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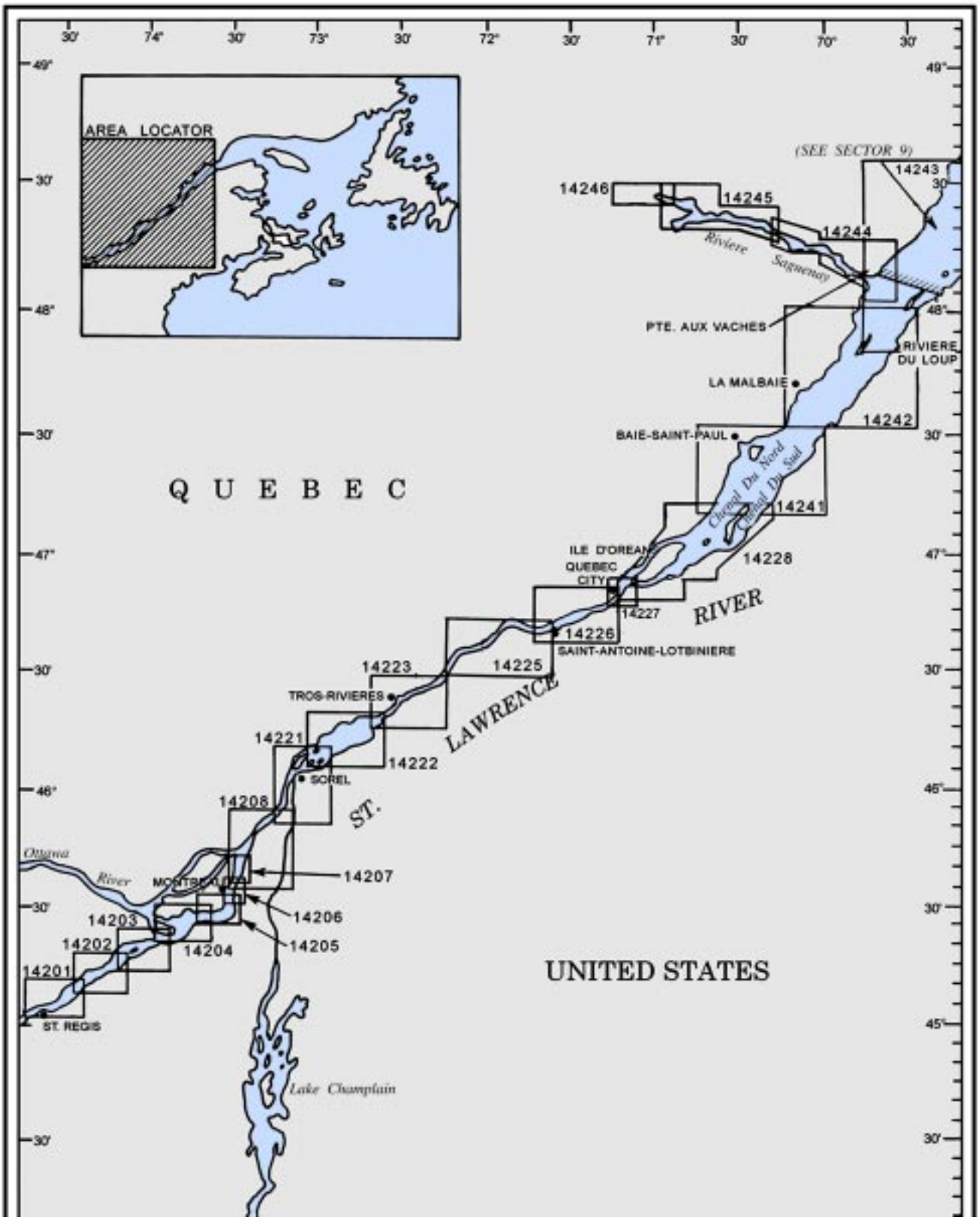

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SECTOR 10

ST. LAWRENCE RIVER—RIVIERE SA GUENAY TO CORNWALL

Plan.—This sector describes the Riviere Saguenay first and is followed by a description of the St. Lawrence from Ilet Rouge to Montreal Harbor and includes the St. Lawrence Seaway approach to and including Cornwall. The descriptive sequence is WNW through the Riviere Saguenay and then SW along both banks of the St. Lawrence River.

General Remarks

10.1 The Riviere Saguenay is entered on the NW shore of the St. Lawrence River about 6 miles WNW of Ilet Rouge and is described in the first part of this sector.

The NW shore of the St. Lawrence River from the Riviere Saguenay to Ile aux Coudres, about 50 miles SSW, is generally bold and backed in places by mountains which rise to elevations of 304 to 457m.

The SE shore of the river between Ile Verte and Point Ouelle, about 47 miles SSW, is backed by hills of moderate height which rise gradually from the river. Several islands and areas of foul ground lie close offshore and in the middle of the river up to 30 miles SSW of Ilet Rouge.

Several towns and anchorages lie along this shore, but there are no large ports of any commercial importance to be found along either the N or S shores of the river.

The St. Lawrence River above Cap St. Joseph and Pointe de la Riviere Ouelle, about 12.5 miles to the E, extends in a general SW direction for about 53 miles to Quebec Harbor. The greater part of the river is fouled by islands, shoals, and other dangers. The largest islands are Ile aux Coudres, Ile aux Grues, Ile aux Oies, and Ile d'Orleans, which narrow the river in the approaches to Quebec Harbor channels that lead through the shoal area in the N part of the river; Chenal du Nord is the preferred and easiest channel to navigate. Chenal du Sud is more intricate, but is marked by navigational aids. However, it is now little used. The middle channel lies between the above channels and is the last preferred as it is too intricate and requires local knowledge.

Chenal du Nord and Chenal du Sud unite off the SE side of Ile d'Orleans, and the channel S of that island leads in great depths to Quebec Harbor. Chenal de l'Ile d'Orleans lies between Ile d'Orleans and the mainland to the NW and is a good passage for small vessels drawing less than 4.6m.

Several villages, some with piers extending from them, stand on both banks of the river, but none have any significant commercial importance to shipping.

Winds—W eather.—During the navigation season in the St. Lawrence River, the winds generally follow the course of the high land on either side of the river valley. The general direction of the winds is NE or SW. In the fall of the year, frequent and violent NW squalls blow off the mountains on the NW side of the river.

Fog is not as frequent in the St. Lawrence River as in the gulf. Fog is usually only prevalent in the autumn and winter, although it is likely to accompany an E wind at any time of the year.

Ice.—Ice prevails in the area covered by this sector. In general, Chenal du Nord frequently remains ice free for some time after Chenal du Sud becomes unnavigable.

Tides—Curr ents.—The currents of the St. Lawrence River are influenced by the stages of the tide, and in the vicinity of Ilet Rouge, by the Riviere Saguenay and the shoals in the area. The currents, being of a tidal nature, will be described in detail with the related features which they affect.

Caution.—Because of continuous dredging operations in the channels, buoy positions may be temporarily or permanently altered, and lighted buoys occasionally placed. Canadian Notice to Mariners should be consulted and buoy numbers, colors, and marks carefully observed.

Fishing shanties are established annually on ice from Ile **Saint-Louis** (48˚ 15'N., 70˚ 01'W.) to **Chicoutimi** (48˚ 26'N., 71˚ 04'W.), including **Baie des Ha Ha** (48˚ 20'N., 70˚ 50'W.). Mariners should take all necessary measures to avoid the drifting of the installations and should reduce speed between Ile Saint-Louis and **Cap Eternite** (48˚ 18'N., 70˚ 17'W.).

A Vessel Traffic Services Zone has been established in the St. Lawrence River. See paragraph 8.1 for further information.

Riviere Saguenay

10.2 Riviere Saguenay (Saguenay River) (48˚ 08'N., 69˚ 41'W.) is entered on the N shore of the St. Lawrence River between Pointe aux Vaches and Pointe aux Alouettes.

For the first 50 miles above its mouth, the Saguenay resembles a long and narrow mountain lake. In this section, the river is from 0.6 to 2 miles wide, flowing through a deep valley lying transversely to the St. Lawrence and formed by mountains of syenitic granite and gneiss. The mountains rise more or less abruptly from the river and form in places precipitous headlands over 305m high. The promontories, seen one beyond the other up the magnificent reaches of the river many miles in length, are wild, barren, and picturesque. The granitic hills are generally quite bare, but the valleys, through which rapid tributary streams descend, are filled with a deep deposit of sand and clay, and are thickly wooded.

In its first 50 miles, the water of the Saguenay is almost as deep as the mountains are high. For the greater part of the way from Pointe Noire to Baie des Ha Ha, there are depths of 183 to 274m. Although this part of the river is generally very deep, there are occasional anchorages some miles apart.

The Saguenay is about 93 miles in length, and it is navigable for about 68 miles or 6 miles above Chicoutimi. It has deep water up to **Cap des Roches** (48˚ 27'N., 70˚ 54'W.). From there to Chicoutimi, a distance of about 8 miles, a channel has been dredged. Above Chicoutimi, the channel is shallow and intricate, and suitable only for small craft. Local knowledge is required.

Port Alfred, in Baie des Ha Ha, about 54 miles upriver and Chicoutimi, about 17 miles above Baie des Ha Ha, are commercially important to shipping.

Ice.—There is ice in the Saguenay River from mid-December until the end of March. The ice covers the whole width of the river and forms fast ice attached to the shore. Vessels have to be ice strengthened.

Tides—Curr ents.—Tidal currents of variable direction are encountered in the mouth of the Saguenay River, with rates of 6 to 7 knots at spring tides. On the changes of tidal currents, there are heavy tide rips over the bar at the entrance to the river. When the ebb tide is coincident with an E gale, a particularly dangerous cross sea is raised, which is dangerous for small craft. With strong NW winds during the flood, the sea becomes very choppy with breakers.

Above the entrance the flow is predominantly outgoing. The effect of the ingoing tidal current is soon lost, except as a weak current close to the shore, perhaps at a depth of several meters.

From Anse St. Jean, about 22 miles above the river entrance to Cap des Roches, about 33 miles farther upriver, the surface current is never strong. In many parts of the river there is a variable undercurrent, especially during springs. It is strong with the flood, but barely perceptible during the ebb.

From Cap des Roches to the entrance of Riviere Chicoutimi, the current is steady and even, in some parts setting on to the shoals, but without any undercurrent. At spring tides, a large body of water passes over the Chicoutimi shoals, at a very rapid rate during the ebb tidal current, and falling suddenly into deep water seems to strike downwards at once leaving but a slight current on the surface.

Depths—Limitations.— The Riviere Saguenay from its entrance to within 0.5 mile of the dredged channel leading to Chicoutimi has a least depth of 60m, with a least depth of 6.1m to Pointe L'let oil terminal, and then a depth of 6.1m to Chicoutimi. The shores of the river are steep-to with depths of 183m and more being found close offshore in the greater part of the river.

Within the river there are no off-lying dangers. The dangers at the entrance and between Cap des Roches and Chicoutimi are described together with the related features.

Riviere Saguenay Entrance

10.3 The Riviere Saguenay entrance lies between the foul ground extending E from Pointe aux Vaches and Pointe aux Alouettes, about 2.8 miles to the SSW.

Pointe aux Vaches (48˚08'N., 69˚40'W.) is composed of steep cliffs, 62m high. Pointe aux Vaches Reef, which dries, lies within 0.5 mile SE and S of the point. Foul ground extends up to 1 mile E and 0.35 mile S from this reef.

Vaches Shoal, with a least depth of 4m and rocky, lies between 1.5 miles and 2 miles ESE of Pointe aux Vaches. Rochers du Saguenay, a rocky bank with depths of 10.4 to 18.3m, lies about 3 miles E of Pointe aux Vaches.

Pointe aux Alouettes (48˚06'N., 69˚42'W.), the S entrance point to the river, is composed of cliffs about 23m high. Batture aux Alouettes, a large area of drying foul ground, lies within 0.75 mile N, 1.25 miles E, and 3 miles SSE of the point. Ilet aux Alouettes, marked by a beacon, stands on the N side of the foul ground about 1 mile ENE of Pointe aux Alouettes.

Haut fond Prince (Prince Shoal) (48˚06'N., 69˚37'W.), marked by a light, with a least depth of 4.9m and rocky, lies with its outer extremity about 3 miles E of Ilet aux Alouettes.

Recif Bar (Bar Reef), with depths of less than 5.5m and a least depth of 2.1m, lies between Haut fond Prince and Ilet aux Alouettes.

A bar, with depths of 11.3 to 18.3m, extends across the entrance to the Riviere Saguenay from Vaches Reef to Recif Bar.

10.4 Pointe Noire (48˚07'N., 69˚43'W.), about 1.5 miles NNW of Pointe aux Alouettes, is precipitous and steep-to. A conspicuous white granite patch marks the cliffs S of the point. Baie Ste. Catherine lies between the two points.

A pair of lighted beacons, in line bearing 273˚ and visible only when in alignment, stands on Pointe Noire and lead through the entrance in a least depth of 11.3m to the deep water off Baie Ste. Catherine. Deep-draft vessels should keep a little N of this range to avoid the 5.5m patch at the N end of the shoal ground extending NNE from Ilet aux Alouettes.

Vessels should proceed with caution and at a slow rate of speed when passing the ferry crossing about 0.5 mile WNW of Pointe Noire.

Baie Ste. Catherine, with depths of 20 to 89m in its central part, is backed by cliffs of moderate elevation. A pier, with a head about 34m long at its outer end, extends from the W side of the bay. Depths alongside the head range from 3.7m at the W end to 8.5m at the E end. A light is exhibited from the pier head.

Anchorage can be taken off the end of the pier in a depth of 33m. This anchorage is out of the currents, but is exposed to E winds, which cause a considerable swell to set into the bay.

Saint Firmin Village stands on the SW shore of the bay. A church, with a conspicuous spire, stands on a cliff in back of the village. Two flagstaffs stand close by.

Pointe Rouge, the E entrance point of Baie de Tadoussac, stands about 1 mile W of Pointe aux Vaches and is bold and steep-to.

10.5 Baie de Tadoussac (48˚08'N., 69˚42'W.) is entered between Pointe Rouge and Pointe de l'Islet, a group of rocky islets on a drying bank about 0.8 mile to the W. There are general depths of 9.1 to 47.5m within the bay.

Tadoussac (48˚09'N., 69˚43'W.) (World Port Index No. 2100) is located in the bay of the same name and includes the berthing facilities in this bay and those in Anse a l'Eau, a small inlet about 0.5 mile NW of Pointe de l'Islet.

A public wharf, 77m long with a depth alongside of 7.4m, is situated on the NE side of the promontary at the SW side of the bay, about 0.2 mile NE of Pointe de l'Islet. The SE face of the wharf is 31m long with depths of 2 to 5m alongside.

A marina is situated close NW of the public wharf, with a reported dredged depth of 3m. Another wharf, with a depth of 4.6m alongside its outer end, is located in Anse a l'Eau.

A white building, with a red roof and cupola and the largest of several hotels which stand in the village, is very conspicuous and can be seen for many miles from the SE. Three conspicuous spired churches also stand in the village.

Anchorage can be taken in the middle of the bay in depths of 29.3 to 33m, clay and sand. Small vessels can find better shelter in the N part of the bay in a depth of 13 to 15m.

Pointe Noire to Pointe aux Crepes

10.6 The S shore of the river extends about 5 miles WNW from Pointe Noire and then 4.75 miles farther NNW to Pointe aux Crepes. The shores are steep-to and mountainous, and indented by several small inlets and one bay.

La Boule (Cap de la Boule) (48° 09'N., 69° 48'W.), a high round back hill forming a steep headland on the N shore of the river, lies about 4 miles WNW of Pointe Noire. Anse a la Boule, a small inlet with depths exceeding 36.6m, lies close E of the cape. An overhead cable, with a vertical clearance of about 92m, crosses the Riviere Saguenay about 0.5 mile above La Boule; during severe icing, the vertical clearance may be as little as 72m.

Anse de Ste. Etienne (48° 12'N., 69° 54'W.), a small bay about 1 mile wide between the entrance points, lies S of Pointe aux Crepes. The head of the bay is fouled by a drying flat which extends about 0.3 mile offshore. Anchorage can be taken within the bay in depths of 18 to 55m, clay, off the edge of the banks.

Anse a la Grosse-Roche (48° 13'N., 69° 53'W.) stands on the N shore of the river E of Pointe aux Crepes and serves the village of Sacre Coeur about 3 miles inland. A T-head pier, 30m long across its face, extends about 75m from the shore. Depths of 4.9 to 5.5m exist alongside the face.

Pointe aux Crepes to Cap Trinite

10.7 The river between Pointe aux Crepes and Cap Trinite trends irregularly W and NW for about 18.5 miles and is steep-to and deep. This section of coast is indented by numerous bays and inlets, and bordered by a few off-lying islands.

River Ste.-Marguerite (48° 15'N., 69° 58'W.) discharges into a bay of the same name on the N shore of the river, about 3.5 miles NW of Pointe aux Crepes. Most of this bay dries. Small vessels load lumber here occasionally. Several overhead cables, with a vertical clearance of 50m, cross the river about midway between Riviere Ste.-Marguerite and Pointe aux Crepes.

Ile St.-Louis (48° 15'N., 70° 01'W.) stands near the S shore of the river about 5 miles above Pointe aux Crepes and 0.25 mile offshore. Anchorage can be taken between the island and the shore in depths of 18 to 55m, sand and mud. A light is exhibited from the N side of the island.

Ile St.-Barthelemy (48° 16'N., 70° 03'W.) stands on the N side of the river, about 1 mile NW of Ile St.-Louis and 0.1 mile offshore. Small vessels can anchor NW of the island in depths of 15 to 27m, but space is very limited.

10.8 Riviere Petit-Saguenay (48° 14'N., 70° 06'W.), with a village at its mouth, lies about 3 miles above Ile St.-Louis on the S shore of the river. A T-head pier, about 44m long across the face, extends from the shore on the W side of the entrance to the river. The outer face has a depth of 4.4m alongside.

Anse St.-Jean is entered on the S side of the river between La Grande Point, about 2.5 miles NW of the mouth of Riviere Petit Saguenay, and Pointe au Boeuf, about 1.8 miles farther NW. The head of the bay is bordered by drying flats. Anchorage can be taken within the bay in depths of 15 to 55m, mud.

A pier, 121m long, extends from the S shore of the bay abreast of a village. The outer face of the pier is in ruins.

An overhead power cable crosses the river about 0.8 mile NW of Pointe au Boeuf. It has a vertical clearance of 61m; however, when the line is covered with 2 inches of ice, the clearance can be reduced to 33m.

Baie Eternite (48° 19'N., 70° 19'W.) is entered between Cap Eternite, about 4.8 miles NW of Pointe au Boeuf, and Cap Trinite, about 1.8 miles farther NW. The bay extends about 1 miles SW and is deep. Sheltered anchorage can be taken within the bay in depths of 15 to 55m, mud.

Pontoons, 24m long and 6m wide, are situated on the NW side of the bay, near the river entrance. One side of the pontoons is restricted to excursion boats; the other is for short visits. There are mooring buoys at the head of the bay.

Cap Trinite to Port Alfred

10.9 Cap Trinite (48° 19'N., 70° 19'W.) rises to an elevation of 457m on the N side of Baie Eternite, and when seen from up or down river resembles three steps. A statue of the Virgin Mary stands on the lowest step and a cross stands on the second step.

La Niche, a remarkable hole in the cliffs, stands on the S shore of the river about 1.5 miles above Cap Trinite.

Tableau Nord (St.-Basile-de-Tableau) (48° 22'N., 70° 28'W.), a small village fronted by a pier in ruins, stands on the N shore of the river about 6.5 miles NW of Cap Trinite.

Cap Rouge, a prominent projection on the N shore, stands about 2.8 miles W of Tableau Nord.

Ste.-Rose-du-Nord (48° 23'N., 70° 35'W.), a village fronted by a pier, stands in a cove about 2 miles W of Cap Rouge. The short face of the pier has a depth of 4.9m alongside. Anchorage can be taken in the coves close E and W of Ste.-Rose-du-Nord.

Anse de la Croix, on the S side of the river about 3 miles SW of Ste.-Rose-du-Nord, has a short pier with a depth of 3.7m alongside its outer end at HW. The head of the cove is fringed by drying flats.

Cap de l'Est, a low point formed by a sharp bend in the river, stands about 2.5 miles NW of Anse de la Croix.

10.10 Baie des Ha Ha (48° 21'N., 70° 49'W.), a natural, deep harbor about 6 miles long, is entered between Pointe du Fort and Cap Ouest, about 3.5 miles W of Anse de la Croix. The N shore and the central part of the bay are deep and clear of dangers. There is room for a considerable number of vessels, but the bay is open to E winds. There is an area of local magnetic disturbances on the N side of the bay. The S shore and the head of the bay is fringed by shoal ground which extends about 0.3 mile offshore. Four rivers discharge into the head of the bay.

La Baie (Port Alfred) (48° 20'N., 70° 53'W.) (World Port Index No. 2110), standing at the head of Baie des Ha Ha, is an important exporting center for the natural resources of the

surrounding area. The port area includes the berthing facilities at La Baie and Bagotville.

Tugs are normally used to berth and unberth vessels within the port areas. La Baie is a port of entry.

Ice.—The average thickness attained by smooth shore fast ice at Bagotville is 0.83m. Break up normally begins during the last week of March, with the bay clearing of ice about mid-April. Freeze up usually begins during the early days of December with a solid ice cover forming before the middle of the month. One to four weeks variation in break up and freeze up can occur.

Tides—Curr ents.—At La Baie, springs rise 5.6 to 6.3m, while neaps rise about 4.1m.

Depths—Limitations.— At La Baie, the aluminum company operates Powell and Duncan Wharves, and the paper company operates the Consolidated Bathurst Wharf. Berthing is difficult during NE winds.

Powell Wharf has a berthing length 346m on the S side with depths of 10.1 to 11m alongside. The N side has a berthing length of 147m with an alongside depth of 11m The outer face is 67m long with a depth of 10.1m. Duncan Wharf has a berthing length of 386m on its S side with a depth of 11.9m alongside.

The paper company wharf has a berthing length of 183m long on its N side with a depth of 7.6m alongside.

Two wharves are located at Bagotville. The main wharf has an outer face 51m long with a depth of 8.5m alongside. Lepage Wharf, to the W of the main wharf, is 91m long with a 24m outer face. A depth of 3m exists alongside this face.

The wharf at Grande-Baie, S of La Baie, is in ruins.

Aspect.—A sawmill stands about 0.4 mile S of Pointe du Fort. A conspicuous red cross, illuminated at night, stands close to a chapel on the hill behind the port area.

Pilotage.—Pilotage is compulsory. Pilots board vessels bound W at Anse aux Basque and board vessels bound E at Quebec. Pilots must be requested 24, 12, and 6 hours in advance to ensure the availability of a pilot at Anse aux Basques. This notice must be confirmed 4 hours prior to arrival at the pilotage station. The above reports stating the ETA at the pilotage station and the vessel's net tonnage should be addressed to "Pilots Montreal."

Anchorage.—Anchorage can be taken off Anse a Phillipe, in the NW part of Baie des Ha Ha, by vessels awaiting a berth.

Approaches to Chicoutimi Harbor

10.11 Chicoutimi Harbor comprises the tidal waters of the Riviere Saguenay W of a line drawn from Cap Ouest to the Riviere Pelletier, about 2.5 miles NNE, on the N shore. It extends upriver for about 4 miles above the Chicoutimi swing bridge. For practical purposes the harbor area ends at the swing bridge, because the channel upstream is very narrow and shallow.

The city of Chicoutimi stands at the head of deep-water navigation on the S shore of the river, about 15 miles above Cap de l'Ouest. Chicoutimi-Nord stands on the opposite shore. The town of Riviere-du-Moulin stands on the S shore close E of Chicoutimi.

Pointe aux Pins (48˚ 25'N., 70˚ 50'W.) is the S extremity of a high, rocky headland extending from the N shore of the Saguenay, about 3.8 miles W of the mouth of the Riviere Pelletier.

Grande-Anse Marine Terminal is located in La Grande Anse, on the S side of Riviere Saguenay opposite Pointe aux Pins. The wharf is 286m long and has a depth of 13.7m alongside. The terminal is open all year.

Saint-Fulgence, a village with a church in it, stands about 3 miles NW of Pointe aux Pins. A wharf in ruins fronts the village. There is good anchorage, in depths of 36.6m or less, on the N side of the river, between Pointe aux Pins and a position to the E of the spoil ground located about 1.5 miles SE of the church in Saint Fulgence.

The natural deep-water channel ends off Saint-Fulgence. From this point, a dredged channel with a least depth of 6.1m leads to Chicoutimi. The channel is at least 76m wide, and about 107m or more on the curves. The channel is marked by lighted ranges and navigational aids.

Caution.—The channel from Saint-Fulgence to the area adjacent to the wharf at Chicoutimi is subject to silting. Therefore, there may be less depth than shown on the chart. The dredged channel downstream from the Maltais wharf (Pointe a l'Islet) is maintained to the charted depth. The areas upstream from the Maltais wharf are no longer maintained and filling can be expected. Depths of 5.2m exist in the dredged channel WNW of Pointe a L'Ilet.

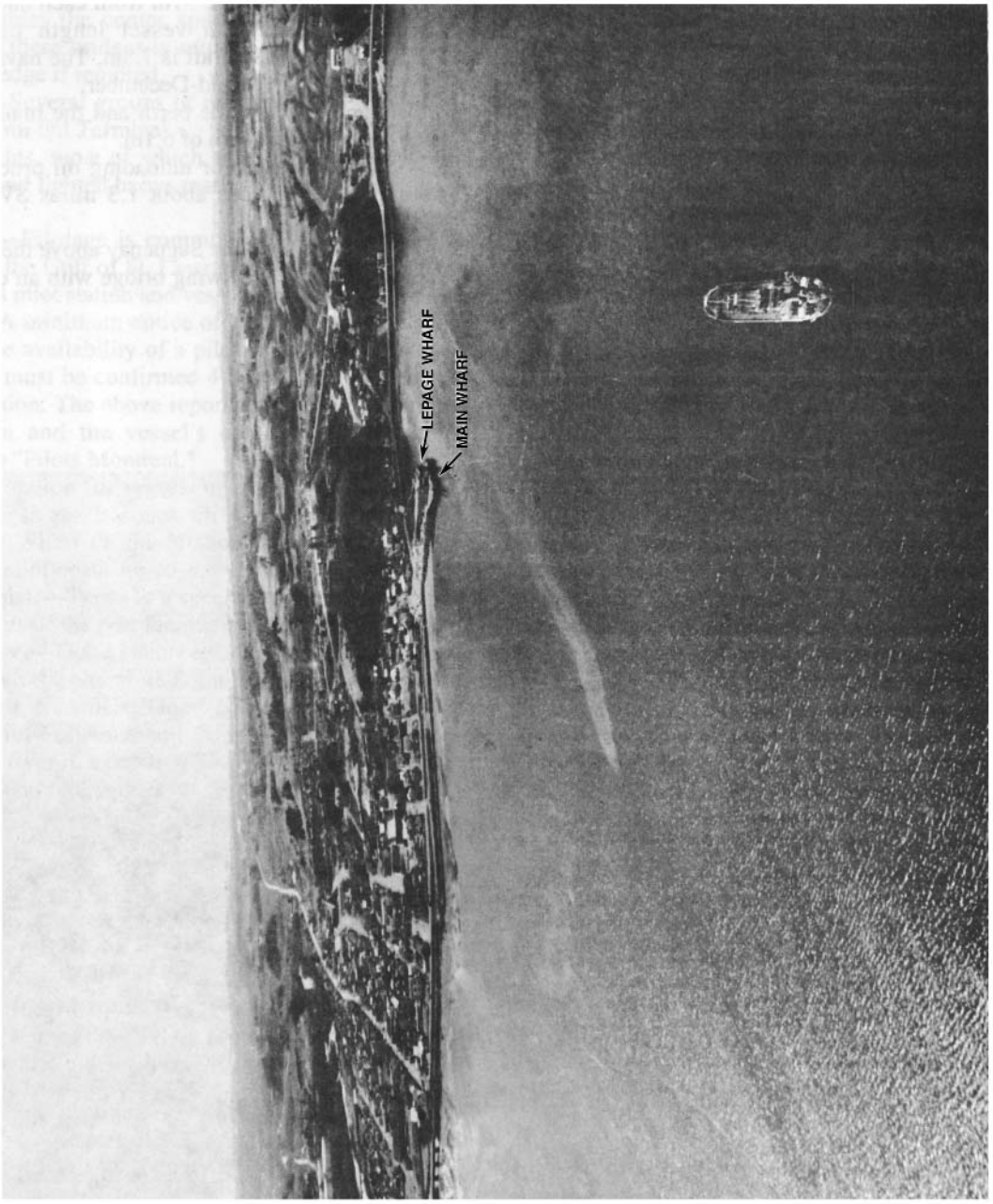
10.12 Chicoutimi (48˚ 26'N., 71˚ 04'W.) (World Port Index No. 2130), Chicoutimi-Nord, and the town of Riviere-du-Moulin collectively form a comparatively large industrial complex for the products of the surrounding area. Principal imports and exports are coal, granite, lumber, petroleum products, salt, paper, logs and woodpulp. All of the berthing facilities are contained within the limits of the city of Chicoutimi. If needed, tugs can be ordered from La Baie. Chicoutimi is a port of entry.

Tides—Curr ents.—As Chicoutimi is on the river 8 miles above the head of the open inlet formed by the lower Saguenay, the tidal range is reduced somewhat by the river slope, especially during the freshet months, which are usually from April to the end of July. During this period, there may be a strong seaward flow of water, which reinforces the ebb current and can at times overcome the flood current.

At Chicoutimi the rate of the ebb current depends upon whether the flood gates upriver are opened or closed. It has been reported that during the freshet there is no flood current, and the maximum ebb rate is about 4 knots.

Depths—Limitations.— The Chicoutimi Wharf has a berthing length of 838m, with alongside depths of 8.2 to 8.8m, although these depths are not maintained by dredging. A turning basin adjacent to this wharf is 762m long and 221m wide, with a dredged depth of 9.1m.

The Albert-Maltais Oil Terminal, an offshore oil mooring berth, with a depth alongside of 8.5m within the berth, extends from Point a l'Ilet, about 3 miles ENE of Chicoutimi. The length of the berth is 40m, with mooring dolphins, marked by lights, E and W. These dolphins stand 91m from each end of the berth, allowing a maximum vessel length of 137m. The



Bagotville

maximum permitted draft is 7.8m. The navigation season is from mid-April to mid-December.

The area between the berth and the main channel has been dredged to a depth of 6.1m

Two bridges span the Saguenay above the Ports Canada Wharf. The first is a swing bridge with an opening width of 23m; close upstream is a fixed bridge with a vertical clearance under the center span of 6.7m. The channel upstream of these bridges is suitable only for small craft; local knowledge if required.

Aspect.—Several groups of oil tanks stand close S of the Chicoutimi Oil Terminal.

Range lights, most of which are visible only when in alignment, and lighted buoys mark the dredged channel to Chicoutimi.

Pilotage.—Pilotage is compulsory. Vessels bound to the W from the Gulf of St. Lawrence board pilots at Anse aux Basques pilot station and vessels bound E board pilots at Quebec. Pilots must be requested 24, 12, and 6 hours in advance to ensure the availability of a pilot at Anse aux Basques. This notice must be confirmed 4 hours prior to arrival at the pilot station. The above reports giving the ETA at the pilot station and the vessel's net tonnage should be addressed to "Pilots Montreal."

The pilot station for vessels upbound to Chicoutimi is located at Anse aux Basques, charted 2 miles SW of Les Escoumains Wharf on the N shore of the St. Lawrence River. Two pilot boats are constantly on service.

Regulations.—There is a speed limit of 7 knots when within 2 miles of the port facilities.

Anchorage.—Good anchorage can be taken in a depth of 29.3m with the church in Saint-Fulgence bearing 142°, distant about 1.5 miles. Good anchorage can be taken between Saint-Fulgence and Pointe aux Pins off the N shore of the river in a depth of 36.6m or less.

Except in an emergency, no vessel shall anchor within the harbor limits without the prior approval of the Port Manager, and then only in an assigned berth.

Northwest Shore of the St. Lawrence River—Riviere Saguenay to Cap au Saumon

10.13 Pointe aux Alouettes (48° 06'N., 69° 42'W.), the S entrance point to the Riviere Saguenay, and Recifs aux Alouettes, which extend offshore from this point, have been previously described in paragraph 10.3.

The NW shore of the St. Lawrence River between Pointe aux Alouettes and Cap au Saumon, about 21 miles SSW, is mountainous, irregular, and indented by numerous inlets and bays. There are no ports of commercial importance.

Several islands with areas of foul ground lie in midstream from about 7 miles E of Pointe aux Alouettes to about 7 miles S of Cap au Saumon, a distance of about 30 miles. The foul ground is about 2 miles wide. There is a 5.5 mile passage in the N part.

10.14 Ile Rouge (48° 04'N., 69° 33'W.), about 5.2m high, stands near the S end of Bancs l'Ilet Rouge, about 6.5 miles ESE of Pointe aux Alouettes. Several buildings, a flagstaff, and two beacons stand on the islet.

Bancs de l'Ile Rouge (48° 05'N., 69° 33'W.), an extensive area of foul ground, is about 3.5 miles long and 2 miles wide. This bank, which stands about midway between Ile Verte and the mouth of the Riviere Saguenay, is the NE termination of the banks which extend about 30 miles to the SW dividing the river into Chenal du Nord and Chenal du Sud.

Ile aux Lievres (Hare Island) (47° 51'N., 69° 44'W.) stands about 9.5 miles SSW of Ilet Rouge. This long, narrow island is bordered by foul ground which extends about 0.3 mile off its W side and up to 1.5 miles off parts of its E side. Foul ground, with drying flats on its S part, extends about 5.5 miles NNE from the N end of the island. Ile Blanche (White Island), about 12.2m high, stands about in the middle of this drying flat.

Recif de l'Ile aux Fraises (Hare Island South Reef) (47° 45'N., 69° 48'W.) begins about 2 miles SW of Ile aux Lievres and extends about 2.8 miles farther in the same direction. Several small islets stand on this drying reef. The passage between the island and the reef is shoal and available only to small vessels with local knowledge.

Banc de l'Ilet aux Lievres (Hare Island Bank) (47° 42'N., 69° 51'W.) extends about 5.5 miles SSW from Recife de l'Ile aux Fraises.

Tides—Curr ents.—In the vicinity of Ile Rouge the tidal currents attain a velocity of 3 knots during the flood and 4.5 knots during the ebb with average tides. During springs, the velocities increase to 5 to 7 knots.

The flood current sets upriver between Ilet Rouge and the shore, and through Chenal du Nord from 3.5 to 5 hours after LW at Pointe au Pere. It then joins the current from Chenal du Sud and sets W through the passage between Ile Rouge and the reef N of Ile aux Lievres as far as mid-channel until 2 hours after HW. The flood current from Chenal du Sud greatly predominates and sets the current in the passage W of Ile Rouge onto Recifs aux Alouettes.

The ebb current commences at the N end of the reef extending NNE from Ile aux Lievres 2 to 3 hours after HW at Pointe au Pere. It sets through Chenal du Nord between Ile Rouge and Recifs aux Alouettes and sets across Ile Rouge Bank. There is a continuous set across the N part of the reef extending NNE from Ile aux Lievres during the ebb and flood currents.

Dangerous tide rips occur at the meeting of the ebb and flood in the vicinity of Ile Rouge, Recifs aux Alouettes, and N of the reef extending NNE from Ile aux Lievres.

Along the NW side of Chenal du Nord, there is no inshore or offshore set at an offing of about 1 mile. Inshore of the S sides of Cape Dogs and Cap au Saumon eddies occur during the ebb. Tide rips are set up and extend about 0.5 mile offshore. The flood attains a velocity of 0.5 to 1.5 knots and the ebb 2.5 to 3 knots.

10.15 Cap du Basque (48° 00'N., 69° 45'W.), about 6 miles SSW of Pointe aux Alouettes, is a steep-to mountainous headland. An island lies off a small cove about 1.5 miles N of the cape.

Rade du Basque lies between the SW side of Batture aux Alouettes and Cap Basque, and provides sheltered anchorage with Ile du Chafaud aux Basques, lying about 1.5 miles N of Cap du Basque, bearing 259°, distant 1 mile. The depth here is about 17m, clay and stiff mud.

Baie des Rochers indents the shore about 3 miles S of Cap Basque and dries.

Cap de la Tete au Chien (Cape Dogs) (47° 55'N., 69° 48'W.), about 5.8 miles SSW of Cap Basque, is bold, precipitous, and steep-to.

Between Cap de la Tete au Chien and Cap au Saumon, about 9.5 miles SSW, the shore is mountainous and steep-to. Several lumber loading places can be found in the inlets along this shore. Port aux Quilles (Shettle Port), about 2 miles SW of Cape de la Tete au Chien, is a small shoal bay.

St. Simeon (47° 50'N., 69° 52'W.), about 3.3 miles SSW of Port aux Quilles, has a wharf consisting of two piers. The N pier (public) is L-shaped and 120m long; its outer face is 41m long with depths of 6.1 to 6.7m alongside. The N side of the pier is protected by boulders. The S side provides shoaling depths of about 1.6m at the outer end and dries at the inner end.

Saint Simeon is the terminal for ferry service to Riviere du Loup.

A very conspicuous church spire, 140m high, stands in the village.

Port-au-Persil, a small lumber exporting port, stands on the N shore of a cove about 2 miles N of Cap au Saumon. The public wharf is in ruins.

Note.—The N coast of the St. Lawrence River, W of Cap au Saumon, is described in paragraph 10.20.

Southeast Shore of the St. Lawrence River—Ile Verte to Pointe Ouelle

10.16 Ile Verte (48° 03'N., 69° 25'W.), a long narrow island fringed by foul ground, stands about 1 mile off and parallel to the SE shore of the St. Lawrence River. A drying flat lies between the island and the mainland. Two piers extend from the E side of the island.

The SE shore of the St. Lawrence River extends about 47 miles SE from Ile Verte to Pointe Ouelle and is indented by numerous rivers and bays that dry. Many islands lie parallel to the shore and are mostly connected to the mainland by drying shoals. Foul ground extends up to 3 miles W from the shore in places and about 2.8 miles E from the islands in mid-river.

Chenal du Sud lies between the islands in mid-river and the mainland to the SE.

Iles du Pot a l'Eau de Vie (Brandypot Islands) (47° 52'N., 69° 41'W.), three small islands, lie on the foul ground which extends E from Ile aux Lievres. Chenal Pot a l'Eau de Vie (Brandypot Channel) lies between the foul ground extending E from Ile aux Lievres and Middle Bank, Middle Shoals, and Brissants Barrett on the SE side. This channel is only open at its NE end.

Brissants Barrett (47° 53'N., 69° 37'W.), two sunken rocks with a least depth of 1.8m, lie on the E side of the N entrance to Chenal Pot a l'Eau de Vie.

Middle Bank, with depths of 4.1 to 9.1m, extends S from Brissants Barrett to join the foul ground extending E from the S end of Ile aux Lievres. Middle Shoals, with a least depth of 1.5m, lie on the N part of the bank, about 1 mile S of Barrett Ledges.

Les Pelerins is the outermost danger along the SE shore bordering Chenal du Sud and is described in paragraph 10.18.

Tides—Curr ents.—The flood current occurs off Ile Verte about 4 hours after LW at Pointe au Pere, and off Ile au Lievres about 2 hours after LW at Pointe au Pere. The velocity of the flood current diminishes during springs from 3.5 knots SW of Ile Verte to 1 knot off Iles de Kamouraska.

The flood current sets along both sides of Ile Verte and over the reef extending S from it, setting up heavy tide rips at the meeting of the currents S of the island. The greater portion of the current sets W across the reef N of Ile aux Lievres to Chenal du Nord; the remainder sets into the other two channels.

The ebb current occurs in Chenal du Sud about 2 to 2.5 hours after low water at Pointe au Pere. The current weakens along the banks as the shoals dry and is almost negligible in depths of less than 5.5m.

Northeastward of the reef N of Ile aux Lievres, heavy tide rips are set up when the ebb currents of Chenal du Nord and Chenal du Sud meet and also at the meeting of the flood and ebb currents.

Between Riviere Verte and Pointe de la Riviere du Loup the low SE shore extends and is indented in places by drying coves. Foul ground borders this section and extends up to 1.5 miles offshore in places. A pier, with a depth of 2.9m alongside, extends from the shore about 2.5 miles ENE of the S end of Ile Verte.

Anchorage can be taken S of Ile Verte, protected from E winds, in depths of up to 11 to 14.6m, mud, with Cacouna Rock S of Ile Verte bearing 167°, distant 0.7 mile.

Note.—During the winter, buoys marking Chenal du Sud are removed.

10.17 Ile du Gros Cacouna (Le Gros Cacouna) (47° 56'N., 69° 30'W.), 86m high, lies with its NE end about 2 miles S of Ile Verte. The peninsula is joined to the S shore by swampy grasslands, across which a causeway is laid. The island is of gray rock, wooded, and faced by cliffs along the NW side. It is very conspicuous, as it stands out clearly against the gradual rise of the mainland.

Port du Gros Cacouna (47° 56'N., 69° 31'W.), an artificial harbor enclosed by breakwaters, extends 0.5 mile from the SW end of Ile du Gros Cacouna, with its entrance in the SW corner. A wharf, 274m long, with a least depth of 10.2m alongside, is situated on the E side of the harbor. Occasional icebreaker assistance may be required in winter. The NE part of the harbor dries. The entrance is 170m wide. Range lights, in line bearing 082° and visible only when in alignment, lead through the breakwaters into the harbor.

A very conspicuous church, with two spires 51m high, stands in the village of St. Georges de Cacouna, on the mainland close S of Port du Gros Cacouna.

Pointe de la Riviere du Loup (47° 50'N., 69° 34'W.) stands about 5 miles SSW of Port du Gros Cacouna. At the point a public wharf, in ruins, extends 366m W from the shore. Close N of the public wharf, a jetty extends 305m W from the shore, with a ferry berth 76m long on its S side.

The ferry berth is within the dredged area, and is also liable to silting. It has depths of 3 to 5.2m alongside the outer part.

In 1993, it was reported that the public wharf was closed to navigation and the port no longer used for commercial shipping.

A marina, protected by a breakwater, is situated between the two wharves in the inner part of the harbor. Due to silting, depths may be less than shown on the chart, particularly at the entrance to the marina.

A public wharf inside the mouth of the river has a berth, 92m long, parallel to the stream; the depth alongside sat HW 3.7m. The wharf, accessible to very small craft only, dries at LW and is situated upstream of the Trans-Canada Highway bridge. The river up to the wharf is not marked and depths are subject to change.

Pilotage is compulsory. Tugs are not available. Anchorage can be taken off Pointe de la Riviere du Loup in depths of 7 to 9m, sheltered from all but N winds. The holding ground is good.

The church spires in the town of Riviere du Loup are conspicuous. A conspicuous illuminated cross, 22m high, stands on high ground above the river. A microwave tower lies about 0.7 mile SSW of the cross.

10.18 Notre Dame du Portage (47° 46'N., 69° 37'W.), about 5 miles SW of Riviere du Loup, is fronted by a public pier, 192m long. The pier is in ruins and access is prohibited; however, a ramp at the inner end on the NE side is still in use.

Les Pelerins (Pilgrim Islands) (47° 43'N., 69° 44'W.), a group of several rocks, lie 2 miles offshore about 5 miles SW of Notre-Dame du Portage abreast of Pointe des Rochers. Le Gros Pelerin, the highest island of the group, rises to rounded hills at its ends.

Andreville (Saint-Andre), a small village grouped around a stone church with a spire, stands on the shore abreast of the S end of Les Pelerins. This church is not easily seen because of its dark color.

Pointe St.-Andre, a round, rocky island 39m high, stands about 0.5 mile W of Andreville. A cross on the summit of the island is difficult to see.

Iles de Kamouraska (47° 36'N., 69° 53'W.), a group of five wooded islets and several bare rocks, lie near the outer edge of the foul ground about 5.5 miles SW of Pointe St.-Andre. Grand Ile, the NE islet of the group is partly wooded and 30m high. A light is exhibited from a framework tower, 15m high, on Grande Ile, adjacent to a white dwelling with a red roof. The light is shown from April 15 to December 10. A high, conspicuous cross stands on the summit of Ile aux Corneilles, the S islet of the group.

The village of Kamouraska stands on the shore abreast Ile aux Corneilles and has a very conspicuous spired church in it which can be seen for a considerable distance. A conspicuous isolated hill, located 3 miles SE of the church, has a cross on its summit, 150m high. Two piers, with depths of 4m and 2.7m alongside their outer ends, extend from the shore abreast of the village. Both piers dry at LW and the SW pier is in a state of disrepair.

Good anchorage can be taken about 2 miles NW of the village in a depth of 14 to 15m, stiff mud, exposed to NW winds.

10.19 Cap au Diable (47° 32'N., 69° 56'W.), about 3 miles SW of Kamouraska, rises to a conspicuous round, wooded hill, 70m high. A church, with a conspicuous spire which can be seen from a considerable distance, stands in the village of St. Denis, about 1.8 miles S of the cape.

Point aux Orignaux (47° 29'N., 70° 01'W.), about 4.5 miles SW of Cap duDiable, is a low point connected to the shore by a neck of low, flat land. A large hotel stands near the inner end of a pier which extends from the point. Good anchorage can be taken about 1 mile NW of the pier in depths of 9 to 11m, mud bottom.

Between Pointe aux Orignaux and Pointe Ouelle, the shore is fronted by foul ground which extends about 1.5 miles off Pointe aux Orignaux and 2.5 miles off Pointe Ouelle.

Pointe de la Riviere Ouelle (47° 25'N., 70° 03'W.) is a prominent, moderately high projection which extends from the shore about 4 miles SSW of Pointe aux Orignaux. The Riviere Ouelle is entered S of the point and leads upriver to a ruined government pier, which is closed to traffic and situated about 0.2 mile W of a bridge. An overhead cable, with a vertical clearance of 4.6m, spans the river close E of the bridge.

Northwest Shore of the St. Lawrence River—Cap au Saumon the Ile aux Coudres

10.20 Cap au Saumon (47° 46'N., 69° 54'W.) is high, precipitous, and steep-to. The high land immediately behind the cape is separated from the inland ranges by undulating grassy plains.

The NW shore of the St. Lawrence River between Cap au Saumon and Ile aux Coudres, about 26.5 miles SW, is mountainous, irregular, and indented by several inlets and bays. Anchorage is provided in some of these indentations. There are no ports of any commercial importance to shipping.

The NW side of the river is deeper than the SE side along this section of coast, but the depths decrease as Ile aux Coudres is approached.

Recif de I'le aux Fraises, which lies about 4 miles E of Cap au Saumon, has been previously described in paragraph 10.14.

Haut fond Morin (47° 36'N., 70° 02'W.), a rocky patch with a least depth of 6.1m, lies in mid-channel about 4.3 miles SE of Cap-a-l'Aigle.

An extensive, narrow bank, with depths of 12.8 to 18.3m, lies about 0.5 mile W of Haut fond Morin. A smaller bank, with depths of 15.5 to 18.3m, lies centered about 1.8 miles SW of Haut fond Morin.

Banc des Anglais (47° 28'N., 70° 09'W.), with a least depth of 10.4m, extends about 9.5 miles SW from a position 7.5 miles S of Cap-a-l'Aigle. The SW end of the bank merges into Haut Fond du Centre, about 3.8 miles ESE of the NE extremity of Ile aux Coudres.

Tides—Curr ents.—The flood sets SW through Chenal du Nord as far as Haut-fond Morin, where it sets W toward the bight of **Ste.-Irenee** (47° 34'N., 70° 12'W.). The velocity of the current is about 2 knots from the time of HW at Pointe au Pere until 2 hours later. During a small tidal range, there may be no flood current on the surface between the shoal and Ste.-Irenee bight. The flood rounds Cap aux Oies and divides into two channels on either side of Ile aux Coudres.

The ebb sets along Banc des Anglais and into Chenal du Nord and Chenal du Sud at Recif de I'le aux Fraises. The greater set is toward Chenal du Nord, especially during large tides. The ebb attains a velocity of 2.5 knots in the vicinity of Haut-fond Morin with average tides. Between the shoal and Cap aux Oies, the velocity is 4 knots during large tides and is strongest from the time of LW at Pointe au Pere until 1 hour later.

Off Cap aux Oies, the currents turn 3.5 to 4.5 hours after HW and LW at Pointe au Pere. The velocity of the flood and ebb currents is 2.5 and 3 knots, respectively, with average tides.

Eddies occur during the ebb S of Cap au Saumon and Cap-a-l'Aigle, forming a secondary current which sets SW along the shore for about 2 to 3 miles before rejoining the ebb.

Tide rips occur off the capes and Haut-fond Morin at the meeting of the ebb and the flood currents. These tide rips are especially strong E and S of Cap aux Oies.

10.21 Port-au-Simon (47° 46'N., 69° 57'W.) stands in a cove about 2 miles WSW of Cap au Saumon. The pier, 166m long, at the port is no longer maintained. A pier in ruins extends from the shore of St.-Fidele, about 1.8 miles SSW of Port-au-Saumon. A conspicuous church with a spire stands in the village.

Gros Cap-a-l'Aigle (47° 42'N., 69° 59'W.), about 1.8 miles SSW of St.-Fidele, is a high, wooded cape. A small rocky ledge, covered at HW, projects about 0.1 mile from the S side of the cape. At certain stages of the tide there are heavy tide rips and eddies off this ledge.

Cap-a-l'Aigle (47° 40'N., 70° 06'W.), a resort town on a bold, high point, stands about 5 miles SW of Gross Cap a l'Aigle. The shore between these two points consists of high, wooded, earth cliffs, bordered by a rocky ledge, with sand and large boulders, which dries. An L-shaped pier, 71m long, with a 45m long outer face and a least depth of 4.5m, extends from the cape and is used principally by small tankers.

A marina close NE of the public pier has a series of pontoons and is enclosed by an L-shaped breakwater.

La Malbaie (Murray Bay) (47° 38'N., 70° 08'W.) (World Port Index No. 2160), entered between Cap a l'Aigle and Pointe-au-Pic, about 3 miles SW, is fouled over most of its area by drying flats. A submerged cable is laid across La Malbaie near the mouth of Riviere Malbaie. The town stands on both banks of the Riviere Malbaie at the head of the bay. A church, with a very conspicuous spire, stands in the village and a conspicuous cross, illuminated at night, stands on the N entrance point to the river. A very conspicuous hotel stands on the cliffs above Pointe-au-Pic. The pier in the town is no longer used.

At Pointe-au-Pic, there is a wharf whose shape can best be seen on the chart. The SE part of this wharf has a berthing length of 131m, with a depth of 8m alongside. The N face of the wharf has a berthing length of 42m, with a depth of 0.8 to 1.5m alongside. The use of the N face is prohibited.

Good anchorage can be taken in a depth of 21.9m, with the church in the town of La Malbaie bearing 289° just open of **Pointe a Gaz** (49° 39'N., 70° 08'W.), distant 1.5 miles. This position is out of the strength of the currents and the prevailing winds with good holding ground. Good anchorage can be taken farther out, but the currents are much stronger. Temporary anchorage can be take off the pier at Pointe-au-Pic, but the currents are very strong with occasional heavy eddies.

Ste.-Irenee (47° 34'N., 70° 12'W.), a village with a church with a conspicuous white spire, stands 4.5 miles SW of Pointe au Pic. A large hotel stands on the beach about 0.3 mile S of the inshore end of the pier.

Cap aux Oies (Goose Cape) (47° 29'N., 70° 14'W.), about 4.5 miles S of Ste.-Irenee, is a steep-to, bold, wooded bluff. A traffic control reporting point for vessels bound up and down river lies abreast of the cape.

Between Cap aux Oies and Cap St.-Joseph, about 6 miles WSW, the shore is mountainous and is indented by two drying bights. Cap Martin stands about midway between the two capes. Anchorage can be taken between Cap aux Oies and Cap Martin in depths of about 13m, sheltered from N winds.

A conspicuous church with a spire stands in the village of Les Eboulements, close above Cap Martin.

Cap St.-Joseph (47° 27'N., 70° 22'W.) is the outer end of a promontary faced by sand cliffs. A pier, with an outer face 34m long with a depth of 5.5m alongside, extends from the cape. The W and E faces have depths of 5.5 and 4.5m, respectively. There are shallower depths off the wharf. A spoil ground lies 1 mile SW of Cap St.-Joseph.

Chenal du Nord (North Channel) and Adjacent Features

10.22 Chenal du Nord, the principal channel in the St. Lawrence River leading to Montreal and Quebec, is entered between the N shore of the river and Ile aux Coudres. The channel extends about 9.8 miles WSW between Cap aux Oies and Cap aux Corbeaux and passes between that shore and Ile aux Coudres. The narrowest part of the channel lies adjacent to Cap aux Corbeaux. The part of this channel which passes N and W of Ile aux Coudres is known as Chenal de l'Ile aux Coudres (Coudres Passage).

From Cap aux Corbeaux, the channel extends about 24 miles SSW to a position about 1.5 miles S of Cap Tourmente; the latter position being the N entrance of the dredged channel in Traverse du Nord. The latter reach continues between the NW river bank and the extensive area of foul ground that extends about 31.5 miles SSW from Ile aux Coudres to Recife de l'Ile Madame, which lies on the E side of the S entrance of Traverse du Nord. This reach has a general width of about 1.5 miles and is narrowest, about 0.7 mile wide, in the vicinity of Brule Bank, nearly 19 miles SSW of Ile aux Coudres.

Traverse du Nord, the narrows on the E side of Ile d'Orleans, connect Chenal du Nord proper with the main channel S of Ile d'Orleans. The dredged channel in the narrows extends about 9.8 miles SSW and has a least width of 305m, and a dredged depth of 12.2m. However, silting has been reported in the channel between Cap Brule and Saint Jean. There may be less water than shown on the chart.

The NW shore of the river is bordered by drying banks and foul ground within the 10m curve, which nowhere lies more than 0.75 mile offshore.

Note.—A vessel with a speed of 10 knots and bound from Ile Verte to Quebec Harbor at the beginning of a fair tidal current may gain an hour in the passage by taking Chenal du Nord instead of Chenal du Sud.

Chenal du Nord—SE Side.—Ile aux Coudres is fringed by a drying reef on its channel side, which lies up to 0.5 mile offshore in places.

The 10m curve on the SE side of the channel extends rather regularly SSW for about 17 miles from the SW end of Ile aux Coudres to Brisants du Cap Brule, which consist of a group of drying rocks with a 3.7m islet on its SW edge.

Banc du Cap Brule, which dries in its central part and has depths of less than 9.1m elsewhere, lies about 1 miles WSW of the 3.7m islet on Brisants du Cap Brule. The bank extends about 5 miles SSW to the N entrance of the dredged channel leading through Traverse de Nord.

Traverse du Nord, the channel leading through the shoal separating Chenal du Nord from Chenal du Sud, has a maintained dredged depth of 12.2m, which may be reduced by silting. Battures de la Traverse, which dries 0.8m, lies on the NW side of the entrance to this channel about 2 miles SSW of Cap Tourmente. A detached 8.5m patch lies about 1 mile S of the same cape.

Several islands lie on the foul ground on the SE side of Traverse du Nord. Ile Madame, 21.3m high and the SW island, stands 2.65 miles S of the NE end of Ile d'Orleans. Ile aux Ruaux, of about the same height, stands 1.75 miles NE of Ile Madame. Recife de l'Ile Madame, which dries 1.4m, is the SW extremity of the foul ground which extends SSW from Ile aux Coudres.

Tides—Curr ents.—In the channel NW of Ile aux Coudres, the flood current begins about 1 hour before LW at Quebec, at first setting up the island side. There is a variation of about 1 hour in the turn of LW slack within the limits of the passage. The turn of the ebb current occurs more sharply from 20 to 45 minutes before HW at Quebec. During the summer season with average tides, the flood current attains 3.9 knots and the ebb current 5.8 knots. A maximum ebb current of 7 knots may be encountered and ebb rates are doubtless stronger in the spring of the year. The ebb sweeps strongly around Baie Saint Paul and makes a strong tide rip.

During the greater part of the falling tide, there is a decided N set in the channel opposite Cap a Labranche, continuing towards the N shore in the general direction of Cap aux Corbeaux. Mariners should navigate vessels to prevent them being carried too far N by this set and to prevent colliding with inbound vessels during the strength of that tide.

Between Cap de la Baie and Cap Brule, the channel is free from crosscurrents, except near the turn of the tidal currents when they are weak. The turn from flood to ebb is approximately the same over the whole of this reach at about 25 minutes before HW at Quebec. The time of LW slack along the N shore is roughly for the whole reach 1 hour before low water at Quebec, but it is perhaps 1 hour earlier than this by the bank on the S side opposite Cap Maillard because of the flood coming up from the Traverse du Milieu. The flood currents vary from 3.5 knots off Cap de la Baie to 2.5 knots at Banc du Cap Brule and the ebb currents from 4.5 to 2.5 knots, similarly, with average tides.

Off Cap Maillard the maximum flood current is about 2 hours and 20 minutes after LW at Quebec and the maximum ebb current is about 3 hours after HW at the same place.

In the vicinity of Banc du Cap Brule and Traverse Spit, the tidal currents are influenced by the flow into and out of Chenal de l'Ile d'Orleans. Because they conform to the river bed they are considerably across abreast of Banc du Cap Brule, and slightly transverse to the main ship channel opposite Battures de la Traverse. Mid flood and ebb rates with average tides are 2 and 2.25 knots at Battures de la Traverse, and 3 knots on the flood and ebb opposite Banc du Cap Brule. The tidal currents turn about 30 and 40 minutes, respectively, before HW and LW at Quebec.

In Traverse du Nord the tidal currents curve into or out of the channel close along the Ile d'Orleans side. Southward of a line from 0.5 mile off St. Jean to the S side of Recif de l'Ille Madame, the currents are directly up and down the channel. The mid flood and ebb rates with average tides are 2 to 2.5 knots on the average 50 and 40 minutes, respectively, after LW and HW at Quebec.

Chenal du Sud.—Traverse de Saint Roch may be considered the crucial point on the lower St. Lawrence River, as the tidal currents attain their greatest strength here. In the Lower Traverse the flood current begins 3 hours 57 minutes after LW at Pointe au Pere and runs for 5 hours 45 minutes. The ebb current starts 3 hours 35 minutes after HW at Pointe au Pere and runs for 6 hours and 45 minutes. In the Upper Traverse the flood current begins 5 to 13 minutes and the ebb 22 minutes earlier than in the Lower Traverse. Variations of up to 25 minutes in the time of the turn to the flood current may occur under certain astronomical conditions.

Off the N entrance to these channels, the flood current begins much earlier in Chenal du Nord than in Chenal du Sud, and the first of the current therefore comes from the N, setting in a S direction upon the Hauts fonds de Sainte Anne and Hauts fonds de Saint Roch, but inclining gradually more to the W until at quarter flood it sets SSW fairly through Traverse de Saint Roch. After half flood it sets more SW and toward the end of the tide still more to the W, perhaps because the time of HW is somewhat earlier in Chenal du Nord, the water has begun to fall there before the flood has quite ceased in Chenal du Sud.

The ebb current sets in a direction nearly opposite to that of the flood. The first of the ebb sets off Hauts fonds de Sainte Anne and Haute fonds de Saint Roch, through the channels W of Haut fond du Centre, and N over the tail of that shoal.

Above Les Piliers, both tidal currents set fairly up and down the river.

In Traverse de Saint Roch, below a position about 1 mile above Upper Traverse, the rate of the ebb current is 7 to 8 knots and that of the flood 6 to 7.5 knots. The rates of both currents decrease gradually SW until about 1.5 miles below **Haut fond du Chanel** (46° 14'N., 70° 19'W.), where the ebb current attains a rate of 4.5 knots at springs. The rate of this current increases to 5.25 knots S of Les Piliers and decreases to 3 knots at Crane Island, while the flood current runs about 1 knot less at the respective localities.

10.23 Ile aux Coudres (47° 24'N., 70° 23'W.) lies with Pointe du Bout d'en Bas, its NE extremity, about 2.5 miles SE of Cap St.-Joseph. The point appears as an island from a short distance because of a 19m high wooded mound which stands on it. A conspicuous hotel stands near the point.

Ile aux Coudres is nearly 6 miles long and has an average width of 2 miles. The N coast of the island rises steeply to wooded hills, 119m high; the S coast of the island is generally faced by cliffs.

Pointe des Roches (47° 25'N., 70° 24'W.), on the N coast of Ile aux Coudres, lies about 3 miles W of Pointe du Bout d'en Bas. A public wharf, with an outer face 40m long and an alongside depth of 5.5min 1997, is situated here. The NE face also had an alongside depth, in 1997, of 5.5m, while the SW face had an alongside depth of 5m in 1997.

A shipyard is situated 183m NE of the public pier. The shipyard has a slipway, capacity of 1,000 tons, and constructs small vessels and repairs vessels up to 69m in length.

A row of conspicuous white oil storage tanks lies close S of the wharf.

Mouliage de la Prairie, on the N shore of the island, close W of the wharf, provides one of the most sheltered anchorages in the river in depths of 5.5 to 18.3m, clay, good holding ground. The best position is in the middle of the bay in a depth of 10m.

Between Cap St.-Joseph and Cap aux Corbeaux, about 3.7 miles WSW, the coast is bordered by a steep-to shore bank which dries in places and extends up to 0.5 mile offshore in places.

Baie Saint Paul (47° 25'N., 70° 29'W.), which dries almost completely, lies between Cap aux Corbeaux and Cap de la Baie. Two small rivers discharge into the head of the bay. A pier extends from the entrance to the E river but dries at LW.

Between Cap de la Baie and Cap Tourmente, about 20 miles SSW, the shore rises steeply to high wooded hills. **Cap Maillard** (47° 15'N., 70° 35'W.), about 8 miles SSW of Cap de la Baie, rises to a conical hill, 240m high, which is conspicuous from the NE and SW. A pier, with a depth of 6.1m alongside its outer end at HW, extends from the shore abreast of the town of Saint Francois Xavier de la Petite Riviere, about 3.3 miles N of Cap Maillard.

The shore between Cap Maillard and Sault-au-Cochon, about 4 miles SSW, is bordered by foul ground which extends up to 0.5 mile offshore, but from there to Cap Brule, about 6 miles farther SSW, the shore bank is narrowed to a width of less than mile.

Cap Brule (47° 07'N., 70° 43'W.) has been reported to be a good radar target up to 22 miles.

Cap Tourmente (47° 05'N., 70° 45'W.), about 2 miles farther SW, rises to a summit about 590m high.

Chenal du Sud (South Channel) and Adjacent Features

10.24 Chenal du Sud (47° 25'N., 70° 12'W.)—**N Entrance.—**Chenal du Sud is entered about 4 miles ESE of Pointe a la Baleine and is separated from Traverse du Milieu (Middle Channel) by Haut fond du Centre (Middle Ground). This latter channel is narrow, tortuous, and seldom used except by small craft with local knowledge.

Haut fond du Milieu, an extensive area of foul ground, extends about 16.5 miles SSW to the NE extremity of I'lle aux Oies.

Chenal du Sud is bordered on its NW side by an extensive area of foul ground which lies between Ile aux Coudres and Ile d'Orleans to the SW, and by the shoal banks on its SE side which extend from 0.5 to 5.5 miles offshore. The channel has a least width of about 0.4 mile and is 43 miles long to Pointe St.-Jean, the E extremity of Ile d'Orleans. It joins Chenal du Nord here to form the main channel leading to Quebec Harbor and other places upriver.

A limiting depth of 7m has been reported to lie in the channel at Beaujeu West Narrow, abeam of Ile aux Grues (Crane Island), about 24 miles SW of the N entrance.

10.25 La Pocatiere (47° 22'N., 70° 02'W.), a small village, stands on the slopes of Montagne du College, a prominent round hill 110m high about 4 miles S of Riviere Ouelle. A church with a conspicuous spire and some college buildings stand in the village. A small wharf, in ruins, with a depth of 3.2m at its outer end at HW, extends from the shore near the village.

Several conspicuous isolated hills stand SW of Montagne du College. Mont Boutot, a remarkable truncated cone, 216m high, stands E of La Pocatiere. Two microwave towers are situated about 1.8 miles SW of Montagne du College.

Traverse de Saint Roch is that part of Chenal du Sud which lies between Hauts fonds du Sainte Anne and Hauts fonds de Saint Roch on the SE side and Haut fond du Centreon the NW side. The channel is about 0.3 mile wide at its narrowest part.

St.-Roch des Aulnaies (47° 19'N., 70° 10'W.), a small village surrounding a church with two spires, stands about 6.5 miles SW of La Pocatiere.

The shore from St.-Roch des Aulnaies to St.-Jean-Port-Jolie, about 7 miles upriver, is bordered by low cliffs which rise inland to wooded hills about 90m high. This latter village is fronted by a pier about 216m long with shallow depths alongside; this wharf is reported (1996) to be in disrepair and berthing is prohibited. A strong current during the ebb at the end of the pier may hamper the approach.

Haut fond du Chenal (47° 15'N., 70° 20'W.), a narrow shoal with depths of 6.4 to 7.2m, lies on the NW side of Chenal du Sud, about 2.5 miles NW of the pier light at St. Jean-Port-Jolie. The channel abreast of this shoal narrows to a width of about 0.3 mile.

Le Pilier de Pierre (47° 12'N., 70° 22'W.), a small, bare, rocky islet, stands 3.5 miles WSW of the pier light at St.-Jean-Port-Jolie. Le Pilier de Bois, a steep, rocky islet 14m high, stands about 1.5 miles WSW of Le Pilier de Pierre. Rocher a Veillon, a drying rock which covers at half tide, stands 0.35 mile SE of Le Pilier de Pierre.

Good anchorage can be taken along the edge of the bank along the SE side of Chenal du Sud from a position SE of Le Pilier de Pierre to Ile aux Oies. The holding ground of the stiff clay bottom is so good that difficulty is experienced at times in weighing the anchor.

10.26 Ile aux Oies (47° 09'N., 70° 27'W.), wooded, hilly, and divided by a valley into two ranges running the length of the island, stands with its NE end about 2 miles SW of Le Pelierde Bois.

Battures de l'Ile aux Oies extend 4.5 miles SW from Ile aux Oies and connect it with Ile aux Grues. These meadows are almost awash at HW.

Ile aux Grues (47° 04'N., 70° 33'W.) is generally flat, but rises to an elevation of 40m near its SW end.

A public pier, 250m long, with a depth of 2.8m alongside its outer end, is situated on the E side of the island, 2 miles NE of Pointe aux Pins, the SW extremity.

A ramp and mechanical hoist are situated at the outer end of the pier. The mobile ramp is used by the ferry that plies between Ile aux Grues and Montmagny.

L'Islet-sur-Mer (47° 08'N., 70° 22'W.), a small village, stands about 6.5 miles SW of St.-Jean-Port-Jolie. A conspicuous black cross stands about 1 mile NE of the church in the village.

Cap St. Ignace, a bush covered conical mound, 15.8m high, stands about 6.8 miles SW of L'Islet-sur-Mer. A village stands about 0.8 mile behind the cape.

The city of Montmagny stands about 5 miles SW of Cap St.-Ignace at the junction of two rivers which discharge into the St. Lawrence River, over a waterfall about 9.1m high, into a bight called Le Bassin. The two piers within Le Bassin have shallow depths alongside. Banc de Saint Thomas, together with the shoals which border it, extends about 2 miles offshore abreast of Le Bassin and form the SE side of Chenal de Thomas.

La Grosse Ile (47° 02'N., 70° 40'W.), about 4 miles NW of Montmagny, is the highest of a group of islands lying to the W of Ile aux Grues. It rises to an elevation of 65m and was formerly the site of the quarantine station which is now situated in Quebec City. A public wharf stands on the SE shore of the island. The wharf is situated 0.3 mile from the W end of La Grosse Ile with a least depth of 5.6m alongside.

Haut fond de la Grosse Ile, a rocky shoal with a least depth of 3.5m, stands about 0.4 mile SE of the pier on La Grosse Ile. Battures St. Marguerite, parts of which are awash at LW, extends from Ile St. Marguerite and Ile la Sottise, which lie close E of La Grosse Ile.

Anchorage can be taken in a depth of 9.1m between Haut fond de la Grosse Ile and Battures St. Marguerite. Anchorage can also be taken between Grosse Ile and Haut fond de la Grosse Ile, but the anchorage farther NE in Passage de la Quarantaine is preferred.

There is also confined anchorage between La Grosse Ile and Haut-fond de la Grosse Ile. A rock, awash, lies 0.3 mile NE of the public pier. However, anchorage farther NE in Passage de la Quarantine (Quarantine Pass) is preferable.

Caution.—Between La Grosse Ile and Ile aux Grues there are numerous islets separated by narrow passages, including Passage de la Quarantine, which lie at the SW end of Chenal Traverse du Milieu. These fairways are strewn with drying or awash reefs and the ebb tidal currents are quite strong, making navigation hazardous. Local knowledge is required when navigating in this vicinity.

Trou de Berthier is a drying cove about 7.5 miles SW of Banc de Saint Thomas. Pointe Verte lies E and Pointe Rouge lies W of this cove. There is a ruined pier on Pointe Verte.

Ile de Bellechasse (46° 56'N., 70° 46'W.), small in extent and narrow, lies about 0.5 mile NW of Pointe Rouge. Rocher Pointu, with a least depth of 1.8m, lies close NW of the island.

Pointe de St.-Vallier (46° 55'N., 70° 48'W.), the extremity of a 39m high bluff, is the first prominent point on the SE shore of Chenal du Sud. It separates two drying bays that lie along the shore abreast of Ile de Bellechasse and Point St. Michael, about 5.3 miles WSW.

Ile d'Orleans and Adjacent Channels

10.27 Ile d'Orleans (46° 58'N., 70° 55'W.), which lies with its NE end about 4.5 miles SW of Cap Tourmente, divides the St. Lawrence into two channels. The island is generally cultivated on the slopes and in the valleys between the hills. The summits are mostly wooded and rise to an elevation of about 150m, about 3 miles from the SW end. The S coast is bordered by a low cliff which increases in height toward the SW end of the island and at the river mouths. On the N coast, the cliff lies some distance inland with the intervening land being flat and cultivated.

Ile aux Ruaux, Ile Madame, and Recife de l'Ille Madame, which lie on the E side of Traverse du Nord abreast of the NE part of Ile d'Orleans, have been previously described in paragraph 10.22.

St. Francois, a small village on the SE shore of Ile d'Orleans, lies 1.5 miles SSW of Pointe Argentenay, the NE end of the island. A church with a spire stands in the village. A public pier, 186m long, has a least reported depth of 3.7m alongside its outer end. The pier exhibits a light at its head.

Off the village of St.-Francois the tide rises 6.6m at HHW and 5.5m at mean tides, which is considered to be the maximum range in the St. Lawrence River. Up to this point the tide increases in range and above this point the range begins to decrease as the river is ascended.

Riviere Dauphine (46° 58'N., 70° 51'W.) flows into the St. Lawrence River about 2 miles SW of St.-Francois. Good anchorage can be taken off the river mouth in a depth of 10m, mud.

St. Jean, a small village with a church, stands on the SE coast of the island, about 3.5 miles SW of the Riviere Dauphine. A St. Lawrence River reporting station for vessels bound up and down river stands on the point.

The Riviere Lafleur and the Riviere Maheu flow into the St. Lawrence River about 1.5 miles and 2.8 miles SW of St.-Jean. Good anchorage can be taken off the mouth of the latter river in depths of 10 to 12m.

St.-Laurent (46° 51'N., 71° 00'W.), a small village with a church, stands about 6 miles SW of St.-Jean. A pier in ruins extends from the shore abreast of the village.

10.28 Beaumont (46° 50'N., 71° 01'W.), a small village on the S shore of the river opposite St. Laurent, has a church with a spire standing on the cliff. A waterfall flows over the cliff about 1 mile W of the church.

Trou St.-Patrice, a small inlet, stands at the mouth of Ruisseau St. Patrice, about 1.5 miles W of St. Laurent. Good anchorage can be taken in the inlet in depths of about 10m.

Overhead power cables, with a vertical clearance of 53m, span the river 2 miles W of St.-Laurent, although this clearance will be lower under winter icing conditions. Aircraft obstruction lights are displayed on each side of the channel. A conspicuous television tower, 307m high, stands about 3 miles W of St.-Laurent.

Pointe a la Martiniere (46° 50'N., 71° 07'W.), on the S shore of the river about 4.5 miles W of Beaumont, is the base of a small, wooded hill. A diamond-shaped beacon stands close E of the point.

The village of Sainte-Petronille (Beaulieu) stands near the SW extremity of Ile d'Orleans. A church and a large hotel stand near the point. A pier, with a 69m face, extends from the point.

Chenal de L'Ile d'Orleans (Orleans Island Channel) (47° 02'N., 70° 48'W.) lies between the N side of Ile d'Orleans and the shore to the N. This very narrow channel is obstructed by several mid-channel shoals which limits the draft of vessels capable of transiting it to no more than 3.7m. Although buoyed and marked by lighted ranges, passage of this channel should not be attempted without a pilot or local knowledge.

10.29 Pointe aux Pretres (47° 03'N., 70° 49'W.), on the N shore of the St. Lawrence River close N of the NE end of Ile d'Orleans, lies about 3.8 miles SW of Cap Tourmente. The intervening shore is low with the mountain range rising some distance inland.

The village of St.-Joachim, which has a church with a spire, stands about 1 mile W of Pointe aux Pretres.

Dwellings are practically continuous along the shore from here to Quebec.

The town of Beaupre stands at the mouth of the Riviere Ste.-Anne du Nord, about 3 miles W of Pointe aux Pretres. A conspicuous chimney and a water tower stand near a mill on the E side of the river mouth.

Ste. Anne de Beaupre (47° 01'N., 70° 56'W.) stands about 2 miles SW of the Riviere Ste. Anne du Nord and about 12 miles from the Quebec Harbor limit. A conspicuous church with two high spires stands in the town. A private pier, 341m long, with a depth of 3.4m alongside its outer end, extends from the shore abreast of the town. The outer end is reserved exclusively for tour boats. The NE and SW sides are bordered by large boulders.

Ste.-Famille, a small village, stands on Ile d'Orleans, about 3 miles SSW of Ste. Anne de Beaupre. Chateau-Richer, a similar village fronted by a small pier, stands on the mainland about 2.5 miles W of Ste.-Famille.

Overhead power cables, with a vertical clearance of 32m, span the channel about 3.3 miles SW of Chateau-Richer. The vertical clearance of the power cables may be less during winter icing conditions.

Submarine cables are laid across the channel from the mainland to Ile d'Orleans in the vicinity of Pointe St. Pierre. Caution not to anchor in this area is advised.

The town of Montmorency stands close SW of the mouth of the river of the same name, about 7.8 miles SW of Chateau-Richer. The Montmorency Falls, 76m high, stand about 0.5 mile upriver, but are not visible from the E until abreast of the river.

A fixed highway suspension bridge, with a vertical clearance of 33m, spans the channel about 1.75 miles SW of the mouth of the Riviere Montmorency. A channel, 183m wide, passes under the central part of this bridge.

Quebec Harbor (46° 49'N.,71° 13'W.)

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10.30 Quebec Harbor is situated on the St. Lawrence River, about 560 miles above Cabot Strait, the principal entrance to the Gulf of St. Lawrence. The distance from the pilot station at Anse aux Basques to Quebec Harbor is 120 miles. The limits of the harbor are contained within an area which extends from the SW end of Ile d'Orleans upriver to Cap-Rouge, about 2 miles above the Pierre Laporte Bridge.

Ample, modern, alongside berthing facilities are available for all classes of vessels at the city of Quebec on the W side of the river, and at Levis on the opposite side of the river.

Quebec is a port of entry.

Winds—Weather.—Fogs may occur occasionally on the St. Lawrence River in the early part of the day throughout the normal navigation season, but the lowest visibility, and the most continuous, is usually experienced in September and the first half of October.

Ice.—The normal navigational season lasts from April 15 to December 15; however, the port is open year round to vessels reinforced for ice navigation.

Tides—Currents.—Springs rise from 4.8 to 5.9m, while neaps rise about 3.9m.

As in all estuaries, the rise of the tide is more rapid than the fall. Low water is not far from the same level throughout the month; whereas, the height of HW varies in the usual way from springs to neaps.

As a rule, the water rises higher with strong NE winds, and falls lower with SW winds. The level at Quebec is also appreciably affected by the height of the water in the river. It is highest about April, falling gradually until late autumn, and lowest in winter.

From the opening of navigation until mid-September, the morning HW at Quebec are the highest. For the remainder of the navigation season the evening HW are the highest.

The flood current begins 1 hour 7 minutes after LW along the shore and runs for 4 hour 55 minutes. The ebb current begins 1 hour 5 minutes after HW along the shore and runs for 7 hour 30 minutes. Close to the shore the current turns about 20 minutes after HW and LW, the flood making first along the NW shore and the ebb along the SE shore.

The general set of the tidal currents is in the direction of the river, the ebb current being strongest along the SE shore and the flood current along the NW shore. The flood current sets toward Beauport Bank and should be guarded against. The ebb current attains a velocity of 4.5 knots off Pointe Levis, and the flood current a velocity of 3.5 knots off the Citadel.

Depths—Limitations.— The least depth in the principal approach channel of the St. Lawrence River between the Gulf of Saint Lawrence and Quebec Harbor is 12.5m. The fairway of the river channel above the harbor limits at Cap Rouge has a least depth of 14.6m. There is no limit to length or breadth.

Draft is limited to 14.3m in winter and 15.2m in summer. Pier information is listed in the accompanying tables.

The following table illustrates port facilities for public wharves in Quebec:

Location	Length	Depth	Remarks
Battures de Beauport			
50	236m	11.9m	Liquid bulk cargo
51	236m	12.5m	Dry bulk cargo
52	261m	12.2m	Dry bulk cargo
53	325m	15.2m	Dry bulk cargo
Riviere Saint Charles			
24*	168m	8.6m	Not in use
27	293m	12.0m	Ro-Ro
28	277m	12.0m	Grain loading
29	305m	10.5m	General cargo
30*	224m	10.0m	General cargo
31*	224m	7.3m	General cargo
St. Lawrence River			
18*	241m	11.0m	Grain unloading
21	206m	11.7m	Passenger vessels
22	325m	10.7m	Passenger vessels
25*	223m	9.5m	General cargo
26*	241m	11.0m	General cargo
Levis Wharf			
81*	220m	10.0m	Dry bulk cargo
Anse au Foulon			
101	198m	11.3m	General cargo
102	134m	11.3m	General cargo
103	211m	10.3m	General cargo
104	211m	10.3m	General cargo
105	195m	11.3m	General cargo and lumber
106	195m	11.3m	General cargo and lumber
107	173m	10.3m	Dry and liquid bulk
108	180m	10.3m	Dry and liquid bulk
Bassin Loiuse			
4*	240m	6.5-7.1m	
5*	180m	5.3m	
14	178m	—	
17*	210m	3.5-5.0m	
19*	192m	8.0m	
20	342m	—	

*Depths not maintained by dredging

The following table illustrates port facilities for private wharves in Quebec:

Location	Length	Depth	Remarks
Davie Industries (Lauzon)			
70*	152m	7.7m	Entrance to Champlain Dry Dock (E side)
71*	122m	7.7m	Entrance to Champlain Dry Dock (W side)
72*	107m	4.2m	
73*	164m	8.2m	
74*	141m	0.5-4.8m	
75*	169m	6.0m	
76*	183m	4.9-6.0m	
77*	170m	5.4m	Lorne Dry Dock (E side)
78*	168m	5.3m	Lorne Dry Dock (W side)
79	122m	—	
Societe des Traversiers			
82	96m	7.1m	Ferries
92	140m	6.1m	Ferries
Le Groupe Equimer			
80	91m	—	Repair wharf
Ultramar			
86	295m	10.2m	Coastal tankers up to 20,000 dwt
87	335m	16.7m	Ocean tankers up to 180,000 dwt
Irving			
109	22m	10.0m	Petroleum products. Depth is reported alongside the barge.
Daishowa Paper			
46*	210m	6.7m	Forest products
47*	205m	6.7m	Forest products
Coast Guard			
93*	73m	9.5m	

Location	Length	Depth	Remarks
94*	108m	10.3m	
95*	113m	9.3m	
96*	72m	10.3m	
97*	94m	10.3m	
98*	62m	10.3m	
Ville de Quebec			
91	91m	4.0m	Excursion boats

*Depths not maintained by dredging

Aspect.—The imposing Chateau Frontenac Hotel stands in Upper Town above the ferry wharf. A paper mill, with two chimneys, is situated on the N side of Riviere Saint Charles. A grain elevator is situated between Bassin Louise and Riviere Saint Charles.

In Lauzon, there is a church with a high spire situated about 0.2 mile S of Les Chantiers Davie. Situated close to this church is a large convent and college surmounted by a cupola. At Saint David de l'Auberiviere, on the SE shore adjacent to the Ultramar wharf, is a church with a spire.

At Sillery, on the NW shore, is a monastery with a spire about 0.5 mile N of Pointe a Puiseaux.

Pilotage.—Pilotage is compulsory. VHF channels 6, 9, and 11 are used. Inbound vessels are boarded by a pilot at Anse aux Basques, near Les Escoumins, for passage to Quebec. Vessels bound for destination farther upriver change pilots at Quebec. The pilot station is situated abreast Queen's Wharf. The river pilots will berth and unberth vessels at Quebec.

Masters of vessels bound upriver for ports above Anse aux Basques from any point E of the Strait of Belle Isle, Cabot Strait, or of Canso, must report their ETA at the pilot station at Anse aux Basques 24 hours prior to arrival. They must also give a second notice 12 hours prior to arrival and a confirming ETA 4 hours prior to arrival.

Any vessel arriving from any point W of the above places are required to give their ETA at the pilot station 12 hours before arrival. They will give a final notice correcting or confirming it 4 hours before hand. The above reports shall be given by calling a coastal marine station or Pilot Dispatch Center, addressed to "A.P.L. Pilot."

The master of a ship that is to depart from the port of Quebec shall give a first notice of departure 12 hours before the ETD to "A.P.L. Pilot", and a final notice confirming or correcting the estimated time of departure at least 4 hours beforehand. The master of a vessel that is to make a move within the port area shall give notice of such movement 3 hours beforehand.

Additionally, vessels inbound to ports W of Anse aux Basques must report ETA to Pilots Montreal, via Marine Traffic Control to Seven Islands Radio Station.

Regulations.—As a Ports Canada port, vessels maneuvering or otherwise underway in Quebec Harbor, and also while at an alongside berth or at anchor, are subject to the Ports Canada Operating By Law. A copy of these regulations may be obtained from the Canadian Department of Transport.

These regulations specifically apply to vessels underway, maneuvering, or handling cargo, and contain special regulations for the handling of explosives and dangerous goods as well as rules to be observed in the prevention of fire.

A vessel, immediately before entering or leaving Bassin Louise or the Estuare de la Riviere Saint Charles, shall sound on its whistle or siren two prolonged blasts. If towing, the vessel shall sound two prolonged blasts followed immediately by one short blast.

No vessel shall move in the harbor at a speed that may endanger life or property.

Vessels should send their ETA on departure from last port. Further ETAs should be sent via the agent 5 days, 48 hours, and 24 hours in advance.

Anchorage.—Anchoring within the harbor limits is prohibited without permission from the harbormaster, and then only at such place as is assigned. Permission to anchor must be obtained from the harbormaster through the Marine Traffic Control Center.

Anchorage is prohibited in the submarine cable and pipeline area N of anchorage area "A". Anchorage is also prohibited in the approaches to Anse au Foulon terminal.

Anchorage areas "A" to "C" are situated on the E side of the river between Queen's Wharf and Anse au Foulon terminal. Anchorage area "D" is situated in the N part of the harbor near the entrance to Chenal de l'Ile d'Orleans in 46˚ 51'N, 71˚ 09'W

Caution.—Batture de la Pointe de Levy is subject to silting and the approaches to, and depths alongside berths 70 to 79 are not maintained by dredging. Depths of 3.2m and 4.9m lie about 183m W and E, respectively, of the approaches to Berths 70 and 71.

A depth of 4.9m lies in the approaches to Berths 77 and 78.

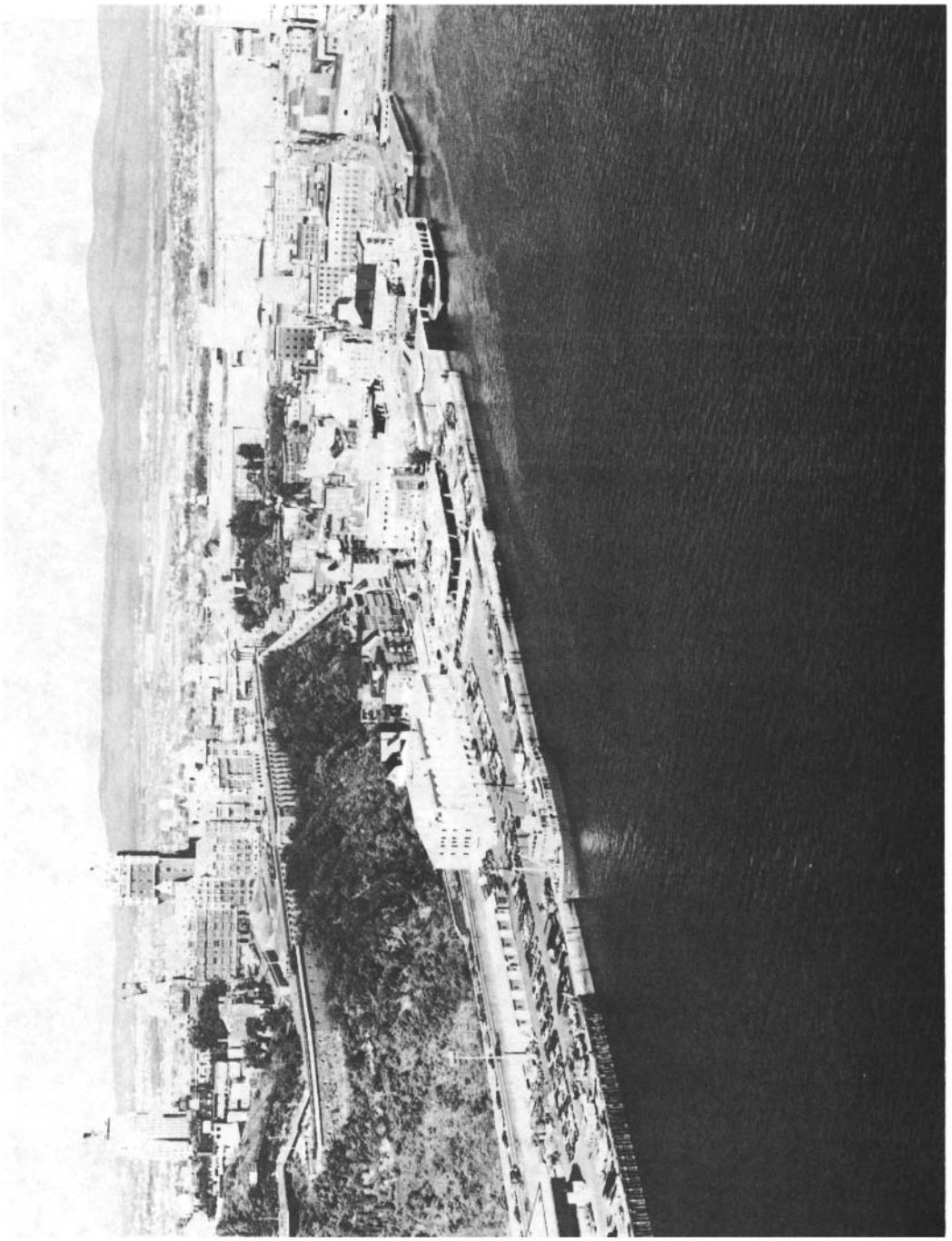
Quebec Harbor to Trois Rivieres Harbor

10.31 Pointe a Puiseaux (46˚ 46'N., 71˚ 15'W.) stands on the NW shore of the St. Lawrence River, about 1 miles above Anse au Foulon. A traffic control reporting station for vessels bound up and downriver stands on the point. The river is about 0.4 mile wide between the point and the opposite shore.

The St. Lawrence River between Quebec Harbor and Trois Rivieres extends irregularly W and SW for about 67 miles. Parts of the river are naturally deep, but those sections of the channel which are obstructed by shoals have been dredged to a depth of 10.7m over a least width of 244m. Vessels are advised to closely follow the alignment of the channel ranges, because lesser depths may be encountered along the sides of the dredged channels.

As part of a trial program, the depth in the main shipping channel has been increased from D42 Light-buoy (46˚ 33'N., 72˚ 09'W.) to Ile Sainte-Helene Light-buoy (45˚ 32'N., 73˚ 32'W.), situated in Montreal Harbor. The depth is increased to 11m over a minimum width of 230m, split equally on each side of the center line of the channel in certain areas. However, in the turns, a band 7.5m wide along each side of the channel is left untouched.

Tides—Curr ents.—The range of the tide is reduced at the high stage of the river above Quebec, and the tidal differences in time also vary with the season. At Pointe au Platon, and



Quebec Harbor—Queen's Wharf

above, the effect of neap tides is to cause the LW level to be lower than at spring tides. The height of spring and neap tides vary with the change of the moon's declination. It is very possible for the levels of two neap tides during a month to differ as much as 0.4m.

Because of the narrowness of the river at Le Sault, the ebb has a velocity of up to 5.5 knots and a velocity of nearly 5 knots at flood. Tidal eddies are formed up to 0.75 mile below the Quebec and Laporte bridges at the beginning of the flood, and close above the bridges at the beginning of the ebb.

Caution.—Vessels are required to have a minimum underkeel clearance, when on passage between Quebec and Montreal, assuming a speed of 7 to 8 knots. The clearance is based on the vessel's beam and varies from 0.84m for a beam less than 25.9m, to 1.52m for a beam greater than 39.6m.

During the winter, the lighted buoys are lifted and some of these are replaced by spar buoys.

10.32 The N shore of the St. Lawrence River between Pointe a Puiseaux and the Quebec and Pierre Laporte Bridges, about 2.5 miles SW, is bordered by the installation of the Irving Oil Company. The village of New Liverpool stands on the opposite shore. The Riviere Chaudiere discharges into the St. Lawrence River on the same shore, about 0.8 mile to the W.

The Quebec Bridge, with a distance between the piers of 549m, has a vertical clearance of 46m. The Pierre Laporte Bridge, close upstream of the Quebec Bridge, has a distance of 665m between the piers and a vertical clearance of 49m.

Overhead power cables, with a vertical clearance of 46m, span the river between the two bridges. Other power cables, with a clearance of 45m, lie close upstream of the Pierre Laporte Bridge. The vertical clearances off the overhead cables may be reduced during winter icing conditions.

The channel under the two bridges is called LeSault because of the strength of the ebb current and because it also is the narrowest part of the St. Lawrence River between Quebec and Trois Rivieres.

Riviere du Cap Rouge (46˚45'N., 71˚20'W.), with the village of Cap Rouge at its mouth, stands 2 miles W of the Pierre Laporte Bridge. The land in the vicinity consists of steep brown colored cliffs about 53 to 61m high.

Pointe Deschambault stands about 1.5 miles upriver from the Riviere du Cap Rouge. An anchorage area, with depths of 12 to 20m, lies S of Pointe Deschambault on both sides of the main ship channel. The N anchorage area is for the use of vessels with explosives.

Saint Nicolas (46˚42'N., 71˚24'W.), a small village with a church, stands on the S shore of the river about 2.3 miles SW of Pointe Deschambault. Several conspicuous white buildings stand on the N shore opposite Saint Nicolas.

Pointe St.-Nicolas, which consists of high cliffs, stands 2 miles W of Saint Nicolas. A traffic reporting station for vessels bound up and down river is abreast the point.

Haut-Fond St.-Augustin, an extensive shoal which obstructs the river between Pointe St.-Nicolas and the N shore, has a 10.6m deep, 244m wide, channel dredged through it. The ebb sets through this channel at a rate of 3 knots and the flood at a rate of 2.75 knots.

The S shore in the vicinity of **Pointe aux Pins** (Pointe Aubin) (46˚41'N., 71˚30'W.), about 2.5 miles above Pointe St.-Nicolas, consists of slate cliffs about 30.5m high. Anchorage can be taken N of the ship channel opposite Pointe aux Pins in depths of 11 to 18m.

St.-Antoine-de-Tilly (46˚40'N., 71˚34'W.), a small village with a church, stands about 3 miles WSW of Pointe aux Pins. The intervening shore is cliffy. Pointe de St.-Antoine stands close W of the village.

The village of Neuville, with a church, stands on the N shore opposite Pointe de St. Antoine. A pier, with shallow depths alongside its outer face, extends from the shore at Pointe aux Trembles close E of Neuville. On the SW side of the pier, a berthing length of 60m exists, with depths from 0.3 to 0.8m alongside. The pier head is protected by boulders and exhibits a light. A racon transmits from the light structure on Pointe aux Trembles.

A marina is situated between the pier and the breakwater. Private leading lights are situated 183m NW of Pointe aux Trembles pier light and lead 321.5˚ to the marina basin.

Les Fonds (46˚39'N., 71˚36'W.), a small village fronted by a pier, stands about 1 mile above Pointe de St. Antoine. The village of Ste.-Croix Est stands on the same shore, about 1.8 miles farther upriver. The shore in this area is cliffy.

10.33 Sainte-Croix (46˚37'N., 71˚44'W.), a village with a church with two spires, stands on the S shore about 4 miles above Ste.-Croix Est. An extensive drying rocky flat strewn with boulders lies off both shores of the river in this area.

In the river off Ste.-Croix, the duration of the ebb is 8 hours and that of the flood is 4 hours 30 minutes. The ebb sets at a rate of 3 knots and the flood at a rate of 2 knots.

A river traffic reporting station for vessels bound up and down river is situated abreast the Ste.-Croix range lights.

Les Ecureuils (46˚40'N., 71˚43'W.), a small village with a church, stands on the N shore about 3.3 miles NNE of Ste.-Croix. A pier, with a depth of 3.4m alongside its outer end at HW, extends from the shore at Les Ecureuils.

The town of Donnacona stands E of the mouth of the Riviere Jacques-Cartier, about 1.5 miles W of Les Ecureuils. There is a church with a spire in the town. A large conspicuous white water tank marked "Donnacona" is situated about 0.7 mile NE of the church. A microwave tower lies 0.9 mile NW of the church.

Pointe au Platon (46˚40'N., 71˚51'W.), a flat narrow peninsula which rises to a height of 46m a short distance inland, stands on the S shore of the river, about 2.5 miles W of Cap-Sante.

Caution.—A sewer outfall extends about 0.8 mile in a SSW direction from a position on shore about 0.3 mile ESE of the entrance to Riviere Jacques-Cartier.

A pier extends from the shore abreast of Cap-Sante, about 1.8 miles W of Donnacona.

Portneuf (48˚38'N., 69˚06'W.) (World Port Index No. 2060) stands on the N side of the St. Lawrence at the mouth of the Riviere Portneuf, about 1.8 miles NW of Pointe au Platon. A T-shaped wharf extends over 0.5 mile from the shore close W of the Riviere Portneuf. The pier head is 83m long, with a dredged depth of 10.7m alongside, although lesser depths can be expected due to continual silting around the pier.

The mean rate of the ebb off Pointe au Platon is about 2.3 knots and the rate of the flood is 1.25 knots. The ebb is reported to set diagonally across the channel to the N shore abreast the pier at Portneuf, and is then deflected SE across the channel abreast of Pointe au Platon.

Ile Richelieu (46° 38'N., 71° 55'W.), a V-shaped island, lies alongside the main ship channel about 2.8 miles SSW of Portneuf pier. Rapides Richelieu is the name of the section of the river NW of the island. The width of the channel is 305m in this vicinity. An extensive drying shale bank, covered with mud and strewn with boulders and rocky patches, extends from both shores in the vicinity of this river.

Range lights are shown from Vieille Eglise, 2.5 miles above Ile Richelieu. These lights, in line bearing 222°, lead through Rapides Richelieu. A racon transmits from the Ile Richelieu Light.

In the vicinity of Rapides Richelieu, the ebb flows for about 10 hours with a maximum rate of 8 knots under certain conditions. The flood lasts for 2 hours at springs, with a maximum rate of 1.5 knots. At neaps there is no perceptible flood.

In the dredged channel, the ebb has a maximum rate of 5.5 knots and the flood a maximum rate of 2 knots.

Deschambault, a small village on some 21.3m high cliffs, stands on the NW shore abreast of Ile Richelieu.

10.34 Vieille-Eglise (46° 37'N., 71° 57'W.) is a small village fronted by an unusable pier and is surrounded by large boulders. Another small wharf, close NE, dries at LW and has a ramp. This wharf was formerly used by a ferry crossing to the NW shore. The shore between this village and Pointe Langlois, about 2.5 miles farther SW, is bordered by cliffs about 24m high.

The Grondines anchorage area lies on both sides of the main ship channel to the NW of Pointe Langlois.

Leclercville, a small village with a church, stands on the S side of the mouth of the Riviere du Chene close S of Pointe Langlois. A pier stands near the church. The pier dries.

The village of St.-Charles des Grondines, fronted by a pier with shallow depths, stands on the N shore of the St. Lawrence River opposite Leclercville. **Pointe des Grondines** (46° 35'N., 72° 04'W.), an irregular, low projection, stands about 1.5 miles WSW of the above pier. Cap Charles, 31m high, stands on the S shore, about 1 mile S of Pointe des Grondines.

A traffic reporting station for vessels bound up and down river is situated abreast of St.-Charles des Grondines. Deschaillons-sur-St.-Laurent, a village fronted by a pier with depths of 3.7 to 3.9m alongside its outer face, stands about 1.8 miles W of Cap Charles. At certain stages of the tide, considerable eddies are encountered off the pier.

A marina is situated close W of the public pier. It is protected from the W by a breakwater, from the E by the pier, and by pontoons on the N side. Depths in the marina are about 0.8 to 1.8m.

During spring tides, the ebb in the channel off Deschaillons-Sur-St.-Laurent is reported to set at a rate of 5 knots.

10.35 Cap Levrard (46° 32'N., 72° 10'W.), 29m high, stands on the SE shore, 2.25 miles WSW of Deschaillons-sur-St.-Laurent.

The main shipping channel is dredged to a depth of 11m from Buoy D42 (46° 33'N., 72° 09'W.), above Deschaillon-sur-Saint-Laurent to Buoy Ile Sainte Helene (45° 32'N., 73° 32'W.), moored in Montreal Harbor; however, a 7.5m wide band, which has a depth of 10.7m, runs along the inside boundaries of each side of the channel between Buoy D42 and Buoy PAT (45° 39'N., 73° 29'W.).

The village of La Perade stands on both banks of the Riviere Ste.-Anne, about 1 mile above the entrance, on the N bank of the St. Lawrence River opposite Cap Levrard. A church with two square towers stands in the village. A chimney, prominent from the river, is situated about 0.5 mile SW of the church.

Les Becquets, a village fronted by a pier, stands on the SE shore 2.5 miles above Cap Levrard. A narrow channel leads from the river to the pier, but is available only to small craft.

Riviere Batiscan (46° 31'N., 72° 14'W.) discharges into the St. Lawrence River on the NW shore, about 0.7 mile N of Batiscan Leading Lights. A narrow channel passes between grassy foreshores bordering the entrance to the river. Private buoys mark the channel that leads to a marina. The river is spanned by two bridges with vertical clearances of 5.5m, 0.5 mile within the entrance, and 6.4m, 0.4 mile farther upstream.

The marina is situated on the N shore, 0.4 mile from the mouth of the river, below the downstream bridge.

A dolphin lies S of the marina pontoons. Numerous submerged dolphins are situated above the bridge.

The village of Batiscan, fronted by a 75m long pier, stands about 1.3 miles S of the Riviere Batiscan. The wharf is approached from the NE through a channel, no longer dredged, with depths, in 1992, of between 3.1m and 3.8m. The approach to the channel has a least depth of 2m.

The depth alongside the wharf varies between 3.7m and 4m, with 0.6m on its S face. A light is exhibited at the wharf and a boat slip is on the N side. Batiscan leading lights are shown approximately 0.8 mile downstream from the village.

An anchorage area, dredged to 10.7m, lies on the W side of the main ship channel abreast of Batiscan.

A traffic reporting station for vessels bound up and down river is situated abreast of Batiscan.

During spring tides, the duration of the flood off Batiscan is about 1 hours 30 minutes. At neaps, the set is always downstream. The set with the ebb gradually increases in strength from Batiscan to the Rapides Richelieu, except in the vicinity of the Groundines Anchorage.

Pointe a la Citrouille (46° 12'N., 72° 16'W.), a low projection, stands on the NW shore about 3 miles S of Batiscan. Frequent dredging is necessary in the main ship channel SW of the point because of heavy silting.

Champlain, a small village fronted by a pier with a depth of 3m alongside its outer face, stands on the N shore 3 miles above Pointe a la Citrouille.

Becancour (46° 21'N., 72° 26'W.), a small town, stands 1.5 miles above the mouth of the Riviere Becancour, about 5.8 miles SW of Champlain.

Port de Becancour (46° 24'N., 72° 23'W.) is situated on the S side of the St. Lawrence River, about 3 miles ENE of the mouth of Riviere Becancour. The port and its approaches have been dredged; the outer approach area to a depth of 10.3m and the S area to a depth of 10.7m. The area is subject to silting and lesser depths should be expected. Maximum size accommodated for length was reported to be about 244m, draft 10.67m.

The port is equipped for handling bulk, general, and containerized cargoes, and operates all year round. Imports are alumina, bauxite, chrome ore, coal, coke, magnetite, quartz, salt calcium, sodium chloride, and steel coils. Exports are aluminum, bricks, caustic liquids, lumber, and magnesium.

Depths—Limitations.— The alongside berths are as follows:

Berth	Length	Depth	Remarks
B-1	244m	10.67m	Outside by main channel
B-2	150m	10.67m	Inside basin/ro-ro ramp
B-3	219m	10.67m	Inside basin
B-4	225m	10.67m	Inside basin
B-5	292m	10.67m	Smelter plant berth

The ro-ro ramp is 22m wide.

An "optical guidance system" is used as leading lights for the basin approach; they are in line bearing 167.5˚. This system, situated near the shore SE of Berth 5, consists of a guidance panel showing illuminated directional arrows which become vertical lines when the ship is on the indicated course. The "optical guidance system" is operational only for vessels approaching the wharf and allowed to use the harbor installations

Pilotage.—Pilotage is compulsory, the pilot being embarked off Escoumins and changed at Quebec. Tugs are not compulsory, but are available from Trois Rivieres.

Anchorage.—Anchorage is available in the dredged area off the berths.

The Trois Rivieres downstream harbor limit lies between Pointe de Beacancour, the E entrance point to the Riviere Becancour, and Pointe Lottinville, on the opposite shore of the St. Lawrence River.

Trois Rivieres Harbor (46˚ 21'N.,72˚ 32'W.)

World Port Index No. 2210

10.36 Trois Rivieres Harbor, a commercially important port stands on the N bank of the St. Lawrence River, about 67 miles above Quebec and 71 miles below Montreal.

The city of Trois Rivieres stands on the W side of the mouth of the Riviere Saint Maurice, and the city of Cap-de-la-Madeleine stands on the E side. Most of the river berths lie adjacent to the city of Trois Rivieres. Trois Rivieres is a port of entry.

Ice.—The port is open to regular navigation for about nine months of the year and open year round to vessels reinforced for ice navigation.

Tides—Curr ents.—The tidal influence at Trois Rivieres is very small. The maximum rise and fall of the tide is only about 0.3m.

Near the downstream limit of Trois Rivieres Harbor, NE of Pointe de Becancour, the current sets to the E at a rate of 1.5 knots. This current must be allowed for when altering course in this position. The average rate of the current is 2.8 knots, between the wharf at Cap-de-la-Madeleine and Ile de la Potherie. The average rate is 1.5 knots near the upriver limit of the harbor.

Depths—Limitations.— The dredged main ship channel which passes through the limits of the harbor has a dredged depth of 11m, with a least width of 225m.

A set of power transmission lines, with a vertical clearance of 45m or of 38m under severe icing conditions, span the St. Lawrence River above the main berthing area. A bridge with a vertical clearance under the main span of 48m crosses the harbor farther up the river.

Details of the wharves at Trois Rivieres are shown in the accompanying table:

Berth	Length	Depth	Remarks
Ports Canada			
1	152m	9.1m	Paper loading
2	122m	9.1m	Paper loading
3	165m	9.1m	General cargo
4*	117m	5.5m	
6*	91m	5.5m	
7*	91m	5.5m	Port Authority berth
9*	99m	4.6m	
10	251m	10.6m	General cargo
11	229m	10.6m	Ro-ro ramp
13	184m	9.1m	Ro-ro ramp at N end
14	152m	10.6m	General cargo
15	122m	10.6m	
16	175m	10.6m	Grain unloading
17	221m	9.7m	Grain unloading
19	221m	10.0m	Bulk liquid and dry cargo
20	221m	10.6m	Bulk liquid and dry cargo
21*	122m	6.0m	Receiving pipe-line for fuel oil. Located at Cap-de-la-Madeleine.
Private Wharves			
PFCP*	227m	1.6m	Receiving pipe-line for bunker oil

Berth	Length	Depth	Remarks
Stone Consolidated Inc.	104m	8.0m	Receiving pipeline for bunker oil. In a state of disrepair 1989.
Cascades Luppel Incorporated Wharf	91m	7.0m	No longer operational. Located 183m downstream from Berth No. 21
St. Angele de Laval*	75m	3.0m	Ferry terminal

*Depths not maintained by dredging

Owing to continual silting, the depths alongside the wharves are constantly changing, but are reported to be maintained by dredging to the depths indicated.

Aspect.—Three radio towers of the Canadian Coast Guard radio relay station are situated close west of **Pointe Lottinville** (46° 24'N., 72° 27'W.); one tower is taller than the others.

The imposing Basilica of Notre-Dame-du-Cap stands close N of the Ports Canada wharf at Cap-de-la-Madeleine.

Large paper mills are situated on Ile de la Potherie in the mouth of Riviere Saint-Maurice and at Trois Rivieres, near the SW entrance point to Rivieres Saint-Maurice. Kruger has a large plant near the SW limit of the city of Trois-Rivieres.

Pilotage.—Pilotage is compulsory. Inbound vessels change pilots at Quebec for the trip upriver to Trois Rivieres. Vessels bound farther upriver exchange pilots at Trois Rivieres. Vessels requiring an exchange pilot are requested to notify Pilots Trois Rivieres four hours prior to arrival. The pilot station stands on **Pointe des Ormes** (46° 18'N., 72° 35'W.) on the N shore of the river. River pilots berth and unberth vessels on arrival and departure from Trois Rivieres.

A traffic control reporting station for vessels bound upriver only is situated abreast of Cap-de-la-Madeleine wharf. A similar station, for both up and down river traffic, is situated abreast of Pointe des Ormes.

Regulations.—Any vessel entering the harbor limits of Trois Rivieres comes under the Ports Canada regulations. These include maneuvering, berthing, unberthing, cargo handling, and include specific regulations for the carriage and handling of explosives and dangerous goods. A copy of these regulations may be obtained from Ports Canada, Trois Riviaeres.

Within the limits of Trois Rivieres Harbor, a vessel shall proceed at a speed not to exceed 7 knots.

Vessels should send their ETA on departure from last port. Further ETAs should be sent via the agent 5 days, 48 hours, and 24 hours in advance.

Anchorage.—No vessel, except in an emergency, shall anchor within the limits of the harbor without prior permission of the Port Manager, and then only at such place as is assigned. The anchorage area for the port is situated between the pilot station at Pointe des Ormes and the upriver harbor limit. The positions of the six anchorage berths are charted. No vessels shall anchor in these berths during the winter season.

Anchorage is prohibited in the vicinity of the submarine cable areas which lie NE and SW of the bridge crossing the St. Lawrence River, close NE of Pointe des Ormes.

Vessels carrying explosives are not permitted to berth or anchor within the port limits of Trois Rivieres.

Caution.—Considerable silting is experienced at Trois Rivieres; therefore, the natural depths alongside the wharves are constantly changing and dredging is necessary to maintain the charted depths. There may be less water than shown on the chart. A particularly vulnerable area lies between Trois Rivieres and Lie Saint Quentin, at the mouth of Riviere Saint Maurice.

Trois Rivieres Harbor to Sorel Harbor

10.37 The main ship channel in the river from Trois Rivieres to Lac Saint-Pierre is at least 305m wide. An anchorage area is situated on the N side of the channel to the N of Port Saint-Francois.

Pont Laviolette, a high level bridge with a vertical clearance of 50m crosses the St. Lawrence River about 0.5 mile NE of Pointe des Ormes. An overhead power cable, with a minimum vertical clearance of 48.2m, spans the river about 0.8 mile NE of the bridge. Two racons transmit from the bridge.

St. Lawrence River.—In recent winters, a speed limit has been imposed on vessels navigating between Trois Rivieres and Montreal. In the past, some vessels have traveled at excessive speeds during the winter, creating large waves which have broken large sheets of ice from the shoals and banks, thereby blocking the channel with large ice jams. As a result, shipping had to be stopped until the channel could be cleared. Winter speed regulations and other information regarding winter navigation on the river are promulgated in Canadian Notices to Mariners.

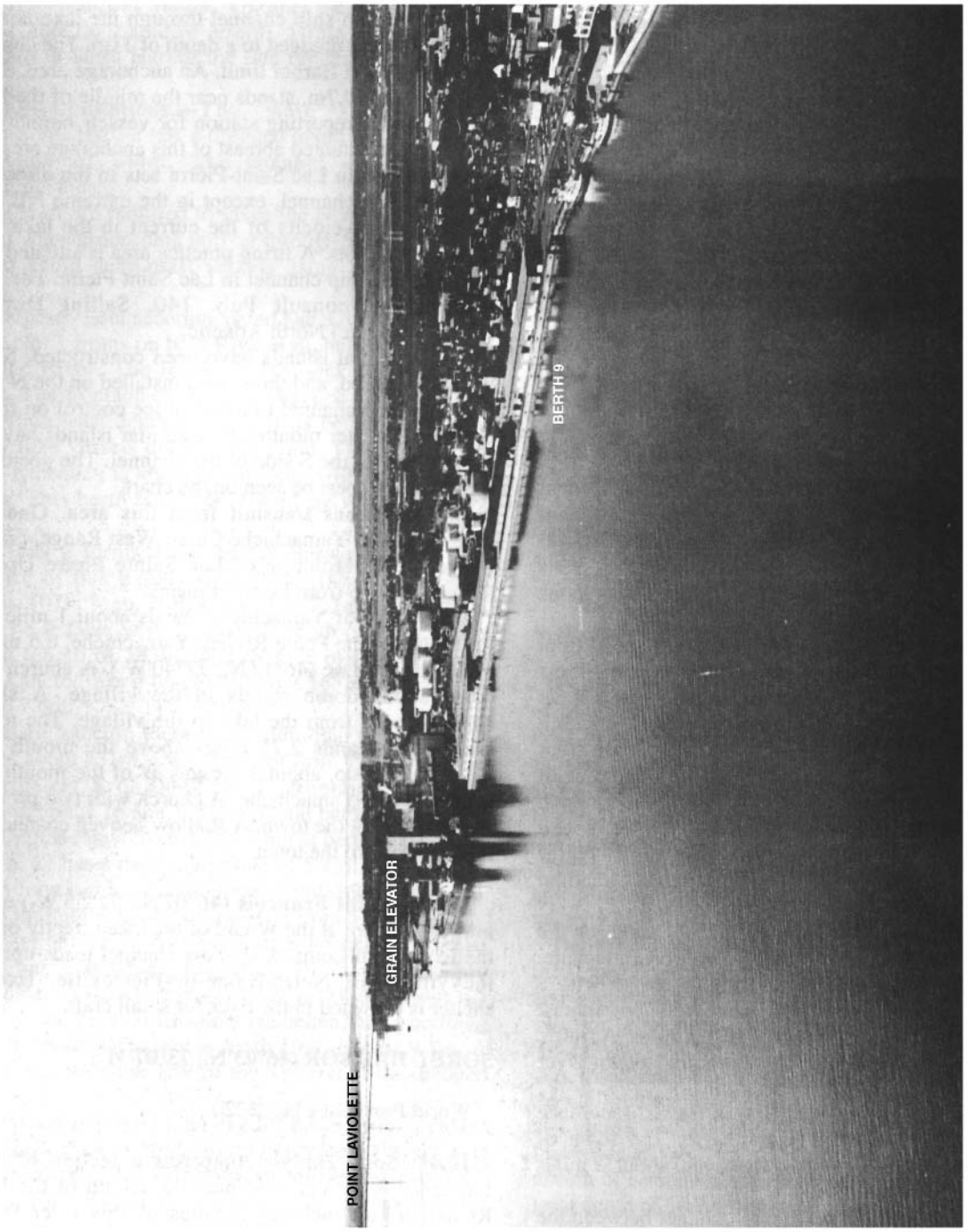
Port Saint Francois (46° 16'N., 72° 37'W.) stands on the S side of the river, about 3.3 miles SW of Port Laviolette. The pier in the port is in ruins. A traffic control reporting station for vessels bound down river only stands abreast the port.

The Riviere Nicolet discharges into the St. Lawrence River at the E end of Lac Saint-Pierre. The town of Nicolet stands on the E bank of the river, about 2 miles above the mouth.

The river current in the main ship channel between the mouth of the Riviere Nicolet and Port Saint-Francois sets to the E at a rate of about 2 knots, but not in the direction of the channel.

Note.—In order to avoid interference with navigation in the main ship channel, it is recommended that small craft follow the small craft channel, which commences off **Lanoraie** (45° 57'N., 73° 13'W.) and ends at Montreal. The channel has a least depth of 1.7m, a least width of 61m, and is marked by buoys and leading lights.

10.38 Lac Saint-Pierre (46° 13'N., 72° 49'W.), which is naturally shallow, is about 16 miles long and 6 miles wide. The main ship channel through the lake is at least 229m wide and dredged to a depth of 11m. The channel is Nicolet to Sorel Harbor limit. An anchorage area, dredged to a depth of 10.7m, stands near the middle of the lake. A traffic control reporting



Trois Rivieres Harbor—Berths 3 to 20

Trois Rivieres—Cap-de-la-Madeleine

station for vessels bound up and down river is situated abreast of this anchorage area.

The current in Lac Saint-Pierre sets in the direction of the main ship channel, except in the extreme NE part of the lake. The velocity of the current in the lake ranges from 1 to 2 knots. A firing practice area is situated on the S side of the ship channel in Lac Saint Pierre.

Four artificial islands have been constructed, four ice booms anchored, and three piers installed on the N side of the main ship channel to assist in ice control on the lake during the winter months; the W pier dries. Five similar islands have been constructed on the S side of the channel. The positions of these aids can best be seen on the chart.

From November to April, there is an ice boom anchored SE of Pointe de Yamachiche. Buoys are moored to indicate submerged cables and anchors established throughout the year.

Several racons transmit from this area. One racon transmits from Yamachiche Curve West Range, one from the rear light structure of Lac Sainte Pierre Upstream Range, and one from Ile aux Raisins.

The village of Yamachiche stands about 1 mile above the mouth of the Petite Riviere Yamachiche, 6.5 miles W of **Pointe du Lac** (46° 17'N., 72° 40'W.). A church with a conspicuous dome stands in the village. A shallow channel leads from the lake to the village. The town of Louiseville stands 2.75 miles above the mouth of the Riviere du Loup, about 4.5 miles W of

the mouth of the Petite Riviere Yamachiche. A church with two prominent spires stands in the town. A shallow buoyed channel leads from the lake to the town.

Riviere Saint Francois (46° 07'N., 72° 55'W.) empties into the S shore at the W end of the lake directly opposite the Riviere du Loup. A shallow channel leads upriver to the village of Notre-Dame-de-Pierreville. Excellent shelter is provided in the river for small craft.

Sorel Harbor (46° 03'N.,73° 07'W.)

World Port Index No. 2220

10.39 Sorel Harbor comprises a section of the St. Lawrence River centered near the mouth of the Riviere Richelieu and includes 5 miles of this river from its entrance.

Unlike Quebec, Montreal, and Trois Rivieres, which are controlled by Ports Canada, Sorel Harbor is a public harbor administered by the Department of Transport. The ice-free navigation season extends from about April 10 to December 10.

The city of Sorel stands on the E side of the mouth of the Riviere Richelieu and the towns of Tracy and Saint-Joseph-de-Sorel stand on the W side. Cargoes are landed at Sorel for transshipment up the Riviere Richelieu to Lake Camplain and the New York barge canal system.

Sorel is a port of entry.

Tides—Curr ents.—There is no tidal influence at Sorel.

The river current in the channel between Ile des Barques and Ile Lapierre attains a rate of 2.8 knots. Elsewhere in Sorel Harbor the rate ranges from 1 to 1.6 knots.

Depths—Limitations.— The main ship channel through Sorel Harbor has a dredged depth of 11m with a least width of 244m. The channel is marked by navigational aids.

Small craft are required to favor the N and S shores of the river when proceeding upriver through Sorel Harbor in order to avoid deep-draft vessels using the main ship channel.

The largest vessel accommodated had a draft of 11.5m.

BERTH LIMITATIONS—SOREL HARBOR

Berth	Length	Depth	Remarks
Transport Canada berths			
5	183m	9.1m	
6	107m	8.8m	
7	152m	8.5m	Inside Bassin Lanctot
8	160m	6.1m	Inside Bassin Lanctot
9	61m	6.1m	Inside Bassin Lanctot
10	160m	6.1m	Inside Bassin Lanctot
16	107m	4.9m	
17	213m	4.9m	

BERTH LIMITATIONS—SOREL HARBOR

Berth	Length	Depth	Remarks
Sorel Limited berths			
11	152m	7.3m	Inside Bassin Lanctot
12	107m	7.3m	Inside Bassin Lanctot
13	76m	7.3m	Inside Bassin Lanctot
14	187m	8.3m	Grain discharging
15	190m	10.7m	Grain loading
Omnimar, Inc.			
18	168m	4.3m	
Marine Industries, Ltd.			
19	183m	6.1m	
Quebec Iron and Titanium			
20	168m	9.1m	
21	168m	9.1m	Ore loading and discharging

The Pont Turcotte, a highway bascule bridge with a closed vertical clearance of 16m, spans the river about 0.4 mile above its mouth. A railroad swing bridge, with a closed vertical clearance of 9.2m, lies about 0.2 mile upstream of the highway bridge. It was reported that the swing span of this bridge was permanently open.

Another highway bridge, with a vertical clearance of 22m, spans the river about 0.8 mile above the railway bridge. Vessels proceeding upstream are to use the W channel between piers, while vessels proceeding downstream are to use the E channel.

Close N of the railway bridge, an overhead power cable, with a vertical clearance of 40m, spans the river.

Tugs can be obtained if needed for maneuvering within the harbor area.

Pilotage.—Pilotage is compulsory. Inbound vessels are boarded by pilots at Anse aux Basques, near Les Escoumins, and exchange pilots at Quebec and Trois Rivieres for the passage up to Sorel.

Regulations.—Sorel Harbor is subject to the Public Harbors Regulations. In addition, no vessel shall proceed at a speed exceeding 8 knots within the limits of the harbor area. Every vessel entering or leaving the Riviere Richilieu shall keep to that side of the fairway which lies on the port side of the vessel.

Vessels of less than 38,000 dwt may use the wharf at Tracey without the assistance of a tug; approach speed must not exceed 0.3 knots. Vessels between 38,000 and 75,000 dwt must use a tug; approach speed must not exceed 0.215 knots.

Anchorage.—Anchorage can be taken in a depth of 10.7m off **Ile Lapierre** (46° 05'N., 73° 01'W.), N of the main ship channel. Safe anchorage can be taken in the St. Lawrence River off Sorel, and upriver from the city in depths of 9.1 to 14.6m.

Anchorage is prohibited in the area adjacent to the wharves at Sorel, S of the main ship channel.

Caution.—Two overhead power cables cross the St. Lawrence River about 1 mile W of Sorel. The cables have a minimum clearance of 52m, although this clearance may be as little as 38m under severe icing conditions.

Sorel Harbor to Montreal

10.40 The W limit of Sorel Harbor is also the N limit of Montreal Harbor. For administrative purposes, the N limit of Montreal Harbor extends from the W shore of the St. Lawrence River, about 1 mile S of the S point of Ile aux Foins in a 105° direction to the E shore. Montreal Harbor is under the administration of the Montreal Port Corporation.

Tides—Curr ents.—The current between Sorel Harbor and Montreal is always outgoing, and has an average velocity of 1.8 to 2 knots.

Depths—Limitations.— The main ship channel, from the Upper Sorel Harbor limit, has a dredged depth of 11m and a least width of 244m for a distance of 27 miles to a position abeam of **Pointe-aux-Trembles** (45° 38'N., 73° 29'W.).

A small craft channel, which all vessels drawing less than 2.7m are required to use, commences S of the wharf at Lanorie and extends S along the W shore of the St. Lawrence River. The main ship channel extends S from abeam of Lanorie along the E bank of the river and has a least depth of 10.7m within its limits.

The main ship channel between Ile aux Foins and Lanoraie, about 4.8 miles to the S, is about 0.5 mile wide between the fringing shoals.

A dolphin berth, about 101m long across the face, with a depth of 10.6m alongside, stands on the E bank of the river abreast of a steam generating plant about 2 miles S of Ile aux Foins. The berth can accommodate vessels up to 43,000 dwt; the maximum approach speed to the wharf is 0.5 knot. Four high chimneys stand in the plant; four high towers stand about 0.3 mile NE of the plant. Overhead power cables, with a clearance of 51.8m, cross the river adjacent to the power plant.

A traffic control reporting station for vessels bound up and down river is situated abreast of the plant.

Caution.—In Varennes Traverse, a 2.5 knot current sets a little on the starboard bow of inbound vessels and must be guarded against.

10.41 Lanoraie (45° 57'N., 73° 13'W.), a small village on the W bank of the river, is fronted by a pier, the upstream side and outer end of which are protected by rocks.

The village of Lavaltrie, which has a church with two conspicuous spires in it, stands on the W bank of the river about 5 miles above Lanoraie.

Depths—Limitations.— A T-head pier extends from the shore abreast of the village. The outer end of the pier is 15m long and the upstream side is protected by rocks; there are two ramps. Ile de Lavaltrie lies about 0.5 mile off the village.

Ile Saint-Ours, standing with its N end about 2 miles S of Lanoraie, is the N island of a group known as Iles de Contrecoeur. This group extends about 5.5 miles SSW to Ile du Dragon. During the month of May, these islands are partly covered, but later in the year are above-water.

A pier with shallow depths alongside extends from the shore abreast of the village of Contrecoeur, about 2 miles SE of Lavaltrie.

The Iron Ore Company of Canada, which has berthing facilities for the handling, transshipment, and storage of bulk ore products, stands on the E bank of the river, about 2.5 miles above **Contrecoeur** (45° 53'N., 73° 12'W.). The main wharf, 229m long, is capable of berthing vessels up to about 244m in length, with a beam of about 31m. A depth of 10.7m exists alongside this wharf. The other wharf is 140m long with a depth of 6.7m alongside. Maximum size of vessels handled was 259m, beam 32m at Berth No. 1. Draft is subject to river levels and recommended under-keel clearance. There is a depth of 10.6m alongside.

A traffic control reporting station for vessels bound up and down river is situated abreast of these wharves.

A pier protected by a breakwater extends from the shore abreast of Vercheres, about 4.5 miles upriver from the Iron Ore Company facility. Only small craft can be accommodated. A statue stands near the pier. A submarine intake pipeline extends NW from the shore, about 0.2 mile SW of the pier.

Anchorage.—Good anchorage can be taken, clear of the main ship channel, between Sorel Harbor Limit and Lanoraie, except in the vicinity of a submarine cable about 1.5 miles downstream from Lanoraie.

Iles de Vercheres (45° 48'N., 73° 21'W.), a group of several islands which stand off this section of the river, is bordered by the small craft channel on its W side and the main ship channel on its E side.

Caution.—No vessel carrying bulk petroleum products or other bulk inflammable cargo, with a flash point below 23° C, may anchor anywhere above Lanoraie. Any vessel desiring to anchor for a short period of time must obtain permission from the Montreal harbormaster.

When ships are passing in the main ship channel there may be a vertical water movement of 1.2m in Vercheres, with strong surges in the entrance. It may be hazardous to approach or be berthed at the pier head during these conditions.

10.42 Cap St.-Michel (45° 43'N., 73° 2'W.), the site of an oil discharge mooring berth, stands on the E side of the river, about 5 miles SW of Vercheres. Numerous oil storage tanks and industrial buildings stand in the vicinity of the cape.

The river current between Vercheres and Cap St.-Michel has an average rate of 1.9 to 2.4 knots.

A traffic reporting station is close N of Cap St.-Michel.

The town of Repentingy stands on the NW shore of the river, about 1.5 miles NW of Cap St.-Michel. A church with a conspicuous spire stands in the town.

Varennes, a small village fronted by a pier, stands on the E shore of the river about 2 miles S of Cap St.-Michel. The pier is 25m long and has a depth of 1.8m. There is also a ramp. A church with two conspicuous spires stands in the village.

Ile Ste. Therese (45° 41'N., 73° 28'W.) is the largest of a group of islands which lie in the river between Varennes and the N part of Ile de Montreal to the W. Some overhead power cables, with a minimum clearance of 53.3m, span the St. Lawrence River between Ile de Montreal and the E shore near the S end of Ile Ste.-Therese.

Caution.—Depths shallower than those charted may exist in the areas adjacent to the ship channel between Varennes and Longue-Pointe, about 6.5 miles further SSW.

Montreal Harbor (45° 31'N.,73° 33'W.)

World Port Index No. 2235

10.43 Montreal, the largest and most important commercial city in Canada, stands on the SE side of Ile de Montreal on the slopes of Mount Royal, which rises to an elevation of 232m about 1.8 miles from the St. Lawrence River. The town of Longueuil stands on the opposite bank of the river.

Standing at the junction of the St. Lawrence and Ottawa Rivers, Montreal is also at the foot of navigation of the Great Lakes system via the St. Lawrence Seaway. During an ordinary season, which usually lasts for about 8.5 months, vessels may proceed through the seaway from Montreal to ports on the Great Lakes.

Montreal Harbor limits, for administrative purposes, extend from Sorel Harbor upper limit to the lower limit at Victoria Bridge, where it crosses the St. Lawrence Seaway.

Montreal has ample, modern, alongside berthing facilities for all classes of vessels.

Montreal is a port of entry.

Winds—W eather

Over a period of thirty years the average number of days in a year during which fog occurred on the St. Lawrence River between Quebec and Montreal was eighteen.

The prevailing winds are W and SW, though in the lower part of the river strong NE winds prevail from March to June.

Ice

The port is open year round, but due to likely conditions from December to March, inclusive, it is recommended that vessels navigating to Montreal be strengthened for ice.

Although the port is open year round, night navigation may not be possible from mid-December to early April when the summer buoys are removed.

Tides—Curr ents

The port of Montreal is free of any tidal effects.

Within the harbor limits of Montreal the current is constantly outgoing with a velocity in the main ship channel of 1.7 to 6.3 knots depending on the part of the harbor and the influencing circumstances. Generally, the current follows the reaches of the channel, but at turns or bends in the river it sweeps obliquely across the channel, in most instances, and should be guarded against.

Courant Sainte-Marie is the name given to the passage N between the N end of Ile Ste. Helene and Montreal, through which passes the bulk of the St. Lawrence River water. The ordinary velocity of the current in this section of the river is 4 to 6 knots.

The current through Ile aux Vaches Traverse sets N at a rate of about 2 knots across the channel and should be allowed for.

The current at the lower end of Longue Pointe Curve sets N at a rate of about 2 knots across the channel and should be allowed for. Dikes protecting the E end of a vehicular tunnel crossing the channel from Longue Pointe may affect both direction and speed of the current in this area.

Depths—Limitations

The main ship channel in Montreal Harbor has a dredged depth of 11m over a width of 245m until Buoy Sainte-Helene; from this buoy upstream to Alexandria Pier the channel is dredged to a depth of 10.7m, with a least width of 168m under the Jacques-Cartier Bridge. The channel is marked by navigational aids. The South Shore Canal (Canal de la Rive Sud), which is the entrance to the St. Lawrence Seaway, has a least depth of 8.2m and a minimum usable width of 61m under the Jacques-Cartier Bridge. This canal branches off from the main ship channel close N of Ile Sainte-Helen.

South of a line joining Buoy M189 and Ile Sainte-Helene Buoy, the depth in the harbor is 8.2m. This area forms the approach to the St. Lawrence Seaway and the Canal de la Rive Sud.

Montreal, being the largest commercially important port in Canada, is equipped with modern wharves, piers, and basins to handle practically any cargo that can be transported by water. These include facilities for handling container and ro/ro vessels, ore and bulk cargo vessels, tankers, passenger vessels, together with numerous berths for handling general cargo vessels.

The berths stand along the W side of the St. Lawrence River abreast of the city of Montreal and lie between Montreal East Wharf, 0.5 mile S of Pointe-aux-Trembles, and Windmill Point Basin about 8.5 miles to the S.

There are more than 95 berths available, with a combined berthing length of about 21,304m, with depths of 3.7 to 10.7m alongside. Pier information is listed in the accompanying tables:

Berth	Length	Depth	Remarks
Cite-du-Havre			
M6	218m	4.6m	On E side of Bassin Bickerdike
M5	157m	7.6m	On E side of Bassin Bickerdike
M4	157m	7.6m	On E side of Bassin Bickerdike. Not used for cargo handling
M3	157m	7.6m	On E side of Bassin Bickerdike
M2	157m	7.6m	On E side of Bassin Bickerdike
M1	91m	7.6m	On E side of Bassin Bickerdike

Berth	Length	Depth	Remarks
Bickerdike Pier			
B1	183m	7.6 to 8.8m	Ro-Ro ramp. On E side of pier.
B2	187m	8.8m	On E side of pier.
B3	197m	8.8m	On E side of pier.
12N	153m	8.8m	On N side of pier.
B4	200m	8.8m	On W side of pier.
B5	187m	8.8m	On W side of pier.
B6	199m	8.8m	On W side of pier.
B7	174m	8.8m	Ro-ro ramp and container terminal. On W side of pier.
B8	183m	8.8m	Ro-ro ramp and container terminal. On W side of pier.
Pointe du Moulin a Vent (Windmill Point) Wharf			
5W	142m	8.8m	
6W	152m	8.8m	
7W	164m	8.8m	
9W	183m	8.8m	
10W	190m	8.8m	
Vieux-Port			
11NE	91m	4.3m	Berthing prohibited
11NW	41m	4.3m	
12	285m	4.3 to 8.8m	
Quai Alexandra			
3	178m	10.2m	Passenger terminal. On S side of pier.
5	181m	10.2m	Passenger terminal. On S side of pier.
14E	107m	8.8m	On end of pier.
4	162m	9.7m	On N side of pier.
6	215m	9.7m	On N side of pier.
Jetty No. 1			
15S	203m	9.7m	
15N	203m	9.7m	
Quai King-Edward			
7	193m	9.7m	On S side of pier.
9	193m	9.7m	On S side of pier.

Berth	Length	Depth	Remarks
16E	108m	8.8m	On end of pier.
8	194m	9.7m	On N side of pier.
10	194m	9.7m	On N side of pier.
16W	178m	8.8m	On N side of pier.
Jacques Cartier Wharf			
16	345m	9.7m	
17	190m	8.8m	
18-19	421m	8.8m	
Market Basin			
24	143m	7.6m	
25	296m	9.4m	
27	252m	9.4m	
28	245m	9.4m	
29	252m	9.4m	
30	172m	9.4m	Not for marine traffic
31	154m	7.0m	Not for marine traffic
32	154m	9.1m	Pipeline for molasses
33	151m	9.1m	Not for marine traffic
34	143m	9.1m	
35	169m	9.1m	Dry bulk
36	161m	9.1m	
37	164m	9.1m	
Laurier Terminal			
39	183m	9.4m	
40	186m	9.4 to 10.7m	Pipeline for molasses
41	200m	10.7m	
42	187m	10.7m	
Jetee Laurier			
43	266m	10.2m	Capable of handling containers
Quai Tarte			
44S	225m	9.1m	Dry bulk cargo
44E	95m	6.1m	
44N	263m	9.4m	Bulk cement facility
45	169m	6.1m	Port of Montreal fleet
Quai Sutherland			

Berth	Length	Depth	Remarks
46	144m	10.7m	
46SE	162m	10.7m	Bulk sugar facility
46E	69m	9.9m	
47	101m	9.9m	Coastal trade. Berthing length of 93m
Pius IX Terminal			
48	196m	10.4m	Capable of handling containers
49	183m	10.4m	
Hochelaga Terminal			
50	190m	10.7m	
51	240m	10.7m	Cold Storage
52	338m	10.7m	Ro-ro ramp
54	227m	10.7m	Grain loading
55	168m	10.7m	Grain loading
56	245m	8.2m	
56E	155m	8.2m	
56N	462m	5.5m	
56S	462m	5.5m	
57S	265m	8.2m	
57N	200m	9.8m	
58	167m	10.0m	
Racine Terminal			
59	152m	10.7m	Containers
60	152m	10.7m	Containers
61	190m	10.7m	Containers
62	245m	10.7m	Containers
Cadillac Terminal			
64	285m	9.1m	
Maisonneuve Terminal			
66	200m	10.3m	Ro-ro and containers
67	223m	10.3m	
68	195m	10.3m	
70	200m	10.7m	Containers
Jetee Vulcan			
71	198m	10.7m	Dry bulk cargo
72	172m	10.7m	Dry bulk cargo
Boucherville Terminal			
73	193m	10.7m	Containers and ro-ro ramp
74	193m	10.7m	General cargo and containers
Norco Terminal			
76	156m	10.7m	Petroleum pipeline
Cast Terminal			
77	249m	10.7m	General cargo and containers
78	175m	10.7m	General cargo and containers
79	245m	10.7m	General cargo and containers
80	69m	10.7m	General cargo and containers
93	228m	8.5m	Dry bulk cargo. Not maintained by dredging

Petroleum facilities for Montreal are, as follows:

Berth	Length	Depth	Remarks
Olco			
94	238m	10.7m	
Ultramar Canada			
95	135m	10.7m	Cement, salt, and wet bulk cargo
96	135m	9.1m	Cement, salt, and wet bulk cargo
97	130m	9.1m	Cement, salt, and wet bulk cargo
Esso Canada Petroleum			
98	146m	10.7m	
99	147m	9.1m	
100	146m	9.1m	
101E	192m	10.7m	
102E	192m	10.7m	
102W	98m	4.6m	Bunker berth
Produits Shell Canada			
103S	190m	10.7m	

Berth	Length	Depth	Remarks
103N	190m	8.7m	Bunker berth
Sunoco			
104	33m	7.6m	Can accommodate vessels of 148m length
Ultramar Canada			
105	116m	9.4m	
106E	116m	9.m	
Petro Canada			
109	139m	10.7m	
110E	139m	10.7m	
110W	164m	4.6m	

Jacques-Cartier Bridge (45° 31'N., 73° 33'W.) spans the St. Lawrence River abreast of Ile Sainte-Helene and extends from the city of Montreal to the E shore. The bridge has a vertical clearance of 49m over the dredged section alongside the wharves, and of 51m over the ship channel. The same bridge has a vertical clearance of 43m over the Canal de la Rive Sud, with a usable width of 61m.

Lights are exhibited from under the main span indicate the limits of the channel under the bridge, and lights on the bridge indicate the center line of the channel.

Victoria Bridge, a combined road and railway bridge, spans the St. Lawrence River from Montreal to the town of Saint-Lambert. Both bridges have vertical lift sections with a minimum overhead clearance of 36.6m and a usable width of 24.3m. Overhead power cables, with a minimum vertical clearance of 22m on the W side and 32m on the E side, span the river close N of Pont Victoria. This same power line crosses the Canal de la Rive Sud with a vertical clearance of 48.7m.

Another power transmission line crosses the river 0.3 mile S of Pont Victoria, with a vertical clearance over the Canal de la Rive Sud of 46m.

Another overhead power cable crosses the main ship channel from Longue-Pointe to Ile Charrom. The cable has a clearance of 53.6m over the main channel.

A dredged area of 10.7m exists at Berth 12N. Vessels may anchor with permission of the port authority; fenders will be provided if required.

Aspect

A shipyard is situated on Ile de Montreal, about 2 miles upstream from Longue Pointe. In Longueuil there is a large church with a conspicuous spire.

Montreal from NE—J acques Cartier Bridge amd Downtown

Montreal from E—Sailors Memorial Clock T ower and Old Port

A tower, 87m high and marked by obstruction lights, is situated on the N part of Ile Sainte Helene.

The Sailors Memorial Clock Tower is situated on the N end of Victoria Pier (Quai Jacques Cartier), about 0.6 mile upstream of the Jacques-Cartier Bridge.

Cite du Havre (45˚ 30'N., 73˚ 32.5'W.), formerly MacKay Pier, extends N almost 1.3 miles from the Montreal end of the Victoria Bridge. Pont de la Concorde joins the lower end of Cite du Havre to Ile Sainte Helene.

Pilotage

Pilotage is compulsory. Pilots board inbound vessels at Anse aux Basques, near Les Escoumins, to bring ships as far as the port of Quebec, where pilots are exchanged for passage to Trois Riviere. Pilots are changed again at Trois Rivieres before ships may proceed to Montreal. The river pilots will berth and unberth vessels on arrival and departure; however, any subsequent moves within Montreal Harbor limits will be performed by harbor pilots.

The master of a ship that is to depart from the port of Montreal shall give a first notice of departure 12 hours before the ETD to "A.P.L. Pilot" and a final notice confirming or correcting the ETD at least 4 hours before the ETD.

The master of a ship that is to make a move with in Montreal Harbor shall give notice of such a move 3 hours before the move.

Regulations

As a Ports Canada port, vessels maneuvering or otherwise underway in Montreal Harbor, and also while alongside a berth or at anchor, are subject to the Port of Montreal Operating By-law. A copy of this By-law may be obtained from the Port of Montreal offices situated in the Port of Montreal Building at the root of Cite du Havre.

The harbormaster has wide powers over vessels in its harbor, and may order vessels to move, to use tugs, or to berth or anchor in locations which it designates. Certain restrictions on berthing and anchoring are set forth, along with the requirement for vessels to inform the harbormaster in advance of their intention to berth in the harbor.

Vessels are regulated with respect to cargo-handling operations including the equipment and lighting employed in these operations. Instructions for signaling, action in the event of accidents, cargo or gear lost overboard, and safety requirements are included.

The Operating By-law requires that no vessel shall move in a harbor at a rate of speed that may endanger life or property. Due to the narrowness of the channel in the vicinity of berths 78, 79, and 46, particular care is to be taken to prevent damage to moored vessels.

The speed limit is 8 knots S of a line drawn between the N limit of Berth 19 (45˚ 30.7'N., 73˚ 32.8'W.) and **Pointe du Havre** (45˚ 30.5'N., 73˚ 32.6'W.). The speed limit in the Canal de la Rive Sud is 6 knots.

No vessel carrying crude oil, gasoline, or other inflammable cargo in bulk that has a flash point below 23˚ C. shall anchor anywhere above Lanoraie or proceed above the anchorage at Lanoraie without permission of the harbormaster.

Every vessel proceeding downstream in the St. Lawrence main ship channel shall have the right of way over any vessel entering or leaving the St. Lawrence Seaway.

Montreal from S—Sailors Memorial Clock T ower and Jacques Cartier Bridge

Should two vessels meet in Courant Saint-Marie, the upbound vessel must stop and allow the downbound vessel to pass.

Every vessel about to leave any berth, wharf, or pier shall, before leaving, sound one prolonged blast on its whistle or siren. Every vessel backing out of any wharf basin or berth shall sound three short blasts in succession on its whistle or siren.

Vessels should send their ETA on departure from last port. Further ETAs should be sent via the agent 5 days, 48 hours, and 24 hours in advance.

Anchorage

There are three designated areas for anchoring. Anchorage can be taken in a depth of 10.7m in the area adjacent to Pointe-aux-Trembles; in an area known as Montreal-Est, adjacent to sections 94 to 98, in a depth of 9.1m; in Longueuil anchorage area opposite Canadian Vickers Limited, in a depth of 9.1m; and in the anchorage area N of Longue Pointe.

A prohibited anchorage area, best seen on the chart, lies off Montreal-Est.

No vessel shall anchor within 61m on either side of the tunnel crossing the river from Longue Pointe to Ile Charron.

No vessel shall anchor within Montreal Harbor Limits without first obtaining permission from the harbormaster and then only in such area as he may designate.

Caution

Shallower depths than charted may exist outside the commercial channel, the small craft channel, and the maintained area.

St. Lawrence Seaway—Montr eal Harbor to Cornwall

10.44 The St. Lawrence Seaway System provides a navigable channel for vessels between Montreal Harbor and the head of the Great Lakes. The E section under the jurisdiction of the Saint Lawrence Seaway Authority of Canada leads from Montreal Harbor (South Shore Canal entrance) to the Cornwall-Massena International Bridge (about 1.5 miles E of Snell Lock). The navigable distance from the entrance of the Seaway to the downstream gate of Snell Lock is 72 miles (83 statute miles). The continuation of the seaway W to the head of the Great Lakes is described in the United States Great Lakes Pilot, published by the National Ocean Service. The Seaway was opened to commercial traffic on April 25, 1959.

The distances shown on the charts and on the Seaway mileage signs, measured from the origin of Seaway mileage in Montreal Harbor, are in nautical miles.

That part of the Seaway described in this sector is normally open to navigation on April 1 and closes on December 15; however, the actual dates will depend on weather and ice conditions.

Ice.—The Upper St. Lawrence Seaway usually freezes over from shore to shore for varying periods during the late winter months, except in the rapids section. The opening dates of navigation of the various portions of the seaway system will be published in Notices to Mariners. In order to keep shippers using the Seaway informed of ice conditions which may affect the closing date, bulletins are published periodically during the of November by the St. Lawrence Seaway Management Corporation.

Tides—Curr ents.—Between Montreal and Lake Ontario the rate of the current varies directly with the width of the river channel. In the canals the rate is generally slight, with the exception of the Canal de Beauharnois, where the rate, although moderate, will vary with the volume of water used at the power dam. In lakes and open reaches, currents vary between 0.25 and 1 knot, and in the narrower sections of the river between 2 and 3.5 knots. The swiftest currents are to be found in the channel between Cornwall Island and the United States shore, where a current of up to 6 knots may be encountered. The currents, in general, set fair with the channel. Dependent of the number and position of sluice gates open on the Iroquois control dam, the currents in the E approaches to the Iroquois Lock may, under certain conditions, set across the channel.

Depths—Limitations.— In general, the Seaway accommodates vessels up to and including 222.5m in length and 23.16m in beam. However, certain requirements must be met:

1. Vessels must have a rounded stem bar.
2. Vessels must be equipped with adequately powered self-tensioning and rendering winches and fairleads at an approved location.
3. Prior review and approval of ship plans will be necessary before actual construction or modifications are undertaken.
4. Adding to the overall length of a vessel will somewhat decrease existing margins with respect to distances to and from ship arresters. Locking of these larger vessels will require special operating procedures. These will increase the lockage time by 2 to 3 minutes.
5. Mariners must comply with special mooring instructions and procedures when proceeding through the locks.

The Seaway entities will allow vessels with an overall length of 225.5m to transit Seaway locks, subject to the above-noted requirements.

The St. Lawrence Seaway channels have a controlling depth of 8.2m. The maximum permissible draft in the Seaway is 7.92m.

Vessels with masts that extend more than 35.5m above the water level will not be permitted to transit the Seaway. Vessels in excess of 222.5m in overall length or 23.16m in extreme breadth including permanent fenders will not be permitted to transit under any circumstances. Vessels in excess of the maximum permissible draft of 7.92m will be delayed and only permitted to transit when the overdraft has been corrected.

Deep-draft vessels in transit between Montreal and Lake Superior pass through the following canals: South Shore, Beauharnois Canal, Wiley-Dondero Canal, Welland Ship Canal, and the Sault Ste. Marie Canal. There are 16 locks in the passage overcoming a total difference in elevation of 177.7m. In the canal sections where it is flanked by two embankments there is a minimum width of 55m between bridge abutments and 68m in canals flanked by two embankments, to 182m in improved channels.

Between Montreal and Lake Ontario all Seaway locks are 233.5m in length and 24.4m in width. There is a minimum depth of 9.1m over the sills. The minimum vertical clearance of Seaway bridges in this section is 36.6m

Order of Transit.—The Montreal Marine Traffic Regulating Center prepares and maintains an order of transit roster for vessels proceeding into the St. Lawrence Seaway. Vessels shall establish their turn by calling "Channel Montreal" on VHF channel 10 (156.5 MHz) when in all respects ready for a transit stating their name, length, present location, and draft forward and aft. The regulating center will notify the ship in sufficient time to make ready to proceed. In order not to miss their turn, vessels are required to maintain a radio guard on the sector frequency they are in, whether berthed or anchored.

Vessels intending to transit the St. Lawrence Seaway without calling at Montreal are examined by Customs and National Health and Welfare officials at the Longue Pointe anchorage. Inspection by officials of the Department of Agriculture will normally take place at the port of destination.

Vessels intending to transit the St. Lawrence Seaway for the first time without calling at Montreal, may have their winches, fenders, mooring facilities, and other equipment required by the regulations inspected by Seaway Authority officials while at anchor off Longue Pointe.

Bascule Bridges.—In the Seaway, the upper ends of bascule bridges in the fully opened position encroach to varying degrees over the vessel channels beyond the vertical face of the lock walls. The minimum vertical clearance between the water surface and the under side of these bridges in the opened position is 25m at the face of the lock wall. Masters of vessels with high stern counters, superstructures, and flared bows that can overhang the top of the lock wall when the vessel is not parallel to the wall must exercise extreme care in navigating through these bridge draws.

Pilotage.—Pilotage is compulsory for vessels in transit through the St. Lawrence Seaway from Montreal to Lake Ontario. Upbound and downbound vessels passing through Montreal Harbor normally change pilots at St.-Lambert Lock. Pilots are also changed at Snell Lock. Downbound vessels from Lake Ontario will be boarded by pilots off Alexandria Point.

Regulations.—The "International Regulations for Preventing Collisions at Sea" are modified in waters under Canadian jurisdiction by various special rules. These rules are included in the Canadian "Collision Regulations."

The Seaway Handbook contains the St. Lawrence Seaway Regulations, and certain other information relating to the use of the Seaway. A copy of this publication must be carried on every vessel in transit through the Seaway. It may be purchased from the Information Canada book stores.

In the Seaway, specific speed restrictions are in force for all vessels in excess of 12.2m in overall length. Speed limits are applicable to both normal and HW levels in the St. Lawrence Seaway Regulations. The speed limits given in this sector of Sailing Directions are for normal water levels. Mariners are cautioned that a lower speed limit may be in effect depending upon the existing water level.

Montreal Harbor to Canal de Beauharnois

10.45 The Canal de la Rive Sud, 18.5 statute miles long, is entered at the S end of Montreal Harbor and follows the E and S shore of the St. Lawrence River, bypassing the Rapides de Lachine, to enter Lac Saint-Louis about 2 miles W of Caughnawaga. The canal has a least width of 68m except under the Jacques Cartier Bridge, where the is a minimum usable width of 61m. The canal contains the St.-Lambert and Cote Ste.-Catherine locks, which together overcome the difference in elevation between Montreal Harbor and Lac Saint-Louis. The canal embankments are illuminated at night to assist vessels navigating the canal.

There is a speed limit of 7 miles per hour (6 knots) over the bottom in Canal de la Rive Sud.

St.-Lambert Lock crosses the canal in the vicinity of Victoria Bridge. The downstream approach wall on the W side of the canal has a berthing length of 653m. The canal is 152.4m wide abreast this approach wall. The upstream approach wall has a berthing length of 458m.

Both spans of the Victoria Bridge have a minimum vertical clearance of 36.6m. An overhead power cable, with a minimum clearance of 36.6m, crosses the canal close upstream of the St.-Lambert Lock.

It has been reported that water discharged from the regulating channel, E of St.-Lambert Lock, sets NW on to the lower approach wall and a reverse flow sets along the wall toward the lower lock entrance in a S direction.

From St.-Lambert Lock to Cote Ste.-Catherine Lock, about 8 statute miles distant, the canal has a width of 91m. The W and N bank is illuminated for night navigation.

Champlain Bridge (45˚28'N., 73˚30'W.) spans the canal about 2 statute miles above St.-Lambert Lock and has a vertical clearance of 36.6m.

An ice control structure, consisting of a number of piers joined by a service bridge from which an ice boom is laid, extends from Ile des Soeurs to the seaway embankment, close upstream from the Champlain Bridge.

Turning Basin No. 1, lies about 2 statute miles S of the Champlain Bridge and Basin No. 2 lies about 3 statute miles farther upstream. Both basins have a dredged depth of 8.2m.

Cote Ste.-Catherine Lock (45˚24'N., 73˚34'W.) stands close of W Turning Basin No. 2. The lower approach wall has a berthing length of 319m and is situated on the N side of the canal. The upper approach wall has a berthing length of 318m. The canal has been widened abreast both approach walls to a width of 137m.

Above Cote Ste.-Catherine Lock the canal extends in a general W direction for 8 statute miles to Lac Saint-Louis. This section of the canal has a least width of 76m. Cote Sainte-Catherine Wharf lies on the S side of the canal about 0.8 mile W of the lock. The wharf is 1,219m long, with a depth of 8.2m alongside.

Three sets of overhead cables, with a vertical clearance of 36.6m, cross the canal between 2.25 and 2.5 miles above Cote Ste.-Catherine Lock.

Caughnawaga (Kahnawake) (45˚25'N., 73˚41'W.) (World Port Index No. 2250), an Indian village and reservation, stands adjacent to the canal at the lower end of Lac Saint Louis and abreast the head of the Rapides de Lachine.

The Honore Mercier and the Canadian Pacific Bridges span the canal at Caughnawaga. Both bridges have a vertical clearance of 36.6m. Unless a vessel's approach to the lift bridges has been recognized by a flashing amber signal light, the master shall signal the bridgemaster by VHF radio when the vessel is abreast of the bridge whistle signs above and below the bridges.

Emergency berthing facilities are provided on the N side of the canal, 0.2 mile above the railway bridge. The berth is 143m long with a depth of 8.2m alongside.

Lac Saint-Louis (45° 24'N., 73° 49'W.) is an expansion of the St. Lawrence River at its junction with the W mouth of the Ottawa River. Ile Perrot stands in the W part of the lake and is bordered by narrow, shallow passages on the N and S sides which lead into that part of the Ottawa River known as Lac des Deux Montagnes.

The seaway channel between the upper end of Canal de la Rive Sud and Beauharnois Lock, about 11.5 statute miles distant, is 182m wide with a least depth 8.6m.

The speed limit from the upper end of South Shore Canal is 12 statute miles per hour (10.4 knots) to Lighted Buoy A13, and 18 statute miles per hour (15.5 knots) from there to Beauharnois Lock. Ile St.-Nicolas stands close N of the channel about 1 mile W of Caughnawaga Dike Light.

A traffic reporting station for upbound vessels only stands on Pointe du Moulin at the E end of Ile Perrot.

Anchorage can be taken on both sides of the channel close N of Beauharnois Lock by vessels awaiting transit through the lock. Depths in these areas range from 11 to 27.4m. Anchorage is prohibited in the channel leading to the lock.

It has been reported that the current sets through the seaway channel in Lac Saint-Louis at a rate of 1 to 1.5 knots. Except in that part of the channel lying between Buoy A18 and the W end of Canal de la Rive Sud embankment, the current sets fair with the channel. In the latter section the current sets NE across the channel and increases to a rate of about 2 knots.

On the SE shore of Lac Saint-Louis, the Riviere Chateauguay empties into the lake in the vicinity of **Ile Saint-Bernard** (45° 23'N., 73° 46'W.). A small conspicuous green hill, marked by a cross, stands on the SW end of the island. A chimney, situated close SE of this hill, is conspicuous from the S and SW.

The city of Beauharnois stands 7 statute miles SW of Ile Saint-Bernard and the S shore of the lake. The shore between these two places is bordered by an extensive group of low islands known as Iles de la Paix. A large dam stands between the city of Beauharnois and Beauharnois Lock. The village of Melocheville stands close W of the lock.

The city of Lachine stands on the N shore of Lac Saint-Louis at the entrance to Canal de Lachine, now closed to navigation. From the lake, the dome of the old convent and the two-spired church are conspicuous. A channel, with a least depth of 4.3m, leads from the seaway channel to the wharf at Lachine. A second buoyed channel leads NW from close S of Ile Dorval and then along the shore of Ile de Montreal to the Ottawa River.

10.46 Dorval (45° 26'N., 73° 45'W.), a small village, stands close W of Lachine. A church spire in the village is conspicuous from the lake.

Pointe-Claire (45° 26'N., 73° 49'W.), the site of a small city, stands W of Dorval and is fronted by a shallow pier.

Beaconsfield, a similar city, stands W of Pointe-Claire and is fronted by a shallow basin enclosed by breakwaters.

Ile Dowker (45° 24'N., 73° 54'W.) lies SW of Beaconsfield and N of Ile Perrot. Lynch Channel, the main passage to the Ottawa River, passes N of this island.

The town of Ste.-Anne-de-Bellevue stands at the SW end of Ile de Montreal at the entrance to the Ottawa River. Two bridges span the passage between Ile de Montreal and Ile Perrot. Saint-Anne Lock leads from Lac Saint-Louis into Lac Des Deux Montagnes, close along the SW end of Ile de Montreal.

Canal de Beauharnois to Cornwall

10.47 Canal de Beauharnois (45° 19'N., 73° 55'W.), 15 statute miles long, is the sole means of transit from Lac Saint-Louis to Lac Saint-Francois. The channel has a least depth of 8.2m with a width of 182m, except in the short channel between Upper Beauharnois Lock and Lower Beauharnois Lock, which has a least width of 91m.

There is a speed limit of 10 miles per hour (8.6 knots) upbound, and 12 miles per hour (10.4 knots) downbound, over the bottom in Canal de Beauharnois, from the upper entrance to the lock to Light Buoy D3 in Lac Saint-Francois.

The downstream approach wall has a berthing length of 379m. The upstream approach wall has a berthing length of 503m.

Pilotage.—The master of a vessel downbound that is to arrive in the compulsory pilotage area of the Laurentian Pilotage Authority shall give notice of the immediate and ultimate destinations of the vessel by calling the St. Lawrence Seaway radio control when passing Beauharnois Lock.

The channel between the two sets of locks is only about 936m long, with a least width of about 91m. Between the two locks, four sets of overhead transmission lines, with a least vertical clearance of 45.1m, span the channel, although during severe icing conditions, this vertical clearance may be reduced to as little as 43.6m.

Upper Beauharnois Lock has a lift of 11 to 12m. Lower Beauharnois Lock has a lift of 12 to 13m.

Anchorage.—An anchorage area, with depths of 8.2 to 11m, lies adjacent to the seaway channel close SW of Upper Beauharnois Lock. Care should be taken not to anchor over the submerged pipelines and cables which cross the anchorage area.

Caution.—When approaching the downstream approach wall at the lock, vessels have reported strong currents setting across the approach course on occasion. The strength of the crosscurrent varies considerably, depending on the amount of water being released at the power dam.

Pont St.-Louis (45° 14'N., 74° 00'W.), a combined road and railway bridge, spans the canal about 6 statue miles above Upper Beauharnois Lock. The bridge section spanning the canal is 54.9m wide with a vertical clearance of 36.6m when open. The vertical clearance is 4.3m when closed. Unless a vessel's approach to the lift bridge has been recognized by a flashing amber signal light, the vessel shall signal the

bridgemaster by VHF radio when the vessel is abreast of the bridge whistle signs which are about 1,850m below and 2,990m above the span.

Two sets of overhead power cables, with a minimum clearance of 44m, cross the Canal de Beauharnois, about 0.9 mile NE of Pont St.-Louis.

An emergency anchorage area lies adjacent to and S of the channel close upstream of Pont St.-Louis. A least depth of 8.2m exists in this anchorage.

10.48 Port de Valleyfield (45° 13'N., 74° 06'W.), a small basin used for handling cargo, stands on the N side of the channel about 4 miles above Pont St.-Louis. The basin is 76m wide, and has a least reported depth of 7m. A depth of 7m was also found off the SE corner of the N wall.

There are four berths in the basin for discharging cargo. The N wharf has a berthing length of 482m for handling general and liquid bulk cargo. The S wharf has a berthing length of 274m for general cargo. The E wharf has a berthing length of 350m for handling dry bulk cargo. Depths alongside all wharves are 8.2m.

Pont de Valleyfield, a road and railway bridge, with a channel width of 55m and a vertical clearance of 36.6m when open and 3.5 when closed, crosses the ship channel about 1 mile upstream from Port de Valleyfield. Unless a vessel's approach to the lift bridge has been recognized by the flashing amber lights on the caution sign, the vessel shall contact the bridgemaster when abeam of the bridge whistle signs.

An emergency anchorage area, with depths of 8.2 to 13.4m, lies adjacent to and S of the channel close upstream of Pont de Valleyfield.

A ship reporting station, for vessels bound downstream only, stands at the upstream entrance to Canal de Beauharnois.

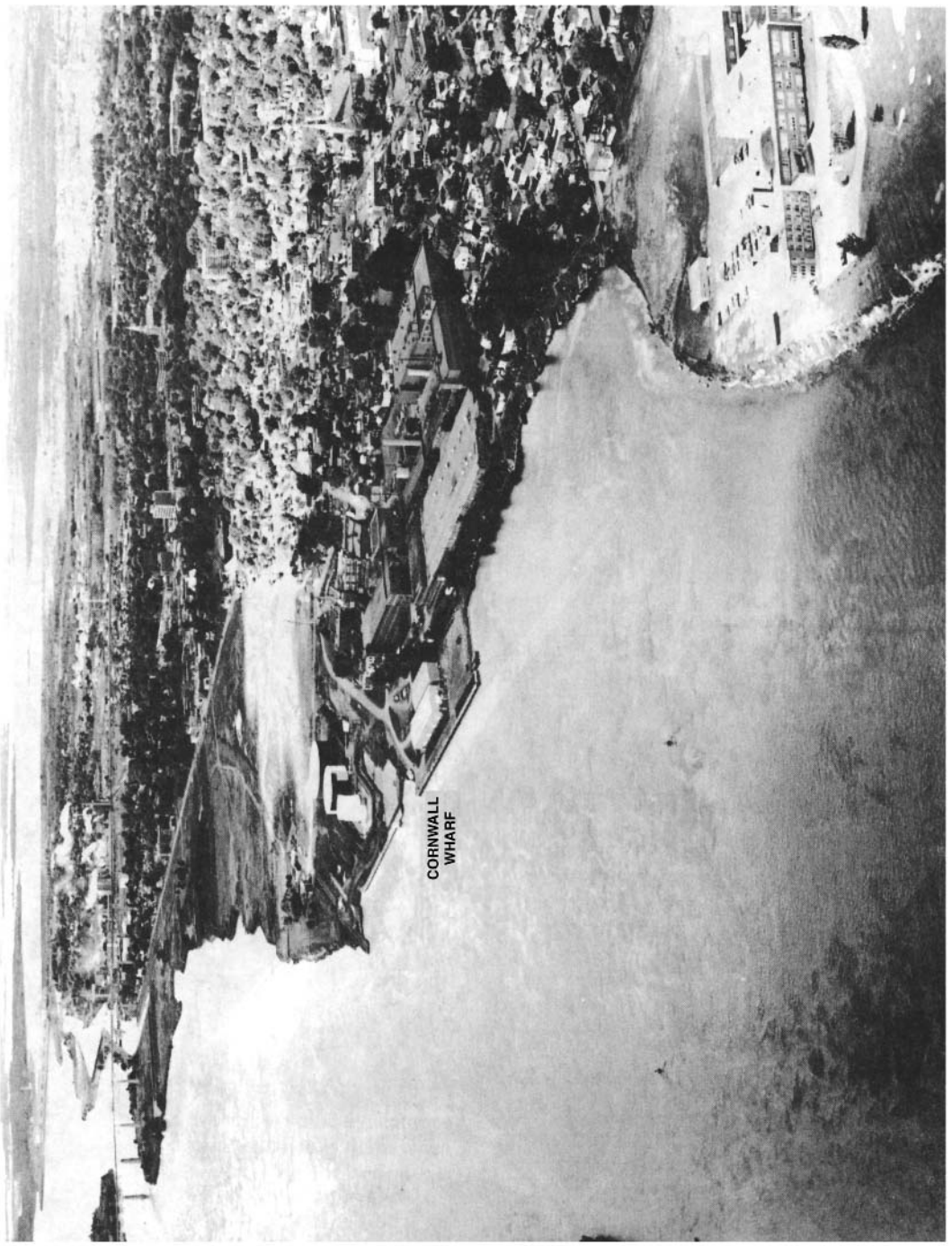
Salaberry de Valleyfield, a small city, stands at the NE end of Lac Saint-Francois. Several church spires and tall factory chimneys in the city are conspicuous from the lake.

On entering Lac Saint-Francois from Canal de Beauharnois, the seaway channel has a least width of 137m for the first 2 miles. The depths in the channel in Lac Saint-Francois are nowhere less than 8.2m and considerably more in the greater part of the channel.

There is a speed limit of 18 miles per hour (15.5 knots) over the bottom between Buoy D3, near the upper entrance to Canal de Beauharnois, and Buoy D49, N of **Butternut Island** (45° 03'N., 74° 29'W.).

Three irregular-shaped anchorage areas, one to the N and two to the S of the seaway channel, lie between Buoys D5 and D17.

Port de Valleyfield



Cornwall Harbor

The current sets diagonally across the seaway channel on the 209° course, but the rate is slight. Over most of the lake area the rate rarely exceeds 0.5 knot.

A traffic reporting station for both up and downstream traffic stands in the vicinity of the light at **Ste. Anicent Shoal** (45° 09'N., 74° 22'W.).

10.49 Coteau-Landing (45° 15'N., 74° 13'W.), a small village fronted by a pier with a depth of 2.4m alongside its face, stands in the NE part of Lac Saint-Francois.

Pointe Beaudette (45° 12'N., 74° 19'W.), about 6 miles SW of Coteau-Landing, has a disused light house and a rear range beacon on it. From a distance the point appears as an island.

The NE and SE shores of the lake are generally low and wooded. **Ile des Francs-Tireurs** (45° 11'N., 74° 15'W.), a small island with a private pier extending from its NE end, stands close N of Pointe Biron, about 4.5 miles SW of the W entrance to Canal de Beauharnois.

A small pier extends from Port Lewis, about 1.5 miles to the W of Pointe Biron.

An ornate church with a very conspicuous white dome stands in the small village of Saint-Anicet, about 5.5 miles WSW of Pointe Biron. A conspicuous cross, about 23m high, stands to the E of the village. A small pier, 18m long with a depth of 2.1m alongside, extends from the shore abreast of the village.

10.50 Pointe au Cedre (45° 05'N., 74° 26'W.), about 4 miles SW of Saint-Anicet, is fronted by an L-shaped pier with shallow depths alongside.

The seaway channel through the W part of Lac Saint-Francois has a least width of 137m and a least depth of 8.6m. Lancaster Bar, an area of very shallow water with a deep channel through it, lies NW of Pointe au Cedre. The current across Lancaster Bar is reported to set fair with the channel at a rate of 1 knot or less.

Between Buoy D49 N of Butternut Island and Snell Lock, there is a maximum speed over the bottom of 10 miles per hour (8.6 knots) for upbound vessels and 12 miles per hour (10.4 knots) for downbound vessels, at normal water levels.

Between **Clark Island** (45° 03'N., 74° 34'W.) and Ile Saint-Regis, the current is reported to set fair with the seaway channel at a rate of 1.5 knots.

Four irregular-shaped anchorage areas, two on the N side and two on the S side of the seaway channel, are situated between Clark Island and Ile Saint-Regis.

The village of South Lancaster stands on the N side of the mouth of the Raisin River, about 3.3 miles NW of Pointe au Cedre. An islet, called The Cairn, which has a conspicuous conical stone cairn, stands close S of South Lancaster.

From a position about 2.8 miles W of Pointe au Cedres, the seaway channel is bordered on its W side by Squaw, St.-Francis, Hamilton, Renshaw, and Clark Islands, and on its E side by Butternut, Camerons, Little Hog, Stanley, Jacobs, Dodens, Canal, and Dickerson Islands. Abeam of Clark Island the channel trends W for about 1 mile and then SW, passing close along the NW side of Ile Saint-Regis. Between the W end of Ile Saint-Regis and the two Colquhoun Islands to the N, the channel turns and passes between Cornwall Island and Ile Saint-Regis, and then extends W between the S shore of Cornwall Island and the mainland shore of the United States to the S. The channel in this area has a least width of 129m S of Cornwall Island, with a least depth of 8.8m.

South of the Colquhoun Islands, allowance should be made for an E current of up to 2 knots. Between Cornwall Island and Ile Saint-Regis a rate of 3 knots has been reported setting with the channel. At the turn in the SE of Cornwall Island, the current has been reported to set to the E. In addition, a perceptible NE set across the channel, with consequent eddies along the shore from the waters of the Raquette River, has been experienced at high stages of water in the river. To the E of Raquette Point, the current sets with the channel at a rate of 2.5 knots.

Cornwall (45° 01'N., 74° 43'W.) (World Port Index No. 2620) stands on the N shore of the St. Lawrence River N of Cornwall Island.

Cornwall is a port of entry. Vessels bound for this harbor from foreign ports may request pratique from the Quarantine Station, Montreal. The St. Lawrence Seaway Management Corporation has its operating headquarters in Cornwall. The seaway channel distance from Montreal is 67 miles. The navigation season is from mid-April to December 15.

The Cornwall Channel branches to the W from the Seaway Channel S of the Colquhoun Islands and has a least width of 129m with a least depth of 8.8m.

Cornwall Wharf is 175m long, with a width of 10 to 15m and a depth of 8.2m alongside. The government wharf has a turning area extending 274m S of the wharf. Although towage services are not usually required, tugs are available for emergency use with sufficient notice. Facilities are also available for discharging oils and industrial chemicals using the government wharf and a tank farm. Pilotage is not compulsory.

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