 | 16 | 17 | 19 | 24 | 17,7 |
| | Calme | 4 | 5 | 4 | 4 | 5 | 6 | 8 | 8 | 6 | 6 | 5 | 5 | 5,5 |
| Vitesse moyenne | nœuds | 11,5 | 11,1 | 11,3 | 10,2 | 9,3 | 8,3 | 7,5 | 7,5 | 8,1 | 9,1 | 10,3 | 11,3 | 9,6 |
| Vitesse horaire max. | nœuds | 72 | 88 | 74 | 65 | 61 | 50 | 46 | 43 | 71 | 74 | 63 | 66 | 88 |

Distances from Saint John, New Brunswick, to:

| | |
|---|-------|
| Baltimore, Maryland | 860 |
| Belfast, Ireland | 2,601 |
| Boston, Massachusetts | 286 |
| Brest, France | 2,699 |
| Bristol, England | 2,702 |
| Cape Town, South Africa | 6,667 |
| Charlottetown, Prince Edward Island (via Strait of Canso) | 528 |
| Cherbourg, France | 2,761 |
| Churchill, Manitoba (via Strait of Belle Isle) | 2,472 |
| Colon, Panama | 2,294 |
| Dalhousie, New Brunswick (via Strait of Canso) | 710 |
| Digby, Nova Scotia | 40 |
| Dover, England | 2,885 |
| Gaspé, Québec (via Strait of Canso) | 668 |
| Gibraltar | 2,924 |
| Grassy Bay, Bermuda | 801 |
| Habana, Cuba | 1,574 |
| Halifax, Nova Scotia | 278 |
| Jacksonville, Florida | 1,193 |
| Key West, Florida | 1,504 |
| Kingston, Jamaica | 1,794 |
| Lewisporte, Newfoundland (via east of Cape Race) | 1,031 |
| Lisbon, Portugal | 2,685 |
| Liverpool, England | 2,714 |
| Liverpool, Nova Scotia | 212 |
| London, England | 2,984 |
| Montréal, Québec (via Cabot Strait) | 1,209 |
| Nassau, Bahamas | 1,405 |
| Newport, Rhode Island | 420 |
| New York, New York | 545 |
| Norfolk, Virginia | 731 |
| Parrsboro, Nova Scotia | 80 |
| Philadelphia, Pennsylvania | 698 |
| Pictou, Nova Scotia (via Strait of Canso) | 498 |
| Plymouth, England | 2,677 |
| Ponta Delgada, Azores | 1,992 |
| Portland, Maine | 215 |
| Port of Spain, Trinidad | 2,108 |
| Reykjavik, Iceland (via Strait of Belle Isle) | 2,155 |
| St. John's, Newfoundland | 787 |
| San Juan, Puerto Rico | 1,614 |
| Savannah, Georgia | 1,113 |
| Southampton, England | 2,803 |
| Sydney, Nova Scotia | 511 |
| Yarmouth, Nova Scotia | 101 |

all distances are in nautical miles and by the most direct route unless otherwise noted

Distances from Saint John, New Brunswick to Small Craft Destinations

| Destination | Distance nautical miles | Route via |
|---------------------------------------|-------------------------------|-----------------------------------|
| Reversing Falls | 5 | |
| Saint John Fairway Buoy J | 0 | |
| Beaver Harbour, N. B. | 33 | |
| Blacks Harbour, NB | 37 | |
| Bliss Island, NB | 38 | |
| Cape Negro, NS | 146 | Petit & Schooner Passages |
| Cape Sable Island, NS Whistle Buoy N2 | 136 | seaward of Brier and Seal Islands |
| Cape Sable Island NS Whistle Buoy N2 | 124 | Petit & Schooner Passages |
| Chance Harbour, NB | 15 | |
| Clarks Harbour, NS | 123 | Petit & Schooner Passages |
| Cutler, Maine, USA | 62 | |
| Digby, NS | 39 | |
| Dipper Harbour, NB | 18 | |
| Eastport, Maine, USA | 45 | |
| Grand Passage, NS | 58 | |
| Harbour de Lute, NB | 44 | |
| Head Harbour, NB | 42 | |
| Letang Harbour, NB | 39 | Letete Passage |
| Lubec Maine, USA | 47 | Head Harbour Passage |
| Meteghan, NS | 64 | Petit Passage |
| Musquash, NB | 15 | |
| North Head, Grand Manan, NB | 42 | |
| Petit Passage, NS | 50 | |
| Port La Tour, NS | 143 | Petit & Schooner Passages |
| Pubnico Harbour, NS | 113 | Petit & Schooner Passages |
| Schooner Passage, NS | 101 | Petit Passage |
| Seal Cove, Grand Manan, NB | 60 | Grand Manan Channel |
| Shelburne, NS | 172 | seaward of Brier and Seal Islands |
| Shelburne, NS | 160 | Petit & Schooner Passages |
| St. Andrews, NB | 58 | Letete Passage |
| St. Andrews, NB | 62 | Head Harbour and Western Passages |
| Welshpool, Campobello Island, NB | 46 | Head Harbour Passage |
| Weymouth, NS | 62 | Petit Passage |
| Yarmouth, NS | 91 | Petit Passage |
| Yarmouth, NS | 95 | seaward of Brier Island |

Loran-C Coordinate Converters

Many Loran-C Coordinate Converters do not compensate for overland propagation errors caused by radio waves travelling more slowly over land than over seawater. These converters assume that the radio waves are travelling over an all seawater path. Because the amount of the time delay in each pattern varies with location, as does the width for 1 microsecond in each pattern, and the angle of cut between patterns, and which two patterns are being used for the position determination, there is no over-all simple error statement.

It is important to note that a Loran-C coordinate converter that does not incorporate the overland propagation corrections (Additional Secondary Factor, or ASF) within its computations will produce a systematic geographic position error. This error is often in the dangerous direction; namely, it will compute a position that is farther offshore. If you are transiting along a coast, thinking that you are safely outside the dangerous shoals, you may be closer to shore than you think.

The Canadian Hydrographic Service (CHS) has determined the overland propagation (ASF) errors through actual observations. The overland propagation corrections were incorporated into the lattices that have been published on CHS nautical charts. CHS has published maps in *Radio Aids to Marine Navigation* showing the corrections to observed Time Differences (TD's) necessary to make them theoretical TD's that can be used with algorithms using just the seawater velocity to compute the geographic position.

Manufacturers have their own methods to compute geographic positions, which may incorporate some approximations. The receivers may or may not tell the mariner which TD's it is using to compute the position – hopefully the pair with the best repeatable geometry. Some receivers use more than two TD's to compute positions.

Some manufacturers have incorporated the overland propagation corrections into their algorithms and those receivers should perform more accurately than those that do not. The industry standard set by the Radio Technical Commission on Marine Services - Special Committee 75 on Minimum Performance Standards for Loran-C Coordinate Converters (1980) is a ¼ mile positioning accuracy.

The following tables give the vectors from the Loran-C coordinate converter position to the true position. These will give some guide as to the possible errors. It is suggested, however, that mariners **NOT** correct their positions by the stated amounts, but to use the listed information as an advisory. Your coordinate converter may behave differently.

5930 – Canadian East Coast Chain

Information in **Bold** is for the TD pair that gives the best repeatability.

| Vicinity of: | Latitude | Longitude | 5930XY | 5930XZ | 5930YZ |
|----------------------------|----------|-----------|-----------------------|--------|--------|
| Gulf of Maine | | | | | |
| Georges Bank | 41° 00'N | 66° 00'W | 0.4 nm @ 000°T | | |
| Georges Bank | 42° 00'N | 67° 00'W | 0.3 nm @ 350°T | | |
| Bay of Fundy | | | | | |
| Machias Seal I | 44° 30'N | 67° 00'W | 0.2 nm @ 035°T | | |
| Saint John | 45° 00'N | 66° 00'W | 0.3 nm @ 020°T | | |
| Cape d'Or | 45° 15'N | 64° 45'W | 0.3 nm @ 005°T | | |
| Digby | 44° 45'N | 65° 45'W | 0.3 nm @ 040°T | | |
| Brier Island | 44° 15'N | 66° 30'W | 0.3 nm @ 050°T | | |
| Western Nova Scotia | | | | | |
| Yarmouth | 43° 30'N | 66° 20'W | 0.1 nm @ 030°T | | |
| Seal Island | 43° 20'N | 66° 20'W | 0.2 nm @ 000°T | | |

9960 – North East United States Chain

Information in **Bold** is for the TD pair that gives the best repeatability.

| Vicinity of: | Latitude | Longitude | 9960WX | 9960WY |
|----------------------------|----------|-----------|----------------|----------------|
| Gulf of Maine | | | | |
| Georges Bank | 41° 00'N | 66° 00'W | Baseline ext. | 0.8 nm @ 300°T |
| Georges Bank | 42° 00'N | 67° 00'W | 1.5 nm @ 310°T | 0.6 nm @ 300°T |
| Bay of Fundy | | | | |
| Machias Seal I | 44° 30'N | 67° 00'W | 1.0 nm @ 290°T | 0.9 nm @ 285°T |
| Saint John | 45° 00'N | 66° 00'W | 1.5 nm @ 280°T | |
| Cape d'Or | 45° 15'N | 64° 45'W | | |
| Digby | 44° 45'N | 65° 45'W | 1.5 nm @ 280°T | |
| Brier Island | 44° 15'N | 66° 30'W | 1.0 nm @ 290°T | 0.8 nm @ 285°T |
| Western Nova Scotia | | | | |
| Yarmouth | 43° 30'N | 66° 20'W | 1.0 nm @ 295°T | 0.8 nm @ 290°T |
| Seal Island | 43° 20'N | 66° 20'W | 1.2 nm @ 295°T | 0.8 nm @ 290°T |

CUSTOMS INFORMATION FOR PLEASURE CRAFT

CANPASS — Pleasure craft entering Canada must report to **Canada Customs** by telephone at designated reporting stations. The telephone service is toll free **1-888-CANPASS** (1-888-226-7277) and is operated 24 hours a day. Canada Customs will issue instructions following a telephone interview, and on-site inspections may be carried out to ensure compliance with the law.

Further information is available from the Customs Border Services, Revenue Canada, (1-800-461-9999). www.rc.gc.ca

Designated Reporting Stations for Pleasure Craft:

Nova Scotia:

| | |
|----------|---|
| Yarmouth | Killam Brothers Wharf, Yarmouth Marginal Wharf, Lobster Rock Wharf |
|----------|---|

New Brunswick:

| | |
|----------------------|---|
| Campobello Island | Head Harbour Wharf, Welshpool Wharf, North Road Wharf Curry Corner Wharf, Wilson's Beach Wharf |
|----------------------|---|

| | |
|-------------|---|
| Deer Island | Richardson Wharf, Fairhaven Wharf, Lord's Cove Wharf Stuart Town Wharf, Leonardville Wharf |
|-------------|---|

| | |
|-------------|-----------------------------------|
| Grand Manan | Seal Cove Wharf, North Head Wharf |
|-------------|-----------------------------------|

| | |
|-------------|---|
| St. Andrews | St. Andrews Town Wharf, Bayside Marine Terminal |
|-------------|---|

| | |
|-----------------------|-------------|
| Saint John Harbour | Market Slip |
|-----------------------|-------------|

Horizontal Currents in Saint John Harbour

The currents and eddies in Saint John Harbour are extremely complex and unpredictable. They are caused by many factors, among which are the large semi-diurnal tides; the outflow from the Saint John River, which while at a peak during the spring freshet also varies with inland precipitation; a density current, which at certain stages of the tide produces a strong, deep inflowing current while the surface current is strongly outward; and the physical shape of the gorge between the Reversing Falls and the harbour which initiates the rolling or boiling motion on the falling tide.

Foam Line

A line consisting of foam and small bits of debris stretches across the approaches to Saint John Harbour. Its location changes with the state of the tide, but it should be most visible at half tide rising before slack water at the Reversing Falls.

On the outside of this line, the sea water is slightly tinted in colour with the yellowish-greenish tinge of fine sandy particles held in suspension. The fresher surface water on the inside is deep brown in colour.

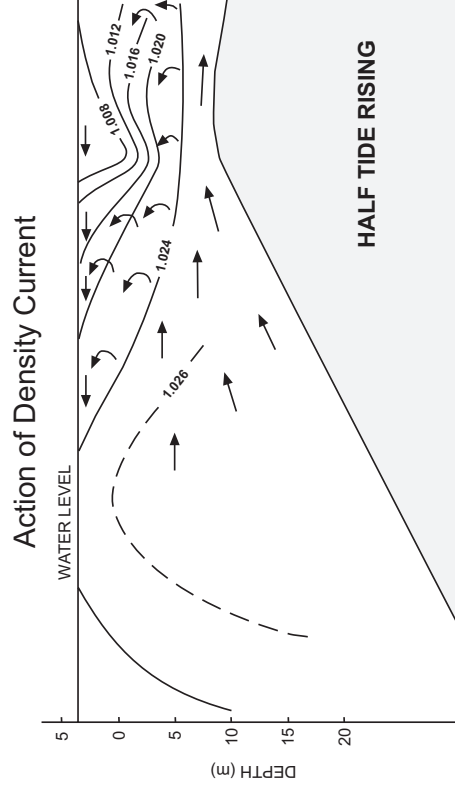
Density Current

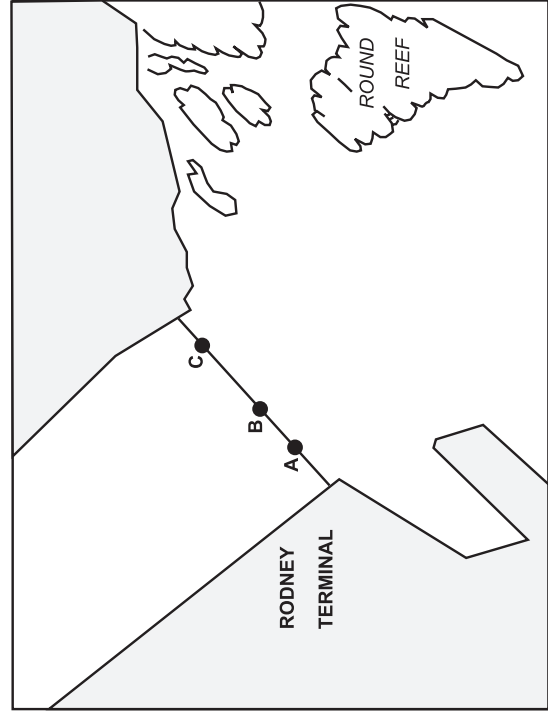
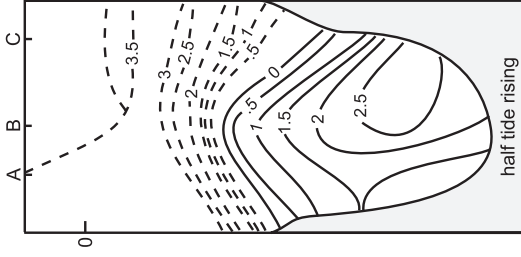
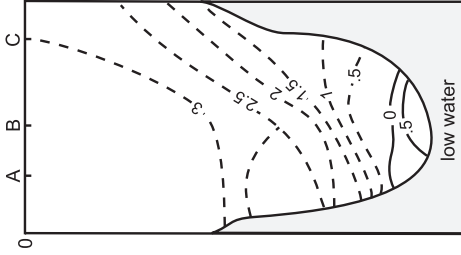
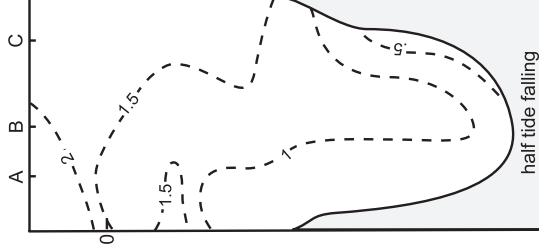
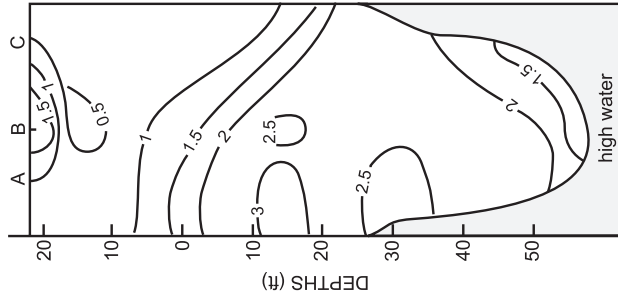
Conditions in Saint John Harbour can best be described as a wedge of salt water that advances and recedes beneath the fresh river water under the influence of the tide. There is a clearly defined stratification of water throughout the area, forming an interface between the two bodies of water. With the difference in the relative density of each layer, mixing between the two will occur. As the deep, denser salt water mixes upward into a fresher layer, it is carried outward and the water thus lost is replaced by more inflowing deep water. This is known as a density current, and undercurrent that has been recorded as high as 1.8 knots.

The illustration on the next page shows a cross-section of Saint John Harbour and the average condition of water through it during four stages of the tide.

This illustrates the density current that strengthens and rises nearer to the surface as the wedge advances after low water. At high water, the entire movement is inflowing, while at half tide falling, after the change in flow at the Reversing Falls, the entire water movement is outward.

Mixing of salt and fresh water occurs in the main harbour and carries on upstream through the Reversing Falls. At the entrance to Courtenay Bay, the east navigation channel of the harbour, there is a complex circular motion of water. There is a minimal flow of fresh water into Courtenay Bay, and as a result, the density current is not as strong as in the main harbour. These conditions will vary during the freshet.





HORIZONTAL CURRENTS IN SAINT JOHN HARBOUR

— INFLOWING CURRENT
- - - - - OUTFLOWING CURRENT

NOTES:

1. ALL CONTOURS ARE IN ft/sec (1 ft/sec = 0.6 kn)
2. BASED ON A STUDY OF SAINT JOHN HARBOUR, SUMMER 1958
3. THIS ILLUSTRATION IS ONLY TO SHOW THE AVERAGE CONDITION OF WATER MOVEMENT WITHIN THE HARBOUR; THESE CONDITIONS ARE VARIABLE

Canadian Right Whale Conservation Areas

Right Whales are present in Canada's east coast waters from June to November. Major concentrations have been documented in the Bay of Fundy and in the Roseway Basin.

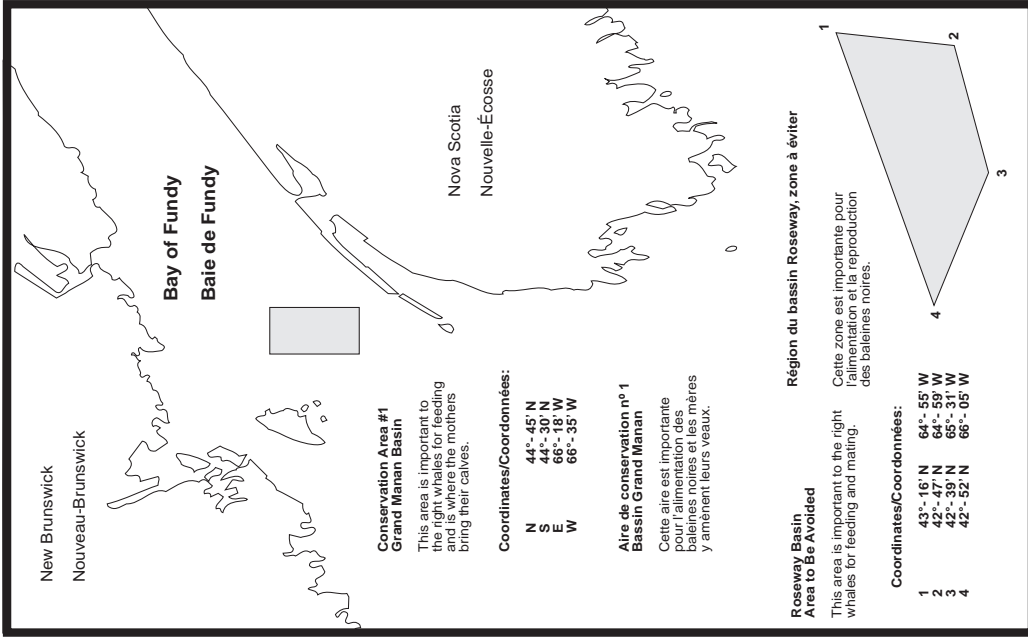
The federal Department of Fisheries and Oceans (DFO) is responsible for ensuring the protection of right whales. The North Atlantic Right Whale is protected from disturbance and injury by the Marine Mammal Regulations of the Fisheries Act.

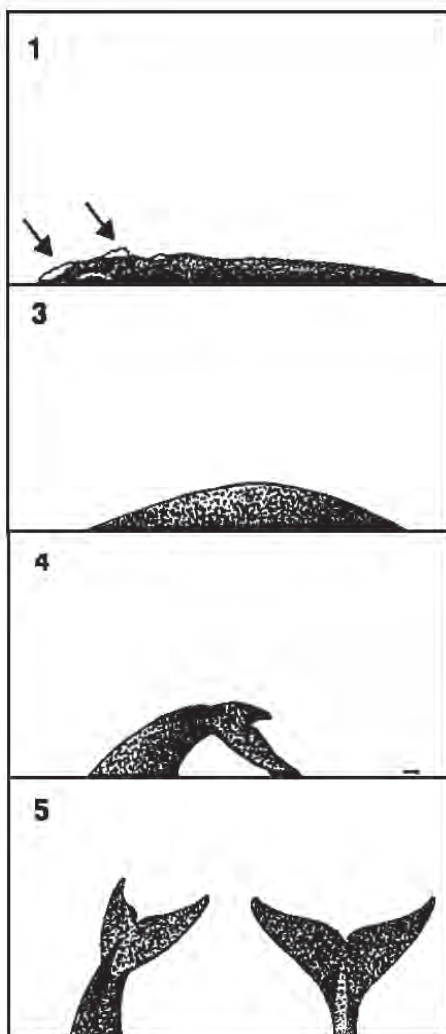
Disturbance includes repeated attempts to pursue, disperse and herd whales and any repeated intentional act of negligence resulting in the disruption of their normal behaviour. Disturbing Right Whales could force them away from their critical times and may cause them injury.

Guidelines (June - December)

1. Avoid these areas if possible. Due to the location of Area #1 in the main shipping channel from Saint John, New Brunswick, this may not be feasible. Area #2 can easily be by-passed to the north or south.
2. If passage through this area cannot be avoided, decrease vessel speed, post a lookout, and steer around any marine mammal activity.
3. If a right whale is sighted, or if a collision occurs, please report the position to the Department of Fisheries and Oceans via the nearest Coast Guard Radio Station, Fundy Traffic (VHF Channel 14), or by fax at (902) 426-8003.

- * Do not hunt, chase, follow, disperse, herd or encircle the whales.
- * Avoid any sudden changes in course and speed.
- * Travel parallel to the whale.
- * The whales may come close to you. If they do, do not chase them. These animals may be calves that approach while their mothers are submerged feeding. Keep clear of the tail.
- * If you are operating a sailing vessel with an auxiliary motor, leave it idle or turn on the echo sounder to signal your presence.
- * If it is impossible to detour around a group of whales, slow down immediately and wait until you are more than 400 metres away before resuming speed.





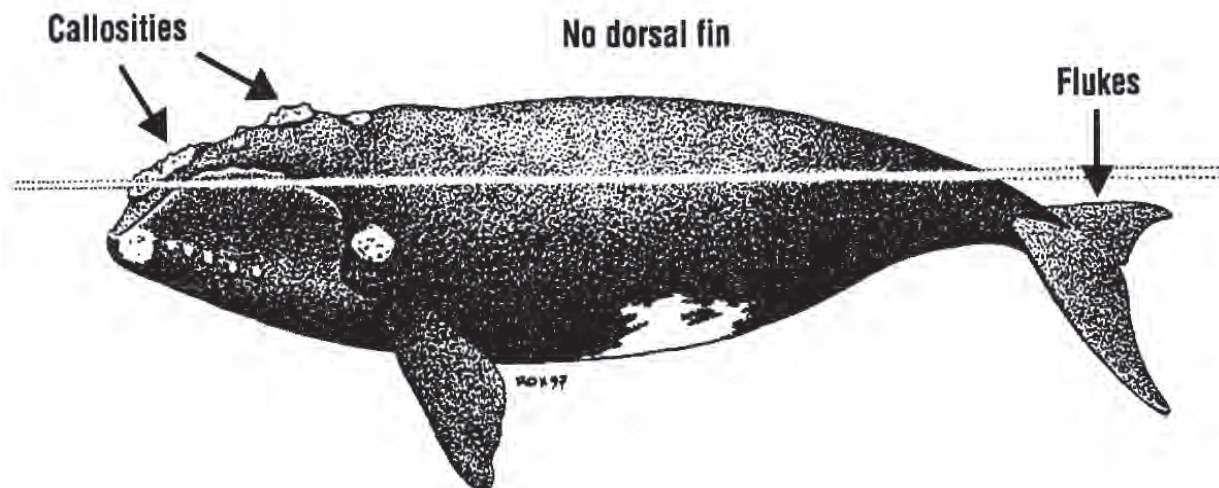
1) Whitish patches of raised and roughened skin (called callosities) on top of the head (see arrows)

2) V-shaped blow easily visible from in front or behind the whale

3) No dorsal fin on the back

4) Tail flukes often lifted vertically when the animal dives

5) All black tail on the top and underside



MACHIAS SEAL ISLAND

Machias Seal Island Migratory Bird Sanctuary is home to five species of breeding seabirds: Atlantic Puffin, Razorbill, Leach's Storm-Petrel, and Arctic and Common Terns. Common Murres are also sighted on and around the island and may breed in small numbers. The island has one of the largest known colonies of Arctic Terns on the east coast of North America and the largest Razorbill and Atlantic Puffin colonies south of Newfoundland. Common Eider also breed on the island.

The island has become a popular destination for hundreds of naturalists, birdwatchers and photographers each summer, the majority of which arrive by private charter boats operating under permit from Seal Cove, Grand Manan and from a few points along the coast of Maine, U.S.A.

This seabird nesting colony is extremely vulnerable to man's destructive activities as human disturbance contributes to nesting mortality. The colony was given special protection in 1944 when the Government of Canada established Machias Seal Island as a Migratory Bird Sanctuary. The sanctuary is administered by the Canadian Wildlife Service.

Yachtsmen planning a sail to observe birdlife are advised that a number of rules and regulations are in effect for the critical nesting and rearing season (1 June - 31 July). Landing during July and August requires a permit issued by the Canadian Wildlife Service. If you do not have a permit, the Canadian Wildlife Service allows the careful viewing of birds by circling the island.

One can land only on the island's east side near the old tramway in ideal wind and sea conditions. This landing can be made even when there is a moderate wind from the north through to the west, provided that there is no swell passing through the water. A slight breeze from the SW through to the NE - especially when opposing the tidal current - will often create a sloppy sea around the tramway. During low tide, rocks - slippery with drying kelp - abound in the area of the tramway. The landing may only be approached by punt or small boat and anchorage is available nearby in various depths with good holding ground. **LANDING IS AT ONE'S OWN RISK**; the Government of Canada assumes no responsibility for persons who may be injured during landing, departure or while on the island.

A pocket-sized pamphlet on the Machias Seal Island Bird Sanctuary is available by writing the Canadian Wildlife Service at:

Environment Canada
Environmental Conservation Branch
Canadian Wildlife Service, Atlantic Region
PO Box 6227, 17 Waterfowl Lane
Sackville, New Brunswick
Canada E4L 1G6

phone: (506) 364-5044
fax: (506) 364-5062
email: nature@ec.gc.ca

CANAPORT LNG

Canaport LNG has been constructed at a location 0.7 mile NE of the Canaport Deep Water Oil Terminal, at Mispic Point. Canaport LNG is the first Liquid Natural Gas (LNG) receiving and regassification terminal in Canada. The facility has the capacity to distribute 28 million cubic metres of natural gas per day to customers in Canada and the United States.

Three large concrete LNG storage tanks are located close NE of the Irving Oil storage tanks in this vicinity. A flame tower is located on the shoreline adjacent to the easternmost tank.

Pilotage for vessels proceeding to Canaport LNG is compulsory. The pilot boarding station for vessels bound for Canaport LNG is in position 45°09'03"N, 66°04'50"W. For vessels departing Canaport LNG, the pilot will disembark the vessel in position 45°10'48"N, 66°03'42"W, which is the same pilot boarding station for vessels entering Saint John Harbour.

A series of sector lights are located in the vicinity of Canaport LNG. These lights are privately maintained, and are in use only for the purpose of vessel transits to and from Canaport LNG. The lights operate as necessary. They are arranged to assist pilotage, such that turning points are reached at the intersections of any two sectors.

These lights are operated from Mispic Point, Connolly Head, and a location 0.6 mile NW of Cape Spencer.

The Canaport LNG jetty consists of the unloading platform, eight mooring dolphins, joined together by catwalks, and a trestle joining these to the shore.

The unloading platform is 65 m long at the face, with a depth of 29 m at the face. There are depths of 23.8 to 25.6 m in the vicinity of the mooring dolphins. The outer ends of the unloading platform and the two adjacent dolphins are in alignment, giving a berthing face 115 m long. Lights, privately maintained, are shown from towers located on the outer two dolphins, and the two dolphins adjacent to the unloading platform.

The entire length of the outer structure is 425 m.

The trestle is 300 m long, and supports a roadway and the pipeline to the shore.

Under certain weather conditions, vessels may be required to leave the jetty, and proceed to anchorage.

- Abbotts Harbour**, C1/P62
Abbotts Harbour Island, C1/P62
Adam Island, C3/P141
Advocate Bay, C2/P115
Advocate Harbour, C2/P116
Alcor Rock, C1/P20
Alma, C4/P80
Andys Ledge, C3/P45
Angus Shoal, C1/P72
Annapolis Basin, C2/P77
Annapolis River, C2/P91
Annapolis Royal, C2/P92
Apple Point, C3/P178
Apple River, C4/P86
Apple Rock, C1/P32
Avon River, C2/P156
- Back Bay**, C3/P137
Bald Head, C3/P103
Bald Islands, C1/P85
Bald Rock, C2/P52
Bancroft Point, C3/P50
Barbours Point, C4/P32
Bar Island, C3/P121
Barnaby Head, C3/P213
Barnes Island, C3/P141
Barrack Point, C4/P57
Barrington Passage, C1/P32
Bass River, C2/P148
Bay of Fundy, C2/P1
Bay of Fundy, C3/P1
Bayside Marine Terminal, C3/P181
Beans Island, C3/P120
Bear Island, C2/P95
Bear River, C2/P95
Beatson Rocks, C2/P67
Beaver Harbour, C3/P201
Belliveau Cove, C2/P38
Big Bay, C3/P163
Big Fish Island, C1/P74
Big Fish Rocks, C1/P74
Big Ledge, C1/P40
Big Tusket Island, C1/P80
Bigwood Rock, C3/P22
Black Ledge (Letete Passage), C3/P146
Black Ledge (Lobster Bay), C1/P66
Black Ledge (Mud Island), C1/P20
Black Ledge Rocks, C3/P146
Black Point (Annapolis Basin), C2/P90
Black Point (Cape Sable), C1/P6
Black Point (Cape Sable), C1/P23
Black Point
 (Cumberland Basin), C4/P105
Black Point (Port Maitland), C2/P22
Black Point (Saint John Harbour), C4/P37
Black River, C4/P60
Black Rock (Cape Sable), C1/P7
Black Rock (Cape Sharp), C2/P127
Black Rock (Grand Manan), C3/P18
Black Rock (Harbourville), C2/P120
Black Rock
 (Head Harbour Passage), C3/P95
Black Rocks, C3/P31
Blacks Harbour, C3/P195
Bliss Harbour, C3/P190
Bliss Island, C3/P135
Blonde Rock, C1/P12
Boars Head, C2/P60
- Bocabec Cove**, C3/P162
Bocabec River, C3/P162
Boot Island, C2/P155
Boss Point, C4/P104
Boudreaus Rock, C2/P23
Bradford Cove, C3/P59
Brick Kiln, C2/P147
Brick Kiln Ledges, C2/P147
Brier Island, C2/P26
Brier Island Southwest Ledge, C2/P27
Broad Cove (Digby Neck), C2/P76
Broad Cove (Moose Island), C3/P114
Buckman Head, C3/P114
Bulkhead Rip, C3/P31
Bull Rock, C3/P9
Bunker Island, C1/P115
Burns Point, C2/P21
Burntcoat Head, C2/P168
Butler Point, C3/P134
Butler Point, C3/P148
- Calais**, C3/P188
Calders Head, C3/P161
Calhoun Flats, C4/P94
Cambridge Flats, C2/P165
Campbells Point, C4/P4
Campobello Island, C3/P82
Canada Creek, C2/P121
Canaport, C4/P27
Candlebox Island, C1/P91
Cape Blomidon, C2/P130
Cape Capstan, C4/P86
Cape Chignecto, C2/P113
Cape Demoiselle, C4/P91
Cape d'Or, C2/P117
Cape Enrage, C4/P82
Cape Forchu, C1/P107
Cape Maringouin, C4/P76
Cape Sable Island, C1/P5
Cape St. Marys, C2/P24
Cape Sharp, C2/P137
Cape Spencer (Minas Basin), C2/P124
Cape Spencer
 (Saint John Harbour), C4/P24
Cape Split, C2/P128
Cape Tenny, C2/P168
Carlow Island, C3/P129
Casco Bay Island, C3/P95
Centreville, C2/P74
Chamcook Harbour, C3/P165
Chance Harbour, C4/P7
Charleys Point, C3/P83
Chebogue Harbour, C1/P103
Chebogue Ledge, C1/P104
Chebogue Point, C1/P102
Chebogue Point Shoal, C1/P104
Chebogue River, C1/P103
Chegoggin Point, C2/P16
Chegoggin River, C2/P16
Cheney Island, C3/P37
Cheney Passage, C3/P37
Cherry Island, C3/P102
Chignecto Bay, C4/P76
Chipman Brook, C2/P121
Chocolate Cove, C3/P122
Chocolate Shoal, C3/P123
Church Point, C2/P37
Chute Cove, C2/P105
Clam Cove, C3/P131
- Clam Cove Head**, C3/P131
Clarke Head, C2/P141
Clarke Point, C2/P165
Clark Ledge, C3/P127
Clark Point, C3/P158
Clarks Ground, C3/P31
Clark's Harbour, C1/P27
Cleopatra Shoal, C1/P86
Cobequid Bay, C2/P148
Cockerwit Passage, C1/P45
Cole Point, C4/P95
Coleson Cove, C4/P11
Colt Rock, C3/P194
Columbia Head, C3/P16
Columbia Rock, C1/P7
Comeauville, C2/P36
Constable Ledge, C3/P33
Cooks Rock, C1/P23
Cornwallis Park, C2/P95
Cornwallis River, C2/P150
Cornwallis River, C2/P153
Cornwall Rock, C1/P23
Courtenay Bay, C4/P43
Cow Ledge, C2/P52
Cow Ledge Shoal, C2/P52
Craig Point, C3/P165
Cranberry Head, C4/P7
Cranberry Point
 (Saint John Harbour), C4/P39
Cranberry Point (Yarmouth), C2/P19
Crane Point, C2/P141
Crawley Shoal, C3/P30
Crawleys Island, C1/P103
Creighton Point, C3/P163
Cross Bar, C2/P157
Crowell Cove, C1/P13
Cumberland Basin, C4/P76
Cumberland Basin, C4/P104
Cummings Cove, C3/P131
Curry Cove, C3/P99
- Daniels Flats**, C4/P91
Dark Harbour, C3/P59
Dartmouth Point, C2/P50
Deadmans Harbour, C3/P200
Deadmans Head, C3/P200
Deep Cove Island, C1/P95
Deepwater Channel, C2/P47
Deer Island, C3/P118
Deer Island Point, C3/P125
Deer Point, C3/P104
Delap Cove, C2/P103
Dennis Point, C1/P56
Devils Head, C3/P176
Devils Limb, C1/P17
Dickson Bar, C2/P139
Digby, C2/P97
Digby Gut, C2/P77
Digby Neck, C2/P59
Digdeguash Harbour, C3/P162
Diligent River, C2/P126
Dinner Island, C3/P119
Dipper Harbour, C4/P4
Doctors Island, C1/P120
Doddys Shoal, C1/P23
Dog Island, C3/P125
Dollard Rock, C1/P72
Dorchester Cape, C4/P92
Downing Head, C4/P106

Doyles Passage, C3/P160
 Dry Ledge, C3/P153
 Duck Island, C1/P47
 Duden Rock, C4/P85
 Dudley Island, C3/P117

Eagle Island, C1/P95
 East Bay (McCoy Head), C4/P63
 East Bay (Parrsboro), C2/P139
 East Cape, C1/P107
 Eastern Head, C3/P86
 Eastern Wolf Island, C3/P68
 East Ferry, C2/P64
 East Quoddy Head, C3/P92
 East Red Head, C4/P63
 East River, C2/P146
 East Sandy Cove, C2/P45
 Eatonville River, C4/P84
 Economy Point, C2/P145
 Economy River, C2/P145
 Edmonds Rock, C3/P45
 Elbow Rock, C1/P15
 Elders Head, C1/P119
 Ellenwoods Channel, C1/P83
 Elysian Fields, C4/P106
 Emerson Creek, C4/P62
 Estes Head Terminal, C3/P112
 Evangeline Beach, C2/P155

Fairhaven, C3/P132
 Falls Point, C1/P43
 Farmer Ledge, C3/P50
 Fisherman Cove, C3/P191
 Fish Fluke Point, C3/P39
 Fish Head, C3/P57
 Fishing Point, C4/P4
 Fish Island, C1/P23
 Five Fathom Hole, C4/P12
 Five Islands, C2/P146
 Flagg Cove, C3/P53
 Flat Island, C1/P20
 Forbes Point, C1/P44
 Fort Beausejour, C4/P107
 Fort Folly Point, C4/P95
 Foul Ground (Lobster Bay), C1/P66
 Foul Ground (Yarmouth), C1/P106
 Fownes Head, C4/P68
 Freeport, C2/P53
 Frenchmans Elbow, C2/P67
 Friar Roads, C3/P103
 Friars Bay, C3/P104
 Friars Bay, C3/P114
 Friars Head, C3/P104
 Frost Island, C3/P130
 Frost Ledge, C3/P130
 Frye Island, C3/P190
 Fundy National Park, C4/P80

Gannet Dry Ledge, C1/P100
 Gannet Rock (Grand Manan), C3/P11
 Gannet Rock (Tusket Islands), C1/P100
 Gannet South Shoal, C1/P100
 Gannet Southwest Shoal, C1/P100
 Gaspereau River, C2/P155
 Gilberts Point, C2/P41
 Gleason Cove, C3/P130
 Gleason Point, C3/P175
 Goat Island, C2/P91
 Goose Bay, C1/P80

Gooseberry Cove, C4/P9
 Gooseberry Island, C4/P9
 Grand Anse, C4/P92
 Grand Harbour, C3/P38
 Grand Manan Channel, C3/P61
 Grand Manan Island, C3/P1
 Grand Passage, C2/P49
 Great Duck Island, C3/P42
 Great Duck Ledge, C3/P42
 Green Island (Cape Sable), C1/P23
 Green Island (Chebogue Point), C1/P101
 Green Island
 (Head Harbour Passage), C3/P95
 Green Island Breaker, C3/P21
 Green Island Ledge, C1/P23
 Green Island Rock, C1/P23
 Green Islands, C3/P34
 Green Island Shoal, C3/P95
 Greens Point, C3/P137
 Greens Point, C3/P143
 Greville Bay, C2/P132
 Greville River, C2/P126
 Grindstone Island, C4/P89
 Grindstone Shoal, C4/P90
 Gull Cove, C3/P41
 Gull Island, C1/P72
 Gull Island Bar, C1/P72
 Gull Island Shoal, C1/P72
 Gull Islet, C3/P47
 Gullivers Cove, C2/P75
 Gullivers Head, C2/P69
 Gull Ledge, C1/P72
 Gull Rock, C2/P27
 Gull Rock Bars, C2/P27
 Guptill Grounds, C3/P10

Haleys Cove, C4/P8
 Half Tide Rock (Gannet Rock), C3/P11
 Half Tide Rock
 (White Head Harbour), C3/P37
 Halftide Rock, C3/P200
 Halls Harbour, C2/P122
 Hampton, C2/P105
 Hantsport, C2/P160
 Harbour de Lute, C3/P100
 Harbourville, C2/P119
 Hardwood Island, C3/P163
 Harriet Ledge, C1/P87
 Hawk Channel, C1/P5
 Hawk Inlet, C1/P5
 Hay Island, C3/P33
 Head Harbour, C3/P89
 Head Harbour Island, C3/P89
 Head Harbour Passage, C3/P91
 Hen and Chickens, C1/P114
 Herring Cove, C3/P86
 High Duck Island, C3/P49
 Hillsborough, C4/P101
 Hills Island, C3/P199
 Hog Island, C3/P162
 Hog Island Channel, C1/P68
 Holmes Island, C1/P88
 Holmes Spit, C1/P88
 Hopewell Cape, C4/P94
 Horse Race, C1/P7
 Horton Bluff, C2/P156
 Hospital Island, C3/P163
 Hospital Islands, C3/P118
 Hospital Reef, C1/P27

Ile Haute, C2/P114
 Indian Island, C3/P102
 Indian Point, C3/P168
 Indian River, C3/P124
 Indian Sluice Bay, C1/P78
 Ingalls Head, C3/P40
 Inner Island, C1/P35
 Irish River, C4/P67

Jacquards Ridge, C1/P21
 Jameson Island, C3/P147
 Joes Point (Grand Manan), C3/P22
 Joes Point
 (St. Andrews Harbour), C3/P170
 Johns Island, C1/P48
 Johns Island Ledge, C1/P48
 Johnson Cove, C3/P128
 Johnsons Point, C1/P118
 Jones Anchorage, C1/P69
 Jones Channel, C1/P68
 Jones Island, C1/P68
 Jones Ledge (Shepody Bay), C4/P89
 Jones Ledge (Tusket River), C1/P68

Kelleys Cove, C1/P109
 Kendall Cove, C3/P128
 Kent Island, C3/P33
 Kent Shoal, C3/P14

Ledge Harbour, C1/P64
 Leonardville Harbour, C3/P121
 Lepreau Harbour, C3/P213
 Letang Head, C3/P194
 Letang Peninsula, C3/P199
 Letete Passage, C3/P133
 Letete Passage, C3/P143
 Liberty Point
 (Campobello Island), C3/P82
 Liberty Point (St. Croix River), C3/P175
 Lighthouse Bar, C2/P142
 Lighthouse Point
 (Beaver Harbour), C3/P201
 Lighthouse Point
 (Chance Harbour), C4/P6
 Limbs Limb, C1/P17
 Little Bunker Island, C1/P116
 Little Dipper Harbour, C4/P6
 Little Island, C3/P150
 Little Lepreau Basin, C3/P210
 Little Letete Passage, C3/P147
 Little Lurcher, C2/P14
 Little Musquash Cove, C4/P8
 Little River, C2/P43
 Little River Cove, C2/P43
 Little River Harbour, C1/P98
 Little Shoal, C3/P10
 Little White Horse Ledges, C3/P93
 Lobster Bay, C1/P60
 Lobster Island, C1/P80
 Lockherds Point, C2/P172
 Long Eddy Point, C3/P57
 Long Island (Grand Manan), C3/P50
 Long Island
 (Passamaquoddy Bay), C3/P162
 Long Island (St. Marys Bay), C2/P50
 Long Island Bay, C3/P51
 Long Island Head, C2/P155
 Long Ledge, C3/P35

- Long Point, C3/P28
 Lords Cove, C3/P141
 Lorneville Harbour, C4/P32
 Lorneville Point, C4/P32
 Low Duck Island, C3/P49
 Lower Argyle, C1/P67
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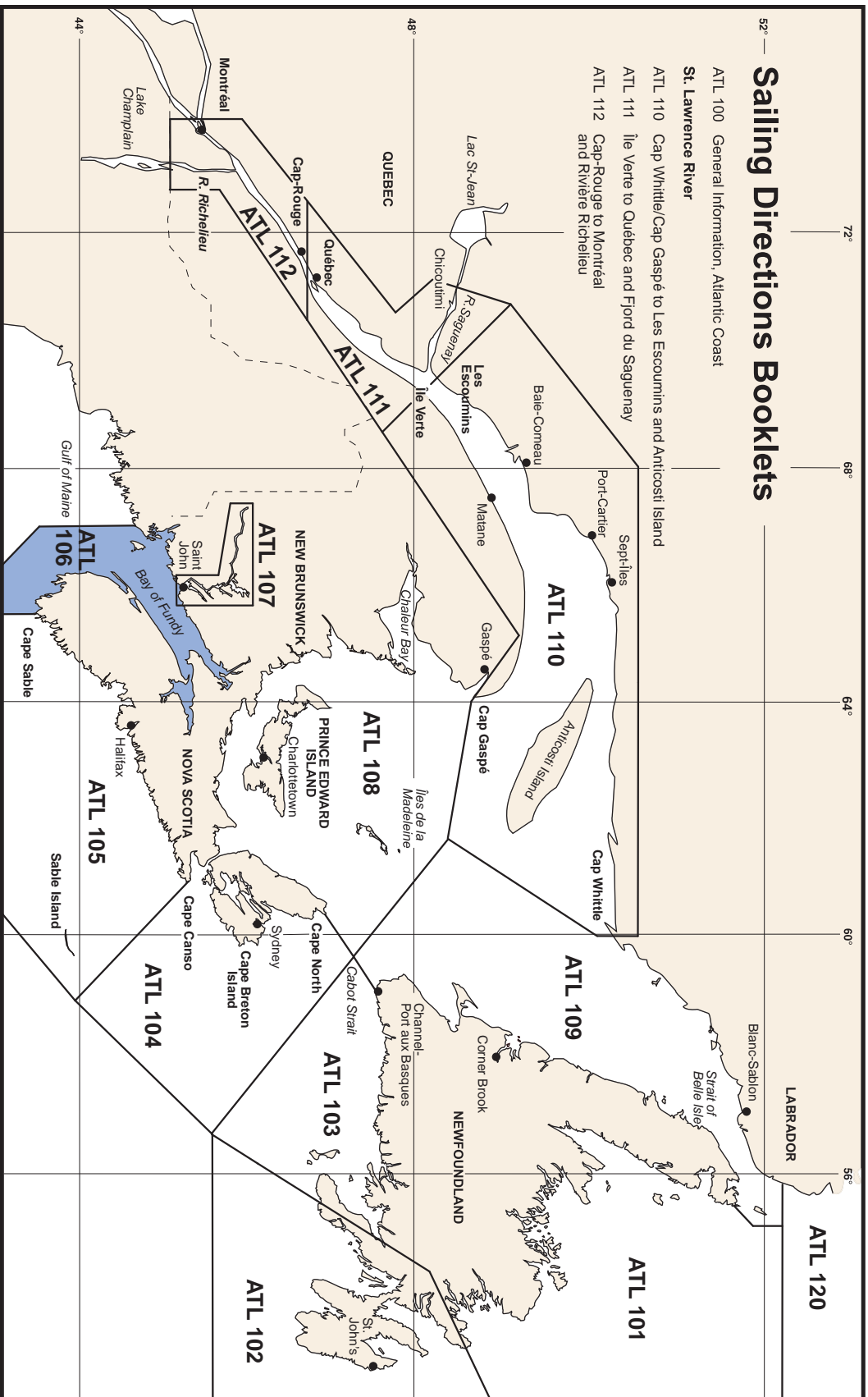
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