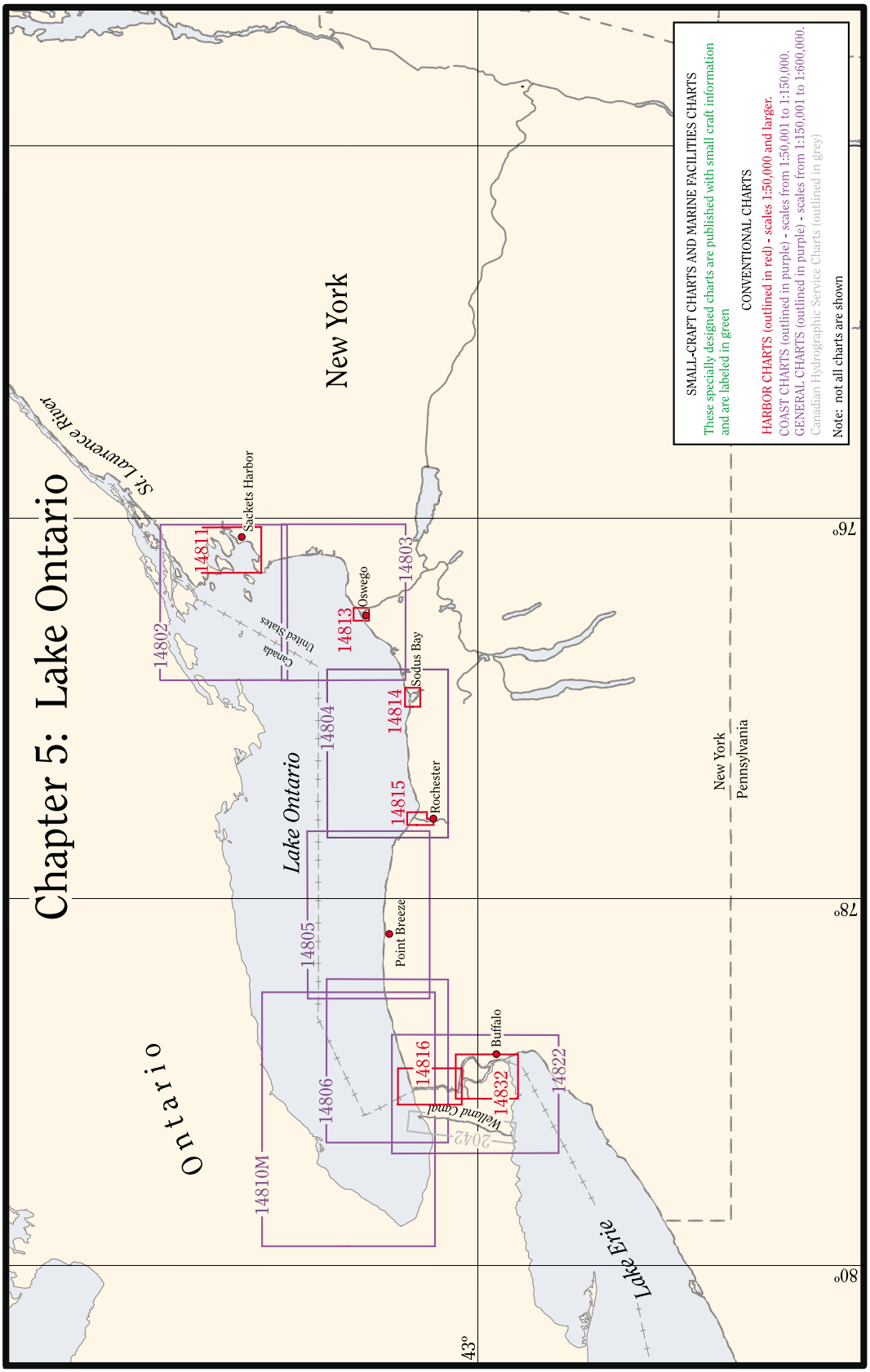

Chapter 5: Lake Ontario
SMALL-CRAFT CHARTS AND MARINE FACILITIES CHARTS
These specially designed charts are published with small craft information and are labeled in green
CONVENTIONAL CHARTS
HARBOR CHARTS (outlined in red) - scales 1:50,000 and larger.
COAST CHARTS (outlined in purple) - scales from 1:50,001 to 1:150,000.
GENERAL CHARTS (outlined in purple) - scales from 1:150,001 to 1:600,000.
Canadian Hydrographic Service Charts (outlined in grey)
Note: not all charts are shown
New York
Pennsylvania
Ontario
Lake Ontario
Lake Erie
St. Lawrence River
Canada
United States
Sackets Harbor
Oswego
Sodus Bay
Rochester
Point Breeze
Buffalo
Welland Canal
14802
14803
14804
14805
14806
14810M
14811
14813
14814
14815
14816
14822
14832
2042
43°
76°
78°
80°

Lake Ontario

Chart Datum, Lake Ontario

(1) Depths and vertical clearances under overhead cables and bridges given in this chapter are referred to Low Water Datum, which for Lake Ontario is an elevation 243.3 feet (74.2 meters) above mean water level at Rimouski, Quebec, on International Great Lakes Datum 1985 (IGLD 1985). (See Chart Datum, Great Lakes System, indexed as such, chapter 1.)

Dimensions, etc.

(2) Length, steamer track, Burlington Bay Light to head of St. Lawrence River (Tibbetts Point); 180 miles.

(3) Length, steamer track, Port Dalhousie to head of St. Lawrence River (Tibbetts Point); 160 miles.

(4) Length (right line), W end of Burlington Bay to Sackets Harbor; 193 miles.

(5) Breadth (right line), about longitude 77°35'W.; 53 miles.

(6) Depth, maximum recorded by NOS; 802 feet.

(7) Water surface of lake (including Niagara River and St. Lawrence River above Iroquois Dam); 3,560 square miles (U.S.), 3,990 square miles (Canada).

(8) Entire drainage basin (including Niagara River and St. Lawrence River above Iroquois Dam); 18,760 square miles (U.S.), 16,090 square miles (Canada).

General description

(9) **Lake Ontario** is the smallest and easternmost of the Great Lakes. The lake is comparatively deep; the greatest depth is 802 feet, and the average depth is 283 feet, much in excess of the greatest depth of Lake Erie. Lake Ontario is fed chiefly by the waters of Lake Erie by way of the Niagara River. The lake drains at its NE end into the St. Lawrence River. Welland Canal bypasses the falls and rapids of the Niagara River and provides a navigable connection between Lake Ontario and the upper lakes.

(10) The great depth of the lake limits fluctuations of water level caused by winds and renders them comparatively small. The lake is generally free of outlying shoals and obstructions. The only significant shoals dangerous to navigation are those in the NE end of the lake in the approach to the St. Lawrence River and those of Niagara Bar off the mouth of the Niagara River. The latter shoal is in the course of vessels plying between the Welland Canal and ports at the E end of the lake.

(11) The waters of Lake Ontario and the Welland Canal are part of the St. Lawrence Seaway and are under the navigational control of the Saint Lawrence Seaway Development Corporation, a corporate agency of the United States, and the Saint Lawrence Seaway Management Corporation of Canada. These agencies issue joint regulations covering vessels and persons using the Seaway. The regulations are codified in 33 CFR 401, and are also contained in the Seaway Handbook, published jointly by the agencies. A copy of the regulations is required to be kept on board every vessel transiting the Seaway. A schedule of the Seaway tolls is contained in the handbook. (See St. Lawrence Seaway, chapter 3, and **33 CFR 401,** chapter 2.)

(12) Vessels bound for Lake Ontario from the St. Lawrence River below Montreal are limited by the size of the locks in the river, and vessels bound from Lake Ontario to the upper lakes are limited by the size of the locks in the Welland Canal. The maximum authorized dimensions for vessels navigating the St. Lawrence Seaway locks are 730 feet overall length, 76 feet extreme breadth, and 26 feet draft. (For complete information on vessel dimension restrictions, refer to the Seaway Handbook, and for supplemental information, to the Seaway Notices.)

Vessel traffic control

(13) Lake Ontario and the Welland Canal are divided into three traffic control sectors, with vessel movements in each sector controlled by a traffic controller. The objective of the system is to provide safe and efficient scheduling of vessel traffic, efficient search and rescue coverage, information regarding pilot requirements to the pilot dispatch centers, marine weather broadcasts, and information on vessel location to all interested parties.

(14) The traffic control sectors are as follows: Sector 4, from Crossover Island in the St. Lawrence River to midlake in Lake Ontario; Sector 5, the W half of Lake Ontario; Sector 6, Welland Canal and its approaches.

(15) Massena traffic control center controls traffic in the Lake Ontario portion of Sector 4 through "Seaway Sodus," VHF-FM channel 13. St. Catharines traffic control center controls traffic in Sector 5 through "Seaway

Newcastle," VHF-FM channel 11, and in Sector 6 through "Seaway Welland," VHF-FM channel 14.

Calling-in points

(16) Calling-in points on Lake Ontario follow:

(17) **Sodus Point.**–Upbound and downbound vessels shall contact "Seaway Sodus" on VHF-FM channel 13 when approximately abeam of Point Petre, Ont. After initial contact, vessels shall guard VHF-FM channel 16.

(18) **Mid-Lake Ontario.**–Upbound vessels shall contact "Seaway Newcastle" on VHF-FM channel 11 and downbound vessels shall contact "Seaway Sodus" on VHF-FM channel 13 upon arrival at a point in mid-lake in about 43°41'N., 77°47'W. After initial contact, vessels shall guard VHF-FM channel 16.

(19) **Newcastle.**–Upbound and downbound vessels shall contact "Seaway Newcastle" upon arrival at a point about 16 miles S of Newcastle, Ont., and when about 8 miles N of Thirtymile Point, N.Y. on VHF-FM channel 11. After initial contact, vessels shall guard VHF-FM channel 16.

(20) Complete information on the traffic control sectors and their respective calling-in points is contained in the Seaway Handbook.

Fluctuations of water level

(21) The normal elevation of the lake surface varies irregularly from year to year. During the course of each year, the surface is subject to a consistent seasonal rise and fall, the lowest stages prevailing during the winter and the highest during the summer. In addition to the normal seasonal fluctuations, oscillations of irregular amount and duration are also produced by storms. Winds and barometric pressure changes that accompany squalls can produce fluctuations that last from a few minutes to a few hours. At other times, strong winds of sustained speed and direction can produce fluctuations that last a few hours or a day. These winds drive forward a greater volume of surface water than can be carried off by the lower return currents, thus raising the water level on the lee shore and lowering it on the windward shore. This effect is more pronounced in bays and at the extremities of the lake, where the impelled water is concentrated in a small space by converging shores, especially if coupled with a gradually sloping inshore bottom which even further reduces the flow of the lower return currents.

(22) Lake Ontario has less of a seiche problem than some of the other lakes. These irregular oscillations of the water surface are less pronounced in range because of the lake's smaller area and deep water along with a general symmetrical shape. There is also a lesser number of high- and low-pressure centers that pass directly over the lake.

Weather, Lake Ontario

(23) Navigation-season winds are strongest in autumn. Gales are most likely from October through December and blow out of the SW through NW. This is particularly true at the E end of the lake, where a funneling effect may occur with W and SW winds, which prevail throughout most of the year. As these winds encounter land, on either side of the lake, near the Thousand Islands, they are accelerated. A moderate blow in midlake often becomes a dangerous gale in this restricted area. Another local problem area is Mexico Bay, N of Oswego. This was once known as "the graveyard of Lake Ontario" because ships foundered there in NW through NE winds. In spring, northeasterlies and easterlies occasionally reach gale force throughout the lake. May through August is often the most troublefree time; windspeeds of 16 knots or less are encountered 80 percent or more of the time. The strongest sustained measured wind on the lake was west-north-westerly at 50 knots. This short period record (17 years) occurred in November. Since extremes along the shore range from 50 to 65 knots, it could be expected that an extreme on the lake could reach 90 knots. The prevailing SW and W winds are most persistent in winter and summer. Winds with northerly components are also common in winter as are those with southerly components in summer. Autumn and spring winds are more variable.

(24) While visibilities are restricted by rain, snow, haze, and smoke, fog is the most frequent and troublesome cause. On Lake Ontario, prolonged periods of rain and foggy weather are common when frontal systems moving into New York become stationary. In the spring, advection fog reduces visibilities to below 0.5 statute mile (0.4 nm) up to 10 percent of the time. It is usually worst during the morning hours. Along the shore, radiation fog is common in autumn under calm, clear nighttime skies. This fog sometimes drifts out over the water; it usually burns off by noon. Visibilities of 2.5 statute miles (2.2 nm) or less occur on about 10 to 13 days per month from October through March along the shore.

(25) While rough seas can be encountered in any season, they are most often a problem during fall and winter. From October through February, wave heights of 5 feet (1.5 m) or more can be expected 10 to near 20 percent of the time and 10 feet (3 m) or more up to 2 percent of the time. Extreme wave heights of 17 to 19 feet (5 to 6 m) have been encountered. Since strong winds over a long fetch of water are conducive to creating rough seas, strong winds out of the E and W quadrants over Lake Ontario are often danger signals. Sea conditions are best from May through July when waves of less than 1 foot (0.3 m) occur 50 percent or more of the time.

(26) Thunderstorms can occur at any time, but are mostly a summertime problem. Along the shore, they are recorded on 20 to 30 days annually; about 75 percent or more brew up from May through September. They are most likely during the late afternoon. Over the open lake, thunderstorms are most likely during August when they occur about 2 percent of the time. Summertime thunderstorms are mostly nocturnal creatures over the lake; they are most frequent between sunset and sunrise.

Ice

(27) The main part of Lake Ontario usually remains open throughout the winter, with only a few patches of thin ice and slush during cold spells. Its small area and great depth give Lake Ontario a large heat storage capacity. In addition, the land portion of the basin contributes more runoff to its lake than any of the other lakes. These factors retard the growth of ice in fall and aid its rapid decay in spring. During a normal winter, early ice cover appears toward the end of January and early decay begins in mid-March. During severe winters, extensive slush develops for brief periods, but the significant ice is confined to the E end of the lake. E of Prince Edward Point, ice formation begins in early January. The area from Kingston to Prince Edward Point and Oswego is usually covered 70 to 90 percent with thin and medium lake ice by the end of the month. This thickness increases during February and reaches the thick category by early March, but the extent is unchanged except for drifting patches of slush along the Canadian shore. By this time, fast ice about 20 to 25 inches thick usually extends in a N arc from Prince Edward Point to Stony Point. Decay generally develops in early March, and by the third week most of the pack has melted in place rather than drifting down the river. (See Winter Navigation, chapter 3.)

Local magnetic disturbances

(28) Differences from normal variation of from about 006°W to 007°E have been observed at numerous locations throughout Lake Ontario. Differences of up to 37° have been observed in the approach to Kingston, Ont., on the N side of the head of the St. Lawrence River. The locations of these anomalies are shown on NOS chart 14500.

Routes

(29) The Lake Carriers' Association and the Canadian Shipowners Association have recommended, for vessels enrolled in the associations, the following separation of routes for upbound and downbound traffic in Lake Ontario.

(30) Downbound vessels from Port Weller to Cape Vincent from a position 0.5 mile off Port Weller breakwaters, shall lay a course of **048°** for 8.5 miles to pass not more than 1.5 miles off Niagara Bar Lighted Buoy 2; thence **074°** for 103 miles to a position not less than 7 miles off Point Petre; thence **069°** for 27 miles to a position 3.5 miles to East Charity Shoal Traffic Lighted Buoy.

(31) Downbound vessels from Toronto, Port Credit, or Clarkson from a position not less than 2.5 miles off Gibraltar Point shall lay a course **085°** 113.75 miles to a position not less than 7 miles off Point Petre; thence recommended downbound courses of **069°** and **039°** to East Charity Shoal Traffic Lighted Buoy.

(32) Downbound vessels from Port Weller to Toronto, from a position 0.5 mile off Port Weller breakwaters, shall lay a course of **314°** for 4 miles; thence **349°** for 20 miles to a position not less than 3.8 miles off Toronto Main Harbour Channel range front light.

(33) Downbound vessels from Port Weller to Hamilton, from a position 0.5 mile off Port Weller breakwaters, shall lay a course **314°** for 4 miles; thence **273°** for 25 miles to Burlington Canal Entrance Lighted Bell Buoy MH.

(34) Upbound vessels from Cape Vincent to Port Weller, from East Charity Shoal Traffic Lighted Buoy, shall lay a course **240°** for 14.5 miles to a position 0.5 mile off Psyche Shoal Lighted Bell Buoy 12; thence **249°** for 22.5 miles to a position not more than 3 miles off Point Petre; thence **254°** for 102 miles to a position not less than 5.5 miles off Niagara Bar Lighted Buoy 2; thence **212°** for 11.25 miles to a position 0.5 mile off Port Weller breakwaters.

(35) Upbound vessels from Cape Vincent to Toronto, Port Credit, and Clarkson, from a position not more than 3 miles off Point Petre, shall lay a course of **263°** for 113.25 miles to a position more than 2.8 miles off Toronto Main Harbour Channel range front light; thence to destination.

(36) Upbound vessels from Toronto to Port Weller, from a position not less than 3.8 miles off Toronto Main Harbour Channel Range Front Light, shall lay a course **163°** for 23.5 miles to a position 0.5 mile off Port Weller breakwaters.

(37) Upbound vessels from Hamilton to Port Weller, from a position 0.5 mile off Burlington piers, shall lay a course 098° for 28.7 miles to a position 0.5 mile off Port Weller breakwaters.

(38) It is understood that masters may exercise discretion in departing from these courses when ice and weather conditions are such as to warrant it. The recommended courses are shown on chart 14800, Lake Ontario.

(39) **Caution.**–A special use airspace is in midlake in U.S. waters bounded by the following coordinates:

(40) 43°37'N., 76°45'W.;

(41) 43°24'N., 76°45'W.;

(42) 43°24'N., 78°00'W.; and

(43) 43°37'N., 78°00'W.

(44) The area may be used for military purposes from the surface to an altitude of 50,000 feet. The using agency is the Commander, 21st Air Div., Hancock Field, Syracuse, N.Y. Consult Local Notice to Marines for additional information and firing schedules.

Pilotage

(45) The waters of Lake Ontario are Great Lakes undesignated waters; registered vessels of the United States and foreign vessels are required to have in their service a United States or Canadian registered pilot or other officer qualified for Great lakes undesignated waters. The Welland Canal and its approaches are Great Lakes designated waters; registered vessels of the United States and foreign vessels are required to have in their service a United States or Canadian registered pilot. Registered pilots for Lake Ontario and Welland Canal are supplied by the Great Lakes Pilotage Authority, Ltd., St. Catharines. (See appendix for address.) Pilot exchange points are off Cape Vincent, N.Y., 1 to 2 miles N of Port Weller, and at the S end of Welland Canal 1 to 2 miles S of Port Colborne. (See Pilotage, chapter 3, and **46 CFR 401,** chapter 2.)

Principal ports

(46) The principal ports on Lake Ontario are at Oswego and Rochester, N.Y., and at Hamilton and Toronto, Ont. These harbors have been improved by dredging by the United States and Canadian governments, respectively, and provide access for vessels up to 26-foot draft. At Cape Vincent, N.Y., a harbor protected by a breakwater provides refuge for vessels who find that storm conditions render it unsafe to venture into the open lake from the head of St. Lawrence River. The largest drydock on Lake Ontario is at Port Weller in the Welland Canal.

Chart 14802

(47) The shoreline SE for about 11 miles from Tibbetts Point to Point Peninsula is irregular, with numerous bays and outlying islands and shoals.

(48) **Tibbetts Point**, 3 miles SW of Cape Vincent, N.Y., is on the S side of the main ship channel leading from the St. Lawrence River to Lake Ontario. **Tibbetts Point Light** (44°06.0'N., 76°22.2'W.), 69 feet above the water, is shown from a white conical tower on the point; a radiobeacon is at the light. Reefs extend off about 1,000 feet around the point, and a rock ledge, with a least depth of 18 feet near its outer end, extends about 1 mile SW from the point. A lighted buoy marks the SW end of the ledge.

(49) **Wilson Point** is about 1 mile SE of Tibbetts Point and is separated from it by **Fuller Bay,** which extends inshore about 0.5 mile. A rocky spit, with 11 feet near its outer end and shoaler water inside, extends about 0.6 mile SW from Wilson Point. **Wilson Bay,** a rectangular indentation about 1 mile long and 0.5 mile wide, opens between Wilson Point on the N and **Dablon Point** on the S. The bay has depths of 10 to 20 feet, but the deep water at the entrance narrows between the spit extending from Wilson Point and a shallow bank extending 0.9 mile W from Dablon Point. This bank has a depth of 11 feet at the outer end and a 4-foot spot 0.65 mile W of Dablon Point.

(50) **Mud Bay**, a narrow, shallow inlet about 1.4 miles long, is E of Dablon Point with **Baird Point** on its S side.

(51) **Grenadier Island**, 2.3 miles long and 1.4 miles in maximum width, is 0.8 mile SW of Baird Point. **Fox Island,** E of Grenadier Island, is irregularly shaped, about 0.8 mile across at its S end and quite narrow at its N end. Between Fox Island and Grenadier Island is a shallow passage about 0.6 mile wide, with depths of 6 to 8 feet. An expanse of shallow water with mud bottom separates both islands from the shore. The shallow water extends off the SW side of the islands as much as 1.2 miles and extends SE to Point Peninsula.

(52) **Allan Otty Shoal**, about 4.7 miles SW of Tibbetts Point Light, is a narrow ridge about 0.5 mile long E and W, with rocks covered 10 feet along the N edge. A lighted buoy marks the SE side of the shoal.

(53) **Charity Shoal**, **East Charity Shoal,** and **South Charity Shoal,** 5 to 6 miles W of Grenadier Island, form a group of outlying rock obstructions in the approach to the S channel of the St. Lawrence River.

(54) Charity Shoal, the northernmost, is a narrow rocky ledge about 0.7 mile long and 0.25 mile wide, with a least depth of 1 foot near the W edge. A buoy marks the W side of the shoal.

(55) East Charity shoal, SE of Charity Shoal, has a least depth of 8 feet and is marked by a light. The passage between Charity and East Charity Shoals is rendered unsafe by South Charity Shoal, a narrow ridge about 0.9 mile SW of East Charity Shoal Light, having a least depth of 11 feet. The SW extremity of South Charity Shoal is marked by a lighted buoy. About 3.7 miles SSW of South Charity Shoal, a detached 25-foot shoal is marked by a lighted buoy. An unmarked shoal with a least depth of 24 feet is about 5.5 miles SW of South Charity Shoal.

(56) East Charity Shoal Traffic Lighted Buoy is about 1.5 miles SE of East Charity Shoal Light. Vessels bound from and to the S channel of the St. Lawrence River should pass close on this buoy and well to the E and S of East Charity Shoal Light.

Charts 14802, 14811

(57) **Point Peninsula** (44°00'N., 76°15'W.), an almost detached body of land about 6 miles long and 3 miles wide, is joined to the mainland on its NW side by a narrow neck. Shoaling extends as much as 1.2 miles off the W side and around the S end. A lighted buoy 1 mile S of the SW end of the peninsula marks the S side of the shoaling. Between the SE side of the peninsula and **Pillar Point** on the mainland opposite, a deep channel extends NE to Chaumont and Guffin Bays. The channel has general depths greater than 30 feet except for a shoal with depths of 22 to 28 feet which generally parallels the SE end of the peninsula.

(58) Between Point Peninsula and Stony Point, 8 miles S, a group of large deep bays, including Chaumont Bay, Guffin Bay, Black River Bay, and Henderson Bay, open to the N and E.

(59) **Chaumont Bay**, about 20 miles by deep water from Tibbetts Point, is separated from Lake Ontario by Point Peninsula and the adjoining mainland point. It is a large and well-protected area with depths of 18 to 30 feet of water to within 0.4 mile of shore, except for shoals in the SW end and shoals extending about 1.5 miles SE from Three Mile Point on the N side of the bay. The bay provides good anchorage, mud bottom.

(60) **Three Mile Bay, N.Y.**, is a village at the N end of **Three Mile Bay,** a small bay on the N side of Chaumont Bay. In 1977, the reported controlling depth through the bay to the village was 3 feet, thence 2 feet to and in the marina. Gasoline, ice, marine supplies, a launching ramp, and limited repairs are available.

(61) At the NE end of Chaumont Bay, **Independence Point** extends from the mainland to form two arms, the NE end of Chaumont Bay on the NW side of the point and **Sawmill Bay** on the SE side. **Johnson Shoal,** with a least depth of 2 feet, extends SW for about 1.4 miles from Independence Point and is marked on the SE side by a lighted buoy.

(62) **Chaumont, N.Y.**, a village at the NE end of Chaumont Bay, can be approached on the NW side of Independence Point or through Sawmill Bay on the SE side of the point. The Sawmill Bay approach is marked by a light on the SE side of Independence Point, and deep water in the harbor is marked by buoys and a daybeacon.

(63) The **Chaumont River** flows through the village and into Chaumont Bay on the NW side of Independence Point. A fixed highway bridge at the mouth of the river has a clearance of 20 feet, and an overhead telephone cable on the N side of the bridge has a clearance of 22 feet. The pier remains of a railroad bridge 0.1 mile NE provide a horizontal clearance of 50 feet. An overhead cable of unknown clearance crosses the river at the pier remains.

Small-craft facilities

(64) Several marinas provide limited transient berths, gasoline, water, ice, electricity, sewage pump-out, marine supplies, launching ramps, a 25-ton marine railway, mobile lifts to 25 tons, a mast-stepping crane, and hull and engine repairs. In 1977, the reported controlling depths were 5 to 10 feet to the Sawmill Bay facilities with 5 to 8 feet alongside, and 5 feet to the facilities above the highway bridge crossing Chaumont River.

(65) Chaumont has several stone quarries.

(66) **Guffin Bay** is E of Chaumont Bay and is separated from it by **Point Salubrious** and Cherry Island. The bay has good water except for about 0.5 mile of its head, where **Guffin Creek** enters. The deep portion affords good anchorage in 22 to 36 feet with mud bottom.

(67) **Cherry Island**, on the W side of Guffin Bay, is marked by a light on the SW end. The passage between the NE end of Cherry Island and Point Salubrious is about 0.5 mile wide with depths of 15 to 19 feet except for a detached 11-foot shoal about 650 feet off Point Salubrious.

(68) **Black River Bay**, opening about 6 miles E of the SW end of Point Peninsula, is entered between **Everleigh Point** on the N side and **Horse Island** on the S side. The bay is about 1 mile wide and extends NE for about 5.5 miles. The water is deep through the bay and close to the shores except for a very shallow expanse filling the upper 1.5 miles. **Black River** enters at the head of the bay. A depth of about 5 feet can be carried through the shallows and between the submerged ruins of breakwaters at the mouth of the river upstream to the village of Dexter, about 1 mile above the mouth. The channel is marked by private lighted and unlighted buoys that are shifted to mark the best water.

(69) **Sackets Harbor, N.Y.**, is on the SE side of Black River Bay, about 22 miles by water from Tibbetts Point. The harbor, about 7 acres in extent, is protected on the N side by **Navy Point.** Lights on the N side of Horse Island and on Navy Point mark the approach to the harbor. In 1976, the controlling depth in the entrance E of Navy Point was 9 feet. In 1977, the harbor basin had a reported controlling depth of 9 feet except for shoaling to 2 feet in the W end. Good anchorage is available with sand, mud, gravel, and rock bottom, taking care to avoid anchoring over the submarine cable in the SE

part of the basin. Private mooring buoys extend 082° from Navy Point for approximately 80 yards.

(70) A seasonal **Coast Guard station** is on the S side of the basin.

(71) Augsbury Oil Corp. Sackets Harbor Terminal, on the S side of Black River Bay between Sackets Harbor and Horse Island, has an offshore mooring crib with 400 feet of berthing space and a deck height of about 8 feet. In 1977, depths of 22 feet were reported alongside. The terminal receives petroleum products.

(72) Several marinas at Sackets Harbor provide gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, launching ramps, mobile lifts to 8 tons, and hull and minor engine repairs. In 1977, depths of 3 to 15 feet were reported alongside the facilities.

(73) **Henderson Bay**, SW of Black River Bay on the E side of Stony Point, is a broad indentation separated from Lake Ontario by a line of shoals and small islands extending from Stony Point NE to Horse Island. The bay is about 7 miles long and 2 miles wide. Once inside, the bay is clear with depths of 20 to 40 feet close to the shore except at the E end. Shoals extend 0.7 mile SW from Horse Island and continue S to **Campbell Point** where a shoal with a least depth of 2 feet extends about 1 mile W. The bay provides good anchorage, mainly sand and mud bottom.

(74) **Bass Island**, 1.5 miles SW of Horse Island, and **Gull Island,** 0.9 mile SSW of Bass Island, are on a very small bank that extends 0.2 mile NE from Bass Island and 0.5 mile SW from Gull Island. The deep channel between the shoals off Horse and Bass Islands, about 0.7 mile wide, is the NE entrance to Henderson Bay.

(75) A partly submerged projection of land extends about 2 miles NE from Stony Point and terminates in **Six Town Point. Lime Barrel Shoal,** with a least depth of 1 foot, is the NE end of shallow water that extends 1.2 miles NE from Six Town Point. A lighted buoy on the W side of the shoal marks a small-craft passage with depths of 11 to 14 feet between Lime Barrel Shoal and Six Town Point. A deepwater passage between Lime Barrel Shoal and Gull Island has depths of 23 to 33 feet.

(76) **Henderson Harbor** is a small summer resort on the NE side of **Henderson Harbor,** a small inlet at the S end of Henderson Bay. In May 1977, the reported controlling depth to marinas in the S end of the harbor was 4 feet with 2 to 10 feet reported alongside the berths. The marinas provide transient berths, gasoline, diesel fuel, water, electricity, ice, sewage pump-out, marine supplies, launching ramps, mobile lifts to 15 tons, a 45-foot marine railway, and hull, engine, and electronic repairs.

(77) **Special anchorages** are in Henderson Harbor. (See **33 CFR 110.1 and 110.87,** chapter 2, for limits and regulations.)

(78) **Whites Bay**, with good depths, and **Snow Shoe Bay,** small and shallow, are indentations in the W shore of Henderson Bay NW of Henderson Harbor. A privately maintained channel connecting Snow Shoe Bay with Lake Ontario has depths of about 3 feet through a cut in the narrow peninsula on the NE side of Stony Point. A bridge across the channel has a 30-foot fixed span with a clearance of 12 feet.

Chart 14802

(79) **Stony Point** (43°52.8'N., 76°15.6'W.) is a bold headland extending W from Henderson Bay with deep water close-to. **Stony Point Light** (43°50.3'N., 76°17.9'W.), 40 feet above the water, is shown from a white skeleton tower on the W end of the point.

(80) **Stony Island** is about 2.2 miles NW of Stony Point. The channel between the mainland and the island is broad and deep and is occasionally used by tows bound to and from the St. Lawrence River. A rocky ledge with least depths of 2 feet extends about 2.3 miles SW from Stony Island. **Calf Island** is on the W part of the ledge, and the SW end of the ledge is marked by a buoy. A detached rock ledge with a least depth of 13 feet is about 1 mile S of the buoy. A shoal with a least depth of 14 feet extends 0.4 mile off the NE end of Stony Island and is marked on the E side by a lighted buoy. **Dutch John Bay** is a small bight of deep water on the W side of Stony Island. From the head of the bay, a narrow strip of water extends SW almost through the length of the island.

(81) **Little Galloo Island**, about halfway between the SW ends of Stony and Galloo Islands, is on a bank 1 mile long and 0.5 mile wide, with broad and deep channels to either side. A detached 24-foot spot is in the channel SW of the island.

(82) **Galloo Island** is 2.4 miles W of Stony Island. **Gill Harbor,** on the NE side of Galloo Island, provides shelter for small craft. The harbor is enclosed by a gravel spit across which a channel has been dredged. In 1961, the controlling depth was 7 feet in the entrance channel.

(83) **North Pond**, near the N end of the island, has a depth of 3 feet. The entrance is through a narrow channel along a crib pier at the E end of the pond. In 1976, the controlling depth was 2 feet in the entrance.

(84) Shoals extend about 0.6 mile off the NE and SW ends of the island.

(85) **Galloo Island Light** (43°53.3'N., 76°26.7'W.), 58 feet above the water, is shown from a gray conical tower at the SW end of the island.

(86) **Galloo Shoal**, about 1.3 miles W of Galloo Island Light, has a least depth of 3 feet, and is marked off its W side by a lighted buoy. Vessels bound to and from the St. Lawrence River should pass W of the buoy, although there is a deep passage about 0.8 mile wide between the shoal and Galloo Island.

(87) An unmarked snag, covered 16 feet, is 0.4 mile NE of Galloo Shoal, and an unmarked wreck is 1 mile NE of the shoal.

Charts 14802, 14803

(88) From Stony Point the coast trends generally S for about 22 miles, and thence W for about 7 miles to Nine Mile Point. **Mexico Bay** is the broad, open formation in the bend E of Nine Mile Point.

(89) The shoreline, for about 4 miles SE of Stony Point, is a series of irregular indentations with a rocky bank extending as much as 0.9 mile offshore. About 4.5 miles SE of Stony Point, **Drowned Island,** covered 1 foot, is on a bank that extends 1 mile offshore and is marked by a buoy.

Chart 14803

(90) The lakeshore S of Drowned Island is relatively straight for about 17 miles with deep water about 1 mile off. In this stretch, several shallow ponds, fed by numerous creeks, are practically cut off from the lake by narrow ridges of shore.

(91) **North Pond**, about 13 miles S of Stony Point, is separated from the lake by a long, narrow neck of land. The narrow, continually shifting entrance channel had a reported controlling depth of 3 feet in 1977. Local knowledge is advised. The pond, about 3.5 miles long and 2 miles wide, has depths of 6 to 13 feet with shoaling to lesser depths along the shore and on the N, E, and S sides. Several marinas on the pond provide berths, gasoline, ice, marine supplies, sewage pump-out, launching ramps, a 3-ton mobile hoist, and engine and hull repairs. In 1977, depths of 2 to 4 feet were reported alongside the berths.

(92) **Sandy Pond** is a village at the S end of the pond.

(93) The **Salmon River,** about 6 miles S of North Pond entrance, empties into **Port Ontario** which is entered through a dredged channel protected by breakwaters. The dredged channel leads about 0.5 mile to the town of **Selkirk.** The entrance channel is marked by buoys and lights at the ends of the breakwaters. In August 2002, the controlling depth was 6 feet in the dredged channel to the head of the project at Selkirk.

(94) **Little Salmon River** enters the SE side of Mexico Bay. The town of **Texas** is 1 mile above the mouth.

(95) In Mexico Bay, from Selkirk to **Nine Mile Point** (43°31.5'N., 76°22.0'W.), the bottom is rock, and deep water is within 1 mile of the shore. The headland W of Nine Mile Point is relatively deep-to, and SW to Oswego shallow water extends no more than 1 mile offshore.

(96) The James A. FitzPatrick Nuclear Power Plant and the Niagara Mohawk Power Corp. Nine Mile Point Nuclear Station are on the headland W of Nine Mile Point.

Charts 14803, 14813, 14786

(97) **Oswego Harbor**, at the mouth of the **Oswego River**, is on the S shore of Lake Ontario about 15 miles from its E end and about 45 miles S of Tibbetts Point at the head of the St. Lawrence River. The harbor serves the city of **Oswego, N.Y.**, and is the terminus of the Oswego Canal of the **New York State Canal System.** The harbor comprises an outer breakwater harbor of refuge and an inner terminal harbor in the Oswego River. Because most of the very severe storms are from the W and NW, with a fetch the entire length of the lake, the outer harbor is an important harbor of refuge for vessels in this part of the lake.

(98) An unmarked **dumping ground** with a least reported depth 35 feet is about 1.5 miles NNW of the entrance of Oswego Harbor.

Prominent features

(99) The strobe-lighted stacks at the powerplant 1 mile W of the river mouth are prominent in the harbor approach.

Channels

(100) A dredged approach channel leads E from the lake S of a detached breakwater and between converging breakwaters into the outer harbor of refuge. From the outer harbor, the inner harbor extends up the Oswego River for 0.5 mile along the Oswego piers. Another channel, protected by an extension of the W breakwater, extends SW from the outer harbor along the shore to a turning basin. The breakwaters are marked by lights, and the channels by lighted and unlighted buoys. A fog signal is at the light on the west breakwater.

(101) In August 2002, the controlling depths were 24.1 feet in the approach and in the channel through the outer harbor to the mouth of the river, thence 21 feet in the river channel to the head of the Federal project at Seneca Street (except for a 19.7-foot spot along the E edge of the channel near the entrance to Oswego Marina.) The outer harbor W of the entrance channel had depths of 12 to 16 feet (except for lesser depths along the S end of the W breakwater.) The outer harbor E of

Oswego, NY

the entrance channel had depths of 19 to 21 feet (except for lesser depths along the SE edge.) The channel leading SW to the turning basin had a depth of 18.9 feet with lesser depths along the edges, thence 16 to 21 feet in the basin.

(102) In November 1983, a large anchor was reported lost in the W part of the outer harbor in about 43°28'03"N., 76°31'04"W.

(103) A dangerous 3-foot spot is off the E face of the Port of Oswego Authority Grain Wharf at the W side of the mouth of the river in about 43°27'53"N., 76°30'53"W. Caution is advised.

(104) Mooring vessels to the breakwaters, and anchoring in the outer harbor where it will interfere with navigation, are prohibited.

(105) The **Oswego Canal** of the New York State Canal System enters Oswego Harbor through a dredged canal on the E side of the Oswego River above the Bridge Street bridge. This bridge has a clearance of 26 feet above normal pool level, New York State Canal System datum. (For information on the Oswego Canal, see chapter 14, Hudson River, New York Canals, and Lake Champlain.)

Dangers

(106) It is reported that during flood river conditions currents in the river attain velocities up to 5 mph (4.3 knots).

(107) Oswego is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine

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

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

(110) Oswego has a hospital.

(111) **Oswego Coast Guard Station** is on the S side of the outer basin 0.2 mile W of the mouth of Oswego River.

Wharves

(112) Oswego has deep-draft facilities in the outer harbor and in the Oswego River. All wharves have highway connections. The alongside depths for the facilities described are reported depths; for information on the latest depths, contact the operator.

(113) **Port of Oswego Authority West Side Grain Elevator Dock** (43°27'56"N., 76°30'43"W.): S shore of the outer harbor, 500 feet W of the river; 600-foot pier, 600 feet on the W side, 500 feet on the E side; 21 feet alongside the E and W face; deck height, 9 feet; 1-acre open storage area; 1-million-bushel grain elevator; loading spouts on W side; shipment of grain; owned and operated by Port of Oswego Authority.

(114) **Port of Oswego Authority East Pier** (43°27'50"N., 76°30'43"W.): E side of Oswego River just inside the mouth; 1,750-foot wharf; 25 feet alongside; deck height, 10 feet; 30,000-square feet covered storage and 200,000-square feet open storage; one portable electric shiploader conveyor belt; receipt of general cargo and miscellaneous dry bulk materials; owned and operated by Port of Oswego Authority.

(115) **Lafarge Corp., Oswego Terminal Dock** (43°27'41"N., 76°30'46"W.): W side of river, 1,500 feet above the mouth; 340-foot marginal wharf, 192 feet usable; 24 feet alongside; deck height, 9 feet; two pipelines extend to cement silos, 23,800-ton capacity; receipt of bulk cement; owned and operated by Lafarge Corp., Great Lakes Region.

(116) **New York State Canal Oswego Terminal** (43°27'28"N., 76°30'34"W.): E side of river immediately N of the Bridge Street bridge; 594-foot face; 7 to 14 feet alongside; deck height, 8 feet; used by vessels awaiting barge canal lockage; owned by New York State Department of Transportation.

(117) **Niagara Mohawk Power Corp., Oswego Steam Station** (43°27'37"N., 76°31'52"W.): at the SW end of the outer harbor; 650-foot face; 21 feet alongside; deck height, 11 feet; one pipeline extends to four storage tanks, 1.5-million-barrel capacity; two unloading arms; receipt of fuel oil; owned and operated by Niagara Mohawk Corporation.

Supplies

(118) Some marine supplies and provisions are available at Oswego. Tank trucks deliver diesel oil to most wharves.

Small-craft facilities

(119) **Wrights Landing Marina** (43°27.5'N., 76°31.1'W.) is in the outer harbor about 1,200 feet W of Port of Oswego Authority Grain Wharf. Over 40 berths, sewage pump-out, and launching ramps are available. In April 1985, depths of 8 feet were reported alongside the berths. A marina on the E side of the river 0.3 mile above the mouth provides transient berths, gasoline, diesel fuel, electricity, water, ice, sewage pump-out, marine supplies, a 12-ton hoist, and hull and engine repairs. In 1991, depths of 10 feet were reported alongside the berths. Launching ramps are also available in the W part of the outer harbor.

Communications

(120) Oswego is served by rail and bus.

Chart 14803

(121) From Oswego, the bold shoreline runs SW for about 7 miles to **West Ninemile Point** (43°24.8'N., 76°37.8'W.). About 3 miles NE of this point is **Ford Shoals,** a group of boulders and stony mounds just below the water surface. The shoals extend about 0.7 mile offshore and are marked on the NW side by a lighted buoy.

(122) From West Ninemile Point SW for 6 miles to Little Sodus Bay, the shore is hilly, and shallow water extends from 0.5 to 1 mile offshore. **Sabin Point,** on the E side of the entrance to Little Sodus Bay, separates the bay from **The Pond.** A channel from Lake Ontario into The Pond leads under a fixed bridge. The Pond, however, is virtually closed to navigation, because it is close to a bathing beach and the bridge.

(123) **Little Sodus Bay**, 13 miles SW of Oswego, extends 2 miles S from the shore of the lake. Its shores are bold, except in the bights.

(124) An unmarked **dumping ground** with a least reported depth of 35 feet is about 2.5 miles NNE of the bay entrance.

Channels

(125) The bay is entered from Lake Ontario through a dredged channel between parallel piers. The inner end of the E pier extends laterally E to enclose the bay. In August 2002, the controlling depth in the channel was 6.1 feet. The outer ends of the piers are marked by lights.

Anchorages

(126) The bay has good anchorage in 24 to 36 feet, clay bottom.

Dangers

(127) With W winds, a strong current runs across the outer end of the entrance piers. Avoid being set E of the pierheads where the bottom is hardpan with no holding ground.

(128) In July 1981, shoaling to 5 feet was reported on the W side of the bay in the vicinity of **Grass Island** in about 43°20'18"N., 76°42'36"W. The shoal is reported to be shifting E.

Small-craft facilities

(129) A pier, with reported depths to 12 feet alongside, at the NE end of the bay at Fair Haven Beach State Park provides sewage pump-out, marine supplies, and a launching ramp. Marinas in the S end of the bay provide transient berths, gasoline, water, ice, electricity, launching ramps, mobile lifts to 12 tons, a mast-stepping crane, and emergency shaft and propellor repairs. In 1977, depths of 4 to 10 feet were reported alongside the berths.

Charts 14803, 14804

(130) From Little Sodus Bay, the shore trends SW for about 14 miles to Sodus Bay. The shore is hilly, and a rock bank extends a maximum of about 1 mile offshore.

(131) **Blind Sodus Bay**, just W of Little Sodus Bay, is separated from Lake Ontario by a narrow strip of land. The bay has a maximum depth of about 21 feet.

(132) **Port Bay** is about halfway between Little Sodus and Sodus Bays. A privately maintained and marked channel enters the bay from Lake Ontario and is protected on the W by a short pier and fill. In August 1993, the controlling depth in the channel was 6 feet. The entrance is extremely difficult to make in rough weather. An overhead cable with an unknown clearance crosses the entrance channel. Good water is available inside the bay. Transient berths, gasoline, water, electricity, and a launching ramp are available in the bay.

Chart 14804

(133) **East Bay**, about 4 miles E of Sodus Bay at the mouth of **Mudge Creek,** is small and shallow and closed to lakeward.

Charts 14804, 14814

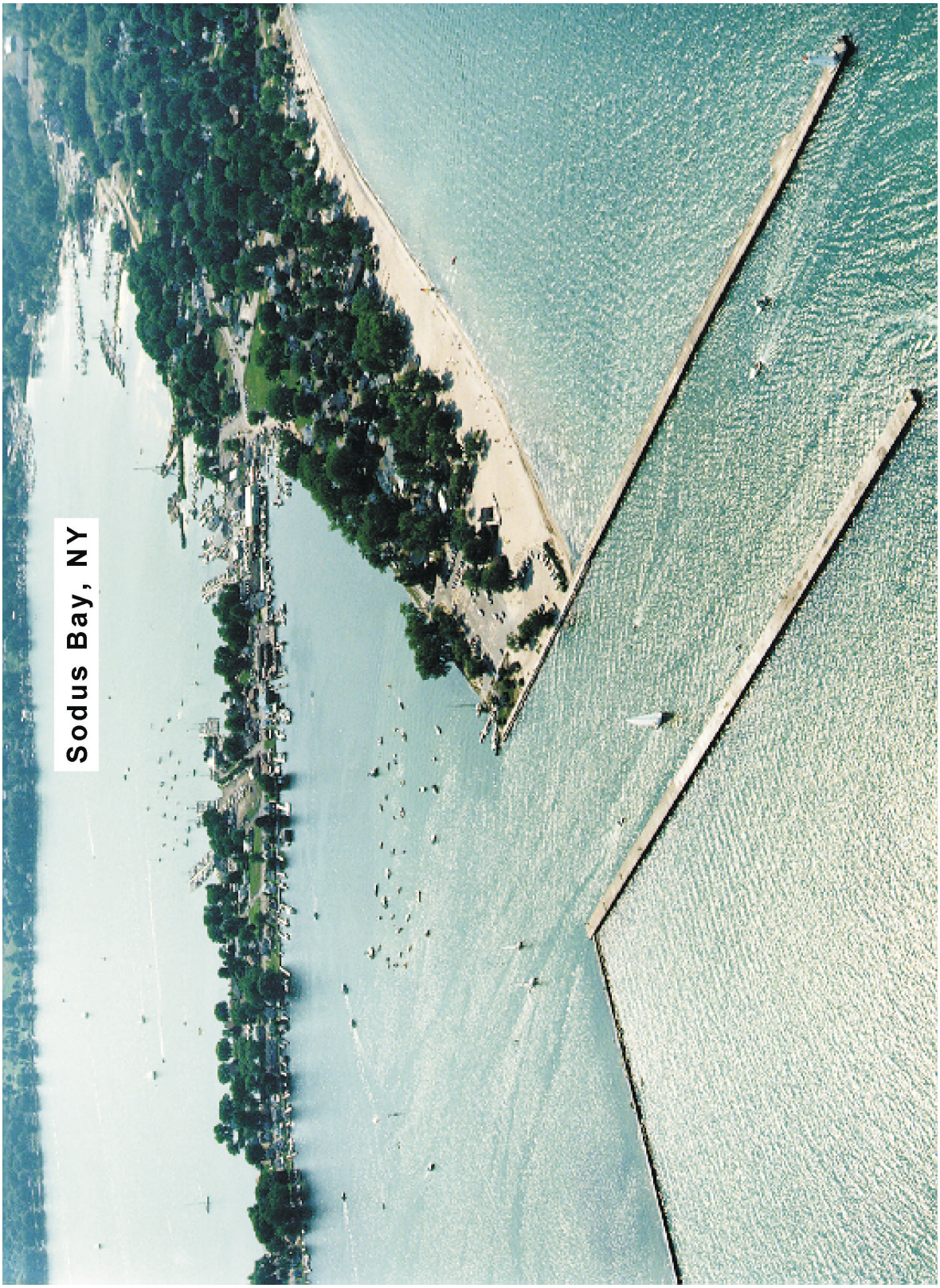
(134) **Sodus Bay**, also known as **Great Sodus Bay,** is 27 miles SW of Oswego. The shores of the bay are bold, and the depths are from 18 to 48 feet, generally to within 0.2 to 0.4 mile of the shore. The SE arm of the bay has depths of 9 to 15 feet to within 0.1 mile of the shore.

(135) **Sand Point**, a low sandspit, extends about 0.6 mile ESE from the NW side of the bay just inside the entrance. The small bight on the N side of Sand Point has depths of 1 to 4 feet, but the water at the extremity of the point deepens rapidly to 30 feet and more.

(136) **Newark Island**, Eagle Island, and **LeRoy Island** are in the shallow NE part of the bay. The first two are deep-to on the W or bay side.

(137) **Sodus Outer Light** (43°16'36"N., 76°58'30"W.), 51 feet above the water, is shown from a tower on the N end of the W entrance pier.

(138) An unmarked **dumping ground** with a least reported depth of 35 feet is about 2 miles NE of the entrance to Sodus Bay.


Sodus Bay, NY

Channels

(139) A dredged channel extends from deep water in Lake Ontario between parallel piers to the bay. The inner end of the E pier extends laterally eastward to **Charles Point** to enclose the bay. The outer ends of the piers are marked by lights, and the entrance channel is marked by lighted buoys and a light. In July 2002, the dredged channel had a controlling depth of 8.7 feet.

Anchorage

(140) The bay is the most capacious and secure anchorage along the New York shore and reported to be congested at times. The holding ground is good with a mud bottom.

Dangers

(141) Along the shoreline within Sodus Bay are numerous obstructions, including submerged cribs, dock ruins, submerged piles, and several wrecks, which hamper small-craft navigation.

(142) Sodus Point is a **customs port of entry.**

(143) **Sodus Point Coast Guard Station**, seasonal, is on the W side of the entrance channel.

Small-craft facilities

(144) Marinas and boatyards at the village of **Sodus Point, N.Y.,** on the W side of Sodus Bay, provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, launching ramps, a mast-stepping crane, mobile lifts to 50 tons, and hull, engine, and electronic repairs. In 1977, depths of 4 to 20 feet were reported alongside the berths.

Chart 14804

(145) The shoreline from Sodus Bay trends generally WNW for 10.5 miles to Pultneyville. The E part of this stretch is marked by hills; for about 3 miles W from Sodus Bay, shoals extend offshore about 0.7 mile. Elsewhere, deep water is less than 0.4 mile offshore. A marina at **Fairbanks Point,** about 2 miles E of Pultneyville, provides gasoline, water, ice, electricity, a launching ramp, and hull and engine repairs.

(146) **Pultneyville, N.Y.**, is a recreational small-craft harbor on **Salmon Creek.** The entrance to the creek is sheltered by a point of land on the W, but is exposed to the N and E.

(147) The entrance channel between two submerged jetties is marked by private lighted buoys and ranges. In 1981, the controlling depth was reported to be 5 feet in the entrance and in the cove at the mouth of the creek. A marina in the cove provides gasoline, water, electricity, sewage pump-out, launching ramps, fixed lifts to 2 tons, and emergency repairs. In 1977, depths of 1½ to 5 feet were reported at the berths.

(148) The shore from Pultneyville continues W for 6.5 miles to **Smoky Point,** thence W for about 6 miles to **Ninemile Point,** and thence SW for 5.5 miles to Irondequoit Bay. Deep water along this stretch is about 0.5 mile offshore.

(149) **Irondequoit Bay** is about midway between the mouth of the Niagara River and the head of the St. Lawrence River, and about 3.5 miles E of the Genesee River entrance. The bay is irregularly shaped with hilly shores, and extends inland about 4 miles.

Channels

(150) A dredged channel extends from deep water in the lake between breakwaters into the bay, thence about 0.6 mile southerly in the bay. The breakwaters are marked by lights. A boat launching ramp access channel is just inside the bay on the W side of the main channel.

(151) In September-October 2002, the controlling depths were 3.8 feet in the dredged channel to the boat launch ramp access channel, with 7.4 feet in the access channel, thence 5.3 feet in the dredged channel to deep water in the bay.

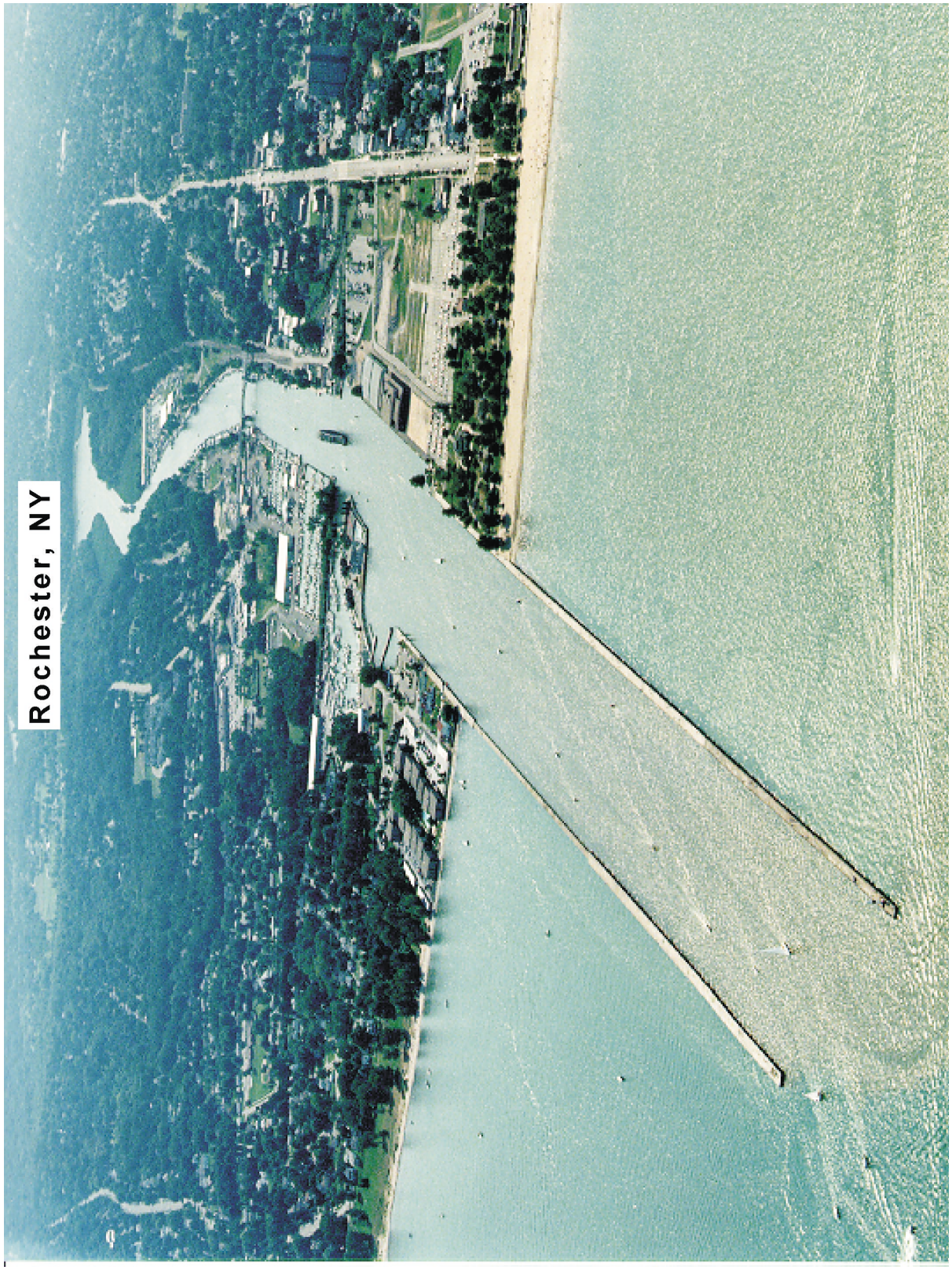
Bridges

(152) The Irondequoit Bay Outlet bridge crosses the entrance channel just inside the two breakwaters and has a retractable span with a clearance of 8 feet. The bridge is placed in the closed-to-navigation position from October 31st to April 1st. State Route 104 highway bridge crosses the bay 6.5 miles S of the Irondequoit Bay Outlet bridge and has a fixed span with a clearance of 44 feet.

Charts 14804, 14815

(153) From Irondequoit Bay WNW for 3.8 miles to the mouth of the Genesee River, deep water is about 0.5 mile offshore. A rock covered ½ foot is close inshore about 0.7 mile SE of the Genesee River entrance.

(154) **Rochester Harbor**, at the mouth of the **Genesee River**, is 56 miles W of Oswego Harbor and about 7 miles N of the main business district of the city of **Rochester, N.Y.** The river is navigable for about 5.5 miles above the mouth. The first of a group of dams is about 7 miles upstream from Lake Ontario. There is no navigable connection between the lower portion of the Genesee River and the New York State Canal, which connects with the river about 11 miles upstream from the lake. The surface elevation of the river falls more than 260 feet between the Rochester Terminal of the


Rochester, NY

New York State Canal System and the head of navigation of the lower portion of the river below the dams.

(155) An unmarked **dumping ground** with a least reported depth of 35 feet is about 1.8 miles NE of the mouth of the Genesee River.

Prominent features

(156) The lighted stacks at the powerplant 1.6 miles WNW of the river mouth, the stacks at the sewage treatment plant 1.9 miles SE of the river mouth, and the tall apartment building 1.1 miles SW of the river mouth are the most prominent objects from offshore.

(157) **Rochester Harbor Light** (43°15'48"N., 77°36'00"W.), 40 feet above the water, is shown from a white cylindrical tower with red band on the outer end of the W pier.

Channels

(158) The river is entered from Lake Ontario through a dredged channel that leads between two piers, thence upstream for 2.6 miles above the mouth. There are two turning basins, one just inside the mouth and the other 2 miles above the mouth on the W side of the channel. The outer ends of the entrance piers are marked by lights, and a buoy marks a shoal that extends into the N part of the upper turning basin.

(159) In June 2003, the controlling depths were 18.1 feet (18.9 feet at midchannel) in the entrance and between the piers to the lower turning basin, with 18.7 feet in the west half of the basin and shoaling to 7.3 feet in the east half. The channel under the swing bridge just above the turning basin has depths of 13.4 feet under the E draw and 18 feet under the W draw, thence 16.7 feet (18.0 feet at midchannel) to the upper turning basin, with 14.6 to 20.0 feet in the upper basin, thence 11.3 feet (12.2 feet at midchannel) to the head of the project. The W section of the upper turning basin is no longer maintained.

(160) Mooring is allowed on the lakeside of the piers only.

Anchorages

(161) (See **33 CFR 162.165 and 207.600,** chapter 2, for regulations.)

Dangers

(162) It is reported that NE winds sometimes create waves as high as 6 feet which reflect through the entrance channel between the piers, making navigation into the harbor difficult. River currents sometimes compound this problem. A dangerous sunken wreck is 0.8 mile ENE of Rochester Harbor Light.

Bridges

(163) Two bridges cross the dredged section of the Genesee River. The ConRail bridge 0.9 mile above the pierheads has a swing span with a clearance of 10 feet. The Stutson Street bridge 0.4 mile upstream has a bascule span with a clearance of 24 feet. (See **33 CFR 117.1 through 117.59 and 117.785,** chapter 2, for drawbridge regulations.) In November 2000, a replacement bridge with a design clearance of 40 feet was under construction just S of the Stutson Street bridge. Overhead power cables crossing the river 2.8 miles above the pierheads have a clearance of 141 feet. Above the limit of the Federal project, a pipeline bridge, about 5.1 miles above the pierheads, has a fixed span with a clearance of 86 feet. The Ridge Road (U.S. Route 104) bridge, about 5.5 miles above the pierheads, has a fixed span with a clearance of 160 feet. The Driving Park Avenue bridge, 6.4 miles above the pierheads, has fixed span with unknown clearance.

Weather, Rochester and vicinity

(164) Rochester, NY, located on the south shore of Lake Ontario and in the western part of the state, averages about ten days each year with maximum temperatures in excess of 90°F (32.2°C). July is the warmest month with an average high of 82°F (27.8°C) and an average minimum of 61°F (16.1°C). January is the coolest month with an average high of 31°F (-0.6°C) and an average minimum of 17°F (-8.3°C). The highest temperature on record for Rochester is 100°F (37.8°C) recorded in June 1953 and the lowest temperature on record is -19°F (-28.3°C) recorded in February 1979. About 135 days each year experience temperatures below 32°F (0°C) and an average 13 days each year records temperatures below 5°F (-15°C). Every month has seen temperatures below 50°F (10°C) and every month except June, July, and August has recorded temperatures below freezing (0°C).

(165) The average annual precipitation for Rochester is 31.7 inches (805 mm) which is fairly evenly distributed throughout the year. Precipitation falls on about 225 days each year. The wettest month is August with 3.2 inches (81 mm) and the driest, January and February, each average only 2.2 inches (56 mm). An average of 27 thunderstorm days occur each year with July and August being the most likely months. Snow falls on about 100 days each year and averages about 93 inches (2362 mm) each year. December, January, and February each average greater than 20 inches (508 mm) per year with a slight maximum in January. Eighteen inch (457 mm) snowfalls in a 24-hour period have occurred in each month December through March. About 20 days each year has a snowfall total greater than 1.5 inches (38 mm) and snow has fallen in every month except June, July, and August. Fog is present on average 125 days each year and is evenly distributed throughout the year with a slight maximum in August.

(166) The prevailing wind direction in Rochester is the west-southwest, off the lake. January is the windiest month but a maximum gust of 62 knots occurred in April 1975.

(167) (See Page T-1 for **Rochester climatological table.**)

(168) Rochester is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine

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

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

(171) Rochester has several hospitals.

(172) **Rochester Coast Guard Station** is on the E side of the river just inside the mouth.

(173) A **speed limit** of 6 mph is enforced in Rochester Harbor. (See **33 CFR 162.165,** chapter 2, for regulations.)

Wharves

(174) Rochester has facilities on both sides of the river for about 3 miles above the mouth. The facilities described have freshwater connections. The alongside depths are reported depths; for information on the latest depths, contact the operator.

(175) **Rochester Portland Cement Corp. Dock** (43°13'30"N., 77°37'00"W.) on the W side of the river about 2.9 miles above the river entrance; 185-foot face, 485 feet usable berthage with dolphins; 21 feet alongside; deck height, 8 feet; 37,750-ton cement silo farm; electrical connections; receipt of cement; owned and operated by Rochester Portland Cement Corp.

Supplies

(176) Some marine supplies, water, provisions, and diesel fuel can be obtained at Rochester.

Small-craft facilities

(177) Marinas at Rochester provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, launching ramps, mobile lifts to 40 tons, and hull, engine, and electronic repairs. In 1977, depths of 2 to 12 feet were reported alongside the berths.

Communications

(178) Rochester is served by rail, air, and bus. Rochester-Monroe County Airport is about 10 miles SSW of the river entrance.

Charts 14804, 14805

(179) Anchorage with good protection from W winds is available between the mouth of the Genesee River and **Braddock Point** (43°19.4'N., 77°42.9'W.), about 7 miles NW. Adequate depths are found within 1 mile offshore. Numerous potable water intakes are within 2.5 miles NW of the Genesee River and a dangerous wreck covered 1.4 feet is 0.2 mile offshore in about 43°17.6'N., 77°40.2'W.; caution is advised. **Lewis Shoal**, covered 14 feet, is centered about 1.2 miles offshore extending from about 43°18.5'N., 77°40.5'W. to 43°18.8'N., 77°39.5'W., with a width of about 600 yards. The shore is low and consists mostly of bars enclosing a series of shallow ponds or enlarged outlets of creeks.

Chart 14805

(180) **Braddock Bay**, just SE of Braddock Point, is separated from Lake Ontario by long necks of land extending from the SE and from the NW with an entrance between. The channel through the bay is marked by private lighted buoys. In 1984, the reported controlling depth across the entrance bar was 2 feet. In June 1987, shoaling to an unknown depth was reported to exist in the channel leading into the bay. Several marinas in the bay provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, launching ramps, lifts to 14 tons, and hull, engine, and electronic repairs. In 1977, depths of 4 to 5 feet were reported alongside the berths.

(181) **Braddock Point Light** (43°20.5'N., 77°45.5'W.), 55 feet above the water, is shown from a brown circular tower on **Bogus Point**, 2.7 miles NW of Braddock Point.

(182) About 2 miles W of Braddock Point Light, a boulder bank extends about 0.8 mile from shore to **Wautoma Shoals,** which is marked by a lighted buoy. A dangerous wreck is close E of the lighted buoy.

(183) The shoreline W to **Devils Nose** (43°22.1'N., 77°58.6'W.), a small bold knob 11 miles W of Bogus Point, has deep water 0.5 mile off, except for 7-foot depths extending 0.5 mile off just E of Devils Nose. There are no outlying obstructions from Devils Nose to Point Breeze, 11 miles W, except for a rock ledge covered 5½ feet about 0.6 mile offshore, 1.5 miles E of Point Breeze.

(184) **Point Breeze Harbor** is at the mouth of **Oak Orchard Creek.** The village of **Point Breeze, N.Y.**, is on the E side of the harbor. The approach to the creek from Lake Ontario is through two dredged channels that lead around either end of a detached breakwater, join, and lead S between two jetties through the mouth of the creek to a harbor basin with its upper end about 0.2 mile above the mouth. Lights mark the detached

breakwater and the jetties. In August 2002, the controlling depths were 4.1 feet in the E approach channel and 4.5 feet in the W approach channel, thence 5.2 feet between the jetties to the harbor basin, thence 6.6 to 8.0 feet in the basin.

(185) **Caution.**–In 1977, it was reported that several vessels have grounded on the detached breakwater when entering at night. Local knowledge is advised.

(186) Twin fixed highway bridges with clearances of 54 feet, and a fixed highway bridge with a clearance of 8 feet, cross Oak Orchard Creek about 0.8 mile and 1.7 miles above the detached breakwater, respectively.

(187) Several marinas at Point Breeze provide transient berths, gasoline diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, launching ramps, mobile lifts to 25 tons, and hull, engine, and electronic repairs.

(188) From Point Breeze 15 miles W to Thirtymile Point, shallow water with a rocky bottom extends from 0.3 to 0.6 mile offshore. From about 2.5 to 3.5 miles E of Thirtymile Point, depths of 6 to 8 feet are about 0.5 mile offshore.

Charts 14806, 14805

(189) **Thirtymile Point Light** (43°22.5'N., 78°29.2'W.), 60 feet above the water, is shown from a square tower on the NE corner of a two story house on **Thirtymile Point**. A radio mast is 50 feet SW of the light.

Charts 14806, 14810

(190) From Thirtymile Point, the shoreline trends SW for about 12 miles to Olcott, thence about 6 miles to Wilson, and continues SW for about 12.3 miles to the mouth of the Niagara River. From Thirtymile Point to about 2.4 miles W of Olcott, deep water is within 0.3 mile of the shore, but from the latter point to near the mouth of Niagara River, the bank extends about 0.7 mile from shore.

(191) **Olcott, N.Y.**, is a village at the mouth of **Eighteenmile Creek.**

(192) An unmarked **dumping ground** with a least reported depth of 35 feet is 1.5 miles N of the creek entrance.

(193) The creek is entered from Lake Ontario through a dredged channel between two piers. The W pier is marked by a light. In August 2001, the controlling depth was 9.3 feet (10.3 feet at midchannel) in the dredged channel. Depths of about 5 to 7 feet were available to the fixed highway bridge 0.4 mile above the entrance. The channel, however, is unstable because of mud deposits from Eighteenmile Creek and drifting sand from the W. A rock ledge with a least depth of 10.5 feet is across the entrance channel 500 feet lakeward of the piers.

(194) An overhead telephone cable with an authorized clearance of 56 feet (55 feet reported) and a fixed highway bridge with a reported clearance of 50 feet cross the creek about 0.2 mile and about 0.4 mile above the mouth, respectively.

(195) Several marinas in the creek provide transient berths, gasoline, diesel fuel, water, ice, electricity, marine supplies, a launching ramp, a 30-ton mobile lift, and hull, engine, and electronic repairs. In 1977, depths of 6 to 11 feet were reported alongside the berths.

(196) In September 1981, a submerged rock was reported about 3.3 miles W of Olcott in about 43°19'56"N., 78°47'00"W.

Charts 14810, 14806, 14822

(197) **Wilson Harbor** is in the mouth of **East Branch Twelvemile Creek,** about 12 miles E of the mouth of the Niagara River. The widened mouth of the creek forms **Tuscarora Bay,** which is about 2 feet deep in its natural depth and provides good anchorage for shallow-draft vessels.

(198) An unmarked **dumping ground** with a least reported depth of 35 feet is 1.3 miles N of the harbor entrance.

(199) The entrance to the harbor from Lake Ontario is through a dredged channel that leads between parallel piers and thence upstream for 0.8 mile through Tuscarora Bay. The W pier is marked by a light, and daybeacons and buoys mark the channel through Tuscarora Bay. In May-June 2002, the controlling depths were 7 feet in the entrance and between the piers to the Public Dock on the E side of the river, thence 4.5 feet to the head of the project through Tuscarora Bay, except for shoaling to 1.7 feet along the NW edge of the channel opposite the Tuscarora Yacht Club and a 4-foot spot along the S side of the channel near Daybeacon 9.

(200) Overhead cables with clearances of 65 and 75 feet cross the bay about 0.3 and 0.7 mile above the mouth, respectively.

(201) Several marinas in Tuscarora Bay provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, launching ramps, a 25-ton mobile hoist, and hull, engine, and electronic repairs. In 1977, depths of 4½ to 10 feet were reported alongside the berths.

Charts 14806, 14810, 14822, 14816

Niagara River Below Niagara Falls

(202) The Niagara River flows from the NE end of Lake Erie and enters Lake Ontario about 36 miles from its W end. The Lake Ontario entrance to the river is between two land points occupied by **Fort Niagara, N.Y.,** on the E, and **Fort Mississauga, Ont.,** on the W. The **International boundary** between the United States and Canada generally follows a middle of the river course through the lower Niagara River.

(203) **Chart Datum** in the lower Niagara River, from Lake Ontario to the head of navigation, at Lewiston, NY, is the same as Low Water Datum of Lake Ontario, which is an elevation 243.3 feet (74.2 meters) above mean water level at Rimouski, Quebec, on International Great Lakes Datum 1985 (IGLD 1985). (See Chart Datum, Great Lakes System, indexed as such, chapter 1.)

(204) The Niagara River, with its great volume of water and a current of about 2.2 knots, deposits considerable sediment in Lake Ontario and forms extensive shoals for a radius of about 3 miles off the mouth of the river. A bank with least depths of 5 feet extends about 0.8 mile off the E side of the entrance and is marked on its NW side by a lighted bell buoy. **Rumsey Shoal,** with depths of 17 feet, is an unmarked detached shoal about 1.5 miles N of Fort Niagara. **Niagara Bar** extends from shore about 2 miles W of the river mouth NE to a point about 3 miles N of the river mouth. The N part of the shoal has depths of 12 and 13 feet, but depths of 8 feet are found to about 1.5 miles offshore NW of the river mouth. Commercial sand and gravel dredging is conducted intermittently in the area and depths are subject to change. In August 1982, an obstruction covered 3 feet was reported in about 43°16'00"N., 79°05'12"W. Vessels bound between the Welland Canal and points E of the Niagara River must avoid Niagara Bar by passing N of the lighted buoy about 3.7 miles N of Fort Niagara.

(205) The entrance to the Niagara River is marked by lighted buoys, a **149°30'** lighted range, and lights at Fort Niagara and Fort Mississauga. **Fort Niagara Light** (43°15.7'N., 79°03.8'W.), 80 feet above the water, is shown from a tower with a white and green diamond-shaped daymark on the E side of the river at the mouth.

(206) At the prevailing stages during the navigation season, a depth of about 13 feet may be carried into the river by closely following the lighted range. An alternate approach is on course **187°,** avoiding the E edge of Niagara Bar and leaving the lighted bell buoy marking the bank off Fort Niagara close aboard to port, and then swinging for the river when on the lighted range.

(207) Once inside the river, an unobstructed channel with depths of 30 to 70 feet leads to Lewiston at the foot of the rapids below Niagara Falls, about 7 miles above the mouth.

(208) **Niagara Coast Guard Station** is on the E side of the Niagara River entrance. In 1977, depths of 14 feet were reported alongside the Coast Guard wharf.

(209) **Niagara-on-the-Lake, Ont.**, is on the W side of the mouth of the river. A **Canadian customs reporting station** is at Niagara-on-the-Lake. (See Canadian Customs, chapter 1.) The customs wharf has depths of 4 to 10 feet alongside.

(210) A small-craft basin immediately S of the customs wharf provides gasoline, diesel fuel, sewage pump-out, a 25-ton marine railway, a 20-ton hoist, and hull and engine repairs. Depths of 2 to 5 feet are reported in the basin. Mariners are cautioned that strong winds tend to raise or lower the water level in the basin by as much as 2 feet.

(211) **Youngstown, N.Y.**, is on the E side of the river about 1 mile above the mouth.

(212) A **special anchorage** is on the E side of the river at Youngstown. (See **33 CFR 110.1 and 110.85,** chapter 2, for limits and regulations.)

(213) Youngstown is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine

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

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

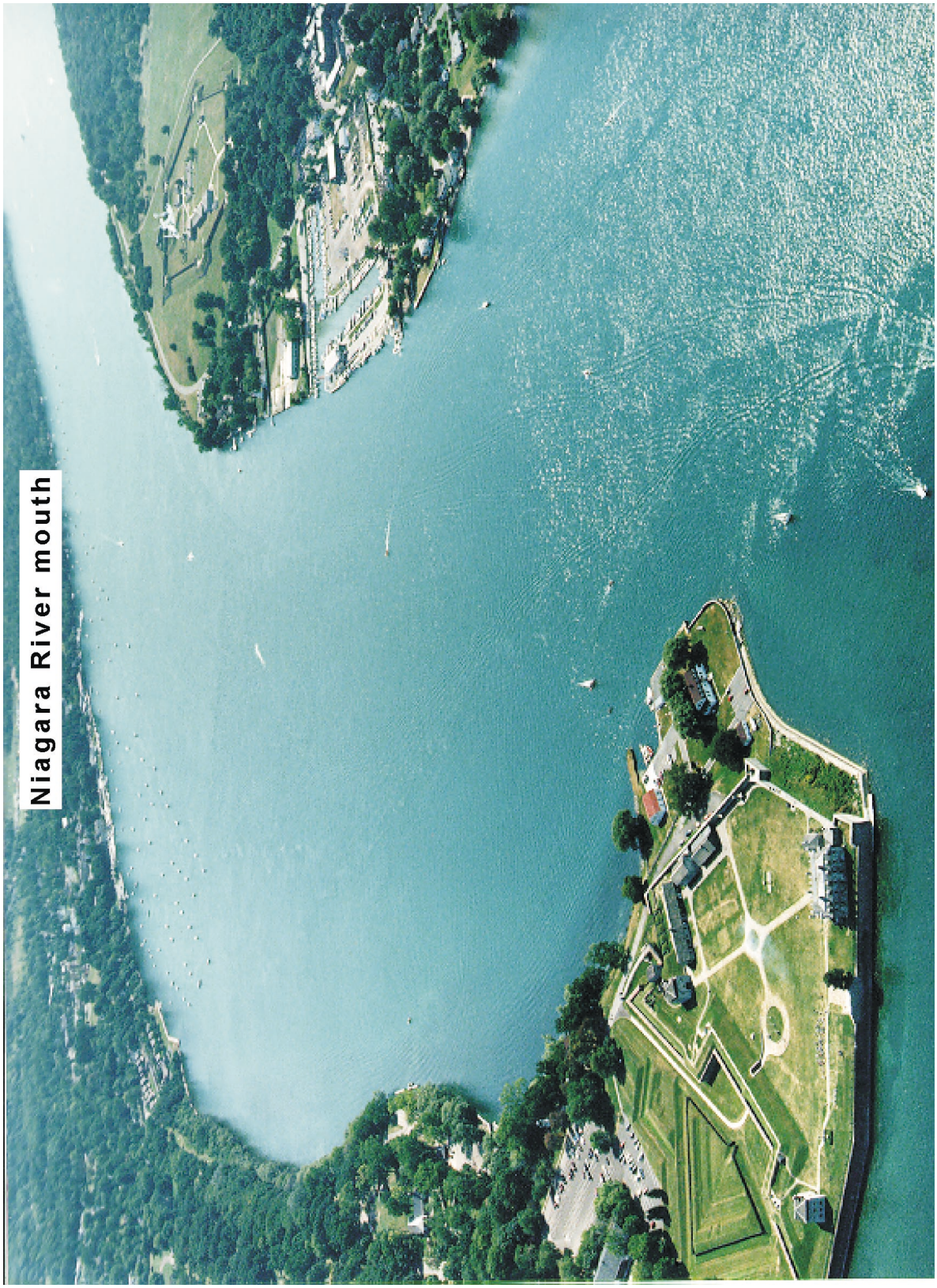
(216) Several marinas at Youngstown provide transient berthage, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, a launching ramp, mobile lifts to 20 tons, and hull and engine repairs. In 1977, depths of 6 to 14 feet were reported alongside the berths.

(217) A Canadian **anchorage area** is on the W side of the river about 2 miles above the mouth.

(218) **Lewiston, N.Y.**, on the E side of the river about 7 miles above the mouth, is the head of navigation on the lower Niagara River. In August 2000, the town landing had a large 300-foot dock with a reported depth of 8 feet alongside. A launch area and transient slip area was also available at the landing.

(219) **Queenston, Ont.** is on the W side of the river opposite Lewiston. Sand is received at a 300-foot wharf owned and operated by D. G. Bawtinheimer, Ltd. In 1977, depths of 12 feet were reported alongside.

(220) The portion of the lower Niagara River upstream from Lewiston and Queenston to **American Falls** and **Horseshoe Falls** is considered not navigable because of a 4-mile section of heavy rapids. Several bridges and overhead cables cross this section of the river.


Niagara River mouth

Canadian Waters

(221) The S shore of Lake Ontario, westerly from the **International boundary** at the mouth of the Niagara River to the extreme W end of this lake, at Hamilton Harbour, is in Canada. Proceeding northerly and easterly, the N shore of Lake Ontario is in Canada going back to the head of the St. Lawrence River.

(222) In this chapter, for a detailed description of Canadian waters, consult **Canadian Sailing Directions, CEN303, Welland Canal and Lake Erie**.

Charts 14806, 14810, 14822, *2077

(223) From the International boundary at the Niagara River, the Canadian shoreline extends W for 2.9 miles to **Four Mile Point,** thence SW for 11.5 miles past Port Weller and Port Dalhousie, and thence WNW for 25 miles to Hamilton Harbour at the W end of the lake. SW from Four Mile Point, deep water is about 0.7 mile offshore to the Port Weller entrance where the shoals extend 1.2 miles off. From Port Weller W to Hamilton Harbour, deep water is 0.5 to 1.5 miles offshore.

(224) A **danger area** of the Niagara-on-the-Lake Small Arms Range extends about 1.1 miles offshore, about 2 miles W of the mouth of the Niagara River. The intermittent use of the area is announced by local Canadian Coast Guard Marine Radio Broadcast and may also be advertised in local newspapers. The danger area is marked by buoys. (For details, consult the Annual Edition of Canadian Notices to Mariners.)

Charts *2042, 14810, 14822

(225) **Port Weller Harbour, Ont.**, 8 miles SW of the Niagara River mouth, is the Lake Ontario terminus of the Welland Canal. The St. Lawrence Seaway Management Corporation of Canada administers the harbor.

(226) The following is extracted (partial) from **Canadian Sailing Directions CEN303, Chapter 1, Welland Canal**. It is to be noted that the units of miles are nautical miles.

(227) ***Port Weller Harbour*** *(43°14'N., 79°13'W.), an artificial harbour 23 miles SSE of Toronto, is the Lake Ontario entrance to the Welland Canal. Port Weller Harbour and the adjoining urban communities of Weller Park and Port Weller East are part of the city of* ***St. Catharines****.*

(228) *Port Weller Harbour is administered by the St. Lawrence Seaway Management Corporation.*

(229) *(Port Weller Harbour and the navigational aids in the harbour are described in Sailing Directions booklet CEN 302-Lake Ontario. A marina on the east side of the Port Weller Harbour east breakwater is also described in Sailing Directions booklet CEN 302.)*

(230) *There is a pilot exchange point 1 to 2 miles north of Port Weller Harbour. For more information on pilotage, consult Sailing Directions booklet CEN 300-General Information, Great Lakes, the Annual Edition of Notices to Mariners and Radio Aids to Marine Navigation (Atlantic and Great Lakes).*

(231) ***Tugs, if required, are available from Port Weller Dry Docks Ltd.***

(232) *A tie-up wharf on the east side of Port Weller Harbour at Mile 1.3 is for the use of small craft waiting to enter the Welland Canal. There is a direct-line telephone to communicate with Lock Control. Other use of this wharf is not permitted.*

(233) ***Caution.****–A current of up to 1 knot has been observed between limit of approach signs L/A1 and L/A2 below Lock 1 when the lock is being emptied. Small craft near the tie-up wharf may be affected.*

Welland Canal

Chart 2042

(234) *The route of the Welland Canal is not the same as that of its predecessors, particularly on the lower terrain north of the Niagara Escarpment. In general, the canal follows a north and south course between Lake Ontario and Lake Erie.*

(235) *The first 6.3 mile stretch of the canal, heading south from Lake Ontario, is flanked by slightly rising lowlands known as the Garden of Canada because of their natural beauty and extensive fruit orchards. In this section, the first three locks raise vessels 42 m (138 ft) from the level of Lake Ontario and bring them to the foot of the Niagara Escarpment. The long, straight reaches of canal prism provide ample space for the movement and passage of upbound and downbound vessels.*

(236) *The next four locks raise vessels to the top of the escarpment. Three of these locks are built in steps, one after the other, so that vessels are raised another 43 m (141 ft) in a distance of 0.5 mile. This stepped system of three locks has a pair of locks for each lift, one for upbound vessels and one for downbound vessels, thereby avoiding delays. From here there is a short stretch of canal prism, 0.4 mile long, which allows vessels to pass each other. At the south end of this short stretch of canal is the last of the seven main locks, which raises vessels 14 m (46 ft), nearly to the level of Lake Erie.*

(237) *A new Welland Canal by-pass was opened in 1973. The by-pass section, lying east of this part of the Fourth Welland Canal, stretches from Port Robinson southward to Rameys Bend, a distance of 7 miles. This stretch replaced a narrow 7.5 mile section, spanned by six bridges, that wound through the city of Welland. In contrast to the old section, along which bulky structures often blocked the line of sight, the Welland Canal by-pass channel is unobstructed and almost straight.*

(238) *Along the section from Rameys Bend to the Port Colborne entrance at Mile 23.45, the canal and its structures, including Guard Lock 8, are part of the original Fourth Welland Canal.*

(239) *Five vertical-lift bridges, six bascule bridges and one fixed-span high-level bridge cross the canal; these* ***bridges*** *carry railway lines and highways. The vertical-lift bridges operate on the principle of the counter-balanced elevator, with a movable span that lifts to provide a* ***vertical clearance*** *of 36.6 m (120 ft). They offer a less restricted channel than is available with the bascule bridges that are more common on navigable waterways. All bascule and vertical-lift bridges have auxiliary power in case of power failure.*

(240) *Lights are shown from all bridges in the Welland Canal. Details of aids to navigation for passage through the locks are given in the Seaway Handbook.*

Guard lock and water level fluctuation

(241) *On Lake Erie, with its vast expanse of shallow water, the water level is subject to rapid fluctuations caused by changes in the force and direction of the wind. A change in wind direction from east to west has been observed to change the water level by as much as 3.4 m (11 ft) at Port Colborne. Such a change in water level, if transferred to the summit level of the canal, would introduce tremendous hydraulic control problems and extensive traffic delays. For this reason, Lock 8 was constructed at Port Colborne, just north of where the canal joins Lake Erie, to raise or lower ships from the regulated level of the canal to that of the lake.*

(242) *(Information on seiches and wind effect in Lake Erie is given in Sailing Directions booklet CEN300-General Information, Great Lakes.)*

(243) *About midway between Lake Ontario and Lake Erie, the Welland Canal crosses* ***Welland River****; this is a sluggish stream which joins Niagara River at the head of the rapids above Niagara Falls. The level of Welland River is 1.8 m (6 ft) below the level of the Welland Canal, which meant that an underpass had to be built to carry its waters under the canal. The foundation of this structure, which is an inverted syphon culvert, lies 25 m (82 ft) below the level of the water in the canal. Welland River no longer flows directly into the Niagara River; its waters are diverted through the Chippawa-Queenston power canal.*

(244) *Cross winds can cause serious delays to navigation in restricted waterways. To reduce this effect, many fast-maturing native trees have been planted as a windbreak along the banks of the Welland Canal. The roots of these trees also bind together the earth embankment of the prism reaches and provide a greater measure of protection against the erosive action of water.*

(245) *(Information on vessel traffic under adverse wind conditions is given in the Seaway Handbook.)*

Safety features

(246) *Upper lock gates are protected from upbound vessels by a heavy concrete breast wall at the upper end of each lock; this wall prevents an upbound vessel from damaging the upper gates when entering a lock at the lower level. The lower gates are protected from downbound vessels by a wire rope fender across the lock.*

(247) *All controlling equipment operating the valves, gates, fenders and signals at each lock is interlocked to protect the equipment and to prevent disaster.*

(248) *(The facilities of the Welland Canal are listed in the table Wharves-Welland Canal.)*

(249) ***Lock 1*** *is 1.6 miles south of the entrance to Port Weller Harbour;* ***Bridge 1****, a bascule bridge, crosses the south entrance of the lock.*

(250) *The canal widens out 0.1 mile south of Bridge 1 to form a basin and fitting out berth on its east side. Port Weller Dry Docks Ltd., a division of Canadian Shipbuilding and Engineering Ltd., operates a shipbuilding and repair facility on the east side of the basin. Two* ***dry docks*** *here can handle vessels up to 222.5 m (730 ft) long and 23.2 m (76 ft) wide. The channel leading to the dry docks, flanked on the north side by dolphins, is reported to be dredged to a depth of 7 m (23 ft). These are the only dry docks in the Lake Ontario area that can handle vessels of this size.*

(251) *(Other shipyards in the Great Lakes area are listed in Sailing Directions booklet CEN 300-General Information, Great Lakes.)*

(252) *A* ***submerged water pipeline*** *crosses the basin in the approach to the dry dock. A* ***submerged natural gas pipeline*** *crosses the canal at Mile 2.4.*

(253) ***Lock 2*** *is entered at Mile 3.12;* ***Bridge 3A****, a bascule bridge, crosses the south entrance of the lock.*

(254) *The city of* ***St. Catharines****, with a population of 129,300 (1991), extends 8 miles south of Port Weller Harbour on both sides of the Welland Canal.*

(255) *A* ***submerged natural gas pipeline*** *crosses the canal near Mile 4; a submerged sewer pipeline crosses at*

*Mile 4.65. A **submerged telephone cable** crosses the canal 0.1 mile farther south.*

(256) ***Bridge 4A**, a high-level bridge known as Garden City Skyway, crosses the canal at Mile 4.8; Bridge 4, a double bascule bridge, crosses at Mile 4.9.*

(257) *A **submerged power cable** and a **submerged telephone cable** cross the canal near Bridge 4.*

(258) ***Lock 3** is entered at Mile 5.47.*

(259) ***Caution.**–The outflows north of Locks 2 and 3 from pondage pools cause **eddies** and **cross currents** in the lower approaches to these locks.*

(260) ***Bridge 5**, a lift bridge known locally as the Glendale Avenue Bridge, is 0.53 mile south of Lock 3.*

(261) *Two **submerged natural gas pipelines** cross the canal 30 m (98 ft) south of Bridge 5. A **submerged power cable** and **overhead power cables**, with a clearance of 46 m (151 ft), cross the canal 0.1 mile farther south.*

(262) ***Bridge 6** (east and west), a railway bascule bridge, crosses the north entrance to Lock 4.*

(263) ***Twin Flight Locks 4, 5 and 6** are entered 1 mile south of Lock 3. These three pairs of locks are stepped and raise vessels a total of 43 m (141 ft).*

(264) *The Vessel Traffic Control Centre, Administration Building and Seaway Welland radio station are on the west side of the canal near the entrance to Lock 4.*

(265) ***Lock 7**, 0.35 mile south of Lock 6 (the highest of the flight locks), has a lift of 14 m (46 ft) and raises upbound vessels to the summit of the canal.*

(266) *The city of **Thorold**, with a population of 17,542 (1991), lies on the west side of the Welland Canal at Mile 7.5. **Thorold South**, part of the city of Thorold, is on the east side of the canal at Mile 8.*

(267) *(Details of the wharves at Thorold and Thorold South are listed in the table Wharves-Welland Canal.)*

(268) ***Turning Basin No. 1** is at Mile 8.1, 0.5 mile south of Lock 7.*

(269) *Three **submerged pipelines** cross the canal at the south end of Turning Basin No. 1; one is a natural gas line, one is a water line and the third is a culvert. A **submerged water pipeline** crosses the canal at Mile 8.6.*

(270) *The channel through the **Guard Gate** cut at Mile 8.3, 0.75 mile south of Lock 7, has a width of 59.4 m (195 ft).*

(271) ***Bridge 10**, at Mile 9.1, 0.8 mile south of the Guard Gate cut, is a railway lift bridge.*

(272) *The canal bottom for 2.2 miles south of Bridge 10 is solid rock.*

(273) ***Overhead power cables**, with a clearance of 46 m (151 ft), span the canal 0.1 mile south of Bridge 10.*

(274) *A **submerged pipeline** crosses the canal at mile 9.9; a **submerged natural gas pipeline** crosses at mile 10.2.*

(275) ***Caution.**–There may be strong cross currents at the entrance to the Third Welland Canal channel, on the west side of the canal near Mile 10.*

(276) **Allanburg**, *a rural community on the east side of the canal at Mile 10.35, is part of the city of Thorold.*

(277) ***Bridge 11**, at Allanburg, is a lift bridge.*

(278) ***Overhead power cables** with clearances of 40 to 46 m (131 to 151 ft) span the canal 0.2 to 0.9 mile south of Bridge 11. Two **submerged oil pipelines** cross the canal at Mile 12.*

(279) **Port Robinson**, *a rural community at Mile 12.6, is part of the city of Thorold.*

(280) *A small passenger **ferry**, operated by the St. Lawrence Seaway Management Corporation, crosses the canal at Port Robinson.*

(281) *A **submerged cable** and two **submerged gas pipelines**, one active and one abandoned, cross the canal near Port Robinson.*

(282) ***Turning Basin No. 2** is at Mile 12.9.*

(283) *The city of **Welland**, with a population of 47,914 (1991), is on both sides of the closed section of the Fourth Welland Canal, 7 miles north of Port Colborne. It is an important manufacturing centre with steel, iron, textile, twine, electrical equipment and rubber industries. It is served by the Canadian National Railway.*

(284) *(Details of the wharf at Welland are given in the table Wharves-Welland Canal.)*

(285) *Two **submerged cables** and many **submerged pipelines** cross the Welland by-pass section between Port Robinson and **Rameys Bend**, which is at Mile 20.1. A syphon culvert and two street tunnels also pass under this section of the canal. There are four **overhead power cables** with clearances of 43 m (141 ft).*

(286) *Rameys Bend is the north entrance point of a slip which was part of the Third Welland Canal. There is a salvage yard and dry dock at the south end of this slip.*

(287) *The **dry dock** on the west shore near the south end of the slip, operated by Marsh Engineering Ltd., is 82.3 m (270 ft) long and 18.3 m (60 ft) wide with a sill depth of 2.6 m (9 ft) in 1994.*

(288) *A **submerged power cable** crosses the slip near the entrance.*

(289) *The bottom of the Welland Canal from Rameys Bend to the Lake Erie entrance is solid rock.*

(290) *(Details of the wharves near Rameys Bend are listed in the table Wharves-Welland Canal.)*

(291) ***Turning Basin No. 3** is 0.5 mile south of Rameys Bend at Mile 20.6.*

(292) *The Robin Hood Multifoods Inc. elevator and mill are at Mile 20.7. These structures are conspicuous.*

(293) ***Caution.**–An unused section of the Third Welland Canal enters the channel from the SW at Mile 20.7, near the Robin Hood Multifoods Inc. elevator. This*

section of the canal serves as the tailrace of the supply weir. The moderate current here may affect vessels in Turning Basin No. 3 or berthing at Wharves 12 and 13.

(294) ***Lock 8**, entered at Mile 21.1, has a lift of 0.6 to 3.4 m (2 to 11 ft), depending on the Lake Erie water level at Port Colborne.*

(295) ***Bridge 19** and **Bridge 19A**, both bascule bridges, cross the north and south entrances to Lock 8.*

(296) *A **submerged supply line** for an air bubbler system crosses the canal at the south end of the approach wall south of Lock 8. **Submerged water** and **sewage pipelines** cross the canal at Mile 21.85.*

(297) ***Bridge 20**, a railway lift bridge, and **Bridge 21**, a road lift bridge, are near Mile 22.*

Port Colborne

Charts 2042, 2120

(298) The harbour at ***Port Colborne** (42°52'N., 79°15'W.), 17 miles west of the United States city of Buffalo, is on the north shore of **Gravelly Bay** at the south of Lake Erie entrance to the Welland Canal. It consists of an outer harbour, which extends from the original shoreline to offshore breakwaters, and an inner harbour, which includes the facilities for 2.5 miles along the Welland Canal.*

(299) *The outer harbour is protected by breakwaters. The west breakwater, which is 0.7 mile long and constructed of stone-filled timber crib work covered with concrete, extends towards Sugar Loaf Point. A west breakwater extension extends 0.35 mile in a SSE direction; it is built of concrete cribs and a concrete superstructure, with armour stone on the WSW face and a concrete pierhead at its SSE end.*

(300) *The east breakwater is constructed of timber and concrete crib work, with stone rip-rap protection along the outer face. Its pierhead should be given a berth of 30 m (98 ft).*

(301) *A **submerged power cable** extends NNE from the west breakwater to a position on shore NNE of the Port Colborne Grain Terminal elevator.*

(302) *The main channel through the outer harbour has a least width of 107 m (351 ft) and is dredged to a depth of 8.2 m (27 ft). A dredged area on the west side of the channel leads to the wharves at the Port Colborne Grain Terminal and the Maple Leaf Mills Inc. plant. The dredged areas are marked by **buoys** and **light buoys**.*

(303) *Port Colborne is a **Customs vessel reporting station** for pleasure craft.*

(304) *The harbour at Port Colborne is administered by the St. Lawrence Seaway Management Corporation.*

Landmarks

(305) *The harbour can be identified from offshore by the Port Colborne Grain Terminal elevator and the flour mill and elevator of Maple Leaf Mills Inc. A white water tower 0.2 mile north of the grain terminal is conspicuous. The Sugar Loaf, west of Port Colborne, is also conspicuous.*

Chart 2120

(306) *Port Colborne light buoy E (554) is moored 2.7 miles SSW of the outer breakwater; this is a reporting buoy.*

(307) *There is an **anchorage area** SE of Port Colborne light buoy E in depths of 19.2 to 24 m (63 to 79 ft); this anchorage is for vessels waiting to enter Port Colborne. Anchorage is prohibited in the approaches to the harbour.*

(308) *There is a **dumping ground** north of the anchorage area.*

(309) *There is a **pilot exchange point** 1 to 2 miles south of Port Colborne. For more information on pilotage, consult Sailing Directions booklet CEN 300- General Information, Great Lakes, the Annual Edition of Notices to Mariners and Radio Aids to Marine Navigation (Atlantic and Great Lakes).*

Charts 2042, 2120

(310) *Port Colborne Outer light (556), at the SSE end of the west breakwater extension, is shown at an elevation of 11 m (36 ft) from a white square structure, 7.6 m (25 ft) high, with a red upper part. The light is brighter over an arc of 30° in a SSW direction. The light-structure is floodlit.*

(311) *Port Colborne West Breakwater light (557), at the west end of the west breakwater, is shown at an elevation of 7.3 m (24 ft) from a white circular tower, 5.1 m (17 ft) high.*

(312) *Port Colborne Inner light (558), at the east end of the west breakwater, is shown at an elevation of 15.2 m (50 ft) from a white square structure, 13.1 m (43 ft) high, with a red upper part. Port Colborne Harbour light (559), a steering light on the east breakwater, is shown at an elevation of 9.8 m (32 ft) from the weather station tower. The light is visible from northward between bearings of 178°45' and 180°45'; it helps upbound vessels navigating between Bridge 21 and a position abreast of the south end of Wharf 17. This*

light is maintained by the St. Lawrence Seaway Management Corporation.

(313) *Port Colborne East Breakwater light (560), at the west end of the east breakwater, is shown at an elevation of 10.7 m (35 ft) from a white circular tower, 6.2 m (20 ft) high, with a green upper part.*

(314) *Port Colborne Entrance* ***range lights*** *are in line bearing* ***015.5*** *°. The front light (560.6), on Wharf 17, is shown at an elevation of 11.1 m (36 ft) from a white circular tower, 7.4 m (24 ft) high, with a fluorescent-orange triangular daymark with a black vertical stripe. The rear light (560.7) is shown at an elevation of 17 m (56 ft) from a white circular tower, 13.5 m (44 ft) high, with a fluorescent-orange triangular daymark with a black vertical stripe.*

Chart 2042

(315) *Port Colborne light buoy E3 (555), moored east of the south end of the west breakwater extension, marks the east edge of the channel.*

(316) ***Caution.****–Three rock-filled timber cribs, with elevations of 3 m (10 ft), lie along the east side of the channel at the inner end of the outer harbour.*

(317) ***Caution.****–Vessels using Wharf 16 should avoid the International Nickel Company* ***water intake****, which is on the east side of the harbour 580 m (1,903 ft) south of Bridge 21.*

(318) *The city of* ***Port Colborne****, with a population of 18,766 (1991), is on both sides of the harbour. The principal exports are grain, flour, cement, carbon blocks, graphite block, crushed stone and pig iron. Imports include coal, fuel oil, diesel fuels, grain, corn, iron ore, sand and gravel. The city is served by the Canadian National Railway and has highway connections to Canadian and United States cities.*

(319) *Fresh water, bunker fuels, provisions and ships stores are available.*

(320) *Ship repair facilities are available. For more information, contact the St. Lawrence Seaway Management Corporation.*

(321) *Tug assistance is not compulsory for docking. Towing service, when required, is normally arranged through vessel agents or owners.*

(322) *(Details of the wharves at Port Colborne are listed in the table Wharves-Welland Canal.)*

(323) *A tie-up* ***wharf*** *on the west side of Port Colborne inner harbour, south of Bridge 21, is for the use of small craft waiting to enter the Welland Canal. There is a direct-line telephone to communicate with Lock Control. Other use of this wharf is not permitted.*

(324) *There are marinas and a yacht club in Gravelly Bay west of Port Colborne.*

Welland Canal-Lock Information

Lock No.	Type	Usable Length m and (ft)	Width m and (ft)	Lift m and (ft)	Miles from Port Weller Harbour
1	Single	222.5 (730)	24.38 (80)	14 (46)	1.58
2	Single	222.5 (730)	24.38 (80)	14 (46)	3.12
3	Single	222.5 (730)	24.38 (80)	14 (46)	5.47
4	Double	222.5 (730)	24.38 (80)	15 (49)	6.60
5	Double	222.5 (730)	24.38 (80)	15 (49)	6.74
6	Double	222.5 (730)	24.38 (80)	13 (43)	6.90
7	Single	222.5 (730)	24.38 (80)	14 (46)	7.40
8	Guard	350 (1,148)	24.38 (80)	0.5-3.5(2-11)	21.09

Welland Canal-Mileage and General Data

Mile	Structure, Locality, etc.	Mile	Structure, Locality, etc.
0.00	Lake Ontario entrance-Port Weller Harbour	12.92	Turning Basin No. 2
1.10	Wharf 1-Port Weller Harbour (East)	13.27	Syphon Culvert
1.15	Wharf 2-Port Weller Harbour (West)	15.41	Eastern Main Street Tunnel
1.30	Small-craft wharf	16.85	Wharf 10 - Welland
1.58	Lock 1 - Single	17.46	Townline Tunnel
1.85	Port Weller Dry Docks	19.80	Wharf 11 - Canada Starch Company
3.12	Lock 2 - Single	20.10	Entrance to Rameys Bend
4.50	Wharf 3-St. Catharines wharf	20.60	Turning Basin No. 3
5.47	Lock 3 - Single	20.60	Wharf 12 - Rameys Bend
6.60	Lock 4 - Double	20.75	Wharf 13 - Robin Hood Multifoods
6.74	Lock 5 - Double	20.75	Wharf 14 - R.E. Law
6.90	Lock 6 - Double	20.75	Tailrace from Supply Weir
7.40	Lock 7 - Single	21.09	Lock 8 - Guard Lock
7.92	Thorold Tunnel	21.87	Wharf 15 - Port Colborne
8.10	Wharves 5 and 6 - Thorold	22.05	Small-raft wharf
8.10	Turning Basin No. 1	22.27	Wharf 16 - Port Colborne
8.20	Wharf 7 - Ontario Paper Company	22.45	Wharf 17 - Port Colborne
8.30	Guard Gate Cut	22.50	Wharf 18 - Port Colborne
8.48	Wharf 8 - Ontario Paper Company	22.80	Wharf 19 - Port Colborne
8.85	Wharf 9 - Beaverboard Wharf	22.80	Wharf 20 - Port Colborne
10.05	Intake Weir - Third Canal Channel	23.45	Lake Erie entrance - Port Colborne Harbor
12.66	Port Robinson Ferry		

Welland Canal-Wharves

Wharf No	Name/Locality	Wharf length ft (m)	Depth ft (m)	Elevation ft (m)	Remarks
	Note: All information in this table was provided by local authorities. User should consult local authorities for latest condition.				
1	Port Weller Harbour East	194 (638)	8.2 (27)	2.6 (9)	Self-Unloaders and rental cranes. Various partial cargoes.
2	Port Weller Harbour West	393 (1,288)	8.2 (27)	26 (9)	Self-Unloaders. Coal, sand, zircon ore, bulk sugar. Capacity 76500 tonnes. Diesel and Bunker C fuels available.
3	St. Catharines Wharf	101 (330)	7.6 (25)	1.5 (5)	Closed.
5	Industrial Dock Thorold	152 (500)	6.4 (21)	1.5 (5)	Self-unloaders. Coal.
6	Industrial Dock Thorold	West 343 (1,125) East 91 (299)	8.2 (27) 7 (23)		One 2.7-tonne crawler crane One 3.2-tonne crawler crane.
7	Ontario Paper Wharf Thorold South	185 (607)	8.2 (27)	1 (3)	Pulpwood and chemicals. Capacity 90,000 cords pulpwood.
8	Ontario Paper Wharf Thorold	132 (434)	7 (23)	1 (3)	Closed
9	Beaverboard Wharf Thorold	306 (1,004)	7.1 (23)	1 (3)	Closed
10	Welland Dock, Welland	223 (732)	9.1 (30)	2.4 (8)	Self-unloaders or rental cranes.
11	Canada Starch Dock, Old channel mile 19.8	120 (394)	8.2 (27)		Three berthing dolphins. Self-unloaders.
12	Rameys Bend	548 (1,798)	8.2 (27)		Tunnel and belt conveyor (loading). Stone and sand.
13	Robin Hood Multifoods Wharf	305 (1,000)	7.6 (25)	1.5 95)	Elevator. Grain and grain products.
14	R.E. Law Wharf	213 (700)	7.9 (26)	1.5 (5)	Closed.
	Port Colborne Harbour				
15	Underwater Gas Developers Beam Building and Supply	259 (850)	4.3 (14)	3.7 (12)	Self-Unloaders. Sand.
16	Sniders Wharf	451 (1,480)	9.1 (3)	3.7 912)	One belt conveyor. Pipeline 17.8 to 20.3 cm (7 to 8 in). Stone and marine diesel oil.
17	Canadian Furnace Wharf	341 (1,120)	9.1 (3)	3.7 (12)	Ore and limestone (unloading). Pig iron and scrap (loading). Capacity 225,000 tonnes.
18	1. Fuel Wharves 2. West Street Wharf 3.	503 (1,650)	9.1 (30) 183 (600) 178 (584)	2.4 (8) 3 (10) 4.3 (14)	Marine diesel fuel, coal. Capacity 772,820 liters (170,00 gallons). Closed.
19	Maple Leaf Milling	183 (600) (north)	5.1 (17)	2.4 (8)	Grain elevator. Capacity 63,000 tonnes.
20	Ports Canada Wharf	183 (600) (slip) 274 (900)	4.7 (15) 5.8 (19)		Grain elevator. Closed. Capacity 84,000 tonnes.
	Holding (quarantine) wharf, out of service				

† Depth below chart datum. †† Elevation above chart datum.