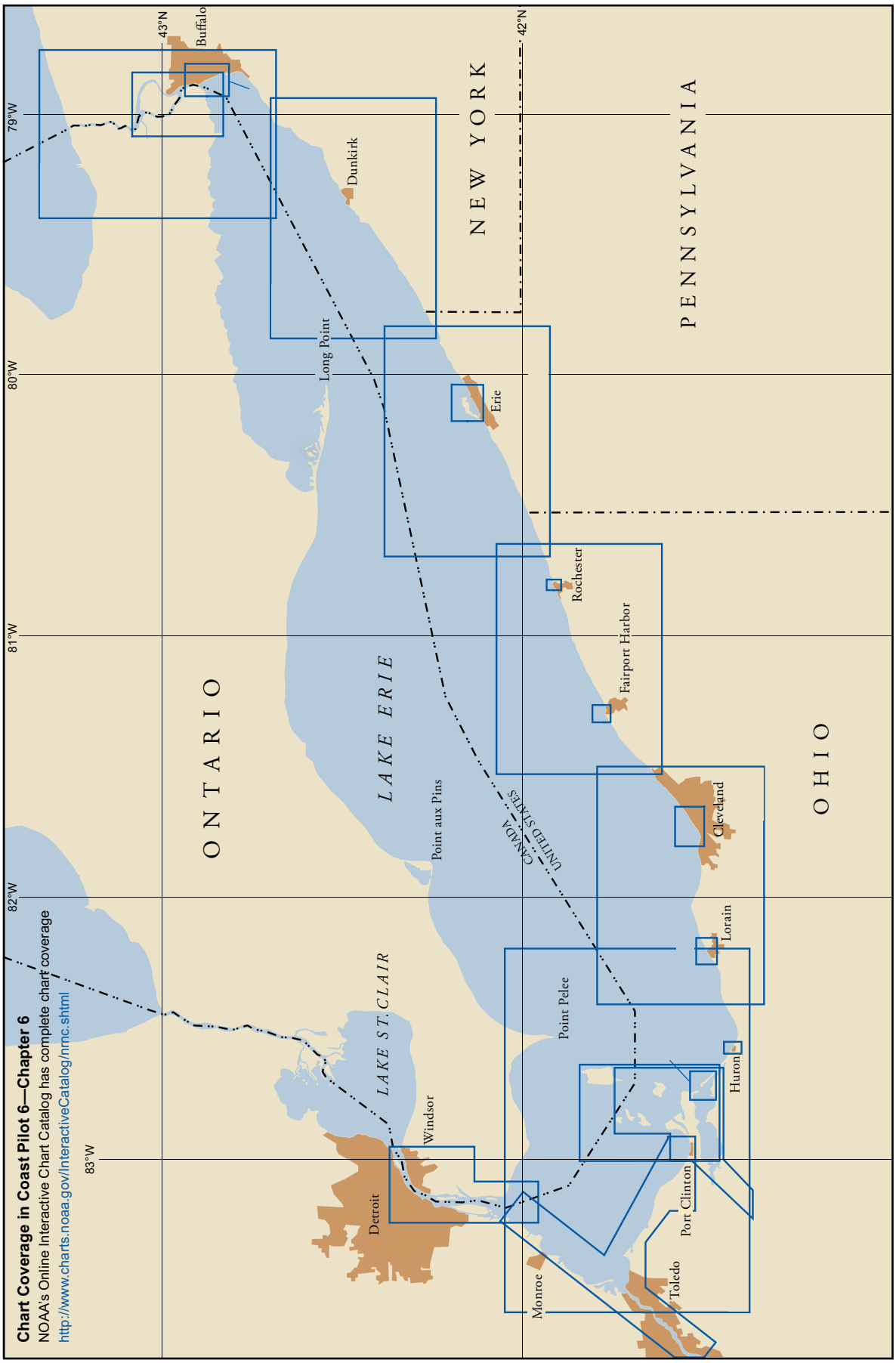


Chart Coverage in Coast Pilot 6—Chapter 6
NOAA's Online Interactive Chart Catalog has complete chart coverage
http://www.charts.noaa.gov/InteractiveCatalog/nrnc.shtml
ONTARIO
NEW YORK
PENNSYLVANIA
OHIO
LAKE ERIE
LAKE ST. CLAIR
CANADA
UNITED STATES
Buffalo
Dunkirk
Long Point
Erie
Rochester
Fairport Harbor
Cleveland
Point aux Pins
Lorain
Point Pelee
Huron
Windsor
Detroit
Port Clinton
Toledo
Monroe
43°N
42°N
79°W
80°W
81°W
82°W
83°W

Lake Erie

(1)

Chart Datum, Lake Erie

(2) Depths and vertical clearances under overhead cables and bridges given in this chapter are referred to Low Water Datum, which for Lake Erie is an elevation 569.2 feet (173.5 meters) above mean water level at Rimouski, QC, on International Great Lakes Datum 1985 (IGLD 1985). (See **Chart Datum, Great Lakes System**, indexed as such, chapter 3.)

(3)

Lake Erie Dimensions	
Description	**Length/Area**
Detroit River Light to Buffalo (steamer track/clear of Point Pelee and Long Point)	236/241 miles
Breadth—Ashtabula to Port Stanley	55 miles
Maximum recorded depth	210 feet
Water surface	4,980 sq mi (U.S.) 4,930 sq mi (Canada)
Drainage basin	22,980 sq mi (U.S.) 9,650 sq mi (Canada)

(4)

General description

(5) **Lake Erie** is the southeasternmost and fourth largest of the five Great Lakes. With a greatest depth of 210 feet, it is the shallowest of the lakes and the only one with a floor above sea level. The deepest part of the lake is generally at the east end, while the island region in the west part of the lake is the most shallow. The lake has an average depth of 62 feet. The lake is fed at the northwest end by water from Lake Huron via the St. Clair River, Lake St. Clair and Detroit River. The only natural outlet of the lake is at the northeast end through Niagara River. Welland Canal bypasses the falls and rapids of Niagara River and provides a navigable connection to Lake Ontario.

(6) The waters of Lake Erie east of Long Point 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 St. 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.)

(7) Extensive waterborne commerce is carried out between the ports on the lake as well as to and from the other lakes. The bulk of commerce on the lake radiates from the mouth of the Detroit River to the various ports on the lake, to the Niagara River and to Welland Canal. Most of the vessel traffic proceeds from the Detroit River through the north part of the island region and Pelee Passage. This is the most important channel of the lake. Vessels plying between Lake Erie and Lake Ontario are restricted in size by the locks in the Welland Canal; the maximum vessel dimensions are 730 feet overall length, 76 feet extreme breadth and 26 feet draft.

(8)

Vessel Traffic Control

(9) Lake Erie east of Long Point is Sector 7 of the St. Lawrence Seaway vessel traffic control system. 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. St. Catharines traffic control center controls traffic in Sector 7 through "Seaway Long Point," VHF-FM channel 11.

(10)

Calling-in point

(11) Upbound and downbound vessels shall contact "Seaway Long Point" on VHF-FM channel 11 when approximately abeam of the east end of Long Point, ON. After initial contact, downbound vessels shall guard VHF-FM channel 16.

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

(13)

Vessel Traffic Service

(14) The Canadian Coast Guard operates a Vessel Traffic Service in Canadian waters from Long Point in Lake Erie through the Detroit and St. Clair Rivers to De Tour Reef Light in Lake Huron. (See chapter 3 and the Annual Edition of Canadian Notices to Mariners for complete information.)

(21)

Fluctuations of water level

(22) The normal elevation of the lake surface varies irregularly from year to year. During the course of each

(15)

Recommended Courses on Lake Erie — Downbound/Outbound

The **Lake Carriers' Association** and the **Canadian Shipowners Association** have recommended the following courses for downbound/outbound and upbound/inbound traffic in Lake Erie. These courses are recommended and recognized for the Great Lakes by both Associations, with navigation safety and application of the Collision Regulations always taking priority. While strict observance of these courses is recommended for all Masters, Navigating Officers of the Watch, and Pilots for their respective vessels in the interest of navigation safety, these are *recommended* and *voluntary* lake courses. They are delineated on general and other charts of the Great Lakes both in paper and electronic formats.
The distances given in the text for these courses are given in **statute miles** with the **nautical mile** equivalents shown in parentheses.

Departing Detroit River East Outer Channel to:

Southeast Shoal—steer 164° until East Outer Channel Light 1E bears 340° at 0.9 (0.8) mile. Then steer 095° for 27.3 (23.7) miles for Pelee Passage Traffic Lighted Buoy P. From this position, steer 122° for 6.8 (5.9) miles to pass 1.0 (0.9) mile south of Southeast Shoal Light.

Toledo—from a position with East Outer Channel Light 1E bearing 340° at 0.9 (0.8) mile, steer 217° for 5.8 (5.0) miles to a position 1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2.

Monroe—from a position with East Outer Channel Light 1E bearing 340° at 0.9 (0.8) mile, steer 252° for 8.1 (7.0) miles to a position 1.8 (1.5) miles southeast of Monroe Harbor Entrance Channel.

Departing Detroit River West Outer Channel to:

Monroe—from a departure position at West Outer Channel, steer 220° for 7.3 (6.3) miles to a position 1.8 (1.5) miles southeast of Monroe Harbor Entrance Channel.

Toledo—from a departure position at West Outer Channel, steer 184° for 7.7 (6.7) miles to a position 1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2.

To Southeast Shoal and beyond:

Toledo—from a departure position 1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2, steer 073° for 9.2 (4.4) miles to a position 1.5 (1.3) miles north of Middle Sister Island. Then steer 091° for 21.9 (19.0) miles for Pelee Passage Traffic Lighted Buoy P. From this position, steer 122° for 6.8 (5.9) miles to pass 1.0 (0.9) mile south of Southeast Shoal Light.

Monroe—from a departure position 1.8 (1.5) miles southeast of Monroe Harbor Entrance Channel, steer 087° for 13 (11.3) miles to intersect the downbound course from Toledo at 1.5 (1.3) miles north of Middle Sister Island. Then steer 091° for 21.9 (19.0) miles for Pelee Passage Traffic Lighted Buoy P. From this position, steer 122° for 6.8 (5.9) miles to pass 1.0 (0.9) mile south of Southeast Shoal Light.

Southeast Shoal to:

Port Colborne—from a departure position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light, steer 071° for 135 (117.3) miles to pass off Long Point bearing 332° at 8.5 (7.4) miles. Then steer 053° for 44.4 (38.6) miles to Port Colborne call-in point 16 with Port Colborne Outer Light bearing 015° at 3.0 (2.6) miles.

Buffalo—from a departure position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light, steer 071° for 135 (117.3) miles to pass off Long Point bearing 332° at 8.5 (7.4) miles. Then steer 062° for 60 (52.1) mile to Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles.

Sandusky—from a departure position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light, steer 206° for 23.5 (20.4) miles to Sandusky Bay Moseley Entrance Channel.

Marblehead—from a departure position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light, steer 206° for 19.6 (17.0) miles to a position 4.7 (4.1) miles north-northeast of Sandusky Harbor Breakwater Light. Then steer 265° for 5.0 (4.3) miles to a position 0.35 (0.30) mile north of the Marblehead Stone Dock.

Huron—from a departure position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light, steer 186° for 27.2 (23.6) miles to a position bearing 219° at 1.4 (1.3) miles off Huron Harbor Light.

Lorain—from a departure position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light, steer 149° for 26.5 (23.0) miles to Lorain Harbor Lake Approach Channel.

Cleveland—from a departure position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light, steer 116° for 42.0 (36.0) miles to a position bearing 329° at 2.3 (2.0) miles off Cleveland Harbor Main Entrance Light.

Fairport—from a departure position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light, steer 091° for 61.0 (53.0) miles to the Fairport Harbor Lake Approach Channel.

(16)

Recommended Courses on Lake Erie — Downbound/Outbound

Ashtabula—from a departure position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light, steer 084° for 86.3 (75.0) miles to a position bearing 166.5° at 1.1 (1.0) miles off Ashtabula Lake Approach Channel.

Conneaut—from a departure position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light, steer 082° for 98.9 (85.9) miles to a position bearing 169.4° at 1.5 (1.3) miles off Conneaut Outer Harbor Channel.

Erie—from a departure position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light, steer 077° for 123.7 (107.5) miles to a position bearing 180° at 1.7 (1.5) miles off Presque Isle Light. Then steer 110° for 3.8 (3.3) miles to Erie Harbor Entrance Channel.

Port Stanley to:

Cleveland—from a departure position bearing 355° at 0.6 (0.5) miles from Port Stanley West Breakwater, steer 199° for 81.3 (70.6) miles to a position 2.3 (2.0) miles 329° from Cleveland Harbor Main Entrance Light.

Ashtabula—from a departure position bearing 355° at 0.6 (0.5) mile from Port Stanley West Breakwater, steer 156° for 53.5 (46.5) miles to a position bearing 166.5° at 1.1 (1.0) miles off Ashtabula Lake Approach Channel.

Conneaut—from a departure position bearing 355° at 0.6 (0.5) mile from Port Stanley West Breakwater, steer 143° for 55.6 (48.3) miles to a position bearing 169° at 1.5 (1.3) miles off the Conneaut Outer Harbor Channel.

Marblehead to :

Lorain—from 0.35 (0.30) mile north of the Marblehead Stone Dock, steer 099° for 27.6 (24.0) miles to Lorain Harbor Lake Approach Channel.

Cleveland—from 0.35 (0.30) mile north of Marblehead Stone Dock, steer 085° for 25.4 (22.1) miles to a position 7.3 (6.3) miles, 342° from Lorain Harbor Lake Approach Channel. Then steer 096° for 26.0 (22.6) miles to a position 2.3 (2.0) miles 329° off Cleveland Harbor Main Entrance Light.

Sandusky to:

Lorain—from Sandusky Bay Moseley Entrance Channel, steer 094° for 23.9 (20.8) miles to Lorain Harbor Lake Approach Channel.

Cleveland—from Sandusky Bay Moseley Entrance Channel, steer 076° for 22.6 (19.6) miles to the junction position north-northwest of Lorain bearing 342° for 7.3 (6.3) miles. Then steer 096°for 26.0 (22.6) miles to a position 2.3 (2.0) miles, 329° from the Cleveland Harbor Main Entrance Channel.

Ports Further East—from Sandusky Bay Moseley Entrance Channel, steer 076° for 30.2 (26.2) to a position bearing 024° from the Cleveland Intake Crib. Then steer 064° for various mileages to intersect the course lines from Southeast Shoal to appropriate destination port.

Route Junction near Lorain to:

Fairport—from the junction position north-northwest of Lorain bearing 342° for 7.3 (6.3) miles, steer 076° for 30.2 (26.2) miles to a position bearing 024° at 10.1 (8.8) miles from the Cleveland Intake Crib. Then steer 064° for 17.3 (15.0) miles to the south shore recommended course intersection to Fairport. Then steer 091° to arrive at the Fairport Harbor Lake Approach Channel.

Ashtabula—from the junction position north-northwest of Lorain bearing 342° for 7.3 (6.3) miles, steer 076° for 30.2 (26.2) miles to a position bearing 024° at 10.1 (8.8) miles from the Cleveland Intake Crib. Then steer 064° for 37.3 (32.4) miles to the south shore recommended course intersection to Ashtabula. Then steer 084° for 11.3 (9.8) miles to a position bearing 166.5° for 1.1 (1.0) miles off Ashtabula Lake Approach Channel.

Conneaut—from the junction position north-northwest of Lorain bearing 342° for 7.3 (6.3) miles, steer 076° for 30.2 (26.2) miles to a position bearing 024° at 10.1 (8.8) miles from the Cleveland Intake Crib. Then steer 064° for 45.6 (39.6) miles to the south shore recommended course intersection to Conneaut. Then steer 082° for 16.1 (14.0) miles to a position bearing 169.4° for 1.5 (1.3) miles off Conneaut Outer Harbor Channel.

Route Junction near Erie to:

Erie—from the junction position 5.0 (4.3) miles northwest of Presque Isle Light, steer 116° for 7.6 (6.6) miles to a position bearing 231° at 1.7 (1.5) miles to Erie Harbor Pierhead Light.

Buffalo—from the junction position 5.0 (4.3) miles northwest of Presque Isle Light, steer 056° for 77 (66.9) miles.

Port Colborne—from the junction position 5.0 (4.3) miles northwest of Presque Isle Light, steer 048° for 62 (53.9) miles.

(17)

Recommended Courses on Lake Erie — Downbound/Outbound

Erie to:

Buffalo—from a departure position bearing 231° at 1.7 (1.5) miles to Erie Harbor Pierhead Light, steer 051° for 73.4 (63.8) miles to a position bearing 090° at 2.5 (2.2) miles to Buffalo Harbor South Entrance Light 2

Port Colborne—from a departure position bearing 231° at 1.7 (1.5) miles off Erie Harbor Pierhead Light, steer 41° for 69.1 (60) miles to Port Colborne call-in point 16 with Port Colborne Outer Light bearing 015°at 3.0 (2.6) miles.

Rondeau to Cleveland—from a departure at Rondeau Bay Entrance bearing 007° for 0.9 (0.8) mile, steer 169° for 49.5 (43) miles to a position 2.3 (2.0) miles, 329° from Cleveland Harbor Main Entrance Light.

Long Point to Nanticoke—from a departure position with Long Point Light bearing 332° at 8.5 (7.4) miles, steer 349° for 7.8 (6.8) miles to a position with Long Point Light bearing 270° at 2.3 (2.0) miles. Then steer 330° for 13.2 (11.5) miles to the channel approach for Nanticoke with Port Dover West Pier Light bearing 318° at 5.9 (5.1) miles.

To Port Colborne from:

Nanticoke—from a departure position exiting Nanticoke Channel with Port Dover West Pier Light bearing 318° at 5.9 (5.1) miles, steer 109° for 6.8 (5.9) miles to a junction position off Nanticoke Shoal with Nanticoke Shoal Buoy EA8 bearing 314° at 4.4 (3.8) miles. From this position, steer 075° for 38.3 (33.3) miles to Port Colborne call-in point 16 with Port Colborne Outer Light bearing 015° at 3.0 (2.6) miles.

Lorain—from a departure position at the Lorain Harbor Lake Approach Channel, steer 345° to the junction position north-northwest of Lorain bearing 342° at 7.3 (6.3) miles. Then steer 063° for 131 (113.8) miles to a position off Long Point Light bearing 332° at 8.5 (7.4) miles. From this position, steer 053° for 44.4 (38.6) miles to Port Colborne call-in point 16 with Port Colborne Outer Light bearing 015° at 3.0 (2.6) miles.

Cleveland—from a departure position bearing 329° at 2.3 (2.0) miles off Cleveland Harbor Main Entrance Light, steer 019° for 10.7 (9.3) miles to a position bearing 024° at 10.1 (8.8) miles from the Cleveland Intake Crib. Then steer 059° for 102 (88.6) miles to a position off Long Point Light bearing 332° at 8.5 (7.4) miles. Then steer 053° for 45.1 (39.2) miles to Port Colborne call-in point 16 bearing 015° at 3.0 (2.6) miles off Port Colborne Outer Light.

Buffalo—from a departure position bearing 090° 2.5 (2.2) miles to Buffalo Harbor South Entrance Light 2, steer 253° for 9.1 (7.9) miles to a position bearing 001° at 2.5 (2.2) miles from Point Abino. Then steer 280° for 9.0 (7.8) miles to Port Colborne call-in point 16 bearing 015° at 3.0 (2.6) miles off Port Colborne Outer Light.

Optional Lake Erie North Shore Weather Route Southeast Shoal to Port Colborne or Buffalo—from a departure position at Southeast Shoal Light, steer 071° for 5.3 (4.6) miles to position 5.0 (4.3) miles east of Southeast Shoal Light.
Then steer 000° for 11.3 (9.8) miles to a position 12.9 (11.2) miles north-northeast of Southeast Shoal Light.
Then steer 061° for 32.5 (28.2) miles to a position 3.1 (2.7) miles southeast of Pointe Aux Pins Main Light.
Then steer 053° for 37.9 (32.9) miles to a position 7.7 (6.5) miles south of Port Stanley Breakwater Light.
Then steer 093° for 62.2 (54.1) miles to a position 4.3 (3.7) miles southeast of Long Point Light.
Then steer 000° for 14.2 (12.4) miles to junction position off Nanticoke Shoal with Nanticoke Shoal Buoy EA8 bearing 314° at 4.4 (3.8) miles.
—for **Port Colborne**, steer 075° for 38.3 (33.3) miles to Port Colborne.
—for **Buffalo**, steer 080° for 46.7 (40.6) miles to a position 2.5 (2.2) miles south of Point Abino. Then steer 073° for 9.1 (7.9) miles to a position bearing 090° at 2.5 (2.2) miles to Buffalo Harbor South Entrance Light 2.

(18)

Recommended Courses on Lake Erie — Upbound/Inbound

Port Colborne to:

Southeast Shoal—from a position off Port Colborne call-in point 16 with Port Colborne Outer Light bearing 015° and 3.0 (2.6) miles, steer 240° for 44 (38.2) miles to a position not over 3.0 (2.6) miles off Long Point Light. Then steer 248° for 134 (116.4) miles to a position bearing 001° and 1.0 (0.9) mile to Southeast Shoal Light.

Buffalo—from a departure position at Port Colborne call-in point 16 with Port Colborne Outer Light bearing 015° at 3.0 (2.6) miles, steer 100° for 9.0 (7.8) miles to a position off Point Abino, 001° at 2.5 (2.2) miles. Then steer 073° for 9.1 (7.9) miles to Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles.

Dunkirk—from a departure position at Port Colborne call-in point 16 with Port Colborne Outer Light bearing 015° at 3.0 (2.6) miles, steer 191° for 22.1 (19.2) miles to Dunkirk Harbor Entrance Channel.

Nanticoke—from a departure position at Port Colborne call-in point 16 with Port Colborne Outer Light bearing 015° at 3.0 (2.6) miles, steer 255° for 38.3 (33.3) miles to junction position off Nanticoke Shoal with Nanticoke Shoal Buoy EA8 bearing 314° at 4.4 (3.8) miles. Then steer 289° for 6.8 (5.9) miles to Nanticoke Channel with Port Dover West Pier Light bearing 318° at 5.9 (5.1) miles.

Erie—from a departure position at Port Colborne call-in point 16 with Port Colborne Outer Light bearing 015° at 3.0 (2.6) miles, steer 221.4° for 69.1 (60) miles to a position off Erie Channel with Erie Harbor Pierhead Light bearing 231° at 1.7 (1.5) miles.

To Lake Erie south shore ports via junction off Presque Isle Light—from a departure position at Port Colborne call-in point 16 with Port Colborne Outer Light bearing 015° and 3.0 (2.6) miles, steer 228° for 62.2 (54.0) miles to the junction position 5.0 (4.3) miles northwest of Presque Isle Light.

Nanticoke to Long Point—from a departure position off Nanticoke Channel with Port Dover Harbour Light bearing 318° and 5.9 (5.1) miles, steer 150° for 13.3 (11.6) miles to a position off Long Point with Long Point Light bearing 270° and 2.3 (2.0) miles. Then steer 203° for 2.7 (2.3) miles to Long Point call-in point with Long Point Light bearing 326° at 2.9 (2.5) miles.

Buffalo to:

Southeast Shoal—from a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles, steer 248° for 60 (52.1) miles to a position not over 3.0 (2.6) miles off Long Point Light. Then steer 248° for 134 (116.4) miles to a position bearing 001° and 1.0 (0.9) miles to Southeast Shoal Light.

Erie—from a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles, steer 231° for 73.4 (63.8) miles to position off Erie Harbor Pierhead Light bearing 231° at 1.7 (1.5) miles.

Conneaut—from a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles, steer 236° for 76.8 (66.7) miles to the junction position off Erie Harbor at 5.0 (4.3) northwest of Presque Isle Light. Then steer 232° for 24.9 (21.6) miles to 1.5 (1.3) miles north of Conneaut Outer Harbor Channel.

Ashtabula—from a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles, steer 236° for 76.8 (66.7) miles to the junction position off Erie Harbor at 5.0 (4.3) northwest of Presque Isle Light. Then steer 238° for 37.6 (32.7) miles to 1.1 (1.0) miles north of the Ashtabula Lake Approach Channel bearing 166°.

Fairport—from a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles, steer 236° for 76.8 (66.7) miles to the junction position off Erie Harbor at 5.0 (4.3) northwest of Presque Isle Light. Then steer 244° for 63.0 (54.7) miles to a position 3.8 (3.3) miles north of Fairport Harbor Lake Approach Channel. Then steer 181° for 2.2 (1.9) miles to Fairport Harbor Lake Approach Channel.

Cleveland—from a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles, steer 236° for 76.8 (66.7) miles to the junction position off Erie Harbor at 5.0 (4.3) northwest of Presque Isle Light. Then steer 244° for 85.5 (74.3) miles to a position 10.1 (8.8) miles from the Cleveland Intake Crib. Then steer 199° for 10.7 (9.3) miles to a position off Cleveland with Cleveland Harbor Main Entrance Light bearing 149° at 2.3 (2.0) miles.

Lorain—from a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles, steer 236° for 76.8 (66.7) miles to the junction position off Erie Harbor at 5.0 (4.3) northwest of Presque Isle Light. Then steer 244° for 85.5 (74.3) miles to a position 10.1 (8.8) north-northeast of the Cleveland Intake Crib. Then steer 256° for 30.2 (26.3) miles to the junction position north-northwest of Lorain bearing 342° at 7.3 (6.3) miles. Then steer 165° for 7.1 (6.2) miles to the Lorain Harbor Lake Approach Channel.

(19)

Recommended Courses on Lake Erie — Upbound/Inbound

Huron—from a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles, steer 236° for 76.8 (66.7) miles to the junction position off Erie Harbor at 5.0 (4.3) northwest of Presque Isle Light. Then steer 244° for 85.5 (74.3) miles to a position 10.1 (8.8) miles north-northeast of the Cleveland Intake Crib. Then steer 256° for 30.2 (26.3) miles to the junction position north-northwest of Lorain bearing 342° at 7.3 (6.3) miles. Then steer 233° for 18.6 (16.2) miles to Huron Harbor Lake Approach Channel with Huron Outer Light bearing 219° at 1.4 (1.3) miles.

Sandusky—from a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles, steer 236° for 76.8 (66.7) miles to the junction position off Erie Harbor at 5.0 (4.3) northwest of Presque Isle Light. Then steer 244° for 85.5 (74.3) miles to a position 10.1 (8.8) miles north-northeast of the Cleveland Intake Crib. Then steer 256° for 52.8 (45.9) miles to Moseley Entrance Channel at the Sandusky Bay Entrance.

Marblehead—from a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles, steer 236° for 76.8 (66.7) miles to the junction position off Erie Harbor at 5.0 (4.3) northwest of Presque Isle Light. Then steer 244° for 85.5 (74.3) miles to a position 10.1 (8.8) miles north-northeast of the Cleveland Intake Crib. Then steer 256° for 30.2 (26.3) miles to a junction position north-northwest of Lorain bearing 342° at 7.3 (6.3) miles. Then steer 265° for 25.4 (22.1) miles to a position 0.35 (0.30) mile off Marblehead.

To Detroit River from:

Southeast Shoal—from a departure position 1.0 (0.9) mile south of Southeast Shoal Light, steer 302° for 8.5 (7.4) miles to a position 326° and 1.8 (1.5) miles from Pelee Passage Light. Then steer 275° for 25.2 (21.9) miles to a position 1.0 (0.9) mile off East Outer Channel Light 1E.

Toledo—from a departure position 1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2, steer 037° for 5.8 (5.0) miles to a position with East Outer Channel Light 1E bearing 340° at 0.9 (0.8) miles.

Monroe—from a departure position 1.8 (1.5) miles southeast of Monroe Harbor Entrance Channel, steer 072° for 8.1 (7.0) miles to a position with East Outer Channel Light 1E bearing 340° at 0.9 (0.78) mile.

Southeast Shoal to:

Toledo—from a position 1.0 (0.9) mile south of Southeast Shoal Light, steer 302° for 6.8 (5.9) miles to 0.8 (0.7) mile off Pelee Passage Light. Then steer 271° to pass 1.5 (1.3) miles north of Middle Sister Island Light. Then steer 253° for 9.2 (8.0) miles to a position 1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2.

Monroe—from a position 1.0 (0.9) mile south of Southeast Shoal Light, steer 302° for 6.8 (5.9) miles to 0.8 (0.7) mile off Pelee Passage Light. Then steer 267° for 13 (11.3) miles to a position 1.8 (1.5) miles southeast of Monroe Harbor Entrance Channel.

To Southeast Shoal from:

Sandusky—from the Sandusky Moseley Entrance Channel, steer 026° for 23.5 (20.4) miles to Southeast Shoal Light bearing 001° and 1.0 (0.9) mile.

Marblehead—from a departure position off Marblehead, steer 085° for 5.0 (4.3) miles to intersect the course from Sandusky. Then steer 026° for 19.6 (17.0) miles to 1.0 (0.9) mile south of Southeast Shoal Light.

Huron—from a departure position bearing 219° and 1.4 (1.3) miles to Huron Outer Light, steer 006° for 27.2 (23.6) miles to Southeast Shoal Light bearing 001° and 1.0 (0.9) miles.

Lorain—from the Lorain Harbor Lake Approach Channel, steer 329° for 26.5 (23.0) miles to Southeast Shoal Light bearing 001° at 1.0 (0.9) mile.

Cleveland—from a departure position at 2.3 (2.0) miles 329° from Cleveland Harbor Main Entrance Light, steer 296° for 41.9 (36.4) miles to a position bearing 001° at 1.0 (0.9) mile to Southeast Shoal Light.

Fairport—from a departure position off Fairport Harbor Lake Approach Channel, steer 271° for 61.0 (53.0) miles to a position bearing 001° at 1.0 (0.9) mile from Southeast Shoal Light.

Ashtabula—from a departure position 1.1 (1.0) miles north of the Ashtabula Lake Approach Channel bearing 166.5°, steer 264° for 86.3 (75) miles to a position bearing 001° at 1.0 (0.9) mile from Southeast Shoal Light.

Conneaut—from a departure position bearing 169.4° and 1.5 (1.3) miles to Conneaut Outer Harbor Channel, steer 262° for 98.9 (85.9) miles to a position bearing 001° at 1.0 (0.9) miles from Southeast Shoal Light.

Erie—from a departure position with Erie Harbor Pier Light bearing 231° at 1.7 (1.5) mile, steer 290° for 3.6 (3.1) miles to the junction position northwest of Presque Isle Light. Then steer 257° for 124.0 (107.7) miles to a position bearing 001° at 1.0 (0.9) mile from Southeast Shoal Light.

(20)

Recommended Courses on Lake Erie — Upbound/Inbound

Cleveland to:

Port Stanley—from a departure position 2.3 (2.0) miles 329° from Cleveland Harbor Main Entrance Light, steer 019° for 81.3 (70.6) miles to a position bearing 355° at 0.6 (0.5) mile from Port Stanley West Breakwater.

Rondeau Bay—from a departure position 2.3 (2.0) miles 329° from Cleveland Harbor Main Entrance Light, steer 349° for 49.5 (43) miles to Rondeau Bay Entrance Channel bearing 007° at 0.9 (0.8) miles.

To Port Stanley from:

Ashtabula—from a departure position 1.1 (1.0) north of the Ashtabula Lake Approach Channel bearing 166.5°, steer 336° for 53.3 (46.3) miles to a position bearing 355° at 0.6 (0.5) mile from Port Stanley West Breakwater.

Conneaut—from 1.5 (1.3) miles north of Conneaut Harbor Outer Channel, steer 323° for 55.6 (48.3) miles to a position bearing 355° at 0.6 (0.5) mile from Port Stanley West Breakwater.

Optional Lake Erie North Shore Weather Route from:

Buffalo—from a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2) miles, steer 253° for 9.1 (7.9) miles to a position with Point Abino 000° at 2.5 (2.2) miles. Then steer 260° for 46.7 (40.6) miles to join the North Shore Weather Routes at junction position off Nanticoke Shoal.

Port Colborne—from departure at Port Colborne call-in point 16 with Port Colborne Outer Light bearing 015° at 3.0 (2.6) miles, steer 255° for 38.3 (33.3) miles to join the north shore weather routes at the junction position off Nanticoke Shoal with Nanticoke Shoal Buoy EA8 bearing 314° at 4.4 (3.8) miles.
Then steer 180° for 12.7 (11.0) miles to a position 4.3 (3.7) miles southeast of Long Point Light.
Then steer 273° for 62.2 (54.1) to a position 7.7 (6.5) miles south of Port Stanley Light.
Then steer 233° for 37.9 (32.9) miles to 3.1 (2.7) miles southeast of Pointe aux Pins Light.
Then steer 241° for 32.5 (28.2) miles to a position at 12.9 (11.2) miles north-northeast of Southeast Shoal Light.
Then steer 180° for 11.3 (9.8) miles to 5.0 (4.3) miles east of Southeast Shoal Light.
Then steer 251° for 5.3 (4.6) miles to Southeast Shoal Light bearing 001° at 1.0 (0.9) mile.

(30)

METEOROLOGICAL TABLE – COASTAL AREA LAKE ERIE
Between 41.3°N to 43.0°N and 79.0°W to 83.5°W

WEATHER ELEMENTS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Wind > 33 knots [1]	5.1	1.6	1.3	1.5	0.6	0.4	0.2	0.3	1.0	3.6	5.9	8.2	2.0
Wave Height > 9 feet [1]	1.2	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.4	1.6	2.1	2.6	0.7
Visibility < 2 nautical miles [1]	10.4	8.0	11.0	7.6	7.3	7.6	5.9	7.2	3.4	2.9	3.7	6.8	5.9
Precipitation [1]	35.4	34.5	20.7	12.1	8.7	6.1	5.4	5.9	7.7	10.1	15.5	21.9	9.9
Temperature > 69° F	0.0	0.1	0.1	0.3	3.7	23.0	62.9	64.3	24.4	0.9	0.0	0.0	22.3
Mean Temperature (°F)	23.5	28.2	36.7	43.5	54.2	65.4	72.1	72.1	65.3	54.3	43.5	34.3	57.8
Temperature < 33° F [1]	78.8	61.2	26.8	4.8	0.5	0.0	0.0	0.0	0.0	0.3	8.6	37.2	4.6
Mean RH (%)	81	82	80	81	81	82	80	79	78	77	78	82	80
Overcast or Obscured [1]	52.6	44.6	44.2	32.5	26.4	21.0	18.2	22.0	24.0	29.3	46.6	55.0	28.8
Mean Cloud Cover (8ths)	6.2	5.6	5.5	4.9	4.6	4.2	4.1	4.3	4.5	5.0	6.1	6.5	4.8
Mean SLP (mbs)	1017	1019	1017	1015	1015	1015	1015	1016	1018	1016	1017	1018	1016
Ext. Max. SLP (mbs)	1042	1046	1038	1049	1052	1040	1042	1046	1054	1049	1053	1046	1054
Ext. Min. SLP (mbs)	985	985	984	969	979	980	984	983	981	979	969	968	968
Prevailing Wind Direction	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Thunder and Lightning [1]	0.6	0.6	0.6	1.0	1.5	3.0	3.3	3.0	2.2	1.0	0.5	0.3	1.9

[1] Percentage Frequency

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.

(23) 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 type of fluctuation has a very pronounced effect on Lake Erie, because it is the shallowest of the Great Lakes and affords the least opportunity for the impelled upper water to return through lower return currents beneath the depth disturbed by storms. As a result, the water level in the harbors, particularly those at the ends of the lake, fluctuates markedly under the influence of the winds; the amount of fluctuation depends on the direction, strength and duration of the wind. Fluctuations as great as 10 feet and lasting as long as 12 hours have been observed. September through April is the most likely period, particularly November, December and January. At the east end of the lake, west winds pile up water in Buffalo Harbor and increase the depth in Niagara River, while east winds drive the water out of Buffalo Harbor and decrease the flow and depths in Niagara River. The winds produce exactly the opposite effect at the west end of the lake; the greatest effects are at Sandusky, Toledo and the mouth of Detroit River. Intermediate points are not subject to level changes as great as those at the ends of the lake. Along the south shore, fluctuations caused by winds are generally less than 1 foot above or below normal; extreme fluctuations of about 2 feet above or below normal may occur.

(24)

Weather, Lake Erie

(25) Strong winds are mostly likely in autumn during the navigation season; November and December are the worst as gales blow 6 to 9 percent of the time. However, Lake Erie's maximum wind occurred in July, north-northwest at 87 knots. Reported by two vessels, these winds were triggered by an Independence Day (1969) squall line. Gales, however, are encountered less than 1 percent of the time from May through September. Summer winds blow mainly out of the south through west, particularly southwest. These directions are also favored during other seasons along with northwesterlies and northeasterlies.

(26) The shallowness and orientation of Lake Erie make it susceptible to southwest and northeast winds, which can quickly raise dangerous seas and, if persistent, create a dangerous surge problem at both ends of the lake. Rough seas are most frequent in autumn and in the east half of the lake. Waves of 10 feet (3 m) or more can be expected up to 3 percent of the time in the east, while seas of 5 feet (1.5 m) or more are encountered 30 percent of the time lakewide; extremes of 15 to 20 feet (4.5 to 6 m) have been encountered.

(27) Poor visibility is mainly a spring and autumn navigational problem. Over open waters, spring is the most prevalent fog season. Visibilities of less than 0.5 statute mile (0.4 nm) occur up to 5 percent of the time. Visibilities of 2 statue miles (1.7 nm) or less occur 5 to 10 percent of the time during most of the navigation season. The shoreline is susceptible to both autumn radiation fogs and early spring advection fogs. Fog is more frequent along the north shore.

(28) The visibilities at Simcoe, ON, drop to less than 0.5 statute mile (0.4 nm) on an average of 46 days annually compared to a range of 15 to 23 days along the south shore. At Simcoe this includes about 4 to 6 days of fog per

month in autumn and early spring, about twice as many days as Buffalo, Erie or Toledo.

(29) Thunderstorms are responsible for some of the strongest winds on the lake. They are generally a problem from April through September but can occur at any time. Over the open lake, they occur 1 to 3 percent of the time with a peak during the summer months. They are most likely between sunset and sunrise. Onshore they most often occur during the late afternoon, on 25 to 30 days annually. During June, July and August, they blow on 5 to 10 days per month.

(31)

Ice

(32) The west end of Lake Erie is very shallow and freezes rapidly, the time of occurrence depending heavily on the temperatures. The ice attains an average thickness of 7 inches and an average maximum thickness of 11 inches. In Maumee Bay, the ice forms a solid sheet about 12 to 18 inches thick. The track through the channel to Toledo remains open except for a 3-foot thickness of brash ice, a slush ice under the refrozen surface. In South Passage, the ice reaches a thickness of about 18 inches because of slight rafting and ridging. During severe winters, thicknesses to 24 inches and windrows 5 feet high have been observed. By mid-March, the ice in the west end of the lake starts to clear because of the temperatures and the prevailing west winds. The ice in this area is field ice and covers over an opened track.

(33) The central part of the lake remains open through January except for a few strips of thin ice. Growth is rapid in February, and high concentrations of thin ice develop by mid-month. By early March, medium-thickness lake ice predominates, with somewhat better conditions along the Canadian shore. Decay and clearing is rapid in mid-March, and the remaining pack is usually concentrated east of Long Point by the end of the month.

(34) In the east part of the lake, ice begins to form in early to mid-January and may reach a thickness of 8 to 12 inches by the end of the month. The solid ice increases to 16 to 20 inches thick by the end of February. In Buffalo Harbor, an average thickness of 9 inches and an average maximum thickness of 18 inches can occur. In the lake, the prevailing west winds usually jam and pack the ice to form considerable windrows. Extremely hard pressure ridges 3 to 4 feet thick are not uncommon in February and March. As the ice on the rest of the lake begins to break up, the winds force it into the east end of the lake, and it completely blocks the approach to Buffalo Harbor. The soft deteriorating ice forms mush ice about 3 to 6 feet deep, interspersed with pressure ridges 4 to 6 feet deep. The mush ice has been reported as much as 20 feet deep in places. Rafted ice fields 15 to 20 feet above the water level have occurred during severe winters; under these conditions, ice can persist thought late May. (See Winter Navigation, chapter 3.)

(35)

Submerged wellheads and pipelines

(36) Mariners are cautioned that oil and gas drilling towers are temporarily established in various parts of Canadian waters of Lake Erie. These towers have a quick flashing white light and a sound signal that sounds one blast of 2 seconds duration followed by 18 seconds of silence.

(37) There are many submerged gas pipelines and wellheads in the Canadian waters of Lake Erie; most of them are shown on the charts. Damage to these structures can be extremely hazardous because the natural gas is flammable, under pressure and contains toxic chemicals. Mariners are cautioned not to anchor in the vicinity of the submerged structures.

(38)

Fish netting areas

(39) Trap nets, impounding nets and gill nets may create a hazard to navigation in parts of Lake Erie that are intensively fished. These areas and the principal type of nets employed may be portrayed on NOAA charts. Other types of uncharted fishing gear may also be encountered in the lake.

(40)

Pilotage

(41) The following waters of Lake Erie are Great Lakes designated waters: in the approach to Welland Canal within an arc drawn 1 mile to south of the outer light on the west breakwater at Port Colborne (Port Colborne Outer Light); west of a line on a bearing of about **026°** from Sandusky Harbor Breakwater Light to Southeast Shoal Light; and within a radius of 1 mile east of Sandusky Harbor Breakwater Light. Registered vessels of the United States and foreign vessels in these waters are required to have in their service a United States or Canadian registered pilot. The remaining waters of Lake Erie are Great Lakes undesignated waters; the above vessels are required to have in their service a United States or Canadian registered pilot or other officer qualified for Great Lakes undesignated waters. Registered pilots for the Welland Canal are supplied by Great Lakes Pilotage Authority, Ltd., St. Catharines, and for Lake Erie by Great Lakes Pilotage Authority, Ltd., St. Catharines, and Lakes Pilots Association. (See Appendix A for addresses.) Pilot exchange points are 1 to 2 miles south of Port Colborne and just below the Ambassador Bridge on the Detroit River. The pilot boat in the Detroit River, J. W. WESTCOTT II, has a black hull encircled by an orange band and a white cabin with the words “U.S. Mail” in black letters. (See Pilotage, chapter 3, and **46 CFR 401**, chapter 2.)

(42)

Principal ports

(43) The principal ports on Lake Erie are Buffalo, NY; Erie, PA; and Conneaut, Ashtabula, Fairport Harbor, Cleveland, Lorain, Huron, Sandusky and Toledo, OH. Companies at several of the ports make above-the-waterline repairs to deep-draft vessels.

(47)

(44)

Upper Niagara River

(45)

Niagara River above Niagara Falls

(46) At its east end, Lake Erie becomes comparatively narrow and has its outlet in the Niagara River. From the head of the river, it is about 20 miles to the falls and rapids of **American Falls** and **Horseshoe Falls**. About 5 miles below the head, the river is divided into two channels by **Strawberry Island** and **Grand Island.Tonawanda Channel** and **Niagara River Channel**, the U.S. channels, lead to the east of these islands, and **Chippawa Channel**, the Canadian channel, leads to the west of these islands. At the lower end of Grand Island, the channels rejoin and lead for about 3.5 miles to the falls.

(48) The i**nternational boundary** between the United States and Canada follows a general middle of the river course in the upper Niagara River from the head of the river downstream to the head of Grand Island where the river forks around the island. The boundary then follows Chippawa Channel and is generally less than 1,000 feet off the west shore of Grand Island until Chippawa Channel and Niagara River Channel join at the northwest end of Grand Island. The boundary again follows a general middle of the river course around the south side of **Goat Island** and over Niagara Falls.

(49)

Chart Datum, Upper Niagara River

(50) Depths and vertical clearances under overhead cables and bridges in the Niagara River from its confluence with Lake Erie to the head of navigation, the turning basin at Niagara Falls, NY, is as follows: from Lake Erie to the Black Rock Canal Lock is the Low Water Datum of Lake Erie, 569.2 feet (173.5 meters); from just below the Black Rock Canal Lock to the south end of Grand Island is the sloping surface of the river, when the water surface just below the lock is at 564.4 feet (172.03 meters) and the Huntley Station gauge (at Niagara Mohawk Power Corporation plant) reads 563.8 feet (171.85 meters); from the south end of Grand Island to the south end of Tonawanda Island is the sloping surface of the river, when the Huntley Station gauge reads 563.8 feet (171.85 meters) and the gauge at Tonawanda Island reads 563.4 feet (171.73 meters); from the south end of Tonawanda Island to the turning basin at Niagara Falls, NY, is the sloping surface of the river, when the gauge at Tonawanda Island reads 563.4 feet (171.73 meters) and the gauge at Power Plant Intakes reads 561.5 feet (171.13 meters). All elevations are above mean water level at Rimouski, QC, on International Great Lakes Datum 1985 (IGLD 1985). (See **Chart Datum, Great Lakes System**, indexed as such, chapter 3.)

(51)

Fluctuations of Water Level

(52) Variations in Lake Erie levels above or below Low Water Datum are reflected in Niagara River levels. The amount of the variation ranges from the full Lake Erie variation at the head of the river and gradually diminishes downstream to the vicinity of Chippawa, ON, just above Niagara Falls.

(53) From Lake Erie, the fall of the Niagara River is about 10 feet to the head of the upper rapids near the junction with the Welland River. Just below the Welland River entrance, about 1.2 miles east of Goat Island, the Niagara waters begin their rapid descent to the level of Lake Ontario through the rapids above the falls, the great falls themselves, and the rapids below the falls. From the upper rapids, the fall of the river to Lake Ontario is about 316.5 feet.

(54)

Currents

(55) For about 1.7 miles, from its head to just above Peace Bridge, the river is wide, shallow, and rocky, and the current is from 2 to 3 mph. Just above the Peace Bridge, the river becomes a narrow gorge for about 2 miles to the lower end of Unity Island. In the upper part of this gorge, the river is shallow, and the currents are about 8 mph at low to mean river stages and 9 mph at high stages. In the lower part of the gorge, the river is deeper and somewhat wider.

(56) In 1986, with water level at 4.8 feet above low water datum, speed of the current was 7.7 to 9.7 knots.

(57) Currents just below the International Bridge have speeds of 4 mph at low to mean river stages and 4.75 to 5 mph at high stages. In Tonawanda and Chippawa Channels, the currents vary from 1 to 4 mph.

(58)

Channels

(59) Black Rock Canal is the recommended route from Lake Erie to facilities in the Niagara River below **Unity Island**. The channel formerly dredged in the open river west of Bird Island Reef and Unity Island has shoaled to depths of 10 feet or less. The bottom in this reach is generally rocky, and the currents are strong and variable. Great care should be exercised in navigating this section of the river.

(60) A floating steel pontoon ice boom is placed across the entrance to the head of the Niagara River during the winter. In any one year, installation of the boom shall not commence prior to December 16 or prior to the water temperature at the Buffalo water intake reaching 4°C (39°F), whichever occurs first. The boom shall be opened by April 1, unless there is more than 250 square miles of ice east of Long Point (42°33'N., 80°03'W.); complete disassembly and removal of all floatation equipment shall be completed within two weeks thereafter.

(61) **Black Rock Canal** provides a safe passage for vessels around the rapids and shoals in the head of the Niagara River.

(62) The Lake Erie entrance to Black Rock Canal is through Buffalo Harbor North Entrance Channel and across the northern section of Outer Harbor to Black Rock Canal Entrance Channel. From its entrance, the canal leads northward along the Buffalo front, parallel with the river and separated from it by **Bird Island Pier** and Unity Island. Bird Island Pier and Unity Island retain the canal pool from the west, and, along with Black Rock Lock, serve to keep the canal level at the same elevation as the water surface of Lake Erie.

(63) From Black Rock Lock at the northern end of Unity Island, a dredged channel continues northward through Tonawanda Channel for about 9 miles to a turning basin on the north side of **Tonawanda Island** at North Tonawanda.

(64) From Buffalo North Entrance Channel through Black Rock Canal and Lock to and in the turning basin north of Tonawanda Island, the federal project depth is 21 feet. (See Notice to Mariners and the chart for controlling depths.)

(65) From the downstream end of the turning basin at North Tonawanda, Niagara River Channel leads along the north side of Grand Island to a basin off the public dock at Niagara Falls, NY.

(66) Black Rock Canal and the dredged channels leading to the turning basin north of Tonawanda Island are marked by lights, buoys and lighted ranges.

(67) Passing down the Niagara River from Lake Erie toward Niagara Falls is considered "proceeding from seaward." Buoyage in the river and the Black Rock Canal is based on this convention. Red buoys are on the right-hand side, looking downstream, and green on the left-hand side.

(68) **Black Rock Lock** connects the canal with the river near the foot of Unity Island. The lock has a usable length of 625 feet with a clear width of 68 feet and a depth of 21 feet over the sills; the average lift of the lock is 5 feet.

(69) **Locking through**—when approaching Black Rock Lock, vessel operators must inform lock personnel, well in advance, of their desire to pass through the lock. Personnel will indicate when it is safe to proceed into the lock. Contact lock personnel on VHF-FM channel 16; channels 12 and 14 are working channels. A horn signal of two long and two short blasts indicates to lock personnel that you wish to lock through. This signal should be given regardless of any other communication you may have established. See **33 CFR 207.590**, chapter 2, for details on navigating the canal and lock.

(70) The following signals control the movement of vessels through Black Rock Lock:

(71) For downbound (northbound) traffic, a signal light mounted on a standard on the east approach wall at the entrance to the lock chamber shows green to indicate a clear entrance into the lock chamber. When this signal is red, the downbound vessel will moor at the east approach wall until such time as clear entrance to the lock is indicated by the green light.

(72) For upbound (southbound) traffic approaching the lock from the Niagara River channel, a signal light shows green to indicate a clear entrance to the lock chamber and red to indicate that the lock chamber is closed.

(73) A **special anchorage** is on the west side of Black Rock Canal inside the pier at 42°53'45"N., 78°54'15"W. (See **33 CFR 110.1** and **110.84**, chapter 2, for limits and regulations.)

(74) **Caution**—The canal generally has a slight current downstream. During rapidly rising or high water in Lake Erie, there is a strong crosscurrent at the south end of Bird Island Pier.

(75)

Bridges

(76) The **Peace Bridge** (42°54'23"N., 78°54'07"W.) crossing Black Rock Canal has a 200-foot fixed span with a vertical clearance of 100 feet—an overhead power cable 0.2 mile below the bridge has a vertical clearance of 144 feet. The **Ferry Street Bridge** (42°54'55"N., 78°54'08"W.) has a 149-foot bascule span with a vertical clearance of 17 feet for 86 feet from the east abutment, thence decreasing to 12 feet at the west abutment. The bridgetender monitors VHF-FM channel 16 and works on channel 12. The **International Bridge** (42°55'53"N., 78°54'08"W.) with a combined rail and highway swing span has a vertical clearance of 17 feet—an overhead power cable, 500 feet southeast of the bridge, has a reported vertical clearance of 121 feet. (See **33 CFR 117.1** through **117.49** and **117.769**, chapter 2, for drawbridge regulations.)

(77)

Regulations

(78) A **speed limit** of 6 mph (5.2 knots) is enforced in Black Rock Canal. (See **33 CFR 162.175** and **207.590**, chapter 2, for canal regulations.)

(79) The canal has no docks or facilities for mooring large vessels. The Buffalo Yacht Club maintains a small-craft basin on the canal adjacent to the Buffalo waterworks pumping station. Downstream from the yacht club basin, a berthing area about 12 feet deep has been dredged for the U.S. Naval and Marine Corps Reserve Training Center.

(80) **Peace Bridge** crosses the open Niagara River about 1.5 miles from the head. The bridge has four fixed spans with clearances listed from west to east (going toward the Black Rock Canal): 50 feet for a center width of 100 feet; 61 feet for a center width of 100 feet, 71 feet for a center width of 120 feet, and 83 feet for a center width of 120 feet. The normal vessel route is under the fourth span from the U.S. mainland (the first being the bowstring truss over the Black Rock Canal). An intake crib is just downstream of the third span from the U.S. mainland. Navigation through this span is difficult in the turbulent current.

(81) An overhead power cable with a clearance of 126 feet crosses the river 0.2 mile downstream of Peace Bridge.

(82) **International Bridge** crosses the river about 1.5 miles below Peace Bridge. This railroad bridge has fixed spans with clearances of 22 feet.

(83) Just below International Bridge on each side of the river are submerged flowmeter pilings about 13 feet below the water surface.

(84) **Fort Erie, ON**, is a community on the west side of the head of the Niagara River.

(85) **Lower Black Rock Harbor** is the name applied to the part of Buffalo that fronts on the Niagara River below Black Rock Lock. The harbor is about 0.75 mile long with the upper part between the lock and the mainland. Loaded vessels should use the Black Rock Canal to approach the harbor. Approaching from the open river, the current passing the guide pier below the Black Rock Lock creates a powerful eddy with water flowing upstream along the U.S. side for more than 0.5 mile below the lock. Caution is advised when entering the harbor or docking. The harbor has several marinas. Transient berths, gasoline, diesel fuel, water, ice, electricity, marine supplies, a launching ramp, mobile lifts to 30 tons and hull, engine and electronic repairs are available. In 1977, depths of 7 to 12 feet were reported alongside the berths.

(86) Just below Black Rock Lock, **Strawberry Island** divides the Niagara River into Chippawa Channel and Tonawanda Channel, leading west and east, respectively, of Grand Island. **Chippawa Channel** extends from Strawberry Island for about 11 miles along the southwest and west sides of Grand Island to **Navy Island** at the downstream end. The channel leads around either side of Navy Island and joins Niagara River Channel to flow to **Niagara Falls**. Both sides of Navy Island have good channels but care must be taken to avoid the shoals that extend off the south and northwest tips of the island.

(87) Chippawa Channel has several small-craft facilities on both the Grand Island, United States, side of the channel and the mainland Ontario side. Beaver Island State Park Marina is at the south end of Grand Island. Transient berths, water, electricity and sewage pump-out facilities are available. In 2002, depths of 5 feet were reported in the entrance with 4 feet alongside the berths. Big Six Mile Creek Marina is on the west side of Grand Island about 7.5 miles from the upper end of the channel. Transient berths, gasoline, water, electricity, sewage pump-out facilities and launching ramps are available. In 1977, depths of 8 feet were reported in the entrance with 6 to 10 feet alongside the berths reported in 1982. A fixed highway bridge and two overhead cables crossing the entrance have a reported least clearance of 16 feet.

(88) The Niagara Parks Commission marina, on the Canadian side of Chippawa Channel opposite Beaver Island State Park, has gasoline, diesel fuel and sewage pump-out facilities. Depths of 10 feet are reported alongside the marina wharf.

(89) **Tonawanda Channel** extends from Strawberry Island for about 8.5 miles along the east side of Grand Island to Tonawanda Island and the adjoining cities of Tonawanda and North Tonawanda. The dredged and

natural channel through this stretch was previously described.

(90) **South Grand Island Bridge**, crossing the channel about 3.4 miles below Strawberry Island, has twin fixed highway spans with a clearance of 99 feet at the center of the central spans. Vessels requiring the full height should keep at least 90 feet from the face of the piers. Two overhead power cables with a minimum clearance of 115 feet cross the channel about 0.75 mile downstream of the bridge.

(91)

Wharves

(92) Several deep-draft facilities are in Tonawanda Channel on the east side of the river. The depths alongside are reported depths; for the latest depths, contact the operators.

(93) **NRG Energy CR Huntley, Station Coal Wharf** (42°58'10"N., 78°55'46"W.): 753 feet of berthing space with a depth of 17 feet alongside and a deck height of 10 feet; open storage for 500,000 tons of coal; receipt of coal for plant consumption; owned and operated by NRG Energy, Inc.

(94) **Marathon Ashland Petroleum Tonawanda Terminal Wharf** (42°58'39"N.,78°56'22"W.): 1,410 feet of berthing space with a depth of 21 feet alongside and a deck height of 8 feet; tank storage with a capacity for 110,000 barrels of asphalt; receipt of asphalt by barge; owned and operated by Marathon Ashland Petroleum Co.

(95) **NOCO Energy Corp. Tonawanda Terminal Wharf** (43°00'03"N.,78°55'45"W.): 400 feet of berthing space with a depth of 21 feet alongside and a deck height of 12 feet; tank storage with a capacity of 1,066,150 barrels; receipt of petroleum products by barge and tanker; owned and operated by NOCO Energy Corp.

(96) Several marinas on both sides of Tonawanda Channel between Strawberry Island and South Grand Island Bridge provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies and launching ramps. Mobile lifts to 40 tons are available for hull, engine and electronic repairs. In 1977, depths of 25 feet and less were reported alongside the berths.

(97) **Tonawanda Harbor**, about 12 miles via Tonawanda Channel below the head of the Niagara River, is the west terminus of the New York State Canal. The harbor comprises the river frontage of **Tonawanda, NY**, and **North Tonawanda, NY; Tonawanda Creek**, which separates the two cities, for about 1,400 feet to the Main-Webster Street Bridge; and all of the waterfront of Tonawanda Island, which lies in the river off the main shore.

(98) The part of Tonawanda Harbor extending south from the North Tonawanda turning basin along the east side of Tonawanda Island has depths of about 15 feet with depths of 12 feet in Tonawanda Creek from the mouth to the highway bridge 0.2 mile above the mouth.

(99)

Bridges

(100) Two bridges cross Tonawanda Harbor from the south part of Tonawanda Island to the mainland. Frederick B. Durkee Memorial Bridge is a fixed highway span with a clearance of 14 feet at the center. A railroad swing bridge just south has a clearance of 10 feet but is being maintained in the open position. (See **33 CFR 117.1** through **117.59** and **117.811**, chapter 2, for drawbridge regulations.)

(101) Three bridges cross the lower part of Tonawanda Creek. A railroad swing bridge just above the mouth has a clearance of 9 feet. (See **33 CFR 117.809**, chapter 2, for drawbridge regulations.) The bridge is maintained in the open position. Fixed highway bridges 0.2 and 0.3 mile above the mouth have clearances of 24 and 15 feet, respectively.

(102) A **speed limit** of 5 mph (4.4 knots) is enforced in the harbor and in Tonawanda and Ellicott Creeks within the Tonawanda and North Tonawanda city limits. The **harbormasters** of both communities and the sheriff of Erie County enforce these laws and can be contacted through their respective departments.

(103) Several marinas in the harbor provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out and marine supplies. Mobile lifts to 40 tons are available for hull, engine and electronic repairs. In 1977, depths of 8 to 13 feet were reported alongside the berths.

(104) The **New York State Canal System** is entered through Tonawanda Creek. (The canal system is described in chapter 14.)

(105) **Niagara River Channel**, a dredged channel, leads from the lower end of the turning basin at North Tonawanda along the north side of Grand Island to a basin off the public dock at Niagara Falls, NY. The channel is marked by lighted buoys. (See Notice to Mariners and the latest edition of the chart for controlling depths.)

(106) **Cayuga Island**, close to the north shore of Niagara River Channel about 5 miles below Tonawanda Island, is separated from the mainland by **Little River**, which outlets at either end of the island. **Cayuga Creek** flows into Little River at about midlength of the island. Little River and Cayuga Creek afford a well-protected harbor for small craft.

(107) A dredged entrance channel leads from deep water in Niagara River through the lower entrance to Little River. In 2016, the controlling depth was 3½ feet. The upper entrance to Little River, marked by a private **344°** range, had a reported controlling depth of 4 feet in 1980. Depths inside are about 4 to 7 feet.

(108) A fixed highway bridge with a reported clearance of 10 feet crosses Little River just west of the mouth of Cayuga Creek. An overhead cable with a clearance of 55 feet crosses the river about 0.35 mile west of the bridge. A fixed highway bridge crossing Cayuga Creek just above the mouth has a clearance of 9 feet.

(125)

(109) A marina on the north side of the lower entrance to Little River provides gasoline, ice, a launching ramp, a 2-ton lift and hull and engine repairs.

(110) **Buckhorn Island** is at the northwest end of Grand Island opposite Niagara Falls, NY. A two-section permanent flow control dike extends northwest from the west end of Buckhorn Island closing off the former Buckhorn Channel. Lights mark the ends of the dikes.

(111) An unmarked **dumping ground** is between the dredged portion of Niagara River Channel and the northeast end of Buckhorn Island; caution is advised.

(112) **North Grand Island Bridge**, a twin fixed highway bridge, crosses the river between Niagara Falls, NY, and Buckhorn Island. The bridge has a clearance of 50 feet for a center width of 260 feet over the central span of the Niagara River Channel. Two overhead power cables crossing the river about 0.5 and 0.7 mile below the bridge have clearances of 79 and 75 feet, respectively. Cable support towers in the river are marked by lights.

(113) **Niagara Falls, NY**, is on the north shore of the Niagara River at the west end of Niagara River Channel. A public dock on the north side of the dredged basin at Niagara Falls provides 300 feet of berthing space with 4 feet reported alongside in 1977.

(114)

Weather, Niagara Falls

(115) Niagara Falls, NY, located in extreme northwestern New York is on the isthmus between Lake Ontario and Lake Erie. The average annual temperature is 48°F (8.9°C) with an average maximum of 56°F (13.3°C) and an average minimum of 40°F (4.4°C). The all-time extremes in temperature are 96°F (35.6°C) and -16°F (-26.7°C). July is the warmest month averaging 72°F (21.7°C) and January the coolest, averaging 24°F (-4.4°C). June through September have each recorded temperatures in excess of 90°F (32.2°C), and every month except June, July, and August have seen temperatures below freezing (0°C).

(116) The average annual precipitation for Niagara Falls is 33.93 inches (861.8 mm), which is fairly evenly distributed throughout the year. The wettest month is August with 4.31 inches (109.4 mm), and the driest, June, averages only 1.87 inches (47.5 mm). Snowfall averages about 66 inches (1,676 mm) each year. December, January and February each average greater than 15 inches (381 mm) per year with a slight maximum in January. Snow has fallen in every month except June, July and August.

(117) The prevailing wind direction in Niagara Falls is southwest, off the lake, throughout the year.

(118) Niagara Falls is a **customs port of entry.**

(119) Southwest of Niagara Falls, NY, Niagara River Channel and Chippawa Channel join, and the Niagara River, more than 1 mile wide at the junction, flows west for almost 3 miles to the falls. In this stretch above the falls, the river becomes quite shallow with numerous submerged rocks. The deeper water is generally close to

the south shore west of Navy Island as far as Chippawa, ON.

(120) **Chippawa, ON**, is on the south shore of the Niagara River about 1.8 miles above Niagara Falls, at the junction with the **Welland River.** At the junction of the two rivers are the intake structures of the Queenston plant of the Ontario Hydro-Electric Power Commission. Because of the intake structures, the flow of the Welland River has been reversed and is now from the Niagara River. Mariners are cautioned that the current in the Niagara River at the entrance to the Welland River is very strong. From the entrance, the power commission has dredged the Welland River to a depth of 30 feet for about 4 miles. Above this point, the controlling depth is about 6 feet.

(121) The United States and Canadian Governments have designated the Niagara River for about 2 miles above the falls a safety zone. (See **33 CFR 165.1** through **165.7**, **165.20** through **165.25**,and **165.902**, chapter 2, for limits and regulations in U.S. waters.)

(122) All vessels are prohibited from entering the part of Niagara River downstream of a line joining the end of the breakwater at the mouth of Welland River and the westerly side of the mouth of Gill Creek at Niagara Falls, NY.

(123)

Buffalo Harbor

(124) **Buffalo Harbor** is at the east end of Lake Erie, where the lake converges to an open and comparatively shallow bay about 8 miles across north and south and is subject to great storms from the southwest. The lake discharges into the Niagara River at the northeast corner of this bay. The city of **Buffalo, NY**, is along the east lakeshore and the east bank of the head of the Niagara River. **Buffalo River** meanders through the city from east to west and enters the lake near the head of the Niagara River.

(126) Waterborne commerce at the port is in iron ore, limestone, iron and steel products, petroleum and coal products, grain, sand, tar, cement, salt, other minerals and general and containerized cargo in the foreign and domestic trades.

(127)

Prominent features

(128) The stacks at Lackawanna Canal near the south end of the harbor are the most conspicuous objects when approaching Buffalo Harbor. Also prominent are the HSBC Bank building and the City Hall tower in downtown Buffalo.

(129) **Buffalo Harbor Light** (42°52'14"N., 78°54'09"W.), 71 feet above the water, is shown from a white tower on the south end of the detached west breakwater on the north side of Buffalo Harbor North Entrance Channel. A mariner radio-activated sound signal at the light is initiated by keying the microphone five times on VHF-FM channel 83A.

(130)

Channels

(131) A federal project provides for dredged channels in an **Outer Harbor** formed by breakwaters parallel with the shore and in **Buffalo River**, **Buffalo Ship Canal** and **Black Rock Canal**. (See Notices to Mariners and the latest edition of the chart for controlling depths.)

(132) The north and south entrances to the Outer Harbor are marked by lights on the ends of the breakwaters; the north entrance is also marked by lighted buoys. There is a strong north current across the north entrance channel; navigators should guard against this by holding up toward the south. The Outer Harbor provides a safe harbor of refuge and anchorage and is also used extensively by large lake vessels as a channel. Vessels seeking anchorage and small vessels passing along the breakwaters are cautioned against approaching them nearer than 100 feet in order to avoid striking the stone riprap.

(133) **Lackawanna Canal** extends south for 0.75 mile from the south end of the Outer Harbor. The entrance is marked by private lights. In 1977, the reported controlling depth was 26½ feet.

(134) **Union Canal** extends east for about 0.8 mile from the south end of the Outer Harbor. In 1977, the controlling depth in the dredged section was 20½ feet.

(135) The dredged section of the **Buffalo River** extends southeast and then generally east for about 5.8 miles from the north end of the Outer Harbor to the ConRail railroad bridge. The entrance to the river is marked by lights and buoys. The river is subject to extensive shoaling. Navigation is possible above the dredged channel to Bailey Avenue Bridge; however, submerged rocks above the bridge render navigation very hazardous.

(136) From about 1,000 feet downstream from the junction of the Buffalo River and Buffalo Ship Canal upstream for about 1 mile, the river bottom is soft clay and mud overlying rock to a depth ranging from 1 to several feet. Vessels grounding in this portion of the river are seldom damaged by contact with the bottom. Above this point for about 1 mile, the channel is cut through solid rock.

(137) **Buffalo Ship Canal** extends southeast for about 1.4 miles from the inner end of Buffalo River Entrance Channel.

(138) **Black Rock Canal Entrance Channel**, marked by lights and buoys, extends north from the north end of the Outer Harbor. Black Rock Canal is the navigable channel of the upper Niagara River as far north as Tonawanda and is discussed more fully under Niagara River. The Lake Erie west terminus of the Erie branch of the New York State Canal System is at Tonawanda.

(139)

Anchorages

(140) The Outer Harbor is all good anchorage ground, except that the bottom is very soft clay south of the middle gap of the breakwaters. There are about 22 large mooring rings on the breakwater adjoining the North Entrance Channel and 25 on the breakwater adjoining the South

(147)

Structures across the Buffalo Waterways

Name	Type	Location	Miles*	Clearances (feet)		Information
				Horizontal	Vertical**	
Buffalo River						
Buffalo Skyway bridge	fixed	42°52'28"N., 78°52'42"W.	1.00	215	100	
Michigan Avenue bridge	vertical lift	42°52'18"N., 78°52'23"W.	1.34	183	17 (down) 100 (up)	Note 1
Ohio Street bridge	vertical lift	42°51'43"N., 78°52'03"W.	2.10	250	17 (down) 100 (up)	Note 1
Overhead cable	power	42°51'24"N., 78°51'17"W.	3.40		133	
CSX Railroad bridge	bascule	42°51'47"N., 78°51'13"W.	4.02	100	18	Note 1
CSX Railroad bridge	bascule	42°51'36"N., 78°50'55"W.	4.39	97	12	Note 1
Buffalo Creek Railroad bridge	bascule	42°51'36"N., 78°50'55"W.	4.39	97	12	
ConRail bridge	bascule	42°51'41"N., 78°50'42"W.	5.07	110	38	Bridge is reported removed
South Park Avenue bridge	vertical lift	42°51'47"N., 78°50'34"W.	5.22	200	19 (down) 95 (up)	Notes 1 and 2
Conrail bridge	bascule	42°51'38"N., 78°49'58"W.	5.79	100	26	Bridge is reported removed
Bailey Avenue bridge	bascule	42°51'44"N., 78°49'30"W.	6.24	90	21	
Cazenovia Creek						
Overhead cable	power	42°51'38"N., 78°49'32"W.	6.19	N/A	N/A	
Bailey Avenue bridge	fixed	42°51'38"N., 78°49'31"W.	6.22		12	
Buffalo Ship Canal						
Buffalo Skyway bridge	fixed	42°52'20"N., 78°52'44"W.	1.10	193	100	
Union Canal						
Fuhrmann Boulevard bridge	fixed	42°50'02"N., 78°51'17"W.	0.68	50	3	Clearances are reported
Father Baker Memorial bridge	fixed	42°50'02"N., 78°51'15"W.	0.70	50	30	Clearances are reported

* Miles above North Breakwater South End Light
** Clearance is referenced to Low Water Datum

Note 1 – See 33 CFR 117.1 through 117.59 and 117.773, chapter 2, for drawbridge regulations.
Note 2 – Clear height when raised is 95 feet at left channel limit increasing to 100 feet 25 feet channelward of right channel limit and 100 feet at right channel limit. Clear height when closed is 19 feet at left channel limit and 20 feet at right channel limit with an increased height of 21 feet over a width of 140 feet 50 feet channelward of the left channel limit and extending within 10 feet of the right channel limit.

Entrance Channel. Vessels are permitted to moor to the breakwaters with manila or synthetic lines, but not with wire rope or chains. Vessels are requested not to anchor north of Berthing Area 11. Vessels not longer than 550 feet will be permitted to anchor in Berthing Areas 11 through 17. However, no anchorage will be permitted in Berthing Areas 11 through 24 until vessel traffic to the Niagara Frontier Transportation Authority pier at the foot of Michigan Avenue has ended for the navigation season, and then only by permission from the District Engineer, U.S. Army Corps of Engineers, Buffalo, NY. Anchorage will be permitted in berthing areas south of Berthing Area 24 with no restrictions as to length of vessel. The berthing areas are all marked by large orange numbers painted on the harbor face of the breakwaters.

(141) An explosives anchorage is in Outer Harbor. (See **33 CFR 110.1** and **110.208**, chapter 2, for limits and regulations.)

(142) A special anchorage is in the small-craft basin on the east side of Outer Harbor. (See **33 CFR 110.1** and **110.84b**, chapter 2, for limits and regulations.)

(143)

Dangers

(144) Numerous unmarked detached shoal spots with depths less than 30 feet are in the east end of Lake Erie, in the approaches to Buffalo Harbor and the Niagara River. **Waverly Shoal**, with a least depth of 10 feet, is 1.9 miles west-southwest of Buffalo Harbor Light. Depths of 18 feet extend about 0.4 mile north and 1 mile south from the shallowest part of the shoal.

(145) Unmarked 20-foot shoals are 1.4 and 2.6 miles southwest of Buffalo Harbor Light.

(146) An artificial reef is 1.9 miles south-southeast of Buffalo Harbor Light in about 42°50'41"N., 78°53'27"W.

(148)

Fluctuations of water level

(149) The water level of Lake Erie at Buffalo is frequently affected, usually for periods of less than 12 hours, by strong southwest or northeast winds. It is reported that these winds may raise or lower water levels by as much as 6 feet. The record fluctuations recorded are 10½ feet above and 4½ feet below Low Water Datum.

(150) The records of the monthly mean stages at Buffalo show that the periods of lowest water during the

navigation season are in the spring and fall, the latter being the busiest time of the year in the harbor, when the necessity for deep water is greatest.

(151) Water level information for the Buffalo area is available on the internet at *tidesandcurrents.noaa.gov*.

(152)

Currents

(153) There is very little current in the outer harbor except during sudden fluctuations of water level, which may cause considerable current, especially in the entrance channels.

(154) The currents in the river are reported to reach velocities of 3 to 5 mph, changing direction and velocity abreast Buffalo Ship Canal. Rapid fluctuations in Lake Erie produce quite strong currents in the river within 1 mile of the mouth, inflowing or outflowing as the case may be. Heavy rainfalls and spring freshets are attended by strong outflowing currents due to rapid rises of the river and the consequent discharge of flood water. These conditions cause difficulties to navigation and sometimes damage to vessels by tearing them from their moorings but occur only two or three times each year and for only a few hours at a time. With heavy rainfalls, it is reported that currents in the river sometimes reach velocities of 6 to 10 knots.

(155)

Weather, Buffalo and vicinity

(156) Buffalo, NY, located on the extreme northeast shore of Lake Erie and in the western part of the state, averages about four days each year with maximum temperatures in excess of 90°F (32.2°C). July is the warmest month with an average high of 81°F (27.2°C) and an average minimum of 62°F (16.7°C). January is the coolest month with an average high of 31°F (-1°C) and an average minimum of 18°F (-7.8°C). The highest temperature on record for Buffalo is 99°F (37.2°C), recorded in August 1948; the lowest temperature on record is -20°F (-28.9°C), recorded in February 1961. About 131 days each year sees temperatures below 32°F (0°C), and an average 11 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).

(157) The average annual precipitation for Buffalo is 38.3 inches (972.83 mm), which is fairly evenly distributed throughout the year. Precipitation falls on about 236 days each year. The wettest month is November with 3.9 inches (99.1 mm), and the driest, February, averages only 2.5 inches (64 mm). An average of 30 thunderstorm days occur each year with July and August being the most likely months. Snow falls on about 106 days each year and averages about 90 inches (2,286 mm) each year. December and January each average greater than 20 inches (508 mm) per year while February averages 18 inches (457 mm). Eighteen-inch (457 mm) snowfalls in a 24-hour period have occurred in each month November through February, and 38 inches (965 mm) fell in one 24-hour period during December 1995. About 19 days each year have 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 158 days each year and is evenly distributed throughout the year with a slight maximum in the spring and again in August.

(158) The prevailing wind direction in Buffalo is the southwest, off the lake. January is the windiest month, and a maximum gust of 71 knots occurred in February 1967.

(159)

Ice

(160) Heavy ice forms in the river, usually in January. A narrow channel is kept open through the ice by tugs, but the ice remains in place because the east end of Lake Erie also freezes over, and the harbor entrance is usually blocked with ice from January to March or April. The ice usually goes out in the spring during a freshet in the river, and the combined effect of the then prevailing strong outflowing currents and the heavy moving ice is at times very great and may last for 2 or 3 days. During this time, the liability of damage to vessels is considerable.

(161) Heavy ice forms in the Buffalo Ship Canal in winter, usually in January. A narrow channel is kept open through the ice by tugs, but the ice remains in place, the same as in the Buffalo River. The ice drifts out on the opening of the entrance channel in March or April, or melts in place, and its breaking up in the spring is not attended with the same liability to damage as in the case of the Buffalo River.

(162)

Towage

(163) Tugs are available at Buffalo. Arrangements for tugs are made through the Great Lakes Towing Company dispatcher in Cleveland at 800–321–3663, 24 hours a day, or on VHF-FM channels 16, 10, 12 and 18A via remote antenna. The tugs' VHF-FM channels include 16, 6, 12, 14 and 18A. Effective 2004, mariners must comply with the City of Buffalo Charter and Code provisions set forth. Safe navigation of the Buffalo River is the sole responsibility of the Captain of each vessel. It shall be the duty of each Captain to determine if the assistance of a tug is necessary when passing a bridge over the Buffalo River.

(164)

Quarantine, customs, immigration and agricultural quarantine

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

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

(167) Buffalo is a **customs port of entry.**

(168)

Coast Guard

(169) The Buffalo Coast Guard Station and Sector Office are on the south side of the entrance to the Buffalo River. (See Appendix A for address.)

(173)

Facilities in Buffalo Harbor

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Storage	Purpose	Contact
Buffalo Outer Harbor							
Gateway Metroport Lackawanna Canal West Dock	42°49'33"N., 78°51'37"W.	3,900	27	7.5-12.5	Open storage (20,000 tons of limestone)	Reciept and shipment of dry bulk commodities	Gateway Trade Center Inc. P: 716–826–2890
Gateway Metroport Lackawanna Canal East Dock	42°49'35"N., 78°51'35"W.	3,975	27	12.5	Open storage (60 acres)	Reciept and shipment of dry bulk commodities	Gateway Trade Center Inc. P: 716–826–2890
Gateway Metroport Union Canal South Dock	42°49'59"N., 78°51'22"W.	778	22	10.0	Open storage (11 acres)	Reciept and shipment of dry bulk commodities	Gateway Trade Center Inc. P: 716–826–2890
Buffalo Ship Canal							
General Mills Wharf	42°52'17"N., 78°52'40"W.	1,025	22	8	4.2-million-bushel grain elevator	Receipt of grain	General Mills Inc. P: 716–857–3635/3513
Toledo Dock Exchange Buffalo Dock	42°51'51"N., 78°52'21"W.	900	22	8	Open storage (100,000 tons)	Receipt of gypsum by self-unloading vessel	Sand Products Corporation Phone: 716–856–7930
Buffalo Dock Forwarders Dock	42°51'45"N., 78°52'16"W.	1,000	22	8	• Open storage (80,000 tons of sand) • Silo storage (1,500 tons of sand)	Receipt of sand by self-unloading vessel	Buffalo Dock Forwarders P: 716–852–0411
Buffalo River							
Lafarge Corp. Buffalo Terminal Upper Wharf	42°51'43"N., 78°52'07"W.	475	20-22	10	Silo storage (22,250 tons)	Receipt cement	Lafarge Corp. P: 716–854–5791
ADM Milling Co. Standard Elevator Wharf	42°51'47"N., 78°51'55"W.	1,263	20-22	8	5-million-bushel grain elevator	Receipt of grain	ADM Milling Co. P: 716–849–7311/7391
Lake Port Buffalo	42°51'48"N., 78°51'41"W.	555	20-24	7-10	4½-million-bushel grain elevator	Receipt of grain	Lake Port Buffalo P: 716–548–2614

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

(170)

Harbor regulations

(171) A **speed limit** of 6 mph (5.2 knots) is enforced in Buffalo Harbor except in the Outer Harbor where the speed limit is 10 mph (8.7 knots). (See **33 CFR 162.165** and **207.580**, chapter 2, for regulations.)

(172) Local harbor regulations are established by the Corporation Counsel and enforced by the **harbormaster,** who may be reached at City Hall. Vessels shall not approach or pass any movable bridge at a speed exceeding 3 mph (2.6 knots). Copies of the regulations may be obtained from the Corporation Counsel, City Hall, Niagara Square, Buffalo, NY 14202.

(174)

Wharves

(175) Buffalo has wharves in the Outer Harbor, Buffalo Ship Canal and in Buffalo River. See the **Buffalo Facilities table** for a list of major wharves in Buffalo Harbor. All of the facilities have direct highway connections and most have rail connections. Water is available at many of the piers and wharves.

(176)

Supplies

(177) Water, provisions and marine supplies are available at Buffalo. Bunker fuel and diesel fuel are delivered to vessels at their berths by tank vessels. Arrangements should be made through ships' agents. Occasionally tank trucks supply vessels with bunker fuel.

(178)

Repairs

(179) There are no facilities for drydocking or hauling out large, deep-draft vessels. Two companies that have no waterfront facilities maintain shops and portable equipment for making above-the-waterline repairs and for installing equipment and machinery.

(180)

Small-craft facilities

(181) Erie Basin, close north of the mouth of the Buffalo River, is the site of the city's marina. Transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out facilities, marine supplies, a launching ramp, and minor engine repairs are available. In 1977, depths of 20 feet were reported in the entrance channel and alongside the berths, with 17 feet alongside the gasoline dock. The Buffalo **harbormaster** maintains an office in Erie Basin; telephone, 716–842–0452.

(182) A state park and small-craft basin are on the east side of Buffalo Outer Harbor about 2.3 miles southeast of the mouth of Buffalo River. The basin has a marina with 1,000 slips and launching ramps.

(183)

Measured course

(184) A measured mile, statute and nautical, is marked on the east face of the breakwater at the north end of the Outer Harbor.

(185)

Communications

(186) Buffalo has excellent rail and highway connections with major United States and Canadian cities. Greater Buffalo International Airport is 8 miles east-northeast of the city.

(187)

Stoney Point to Seneca Shoal

(188) From **Stony Point** at the south end of Buffalo Harbor, the shoreline trends south for about 3.5 miles and is obstructed by shallow patches extending 1 mile offshore.

(189) A **dumping ground** extends lakeward from the west side of Stoney Point with a reported least depth of 6 feet in 1977.

(190) About 3.5 miles south of Stony Point, the shoreline turns southwest and continues this trend, with some southerly recessions and slight irregularities, for about 210 miles to a point about 3 miles east of Huron, OH, the southernmost point on the lake. The hydrography along this entire reach is generally of a uniform character, with no shoals, other than Seneca Shoal, at any great distance offshore, and the land varies from a low character to moderate bluffs of 60 to 120 feet high. The usual routes between ports are well out in deep water, and there are no natural obstacles that make navigation especially hazardous. From the bend south of Stony Point for the first stretch of 12 miles to Sturgeon Point, there are a number of submerged and exposed cribs as much as 0.6 mile offshore.

(191) **Seneca Shoal**, about 4.4 miles southwest of Stony Point, has a least depth of 12 feet and is marked on its northwest edge by a lighted buoy.

(192)

Sturgeon Point to Barcelona Harbor

(193) Between **Sturgeon Point** (42°41'24"N., 79°02'54"W.) and **Silver Creek**, about 12 miles southwest, the hydrography is less regular. West of **Big Sister Creek**, about 2 miles from Sturgeon Point, an unmarked boulder ledge with a least depth of 3 feet extends 2 miles offshore.

(194) A marina at Sturgeon Point is maintained by the town of Evans and can provide gasoline, transient berths, launching ramps, pump-out facilities and a dry dock. In 2014, the controlling depth was 2 feet in the entrance to the marina basin with 1 to 3 feet available in the basin.

(195) **Cattaraugus Creek** is about 9.5 miles southwest of Sturgeon Point. A dredged entrance channel leads between two breakwaters and through the creek to a railroad bridge about 0.8 mile above the mouth. The ends of the breakwaters are marked by lights. In 2018, the controlling depth was 1 foot in the entrance and in the creek to the railroad bridge. The channel inside the breakwaters is narrow and unmarked with numerous turns; mariners are advised to seek local knowledge before transiting the creek. Several marinas in the creek provide transient berths, gasoline, diesel fuel, water, ice, electricity, marine supplies, towing and launching ramps. Mobile lifts to 20 tons are available for hull and minor engine repairs. In 1977, depths of 2 to 10 feet were reported alongside the berths.

(196) Between Cattaraugus Creek and Silver Creek, a stony ledge extends 1.5 miles from shore. From Silver Creek, the shoreline trends generally southwest for 10 miles to Dunkirk, and shoal water extends about 0.8 mile offshore.

(197) **Dunkirk Harbor**, about 35 miles southwest of Buffalo Harbor, is in an indentation of the shore between **Battery Point** on the east and **Point Gratiot** on the west. The harbor serves the town of **Dunkirk, NY.**

(198) An unmarked **dumping ground** with a least reported depth of 35 feet is 1 mile northeast of Point Gratiot.

(199) **Dunkirk Light** (42°29'38"N., 79°21'14"W.), 82 feet above the water, is on Point Gratiot.

(200)

Channels

(201) The harbor is entered from Lake Erie through a dredged entrance channel northeast of Point Gratiot. The channel leads southeast between a pier on the west and a detached breakwater on the east to the harbor basin off the Municipal Pier. The pier and breakwater are marked on the channel ends by lights, and the channel limits are marked by buoys. Two small-craft harbors on the east and west sides of the Municipal Pier are protected by breakwaters; the breakwaters are marked by lights at the entrances.

(202)

Anchorages

(203) Because of the rock bottom, anchorage in the harbor is poor. The shallow water does not permit mooring to the breakwater.

(204)

Dangers

(205) Vessels entering the harbor should hold to the east to avoid the shoals along the southwest side of the channel. As there is no breakwater protection on the east side, the harbor is subject to severe wave action from east storms.

(206)

Small-craft facilities

(207) In 1977, the **harbormaster** reported that the Dunkirk Public Dock at the foot of Central Avenue was in an unsafe condition and was no longer being used by commercial vessels. Persons desiring to load or unload cargo at the dock should contact the harbormaster or the city engineer for additional information. The dock has water and electricity available for transient small craft. In 1977, depths of 5 to 8 feet were reported along the north end of the east face.

(208) Small-craft facilities southwest of the city dock provide gasoline, diesel fuel, water, sewage pump-out, marine supplies and a launching ramp. Mobile lifts to 1½ tons are available for emergency hull and minor engine repairs.

(209) Between Gratiot Point and **Van Buren Point** (42°27'12"N., 79°25'00"W.), 4.3 miles southwest, a rocky bank with less than 20 feet of water extends 1 mile from shore. From Van Buren Point, the shoreline trends southwest for about 12 miles to Barcelona Harbor. The shore is clear to within 0.7 mile except just west of Van Buren Point where depths to 19 feet extend 1.2 miles off.

(210) **Barcelona Harbor**, just east of the mouth of **Chautaugua Creek**, is about 17 miles southwest of Dunkirk. Although it is not protected from east winds or strong winds from any direction, it is sometimes used as a harbor of refuge by light-draft vessels. A large white building with a red roof is prominent on the west side of the harbor entrance.

(211) In 2022, the harbor entrance was reported impassable from Lake Erie between the two converging breakwaters. The outer ends of the west and east breakwaters are marked by lights. Entrance to the harbor basin to the city dock and launching ramps can be made at the south end of the east breakwater with 5 feet reported in 2022. This entrance is unmarked; local knowledge required. A marina on the southwest side of the harbor provides transient berths, gasoline, diesel fuel, water, ice, electricity, and marine supplies. Mobile lifts to 9 tons are available for hull and gasoline engine repairs. Depths of 4 feet were reported alongside the berths.

(212)

Erie Harbor

(213) Erie Harbor is about 28 miles southwest of Barcelona. The intermediate shore has no shoals beyond a distance of about 0.7 mile. The **state boundary** between New York and Pennsylvania is about 10 miles southwest of Barcelona.

(214) **Presque Isle** (42°10'N., 80°06'W.) is an irregularly shaped peninsula forming nearly landlocked Erie Harbor. The peninsula is connected to the mainland by a narrow neck at the west end and broadens as it curves around to the northeast and east. The entrance to Erie Harbor is on the south side of the east end of the peninsula. Presque Isle State Park is on the peninsula. **Presque Isle Light** (42°09'57"N., 80°06'56"W.), 73 feet above the water, is shown from a square tower on the northwest shore of the peninsula. Numerous shore protection structures extend lakeward from the lakeside of the peninsula. Small-craft operators are cautioned to keep 500 feet offshore in the vicinity of these structures.

(215) **Gull Point**, the eastern end of Presque Isle, extends further eastward each year due to the shift of sand along the length of the peninsula. This annual eastward shift is typically greatest during the winter when Lake Erie does not freeze and westerly gales cause increased erosion of the beaches on Presque Isle. Mariners are warned that the depths shoal very quickly upon approaching to within ¼ mile of the eastern end of Presque Isle.

(216) **Erie Harbor**, about 78 miles southwest of Buffalo, is in **Presque Isle Bay**, enclosed from the lake by Presque Isle. The bay opens to the east and is about 4.5 miles long and 1.5 miles wide. Erie Harbor, serving the city of **Erie, PA**, is in the southeast part of the bay.

(217) Principal commerce at the port is in limestone, sand, salt, petroleum products, coke, steel products, pig iron, other alloys, gravel, clay and general cargo in the domestic trade.

(218)

Prominent features

(219) The stacks at the paper plant 1 mile southeast of Erie Harbor Pierhead Light and the lighted stack 2.2 miles east-southeast of the light are prominent.

(220) **Erie Harbor Pierhead Light** (42°09'22"N., 80°04'17"W.), 42 feet above the water, is shown from a black and white horizontally banded square tower on the outer end of the north entrance pier.

(221)

Channels

(222) A federal project provides for a dredged entrance channel leading southwest from deep water in Lake Erie between two parallel piers to a harbor basin and three adjacent turning basins in Presque Isle Bay. The north pier is marked by lights on the outer and inner ends, and the south pier is marked by a light on the outer end and by two lights near its midlength that form a **235.3°** range. The channel limits are marked by lighted and unlighted buoys. The federal project depths are 29 feet in the entrance channel, 28 feet in Harbor Basin, 27 feet in Approach Turning Basin, 21 feet in Erie Turning Basin and 18 feet in Harbor Turning Basin. (See Notice to Mariners and latest edition of charts for controlling depths.)

(223) **Misery Bay** is an indentation in the south side of Presque Isle north of Erie Harbor Entrance Channel. The bay has depths of 5 to 10 feet except for shoaling along the edges. A rock that bares is on the east side of the bay on the south side of the channel leading to **Horse Shoe Pond.**

(224)

Anchorages

(225) Good anchorage is in the center of Presque Isle Bay in depths of 12 to 22 feet, mud bottom. Local regulations prohibit vessels from anchoring in any channel or mooring to channel markers and buoys. Vessels over 100 feet long or over 50 tons are prohibited from anchoring within 500 feet of the city water intake or sewer pipelines. The city water intake extends northwest across Presque Isle Bay and is marked by buoys.

(226)

Dangers

(227) An unmarked submerged pier, covered 1 to 2 feet, extends about 1,300 feet from shore 0.8 mile south-southeast of Erie Harbor Pierhead Light.

(228)

Weather, Erie and vicinity

(229) Erie, PA, located on the southeast shore of Lake Erie and in extreme northwestern Pennsylvania, averages

about three days each year with maximum temperatures in excess of 90°F (32.2°C). July is the warmest month with an average high of 79°F (26.1°C) and an average minimum of 62°F (16.7°C). January is the coolest month with an average high of 33°F (0.6°C) and an average minimum of 20°F (-6.7°C). The highest temperature on record for Buffalo is 100°F (37.8°C), recorded in June 1988, and the lowest temperature on record is -18°F (-27.8°C), recorded in January 1994. About 124 days each year see temperatures below 32°F (0°C), and an average nine days each year record temperatures below 5°F (-15°C). Every month has seen temperatures below 50°F (10°C), and every month except July, August and September has recorded temperatures at or below freezing (0°C).

(230) The average annual precipitation for Erie is 40.5 inches (1,029 mm), which is fairly evenly distributed throughout the year. Precipitation falls on about 223 days each year. The wettest month is September with 4.1 inches (104 mm), and the driest, February, averages only 2.3 inches (58 mm). An average of 36 thunderstorm days occur each year with July and August being the most likely months. Snow falls on about 91 days each year and averages about 83 inches (2,108 mm) each year. December and January each average greater than 20 inches (508 mm) per year while February averages 16 inches (406 mm). One foot or greater (>305 mm or greater) snowfalls in a 24-hour period have occurred in each month November through March, and 23 inches (584 mm) fell in one 24-hour period during November 1956. About 17 days each year has a snowfall total greater than 1.5 inches (38 mm) and snow have fallen in every month except June, July, August and September. Fog is present on average 140 days each year and is evenly distributed throughout the year with a slight maximum in March.

(231) The prevailing wind direction in Erie is south from May through November, south-southwest in December and January and west-southwest from February through April. The winter season is the windiest, with each month December through April averaging 12 knots. The highest gust on record was a west wind of 68 knots recorded in January 1978.

(232)

Towage

(233) Tugs for Erie are available from Conneaut or Cleveland. (See Towage under Conneaut and Cleveland.)

(234)

Quarantine, customs, immigration and agricultural quarantine

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

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

(237) Erie is a **customs port of entry.**

(238)

Coast Guard

(239) Erie Coast Guard Station is on the north side of the entrance channel.

(240)

Harbor Regulations

(241) **Harbor Regulations** are established by the Erie-Western Pennsylvania Port Authority and enforced by the **harbormaster.** A **speed limit** of 3 mph (2.6 knots) is enforced in the East and West Canal Basins and within 300 feet of the shoreline and 5 mph (4.4 knots) elsewhere in the harbor. Copies of the regulations may be obtained from the Port Authority Office, 17 W. Dobins Landing, Erie, PA 16501, telephone 814–455–7557.

(242)

Wharves

(243) The piers and wharves of Erie Harbor are along the south side of Presque Isle Bay; only the deep-draft facilities are described. The alongside depths for the facilities described are reported depths; for information on the latest depths, contact the operator. All the facilities described have highway and rail connections. Water and electrical shore-power connections are available at some of the piers and wharves.

(244) General cargo at the port is usually handled by ship's tackle; special handling equipment, if available, is mentioned in the description of the particular facility. Cranes to 300 tons are available at the Erie International Marine Terminal.

(245) **Erie International Marine Terminal, Berths No. 1, 2 and 3:** (42°08'58"N., 80°04'57"W.); 1,508 feet of berthing space; 23 to 26 feet alongside; deck height, 8.4 feet; 95,300 square feet covered storage; 22 acres open storage; 300-ton fixed crane; one 160-ton and one 230-ton crawler cranes; receipt and shipment of miscellaneous dry bulk commodities, machinery, steel products and locomotives; owned by Erie-Western Pennsylvania Port Authority and operated by Mountfort Terminal, Ltd.

(246) **Erie Sand and Gravel Company Dock:** (42°08'25"N., 80°04'58"W.); 1,220 feet of berthing space; 24 to 27 feet alongside; deck height, 7.5 feet; 12 acres of open storage; one 160-ton crawler crane; receipt of salt and sand; owned by Erie-Western Pennsylvania Port Authority and operated by Erie Sand and Gravel Co.

(247)

Supplies

(248) By special arrangement, local dealers make tank truck deliveries of bunker fuel to vessels at the berths. Diesel fuel, marine supplies and provisions are available at Erie.

(249)

Repairs

(250) Donjon Shipbuilding and Repair operates a large drydock in the southeast part of the harbor (42°08'21"N., 80°05'02"W.). The drydock can handle 1,000-foot Great Lakes self-unloading vessels and is 1,250 feet long, 120 feet wide and has a depth of 22 feet over the sill. The

shipyard has more than 200,000 square feet of production area including fully enclosed fabrication and assembly buildings and 4,000 feet of pier space.

(251)

Small-craft facilities

(252) Numerous marinas and boatyards in **Canal Basin** on the south side of Erie Harbor provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out and marine supplies. Vertical boat lifts to 40 tons and a 40-ton marine railway are available for hull, engine and electronic repairs. In 1990, depths of 3 to 12 feet were alongside the gasoline docks.

(253) Presque Isle State Park Marina is in a dredged basin on the northwest side of Presque Isle Bay. The entrance to the basin is marked by private lights and a **339°45'** lighted range. In 2007, depths of 5 feet were available in the entrance channel; thence in 1977, depths of 8 feet were reported in the basin except for an isolated 6-foot spot in the east part, and 8 feet alongside the berths. Gasoline and a launching ramp are available. Mobile lifts to 10 tons are available for emergency propellor and minor repairs.

(254) A municipal marina, protected by breakwaters, is south of the Erie Harbor entrance channel. The marina entrance is marked by private lights.

(255)

Communications

(256) Erie is connected by air, rail and highway to other major United States and Canadian cities. Passenger ferries operate between the Erie City Dock and Presque Isle State Park (42°08'52"N., 80°07'47"W.) near the waterworks and setting basins.

(257)

Conneaut Harbor

(258) From the neck of Presque Isle, the shoreline extends about 23 miles southwest to Conneaut Harbor. The shore in this stretch has the appearance of low wooded hills with interspersed communities. Deep water is about 0.8 mile offshore.

(259) The **state boundary** between Pennsylvania and Ohio is about 1.5 miles east of Conneaut.

(260) **Conneaut Harbor**, serving **Conneaut, OH**, is about 107 miles southwest of Buffalo and about 73 miles northeast of Cleveland. It comprises an outer harbor sheltered by breakwaters and an inner harbor in the lower part of the **Conneaut River.**

(261) A large unmarked **dumping ground** with a least depth of 41 feet in 1976 is 5 miles northwest of the harbor entrance.

(262)

Prominent features

(263) Green water tanks 1.7 and 2.8 miles south-southwest of the harbor are prominent.

(264) **Conneaut Harbor West Breakwater Light** (41°58'48"N., 80°33'27"W.), 80 feet above the water, is shown from a square pyramidal tower on the outer end of the breakwater.

(265)

Channels

(266) The harbor is entered from natural deep water in Lake Erie between converging breakwaters to an outer harbor channel inside the breakwaters. A dredged channel leads from the southeast end of the outer harbor upstream in Conneaut River for about 0.4 mile to the wharves on either side of the river. Lights mark the outer ends of the breakwaters and the piers at the river mouth. A federal project provides for depths of 28 feet in the outer harbor channel and 22 feet in an outer harbor mooring area just west of the outer harbor channel, thence 27 feet in the river channel. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through the USACE hydrographic survey website listed in Appendix A.

(267)

Anchorages

(268) Vessels are reported to anchor west of the west breakwater in 28 to 38 feet, but the holding ground is poor in shale bottom.

(269)

Dangers

(270) Vessels approaching the harbor from the east are cautioned to not mistake the lights on the piers at the river mouth for the breakwater lights.

(271)

Bridges

(272) An overhead cable crossing the southeast side of the privately dredged turning basin in the river has a clearance of 124 feet. An inoperative swing bridge with a clearance of 3 feet crosses the Conneaut River just above this cable. An overhead cable with a clearance of 122 feet crosses the entrance to the slip that extends south from the privately dredged turning basin.

(273)

Towage

(274) Tugs to 1,250 hp are available in Conneaut Harbor. Arrangements for tugs are made through the Great Lakes Towing Co. dispatcher in Cleveland at 800–321–3663 or on VHF-FM channels 16, 10, 12 and 18A via remote antenna. The tugs' VHF-FM channels include 16, 6, 12, 14 and 18A. At least 12 hours advance notice is requested.

(275)

Quarantine, customs, immigration and agricultural quarantine

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

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

(278) Ashtabula/Conneaut is a **customs port of entry.**

(303)

(279)

Harbor regulations

(280) A **speed limit** of 6 mph (5.2 knots) is enforced in the harbor except in the outer harbor where the speed limit is 10 mph (8.7 knots). (See **33 CFR 162.160** and **207.570**, chapter 2, for regulations.)

(281)

Wharves

(282) The deep-draft facilities at Conneaut Harbor are in the inner harbor inside the mouth of the Conneaut River. The alongside depths for the facilities described are reported depths; for information on the latest depths, contact the operator. All the facilities described have rail connections, and all but the Pittsburgh and Conneaut Dock Co., Dock No. 4, have highway connections. All the described facilities have water and electrical shore-power connections.

(283) **Pittsburgh and Conneaut Dock Co., Dock No. 1 Extension:** (41°58'12"N., 80°32'58"W.); 1,974-foot face; 22 to 27 feet alongside; deck height, 8½ feet; open storage for 600,000 tons of limestone; two front-end loaders; receipt of limestone; owned by Bessemer and Lake Erie Railroad Co. and operated by the Pittsburgh and Conneaut Dock Co.

(284) **Pittsburgh and Conneaut Dock Co., Dock No. 3**: east side of slip south of the turning basin; 1,250-foot face; 27 to 28 feet alongside; deck height, 8½ feet; one fixed coal loading tower, capacity 7,000 tons per hour; one slewing coal loader, capacity 4,000 tons per hour; conveyor system for 3½-million-ton open storage area; shipment of coal; occasional bunkering of vessels; owned by Bessemer and Lake Erie Railroad Co. and operated by The Pittsburgh and Conneaut Dock Co.

(285) **Pittsburgh and Conneaut Dock Co., Dock No. 4**: east side of river opposite Dock No. 1 extension; 2,078 feet of berthing space; 27 to 28 feet alongside; deck height, 8½ feet; five 17-ton hulett-type ore unloaders, capacity 875 tons per hour each; open storage for 3½ million tons of ore; receipt of iron ore and limestone; owned and operated by Pittsburgh and Conneaut Dock Co.

(286)

Supplies

(287) Diesel oil by tank truck and some marine supplies and provisions are available at Conneaut.

(288)

Small-craft facilities

(289) The Municipal Pier, about 0.4 mile southwest of the river mouth, can provide gasoline, diesel fuel and electricity. The Conneaut Port Authority operates a small-craft basin northeast of the Municipal Pier. The entrance to the basin is marked by private lights. In 1977, the reported controlling depth was 5 feet in the entrance with 3 to 18 feet alongside the berths. Transient berths, gasoline,

diesel fuel, water, ice, electricity, marine supplies and launching ramps are available.

(290)

Communications

(291) Conneaut has good highway and rail connections.

(292) From Conneaut to Ashtabula, 13.5 miles southwest, there is deep water about 0.8 mile offshore. The shore is a series of low wooded hills with interspersed communities.

(293) Two wrecks, covered 35 feet, are 1.5 miles offshore about 3.9 miles east-northeast of the entrance to Ashtabula Harbor.

(294)

Ashtabula Harbor

(295) **Ashtabula Harbor** is about 119 miles southwest of Buffalo and about 59 miles northeast of Cleveland. It comprises an outer harbor, the navigable portion of the **Ashtabula River** for about 2 miles above the mouth, and two large slips opening directly into the lake under the protection of the breakwaters.

(296) The major commodities handled at the port are limestone, iron and other ores, coal and other dry bulk commodities, pig iron, iron products, raw rubber and general cargo in the domestic trade.

(297) Two unmarked **dumping grounds,** with least reported depths of 35 feet, are 2.4 miles north and 2 miles northeast of the harbor entrance.

(298)

Prominent features

(299) The lighted stacks 1.5 miles southeast and 1.8 miles east-southeast of the harbor entrance are conspicuous. The silos on the west side of the river mouth are also prominent.

(300) **Ashtabula Harbor Light** (41°55'07"N., 80°47'46"W.), 51 feet above the water, is near the outer end of west breakwater.

(301)

Channels

(302) The harbor is entered from Lake Erie through a dredged entrance channel that leads between converging breakwaters to an outer harbor where the channel divides into east and west channels with a central turning basin. The west channel leads to the mouths of the Ashtabula River and Pinney Minnesota Slip and continues upstream in the river for 2 miles; a turning basin is 0.3 mile below the head of the project. The east channel leads southeast to a basin off the entrance of two large slips. Lights mark the outer ends of the breakwaters, and Ashtabula Light is on the west breakwater. A detached breakwater, just south of the turning basin, is marked by a light on the west end. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through the USACE hydrographic survey website listed in Appendix A.

(304)

Anchorages

(305) Deep-draft vessels normally anchor about 2 miles east-northeast or west of the breakwater entrance in 35 to 45 feet, sand and mud bottom.

(306)

Bridges

(307) An overhead conveyor with a clearance of 100 feet crosses the Ashtabula River about 0.5 mile above the mouth. An overhead power cable with a clearance of 120 feet is about 0.1 mile north of the overhead conveyor. The Fifth Street bridge about 0.15 mile upstream from the conveyor has a bascule span with a clearance of 11 feet. The Norfolk Southern Railroad bridge about 1.5 miles above the river mouth has a bascule span with a clearance of 11 feet. An overhead cable on the north side of the bridge has a clearance of 131 feet. (See **33 CFR 117.1** through **117.59** and **117.847**, chapter 2, for drawbridge regulations.)

(308)

Towage

(309) Tugs to 1,400 hp are available at Ashtabula. Arrangements for tugs are made through the Great Lakes Towing Co. dispatcher in Cleveland at 800–321–3663 or on VHF-FM channels 16, 10, 12 and 18A via remote antenna. The tugs' VHF-FM channels include 16, 6, 12, 14 and 18A. At least 6 hours advance notice is requested.

(310)

Quarantine, customs, immigration and agricultural quarantine

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

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

(313) Ashtabula/Conneaut is a **customs port of entry.**

(314)

Coast Guard

(315) Ashtabula Coast Guard Station is on the east side of the Ashtabula River about 0.5 mile above the mouth.

(316)

Harbor regulations

(317) A **speed limit** of 6 mph is enforced in the harbor except in the outer harbor where the speed limit is 10 mph (8.7 knots). (See **33 CFR 162.160** and **207.570**, chapter 2, for regulations.)

(318) Local harbor regulations are established by the City Council and enforced by the **harbormaster** who may be reached at the Port Authority Office. The harbormaster controls vessel movement and berthage in the harbor. Local regulations specify a **speed limit** of 6 mph (5.2 knots) in the harbor for vessels over 100 feet long. Copies of the regulations may be obtained from Port Authority Office, 529 Prospect Road, Ashtabula, OH 44004.

(342)

Structures across Grand River at Fairport

Name•Description•Type	Location	Miles*	Clear Width of Draw or Span Opening (feet)	Clear Height above Low Water Datum (feet)	Information
Overhead power cable	41°44'56"N., 81°16'52"W.	1.32		120	
Overhead power cable	41°44'07"N., 81°16'13"W.	2.50		15	Note 1
CSX Railroad Bridge (fixed)	41°44'08"N., 81°16'00"W.	2.73	72	20	
Overhead power cable	41°44'08"N., 81°15'59"W.	2.74		40	
High Street Bridge (fixed)	41°44'09"N., 81°15'58"W.	2.76	115 (right) 115 (left)	10	
Overhead cable	41°44'09"N., 81°15'58"W.	2.77		23	
St. Clair Street Bridge (fixed)	41°44'28"N., 81°15'44"W.	3.24	90	15	

* Miles above West Breakwater Light
Note 1 – Cables cross the river from the north bank to an island at midstream.

(319)

Wharves

(320) **Pinney Dock and Transport Co., Ashtabula A and B Dock, Outer End** (41°54'40"N., 80°47'47"W.): 2,195 feet of berthing space with 25 feet alongside and a deck height of 7 feet; receipt of iron-ore by self-unloading vessels; owned and operated by Pinney Dock and Transport Co.

(321) **Pinney Dock and Transport Co., Ashtabula Union Dock, Outer End** (41°54'37"N., 80°47'31"W.): 1,198 feet of berthing space with 28 feet alongside and a deck height of 7 feet; receipt of iron-ore pellets by self-unloading vessels; owned and operated by Pinney Dock and Transport Co.

(322) **Pinney Dock and Transport Co., Ashtabula Dock Nos. 1 and 2** (41°54'30"N., 80°47'15"W.): 4,000 feet of berthing space with 28 feet alongside and a deck height of 8 feet; receipt of sand, potash, quartz, limestone and ore; owned and operated by Pinney Dock and Transport Co.

(323) **Pinney Dock and Transport Co., Ashtabula Dock No. 3** (41°54'32"N., 80°47'07"W.): 2,000 feet of berthing space with 26 feet alongside and a deck height of 8 feet; receipt of sand, potash, quartz, limestone and ore; owned and operated by Pinney Dock and Transport Co.

(324) **Pinney Dock and Transport Co., Ashtabula Dock No. 4** (41°54'32"N., 80°47'04"W.): 2,000 feet of berthing space with 26 feet alongside and a deck height of 7 feet; receipt and shipment of general cargo in foreign and domestic trade; receipt of ore, pig iron and lumber; owned and operated by Pinney Dock and Transport Co.

(325) **Norfolk Southern Corp., Ashtabula Coal Dock** (41°54'22"N., 80°47'56"W.): 2,800 feet of berthing space with 14 feet alongside and a deck height of 7 feet; shipment of coal; owned and operated by Norfolk Southern Corp.

(326)

Supplies

(327) Diesel oil by tank truck and limited marine supplies and provisions are available at Ashtabula.

(328)

Repairs

(329) Three companies in Ashtabula make above-the-waterline repairs and install equipment and machinery for vessels at berth in the harbor.

(330)

Small-craft facilities

(331) There are several marinas on the Ashtabula River south of the overhead conveyor. These marinas can provide transient berths, gasoline, diesel fuel, water, ice, electricity, pump-out facilities, marine supplies and launching ramps. Mobile lifts to 40 tons are also available for full repairs.

(332)

Communications

(333) Ashtabula is served by Class I railroads and has good highway connections.

(334) From Ashtabula southwest for 27 miles to Fairport, the shore continues as a series of low wooded hills and small communities. Deep water is about 1 mile offshore. A sunken wreck, covered 10 feet, is about 0.6 mile offshore about 15 miles southwest of Ashtabula. A boulder, covered 15 feet, is about 3 miles east-northeast of the entrance to Fairport Harbor.

(335)

Fairport Harbor

(336) **Fairport Harbor** is about 29 miles northeast of Cleveland Harbor. It comprises an outer harbor and an inner harbor formed by the lower 1 mile of the **Grand River.**

(337) An unmarked **dumping ground** with a least reported depth of 35 feet is 3.5 miles north-northeast of the harbor entrance.

(338) **Fairport Harbor West Breakwater Light** (41°46'04"N., 81°16'52"W.), 56 feet above the water, is shown from a tower about 500 feet from the outer end of the west breakwater. A mariner-radio-activated sound signal at the light is initiated by keying the microphone five times on VHF-FM channel 83A.

(359)

Facilities in Fairport Harbor

	Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Mechanical Handling Facilities and Storage	Purpose	Owned/ Operated by:
1	Union Sand & Supply Corporation Fairport Harbor Dock	41°45'27"N., 81°16'47"W.	1,119	15-23	10	• Open storage (100,000 tons of material) • Served by bucket and belt conveyor systems	Reciept of limestone and sand	The Union Sand & Supply Corperation
2	R.W. Sidley and Grand River Asphalt Company Dock	41°45'28"N., 81°16'51"W.	1,540	18-22	4-5	• Open storage (140,000 tons of limestone)	Receipt of limestone	R.W. Sidley, Inc. and Grand River Asphalt Company
3	Northeastern Road Improvement Co. Fairport Harbor Dock	41°45'20"N., 81°16'47"W.	1,000	15-20	10	• Open storage (150,000 tons of limestone)	Receipt of limestone	Northeastern Road Improvement Company
4	Morton Salt Company Fairport Harbor Dock	41°45'15"N., 81°16'50"W.	600	24	9	• Silo storage (12,000 tons of salt) • Open storage (250,000 tons salt)	Shipment of bulk salt	Morton Salt Company
5	LTV Steel Company Fairport Harbor Dock	41°45'07"N., 81°16'51"W.	1,700	24	3.5-4	• Open storage (400,000 tons of limestone) • Silo storage (1,700-ton capacity)	Receipt of limestone	LTV Steel Company
6	Osborne Concrete & Stone Company Fairport Harbor Dock	41°44'51"N., 81°17'03"W.	1,450	15	4	• Open storage (100,000 tons of material)	Receipt of limestone and sand	Osborne Concrete & Stone Company
7	Osborne Concrete & Stone Company Fairport Harbor Wharf	41°44'36"N., 81°16'48"W.	1,500	17	4	• Open storage (100,000 tons of limestone)	Receipt of limestone	Osborne Concrete & Stone Company

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

(339)

Channels

(340) The harbor is entered from Lake Erie through a dredged channel from deep water in the lake between two converging breakwaters to an outer harbor basin, thence between parallel piers through the mouth of the river for about 1.5 miles; the piers are marked at the outer ends by lights. A turning basin is on the west side of the channel about 1 mile above the mouth. The areas on the east and west sides of the entrance channel in the outer basin and the lower 1.2 miles of the river channel are not maintained.

(341) The federal project depths are 25 feet in the approach channel and through the outer harbor to the mouth of the river, thence 24 feet in the river channel for about 0.7 mile, thence 21 feet to Olive Street on the west bank, thence 8 feet to the head of the project; the turning basin has a project depth of 18 feet. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through the USACE hydrographic survey website listed in Appendix A. The east breakwater, from its inner end, turns east and parallels the shore for about 1 mile. Lights mark the outer ends of the breakwaters and the east end of the east breakwater.

(343)

Dangers

(344) A wreck, covered 30 feet, is about 0.6 mile northwest of the breakwater entrance. In 1986, a sunken wreck was reported in the harbor approach in 41°46'18"N., 81°16'54"W. A shoal that extends northwest from the north end of the west breakwater tends to encroach the west side of the approach channel. Deep-draft vessels should avoid favoring the west channel limit when entering or leaving the harbor. At times a very strong current past the river mouth pierheads makes it difficult and dangerous for unaided vessels to enter the river channel.

(345) A wreck, covered 6 feet, is in the outer harbor basin about 1,000 feet east of East Pier Light in about 41°45'41"N., 81°16'35"W.

(346) Mariners are cautioned to avoid dragging anchor over the submerged pipeline just above the river mouth. The harbormaster reports that vessels sometimes scrape the pipeline during low water conditions.

(347) The east end of the east breakwater may become submerged during certain weather conditions. The center pier abutment of a former railroad swing bridge, about 1.72 miles above the river entrance, has been removed to about 4 feet below water level; mariners are advised to use extreme caution when transiting the area.

(348)

Towage

(349) Tugs for Fairport Harbor are available from Ashtabula or Cleveland. (See Towage under Ashtabula and Cleveland.)

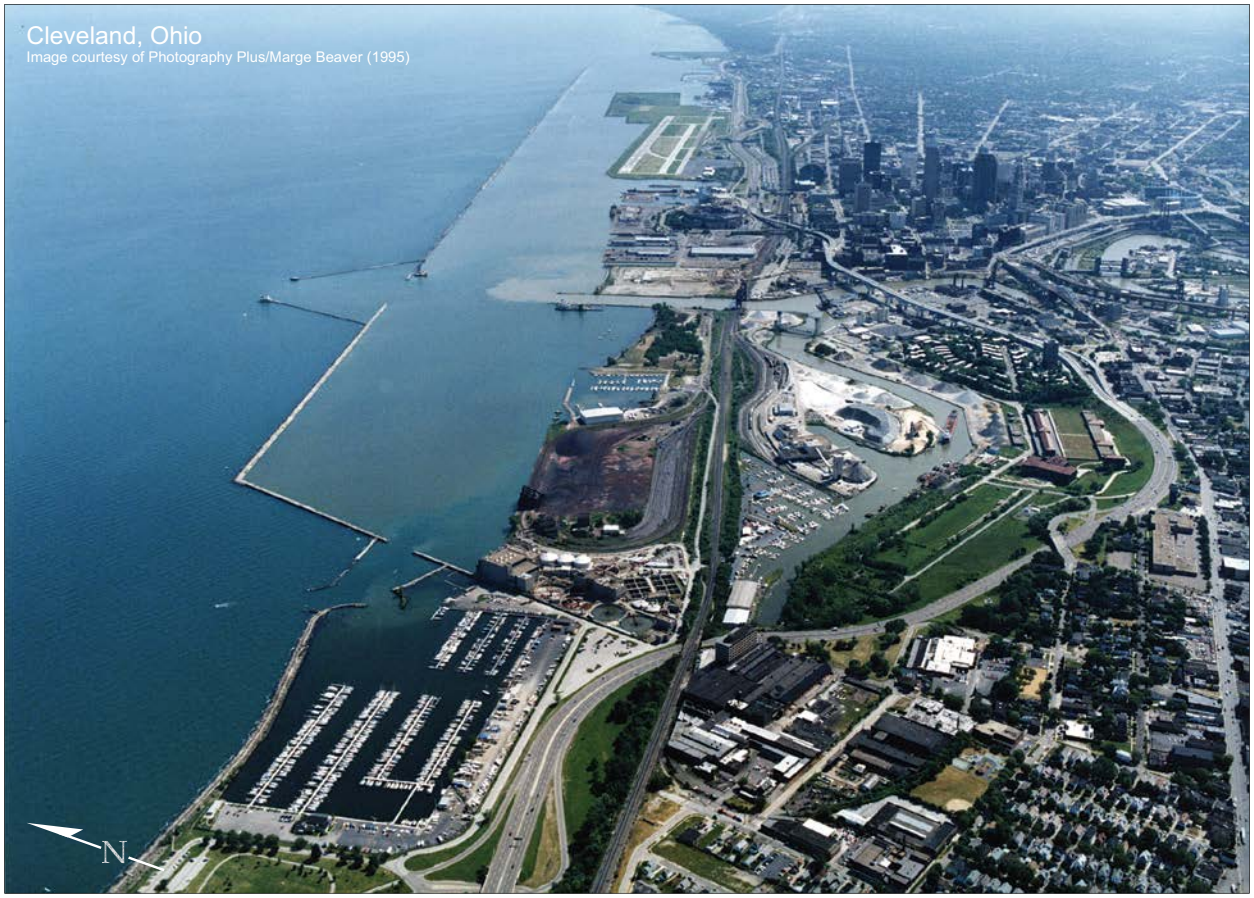
(350)

Quarantine, customs, immigration and agricultural quarantine

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

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

(378)



(353)

Coast Guard

(354) Fairport Harbor Coast Guard Station is on the west side of the river just inside the mouth.

(355)

Harbor Regulations

(356) Speed limits and mooring/anchoring regulations are enforced in Grand River and in the outer harbor. (See **33 CFR 162.160** and **207.570**, chapter 2, for regulations.) Local harbor regulations are enforced by the **harbormaster** who may be reached through the Chief of Police, 220 Third Street, Fairport Harbor, OH 44077. Copies of the local regulations are available to the public and may be obtained at the above address.

(357)

Wharves

(358) Fairport Harbor has several wharves and docks in Grand River. Only the deep-draft facilities are listed in the table. The alongside depths given in the table are reported depths; for information on the latest depths, contact the operator. All the facilities described have highway connections and many have railway connections. A few of the facilities have water available.

(360)

Supplies

(361) Bunker fuel is available by tank vessel from Cleveland. Limited marine supplies and provisions are available at Fairport Harbor.

(362)

Small-craft facilities

(363) Several marinas on the Grand River can provide transient berths, gasoline, diesel fuel, water, ice, electricity, pump-out facilities, marine supplies and launching ramps. Marine lifts to 35 tons are available and full repairs can be made.

(364)

Communications

(365) Fairport Harbor has good highway connections and is served by a Class I railroad.

(366) From Fairport Harbor, the shoreline trends southwest for about 29 miles to the main entrance to Cleveland Harbor. There is deep water about 1 mile offshore at Fairport Harbor, decreasing to 0.5 mile or less offshore at Cleveland. Several small-craft harbors and marinas are along this stretch of low wooded hills.

(367)

Mentor Harbor

(368) **Mentor Harbor**, about 4.5 miles southwest of Fairport Harbor, comprises a group of privately

developed small-craft channels and basins. The entrance to the harbor, protected by parallel breakwaters, is marked by private lights on the outer and inner ends of the breakwaters; a private **142°** range marks the approach. Local yachting interests usually maintain the entrance channel, close to the east breakwater. After strong northwest to northeast winds, sandbars are reported to form in the entrance channel. In 1985, depths of 10 feet were reported in the entrance channel with, in 1979, 4 feet alongside the berths in the harbor. Transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out facilities, and marine supplies are available. Mobile lifts to 25 tons are available for hull, engine and electronic repairs.

(369) A wreck, covered 20 feet, is 1.5 miles west-northwest of the entrance to Mentor Harbor.

(370) **Chagrin River** is about 10 miles southwest of Fairport Harbor. The entrance is marked by private lights on the east and west sides. Several marinas in the river provide gasoline, diesel fuel, transient berths, water, electricity, sewage pump-out, marine supplies and launching ramps. Mobile lifts to 40 tons are available for hull, engine and electronic repairs. In 1999, depths of about 8 feet were reported in the lagoon on the west side of the river just inside the entrance.

(371) The intake channel of a powerplant is just west of the mouth of Chagrin River. A private light marks the outermost part of the breakwaters that protect the channel.

(372) The Wildwood Yacht Club harbor is about 5.4 miles northeast of Cleveland Harbor East Entrance Light, close northeast of **Euclid Creek**. The entrance is marked by private lights on the ends of the east and west pierheads. A detached breakwater is marked by private lights. In 1977, the reported controlling depths were 7 feet in the entrance and 7 to 11 feet in the harbor.

(373) The Northeast Yacht Club Basin is adjacent to the Easterly Wastewater Treatment Plant, about 4 miles northeast of Cleveland Harbor East Entrance Light. The entrance is marked by private lights on the east end of the north breakwater and the north end of the east breakwater.

(374) In 1984, a dangerous submerged wreck was reported about 2 miles northwest of the mouth of Euclid Creek in about 41°36'N., 81°36'W.

(375) About 3.1 miles southwest of Euclid Creek, at the mouth of a stream known locally as **Dugway Brook**, are submerged pilings in 12 feet of water.

(376)

Cleveland Harbor

(377) **Cleveland Harbor**, about 175 miles southwest of Buffalo and 95 miles east of Toledo, consists of an outer harbor formed by breakwaters and an inner harbor made up of the **Cuyahoga River** and the **Old River** that was the original outflow channel of the Cuyahoga River. The city of **Cleveland, OH**, is one of the major industrial centers on Lake Erie. The major commodities handled at the port are steel, heavy machinery, dry bulk and salt.

(379) Vessels calling at Cleveland Harbor may obtain information on river traffic by contacting the Great Lakes Towing Co. dispatcher on VHF-FM channels 16 or 10 or by radiotelephone through a land station, telephone, 800–321–3663.

(380) An unmarked **dumping ground** with a least reported depth of 35 feet is about 9.3 miles north of the main entrance to Cleveland Harbor.

(381) Heavy small pleasure-craft traffic during the boating season is in Old River and on the Cuyahoga River as far upstream as just below the railroad bridge at mile 2.42.

(382)

Prominent features

(383) The most prominent objects when approaching Cleveland Harbor are the Municipal Stadium 0.7 mile east of the mouth of the Cuyahoga River, the Federal Office Building and the Erieview Plaza Tower about 1.1 miles east of the mouth, the Terminal Tower 1 mile southeast of the mouth and the lighted *W* sign 3.3 miles west of the mouth on the lakefront.

(384) **Cleveland Waterworks Intake Crib Light** (41°32'54"N., 81°45'00"W.), 55 feet above the water, is a private aid shown from a square house on a cylindrical crib about 3.3 miles northwest of the harbor entrance; a sound signal is at the light.

(385) **Cleveland Harbor East Entrance Light 2** (41°32'35"N., 81°39'05"W.), 59 feet above the water, is shown from a white cylindrical tower with a red band at the end of the outer harbor breakwater.

(386) **Cleveland Harbor Main Entrance Light** (41°30'32"N., 81°43'04"W.), 63 feet above the water, is shown from a white conical tower with attached fog signal building on the west side of the main entrance to Cleveland Harbor. A mariner-radio-activated sound signal is at the light, initiated by keying the microphone five times on VHF-FM channel 83A.

(387)

Channels

(388) Cleveland outer harbor is formed by a series of breakwaters paralleling the shore for about 1 mile west and 4 miles east of the mouth of the Cuyahoga River. Lights mark the ends of each of the breakwaters. The main entrance from Lake Erie is through a dredged approach channel opposite the mouth of the river. The harbor may also be entered at the east end, and small craft may enter at the west end. The anchorage in the outer harbor has a mud and sand bottom. In the inner harbor, dredged channels lead upstream for about 5.6 miles in the Cuyahoga River and for about 1 mile in Old River, which branches west from Cuyahoga River 0.4 mile above the mouth. Lighted and unlighted buoys mark the limits of the dredged areas in the outer harbor. The piers at the mouth of the river are marked on the outer ends by lights.

(389) The federal project depths are 29 feet in the approach channel from deep water in the lake, thence 28 feet

(390)

Structures across Cuyahoga River

Name	Type	Location	Miles*	Clearances (feet)		Information
				Horizontal	Vertical	
Old River						
CSX Railroad bridge	bascule	41°29'54"N., 81°42'30"W.	0.89	170	6	Bridge is permanently open
Willow Avenue bridge	vertical lift	41°29'51"N., 81°42'38"W.	1.02	150	12 (down); 98 (up)	
Main River Channel						
Norfolk Southern Railroad bridge	vertical lift	41°30'00"N., 81°42'33"W.	0.76	250	8 (down); 98 (up)	Note 1
Main Avenue viaduct		41°29'55"N., 81°42'19"W.	1.01	218	92	A vertical clearance of 97 feet is available for the 165-foot center width
CSX Railroad bridge	bascule	41°29'45"N., 81°42'08"W.	1.28	229	8	Bridge is permanently open
Center Street bridge	swing	41°29'39"N., 81°42'12"W.	1.39	113	17	
Detroit-Superior viaduct		41°29'37"N., 81°42'13"W.	1.42	113	98	
Union Terminal viaduct		41°29'18"N., 81°42'05"W.	1.89	200	98	
Columbus Road bridge	vertical lift	41°29'18"N., 81°42'02"W.	1.93	220	17 (down); 98 (up)	
Flats Industrial Railroad bridge	vertical lift	41°29'31"N., 81°41'59"W.	2.24	200	8 (down); 97 (up)	
City of Cleveland Railroad bridge	vertical lift	41°29'39"N., 81°41'53"W.	2.42	200	23 (down); 98 (up)	
Carter Road bridge	vertical lift	41°29'39"N., 81°41'52"W.	2.43	201	22 (down); 97 (up)	
Eagle Avenue bridge	vertical lift	41°29'36"N., 81°41'32"W.	2.80	187	15 (down); 97 (up)	
Hope Memorial bridge	fixed	41°29'21"N., 81°41'37"W.	3.14	178	96	
Norfolk Southern Railroad bridge	vertical lift	41°29'12"N., 81°41'30"W.	3.34	200	64 (down); 97 (up)	
Inner Belt Freeway bridge	fixed	41°29'10"N., 81°41'25"W.	3.42	230	93	A vertical clearance of 97 feet is available for the 199-foot center width
West 3rd Street bridge	vertical lift	41°29'17"N., 81°41'09"W.	3.69	200	10 (down); 97 (up)	
Overhead cable	power	41°29'17"N., 81°41'08"W.	3.71		124	
CSX Railroad bridge	bascule	41°28'44"N., 81°40'28"W.	4.75	110	10	
Overhead cable	power	41°28'45"N., 81°40'27"W.	4.76		121	
Overhead cable	power	41°28'44"N., 81°40'27"W.	4.77		105	
I-490 bridge	fixed	41°28'43"N., 81°40'25"W.	4.79	110	101	
Overhead cable	power	41°28'18"N., 81°40'08"W.	5.34		122	
Overhead conveyor		41°28'18"N., 81°40'08"W.	5.35	210	99	
Overhead pipeline		41°28'16"N., 81°40'08"W.	5.39	210	99	
Cleveland Cliffs RR Bridge #1	bascule	41°28'14"N., 81°40'08"W.	5.42	129	15	
Wheeling & Lake Erie Railroad bridge	vertical lift	41°28'11"N., 81°40'08"W.	5.47	200	28 (down); 97 (up)	
Overhead cable	power	41°28'11"N., 81°40'09"W.	5.49		122	
Norfolk Southern Railroad bridge	fixed	41°27'53"N., 81°40'37"W.	6.07	27	14	
Overhead cable	telephone	41°27'53"N., 81°40'38"W.	6.08	N/A	N/A	
Cleveland Cliffs RR Bridge #2	fixed	41°27'53"N., 81°40'38"W.	6.09	59	14	
Overhead cable		41°27'52"N., 81°40'40"W.	6.10		118	

* Miles above West Pierhead Light
Horizontal clearances are the width of the span proceeding upstream.
Vertical clearances are referenced to Low Water Datum.
See 33 CFR 117.1 through 117.49, chapter 2, for drawbridge regulations.

Note 1 – The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign, KUF-618.

through the entrance channel to the mouth of the river and in West Basin, 28-27 feet in East Basin, and 25 feet in Airport Range. In the inner harbor, project depths are 27 feet in the Cuyahoga River from the mouth to the junction with Old River, thence 23 feet to the upstream limit of the project, and 27 feet in Old River. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through the USACE hydrographic survey website listed in Appendix A.

(391)

Anchorages

(392) Deep-draft vessels normally anchor about 2 miles southwest or 3 miles east of Cleveland Waterworks Intake Crib Light in about 40 to 48 feet of water, clay and gravel bottom. The holding ground at these locations is reported to be good. Avoid anchoring over the potable water intake, the outer end of which is marked by a lighted buoy 0.7 mile west of Cleveland Waterworks Intake Crib Light. General anchorages are in the northwest part of West Basin and south of the dredged channel in the east part of East Basin. An explosives anchorage is on the northwest side of the east breakwater. (See **33 CFR 110.1** and **110.207**, chapter 2, for limits and regulations.) In 1977, it was reported that the East Basin general anchorage and the explosives anchorage had not been used for about 10 years. The West Basin anchorage has a sand and mud bottom and is used only occasionally. The harbormaster, who has control of the waters for all three anchorages, generally orders vessels to anchor outside the harbor. Vessels are prohibited from anchoring within 2,000 feet west of the main entrance channel.

(393)

Dangers

(394) During flood stages of the Cuyahoga River, debris may be encountered in the river and in the outer harbor.

(395)

Regulated navigation areas

(396) **Safety zones** have been established in the vicinity of river bends along Cuyahoga and Old Rivers. Mooring, standing or anchoring is prohibited in these areas—see **33 CFR 165.1** through **165.7**, **165.20** through **165.23**, and **165.903**, chapter 2, for limits and regulations.)

(397) A **security zone** surrounds the entirety of Burke Lakefront Airport and includes parts of East Basin, continuing out into Lake Erie—see **33 CFR 165.1** through **165.33** and **165.913**, chapter 2, for limits and regulations.

(398) **Restricted areas** are in the vicinity of Lakeside Yacht Club near the northeast end of Burke Lakefront Airport—see **33 CFR165.1** through **165.13** and **165.906**, chapter 2, for limts and regulations.

(399)

Weather, Cleveland and vicinity

(400) Cleveland, OH, located on the south shore of Lake Erie and in northeastern Ohio, averages about 12 days each year with maximum temperatures in excess of 90°F (32.2°C). July is the warmest month with an average high of 83°F (28.3°C) and an average minimum of 62°F (16.7°C). January is the coolest month with an average high of 34°F (1.1°C) and an average minimum of 19°F (-7.2°C). The highest temperature on record for Cleveland is 104°F (40°C), recorded in June 1988, and the lowest temperature on record is -20°F (-28.9°C), recorded in January 1994. About 122 days each year see temperatures below 32°F (0°C), and an average ten days each year record temperatures below 5°F (-15°C). Every month has seen temperatures below 40°F (4.4°C) except July (41°F, 5°C), and every month except July, August and September has recorded temperatures at or below freezing (0°C).

(401) The average annual precipitation for Cleveland is 37.2 inches (945 mm), which is fairly evenly distributed throughout the year. Precipitation falls on about 220 days each year. The wettest month is July with 3.6 inches (91 mm) and the driest, February, averages only 2.3 inches (58 mm). An average of 33 thunderstorm days occur each year with June and July being the most likely months. Snow falls on about 84 days each year and averages about 57 inches (1,448 mm) each year. December, January and February each average greater than 12 inches (305 mm) per month. One foot or greater (305 mm) snowfalls in a 24-hour period have occurred in each month November, December and February and 14 inches (356 mm) fell in one 24-hour period during February 1993. About 12 days each year have a snowfall total greater than 1.5 inches (38 mm), and snow has fallen in every month except June, July, August and September. Fog is present on average 148 days each year and is evenly distributed throughout the year with a slight maximum in August.

(402) The prevailing wind direction in Cleveland is southwest. March is the windiest month. The highest gust on record was a southwest wind of 71 knots recorded in 1978.

(403)

Towage

(404) Tugs to 2,000 and 1,200 hp are available from Great Lakes Towing Company (800–321–3663) or Gaelic Tugboat Coompany (216–566–0400), respectively. Arrangements for tugs are made through the companies' dispatchers at the telephone numbers listed or they may be contacted on VHF-FM channel 16—at least 3 hours advance notice is requested. Vessels carrying 1,200 tons or more of gasoline, oil, explosives or other dangerous material, and all vessels carrying 3,000 tons or more of cargo of any kind, must have the assistance of a tug or tugs while navigating the Cuyahoga River south of Superior Avenue.

(405)

Quarantine, customs, immigration and agricultural quarantine

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

(416)

Facilities in Cleveland Harbor

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Mechanical Handling Facilities and Storage	Purpose	Owned/Operated by:
Cleveland Bulk Terminal	41°29'48"N., 81°43'25"W.	1875	24	9	• Open storage (1 million tons) • Three diesel front-end loaders	Reciept of iron ore, iron-ore pellets and other dry-bulk commodities	Cleveland-Cuyahoga County Port Authority/ Carmeuse Lime & Stone
Cleveland-Cuyahoga Port Authority Berth 22	41°30'17"N., 81°42'26"W.	780	27	10	• Open storage (9 acres)	Receipt of miscellaneous dry-bulk material	Cleveland-Cuyahoga County Port Authority
Cleveland-Cuyahoga Port Authority Pier 24	41°30'21"N., 81°42'23"W.	1833	27	10.4	• Open storage (3 acres) • Covered storage (144,000 square feet)	Receipt and shipment of conventional/ containerized general cargo and steel products. Receipt of fluorspar, bauxite and newsprint	Cleveland-Cuyahoga County Port Authority/ Ceres Terminals Co.
Cleveland-Cuyahoga Port Authority Pier 26	41°30'25"N., 81°42'18"W.	1676	25	10.4	• Open storage (1.2 acres) • Transit shed	Receipt and shipment of conventional/ containerized general cargo	Cleveland-Cuyahoga County Port Authority/ Ceres Terminals Co.
Cleveland-Cuyahoga Port Authority Stadium Wharf Berths 28, 30, 32	41°30'33"N., 81°42'01"W.	1606	27	10.4	• Open storage (10 acres) • Five crawler cranes (65 to 230-tons) • Front-end loaders	Receipt and shipment of conventional/ containerized general cargo. Receipt of aluminum pigs; handling of steel products	Cleveland-Cuyahoga County Port Authority/ Federal Marine Terminals Co., Inc.
Lafarge Cement Corp. Cleveland Terminal Wharf	41°29'49"N., 87°42'32"W.	415	24	8	• Silo storage (36,000 tons) • Two 10-inch pipelines extend from wharf to silos	Receipt of cement	Lafarge Cement Corp.
Ontario Stone Corp. Old River Dock No. 3	41°29'41"N., 81°42'49"W.	600	25	8	• Open storage (200,000 tons of material storage) • Four front-end loaders	Receipt of limestone and other dry bulk commodities	Ontario Stone Corp.
Ontario Stone Corp. Old River Dock No. 4	41°29'37"N., 81°42'49"W.	1620	19	7	• Open storage (300,000 tons of material storage) • Four front-end loaders	Receipt of limestone and other dry bulk commodities	Ontario Stone Corp.
Sand Products Corp.	41°29'33"N., 81°42'56"W.	1000	20		• Silo storage (1,000 tons) • Four front-end loaders	Receipt of sand	Sand Products Corp.
Cargill Salt Division Cleveland Mine Wharf	41°29'36"N., 81°43'05"W.	602	18	12	• Covered storage (36,000 tons) • One fixed loading tower with ground-level hopper serves belt-conveyor system	Shipment of graded, dry-bulk rock salt	Cargill Salt Division, Cargill Inc.
Cleveland-Cuyahoga Port Authority Dock 20	41°30'09"N., 81°42'38"W.	1200	27	8	Open storage (9 acres)	Receipt of miscellaneous dry-bulk materials	Cleveland-Cuyahoga County Port Authority
Essroc Italcemente Group, Cement Dock	41°30'03"N., 81°42'34"W.	1495	27	8	• Silo storage (13,800 tons) • Three 10-inch unloading pipelines	Receipt of cement	Cleveland-Cuyahoga County Port Authority/ Essroc Italcemente Group
Ontario Stone Corp. Old River Dock No. 1	41°29'58"N., 81°42'34"W.	500	25	8	Open storage (140,000 tons)	Receipt of limestone and other dry-bulk commodities	Ontario Stone Corp.
Southdown Cement Co. Cleveland Dock	41°29'28"N., 81°42'00"W.	600	20	5	Silo storage (15,000 tons)	Receipt of bulk cement	Southdown Cement Co.
United Ready Mix	41°29'28"N., 81°41'56"W.	895	18	10	• Open storage (19,000 tons of sand and gravel) • Front-end loaders	Receipt of sand and gravel; occasional receipt of stone	Forest City Enterprise Inc./United Ready Mix Inc.
Mid Continent Coal and Coke Co. Cleveland Dock	41°29'30"N., 81°41'33"W.	1745	8	6	• Open storage (20,000 tons) • One fixed loading tower with conveyor and loading chute serves belt-conveyor system	Shipment of coal, lignite and coal coke	Mid Continent Coal and Coke Co.
River Dock Inc.	41°29'17"N., 81°41'33"W.	630	19	8	• Open storage (780,000 tons) • One 4½-cubic-yard front-end loaders	Receipt of limestone	River Dock, Inc.
Lafarge Corp. W 3rd St Cleveland Wharf	41°29'15"N., 81°41'17"W.	1680	24	6	• Open storage (185,000 tons) • Three front-end loaders	Receipt of sand, limestone and dry-bulk materials	Lafarge Corp., Construction Materials Group
Ontario Stone Corp. Cuyahoga River Dock No. 2	41°29'20"N., 81°41'05"W.	565	22	8	• Open storage (100,000 tons) • Four front-end loaders	Receipt of limestone	Ontario Stone Corp.
Fleet Supplies Cuyahoga River Wharf	41°29'20"N., 81°40'58"W.	383	20	9	Tank storage for 2.6 million gallons of liquid calcium and 92,320 barrels of petroleum	Receipt of liquid calcium and diesel fuel	Arc Terminal
Osborne Concrete and Stone Co. Cuyahoga Stone Dock	41°29'15"N., 81°40'48"W.	2150	22	6	• Open storage (27 acres) • Cranes and portable electric belt conveyors • Four front-end loaders	Receipt of gravel and shipment of iron ore	Osborne Concrete and Stone Co.

Facilities in Cleveland Harbor

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Mechanical Handling Facilities and Storage	Purpose	Owned/Operated by:
Bituminous Products Co. Cleveland Terminal Dock	41°29'03"N., 81°40'39"W.	300	18	10	Tank storage (215,900 barrels)	Receipt of asphalt	Osborne Inc./Bituminous Products Co.
Blue Circle Cement Co. Cuyahoga Terminal Dock	41°28'58"N., 81°40'38"W.	1335	19	8	Silo storage (24,000 tons)	Receipt of cement	Blue Circle Cement Co.
Lafarge Corp. Cleveland "J" Wharf	41°28'54"N., 81°40'35"W.	550	19	5	Open storage (4 acres)	Receipt of limestone and other dry-bulk materials	Lafarge Corp., Construction Materials Group
LTV Steel Corp. Cuyahoga Lower Dock, West Side	41°28'28"N., 81°40'14"W.	2054	10	10.7	• Open storage for 750,000 tons of iron-ore pellets and 35,000 tons of limestone • One traveling bridge crane	Receipt of iron-ore pellets and limestone	LTV Steel Corp.
LTV Steel Corp. Cuyahoga West Side, Middle Dock	41°28'02"N., 81°40'19"W.	2780	19	9.5	Open storage for 850,000 tons of iron-ore pellets and 150,000 tons of limestone	Receipt of iron-ore pellets, limestone and ferrous scrap	LTV Steel Corp.
LTV Steel Corp. Cuyahoga Fuel Dock	41°28'03"N., 81°40'15"W.	1150	20	8	Tank storage (285,700 barrels)	Receipt of fuel oil for plant consumption	LTV Steel Corp.
LTV Steel Corp. Cuyahoga Upper Dock, East Side	41°27'52"N., 81°40'29"W.	1320	20	10	• Open storage for 674,000 tons of iron-ore pellets • Two electric traveling bridge cranes • Three front-end loaders	Receipt of iron-ore pellets	LTV Steel Corp.

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

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

(408) Cleveland is a **customs port of entry.**

(409)

Coast Guard

(410) A Marine Safety Unit and the headquarters of the Ninth Coast Guard District are at Cleveland. (See Appendix A for addresses.) **Cleveland Coast Guard Station** is on the south side of the outer harbor just west of Burke Lakefront Airport.

(411)

Harbor Regulations

(412) Federal regulations specify a **speed limit** of 6 mph (5.2 knots) in the harbor except in the outer harbor where the speed limit is 10 mph (8.7 knots). (See **33 CFR 162.160** and **207.570**, chapter 2, for regulations.) However, the city of Cleveland has adopted a lesser **speed limit** of no wake, 4 mph (3.5 knots), in the Cuyahoga River and Old River. During fog or when a blue light or flag is shown from any pier, wharf, bridge or other place where person or property may be endangered, a **speed limit** of 2 mph (1.7 knots) is enforced.

(413) Local harbor regulations are established by the city of Cleveland and enforced by the **harbormaster** who can be contacted at Water Control Laboratory, New West Pier, Whiskey Island, c/o Water Control Laboratory, 1201 Lakeside Avenue, Cleveland, OH 44114. Copies of the regulations can be obtained from the Office of the City Clerk, Room 216, City Hall, 601 Lakeside Avenue, Cleveland, OH 44114.

(414)

Wharves

(415) There are extensive waterfront facilities in Cleveland outer harbor and along both banks of Cuyahoga River and Old River. Only the deep-draft facilities are listed in the table. The alongside depths for the facilities in the table are reported depths; for information on the latest depths, contact the operator. All the facilities described have highway connections and many have railway, water and electrical shore-power connections. Many of the piers, wharves and docks are available for winter mooring of vessels during the closed navigation season.

(417)

Supplies

(418) All types of marine supplies and provisions are available at Cleveland. Vessels normally receive bunker and diesel fuels at their berths from self-propelled vessels.

(419)

Repairs

(420) The Halvorsen Boiler and Engineering Company maintains portable equipment for making repairs to vessels at their berths and a machine shop capable of producing shafts 16 feet by 14 inches. G & W Industries, Inc. has a berth on the south side of the river above the Carter Road bridge with a 60-ton crane and floating cranes to 35 tons. They produce shafts up to 12 feet by 36 inches. The above repair companies are on the Cuyahoga River and provide all types of above-the-waterline repairs to vessels in Cleveland harbor.

(421) Great Lakes Towing Company's facility is in Old River and has a 250-ton floating drydock, a heavy lift crane and complete machinery facilities for above- and below-waterline repairs of all types.

(422)

Small-craft facilities

(423) There are several marinas in West Basin and in East Basin northeast of the airport. The marinas can provide transient berths, gasoline, diesel fuel, water, ice, electricity, some marine supplies, pump-out facilities and dry winter storage. Marine lifts to 75 tons are available for full repairs. A boatyard at the upper end of Old River has a travellift and crane with capacities to 20 tons, and can make small-craft repairs of all kinds. Marine supplies and provisions are available in the city and at several marine supply companies on the Cuyahoga River. Numerous marinas are along the banks of Old River and Cuyahoga River.

(424)

Communications

(425) Cleveland is a major transportation terminus. The city is served by several rail lines and has excellent highway connections. Major international and domestic airlines serve Cleveland-Hopkins International Airport in the southwest part of the city and Burke Lakefront Airport on the south side of the outer harbor.

(426)

Rocky River Harbor

(427) West from Cleveland, the shore consists of 10- to 20-foot-high bluffs and sandy beaches, and the shoreline trends generally west to **Avon Point** (41°30'54"N., 82°00'48"W.), a broad rounding point projecting somewhat to north about 15 miles from the Cleveland entrance. From Avon Point to Lorain, about 10 miles southwest, the bluffs are smaller. Between Cleveland and Lorain, deep water is no more than 1.2 miles offshore except just east of Lorain where detached shoal spots extend 3 miles into the lake. A wreck, covered 30 feet, is 4.3 miles north-northeast of Avon Point.

(428) **Rocky River Harbor** is at the mouth of the **Rocky River**, about 6.5 miles west of Cleveland Harbor entrance, at the city of **Lakewood, OH.**

(429) Two unmarked **dumping grounds** with least reported depths of 35 feet are 1.3 and 3.6 miles north of the mouth of Rocky River.

(430)

Channels

(431) The harbor is entered from Lake Erie through a dredged entrance channel on the southwest side of a pier that extends lakeward from the east side of the mouth of Rocky River. Lights mark the outer and inner ends of the pier. The dredged channel extends upstream for 0.9 mile above the mouth to a turning basin at the head. An anchorage basin is on the southwest side of the channel just inside the mouth of the river. (See Notice to Mariners and the latest edition of the chart for controlling depths.)

(432)

Bridges

(433) Three fixed bridges with a least clearance of 49 feet cross the navigable portion of Rocky River. The Clifton-Westlake highway bridge, the Norfolk Southern Railway bridge and the Detroit Road highway bridge are 0.4, 0.5 and 0.7 mile above the mouth, respectively. Overhead power cables with a minimum clearance of 49 feet are just below the railroad bridge and just below the Detroit Road bridge.

(434) **Harbor regulations** have been established by the city of Lakewood. The Department of Public Safety enforces a 6 mph (5.2 knots) **speed limit**. Copies of the regulations may be obtained from the Department of Public Safety.

(435)

Small-craft facilities

(436) Most of the facilities in the harbor are private. However, limited transient berths, gasoline, water, electricity, a launching ramp and marine supplies are available. Hoists to 6 tons are available for hull and engine repairs.

(437) About 2.2 miles west-southwest of Avon Point, a private light marks the outer end of the breakwaters protecting the intake channel of the Cleveland Electric Illuminating Co. A wreck, covered 6 feet, is close north of the light.

(438) The coastline between Cleveland and Avon Point hosts rocky ledges that extend from 0.25 to 0.5 mile offshore.

(439)

Lorain Harbor

(440) **Lorain Harbor**, serving the city of **Lorain, OH**, is about 25 miles west of Cleveland Harbor. It comprises the lower 3 miles of the **Black River** and an outer harbor.

(441) An unmarked **dumping ground** with a least reported depth of 35 feet is centered about 3.5 miles north of the harbor entrance.

(442)

Prominent features

(443) The ore docks on the west side of the mouth of Black River and the stacks of the power plant 0.3 mile southwest of the mouth are prominent.

(444) **Lorain Harbor Light** (41°28'52"N., 82°11'43"W.), 60 feet above the water, is shown from a tower on the west end of the detached breakwater on the north side of the entrance channel. A mariner-radio-activated sound signal is at the light, initiated by keying the microphone five times on VHF-FM channel 83A.

(445)

Channels

(446) The harbor is entered through a dredged entrance channel that leads east-southeast from the deep water in Lake Erie on the south side of a detached breakwater and then leads southeast between converging breakwaters

to the mouth of Black River. The mouth of the river is entered between parallel piers, and the dredged channel leads upstream for about 2.8 miles. A turning basin is on the southwest side of the channel, 1.6 miles above the mouth, and two turning basins are at the head of the project. In the outer harbor, basins are on either side of the entrance channel. From the south side of the outer harbor west basin, an approach channel leads southeast to the municipal pier 0.2 mile west of the mouth of the river. Lights mark the ends of the breakwaters and the piers at the river mouth. (See Notice to Mariners and the latest edition of the chart for controlling depths.)

(447) A semicircular diked disposal area is on the northeast side of the east breakwater. A floating breakwater extends about 750 feet at right angles from the southwest side of the same breakwater.

(448)

Dangers

(449) Several detached shoals are in the approach to Lorain Harbor. A shoal with least depths of 22 feet extends 1.4 miles from shore within 2 miles east of the harbor entrance. Several shoal spots with depths of 24 to 28 feet are from 1.4 to 2.4 miles north of Lorain Harbor Light.

(450)

Bridges

(451) Charles Berry Bridge, about 0.6 mile above the mouth of Black River, has a bascule span with a clearance of 33 feet at the center. Norfolk Southern Railway bridge, 1.2 miles above the mouth, has a vertical lift span with clearances of 35 feet down and 123 feet up. The Lofton Henderson Memorial Bridge, 2 miles above the mouth, has a fixed span with a clearance of 97 feet. An overhead power cable on the east side of the bridge has a clearance of 120 feet. (See **33 CFR 117.1** through **117.59** and **117.850**, chapter 2, for drawbridge regulations.)

(452)

Towage

(453) Tugs for Lorain are available from Cleveland. (See Towage under Cleveland.)

(454)

Quarantine, customs, immigration and agricultural quarantine

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

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

(457)

Coast Guard

(458) Lorain Coast Guard Station is on the east side of the Black River just inside the mouth.

(459)

Harbor regulations

(460) A **speed limit** of 6 mph (5.2 knots) is enforced in the harbor except in the outer harbor where it is 10 mph (8.7 knots). (See **33 CFR 162.160** and **207.570**, chapter 2, for regulations.)

(461) Local harbor regulations are established by the City of Lorain. Information may be obtained by contacting the Lorain Port Authority, 319 Black River Lane, Lorain, OH 44052, telephone: 440–204–2269.

(462)

Wharves

(463) Lorain has piers and wharves in the southwest part of the outer harbor and along both sides of the Black River; only the deep-draft facilities are described. The alongside depths given for the facilities described are reported depths; for the latest depths, contact the operator. All the facilities described have highway connections. Many have railroad, water and electrical shore-power connections. Special cargo handling equipment is described under the individual facilities. Many of the facilities are used for mooring vessels during the closed navigation season.

(464) **LTV Steel Co. Lorain Pellet Terminal Mooring Basin:** 0.1 mile west of the entrance to Black River; northeast face 1,090 feet berthing space; 20 to 23 feet alongside; southwest face 1,095 feet berthing space; 25 feet alongside; deck height, 8 feet; mooring of vessels awaiting berth at LTV Steel Corp., Lorain Pellet Terminal Wharf; owned and operated by LTV Steel Corp.

(465) **LTV Steel Corp. Lorain Pellet Terminal Wharf:** west side of the river 0.2 mile above the outer end of the west pier; 2,200 feet of berthing space; 27 feet alongside; deck height, 8 feet; open storage for 532,000 tons of ore; receipt and shipment of iron ore pellets; owned and operated by LTV Steel Corp.

(466) **USX Corp., Lorain Works, Slag Dock:** southwest side of the river 0.3 mile above the 21st Street bridge; 220 feet of berthing space with dolphins; 20 feet alongside; three front-end loaders; open storage for 30,000 tons of material; receipt of miscellaneous dry bulk materials and occasional shipment of crushed slag and coke breeze; owned and operated by USX Corp.

(467) **USX Corp., Lorain Works, Ore Dock:** south side of the river 0.6 mile above the 21st Street bridge; 2,490-foot face; 26 feet alongside; deck height, 10½ feet; traveling of bridge crane; conveyor belt capacity 5,000 tons per hour; three front-end loaders; open storage for 3 million tons of iron ore and 310,000 tons of limestone; receipt of iron ore and limestone; owned and operated by USX Corp.

(468) **Gold Bond Building Products, Lorain Plant Wharf:** east side of the river about 0.3 mile above the 21st Street bridge; 750 feet of berthing space with dolphins; 20 feet alongside; deck height, 7 feet; open storage for 120,000 tons of gypsum rock; receipt of gypsum rock; owned and operated by Gold Bond Building Products, Division of National Gypsum Co.

(469) **Jonick Dock and Terminal Wharf:** east side of river 0.2 mile above the Norfolk Southern Railway bridge; 300 feet berthing space with dolphins; 27 feet

alongside; deck height, 5 feet; covered storage for 40,000 tons of bulk material, open storage for 12,000 tons of material; receipt of crushed stone, occasional receipt of miscellaneous bulk materials; owned and operated by Jonick & Co.

(470) **Terminal Ready-Mix Dock:** north side of the river above the Norfolk Southern Railway bridge; 150-foot face; 500-foot natural bank; 10 to 25 feet alongside; deck height, 5 feet; open storage for 50,000 tons of sand and stone; receipt of sand and stone; owned by Ethel Falbo and operated by Terminal Ready-Mix, Inc.

(471)

Supplies

(472) Bunker C oil is available by tank barge, and diesel oil is available by truck from local companies. Provisions and marine supplies are available on the north side of the Black River just east of the Erie Avenue bridge.

(473)

Small-craft facilities

(474) Marinas in Lorain Harbor are in the outer harbor east of the river mouth, on the north side of the river just inside the mouth, on the east side of the river just upstream of the Erie Avenue bridge and further upstream on the north side, just past the railroad bridge. These marinas can provide transient berths, gasoline, diesel fuel, water, ice, pump-out facilities, launching ramps, winter storage, marine supplies and hull, engine and electrical repairs. A 50-ton marine lift is available at the marina on the east side of the river, just upstream of the Erie Avenue bridge.

(475)

Communications

(476) Lorain has highway connections and is served by Class I railroads. Lorain County Airport is south of the city.

(477)

Beaver Creek

(478) From Lorain, the shoreline trends southwest for about 4 miles to Beaver Creek, thence 6 miles west to Vermilion. Throughout this stretch, deep water is about 0.9 mile offshore.

(479) **Beaver Creek**, about 4 miles southwest of Lorain Harbor, has a small-craft harbor and summer resort at the mouth. The channel leads south between a pier and a breakwater at the mouth of the river. The entrance is marked by private lights.

(480) A bar that forms across the entrance reportedly washes out during the spring and after some storms and restricts the harbor to small craft with shallow drafts. The fixed bridges and cables that cross the creek about 0.3 mile above the mouth have a minimum clearance of 9 feet. Several other overhead cables with unknown clearances cross the creek and the marina slips upstream. This harbor is within the legal boundary of the city of Lorain, and the local harbor regulations of Lorain apply.

(481) A marina inside the mouth of the creek has transient berths, gasoline, diesel fuel by truck, water, electricity and a 30-ton travel lift for hull and engine repairs. For craft that can navigate under the bridges, two marinas upstream can provide gasoline, transient berths, electricity, ice, marine supplies, pump-out facilities, launching ramps and full repairs.

(482)

Vermilion

(483) **Vermilion**, about 35 miles west of Cleveland, has a harbor used mainly by recreational small-craft. The harbor includes the approach channel from the lake and the lower 0.7 mile of the **Vermilion River**. A prominent, lighted tank with the name *Vermilion Sailors* on two sides is about 0.6 mile south-southeast of the river entrance.

(484) An unmarked **dumping ground** with a least reported depth of 32 feet is about 2.3 miles north of the entrance to Vermilion River.

(485)

Channels

(486) The approach to the river from Lake Erie is through two dredged channels that lead around either end of a detached breakwater, join and lead south between two piers at the mouth of the river. The channel leads upstream for about 0.6 mile to the Liberty Avenue bridge. Lights mark the ends and center of the breakwater and the ends of the piers. (See Notice to Mariners and latest editions of charts for controlling depths.)

(487)

Dangers

(488) Just south of the dumping ground, several fish net stakes are in about 32 feet of water. A 6-foot shoal is about 0.4 mile west of the west approach channel.

(489)

Bridges

(490) The Liberty Avenue bridge, 0.7 mile above the pierheads, has a fixed span with a clearance of 12 feet. The Norfolk Southern Railroad bridge 0.8 mile above the pierheads has a fixed span with a clearance of 21 feet. A second Norfolk Southern Railway bridge, 1.0 mile above the pierheads, has a fixed span with a reported clearance of 14 feet. Several overhead cables with unknown clearances cross the river in the vicinity of these bridges.

(491)

Harbor Regulations

(492) A **speed limit** of 6 mph (5.2 knots) is enforced in the harbor. (See **33 CFR 162.160**and **207.565**, chapter 2, for regulations.)

(493)

Small-craft facilities

(494) The City of Vermilion Port Authority operates the Water Works Public Guest Docks at the Water Treatment Plant on the west side of the river, opposite the entrance to Superior Lagoon. The Port Authority also maintains a public launching ramp just above the Norfolk Southern

(506)

Structures across Huron River

Name•Description•Type	Location	Miles*	Clear Width of Draw or Span Opening (feet)	Clear Height above Low Water Datum (feet)	Information
Overhead telephone cables	41°23'24"N., 82°33'12"W.	0.72		70	
Cleveland Road East Bridge (fixed)	41°23'23"N., 82°33'11"W.	0.73	86	21	
Overhead cable	41°23'22"N., 82°33'11"W.	0.73		52	
Overhead power cable	41°23'21"N., 82°33'11"W.	0.77		50	
Norfolk Southern Railroad Bridge (fixed)	41°23'20"N., 82°33'11"W.	0.79	57 (right) 57 (left)	19	
Overhead power cable	41°23'20"N., 82°33'11"W.	0.79		50	

Railroad bridge. Several private marinas are on either side of the Liberty Avenue bridge and can provide transient berths, gasoline, diesel fuel, water, ice, pump-out, electricity, launch ramps and marine supplies. Several of these marinas also have lifts/hoists and mechanics available.

(495) All of Vermilion's large marinas, numbering well over 1,000 berths, are above the Liberty Avenue bridge. The vertical clearance of the Liberty Avenue bridge prevents sailboats and larger powerboats from navigating above it. Mariners requiring a variety of services should not rule out using the services of these marinas despite the bridge height restriction.

(496) From Vermilion, the shoreline extends southwest for about 7.3 miles to the southernmost point of Lake Erie. Along this stretch, rocky shallows extend 1 mile offshore with deep water as much as 1.5 miles off. Thence northwest for 3.4 miles to Huron Harbor, deep water is about 1 mile offshore except just east of Huron Harbor. An unmarked 13-foot spot is near the outer end of a shoal that extends 1.5 miles into the lake east-northeast of the Huron Harbor entrance channel.

(497)

Huron Harbor

(498) **Huron Harbor** is about 44 miles west of Cleveland inside the mouth of the **Huron River** at the city of **Huron, OH.**

(499) Grain, iron ore and limestone are the principal commodities handled at the port.

(500) An unmarked **dumping ground** with a least reported depth of 35 feet is 3 miles north of the entrance to Huron Harbor.

(501)

Prominent features

(502) **Huron Harbor Light** (41°24'16"N., 82°32'38"W.), 80 feet above the water, is shown from a square pyramidal tower on the west pierhead. A mariner-radio-activated sound signal is at the light, initiated by keying the microphone five times on VHF-FM channel 83A.

(503)

Channels

(504) The harbor is entered through a dredged channel that leads southwest from deep water in Lake Erie between a pier and an adjacent disposal area on the northwest side and a breakwater on the southeast side to the mouth of the Huron River. The channel leads into the river to a turning basin with its upper end about 0.4 mile above the mouth. Buoys mark the entrance channel, and lights mark the outer end of the pier and breakwater and each side of the river mouth. Federal project depths are 29 feet in the entrance channel to the inner end of the west pier, thence 28 feet to the turning basin, thence 27 feet in the east half of the basin and 21 feet in the west half of the basin. (See Notice to Mariners and latest editions of charts for controlling depths.) Huron River is navigable by small craft for about 10 miles above the mouth.

(505) A semicircular diked disposal area is on the west side of the west pier.

(507)

Dangers

(508) An extensive area of fish net stakes is off the entrance to Huron Harbor.

(509)

Towage

(510) Tugs for Huron are available from Cleveland. (See Towage under Cleveland.)

(511)

Quarantine, customs, immigration and agricultural quarantine

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

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

(514) Huron is within the Sandusky **customs port of entry.**

(515)

Harbor Regulations

(516) A **speed limit** of 6 mph (5.2 knots) is enforced in the harbor except in the outer harbor where the speed limit is 10 mph (8.7 knots). (See **33 CFR 162.155** and **207.570**, chapter 2, for regulations.)

(517) Local harbor regulations are established by the city of Huron and enforced by local law enforcement officials. Copies of the regulations may be obtained from the City Manager, 417 Main Street, Huron, OH 44839.

(518)

Wharves

(519) **Huron Lime Co., Stone Dock**: east side of the river mouth and the outer east side of Slip No. 1; total of 1,100 feet of berthing space; 28 to 24 feet alongside channel face, 24 to 16 feet alongside curved section, 16 to 17 feet along east side of Slip No. 1; deck height, 8 feet; one front-end loader; open storage for 120,000 tons of limestone; silos for 1,800 tons of lime; receipt of limestone; owned by Norfolk Southern Railway Co. and operated by Huron Lime Co. During the closed navigation season, vessels moor in Slip No. 1. There are highway and rail connections and special arrangements can be made for electrical connections.

(520)

Supplies

(521) Marine supplies are available in the city. Diesel fuel and provisions are available by truck from Sandusky.

(522)

Small-craft facilities

(523) Huron Boat Basin has its entrance just southwest of the turning basin and can provide transient berths, gasoline, electricity, water and ice. A public boat ramp is on the east side of the river just below the Cleveland Road bridge. Numerous additional small-craft facilities are on the west side of the lower mile of the Huron River. Several of the facilities can provide transient berths, gasoline, water, ice, electricity, pump-out facilities, marine supplies and launching ramps; lifts to 20 tons and full repairs are available.

(524)

Communications

(525) Huron has highway connections and is served by Class I railroads.

(526)

Cedar Point

(527) From Huron, the wooded shoreline trends northwest for 9.7 miles to **Cedar Point** (41°29'30"N., 82°41'18"W.), the southeast entrance point to Sandusky Bay. In this stretch, deep water is about 0.9 to 1.2 miles off except at Cedar Point where the shallow depths widen to 1.5 miles.

(528)

Sandusky Harbor

(529) **Sandusky Harbor**, serving the city of **Sandusky, OH**, is in the southeast part of Sandusky Bay about 50 miles west of Cleveland. The harbor is a major shipping point for coal. Sand, gypsum and fish are also handled. The harbor is an excellent natural harbor of refuge for small craft.

(530) An unmarked **dumping ground** with a least reported depth of 30 feet is 2.7 miles north of Sandusky Harbor entrance channel.

(531)

Prominent features

(532) A large amusement park on Cedar Point, brightly lighted at night, is conspicuous, and the Erie County Courthouse lighted clock tower in the city is prominent.

(533) **Sandusky Harbor Breakwater Light** (41°29'57"N., 82°40'29"W.) 30 feet above the water, is shown from a white cylindrical tower with a green band on the outer end of the jetty that extends northeast from Cedar Point. A mariner-radio-activated sound signal is at the light, initiated by keying the microphone five times on VHF-FM channel 83A.

(534)

Channels

(535) The harbor is entered from Lake Erie through a dredged entrance channel that leads southwest from deep water in the lake along the northwest side of a jetty extending northeast from Cedar Point. Inside Cedar Point, the channel turns south-southwest across Sandusky Bay. About midway across the bay, the channel divides with the deeper channel leading west then south along a deep-draft wharf to a turning basin at the southwest corner of the harbor. The shallower channel continues south-southwest to a channel leading west along the Sandusky docks to the turning basin. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through the USACE hydrographic survey website listed in Appendix A.

(536) The dredged channels are marked by lighted and unlighted buoys and lighted ranges. The lighted clock tower of the Erie County Courthouse is prominent on the line of **017.1°** Inner Range that marks Upper and Lower Straight Channels.

(537) It is the recommendation of the Lake Carriers' Association that, at the junction of the straight channel and the bay channel, the master of an outbound vessel should slow down if necessary to avoid meeting vessels at the intersection. This recommendation should not be construed as relieving the inbound vessel of the obligation to exercise due caution in approaching the intersection.

(538)

Anchorages

(539) A special anchorage is in a basin on the east side of Sandusky Bay about 1.3 miles southeast of the entrance. (See **33 CFR 110.1** and **110.83a**, chapter 2, for limits and regulations.)

(540) **Danger**—In 1977, it was reported that the jetty extending northeast from Cedar Point is partially submerged during periodic high water conditions.

(541) **Caution**—A submarine cable crosses the inner end of Moseley Channel; vessels are cautioned not to drag anchor in this area.

(542) **Fluctuations of water level**—In addition to the fluctuations of level that affect Lake Erie somewhat uniformly, strong winds produce abnormal fluctuations

in Sandusky Bay. In combination with prevailing high or low water, these abnormal fluctuations may reach a maximum effect of 6 feet above or 2½ feet below Low Water Datum.

(543)

Towage

(544) Tugs for Sandusky are available from Cleveland or Toledo. (See Towage under Cleveland and Toledo.)

(545)

Quarantine, customs, immigration and agricultural quarantine

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

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

(548) Sandusky is a **customs port of entry.**

(549)

Coast Guard

(550) Search and rescue functions for Sandusky Harbor are handled by Marblehead Coast Guard Station, 4 miles northwest of Cedar Point.

(551)

Harbor Regulations

(552) A **speed limit** of 10 mph (8.7 knots) is enforced in Sandusky Harbor. (See **33 CFR 162.155** and **207.560**, chapter 2, for regulations.)

(553)

Wharves

(554) There are three docks in Sandusky that ship and/or receive commodities. The alongside depths given are reported depths (for latest depths, contact the operator.) Rail service is only available at the Sandusky Dock Corp. Pier.

(555) **Geo. Gradel Co., Sandusky Sand Dock** (41°27'26"N., 82°43'15"W.): 638 feet of berthing space with 13 feet alongside and a deck height of 6 feet; three diesel-crawler cranes to 60 tons and open storage for 30,000 tons of material; receipt of sand and aggregate; owned and operated by Geo. Gradel Co.

(556) **Geo. Gradel Co., Sandusky Salt Dock** (41°27'26"N., 82°43'15"W.): 150 feet of berthing space with 16 feet alongside and a deck height of 3 feet; four front-end loaders and open storage for 110,000 tons of material; receipt of salt; owned and operated by Geo. Gradel Co.

(557) **Sandusky Dock Corp. Pier No. 3** (41°27'33"N., 82°43'53"W.); 3,495 feet of berthing space with 26 feet alongside and a deck height of 12 feet; one fixed car-dumper with hinged hopper pan and telescoping chute serves belt conveyors extending to open storage area; open storage for 875,000 tons of material and three concrete silos with a capacity for 10,500 tons; shipment of coal; owned by Norfolk Southern and operated by Sandusky Dock Corp.

(558)

Supplies

(559) Deep-draft vessels do not normally obtain provisions at Sandusky. Vessels are supplied with bunker at Lower Lake Dock Co., Pier No. 3.

(560)

Small-craft facilities

(561) There are several marinas in Sandusky Harbor. Two of the larger marinas are on the west side of Cedar Point and at the east end of the Sandusky waterfront. These marinas can provide gasoline, diesel fuel, water, ice, electricity, pump-out facilities, marine supplies, full repairs, travel lifts to 50-tons and launching ramps. Other facilities are along the Sandusky waterfront.

(562) In the southeast part of Sandusky Bay, a privately dredged and marked channel leads to Pipe Creek. Marinas on both sides of the creek can provide transient berths, gasoline, diesel fuel, electricity, water, launching ramps, pump-out facility and marine supplies. Marine lifts to 30 tons and marine railways to 100 tons are available for full repairs. In 2014, the approach to the facilities had a reported depth of 5 feet. The highway bridge over the channel entrance has a 38-foot fixed span with a clearance of 21 feet. The channel is bordered on the west side by diked wetland areas.

(563)

Communications

(564) Sandusky has good highway connections and is served by Class I railroads. A small airport is southeast of the city. Ferry service connects Sandusky with Kelleys Island and South Bass Island.

(565)

Sandusky Bay

(566) **Sandusky Bay** extends west from its entrance between Cedar Point and Bay Point for about 15 miles to **Muddy Creek Bay**. **Sandusky River** flows into the south side of Muddy Creek Bay. Small craft can navigate through Sandusky Bay, Muddy Creek Bay, and upstream in the Sandusky River for about 15 miles to the Norfolk Southern Railway Bridge at the town of **Fremont, OH**. Depths of about 5 feet can be carried through Sandusky Bay, thence 2 to 4 feet through Muddy Creek Bay, and thence 2 to 19 feet in the river. The channels through the bays are indefinite and not marked. A submerged dike extends into Muddy Creek Bay from the west side of the Sandusky River mouth, and a dike, marked by daybeacons, is on the east side of the mouth; caution is advised.

(567) In 1985 and 1987, submerged obstructions were reported at the mouth of the river in about 41°27'01"N., 82°59'57"W. and 41°26'59"N., 83°00'02"W., respectively.

(568) From **Martin Point**, about midlength of the south shore of Sandusky Bay, two bridges cross to Danbury, OH, on the north shore. The east bridge is a railroad bridge with the main draw having a bascule span with a clearance of 9 feet and three fixed spans having a maximum clearance

of 8½ feet. The bascule span is remotely operated and can be contacted at 419–254–1539. The bridge has been filled solid in various places, causing strong currents to flow through the openings; caution is advised. Caution is also advised because of piles that bare near the bridge. An overhead power cable west of the railroad bridge has a clearance of 62 feet through the main navigation opening, which is marked by lights, and 32 feet through the other openings. The west bridge is the Ohio Route 2 highway bridge, a fixed span with a clearance of 43 feet. (See **33 CFR 117.1** through **117.59** and **117.853**, chapter 2, for drawbridge regulations.)

(569) The Ohio Turnpike I-80 and I-90 Bridge crossing the Sandusky River about 9 miles above the mouth has twin fixed spans with clearances of 40 feet. The Ohio Route 20 bridge about 13.5 miles above the mouth has a fixed span with a clearance of 53 feet. The Norfolk Southern Railway bridges that cross the river on either side of Bradys Island at the head of navigation at Fremont have fixed spans with clearances of 24 feet. Overhead cables crossing the navigable part of the river have a minimum clearance of 36 feet.

(570) A submerged breakwater off the south shore of Sandusky Bay 3.6 miles southwest of Martin Point is marked by private lighted buoys. In 1987, a sunken wreck was reported about 2 miles west-northwest of Martin Point in about 41°28'34"N., 82°51'57"W. A sunken wreck, covered ½ foot, is off the north shore of the bay 3.9 miles west-northwest of Martin Point.

(571) **Johnson Island**, in the northeast corner of Sandusky Bay west of Bay Point, is connected to the north shore of the bay by a causeway having five openings. Each opening has a horizontal clearance of 50 feet with the center opening having a vertical clearance of 29 feet and each of the others 8 feet.

(572) From the Sandusky Harbor entrance channel north to Point Marblehead, there are several offlying shoal spots. **Bay Point Shoal**, with a least depth of 4 feet, is 1 mile east of Bay Point and is marked on the east side by a lighted buoy. A submerged rock is close to shore in about 41°31'13"N., 82°43'02"W. Shoal spots with depths of 22 to 24 feet are from 1.5 to 3 miles east of Point Marblehead and 1.7 to 2.7 miles north of Sandusky Harbor Breakwater Light.

(573) An unmarked **dumping ground** with a least reported depth of 30 feet is 3 miles east of Point Marblehead. Between Point Marblehead and the dumping ground, south to the Sandusky Bay entrance, are numerous submerged fish net stakes.

(574) **Point Marblehead** (41°32'10"N., 82°42'42"W.), marked by a light, is the east extremity of the peninsula that encloses the north side of Sandusky Bay.

(575) About 1 mile west-northwest of Point Marblehead are the Marblehead Stone Docks, two piers owned and operated by Lafarge North America. The west pier extends 800 feet into the lake and has depths of 26 to 15 feet along the outer 500 feet of the west side with a deck height of 8 feet. A mobile shuttle loads limestone into vessels at a rate of 2,000 tons per hour. The east side of the west pier and the west side of the east pier are used for loading barges. A prominent overhead conveyor, lighted at night, extends from the piers inland to the quarry.

(576) **Marblehead Coast Guard Station** is close west of Marblehead Stone Docks. A small sheltered basin at the station has depths of 8 feet decreasing to 6 feet at the edges.

(577) Automobile and passenger ferry services to Kelleys Island are available from a dock just west of the Coast Guard station.

(578) **Catawba Island** (41°35'N., 82°50'W.), west of Point Marblehead, juts north from the peninsula on the north side of Sandusky Bay and terminates in **Scott Point. Mouse Island**, useful as a radar target, is a small island on the shoal bank about 0.2 mile north of Scott Point. In the bight between Point Marblehead and Mouse Island, the depths are 18 feet about 1.3 miles off and shoal toward shore. The bottom is rock and boulder strewn. **Middle Harbor Shoal**, with a least depth of 2 feet, is marked on the north side by a lighted buoy about 2.4 miles southeast of Mouse Island. A shoal bank with depths of 9 feet is 1.8 miles southeast of Mouse Island. Within the bight are the facilities at Lakeside, East Harbor, and West Harbor.

(579) A lighted microwave tower is prominent 2 to 3 miles offshore of Catawba Island.

(580) **Lakeside, OH**, about 2.2 miles west-northwest of Point Marblehead, a dock extends offshore about 600 feet into depths of 10 feet. Several smaller docks to the west extend into lesser depths. Berths with electricity, gasoline, water, marine supplies, sewage pump-out and hull and engine repairs are available for small craft.

(581) **East Harbor**, 3.9 miles west of Point Marblehead, is a shallow bay with an entrance channel between two parallel piers marked on the outer ends by private lights. The north shore of the harbor is a state park and recreation area, and the waters in the harbor are a public fishing area and game refuge. Numerous small-craft facilities are on the south side of the bay and east of the entrance channel.

(582) **West Harbor** is entered 2.5 miles northwest of East Harbor through two entrance channels. The northwest entrance channel is privately maintained and leads to a large small-craft harbor. The entrance is protected by jetties marked by lights at their outer ends. A fixed highway bridge at the head of the harbor has a reported clearance of 20 feet. Beyond the bridge, a dredged inner channel leads southeast through West Harbor for about 1.3 miles to the head of the project. The southeast entrance is protected by converging jetties marked at their outer ends by lights. A dredged channel, marked by lights, buoys and daybeacons, leads between the jetties and into the harbor to the inner channel within the harbor.

(583) There are several small-craft facilities in West Harbor. Supplies and services available include gasoline, diesel fuel, water, ice, electricity, pump-out facilities, marine supplies, launching ramps and marine lifts to 50 tons, and full repairs (engine, hull, electrical) can be

made. Depths of 3 to 8 feet are available alongside the docks.

(584) Just west of Scott Point is the mainland terminus of the automobile and passenger ferry line operating to the islands north of Catawba Island. A depth of about 11 feet is at the outer face of the dock. Catawba State Park is on the west side of Catawba Island. A light marks the outer end of the park pier.

(585) Just southeast of the state park pier, a pier marked at the outer end by a private light protects the southwest side of the entrance to a small-craft basin. The entrance channel has depths of about 5 feet with 5 feet at the berths on the west side of the harbor and 3 feet at the berths on the east side. Gasoline, diesel fuel, water, ice, electricity, marine supplies and hoists to 40 tons for hull, engine and minor electronic repairs are available.

(586)

Portage River

(587) **Perry Cove**, between Catawba Island and the rounding projection of **Locust Point** (41°36'N., 83°05'W.), is a broad open bight with depths less than 24 feet. The Portage River empties into the south side of the bight. A large shallow bank with depths less than 14 feet extends about 5.5 miles north and northeast off Locust Point. A least depth of 2 feet, marked on the east side by a buoy, is about 4.7 miles northeast of the point, and there are scattered patches of 3 to 10 feet elsewhere. **Niagara Reef**, a detached shoal with a least depth of 3 feet, is 6.8 miles northeast of the point and is marked on the north side by a lighted buoy. Strangers should not attempt passage south of Niagara Reef.

(588) **Port Clinton, OH**, is at the mouth of the **Portage River**, about 29 miles southeast of Toledo Harbor entrance. The river enters the lake at the south end of Perry Cove. Perry Cove is quite shoal, with depths ranging from 6 feet off the end of the piers to 18 feet about 3.3 miles from shore. A lighted relay tower in the city near the inner end of the entrance channel is prominent.

(589)

Channels

(590) The harbor is entered through a dredged entrance channel leading from deep water in Lake Erie between two parallel piers upstream in Portage River for about 0.4 mile to the Monroe Street highway bridge. Lights mark the outer ends of the piers. The channel lakeward of the piers is subject to shoaling.

(591)

Bridges

(592) The Monroe Street highway bridge, 0.4 mile above the river mouth, has a bascule span with a clearance of 9 feet. An overhead cable 0.1 mile above the bridge has a clearance of 83 feet. The Norfolk Southern Railroad bridge 1.5 miles above the mouth has a roller-lift span with a clearance of 13 feet. (See **33 CFR 117.1** through **117.59** and **117.851**, chapter 2, for drawbridge regulations.) The State Route 2 bridge, 3 miles above the mouth, has a fixed span with a clearance of 30 feet.

(593)

Harbor regulations

(594) A **speed limit** of 4 mph (3.5 knots) is enforced in the harbor by the city of Port Clinton.

(595)

Wharves

(596) Along the south side of the Portage River, Port Clinton Fisheries receives fish at Fisherman's Wharf near the City Dock. Ferry service is also available to South Bass Island (Put-In-Bay) on the south side of the river.

(597)

Small-craft facilities

(598) Above the Monroe Street bridge, several marinas provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out and marine supplies. Hoists to 50 tons and a 100-ton marine railway are available for hull, engine and electronic repairs. A marina on the lakefront about 2 miles west-northwest of Port Clinton has transient berths available and can provide gasoline, diesel fuel, water, ice, electricity and sewage pump-out. The marina also has a 36-ton marine lift and hull, engine and electronic repairs can be made.

(599)

Toussaint River

(600) About 4 miles west of Port Clinton, a **danger zone** for small arms and artillery firing extends 6.5 miles northeast, 10 miles north, and 12 miles northwest from **Camp Perry**. (See **33 CFR 334.850**, chapter 2, for limits and regulations.) A jetty extends from the shore at Camp Perry to a pier about 1,000 feet offshore.

(601) **Toussaint River** is entered about 8 miles northwest of Port Clinton on the east side of Locust Point through an entrance channel that crosses a bar. The channel is marked by seasonal buoys. The buoys are uncharted as they are frequently shifted in position to mark the best water. Mariners should use caution and seek local knowledge before navigating the entrance channel.

(602) An overhead power cable with a reported clearance of 65 feet crosses the river about 1.4 miles above the mouth. A marina is about 1.6 miles above the mouth and can provide transient berths, water, ice, gasoline and sewage pump-out facilities, and launching ramps are available.

(603) The cooling tower of the Davis-Besse Nuclear Power Station is prominent northwest of the mouth of the Toussaint River.

(604) A **security zone** has been established in the waters off Locust Point, just northwest of the Toussaint River mouth. (See **33 CFR 165.1** through **165.8**, **165.30** through **165.33**, and **165.915**, chapter 2, for limits and regulations.)

(605) Between Locust Point and **Cedar Point**, 15 miles northwest, the 18-foot contour decreases from about 7

miles offshore at Locust Point to 2.5 miles at Reno Beach and then increases to 4.5 miles at Cedar Point. Several isolated 17-foot spots are beyond the 18-foot contour northeast of Cedar Point.

(606) **Long Beach**, a private harbor for small boats, is on the north side of Locust Point. A private **159°** lighted range marks the entrance to the basin.

(607) **Turtle Creek**, about 2.5 miles west of Locust Point, has two marinas at its mouth. In 1977, the reported controlling depth in the mouth of the creek was 1 to 2 feet. A seasonal, private light marks the outer end of the breakwater on the west side of the entrance. Numerous submerged piles are in the mouth of the creek. Caution is advised. Transient berths, gasoline, water, ice, launching ramps and a 60-ton hoist are available.

(608) A highway bridge with a reported clearance of 10 feet crosses Turtle Creek just inside the entrance.

(609) **Ward Canal** is entered about 6 miles west-northwest of Turtle Creek. Two jetties protect the entrance channel. A light marks the outer end of the east jetty. In 1981, a sandbar was reported across the mouth of the canal. Caution is advised. Small-craft facilities are available in the canal.

(610) **Cooley Canal** is entered 2.9 miles northwest of Ward Canal. The breakwaters that protect the entrance channel are marked at the outer ends by lights. Facilities in the creek provide transient berths, gasoline, diesel fuel, water, ice, electricity, marine supplies and launching ramps. Hoists to 75 tons are available for hull and engine repairs.

(611)

Maumee River

(612) **Maumee Bay** is a large shallow expanse forming the southwest corner of Lake Erie. The bay has prevailing depths of less than 10 feet and is obstructed by several dumping grounds. A dredged channel leads from deep water in Lake Erie southwest through the bay to the mouth of the Maumee River.

(613) **Toledo Harbor**, serving the city of **Toledo, OH**, is at the west extremity of Lake Erie. The harbor includes the lower 7 miles of the **Maumee River** and a channel about 18 miles long through Maumee Bay from deep water in Lake Erie to the mouth of the river. The principal cargoes handled at the port are coal, iron ore, grain, petroleum products and general cargo.

(614)

Prominent features

(615) The TV towers south to southwest of Cedar Point and the stacks of the Consumers Power Company 6.6 miles west-northwest of Toledo Harbor Light are conspicuous in the approach to the harbor.

(616) **Toledo Harbor Light** (41°45'43"N., 83°19'44"W.), 72 feet above the water, is shown from the northwest side of the entrance channel about 8.5 miles northeast of the river mouth; a seasonal sound signal is at the light and operates by keying the microphone five times on VHF-FM channel 83A. Maumee Bay Entrance Light 2, about 8 miles northeast of Toledo Harbor Light, is equipped with a sound signal.

(617)

Channels

(618) A dredged entrance channel, marked by buoys, lights and a **237.6°** lighted range, leads southwest for about 18 miles from deep water in Lake Erie through the shallow water of Maumee Bay to the mouth of Maumee River, thence upstream for about 7 miles. Maumee Mooring Basin is on the northwest side of the channel at the mouth of the river, and turning basins are 2.7, 6.3 and 7 miles above the mouth. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through the USACE hydrographic survey website listed in Appendix A.

(619) No distinct bars form in the dredged channel, which is, however, subject to considerable fill along the south sides each year. Depths in Maumee Bay outside of the improved channel are less than 10 feet, and navigation is possible for small boats only. In the lake, dredge operations have thrown up a ridge of earth along the edges of the channel. This ridge may rise as much as 3 feet above the natural lake bottom.

(620) Upstream of the dredged channel in the Maumee River, the channels are irregular and of uncertain depths, with numerous shoals and rock bars. Boats with local knowledge drawing less than 5 feet can usually pass as far as **Perrysburg, OH**, about 7 miles above Toledo.

(621)

Fluctuations of water level

(622) In addition to the fluctuations that affect Lake Erie somewhat uniformly, sudden abnormal changes due to wind frequently occur at this port. The observed wind-produced fluctuations, in combination with prevailing high or low water, range between extremes of 8 feet above and 7 feet below Low Water Datum. Northeast winds can increase water levels as quickly as 2 feet in 1 hour. Ice jams near the mouth of Maumee River have raised the water in the river as high as 12 feet above Low Water Datum.

(623) Mariners are cautioned that when water levels are above Low Water Datum, bridge clearances are correspondingly reduced. The Toledo-Lucas County Port Authority, telephone, 419–243–8251, will measure the height of masts upon request.

(624) A NOAA water level gage house is near the west shoreline of the river adjacent to the Toledo Coast Guard Station. A submerged intake pipe extends about 300 feet riverward from the gage house. Mariners should avoid all movement of deep-draft vessels or the dragging of anchors in the vicinity of the water intake pipe.

(625) Upon request, the Toledo Coast Guard Station will broadcast water level information in the following format:

(634)

Structures across Maumee River at Toledo

Name	Type	Location	Miles*	Clearances (feet) Horizontal** Left	Center	Right	Vertical***	Information
Overhead cable	power	41°41'03"N., 83°28'43"W.	0.92				154	
Overhead cable	power	41°41'01"N., 83°28'52"W.	1.03				129	Clearance is 132 feet over the channel
Overhead cable	power	41°41'00"N., 83°28'54"W.	1.06				146	
CSX Railroad	swing	41°40'59"N., 83°28'54"W.	1.07	143		145	22	Note 2
Wheeling and Lake Erie Railroad	swing	41°40'29"N., 83°29'23"W.	1.80	134		134	20	
Veterans Glass Memorial bridge	fixed	41°39'39"N., 83°30'41"W.	3.25		205		124	
Craig Memorial bridge	bascule	41°39'38"N., 83°30'43"W.	3.30		200		38	Clearance is 44 feet at the center
Overhead cable	power	41°39'18"N., 83°31'29"W.	4.06				140	
Martin Luther King Jr. Memorial bridge	bascule	41°39'08"N., 83°31'39"W.	4.30		200		21	Clearance is 31 feet at the center
Anthony Wayne bridge	fixed	41°38'27"N., 83°32'00"W.	5.16		738		107	Note 1
Norfolk Southern Railroad	swing	41°37'57"N., 83°31'51"W.	5.76	115		115	17	
Overhead cable	power	41°37'56"N., 83°31'51"W.	5.76				105	
Michael DiSalle bridge	fixed	41°37'31"N., 83°32'31"W.	6.73	110		110	45	Bridge under construction
CSX Railroad bridge	swing	41°34'51"N., 83°36'23"W.	11.38	110		110	53	Bridge being removed
Overhead cable	power	41°34'50"N., 83°36'24"W.	11.40				100	
Ohio Turnpike bridges	fixed	41°34'50"N., 83°36'25"W.	11.42	110		110	37	
US 20/Perrysburg-Maumee bridge	fixed	41°33'27"N., 83°39'00"W.	14.72		126		21	Note 3

* Miles above the mouth of the river
** Clear width proceeding upstream
*** Vertical clearances are referenced to Low Water Datum

See 33 CFR 117.1 through 117.59 and 117.855, chapter 2, for drawbridge regulations.

Note 1 – Bridge has a vertical clearance of 107 feet (32.6 meters) for a central channel width of 200 feet (60.9 meters), decreasing to 97 feet (29.6 meters) at the edges of the channel.
Note 2 – Mariners are requested to make initial calls to the CSX Railroad Bridge at Mile 1.07 over Maumee River at least 45 minutes prior to intended time of passage through the draw. A second call should be made when approximately 15 minutes from the bridge to help ensure timely opening. The bridgetender monitors VHF-FM channel 14.
Note 3 – Clearances are reported. Vertical clearance is referenced to Normal Water Level.

(626) "This is the U.S. Coast Guard Toledo Station. The National Ocean Service water level gage at this station now reads plus/minus inches above/below Low Water Datum. This is the U.S. Coast Guard Toledo Station. Out."

(627)

Currents

(628) The current in the Maumee River is about 1 mph.

(629) The Coast Guard reported a hazardous condition in 1994 at the ConRail bridge at Mile 5.76. Currents in excess of 2 knots were reported in the restricted channel at the bridge following heavy rains. The current appears to deflect off the east river bank causing a sheer towards the west bank. Caution is advised when transiting this area.

(630)

Weather, Toledo and vicinity

(631) Toledo, OH, located on the extreme southwest shore of Lake Erie and in the north-central part of the state, averages about 15 days each year with maximum temperatures in excess of 90°F (32.2°C). July is the warmest month with an average high of 84°F (28.9°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 16°F (-8.9°C). The highest temperature on record for Toledo is 104°F (40°C) recorded in July 1995 and the lowest temperature on record is -20°F (-28.9°C) recorded in January 1984. About 140 days each year see temperatures below 32°F (0°C) and an average 16 days each year record temperatures below 5°F (-15°C). Every month has seen temperatures at or below 40°F (4.4°C) and every month except July and August has recorded temperatures below freezing (0°C).

(632) The average annual precipitation for Toledo is 32.4 inches (823 mm), which is fairly evenly distributed throughout the year. Precipitation falls on about 205 days each year. The wettest month is June with 3.6 inches (91 mm) and the driest, February, averages only 1.7 inches (43 mm). An average of 38 thunderstorm days occur each year with June and July being the most likely months. Snow falls on about 78 days each year and averages about 37 inches (940 mm) each year. December through February each average greater than eight inches (203 mm) per year while January averages 10 inches (254 mm). Greater than

(648)

Facilities in Toledo Harbor (Maumee River)

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Storage	Purpose	Contact
CSX Toledo Lakefront Ore Docks, TORCO Slip No. 1	41°41'50"N., 83°26'55"W.	2,948	27	10	Open storage (923,000 tons of iron-ore pellets)	Reciept of iron-ore pellets by self-unloading vessel	TORCO, Inc. 419–698–8797
CSX Toledo Presque Isle Coal Docks, Slip No. 1	41°41'40"N., 83°27'30"W.	3,458	27	12	None	Shipment of coal and petroleum coke	CSX Transportation 419–697–2352
CSX Toledo Presque Isle Coal Docks, Slip No. 2	41°41'38"N., 83°27'39"W.	3,017	27	12	None	Occasional receipt of aggregate	CSX Transportation 419–697–2352
Toledo-Lucas County Port Authority Facility No. 1 Wharf	41°41'19"N., 83°28'08"W.	4,196	27	11	• Open storage (85 acres) • Four transit sheds • Eight storage tanks	Receipt and shipment of conventional and containerized general cargo and misc. dry bulk materials	Midwest Terminals of Toledo International, Inc. 419–897–6868
BP Oil Co. Toledo Refinery Marine Dock	41°40'50"N., 83°28'55"W.	1,108	20-21	7.5	21 steel storage tanks	Shipment and occasional receipt of petroleum products	BP Oil Co. 419–697–9005/4925
ARC Terminals Holdings LLC Toledo Wharf	41°40'31"N., 83°29'31"W.	527	18	10	Eight steel storage tanks	Receipt and shipment of petroleum products	Arc Terminals 419–726–9741
St. Marys Cement, Toledo Plant Dock	41°40'04"N., 83°29'47"W.	900	21	8	Two concrete silos	Receipt of bulk cement	Southdown Cement Co. 419–697–1141
Arms/Criscione Grain Co. Wharf	41°39'46"N., 83°30'40"W.	900	26	12	Storage buildings at rear and open storage area	Receipt of dry-bulk materials	Arms dock Co. and Criscione Grain Co. 419–243–8251
Sunoco Refining and Supply, Hocking Valley Pier Slip	41°39'34"N., 83°30'35"W.	1,836	18-27	12	31 steel storage tanks	• Occasional receipt of refinery feed stock • Shipment of fuel oil	Sunoco Inc. 419–698–6600
Lafarge North America	41°39'16"N., 83°31'38"W.	1,061	18-22	8	Eight concrete storage silos	Receipt of bulk cement by self-unloading vessel	Lafarge Corp. 419–241–5256
The Andersons Toledo Kuhlman Drive Terminal Wharf	41°37'52"N., 83°32'00"W.	1,100	27	9-15	16 concrete silos and five steel storage tanks	Receipt and shipment of grain and receipt of liquid and dry fertilizer	The Andersons, Inc. 419–241–8943
Kuhlman Corp., Upper Dock	41°37'40"N., 83°32'12"W.	340	28-32	10	Storage building and open storage area at rear	Receipt of dry bulk fertilizer, salt, stone and petroleum coke	Kuhlman Corp. 419–897–6000
The Andersons Toledo Edwin Drive Elevator Dock	41°37'38"N., 83°32'28"W.	730	28	8	Twelve concret silos	Shipment of grain	The Andersons, Inc. 419–461–4099
ADM/Countrymark Toledo Elevator Wharf	41°37'33"N., 83°31'59"W.	1,790	27	10	96 concrete silos	Shipment of grain	ADM/Countrymark, Inc. 419–691–5703

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

10-inch (254 mm) snowfalls in a 24-hour period have occurred in December and January, and 14 inches (356 mm) fell in one 24-hour period during December 1974. About eight days each year have 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 162 days each year and is evenly distributed throughout the year with a slight maximum in August and September.

(633) The prevailing wind direction in Toledo is the west-southwest. The winter months are the windiest period; however, a peak gust of 65 knots occurred in August 1988.

(635)

Towage

(636) Tugs to 2,200 and 1,400 hp are available from Gaelic Tugboat Co. or Great Lakes Towing Co., respectively. Arrangements for tugs are made through the companies' dispatchers at 419–243–8972 or 800–321–3663, respectively. Great Lakes Towing Co. has VHF-FM capability for tug arrangements. At least 3 hours advance notice is requested.

(637) Vessels proceeding upstream to the grain elevators near the head of the federal project usually require the assistance of tugs, but vessels proceeding to the general cargo wharves below the bridges generally do not require assistance.

(638)

Quarantine, customs, immigration and agricultural quarantine

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

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

(641) Toledo is a **customs port of entry.**

(642)

Coast Guard

(643) A Coast Guard Marine Safety Unit is at Toledo. Toledo Coast Guard Station is on the northwest side of the mouth of the Maumee River.

(644)

Harbor regulations

(645) Speed limits are enforced in Maumee Bay and Maumee River. (See **33 CFR 162.150**, chapter 2, for speed limits and regulations.) Local harbor regulations are established by the City of Toledo and may be obtained from City of Toledo, Division of Streets, Bridges and Harbor, 1189 West Central Avenue, Toledo, OH 43610.

(646)

Harbor Patrol

(647) The Toledo Harbor Patrol maintains an office adjacent to the Coast Guard station.

(649)

Wharves

(650) There are facilities at Toledo along both sides of the Maumee River. All the facilities listed in the facilities table have highway connections, and most have railway connections. Water and electrical shore-power connections are available at many of the piers, wharves and docks. Many of the harbor facilities are used for mooring of vessels during the closed navigation season.

(651)

Supplies

(652) All types of marine supplies and provisions are available at Toledo. Water can be obtained at most berths. Bunker fuel is available by barge at most berths, by pipeline at refinery landings and by truck at some wharves.

(653)

Repairs

(654) All types of above- and below-the-waterline repairs to hulls, boilers, engine and deck machinery and electronic equipment can be made in the harbor. Toledo Shipyard has two drydocks on the east side of the river about 2.5 miles above the mouth. The largest has a length of 800 feet with widths of 100 feet at the top and 83 feet at the keel blocks. The depth over the sill is 14 feet. Hans Hansen Welding Co., on the west side of the river 2 miles above the mouth, has a 50-ton hoist that can handle 75-foot vessels. Merce Boiler and Welding Co. performs repairs to vessels at their berths.

(655)

Small-craft facilities

(656) Several marinas at Toledo provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies and launching ramps. A 40-ton hoist is available for hull and engine repairs.

(657)

Communications

(658) Toledo is served by nine railroad lines and has good highway connections. Several airports are near the city.

(659) **Ottawa River** empties into Lake Erie about 3.5 miles north of the mouth of the Maumee River. The river is used by small boats drawing 2 to 4 feet. In 1980, a submerged obstruction was reported in the approach to the river in about 41°44'30"N., 83°27'18"W. Fred C. Young fixed highway bridge about 2 miles above the mouth has a clearance of 14 feet. Several marinas on the river provide gasoline, water, electricity, sewage pump-out, launching ramps, marine supplies and hoists to 20 tons for hull and engine repairs. A **slow-no wake speed** is enforced on the river.

(660) **Shantee Creek** and **Halfway Brook** empty into Lake Erie just north of the mouth of Ottawa River. A **slow-no wake speed** is enforced on both creeks.

(661)

Toledo Beach to Swan Creek

(662) From **North Cape**, on the north side of Maumee Bay, north to the mouth of the River Raisin, the shore is low and wooded. The 18-foot contour varies from 9 miles offshore at Toledo to 3 miles offshore at Monroe. The **state boundary** between Ohio and Michigan is about 2.5 miles north of the mouth of the Maumee River.

(663) **Toledo Beach** is a small-craft harbor about 6.3 miles northwest of Toledo Harbor Light. The entrance channel is marked by a private **290°** lighted range, and the ends of the breakwaters are marked by private lights. A depth of 8 feet was reported in the entrance channel. A yacht club and marina are in the harbor and can provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, launching ramps and some marine supplies. The marina has a 60-ton hoist and can also provide full repairs.

(664) **Otter Creek**, 1.3 miles north of Toledo Beach, has a small-craft harbor inside the mouth. The entrance channel to the creek is 25 to 30 feet wide between two short piers. Two private lights on the south pier form a **284°** range for approaching the creek. Depths in the approach and creek are 1 to 3 feet. In 1985, shoaling to an unknown extent was reported about 200 feet, 095° from the front range light. An overhead power cable crosses the creek about ¼ mile above the mouth with a reported clearance of 50 feet. Facilities in the creek can provide gasoline, electricity, water, ice, pump-out and some marine supplies. A 20-ton marine lift is available and full repairs can be made.

(665) **Bolles Harbor** is a small-craft harbor at the mouth of **La Plaisance Creek**, about 2.7 miles southwest of the mouth of the River Raisin. A dredged entrance channel leads northwest from Lake Erie through **La Plaisance Bay** to the mouth of La Plaisance Creek, thence upstream for about 0.8 mile. A jetty is on the west side of the mouth and a diked disposal area extends about 1,700 feet south-southeast from the east side of the mouth. The entrance channel is marked by seasonal lighted and unlighted buoys, a daybeacon and a **341.5°** lighted range. Lights mark the outer end of the jetty, the west side of the creek mouth and the southwest corner of the diked disposal area.

(666) A **slow-no wake speed** is enforced in La Plaisance Creek. There are several marinas along the south side of the creek that provide transient berths, gasoline, diesel

fuel, water, ice, electricity, pump-out facilities, marine supplies, launching ramps and hull/engine repairs.

(667) **Monroe Harbor** is within the mouth of the **River Raisin**, which flows into the west end of Lake Erie about 15 miles north-northeast of the mouth of the Maumee River. Four stacks at a power plant near the mouth of the river are prominent.

(668)

Channels

(669) A federal project provides for a 21-foot entrance channel from deep water in Lake Erie to an 18-foot turning basin at the head of the project. The entrance channel is marked by lighted and unlighted buoys and a **291.7°** lighted range. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through a USACE hydrographic survey website listed in Appendix A.

(670)

Caution

(671) An area of buried chemically contaminated material covered with a cap of non-contaminated material is on the north side of the channel just below the turning basin. Inside the channel, the top of the cap lies at a minimum depth of 3 feet below the project depth of 21 feet. Mariners are requested not to anchor in this area to avoid damage to the cap.

(672)

Bridges

(673) Two overhead power cables with a minimum clearance of 160 feet cross the River Raisin 0.75 mile above the mouth. Another cable, with a clearance of 60 feet, crosses the river about 1.7 miles above the mouth. The Detroit-Toledo Freeway bridge 2.1 miles above the mouth has a fixed span with a clearance of 23 feet.

(674)

Harbor regulations

(675) A **speed limit** of 10 mph (8.7 knots) is enforced in the entrance channel and 6 mph (5.2 knots) in the river channel. (See **33 CFR 162.145**, chapter 2, for regulations.)

(676)

Towage

(677) Tugs for Monroe Harbor are available from Detroit. (See Towage under Detroit.)

(678)

Small-craft facilities

(679) A marina is just west of the Detroit-Toledo Freeway bridge (I-75) on the north side of the river. Transient berths, gasoline, water, electricity, sewage pump-out and marine supplies are available. Diesel fuel can be brought in by truck. Two forklifts and a 15-ton travel lift are available for hull and engine repairs and haul-out. A public boat launch ramp is on the south side of the river behind **Sterling Island.**

(680) From the mouth of the River Raisin, the shoreline trends north about 4 miles and then east about 2 miles to **Stony Point**, a narrow peninsula extending about 0.5 mile south into the lake. **Brest Bay** is the bight formed on the west side of the point. A wreck covered 17 feet is 1.9 miles south-southeast of Stony Point. In 1982, a dangerous sunken wreck was reported about 1.5 miles southwest of Stony Point in about 41°55'N., 83°17'W.

(681) **Sandy Creek** empties into the west side of Brest Bay about 2 miles north of Monroe Harbor. Sterling State Park is on the south side at the creek entrance. A channel marked by private lighted and unlighted buoys leads southwest from Sandy Creek to a boat basin at the park. In 2007, the reported depth in the channel and basin was 4 feet. Several launching ramps are in the southeast corner of the basin. Services available inside the creek include transient berths, gasoline, water, ice and electricity.

(682) **Stony Creek** empties into the north side of Brest Bay. Spoil banks extend southeast from the mouth of the creek and help protect the entrance channel. The entrance channel is marked by private buoys and a private lighted range. Submerged rocks are close south of the channel. In 1977, a reported submerged pipeline, covered 1 foot, crosses the entrance to the creek. A marina inside the creek mouth can provide transient berths, gasoline, electricity, water, ice, pumpout facility, launching ramp and some marine supplies. The marina also has an 8-ton lift and full repairs can be made.

(683) On the east side of Stony Point, the 18-foot curve is about 0.6 mile offshore, increasing to 3.8 miles off at Swan Creek. From Swan Creek to **Pointe Mouillee**, on the west side of the mouth of the Detroit River, depths are generally less than 18 feet except for the dredged channels leading to the Detroit River.

(684) The water intake channel of the Enrico Fermi Power Plant is 2 miles north of Stony Point. Private lights mark the dikes on either side of the channel. Two 403-foot cooling towers at the plant are prominent.

(685) A **security zone**, marked by private buoys, has been established in the waters off the Enrico Fermi Power Plant, between Stony Point and Swan Creek. (See **33 CFR 165.1** through **165.8**,**165.30** through **165.33**, and **165.915**, chapter 2, for limits and regulations.)

(686) **Swan Creek** is about 3 miles north of Stony Point. The entrance to the creek is marked by seasonal, private lighted and unlighted buoys and a **315°** lighted range. Inside the entrance, daybeacons mark the north limit of the channel. In 1977, a controlling depth of 2 feet was reported in the entrance channel. In 1985, an obstruction was reported in the entrance channel in about 41°58'32"N., 83°14'42"W. A **slow-no wake speed** is enforced in the creek. Transient berths, gasoline, water, ice, electricity, sewage pump-out facilities, limited marine supplies, a 10-ton lift and hull and engine repairs are available.

(687)

Detroit River Light

(688) **Detroit River Light** (42°00'03"N., 83°08'28"W.), 55 feet above the water, is shown from a white conical tower with black top, on a hexagonal pier in the entrance to the Detroit River east of Pointe Mouillee; a sound signal is at the light and is operated by keying the microphone five times on VHF-FM channel 83A. A racon is also at the light.

(689) An irregularly shaped diked disposal area is about 2.5 miles west of Detroit River Light. A dredged channel, marked by buoys, leads west from the light to the disposal area but is not intended for public use.

(690) For about 25 miles west from a line between Point Marblehead on the south shore and Point Pelee on the north shore, Lake Erie is rendered foul by a group of islands and shoals. The main route for large vessels is through Pelee Passage in the north part of the area, but other passages of limited capacity are also available to the south. Submerged fish net stakes may be encountered throughout the west end of Lake Erie.

(691) The **International boundary** between the United States and Canada extends through this area in a series of straight lines bearing from the east into the northwest.

(692)

South Passage to North Bass Island

(693) **South Passage** extends along the south shore of Lake Erie, bounded by Point Marblehead and Catawba Island on the south and Kelleys Island, South Bass Island and Green Island on the north. Although it is obstructed by numerous shoals, a depth of 16 feet can be carried through the passage.

(694) **Kelleys Island** is about 4 miles north of Point Marblehead with a deep channel 2.7 miles wide between. The island, about 3 miles long east and west and about 2 miles wide north and south, is bordered on the east side by a rocky bank that extends 0.7 mile off. A buoy marks the extent of the bank east of **Long Point**, the northeast point of the island. The other shores of the island should not be approached closer than 0.25 mile except at the landings. West of Long Point, an open bay has depths of 18 feet to within 0.4 mile of the shore. A dangerous sunken wreck is 0.4 mile west of Long Point. Kellstone, Inc. has a dock on the west side of the island, and a ferry dock with service to Marblehead, Sandusky and South Bass Island (Put-In-Bay) is on the southwest side of the island. A marina and a small-craft basin are on the east side of the broad bight on the south side of the island. Jetties protect the entrance channel to the basin. In 1980, shoaling to 4 feet was reported to extend 75 feet west from the outer end of the south jetty. The basin has a depth of about 8 feet. Another marina is located on the north side of the bight, about 0.4 mile northwest of the basin. The marinas can provide transient berths, gasoline, diesel fuel, water, ice, marine supplies and pump-out facility. The marinas monitor VHF-FM channels 16, 68 and 80.

(695) West of **Carpenter Point**, the west point of Kelleys Island, several submerged rocks are covered less than 18 feet. A rock covered 12 feet is marked on the west side by a lighted buoy 0.6 mile west-northwest of Carpenter Point. A wreck, covered 17 feet, is 0.6 mile north of the point.

(696) **American Eagle Shoal**, extending west from Carpenter Point, has a least depth of 10 feet about 1.7 miles west of the point. **South Shoal**, with depths of 15 to 18 feet, continues west from American Eagle Shoal. These shoals lie on the northeast side of the vessel route through South Passage. Numerous submerged net stakes, covered 13 to 18 feet, are in or near the vessel route southeast of South Shoal.

(697) **Scott Point Shoal**, west of South Shoal on the southwest side of the vessel route, is rocky and has a least depth of 11 feet at the northeast end where it is marked by a lighted buoy. From the buoy, the shoal extends southwest to within 0.6 mile of **Mouse Island.Mouse Island Reef**, with a least depth of 9 feet, is on the southwest side of the vessel route, 1 mile northwest of Scott Point Shoal. **Starve Island Reef**, with a least depth of 7 feet, is on the northeast side of the vessel route and is marked off its west side by a lighted buoy. **Starve Island**, 1 mile north of Starve Island Reef, is on a shoal bank off the southeast side of South Bass Island. The shoal bank extends from South Bass Island to an 8-foot spot 0.5 mile southeast of Starve Island. A deepwater passage about 0.4 mile wide is between the 8-foot spot and Starve Island Reef.

(698) **South Bass Island**, about 3.5 miles long northeast and southwest, is 2.5 miles north of Mouse Island and 5 miles northwest of Kelleys Island. Shoals extend 0.2 to 0.5 mile off the southeast side of the island except at Starve Island, and the west side of the island is deep-to. **South Bass Island Light** (41°37'44"N., 82°50'30"W.), 95 feet above the water, is shown from a white skeleton tower with a red and white diamond-shaped daymark on the southwest point of the island.

(699) **Put-In-Bay**, a semicircular inlet on the north side of South Bass Island, is protected on the west side by **Peach Orchard Point**. A shoal with a least depth of 2 feet extends 0.25 mile northeast from the point and is marked at the outer end by a lighted buoy. **Gibraltar Island** is a small bold islet in the west part of the bay on the east side of Peach Orchard Point. Shallow water is between the southwest side of the island and the shore. A buoy marks a detached shoal with a least depth of 10 feet on the east side of the bay.

(700) **Perrys Victory and International Peace Memorial**, commemorating his victory in the naval battle of 1813, is a conspicuous landmark on the east side of Put-In-Bay on the narrow constriction of South Bass Island. The 335-foot monument is a granite tower marked by a light and surmounted by a glass-covered bronze bowl.

(701) **Put-In-Bay, OH**, a harbor on the south side of the bay, is used principally for fruit shipments and excursion

business. Ferry service is available to Sandusky, Port Clinton, Kelleys Island and Middle Bass Island. The approach to the harbor is marked by lighted and unlighted buoys. A dredged channel, marked by buoys, leads west along the piers on the south side of the bay.

(702) Small-craft facilities at Put-In-Bay provide transient berths, gasoline, diesel fuel, electricity, water, ice, pump-out, marine supplies and a 5-ton hoist.

(703) **Green Island**, rocky and wooded, is 1 mile west of South Bass Island. A light marks the west end of the island. A shoal extends 0.2 mile off the east end.

(704) **Kelleys Island Shoal**, with a least depth of 2 feet, is northeast of Kelleys Island. A narrow channel with depths of 18 feet or more is between the northeast end of Kelleys Island and the southwest end of the shoal. The northeast end of the shoal is about 2.5 miles from the island and is marked by a lighted buoy. A buoy marks the northwest side of the shoal.

(705) **Gull Island Shoal**, 2.4 miles north of Kelleys Island, is marked on the south side by a lighted buoy. The shoal extends 1.5 miles northeast from the buoy. The southwest part of the shoal has numerous bare rocks.

(706) **Middle Island** is about 1.6 miles north of Gull Island Shoal. A dangerous sunken wreck is on the southwest side of the island. A deep passage about 0.5 mile wide is between the island and Gull Island Shoal.

(707) **Ballast Island** is about 0.8 mile northeast of the northeast point of South Bass Island with shoal water between. A channel with a depth of about 8 feet and marked by buoys leads across the bank about 0.3 mile south of Ballast Island. The north side of Ballast Island is deep-to and is marked by a light.

(708) **Middle Bass Island** is 0.5 mile north of the northeast projection of South Bass Island, and the main body of the island extends north 1.5 miles. From the northeast end of the island, a narrow peninsula extends 1.4 miles east-northeast. A shoal with rocks awash extends 0.75 mile from the end of the peninsula and is marked by a lighted bell buoy. **Sugar Island** is connected to the northwest corner of Middle Bass Island by a rocky ledge covered 1 foot. A 10-foot spot is about 0.5 mile northeast of Sugar Island. The east, south and west sides of Middle Bass Island have deep water within 0.3 mile. Middle Bass Island State Park Marina is on the east side of the island near the south end. The marina provides transient berths, electricity, water, ice, gasoline, pump-out facility and launching ramp and monitors VHF-FM channel 71. Passenger ferry service is available to Put-In-Bay. Automobile and passenger ferry service is available to Catawba Island.

(709) **Rattlesnake Island**, 1 mile west of Middle Bass Island, has clean shores except for a shoal extending 0.15 mile from the east end and a shoal and small islet extending 0.3 mile from the west end. A wreck, covered 23 feet, is 1.2 miles west-northwest of the island.

(710) **North Bass Island** is about 1 mile north of Middle Bass Island. Shoals and rocks extend about 0.4 mile offshore around the island except on the west side where a broad bank with depths of 5 to 12 feet extends 1.2 miles off. A buoy marks the southwest extremity of the bank. A lighted buoy marks the extent of shoals off the northeast side of the island. A sunken wreck with masts visible is 1.2 miles east of North Bass Island, in about 41°43'09"N., 82°47'16"W.

(711)

Hen Island to North Harbor Island

(712) An extensive group of shallow rocky spots, covered 10 to 16 feet, are about 1 to 2.5 miles north of North Bass Island. A buoy and a lighted bell buoy mark the south and west extremities of the area, respectively. A dangerous sunken wreck is just southeast of the shoals.

(713) A group of small islands and bare rocks are on a shallow bank centered about 4 miles north of North Bass Island. **Hen Island**, 4.5 miles north of North Bass Island, is the largest and northernmost of the group. Shallow water extends about 0.2 mile offshore around the island. About 1 mile south of Hen Island, a very shallow bank extends 2 miles east and west. The other islands of the group are on this bank. **Little Chicken Island** is a small outcropping 1.1 miles south of Hen Island. On the north part of the bank, 0.4 mile north-northwest of Little Chicken Island, is a 2-foot spot. Between this spot and Hen Island is a deep passage about 0.25 mile wide. **Chick Island**, 4 feet high, is about 1.2 miles southwest of Hen Island. Bare rocks are off the northwest and southeast sides of the island. **Big Chicken Island**, 12 feet high, is about 1.6 miles southwest of Hen Island; bare rocks are off the northwest side of the island. A depth of 11 feet is available across the center of the bank between Big Chicken Island and Little Chicken Island.

(714) **Hen Island Shoal**, with a least depth of 19 feet, is 1.3 miles north of Hen Island and is unmarked.

(715) **East Sister Island** is 8.5 miles west of Sheridan Point on Pelee Island and 3.2 miles northwest of Hen Island. Shoals extend off about 0.25 mile around the island. **East Sister Shoal**, with a least depth of 7 feet, is 0.8 mile northeast of the island.

(716) **North Harbour Island**, 0.7 mile north of East Sister Island, is on a shallow bank with depths to 9 feet extending 0.4 mile north and southeast from the island.

(717)

North Harbour Island Reef to West Sister Reef

(718) **North Harbour Island Reef**, with a least depth of 3 feet and marked on the north side by a lighted buoy, is 1.6 miles north of North Harbour Island. In rough weather, vessels should not attempt passage between the island and the reef.

(719) **Middle Sister Island**, the northwesternmost of the Lake Erie island group, is 7.6 miles west-northwest of East Sister Island. The island, about 0.3 mile long, is marked at the northeast end by a light. Shoals extend about 0.4 mile off the south shore.

(720) **West Sister Island** (41°44'21"N., 83°06'21"W.), the westernmost of the island group, is about 8.5 miles north-northwest of Locust Point on the south lakeshore. The shores of the island are deep-to except for **West Sister Reef**, a 1-foot shoal extending 0.4 mile off the southeast side. A light marks the southwest end of the island.

(721)

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(722) **Pelee Passage, ON**, is the main vessel route through the island group in the west end of Lake Erie. The passage is bounded on the southwest side by **Pelee Island, ON**, and its contiguous shoals and on the north side by **Point Pelee, ON**, and its contiguous shoals. The controlling depth through the passage is about 29 feet. Lighted midchannel buoys mark the turns through the passage, and lights and buoys mark the bordering shoals.

(723)

Canadian Waters

(724) **Bar Point** is the rounding point of land forming the east side of the mouth of the Detroit River. The **International Boundary** roughly bisects the mouth of the Detroit River and thence proceeds upstream in a north direction. The north shore of Lake Erie, from Bar Point easterly to the headwaters of the Niagara River, is in Canada. For a description of the Canadian waters/shoreline of Lake Erie see **Canadian Sailing Directions CEN303**; this includes Pelee Island and Pelee Passage.