

RECOMMENDED COURSES



LAKE CARRIERS' ASSOCIATION



2019 (Revision and Update)

SUPERSEDING ALL PREVIOUS ISSUES

TO MASTERS OF VESSELS SAILING THE GREAT LAKES:

The “Recommended Courses” described in this document have been adopted by the Lake Carriers’ Association (U.S.A.) and the Chamber of Marine Commerce (Canada) on the recommendations made from time to time by the respective Navigation and Operations Committees of the two Associations. These “Recommended Courses,” with amendments and updates, have been in existence for decades and offer the professional mariner recommended and recognized courses for the Great Lakes in the interest of navigation safety.

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 recognized by government agencies and are delineated on general and other charts of the Great Lakes both in paper and electronic formats.

Guidance reference(s) to the use of this document and the “Recommended Courses” are outlined on the next page

The official charting agencies of the U. S. A. (NOAA) and Canada (CHS) have displayed these recommended courses on their official paper and ENC charts for use by the mariner.

It is fully understood that Masters and Navigating Officers may exercise discretion in departing from these recommended courses when ice, weather, vessel traffic or other conditions warrant a deviation in the overall interest of navigation safety.

James H.I. Weakley, President
Captain Timothy J. Dayton, Master Mariner
LAKE CARRIERS’ ASSOCIATION

CHAMBER OF MARINE COMMERCE

December 2019

Guidance to LCA/CMC “Recommended Courses”

1. LCA/CMC “Recommended Courses” are provided as voluntary guidance for courses to steer with navigation safety and application of the Collision Regulations always taking priority.
2. Distances are expressed first in Statute Miles followed by Nautical Miles (in brackets), and are provided for all course distance and distance bearing references.
3. Waypoint positions are expressed in “lat/long” to 3 decimal points to correspond to electronic charts and ENC positioning data.
4. Courses to steer, alteration positions with “waypoints” are provided in both “verbal text description” and followed by “electronic waypoint data in table format” for use by the mariner.
5. Electronic “waypoint” course alterations are identified as “Wpt” with the departure position waypoint starting as Wpt 1, and progressing Wpt. 2, Wpt. 3, etc. for successive alteration positions throughout the identified recommended course.
6. Masters and Navigating Officers should be aware that while some of the recommended course lines delineate separation between “upbound” and “downbound” track lines, normally for heavier volume traffic courses; other recommended course lines are single (two-way) reciprocal courses for lesser volume traffic routes, and vessels should always adhere to the Collision Regulations and navigation safety when in any meeting, overtaking or crossing situations. On courses which have a separation between tracks the distances off are limits and the separation between the tracks should be maintained.
7. All courses are expressed in True (T).
8. All bearings are expressed in True (T).
9. Based on the geographical location of the Great Lakes, all latitude references are North (N) and all longitudinal references are West (W).
10. The “recommended courses” are indexed by “lake,” and by “upbound and downbound courses” with the exception of Lake Michigan which is referenced as “Northbound and Southbound courses.” The courses are also identified as “Inbound and Outbound” as appropriate, and referenced to the heads of navigation.
11. While all efforts have been made to verify accuracy, any noted errors for correction or recommended amendments/improvements should be forwarded in writing or electronically to the respective LCA or CMC Associations.

Captain Timothy J. Dayton, Master Mariner, served as the primary project officer for this update. His professionalism and perseverance ensured timely delivery of a quality product. He was supported by Captain John Greenway, LCA/CMC shipping company representatives, their Masters and Mates, and ISMA representation, who provided input and expertise into the latest revision of the LCA/CMC Recommended Courses.

Index to “Recommended Courses” Document:

<u>Lake</u>	<u>Page</u>
Guidance to LCA/CMC Recommended Courses.....	3
Lake Superior Downbound.....	5
Lake Superior Upbound.....	17
Lake Michigan Southbound.....	25
Lake Michigan Northbound.....	38
Lake Huron Downbound.....	55
Lake Huron Upbound.....	67
Georgian Bay.....	80
Lake Erie Downbound.....	91
Lake Erie Upbound.....	113
Lake Ontario Downbound.....	132
Lake Ontario Upbound.....	143

RECOMMENDED COURSES

LAKE SUPERIOR ***Downbound/Outbound***

Duluth to Gros Cap Reefs Lt: From departure position 063° at 3.0 miles (2.6 n.m.) from Duluth Piers (waypoint position 46°48.000' N 092°01.900' W), steer 063° for 69.0 miles (60.0 n.m.) to position approximately 12 miles (10.4 n.m.) due North of Devils Island Light (waypoint position 47°15.170' N 090°43.673' W). Then steer 077° for 123.1 miles (106.9 n.m.) to 12 miles (10.4 n.m.) due North of Eagle Harbor Light (waypoint position 47°37.984' N 088°09.533' W). From this position, steer 085° for 14.0 miles (12.2 n.m.) to a position approximately 12 miles (10.4 n.m.) due North of Copper Harbor Light (waypoint position 47°38.874' N 087°51.615' W), then steer 105° for 18.3 miles (15.9 n.m.) until Manitou Island Light bears 204° at 12.0 miles (10.4 n.m.) (waypoint position 47°34.644' N 087°28.903' W). From that position, steer 114° for 131.4 miles (113.8 n.m.) to a position approximately 2.5 miles (2.2 n.m.) NE of and bearing 210° to Whitefish Point Light (waypoint position 46°48.138' N 084°55.872' W), and then steer 147° for 14.8 miles (12.9 n.m.) until Ile Parisienne Light bears 050° at 2.5 miles (2.2 n.m.) (waypoint position 46°37.309' N 084°45.838' W). Then steer 138° for 9.8 miles (8.5 n.m.) until Gros Cap Reefs Light bears 113° at 0.6 miles (0.5 n.m.) (waypoint position 46°30.937' N 084°37.674' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	063° at 3.0 miles (2.6 n.m.) from Duluth Piers	46°48.000' N 092°01.900' W	063° for 69.0 (60.0)
Wpt 2	12 miles (10.4 n.m.) due North of Devils Island Light	47°15.170' N 090°43.673' W	077° for 123.1 (106.9)
Wpt 3	12 miles (10.4 n.m.) due North of Eagle Harbor Light	47°37.984' N 088°09.533' W	085° for 14.0 (12.2)
Wpt 4	12 miles (10.4 n.m.) due North of Copper Harbor Lt.	47°38.874' N 087°51.615' W	105° for 18.3 (15.9)
Wpt 5	Manitou Island Lt. 12.0 miles (10.4 n.m.) off at 024°	47°34.644' N 087°28.903' W	114° for 131.4 (113.8)
Wpt 6	Whitefish Point Lt. bearing 210° at 2.5 miles (2.2 n.m.)	46°48.138' N 084°55.872' W	147° for 14.8 (12.9)

Wpt 7	Ile Parisienne Light bearing 050° at 2.5 miles (2.2 n.m.)	46°37.309' N 084°45.838' W	138° for 9.8 (8.5)
Wpt 8	Gros Cap Reefs Light brg. 113° at 0.6 miles (0.5 n.m.)	46°30.937' N 084°37.674' W	

Thunder Bay to Gros Cap Reefs Lt: From **EITHER** departure at a Mission River position South of Welcome Island (waypoint position 48°20.213' N 089°08.900' W), steer 118° for 8.9 miles (7.7 n.m.) **OR** departure from a position 0.5 miles (0.4 n.m.) Northeast of Welcome Island Light (waypoint position 48°22.456' N 089°06.749' W), steer 137° for 9.1 miles (7.9 n.m.) until Thunder Cape Light bears 047° at 2.5 miles (2.2 n.m.) (waypoint position 48°16.632' N 088°58.662' W). From that position, steer 097° for 26.1 miles (22.7 n.m.) until Blake Point Light bears 188° at 2.5 miles (2.2 n.m.) (waypoint position 48°13.620' N 088°24.875' W). Then steer 121° for 2.1 miles (1.8 n.m.) until Passage Island Light bears 030° at 1 mile (0.9 n.m.) (waypoint position 48°12.650' N 088°22.570' W). From there, steer 148° for 15.0 miles (13.0 n.m.) until Passage Island Light bears 330° at 15.5 miles (13.5 n.m.) (waypoint position 48°01.641' N 088°12.295' W). Then steer 118° for 175.0 miles (152.0 n.m.) until Whitefish Point Light bears 210° at 2.5 miles (2.2 n.m.) (waypoint position 46°48.138' N 084°55.872' W). Then steer 147° for 14.8 miles (12.9 n.m.) to position 2.5 miles (2.2 n.m.) bearing 050° to Ile Parisienne Light (waypoint position 46°37.309' N 084°45.838' W). Then steer 138° for 9.8 miles (8.5 n.m.) until Gros Cap Reefs Light bears 113° at 0.6 miles (0.5 n.m.) (waypoint position 46°30.937' N 084°37.674' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1 <u>OR</u>	At Mission River Junction South of Welcome Island	48°20.213' N 089°08.900' W	118° for 8.9 (7.7)
Wpt 1 <u>THEN</u>	0.5 miles (0.4 n.m.) Northeast of Welcome Island Light	48°22.456' N 089°06.749' W	137° for 9.1 (7.9)
Wpt 2	2.5 miles (2.2 n.m.) SW of Thunder Cape Lt.	48°16.632' N 088°58.662' W	097° for 26.1 (22.7)
Wpt 3	2.5 miles (2.2 n.m.) at 008° from Blake Pt. Lt.	48°13.620' N 088°24.875' W	121° for 2.1 (1.8)
Wpt 4	1 mile (0.9 n.m.) at 210° from Passage Island Lt.	48°12.650' N 088°22.570' W	148° for 15.0 (13.0)

Wpt 5	Point 15.5 miles (13.5 n.m.) 150° from Passage Island Lt.	48°01.641' N 088°12.295' W	118° for 175.0 (152.0)
Wpt 6	Whitefish Point Lt. bearing 210° at 2.5 miles (2.2 n.m.)	46°48.138' N 084°55.872' W	147° for 14.8 (12.9)
Wpt 7	Ile Parisienne Light bearing 050° at 2.5 miles (2.2 n.m.)	46°37.309' N 084°45.838' W	138° for 9.8 (8.5)
Wpt 8	Gros Cap Reefs Light brg. 113° at 0.6 miles (0.5 n.m.)	46°30.937' N 084°37.674' W	

Marquette to Gros Cap Reefs Lt: From Marquette departure 2.0 miles (1.7 n.m.) East of Presque Isle Harbor Breakwater Light (waypoint position 46°34.500' N 087°20.000' W), steer 076° for 58.3 miles (50.7 n.m.) to 7 miles (6.1 n.m.) due North of Au Sable Light (waypoint position 46°46.400' N 086°08.429' W), and then steer 082° for 48.5 miles (42.1 n.m.) to the downbound recommended course junction with Whitefish Point Light bearing 128° at 10.0 miles (8.7 n.m.) (waypoint position 46°51.700' N 085°07.513' W). From that position, steer 114° for 10.0 miles (8.7 n.m.) to a position approximately 2.5 miles (2.2 n.m.) NE of and bearing 210° to Whitefish Point Light (waypoint position 46°48.138' N 084°55.872' W), and then steer 147° for 14.8 miles (12.9 n.m.) until Ile Parisienne Light bears 050° at 2.5 miles (2.2 n.m.) (waypoint position 46°37.309' N 084°45.838' W). Then steer 138° for 9.8 miles (8.5 n.m.) until Gros Cap Reefs Light bears 113° at 0.6 miles (0.5 n.m.) (waypoint position 46°30.937' N 084°37.674' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Marquette Departure 2.0 miles (1.7 n.m.) East of Presque Isle Lt.	46°34.500' N 087°20.000' W	076° for 58.3 (50.7)
Wpt 2	7 miles (6.1 n.m.) due North of Au Sable Light	46°46.400' N 086°08.429' W	082° for 48.5 (42.1)
Wpt 3	Downbound Route Junction with Whitefish Pt. Lt. brg. 128° at 10.0 miles (8.7 n.m.)	46°51.700' N 085°07.513' W	114° for 10.0 (8.7)
Wpt 4	Whitefish Point Lt. bearing 210° at 2.5 miles (2.2 n.m.)	46°48.138' N 084°55.872' W	147° for 14.8 (12.9)

Wpt 5	Ile Parisienne Light bearing 050° at 2.5 miles (2.2 n.m.)	46°37.309' N 084°45.838' W	138° for 9.8 (8.5)
Wpt 6	Gros Cap Reefs Light brg. 113° at 0.6 miles (0.5 n.m.)	46°30.937' N 084°37.674' W	

Superior to Knife Island: From departure position with Superior Entry South Breakwater Light bearing 235° at 2.0 (1.7) miles (waypoint position 46°43.650' N 091°58.350' W), steer 044° for 17.7 miles (15.4 n.m.) to 3.8 miles (3.3 n.m.) Southeast of Knife River Harbor Entrance Light (waypoint position 46°54.700' N 091°42.700' W).

At this position, join the downbound recommended course from Duluth steering 063° to Devils Island (as previously outlined).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Superior Entry South Breakwater Light bearing 235° at 2.0 (1.7) miles	46°43.650' N 091°58.350' W	044° for 17.7 (15.4)
Wpt 2	3.8 miles (3.3 n.m.) Southeast of Knife Island	46°54.700' N 091°42.700' W	

Two Harbors to Devils Island: From departure position 2.0 miles (1.7 n.m.) South of Two Harbors (waypoint position 46°58.900' N 091°40.000' W), steer 067° for 48 miles (41.7 n.m.) to the downbound route at 12 miles (10.4 n.m.) due North of Devils Island Light (waypoint position 47°15.170' N 090°43.673 W), and join the downbound recommended course from Duluth route (as outlined previously).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.0 miles (1.7 n.m.) South of Two Harbors	46°58.900' N 091°40.000' W	067° for 48 (41.7)
Wpt 2	12 miles (10.4 n.m.) due North of Devils Island Light	47°15.170' N 090°43.673 W	

Silver Bay to Eagle Harbor: From a departure position with Beaver Island Light bearing 285° at 1.5 (1.3) miles (waypoint position 47°16.500' N 091°13.500' W), steer 080° for 145.7 miles (126.6 n.m.) to position 12 miles (10.4 n.m.) due North of Eagle Harbor Light (waypoint position 47°37.984' N 088°09.533' W). Then join the Duluth downbound route (as previously outlined).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	105° at 1.5 miles (1.3 n.m.) from Beaver Island Lt.	47°16.500' N 091°13.500' W	080° for 145.7 (126.6)
Wpt 2	12 miles (10.4 n.m.) due North of Eagle Harbor Light	47°37.984' N 088°09.533' W	

Taconite Harbor to Eagle Harbor: From departure with Taconite Harbor of Refuge South Breakwater Light on Gull Island bearing 300° at 2.5 (2.2) miles (waypoint position 47°30.000' N 090°52.500' W), steer 085° for 127.0 miles (110.5 n.m.) to a position 12 miles (10.4 n.m.) due North of Eagle Harbor Light (waypoint position 47°37.984' N 088°09.533' W). Then join the Duluth Downbound route (as previously outlined).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.5 miles (2.2 n.m.) at 120° from Gull Island	47°30.000' N 090°52.500' W	085° for 127.0 (110.5)
Wpt 2	12 miles (10.4 n.m.) due North of Eagle Harbor Light	47°37.984' N 088°09.533' W	

Ashland to Eagle Harbor: From departure position at 0.9 mile (0.8 n.m.) Northwest of Ashland Harbor Breakwater Light (waypoint position 46°38.000' N 090°53.300' W), steer 027° for 8.3 miles (7.2 n.m.) to 0.8 Mile (0.7 n.m.) due North of Chequamegon Point Light (waypoint position 46°44.402' N 090°48.528' W). From this position, steer 090° for 6.1 (5.3) miles until La Pointe Light bears 261° at 5.0 miles (4.3 n.m.) (waypoint position 46°44.398' N 090°40.807' W). Then steer 062° for 133.7 miles (116.2 n.m.) to be 12 miles (10.4 n.m.) due North of Eagle

Harbor Light (waypoint position 47°37.984' N 088°09.533' W). Then join the downbound Duluth recommended courses (as previously outlined).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	0.9 mile (0.8 n.m.) Northwest of Ashland Harbor Brkw. Lt.	46°38.000' N 090°53.300' W	027° for 8.3 (7.2)
Wpt 2	0.8 Mile (0.7 n.m.) due North of Chequamegon Point Lt.	46°44.402' N 090°48.528' W	090° for 6.1 (5.3)
Wpt 3	5.0 miles (4.3 n.m.) at 081° from La Pointe Lt.	46°44.398' N 090°40.807' W	062° for 133.7 (116.2)
Wpt 4	12 miles (10.4 n.m.) due North of Eagle Harbor Light	47°37.984' N 088°09.533' W	

THE FOLLOWING ROUTES ARE TWO WAY AND CAN BE REVERSED:

Trowbridge Island to Whitefish Point (Mid-Lake Route): From abeam Trowbridge Island Light bearing 007° at 1.7 miles (1.5 n.m.) (waypoint position 48° 16.100' N 088° 52.650' W), steer 081° for 35.8 miles (31.1 n.m.) until Bateau Rock bears 180° at 5 miles (4.3 n.m.) (waypoint position 48° 20.500' N 088° 06.500' W). Then steer 106° for 126.2 miles (109.7 n.m.) until Michipicoten Island Light (Point Maurepas) bears 228° at 6.0 miles (5.3 nm) (waypoint position 47°48.700' N 085°30.000' W). From that position, steer 156° for 75.9 miles (66.0 n.m.) until Whitefish Point Light bears 245° at 6.0 miles (5.2 n.m.) (waypoint position 46°48.450' N 084°50.570' W); then steer to join the recommended downbound course off Ile Parisienne.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Abeam Trowbridge Island Lt. bearing 007° at 1.7 miles (1.5 n.m.)	48° 16.100' N 088° 52.650' W	081° for 35.8 (31.1)

Wpt 2	Bateau Rock bearing 180° at 5 miles (4.3 n.m.)	48° 20.500' N 088° 06.500' W	106° for 126.2 (109.7)
Wpt 3	6.0 miles (5.3 nm) bearing 048° from Michipicoten Island Light (Point Maurepas)	47°48.700' N 085°30.000' W	156° for 75.9 (66.0)
Wpt 4	065° at 6.0 miles (5.2 n.m.) from Whitefish Pt. Lt.	46°48.450' N 084°50.570' W	

Lamb Island to Heron Bay (South of the Slate Islands): From position with Lamb Island Light bearing 305° at 2.5 miles (2.2 n.m.) (waypoint position 48°35.000' N 088°06.000' W), steer 090° for 50.4 miles (43.8 n.m.) to 2.5 miles (2.2 n.m.) due South of Slate Island Light (waypoint position 48° 35.000' N 087°00.000' W), and continue steering 090° for another 26.7 miles (23.2 n.m.) to a position off Heron Bay with Oglivy Point bearing 060° at 3.8 miles (3.3 n.m.) (waypoint position 48°35.000' N 086°25.000' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Lamb Island Lt. bearing 305° at 2.5 miles (2.2 n.m.)	48°35.000' N 088°06.000' W	090° for 50.4 (43.8)
Wpt 2	2.5 miles (2.2 n.m.) due South of Slate Island Light	48° 35.000' N 087° 00.000' W	090° for 26.7 (23.2)
Wpt 3	off Heron Bay 3.8 miles (3.3 n.m.) 060° to Oglivy Pt.	48°35.000' N 086°25.000' W	

Heron Bay to Whitefish Pt. (East of Michipicoten): From departure position 2.5 (2.2) miles Southwest of Heron Bay Front Range Light (waypoint position 48° 38.000' N 086° 21.500' W), steer 217° for 4.4 miles (3.8 n.m.) to position with Oglivy Point bearing 060° at 3.8 miles (3.3 n.m.) (waypoint position 48°35.000' N 086°25.000' W). At this position, steer 163° for 37.7 miles (32.8 n.m.) until Otter Island Light bears 055° at 6.5 miles (5.6 n.m.) (waypoint position 48°03.600' N 086°11.000' W). Then steer 118° for 36.0 miles (31.3 n.m.) until Michipicoten Island Light (Point Maurepas) bears 228° at 6.0 miles (5.3 nm) (waypoint position 47°48.700' N 085°30.000' W). From that position, steer 156° for 75.9 miles (66.0 n.m.) until Whitefish Point

Light bears 245° at 6.0 miles (5.2 n.m.) (waypoint position 46°48.450' N 084°50.570' W); then steer to join the recommended downbound course off Ile Parisienne.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.5 (2.2) miles Southwest of Heron Bay Front Range Light intersecting the Heron Bay Range	48° 38.000' N 086° 21.500' W	217° for 4.4 (3.8)
Wpt 2	Point off Heron Bay 3.8 miles (3.3 n.m.) 060° to Oglivy Pt.	48°35.000' N 086°25.000' W	163° for 37.7 (32.8)
Wpt 3	Otter Is. Lt. at 055° 6.5 miles (5.6 n.m.)	48°03.600' N 086°11.000' W	118° for 36.0 (31.3)
Wpt 4	6.0 miles (5.3 nm) bearing 228° to Michipicoten Island Light (Point Maurepas)	47°48.700' N 085°30.000' W	156° for 75.9 (66.0)
Wpt 5	065° at 6.0 miles (5.2 n.m.) from Whitefish Pt. Lt.	46°48.450' N 084°50.570' W	

Heron Bay to Whitefish Pt. (West of Michipicoten): From departure position 2.5 (2.2) miles Southwest of Heron Bay Front Range Light (waypoint position 48° 38.000' N 086° 21.500' W), steer 217° for 4.4 miles (3.8 n.m.) to position with Oglivy Point bearing 060° at 3.8 miles (3.3 n.m.) (waypoint position 48°35.000' N 086°25.000' W). Then steer 163° for 64.8 miles (56.3 n.m.) until Michipicoten Island West End Light bears 047° at 3.7 miles (3.2 n.m.) (waypoint position 47° 41.000' N 086° 01.000' W). From that position, steer 137° for 81.9 miles (71.2 n.m.) until Whitefish Point Light bears 245° at 6.0 miles (5.2 n.m.) (waypoint position 46°48.450' N 084°50.570' W); then steer to join the recommended downbound course off Ile Parisienne.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.5 (2.2) miles Southwest of Heron Bay Front Range Light intersecting the Heron Bay Range	48° 38.000' N 086° 21.500' W	217° for 4.4 (3.8)
Wpt 2	Point off Heron Bay 3.8 miles (3.3	48°35.000' N	163° for 64.8 (56.3)

	n.m.) 060° to Oglivy Pt.	086°25.000' W	
Wpt 3	Michipicoten Island West End Lt. brg. 047° at 3.7 miles (3.2 n.m.)	47° 41.000' N 086° 01.000' W	137° for 81.9 (71.2)
Wpt 4	065° at 6.0 miles (5.2 n.m.) from Whitefish Pt. Lt.	46°48.450' N 084°50.570' W	

Optional Lake Superior North Shore Weather Route Passing North of the Slate Islands
(from a starting position in Western Lake Superior, this optional route may be joined anywhere along it by vessels departing from any port or altering courses to avoid weather):

Originating from a position 3.8 miles (3.3 n.m.) Southeast of Knife Island (waypoint position 46°54.700' N 091°42.700' W), steer 047° for 34.7 miles (30.2 n.m.) to 4.5 miles (3.9 n.m.) East Southeast of Silver Bay (waypoint position 47°15.000' N 091°10.000' W). Then steer 038° for 22.0 miles (19.1 n.m.) until Taconite Harbor of Refuge South Breakwater Light on Gull Island bears 300° at 2.5 (2.2) miles (waypoint position 47°30.000' N 090°52.500' W). Then steer 065° for 27.8 miles (24.2 n.m.) to 5.5 miles (4.8 n.m.) South of Grand Marais, MN (waypoint position 47°40.000' N 090°20.000' W) continuing on 065° for 38.4 miles (33.4 n.m.) for a position 5 miles (4.3 n.m.) Southeast of Grand Portage, MN (waypoint position 47°54.000' N 089°35.000' W). Then steer 059° for 53.0 miles (46.1 n.m.) until Porphyry Island Light bears 325° at 3.8 miles (3.3 n.m.) (waypoint position 48°17.700' N 088°36.000' W), then steer 049° for 30.4 miles (26.4 n.m.) until Lamb Island Light bears 305° at 2.5 miles (2.2 n.m.) (waypoint position 48°35.000' N 088°06.000' W). Then steer 068° for 26.6 miles (23.1 n.m.) for a position 2 miles (1.7 n.m.) South of Battle Island Light (waypoint position 48° 43.300' N 087° 33.500' W). Then steer 090° for 26.3 miles (22.9 n.m.) to 4.5 miles (3.9 n.m.) due South of Jackfish Bay Light on St. Patrick Island (waypoint position 48°43.300' N 086°59.000' W). From this position, steer 110° for 27.6 miles (24.0 n.m.) for a position off Heron Bay with Oglivy Point bearing 060° at 3.8 miles (3.3 n.m.) (waypoint position 48°35.000' N 086°25.000' W). Then steer 163° for 37.7 miles (32.8 n.m.) until Otter Island Light bears 055° at 6.5 miles (5.6 n.m.) (waypoint position 48°03.600' N 086°11.000' W). Then steer 118° for 36.0 miles (31.3 n.m.) to a position with Michipicoten Island Light (Point Maurepas) bearing 228° at 6.0 miles (5.3 nm) (waypoint position 47°48.700' N 085°30.000' W). From that position, steer 130° for 22.8 miles (19.8 n.m.) to 4 miles (3.5 n.m.) due West of Hursley Island Light (waypoint position 47° 35.800' N 085° 07.800' W). Then steer 166° for 56.1 miles (48.7 n.m.) until Whitefish Point Light bears 245° at 6.0 miles (5.2 n.m.) (waypoint position 46°48.450' N 084°50.570' W); then steer to join the recommended downbound course off Ile Parisienne.

Waypoint	Brg/Range	Lat/Long	Course and Distance to
----------	-----------	----------	------------------------

			Steer
Wpt 1	A point 3.8 miles (3.3 n.m.) Southeast of Knife Island	46°54.700' N 091°42.700' W	047° for 34.7 (30.2)
Wpt 2	4.5 miles (3.9 n.m.) East Southeast of Silver Bay	47°15.000' N 091°10.000' W	038° for 22.0 (19.1)
Wpt 3	2.5 miles (2.2 n.m.) at 120° from Gull Island at Taconite Harbor	47°30.000' N 090°52.500' W	065° for 27.8 (24.2)
Wpt 4	5.5 miles (4.8 n.m.) South of Grand Marais, MN	47°40.000' N 090°20.000' W	065° for 38.4 (33.4)
Wpt 5	5 miles (4.3 n.m.) Southeast of Grand Portage, MN	47°54.000' N 089°35.000' W	059° for 53.0 (46.1)
Wpt 6	Porphyry Island Lt. bearing 325° at 3.8 miles (3.3 n.m.)	48°17.700' N 088°36.000' W	049° for 30.4 (26.4)
Wpt 7	Lamb Island Lt. bearing 305° at 2.5 miles (2.2 n.m.)	48°35.000' N 088°06.000' W	068° for 26.6 (23.1)
Wpt 8	2 miles (1.7 n.m.) South of Battle Island Light	48° 43.300' N 087° 33.500' W	090° for 26.3 (22.9)
Wpt 9	4.5 miles (3.9 n.m.) due South of Jackfish Bay Lt. on St. Patrick Isl.	48°43.300' N 086°59.000' W	110° for 27.6 (24.0)
Wpt 10	Point off Heron Bay 3.8 miles (3.3 n.m.) 060° to Oglivy Pt.	48°35.000' N 086°25.000' W	163° for 37.7 (32.8)
Wpt 11	Otter Island Lt. brg. 055° at 6.5 miles (5.6 n.m.)	48°03.600' N 086°11.000' W	118° for 36.0 (31.3)
Wpt 12	6.0 miles (5.3 nm) off bearing 228° to Michipicoten Island Light (Point Maurepas)	47°48.700' N 085°30.000' W	130° for 22.8 (19.8)
Wpt 13	4 miles (3.5 n.m.) due West of Hursley Island Lt.	47° 35.800' N 085° 07.800' W	166° for 56.1 (48.7)
Wpt 14	065° at 6.0 miles (5.2 n.m.) from Whitefish Pt. Lt.	46°48.450' N 084°50.570' W	

Optional Lake Superior South Shore Weather Route to Whitefish Pt. (from a starting position in Western Lake Superior, this route may be joined anywhere along it by vessels departing from any port or altering courses to avoid weather): From a position 2.5 miles (2.2 n.m.) North of Devils Island Light (waypoint position 47°07.000' N 090°43.700' W), steer 086° for 18.7 miles (16.2 n.m.) until Outer Island Light bears 225° at 5.6 miles (4.9 n.m.) (waypoint position 47°08.000' N 090°20.000' W). Then steer 163° for 27.6 miles (24.0 n.m.) until Black River Harbor Light bears 135° at 7.8 miles (6.8 n.m.) (waypoint position 46°45.000' N 090°10.000' W). From this position, steer 068° for 46.7 miles (40.6 n.m.) until approximately 6 miles (5.2 n.m.) West of Fourteen Mile Pt. (waypoint position 47°00.000' N 089°15.000' W). Then steer 053° for 29.2 miles (25.4 n.m.) until Keweenaw Upper Entrance Light bears 100° at 280° and 5.8 miles (5.0 n.m.) (waypoint position 47°15.000' N 088°45.000' W). From there, steer 048° for 15.7 miles (13.6 n.m.) to 4 miles (3.5 n.m.) off Sevenmile Point (waypoint position 47°24.000' N 088°30.000' W). Then steer 066° for 17.4 miles (15.1 n.m.) to 2.8 miles (2.4 n.m.) North of Eagle Harbor Light (waypoint position 47°30.000' N 088°09.533' W). Then steer 090° for 19.1 miles (16.6 n.m.) until Gull Rock Light bears 144° at 7.0 miles (6.1 n.m.) (waypoint position 47°30.000' N 087°45.000' W). From this position, steer 144° for 4.5 miles (3.9 n.m.) until Gull Rock Light bears 144° at 2.5 miles (2.2 n.m.) (waypoint position 47°26.830' N 087°41.670' W), and then steer 177° for 30.9 miles (26.9 n.m.) until 11 miles (9.6 n.m.) North of Big Bay Point Light (waypoint position 47°00.000' N 087°40.000' W). At this position, steer 152° for 25.9 miles (22.5 n.m.) until 4.3 miles (3.7 n.m.) North of Partridge Island (waypoint position 46°40.000' N 087°25.000' W). From this point steer 106° for 20.6 miles (17.9 n.m.) until 3.5 miles (3.0 n.m.) off of Laughing Fish Point (waypoint position 46°35.000' N 087°00.000' W). Then steer 083° for 24.0 miles (20.9 n.m.) to 5.2 miles (4.5 n.m.) off of Grand Portal Point (waypoint position 46°37.500' N 086°30.000' W). From this position, steer 071° for 18.0 miles (15.6 n.m.) to 2.5 miles (2.2 n.m.) North of Au Sable Light (waypoint position 46°42.500' N 086°08.429' W). Then steer 082° for 42.7 miles (37.1 n.m.) to a position at 2.7 miles (2.3 n.m.) North of Crisp Pt. Abandoned Lighthouse (waypoint position 46°47.500' N 085°15.000' W). From this position, steer 087° for 15.1 miles (13.1 n.m.) until Whitefish Point Light bears 210° at 2.5 miles (2.2 n.m.) (waypoint position 46°48.138' N 084°55.872' W), and join the regular downbound course from Whitefish Point.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.5 miles (2.2 n.m.) North of Devils Island Lt.	47°07.000' N 090°43.700' W	086° for 18.7 (16.2)
Wpt 2	045° at 5.6 miles (4.9 n.m.) from Outer Island Lt.	47°08.000' N 090°20.000' W	163° for 27.6 (24.0)

Wpt 3	315° at 7.8 miles (6.8 n.m.) from Black River Harbor Lt.	46°45.000' N 090°10.000' W	068° for 46.7 (40.6)
Wpt 4	Approximately 6 miles (5.2 n.m.) West of Fourteen Mile Pt.	47°00.000' N 089°15.000' W	053° for 29.2 (25.4)
Wpt 5	280° at 5.8 miles (5.0 n.m.) from Keweenaw Upper Entry	47°15.000' N 088°45.000' W	048° for 15.7 (13.6)
Wpt 6	4 miles (3.5 n.m.) off Sevenmile Pt.	47°24.000' N 088°30.000' W	066° for 17.4 (15.1)
Wpt 7	2.8 miles (2.4 n.m.) North of Eagle Harbor Lt.	47°30.000' N 088°09.533' W	090° for 19.1 (16.6)
Wpt 8	324° at 7.0 miles (6.1 n.m.) from Gull Rock Lt.	47°30.000' N 087°45.000' W	144° for 4.5 (3.9)
Wpt 9	324° at 2.5 miles (2.2 n.m.) from Gull Rock Lt.	47°26.830' N 087°41.670' W	177° for 30.9 (26.9)
Wpt 10	11 miles (9.6 n.m.) North of Big Bay Pt.	47°00.000' N 087°40.000' W	152° for 25.9 (22.5)
Wpt 11	4.3 miles (3.7 n.m.) North of Partridge Island	46°40.000' N 087°25.000' W	106° for 20.6 (17.9)
Wpt 12	3.5 miles (3.0 n.m.) off of Laughing Fish Pt.	46°35.000' N 087°00.000' W	083° for 24.0 (20.9)
Wpt 13	5.2 miles (4.5 n.m.) off of Grand Portal Point	46°37.500' N 086°30.000' W	071° for 18.0 (15.6)
Wpt 14	2.5 miles (2.2 n.m.) North of Au Sable Pt. Lt.	46°42.500' N 086°08.429' W	082° for 42.7 (37.1)
Wpt 15	2.7 miles (2.3 n.m.) North of Crisp Pt. Abandoned Lighthouse	46°47.500' N 085°15.000' W	087° for 15.1 (13.1)
Wpt 16	030° at 2.5 miles (2.2 n.m.) from Whitefish Point Lt.	46°48.138' N 084°55.872' W	

RECOMMENDED COURSES

LAKE SUPERIOR

Upbound/Inbound

Gros Cap (Buoy 39) to Duluth: Starting from a position off Buoy 39 in the Upper St. Marys River with Gros Cap Reefs Light bearing 330° at 1.3 miles (1.1 n.m.)(waypoint position 46°29.738'N 084°36.138'W), steer 300° for 4.9 miles (4.3 n.m.) until Gros Cap Reefs Light bears 110° at 3.9 miles (3.4 n.m.)(waypoint position 46°31.893' N 084°41.518' W). Then steer 319° for 7.0 miles (6.1 n.m.) until Ile Parisienne Light bears 050° at 4.0 miles (3.5 n.m.) (waypoint position 46°36.462' N 084°47.270' W), then steer 328° for 14.3 miles (12.4 n.m.) until Whitefish Point Light bears 210° at 1.0 miles (0.9 n.m.) (waypoint position 46°47.010' N 084°56.814' W). From this position, steer 279° for 14.2 miles (12.3 n.m.) until the abandoned lighthouse at Crisp Point bears 190° at 7.0 miles (6.1 n.m.) (waypoint position 46°48.995' N 085°14.491' W). Then steer 292° for 118.0 miles (102.5 n.m.) until Manitou Island Light bears 204° at 4.0 miles (3.5 n.m.) (waypoint position 47°28.372' N 087°33.184' W). From there, steer 289° for 15.3 miles (13.3 n.m.) to a position due North of Copper Harbor Light at 5.0 miles (4.3 n.m.) (waypoint position 47°32.810' N 087°51.615' W). Then steer 265° for 14.0 miles (12.2 n.m.) to a point 5.0 miles (4.3 n.m.) due North of Eagle Harbor Light (waypoint position 47°31.931' N 088°09.533' W), then steer 257° for 123.3 miles (107.1 n.m.) to position 5 miles (4.3 n.m.) North of Devil's Island Light (waypoint position 47°09.100' N 090°43.673' W). From there, steer 248° for 66.2 miles (57.5 n.m.) for an arrival located at 063° at 3.0 miles (2.6 n.m.) from the outer ends of the Duluth Piers (waypoint position 46°48.000' N 092°01.900' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Upbound Pt off Buoy 39 150° at 1.3 miles (1.1 n.m.) from Gros Cap Reefs Lt.	46°29.738'N 084°36.138'W	300° for 4.9 (4.3)
Wpt 2	Upbound Pt. 290° at 3.9 miles (3.4 n.m.) from Gros Cap Reefs Lt.	46°31.893' N 084°41.518' W	319° for 7.0 (6.1)
Wpt 3	4.0 miles (3.5 n.m.) at 230° from Ile Parisienne Lt.	46°36.462' N 084°47.270' W	328° for 14.3 (12.4)
Wpt 4	1.0 miles (0.9 n.m.) at 030° from Whitefish Pt. Lt.	46°47.010' N 084°56.814' W	279° for 14.2 (12.3)

Wpt 5	7.0 miles (6.1 n.m.) at 010° from Crisp Pt. Abandoned Lighthouse	46°48.995' N 085°14.491' W	292° for 118.0 (102.5)
Wpt 6	4.0 miles (3.5 n.m.) at 024° from Manitou Island Lt.	47°28.372' N 087°33.184' W	289° for 15.3 (13.3)
Wpt 7	Position due North of Copper Harbor Lt. at 5.0 miles (4.3 n.m.)	47°32.810' N 087°51.615' W	265° for 14.0 (12.2)
Wpt 8	Upbound Pt. due North of Eagle Harbor Lt. at 5.0 miles (4.3 n.m.)	47°31.931' N 088°09.533' W	257° for 123.3 (107.1)
Wpt 9	5 miles (4.3 n.m.) North of Devil's Island Lt.	47°09.100' N 090°43.673' W	248° for 66.2 (57.5)
Wpt 10	063° at 3.0 miles (2.6 n.m.) from Duluth Piers	46°48.000' N 092°01.900' W	

Gros Cap to Thunder Bay: Starting from a position located 293° at 0.6 miles (0.5 n.m.) off Gros Cap Reefs Light (waypoint position 46°30.937' N 084°37.674' W), steer 000° for 1.5 miles (1.3 n.m.) until Gros Cap Reefs Light bears 160° at 1.9 miles (1.7 n.m.) (waypoint position 46°32.275' N 084°37.674' W). Then steer 318° for 8.6 miles (7.5 n.m.) until Ile Parisienne Light bears 050° at 1.5 miles (1.3 n.m.) (waypoint position 46°37.869' N 084°44.873' W). From that position, steer 339° for 13.0 miles (11.3 n.m.) until Whitefish Point Light bears 245° at 6.0 miles (5.2 n.m.) (waypoint position 46°48.450' N 084°50.570' W). Then steer 300° for 191.7 miles (166.6 n.m.) until Passage Island Light bears 030° at 0.5 mile (0.4 n.m.) (waypoint position 48°13.025' N 088°22.240' W). From there, steer 310° for 2.9 miles (2.5 n.m.) until 3.8 miles (3.3 n.m.) North of Blake Point Light (waypoint position 48°14.727' N 088°25.258' W), then steer 276° for 26.1 miles (22.7 n.m.) until Hare Island Light Buoy A2 bears 340° at 0.5 mile (0.4 n.m.) (waypoint position 48°17.469' N 088°59.012' W). Then steer **EITHER** 319° for 8.2 miles (7.1 n.m.) to arrival at a position 1.3 mile (1.1 n.m.) Northeast of Welcome Island Light (waypoint position 48°22.884' N 089°06.003' W) **OR** 292° for 8.2 miles (7.1 n.m.) for arrival at the junction position South of Welcome Island for Mission River (waypoint position 48°20.213' N 089°08.900' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	A point at 293° at 0.6 miles (0.5 n.m.) off Gros Cap Reef Lt.	46°30.937' N 084°37.674' W	000° for 1.5 (1.3)
Wpt 2	Upbound Thunder Bay Route 340° at 1.9 miles (1.7 n.m.) from Gros Cap Reef Lt.	46°32.275' N 084°37.674' W	318° for 8.6 (7.5)
Wpt 3	230° at 1.5 miles (1.3 n.m.) from Isle Parisienne Lt.	46°37.869' N 084°44.873' W	339° for 13.0 (11.3)
Wpt 4	065° at 6.0 miles (5.2 n.m.) from Whitefish Pt. Lt. upbound to Thunder Bay	46°48.450' N 084°50.570' W	300° for 191.7 (166.6)
Wpt 5	0.5 mile (0.4 n.m.) at 210° from Passage Island Lt.	48°13.025' N 088°22.240' W	310° for 2.9 (2.5)
Wpt 6	3.8 miles (3.3 n.m.) North of Blake Pt. Lt.	48°14.727' N 088°25.258' W	276° for 26.1 (22.7)
Wpt 7	0.5 mile (0.4 n.m.) at 160° from Hare Island Light Buoy A2	48°17.469' N 088°59.012' W	319° for 8.2 (7.1) <u>OR</u> 292° for 8.2 (7.1)
Wpt 8 <u>OR</u>	Point 1.3 mile (1.1 n.m.) Northeast of Welcome Island Lt.	48°22.884' N 089°06.003' W	
Wpt 8	At junction position South of Welcome Island for Mission River	48°20.213' N 089°08.900' W	

Gros Cap (Buoy 39) to Marquette: Starting from a position off Buoy 39 in the Upper St. Marys River with Gros Cap Reefs Light bearing 330° at 1.3 miles (1.1 n.m.)(waypoint position 46°29.738'N 084°36.138'W), steer 300° for 4.9 miles (4.3 n.m.) until Gros Cap Reefs Light bears 110° at 3.9 miles (3.4 n.m.)(waypoint position 46°31.893' N 084°41.518' W). Then steer 319° for 7.0 miles (6.1 n.m.) until Ile Parisienne Light bears 050° at 4.0 miles (3.5 n.m.) (waypoint position 46°36.462' N 084°47.270' W), then steer 328° for 14.3 miles (12.4 n.m.)

until Whitefish Point Light bears 210° at 1.0 miles (0.9 n.m.) (waypoint position 46°47.010' N 084°56.814' W). From this position, steer 279° for 14.2 miles (12.3 n.m.) until the abandoned lighthouse at Crisp Point bears 190° at 7.0 miles (6.1 n.m.) (waypoint position 46°48.995' N 085°14.491' W). Then steer 262° for 43.0 miles (37.4 n.m.) to a position 4.5 miles (3.9 n.m.) due North of Au Sable Pt. Light (waypoint position 46°44.279' N 086°08.429' W). Then steer 256° for 57.3 miles (49.8 n.m.) for Marquette arrival at 3.0 miles (2.6 n.m.) East of Marquette Light (waypoint position 46°32.800' N 087°18.800' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Upbound Pt off Buoy 39 150° at 1.3 miles (1.1 n.m.) from Gros Cap Reef Lt.	46°29.738'N 084°36.138'W	300° for 4.9 (4.3)
Wpt 2	Upbound Pt. 290° at 3.9 miles (3.4 n.m.) from Gros Cap Reef Lt.	46°31.893' N 084°41.518' W	319° for 7.0 (6.1)
Wpt 3	4.0 miles (3.5 n.m.) 230° from Isle Parisienne Lt.	46°36.462' N 084°47.270' W	328° for 14.3 (12.4)
Wpt 4	1.0 miles (0.9 n.m.) at 030° from Whitefish Pt. Lt	46°47.010' N 084°56.814' W	279° for 14.2 (12.3)
Wpt 5	7.0 miles (6.1 n.m.) 010° from the Crisp Pt. Abandoned Lighthouse	46°48.995' N 085°14.491' W	262° for 43.0 (37.4)
Wpt 6	4.5 miles (3.9 n.m.) due North of Au Sable Pt. Lt.	46°44.279' N 086°08.429' W	256° for 57.3 (49.8)
Wpt 7	Marquette Arrival at 3.0 miles (2.6 n.m.) East of Marquette Lt.	46°32.800' N 087°18.800' W	

Whitefish Pt. to Thunder Bay (Mid-Lake Route) (note most of this route is two-way until arrival at Porphyry Island): From starting position with Whitefish Point Light bearing 245° at 6.0 miles (5.2 n.m.) (waypoint position 46°48.450' N 084°50.570' W), steer 336° for 75.9 miles (66.0 n.m.) until Michipicoten Island Light (Point Maurepas) bears 228° at 6.0 miles (5.3 nm) (waypoint position 47°48.700' N 085°30.000' W). Then steer 286° for 126.2 miles (109.7 n.m.) until Bateau Rock bears 180° at 5 miles (4.3 n.m.) (waypoint position 48° 20.500' N 088° 06.500' W). From there, steer 261° for 35.8 miles (31.1 n.m.) until Porphyry Island Light bears

325° at 3.8 miles (3.3 n.m.) (waypoint position 48°17.700' N 088°36.000' W), then steer 265° for 12.7 miles (11.0 n.m.) until Hare Island Lighted Buoy A2 bears 340° at 0.5 mile (0.4 n.m.) (waypoint position 48°17.469' N 088°59.012' W). Then steer **EITHER** 319° for 8.2 miles (7.1 n.m.) for arrival at position 1.3 mile (1.1 n.m.) Northeast of Welcome Island Lt. (waypoint position 48°22.884' N 089°06.003' W) **OR** steer 292° for 8.2 miles (7.1 n.m.) for arrival at the junction position South of Welcome Island for Mission River (waypoint position 48°20.213' N 089°08.900' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	065° at 6.0 miles (5.2 n.m.) from Whitefish Pt. Lt.	46°48.450' N 084°50.570' W	336° for 75.9 (66.0)
Wpt 2	6.0 miles (5.3 nm) bearing 048° from Michipicoten Island Light (Point Maurepas)	47°48.700' N 085°30.000' W	286° for 126.2 (109.7)
Wpt 3	Bateau Rock bearing 180° at 5 miles (4.3 n.m.)	48° 20.500' N 088° 06.500' W	261° for 35.8 (31.1)
Wpt 4	Porphyry Island Lt. bearing 325° at 3.8 miles (3.3 n.m.)	48°17.700' N 088°36.000' W	265° for 12.7 (11.0)
Wpt 5	0.5 mile (0.4 n.m.) at 160° from Hare Island Lighted Buoy A2	48°17.469' N 088°59.012' W	319° for 8.2 (7.1) <u>OR</u> 292° for 8.2 (7.1)
Wpt 6 <u>OR</u>	Position 1.3 mile (1.1 n.m.) Northeast of Welcome Island Lt.	48°22.884' N 089°06.003' W	
Wpt 6	At Junction South of Welcome Island off Buoy A6 for Mission River	48°20.213' N 089°08.900' W	

Copper Harbor to Taconite Harbor: From the upbound position due North of Copper Harbor at 5.0 miles (4.3 n.m.) (waypoint position 47°32.810' N 087°51.615' W), steer 268° for 141 miles (122.5 n.m.) until Taconite Harbor of Refuge South Breakwater Light on Gull Island bears 300° at 2.5 (2.2) miles (waypoint position 47°30.000' N 090°52.500' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Position off Copper Harbor bearing due North at 5.0 miles (4.3 n.m.)	47°32.810' N 087°51.615' W	268° for 141(122.5)
Wpt 2	2.5 miles (2.2 n.m.) at 120° from Gull Island	47°30.000' N 090°52.500' W	

Eagle Harbor to Ashland: From upbound position 5.0 miles (4.3 n.m.) due North of Eagle Harbor Light (waypoint position 47°31.931' N 088°09.533' W), steer 244° for 119 miles (103.4 n.m.) to position approx. 6.5 miles (5.6 n.m.) Southeast of Michigan Island Light (waypoint position 46°47.172' N 090°26.172' W). Then steer 254° for 12.0 miles (10.4 n.m.) until La Pointe Light bears 261° at 5.0 miles (4.3 n.m.) (waypoint position 46°44.398' N 090°40.807' W). Then steer 270° for 6.1 miles (5.3) to 0.8 Mile (0.7 n.m.) due North of Chequamegon Point Light (waypoint position 46°44.402' N 090°48.528' W). Then steer 207° for 8.3 miles (7.2 n.m.) for position 0.9 mile (0.8 n.m.) Northwest of Ashland Harbor Breakwater Light (waypoint position 46°38.000' N 090°53.300' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Upbound Pt. 5.0 miles (4.3 n.m.) due North of Eagle Harbor Lt.	47°31.931' N 088°09.533' W	244° for 119 (103.4)
Wpt 2	A point approx. 6.5 miles (5.6 n.m.) Southeast of Michigan Island Lt.	46°47.172' N 090°26.172' W	254° for 12.0 (10.4)
Wpt 3	5.0 miles (4.3 n.m.) at 081° from La Pointe Lt.	46°44.398' N 090°40.807' W	270° for 6.1 (5.3)
Wpt 4	0.8 Mile (0.7 n.m.) due North of Chequamegon Point Lt.	46°44.402' N 090°48.528' W	207° for 8.3 (7.2)

Wpt 5	0.9 mile (0.8 n.m.) Northwest of Ashland Harbor Brkw. Lt.	46°38.000' N 090°53.300' W	
-------	---	-------------------------------	--

Outer Island to Silver Bay: From the split for Silver Bay at 8.4 miles (7.3 n.m.) due North of Outer Island Light (waypoint position 47°11.900' N 090°25.000' W), steer 277° for 38.4 miles (33.4 n.m.) to reach arrival position with Beaver Island Light bearing 285° at 1.5 miles (1.3 n.m.) (waypoint position 47°16.500' N 091°13.500' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Split for Silver Bay 8.4 miles (7.3 n.m.) due North of Outer Island Lt.	47°11.900' N 090°25.000' W	277° for 38.4 (33.4)
Wpt 2	1.5 miles (1.3 n.m.) at 105° from Beaver Island Lt.	47°16.500' N 091°13.500' W	

Devils Island to Superior: From the upbound position at 5 miles (4.3 n.m.) North of Devil's Island Light (waypoint position 47°09.100' N 090°43.673' W), steer 243° for 65.7 miles (57.1 n.m.) until Superior Entry South Breakwater Light bears 235° at 2.0 (1.7) miles (waypoint position 46°43.650' N 091°58.350' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	5 miles (4.3 n.m.) North of Devil's Island Lt.	47°09.100' N 090°43.673' W	243° for 65.7 (57.1)
Wpt 2	055° at 2.0 miles (1.7 n.m.) from Superior Entry South Brkw. Lt.	46°43.650' N 091°58.350' W	

Devils Island to Two Harbors: From 5 miles (4.3 n.m.) North of Devil's Island Light (waypoint position 47°09.100' N 090°43.673' W), steer 255° for 45.8 miles (39.8 n.m.) to position 2.0 miles (1.7 n.m.) South of Two Harbors East Breakwater Light (waypoint position 46°58.900' N 091°40.000' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	5 miles (4.3 n.m.) North of Devil's Island Lt.	47°09.100' N 090°43.673' W	255° for 45.8 (39.8)
Wpt 2	2.0 miles (1.7 n.m.) South of Two Harbors East Brkw. Lt.	46°58.900' N 091°40.000' W	

Anchorage

Limits of the recommended anchorage area in Whitefish Bay are described as follows:

From a position on the Birch Pt. Range .5 miles above Gros Cap, 340° for 2.5 miles; then 314° to a position 2 miles off Ile Parisienne Lt. From a position on the Birch Pt. Range .5 miles above Gros Cap, to another point 229° for .5 miles; thence 300° for 2.7 miles; thence to a position 3.5 miles off Ile Parisienne Lt.

No downbound vessel shall proceed from this anchorage area unless authorized to do so by the U.S. Coast Guard.

RECOMMENDED COURSES

LAKE MICHIGAN Southbound/Inbound

Mackinac Bridge to Southern Lake Michigan Ports via Lansing Shoal: From the center of the Mackinac Bridge (waypoint position 45° 48.920' N 084° 43.680' W), steer 279° for 19.9 miles (17.3 n.m.) to 1.5 miles (1.3 n.m.) North of White Shoal Light (waypoint position 45° 51.800' N 085° 08.100' W). Then steer 277° for 17.8 miles (15.5 n.m.) to a position 3.0 miles (2.6 n.m.) from a bearing 276° to Lansing Shoals Light (waypoint position 45° 53.900' N 085° 30.000' W). From that position, steer 267° for 3.0 miles (2.6 n.m.) to a position 0.5 miles (0.4 n.m.) South of Lansing Shoals Light, (the Westbound Waypoint) (waypoint position 45° 53.775' N 085° 33.710' W), then steer 240° for 30.0 miles (26.1 n.m.) to the 30 Mile Haul 30.0 miles (26.1 n.m.) from the Lansing Shoals Light Course Change (waypoint position 45° 40.915' N 086° 06.235' W). From this position, follow recommended courses specific to destination port.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Center of Mackinac Bridge	45°48.920' N 084°43.680' W	279° for 19.9 (17.3)
Wpt 2	1.5 miles (1.3 n.m.) North of White Shoal Lt.	45° 51.800' N 085° 08.100' W	277° for 17.8 (15.5)
Wpt 3	3.0 miles (2.6 n.m.) bearing 276° on Lansing Shoals Lt.	45° 53.900' N 085° 30.000' W	267° for 3.0 (2.6)
Wpt 4	0.5 miles (0.4 n.m.) South of Lansing Shoals Lt.	45° 53.775' N 085° 33.710' W	240° for 30.0 (26.0)
Wpt 5	30 Mile Haul 30.0 miles (26.0 n.m.) from Lansing Shoals Lt.	45° 40.915' N 086° 06.235' W	

To Indiana Harbor/Calumet from 30 Mile Haul: From 30 Mile Haul 30.0 miles (26.1 n.m.) from the Lansing Shoals Light Course Change (waypoint position 45° 40.915' N 086° 06.235' W), steer 196° for 208 miles (180.7 n.m.) to a junction position 25.0 miles (21.7 n.m.) East of Wind Pt. Light (waypoint position 42° 47.000' N 087° 15.500' W). Then steer 188° for 69.5 miles (60.4 n.m.) to a junction position North of Calumet Buoy 2 (waypoint position 41° 47.200' N 087° 27.200' W). From this position, steer 185° for 3.8 miles (3.3. n.m.) to the split to either Indiana Harbor or Calumet Harbor (waypoint position 41° 43.900' N 087° 27.650' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	30 Mile Haul 30.0 miles (26.1 n.m.) from Lansing Shoals Lt.	45° 40.915' N 086° 06.235' W	196° for 208 (180.7)
Wpt 2	Junction position Junction 25.0 miles (21.7 n.m.) East of Wind Pt. Lt.	42° 47.000' N 087° 15.500' W	188° for 69.5 (60.4)
Wpt 3	Junction position North of Calumet Buoy 2	41° 47.200' N 087° 27.200' W	185° for 3.8 (3.3)
Wpt 4	Split to Indiana Harbor or Calumet Harbor	41° 43.900' N 087° 27.650' W	

To Gary or Buffington from 30 Mile Haul: From 30 Mile Haul position 30.0 miles (26.1 n.m.) from the Lansing Shoals Light Course Change (waypoint position 45° 40.915' N 086° 06.235' W), steer 196° for 208 miles (180.7 n.m.) to a junction position 25.0 miles (21.7 n.m.) East of Wind Pt. Light (waypoint position 42° 47.000' N 087° 15.500' W). Then steer 183° for 74.7 miles (64.9 n.m.) to the junction position 5.0 miles (4.3 n.m.) NNW of Gary and NE of Buffington (waypoint position 41° 42.200' N 087° 20.100' W). From that position, steer 165° for 3.1 miles (2.7 n.m.) to Gary 2.0 miles (1.7 n.m.) North of Gary (waypoint position 41° 39.600' N 087° 19.200' W) **OR** steer 222° for 3.4 miles (3.0 n.m.) to Buffington 2.0 miles (1.7 n.m.) NE of Buffington (waypoint position 41° 40.000' N 087° 22.800' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	30 Mile Haul 30.0 miles (26.1 n.m.) from Lansing Shoals Lt.	45° 40.915' N 086° 06.235' W	196° for 208 (180.7)
Wpt 2	Route Junction 25.0 miles (21.7 n.m.) East of Wind Pt. Lt.	42° 47.000' N 087° 15.500' W	183° for 74.7 (64.9)
Wpt 3	Route Junction 5.0 miles (4.3 n.m.) NNW of Gary and NE of Buffington	41° 42.200' N 087° 20.100' W	165° for 3.1 (2.7) to Gary OR 222° for 3.4 (3.0) to Buffington
Wpt 4 OR	GARY 2.0 miles (1.7 n.m.) North of Gary	41° 39.600' N 087° 19.200' W	
Wpt 4	BUFFINGTON 2.0 miles (1.7 n.m.) NE of Buffington	41° 40.000' N 087° 22.800' W	

To Burns Harbor from 30 Mile Haul: From 30 Mile Haul 30.0 miles (26.1 n.m.) from the Lansing Shoals Light Course Change (waypoint position 45° 40.915' N 086° 06.235' W), steer 196° for 189 miles (164.2 n.m.) to a position where the courses split to Burns Harbor (waypoint position 43° 03.000' N 087° 09.300' W). Then steer 179° for 94.8 miles (82.4 n.m.) to a position 2.0 miles (1.7 n.m.) North of Burns Harbor (waypoint position 41° 40.600' N 087° 08.200' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	30 Mile Haul 30.0 miles (26.1 n.m.) from Lansing Shoals Lt.	45° 40.915' N 086° 06.235' W	196° for 189 (164.2)
Wpt 2	Route Split to Burns Harbor	43° 03.000' N 087° 09.300' W	179° for 94.8 (82.4)
Wpt 3	2.0 miles (1.7 n.m.) North of Burns Harbor	41° 40.600' N 087° 08.200' W	

To Chicago from 30 Mile Haul: From 30 Mile Haul 30.0 miles (26.1 n.m.) from the Lansing Shoals Light Course Change (waypoint position 45° 40.915' N 086° 06.235' W), steer 196° for 208 miles (180.7 n.m.) to a junction position 25.0 miles (21.7 n.m.) East of Wind Pt. Light (waypoint position 42° 47.000' N 087° 15.500' W). Then steer 192° for 63.4 miles (55.1 n.m.) to arrive at the Chicago arrival position bearing 270° @ 3.0 miles (2.6 n.m.) (waypoint position 41° 53.300' N 087° 32.000' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	30 Mile Haul 30.0 miles (26.1 n.m.) from Lansing Shoals Lt.	45° 40.915' N 086° 06.235' W	196° for 208 (180.7)
Wpt 2	Route Junction 25.0 miles (21.7 n.m.) East of Wind Pt. Lt.	42° 47.000' N 087° 15.500' W	192° for 63.4 (55.1)
Wpt 3	Chicago Line-up bearing 270° @ 3.0 miles (2.6 n.m.)	41° 53.300' N 087° 32.000' W	

To Milwaukee from 30 Mile Haul: From 30 Mile Haul 30.0 miles (26.1 n.m.) from the Lansing Shoals Light Course Change (waypoint position 45° 40.915' N 086° 06.235' W), steer 206° for 113.7 miles (98.8 n.m.) to a position junction 18.0 miles (15.6 n.m.) at 090° from Rawley Pt. Light (waypoint position 44° 12.650' N 087° 08.800' W). Then steer 202° for 88.7 miles (77.1 n.m.) to a position 2.5 miles (2.2 n.m.) East of Milwaukee (waypoint position 43° 01.600' N 087° 50.000' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	30 Mile Haul 30.0 miles (26.1 n.m.) from Lansing Shoals Lt.	45° 40.915' N 086° 06.235' W	206° for 113.7 (98.8)
Wpt 2	18.0 miles (15.6 n.m.) at 090° from Rawley Pt. Lt.	44° 12.650' N 087° 08.800' W	202° for 88.7 (77.1)
Wpt 3	2.5 miles (2.2 n.m.) East of Milwaukee	43° 01.600' N 087° 50.000' W	

To Sturgeon Bay from 30 Mile Haul: From 30 Mile Haul 30.0 miles (26.1 n.m.) from the Lansing Shoals Light Course Change (waypoint position 45° 40.915' N 086° 06.235' W), steer 220° for 85.3 miles (74.1 n.m.) to a position approximately 4.0 miles (3.5 n.m.) SE of Sturgeon Bay Ship Canal Lakeside Entry (waypoint position 44° 45.000' N 087° 15.000' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	30 Mile Haul 30.0 miles (26.1 n.m.) from Lansing Shoals Lt.	45° 40.915' N 086° 06.235' W	220° for 85.3 (74.1)
Wpt 2	4.0 miles (3.5 n.m.) SE of Sturgeon Bay Lakeside Entry	44° 45.000' N 087° 15.000' W	

Mackinac Bridge to Southeast Lake Michigan via Grays Reef: From the center of the Mackinac Bridge (waypoint position 45°48.920' N 084°43.680' W), steer 275° for 16.8 miles (14.6 n.m.) to a position 3.0 miles (2.6 n.m.) East of White Shoal Light (waypoint position 45° 50.250' N 085° 04.440' W). Then steer 257° for 3.2 miles (2.8 n.m.) to 0.75 miles (0.65 n.m.) South of White Shoal Light (waypoint position 45° 49.640' N 085° 08.288' W). From that position, steer 186° through Grays Reef Passage for 4.4 miles (3.8 n.m.). At a point 0.3 mile (0.2 n.m.) Southeast of Grays Reef Light (waypoint position 45° 45.840' N 085° 08.860' W) steer 238° for 4.2 miles (3.6 n.m.) until Ile aux Galets Light bears 329° at 4.5 miles (3.9 n.m.) (waypoint position 45° 43.950' N 085° 13.250' W), then steer 217° for 54.9 miles (47.7 n.m.) until Leland Harbor bears 127° at 8.5 miles (7.4 n.m.) (waypoint position 45° 05.900' N 085° 54.150' W). Then steer 197° for 6.2 miles (5.4 n.m.) to 1.0 miles (0.9 n.m.) Southeast of North Manitou Shoal Light (waypoint position 45° 00.730' N 085° 56.420' W). Then steer 241° for 14.3 miles (12.4 n.m.) until 1.5 miles (1.3 n.m.) Northwest of Sleeping Bear Lighted Bell Buoy 7 (waypoint position 44° 55.250' N 086° 10.810' W). Then steer 205° for 17.5 miles (15.2 n.m.) until Point Betsie Light bears due East at 3.8 miles (3.3 n.m.) (waypoint position 44° 41.460' N 086° 19.860' W). Then steer 194° for 45.2 miles (39.3 n.m.). When Big Sable Light is due East at 2.5 miles (2.2 n.m.) (waypoint position 44° 03.500' N 086° 34.000' W), steer 183° for 28.1 miles (24.4 n.m.) to a position 2.8 miles (2.4 n.m.) due West of Little Sable Point (waypoint position 43° 39.160' N 086° 35.850' W). Then steer 180° for 19.1 miles (16.6 n.m.) to arrive at a junction position located 8.4 miles (7.3 n.m.) West of White Lake (waypoint position 43° 22.600' N 086° 35.850' W), and **from this position, take recommended courses (as follows) to your destination:**

To Muskegon: Steer 135° for 15.3 miles (13.3 n.m.) to 2.0 miles (1.7 n.m.) off Muskegon (waypoint position 43° 13.100' N 086° 23.200' W).

To Grand Haven: Steer 145° for 26.8 miles (23.3 n.m.) to 2.0 miles (1.7 n.m.) West of Grand Haven (waypoint position 43° 03.500' N 086° 17.700' W).

To Holland: Steer 158° for 44.9 miles (39.0 n.m.) to 2.6 miles (2.3 n.m.) West of Holland (waypoint position 42° 46.400' N 086° 16.000' W).

To Benton Harbor/St. Joseph: Steer 177° for 86.2 (74.9) to 2.3 miles (2.0 n.m.) WNW of Benton Harbor (waypoint position 42° 07.700' N 086° 32.200' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Center of Mackinac Bridge	45°48.920' N 084°43.680' W	275° for 16.8 (14.6)
Wpt 2	Haul 3.0 miles (2.6 n.m.) from White Shoal Light dead ahead	45° 50.250' N 085° 04.440' W	257° for 3.2 (2.8)
Wpt 3	0.75 miles (0.65 n.m.) South of White Shoal Light	45° 49.640' N 085° 08.288' W	186° for 4.4 (3.8)
Wpt 4	0.3 (0.2) Southeast of Grays Reef Light	45° 45.840' N 085° 08.860' W	238° for 4.2 (3.6)
Wpt 5	4.5 miles (3.9 n.m.) at 329° from Ile aux Galets Lt.	45° 43.950' N 085° 13.250' W	217° for 54.9 (47.7)
Wpt 6	Leland bearing 127° at 8.5 miles (7.4 n.m.)	45° 05.900' N 085° 54.150' W	197° for 6.2 (5.4)
Wpt 7	1.0 miles (0.9 n.m.) SE of North Manitou Shoal Lt.	45° 00.730' N 085° 56.420' W	241° for 14.3 (12.4)
Wpt 8	1.5 miles (1.3 n.m.) NW of Sleeping Bear LB Buoy 7	44° 55.250' N 086° 10.810' W	205° for 17.5 (15.2)
Wpt 9	Pt. Betsie bears due East at 3.8 miles (3.3 n.m.)	44° 41.460' N 086° 19.860' W	194° for 45.2 (39.3)
Wpt 10	Big Sable bears due East at 2.5	44° 03.500' N	183° for 28.1 (24.4)

	miles (2.2 n.m.)	086° 34.000' W	
Wpt 11	2.8 miles (2.4 n.m.) due West from Little Sable	43° 39.160' N 086° 35.850' W	180° for 19.1 (16.6)
Wpt 12	Route Junction 8.4 miles (7.3 n.m.) West of White Lake	43° 22.600' N 086° 35.850' W	Steer for Destination Port as described below
MUSKEGON	Muskegon 2.0 miles (1.7 n.m.) out	43° 13.100' N 086° 23.200' W	135° for 15.3 (13.3)
GRAND HAVEN	2.0 miles (1.7 n.m.) West of Grand Haven	43° 03.500' N 086° 17.700' W	145° for 26.8 (23.3)
HOLLAND	2.6 miles (2.3 n.m.) West of Holland	42° 46.400' N 086° 16.000' W	158° for 44.9 (39.0)
BENTON HARBOR	2.3 miles (2.0 n.m.) WNW of Benton Harbor	42° 07.700' N 086° 32.200' W	177° for 86.2 (74.9)

From the Manitou Passage to Southern Lake Michigan Ports - Chicago, Calumet, Indiana Harbor, Buffington, Gary, and Burns Harbor: From a departure position 1.5 miles (1.3 n.m.) Northwest of Sleeping Bear Lighted Bell Buoy 7 (waypoint position 44° 55.250' N 086° 10.810' W), steer 242° for 15.2 miles (13.2 n.m.) to position 13.0 miles (11.3 n.m.) Northwest of Point Betsie Light (waypoint position 44° 49.100' N 086° 27.300' W), and join the Southbound Route coming from 30 Mile Haul to Southern Lake Michigan Ports. Steer 196° for 127 miles (110.4 n.m.) to the Burns Harbor Route Split (waypoint position 43° 03.000' N 087° 09.300' W) **OR** continue steering 196° for a total of 146 miles (126.9 n.m.) to the junction position 25.0 miles (21.7 n.m.) East of Wind Point Light (waypoint position 42° 47.000' N 087° 15.500' W). From these positions, follow the recommended courses previously listed above from the 30 Mile Haul to your destination.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	1.5 miles (1.3 n.m.) NW of Sleeping Bear Buoy	44° 55.250' N 086° 10.810' W	242° for 15.2 (13.2)
Wpt 2	13.0 miles (11.3 n.m.) Northwest	44° 49.100' N	Steer 196° joining the

	of Pt. Betsie Lt.	086° 27.300' W	Southbound Route from 30 Mile Haul
--	-------------------	----------------	---------------------------------------

From the Manitou Passage to Milwaukee: From 1.5 miles (1.3 n.m.) Northwest of Sleeping Bear Lighted Bell Buoy 7 (waypoint position 44° 55.250' N 086° 10.810' W), steer 242° for 15.2 miles (13.2 n.m.) to position 13.0 miles (11.3 n.m.) Northwest of Point Betsie Light (waypoint position 44° 49.100' N 086° 27.300' W). Then steer 219° for 54.1 miles (47.0 n.m.) to the junction position 18.0 miles (15.6 n.m.) at 090° from Rawley Point Light (waypoint position 44° 12.650' N 087° 08.800' W). From this position, steer 202° for 88.7 miles (77.1 n.m.) to 2.5 miles (2.2 n.m.) East of Milwaukee (waypoint position 43° 01.600' N 087° 50.000' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	1.5 miles (1.3 n.m.) NW of Sleeping Bear LB Buoy 7	44° 55.250' N 086° 10.810' W	242° for 15.2 (13.2)
Wpt 2	13.0 miles (11.3 n.m.) Northwest of Pt. Betsie Lt.	44° 49.100' N 086° 27.300' W	219° for 54.1 (47.0)
Wpt 3	18.0 miles (15.6 n.m.) at 090° from Rawley Pt. Lt.	44° 12.650' N 087° 08.800' W	202° for 88.7 (77.1)
Wpt 4	2.5 miles (2.2 n.m.) East of Milwaukee	43° 01.600' N 087° 50.000' W	

From the Manitou Passage to Waukegan: From 1.5 miles (1.3 n.m.) Northwest of Sleeping Bear Lighted Bell Buoy 7 (waypoint position 44° 55.250' N 086° 10.810' W), steer 242° for 15.2 miles (13.2 n.m.) to position 13.0 miles (11.3 n.m.) Northwest of Point Betsie Light (waypoint position 44° 49.100' N 086° 27.300' W). Then steer 196° for 146.0 miles (126.9 n.m.) to the junction position 25.0 miles (21.7 n.m.) East of Wind Point Light (waypoint position 42° 47.000' N 087° 15.500' W). Then steer 222° for 38.1 miles (33.1 n.m.) to position 2.0 miles (1.7 n.m.) Northeast of Waukegan Buoy 3 (waypoint position 42° 22.750' N 087° 46.000' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	1.5 miles (1.3 n.m.) NW of Sleeping Bear Buoy	44° 55.250' N 086° 10.810' W	242° for 15.2 (13.2)
Wpt 2	13.0 miles (11.3 n.m.) Northwest of Pt. Betsie Lt.	44° 49.100' N 086° 27.300' W	196° for 146.0 (126.9)
Wpt 3	Route Junction 25.0 miles (21.7 n.m.) East of Wind Pt. Lt.	42° 47.000' N 087° 15.500' W	222° for 38.1 (33.1)
Wpt 4	2.0 miles (1.7 n.m.) Northeast of Waukegan Buoy 3	42° 22.750' N 087° 46.000' W	

Mackinac Bridge to Rock Island for Green Bay Ports: From the center of the Mackinac Bridge (waypoint position 45°48.920' N 084°43.680' W), steer 279° for 19.9 miles (17.3 n.m.) to 1.5 miles (1.3 n.m.) North of White Shoal Light (waypoint position 45° 51.800' N 085° 08.100' W). Then steer 277° for 17.8 miles (15.5 n.m.) to a position 3.0 miles (2.6 n.m.) from bearing 276° to Lansing Shoals Light (waypoint position 45° 53.900' N 085° 30.000' W). From that position, steer 267° for 3.0 miles (2.6 n.m.) to a position 0.5 miles (0.4 n.m.) South of Lansing Shoals Light (waypoint position 45° 53.775' N 085° 33.710' W). Then steer 240° for 65.4 miles (56.8 n.m.) to Rock Island Passage Traffic Buoy (RI) V-AIS (waypoint position 45° 26.100' N 086° 44.534' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Center of Mackinac Bridge	45°48.920' N 084°43.680' W	279° for 19.9 (17.3)
Wpt 2	1.5 miles (1.3 n.m.) North of White Shoal	45° 51.800' N 085° 08.100' W	277° for 17.8 (15.5)
Wpt 3	3.0 miles (2.6 n.m.) bearing 276° on Lansing Shoals Lt.	45° 53.900' N 085° 30.000' W	267° for 3.0 (2.6)
Wpt 4	0.5 miles (0.4 n.m.) South of Lansing Shoals Lt.	45° 53.775' N 085° 33.710' W	240° for 65.4 (56.8)

Wpt 5	Rock Island Passage Virtual Traffic Buoy (RI) V-AIS	45° 26.100' N 086° 44.534' W	
-------	---	---------------------------------	--

To Green Bay from Rock Island: From the Rock Island Passage Virtual Traffic Buoy (RI) V-AIS (waypoint position 45° 26.100' N 086° 44.534' W), steer 270° for 9.5 miles (8.3 n.m.) to a position 1.0 miles (0.9 n.m.) North of Boyer Bluff Light (waypoint position 45° 26.100' N 086° 56.200' W). Then steer 235° for 28.4 miles (24.7 n.m.) to 2.5 miles (2.2 n.m.) West of Chambers Island Light (waypoint position 45° 12.100' N 087° 25.000' W). From this position, steer 189° for 12.0 miles (10.4 n.m.) to a position 2.4 miles (2.1 n.m.) Southeast of Green Island Light (waypoint position 45° 01.860' N 087° 27.470' W), and then steer 220° for 31.7 miles (27.5 n.m.) to arrive at the Green Bay Entrance Channel (waypoint position 44° 40.850' N 087° 52.460' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Rock Island Passage Virtual Traffic Buoy (RI) V-AIS	45° 26.100' N 086° 44.534' W	270° for 9.5 (8.3)
Wpt 2	1.0 miles (0.9 n.m.) North of Boyer Bluff Lt.	45° 26.100' N 086° 56.200' W	235° for 28.4 (24.7)
Wpt 3	2.5 miles (2.2 n.m.) West of Chambers Island Lt.	45° 12.100' N 087° 25.000' W	189° for 12.0 (10.4)
Wpt 4	2.4 miles (2.1 n.m.) SE of Green Island Lt.	45° 01.860' N 087° 27.470' W	220° for 31.7 (27.5)
Wpt 5	Green Bay Entrance Channel	44° 40.850' N 087° 52.460' W	

All the Routes to Green Bay ports originating at Rock Island Passage can be run in reverse direction to exit Green Bay from those ports to Rock Island Passage.

To Sturgeon Bay: Following the recommended courses from Rock Island to Green Bay, and then at position 2.5 miles (2.2 n.m.) West of Chambers Island Light (waypoint position 45° 12.100' N 087° 25.000' W), steer 182° for 19.7 miles (17.1 n.m.) to arrival position off Sturgeon Bay North of Sherwood Point Light and East of Sherwood Shoal Buoy 7 (waypoint position 44° 55.000' N 087° 26.000' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.5 miles (2.2 n.m.) West of Chambers Island Light	45° 12.100' N 087° 25.000' W	182° for 19.7 (17.1)
Wpt 2	North of Sherwood Pt. Lt. and East of Sherwood Shoal Buoy 7	44° 55.000' N 087° 26.000' W	

To Menominee: Following the recommended courses from Rock Island to Green Bay, and when at position 2.5 miles (2.2 n.m.) West of Chambers Island Light (waypoint position 45° 12.100' N 087° 25.000' W), steer 227° for 10.0 miles (8.7 n.m.) to arrival position 1.0 mile (0.9 n.m.) East-Northeast of Menominee Harbor (waypoint position 45° 06.180' N 087° 34.030' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.5 miles (2.2 n.m.) West of Chambers Island Lt.	45° 12.100' N 087° 25.000' W	227° for 10.0 (8.7)
Wpt 2	1.0 mile (0.9 n.m.) ENE Menominee Harbor	45° 06.180' N 087° 34.030' W	

To Escanaba/Gladstone from Rock Island: From the Rock Island Passage Virtual Traffic Buoy (RI) V-AIS (waypoint position 45° 26.100' N 086° 44.534' W), steer 270° for 4.7 miles (4.1 n.m.) to position 0.7 miles (0.6 n.m.) Northwest of Pottawatomie Light (waypoint position 45° 26.120' N 086° 50.320' W). Then steer 315° for 14.1 miles (12.3 n.m.) passing 2.0 miles (1.7 n.m.) West of Minneapolis Shoal Light (waypoint position 45° 34.900' N 087° 02.400' W). From that position, steer 002° for 11.4 miles (9.9 n.m.) for **ESCANABA ARRIVAL** due East of Escanaba Light (waypoint position 45° 44.800' N 087° 01.850' W). **If continuing on to Gladstone**, steer 353° for 4.0 miles (3.5 n.m.) to ¼ miles East of Buoy G 11 (waypoint position 45° 48.250' N 087° 02.400' W), and then steer 036° for 3.8 miles (3.3 n.m.) to arrival position at Gladstone a point 0.3 (0.2) mile East of Saunders Point Light (waypoint position 45° 50.900' N 086° 59.600' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer

Wpt 1	Rock Island Passage Virtual Traffic Buoy (RI) V-AIS	45° 26.100' N 086° 44.534' W	270° for 4.7 (4.1)
Wpt 2	0.7 miles (0.6 n.m.) NW of Pottawatomie Lt.	45° 26.120' N 086° 50.320' W	315° for 14.1 (12.3)
Wpt 3	2.0 miles (1.7 n.m.) West of Minneapolis Shoal Lt.	45° 34.900' N 087° 02.400' W	002° for 11.4 (9.9)
Wpt 4	East of Escanaba Lt. ESCANABA ARRIVAL	45° 44.800' N 087° 01.850' W	To Gladstone: STEER 353° for 4.0 (3.5)
Wpt 5	¼ miles East of Buoy G 11	45° 48.250' N 087° 02.400' W	036° for 3.8 (3.3)
Wpt 6	0.3 (0.2) mile East of Saunders Point Light	45° 50.900' N 086° 59.600' W	

From Escanaba to Southern Lake Michigan Ports via Port Des Morts Passage: From departure position due East of Escanaba Light (waypoint position 45° 44.800' N 087° 01.850' W), steer 182° for 11.4 miles (9.9 n.m.) to 2.0 miles (1.7 n.m.) West of Minneapolis Shoal Light (waypoint position 45° 34.900' N 087° 02.400' W). Then steer 170° for 19.2 miles (10.7 n.m.) to pass due West of Plum Island Range Rear Light at 0.8 miles (waypoint position 45° 18.450' N 086° 58.530' W), and then steer 132° for 2.4 miles (2.1 n.m.). At position Waverly Shoal with Pilot Island Light East at 0.9 miles (0.8 n.m.) (waypoint position 45° 17.030' N 086° 56.330' W), steer 150° for 4.1 miles (3.6 n.m.) passing Porte Des Morts Entrance Lighted Bell Buoy on the Plum Island Range (waypoint position 45° 13.892' N 086° 53.843' W). Then steer 189° for 71.5 miles (62.1 n.m.). At a position 18.0 miles (15.6 n.m.) at 090° from Rawley Point Light (waypoint position 44° 12.650' N 087° 08.800' W), steer 183° for 98.7 miles (85.8 n.m.) to arrive at the junction position 25.0 miles (21.7 n.m.) East of Wind Pt. Light (waypoint position 42° 47.000' N 087° 15.500' W), and then follow the Recommended Course previously outlined from the 30 Mile Haul to your destination at Indiana Harbor or Gary.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	East of Escanaba Lt.	45° 44.800' N 087° 01.850' W	182° for 11.4 (9.9)

Wpt 2	2.0 miles (1.7 n.m.) West of Minneapolis Shoal Lt.	45° 34.900' N 087° 02.400' W	170° for 19.2 (10.7)
Wpt 3	Plum Island Range Rear Lt. bearing 090° at 0.8 miles	45° 18.450' N 086° 58.530' W	132° for 2.4 (2.1)
Wpt 4	Waverly Shoal with Pilot Island Lt. East at 0.9 miles (0.8 n.m.)	45° 17.030' N 086° 56.330' W	150° for 4.1 (3.6)
Wpt 5	Porte Des Morts Entrance LBB on Plum Island Range	45° 13.892' N 086° 53.843' W	189° for 71.5 (62.1)
Wpt 6	18.0 miles (15.6 n.m.) at 090° from Rawley Pt. Lt.	44° 12.650' N 087° 08.800' W	183° for 98.7 (85.8)
Wpt 7	Route Junction 25.0 miles (21.7 n.m.) East of Wind Pt. Lt.	42° 47.000' N 087° 15.500' W	Follow previously outlined recommended courses from 30 Mile Haul to your Destination

From Port Inland to Southern Lake Michigan: From a position with Seul Choix Point Light at 1.6 miles (1.4 n.m.) bearing 270° (waypoint position 45° 55.300' N 085° 52.700' W), steer 213° for 19.8 miles (17.2 n.m.) to arrival position at 30 Mile Haul 30.0 miles (26.0 n.m.) from Lansing Shoals Light (waypoint position 45° 40.915' N 086° 06.235' W), and join the existing routes from 30 Mile Haul to your destination.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Seul Choix Pt. Lt. at 1.6 miles (1.4 n.m.) bearing 270°	45° 55.300' N 085° 52.700' W	213° for 19.8 (17.2)
Wpt 2	30 Mile Haul 30.0 miles (26.0 n.m.) from Lansing Shoals Lt.	45° 40.915' N 086° 06.235' W	Join existing recommended courses starting at 30 Mile Haul to your destination port

From Lansing Shoal to Port Inland: From a position of 0.5 miles (0.4 n.m.) South of Lansing Shoals Light (Westbound Waypoint) (waypoint position 45° 53.775' N 085° 33.710' W), steer 276° for 15.3 miles (13.3 n.m.) to Seul Choix Point Light at 1.6 miles (1.4 n.m.) bearing 270° (waypoint position 45° 55.300' N 085° 52.700' W) on the Ranges for Port Inland.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	0.5 miles (0.4 n.m.) South of Lansing Shoals Lt.	45° 53.775' N 085° 33.710' W	276° for 15.3 (13.3)
Wpt 2	Seul Choix Pt. Lt. at 1.6 miles (1.4 n.m.) bearing 270°	45° 55.300' N 085° 52.700' W	

RECOMMENDED COURSES

LAKE MICHIGAN

Northbound/Outbound

For all Lake Michigan Ports South of Pt. Betsie to Mackinac Bridge via Lansing Shoal:

From a position due West of Point Betsie Light at 6.5 miles (5.6 n.m.) (waypoint position 44° 41.460' N 086° 23.200' W), steer 014° for 63.8 miles (55.4 n.m.) to 4.0 miles (3.5 n.m.) West of Boulder Reef Lighted Bell Buoy (waypoint position 45° 35.200' N 086° 03.980' W). Then steer 022° for 16.9 miles (14.7 n.m.) until Seul Choix Point Light bears 006° at 7.5 miles (6.5 n.m.) (waypoint position 45° 48.750' N 085° 55.900' W). From this position, steer 055° for 10.6 miles (9.2 n.m.) to a position 9.0 miles (7.8 n.m.) West of Lansing Shoals Light (waypoint position 45° 54.000' N 085° 45.000' W). Then steer 093° for 9.1 miles (7.9 n.m.) to position 0.8 miles (0.7 n.m.) South of Lansing Shoals Light (waypoint position 45° 53.531' N 085° 33.710' W). From there, steer 097° for 40.6 miles (35.3 n.m.) heading for a point under the center span of the Mackinac Bridge (waypoint position 45°48.920' N 084°43.680' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Pt. Betsie Lt. bearing due East at 6.5 miles (5.6 n.m.)	44° 41.460' N 086° 23.200' W	014° for 63.8 (55.4)
Wpt 2	4.0 miles (3.5 n.m.) West of	45° 35.200' N	022° for 16.9 (14.7)

	Boulder Reef LBB	086° 03.980' W	
Wpt 3	7.5 miles (6.5 n.m.) 186° from Seul Choix Pt. Lt.	45° 48.750' N 085° 55.900' W	055° for 10.6 (9.2)
Wpt 4	9.0 miles (7.8 n.m.) West of Lansing Shoals Lt.	45° 54.000' N 085° 45.000' W	093° for 9.1 (7.9)
Wpt 5	0.8 miles (0.7 n.m.) South of Lansing Shoals Lt.	45° 53.531' N 085° 33.710' W	097° for 40.6 (35.3)
Wpt 6	Center of Mackinac Bridge	45°48.920' N 084°43.680' W	

For all routes exiting Green Bay at Rock Island Passage and heading to the Mackinac

Bridge: From a position at Rock Island Passage Virtual Traffic Buoy (RI) V-AIS (waypoint position 45° 26.100' N 086° 44.534') steer 056° for 47.1 mi (40.9 nm) to join the above route at Wpt. #3 7.5 miles (6.5 n.m.) 186° from Seul Choix Pt. Lt. at 45° 48.750' N 085° 55.900' W.

For all Lake Michigan Ports South of Pt. Betsie to Mackinac Bridge via Gray's Reef: From a position due West of Point Betsie Light at 6.5 miles (5.6 n.m.) (waypoint position 44° 41.460' N 086° 23.200' W), steer 031° for 18.0 miles (15.6 n.m.) to the Northbound position Northwest of Sleeping Bear Lighted Bell Buoy 7 (waypoint position 44° 54.840' N 086° 11.900' W). Then steer 061° for 14.3 miles (12.4 n.m.) to a position 1.0 miles (0.9 n.m.) SE of North Manitou Shoal Light (waypoint position 45° 00.730' N 085° 56.420' W). From that position, steer 036° for 64.7 miles (56.2 n.m.) to a center channel position at 0.3 miles (0.2 n.m.) Southeast of Grays Reef Light (waypoint position 45° 45.840' N 085° 08.860' W) and steer 006° for 3.9 miles (3.4 n.m.). At the alteration position at New Shoal Lighted Bell Buoy 3 (waypoint position 45° 49.200' N 085° 08.350' W), steer 077° for 2.5 miles (2.2 n.m.) until you reach the alteration position due North of New Shoal Lighted Buoy 1 at 0.5 miles (0.4 n.m.) (waypoint position 45° 49.680' N 085° 05.300' W). Then steer 092° for 17.4 miles (15.1 n.m.) heading on the center of Mackinac Bridge (waypoint position 45°48.920' N 084°43.680' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
----------	-----------	----------	------------------------------

Wpt 1	Pt. Betsie Lt. bearing due East at 6.5 miles (5.6 n.m.)	44° 41.460' N 086° 23.200' W	031° for 18.0 (15.6)
Wpt 2	Northbound alteration position at Sleeping Bear LBB 7	44° 54.840' N 086° 11.900' W	061° for 14.3 (12.4)
Wpt 3	1.0 miles (0.9 n.m.) SE of North Manitou Shoal Lt.	45° 00.730' N 085° 56.420' W	036° for 64.7 (56.2)
Wpt 4	0.3 miles (0.2 n.m.) SE of Grays Reef Lt.	45° 45.840' N 085° 08.860' W	006° for 3.6 (3.1)
Wpt 5	position off New Shoal LBB 3	45° 49.200' N 085° 08.350' W	077° for 2.5 (2.2)
Wpt 6	position due North New Shoal LB 1 at 0.5 miles (0.4 n.m.)	45° 49.680' N 085° 05.300' W	092° for 17.4 (15.1)
Wpt 7	Center of Mackinac Bridge	45°48.920' N 084°43.680' W	

Indiana Harbor/Calumet to Northern Lake Michigan: From the junction position for Indiana Harbor or Calumet Harbor at waypoint position 41° 43.900' N 087° 27.650' W, steer 005° for 3.8 miles (3.3 n.m.) to the junction position North of Calumet Buoy 2 (waypoint position 41° 47.200' N 087° 27.200' W). Then steer 015° for 162.7 miles (141.4 n.m.). From a position due West of Big Sable Light at 4.8 miles (4.2 n.m.) (waypoint position 44° 03.500' N 086° 36.700' W), steer 014° for 45.1 miles (39.2 n.m.) to a point 6.5 miles (5.6 n.m.) due West of Point Betsie Light (waypoint position 44° 41.460' N 086° 23.200' W); from this position, follow previously outlined recommended courses to either Lansing Shoal or Grays Reef Passage.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Junction position to Indiana Harbor or Calumet Harbor	41° 43.900' N 087° 27.650' W	005° for 3.8 (3.3)
Wpt 2	Junction position North of Calumet Buoy 2	41° 47.200' N 087° 27.200' W	015° for 162.7 (141.4)

Wpt 3	Position with Big Sable Light bearing due East at 4.8 miles (4.2 n.m.)	44° 03.500' N 086° 36.700' W	014° for 45.1 (39.2)
Wpt 4	Pt. Betsie Lt. bearing due East at 6.5 miles (5.6 n.m.)	44° 41.460' N 086° 23.200' W	

Chicago to Northern Lake Michigan: From a departure position 3.0 miles (2.6 n.m.) East of Chicago Harbor (waypoint position 41° 53.300' N 087° 32.000' W), steer 017° for 157 miles (136.4 n.m.) to a point due West of Big Sable Light at 4.8 miles (4.2 n.m.) (waypoint position 44° 03.500' N 086° 36.700' W), steer 014° for 45.1 miles (39.2 n.m.) to a point 6.5 miles (5.6 n.m.) due West of Point Betsie Light (waypoint position 44° 41.460' N 086° 23.200' W); from this position, follow recommended courses previously outlined for either Lansing Shoal or Grays Reef Passage.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Chicago Harbor bearing 270° at 3.0 miles (2.6 n.m.)	41° 53.300' N 087° 32.000' W	017° for 157 (136.4)
Wpt 2	Big Sable Lt. bearing due East at 4.8 miles (4.2 n.m.)	44° 03.500' N 086° 36.700' W	014° for 45.1 (39.2)
Wpt 3	Pt. Betsie Lt. bearing due East at 6.5 miles (5.6 n.m.)	44° 41.460' N 086° 23.200' W	

Gary or Buffington to Northern Lake Michigan: From the junction position 5.0 miles (4.3 n.m.) NNW of Gary and NE of Buffington (waypoint position 41° 42.200' N 087° 20.100' W), steer 012° for 166.8 miles (145 n.m.) to a point due West of Big Sable Light at 4.8 miles (4.2 n.m.) (waypoint position 44° 03.500' N 086° 36.700' W), steer 014° for 45.1 miles (39.2 n.m.) to a point 6.5 miles (5.6 n.m.) due West of Point Betsie Light (waypoint position 44° 41.460' N 086° 23.200' W); from this position, follow recommended courses previously outlined for either Lansing Shoal or Grays Reef Passage.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Junction position 5.0 miles (4.3 n.m.) NNW of Gary and NE of Buffington	41° 42.200' N 087° 20.100' W	012° for 166.8 (145)
Wpt 2	Big Sable Lt. bearing due East at 4.8 miles (4.2 n.m.)	44° 03.500' N 086° 36.700' W	014° for 45.1 (39.2)
Wpt 3	Pt. Betsie Lt. bearing due East at 6.5 miles (5.6 n.m.)	44° 41.460' N 086° 23.200' W	

Burns Harbor to Northern Lake Michigan: From 2.0 miles (1.7 n.m.) North of Burns Harbor (waypoint position 41° 40.600' N 087° 08.200' W), steer 009° for 166.6 miles (144.8 n.m.) to a point due West of Big Sable Light at 4.8 miles (4.2 n.m.) (waypoint position 44° 03.500' N 086° 36.700' W), steer 014° for 45.1 miles (39.2 n.m.) to a point 6.5 miles (5.6 n.m.) due West of Point Betsie Light (waypoint position 44° 41.460' N 086° 23.200' W); from this position, follow recommended courses previously outlined for either Lansing Shoal or Grays Reef Passage.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.0 miles (1.7 n.m.) North of Burns Harbor	41° 40.600' N 087° 08.200' W	009° for 166.6 (144.8)
Wpt 2	Big Sable Lt. bearing due East at 4.8 miles (4.2 n.m.)	44° 03.500' N 086° 36.700' W	014° for 45.1 (39.2)
Wpt 3	Pt. Betsie Lt. bearing due East at 6.5 miles (5.6 n.m.)	44° 41.460' N 086° 23.200' W	

Benton Harbor/St. Joseph to Northern Lake Michigan: From 2.3 miles (2.0 n.m.) West-Northwest of Benton Harbor (waypoint position 42° 07.700' N 086° 32.200' W), steer 355° for 105.7 miles (91.9 n.m.) to a position 8.0 miles (7.0 n.m.) due West of Little Sable Point

(waypoint position 43° 39.160' N 086° 42.000' W). From this position, steer 009° for 28.4 miles (24.7 n.m.) to a point due West of Big Sable Light at 4.8 miles (4.2 n.m.) (waypoint position 44° 03.500' N 086° 36.700' W), steer 014° for 45.1 miles (39.2 n.m.) to a point 6.5 miles (5.6 n.m.) due West of Point Betsie Light (waypoint position 44° 41.460' N 086° 23.200' W); from this position, follow recommended courses previously outlined for either Lansing Shoal or Grays Reef Passage.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.3 miles (2.0 n.m.) WNW of Benton Harbor	42° 07.700' N 086° 32.200' W	355° for 105.7 (91.9)
Wpt 2	8.0 miles (7.0 n.m.) due West of Little Sable	43° 39.160' N 086° 42.000' W	009° for 28.4 (24.7)
Wpt 3	Big Sable Lt. bearing due East at 4.8 miles (4.2 n.m.)	44° 03.500' N 086° 36.700' W	014° for 45.1 (39.2)
Wpt 4	Pt. Betsie Lt. bearing due East at 6.5 miles (5.6 n.m.)	44° 41.460' N 086° 23.200' W	

Holland, Grand Haven, Muskegon to Northern Lake Michigan: From 2.6 miles (2.3 n.m.) West of **Holland** (waypoint position 42° 46.400' N 086° 16.000' W), steer 338° for 44.9 miles (39.0 n.m.) **OR**

From 2.0 miles (1.7 n.m.) West of **Grand Haven** (waypoint position 43° 03.500' N 086° 17.700' W), steer 325° for 26.8 miles (23.3 n.m.) **OR**

From 2.0 miles (1.7 n.m.) West-Southwest of **Muskegon** (waypoint position 43° 13.100' N 086° 23.200' W), steer 315° for 15.3 miles (13.3 n.m.)

To the junction position 8.4 miles (7.3 n.m.) West of White Lake (waypoint position 43° 22.600' N 086° 35.850' W). Then steer 344° for 19.7 miles (17.1 n.m.) to a position 8.0 miles (7.0 n.m.) due West of Little Sable Point (waypoint position 43° 39.160' N 086° 42.000' W). From this position, steer 009° for 28.4 miles (24.7 n.m.) to a point due West of Big Sable Light at 4.8 miles (4.2 n.m.) (waypoint position 44° 03.500' N 086° 36.700' W), steer 014° for 45.1 miles (39.2 n.m.) to a point 6.5 miles (5.6 n.m.) due West of Point Betsie Light (waypoint position 44° 41.460' N 086° 23.200' W); from this position, follow recommended courses previously outlined for either Lansing Shoal or Grays Reef Passage.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.6 miles (2.3 n.m.) West of Holland (OR)	42° 46.400' N 086° 16.000' W	338° for 44.9 (39.0)
Wpt 1	2.0 miles (1.7 n.m.) West of Grand Haven (OR)	43° 03.500' N 086° 17.700' W	325° for 26.8 (23.3)
Wpt 1	2.0 miles (1.7 n.m.) off Muskegon	43° 13.100' N 086° 23.200' W	315° for 15.3 (13.3)
Wpt 2	Position course junction 8.4 miles (7.3 n.m.) West of White Lake	43° 22.600' N 086° 35.850' W	344° for 19.7 (17.1)
Wpt 3	8.0 miles (7.0 n.m.) due West of Little Sable	43° 39.160' N 086° 42.000' W	009° for 28.4 (24.7)
Wpt 4	Position Northbound course off Big Sable bearing due East at 4.8 miles (4.2 n.m.)	44° 03.500' N 086° 36.700' W	014° for 45.1 (39.2)
Wpt 5	Pt. Betsie bearing due East at 6.5 miles (5.6 n.m.)	44° 41.460' N 086° 23.200' W	

Milwaukee to Northern Lake Michigan: From 2.5 miles (2.2 n.m.) East of Milwaukee (waypoint position 43° 01.600' N 087° 50.000' W), steer 032° for 135.8 miles (118 n.m.) to a position 6.5 miles (5.6 n.m.) due West of Point Betsie Light (waypoint position 44° 41.460' N 086° 23.200' W). From this position, follow previously outlined recommended courses for either Lansing Shoal or Grays Reef Passage.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.5 miles (2.2 n.m.) East of Milwaukee	43° 01.600' N 087° 50.000' W	032° for 135.8 (118)
Wpt 2	Pt. Betsie Lt. bearing due East at	44° 41.460' N	

	6.5 miles (5.6 n.m.)	086° 23.200' W	
--	----------------------	----------------	--

Indiana Harbor/Calumet to Escanaba via Porte Des Morts: From a departure point at Calumet Harbor Entrance Channel (waypoint position 41° 43.900' N 087° 27.650' W), steer 005° for 3.8 miles (3.3 n.m.) to the junction position North of Calumet Buoy 2 (waypoint position 41° 47.200' N 087° 27.200' W). Then steer 353° for 69.0 miles (60.0 n.m.) to the junction position 8.0 miles (7.0 n.m.) East of Wind Point Light (waypoint position 42° 46.800' N 087° 36.100' W).

Common Northbound/Outbound course from Wind Point to Escanaba

From that position, steer 005° for 99.3 miles (86.3 n.m.) to a position 5.0 miles (4.3 n.m.) East of Rawley Point Light (waypoint position 44° 12.650' N 087° 24.500' W). Then steer 019° for 74.8 miles (65.0 n.m.) to the Porte Des Morts Entrance Lighted Bell Buoy on Plum Island Range (waypoint position 45° 13.892' N 086° 53.843' W). At this position, steer 330° for 4.1 miles (3.6 n.m.) to a position due West of Pilot Island Light at 0.9 miles (0.8 n.m.) (waypoint position 45° 17.030' N 086° 56.330' W). Then steer 312° for 2.4 miles (2.1 n.m.) until Plum Island Rear Range Light bears 090° at 0.8 miles (waypoint position 45° 18.450' N 086° 58.530' W). From this position, steer 350° for 19.2 miles (16.7 n.m.) to a position 2.0 miles (1.7 n.m.) West of Minneapolis Shoal (waypoint position 45° 34.900' N 087° 02.400' W). Then steer 002° for 11.4 miles (9.9 n.m.) to arrive just East of Escanaba Light (waypoint position 45° 44.800' N 087° 01.850' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Junction position to Indiana Harbor or Calumet Harbor	41° 43.900' N 087° 27.650' W	005° for 3.8 (3.3)
Wpt 2	Junction position North of Calumet Buoy 2	41° 47.200' N 087° 27.200' W	353° for 69.0 (60.0)
Wpt 3	Junction position 8.0 miles (7.0 n.m.) East of Wind Pt. Lt.	42° 46.800' N 087° 36.100' W	005° for 99.3 (86.3)
Wpt 4	5.0 miles (4.3 n.m.) off Rawley Pt. bearing 090°	44° 12.650' N 087° 24.500' W	019° for 74.8 (65.0)
Wpt 5	Porte Des Morts Passage Traffic	45° 13.892' N	330° for 4.1 (3.6)

	Buoy on Plum Island Range	086° 53.843' W	
Wpt 6	Waverly Shoal with Pilot Island Lt. East at 0.9 miles (0.8 n.m.)	45° 17.030' N 086° 56.330' W	312° for 2.4 (2.1)
Wpt 7	Plum Island Lt. bearing 090° at 0.8 miles	45° 18.450' N 086° 58.530' W	350° for 19.2 (16.7)
Wpt 8	2.0 miles (1.7 n.m.) West of Minneapolis Shoal	45° 34.900' N 087° 02.400' W	002° for 11.4 (9.9)
Wpt 9	Off Escanaba Lt.	45° 44.800' N 087° 01.850' W	

Gary to Green Bay Ports: From the Junction Position 5.0 miles (4.3 n.m.) NNW of Gary and NE of Buffington (waypoint position 41° 42.200' N 087° 20.100' W), steer 349° for 75.6 miles (65.7 n.m.) to the Junction Position 8.0 miles (7.0 n.m.) East of Wind Pt. (waypoint position 42° 46.800' N 087° 36.100' W). From this position, join the previously outlined common recommended course from Wind Point Light to Escanaba.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Junction position 5.0 miles (4.3 n.m.) NNW of Gary and NE of Buffington	41° 42.200' N 087° 20.100' W	349° for 75.6 (65.7)
Wpt 2	Junction position 8.0 miles (7.0 n.m.) East of Wind Pt. Lt.	42° 46.800' N 087° 36.100' W	Joining Indiana Harbor to Escanaba courses

Burns Harbor to Green Bay Ports: From 2.0 miles (1.7 n.m.) North of Burns Harbor (waypoint position 41° 40.600' N 087° 08.200' W), steer 342° for 79.8 miles (69.3 n.m.) to the junction position 8.0 miles (7.0 n.m.) East of Wind Point Light (waypoint position 42° 46.800' N

087° 36.100' W). From this position, join the previously outlined common recommended course from Wind Point Light to Escanaba

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.0 miles (1.7 n.m.) North of Burns Harbor	41° 40.600' N 087° 08.200' W	342° for 79.8 (69.3)
Wpt 2	Junction position 8.0 miles (7.0 n.m.) East of Wind Pt. Lt.	42° 46.800' N 087° 36.100' W	

From Southern Lake Michigan to Port Inland: From 4.0 miles (3.5 n.m.) West of Boulder Reef Lighted Bell Buoy (waypoint position 45° 35.200' N 086° 03.980' W), steer 022° for 16.9 miles (14.7 n.m.) to position 7.5 miles (6.5 n.m.) 186° from Seul Choix Point Light (waypoint position 45° 48.750' N 085° 55.900' W). Then steer 018° for 8.0 miles (7.0 n.m.) to position 1.6 miles (1.4 n.m.) due East of Seul Choix Point Light (waypoint position 45° 55.300' N 085° 52.700' W) then follow the lighted ranges North to Port Inland.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	4.0 miles (3.5 n.m.) West of Boulder Reef	45° 35.200' N 086° 03.980' W	022° for 16.9 (14.7)
Wpt 2	7.5 miles (6.5 n.m.) 186° from Seul Choix Pt.	45° 48.750' N 085° 55.900' W	018° for 8.0 (7.0)
Wpt 3	Seul Choix Pt. Lt. at 1.6 miles (1.4 n.m.) bearing 270°	45° 55.300' N 085° 52.700' W	

From Port Inland to Lansing Shoal and East: From a position 1.6 miles (1.4 n.m.) due East of Seul Choix Point Light (waypoint position 45° 55.300' N 085° 52.700' W), steer 103° for 6.4 miles (5.6 n.m.) to position 9.0 miles (7.8 n.m.) West of Lansing Shoals Light (waypoint position 45° 54.000' N 085° 45.000' W). Then steer 093° for 9.1 miles (7.9 n.m.) to a point 0.8 miles

(0.7 n.m.) South of Lansing Shoals Light (waypoint position 45° 53.531' N 085° 33.710' W). Then steer 097° for 40.6 miles (35.3 n.m.) heading to a point under the center span of the Mackinac Bridge (waypoint position 45°48.920' N 084°43.680' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Seul Choix Pt. at 1.6 miles (1.4 n.m.) bearing 270°	45° 55.300' N 085° 52.700' W	103° for 6.4 (5.6)
Wpt 2	9.0 miles (7.8 n.m.) West of Lansing Shoals Lt.	45° 54.000' N 085° 45.000' W	093° for 9.1 (7.9)
Wpt 3	0.8 miles (0.7 n.m.) South of Lansing Shoals Lt.	45° 53.531' N 085° 33.710' W	097° for 40.6 (35.3)
Wpt 4	Center of Mackinac Bridge	45°48.920' N 084°43.680' W	

Milwaukee to Muskegon: From 6.5 miles (5.6 n.m.) due East of Milwaukee (waypoint position 43° 01.600' N 087° 45.000' W), steer 079° for 70.2 miles (61.0 n.m.) for arrival position 2.0 miles (1.7 n.m.) West-Southwest of Muskegon (waypoint position 43° 13.100' N 086° 23.200' W.)

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	6.5 miles (5.6 n.m.) due East of Milwaukee	43° 01.600' N 087° 45.000' W	079° for 70.2 (61.0)
Wpt 2	2.0 miles (1.7 n.m.) West South-West of Muskegon	43° 13.100' N 086° 23.200' W	

Manitowoc to Ludington: From 4.0 miles (3.5 n.m.) off Manitowoc at 086° (waypoint position 44° 05.800' N 087° 33.800' W), steer 100° for 53.9 miles (46.8 n.m.) to arrival position 1.5 miles (1.3 n.m.) due West of Ludington Harbor (waypoint position 43° 57.200' N 086° 30.000' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer

Wpt 1	4.0 miles (3.5 n.m.) off Manitowoc at 086°	44° 05.800' N 087° 33.800' W	100° for 53.9 (46.8)
Wpt 2	1.5 miles (1.3 n.m.) due West of Ludington Harbor	43° 57.200' N 086° 30.000' W	

Manitowoc to Frankfort: From 4.0 miles (3.5 n.m.) off Manitowoc at 086° (waypoint position 44° 05.800' N 087° 33.800' W), steer 059° for 72.9 miles (63.3 n.m.) to arrival position 2.0 miles (1.7 n.m.) West of Frankfort Harbor (waypoint position 44° 37.800' N 086° 17.600' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	4.0 miles (3.5 n.m.) off Manitowoc at 086°	44° 05.800' N 087° 33.800' W	059° for 72.9 (63.3)
Wpt 2	2.0 miles (1.7 n.m.) West of Frankfort Harbor	44° 37.800' N 086° 17.600' W	

The following Optional Weather Routes are two-way and can be navigated in either direction and joined from any position on the lake as necessary for the safety of navigation.

Westerly Shore Weather Route from Southern Lake Michigan To Lansing Shoal and East:

From the Junction Position North of Calumet Buoy 2 (waypoint position 41° 47.200' N 087° 27.200' W), steer 347° for 25.7 miles (22.3 n.m.) to position off Grossepoint Outer Lighted Bell Buoy 4 (waypoint position 42° 09.000' N 087° 33.500' W). Then steer 333° for 16.4 miles (14.3 n.m.) to approximately 5.5 miles (4.8 n.m.) due East of Waukegan (waypoint position 42° 21.800' N 087° 42.000' W). Then steer 002° for 28.8 miles (25.0 n.m.) to position 4.0 miles (3.5 n.m.) due East of Wind Point Light (waypoint position 42° 46.800' N 087° 40.800' W). Then steer 348° for 17.4 miles (15.1 n.m.) to 6.5 miles (5.6 n.m.) due East of Milwaukee (waypoint position 43° 01.600' N 087° 45.000' W). Then steer 000° for 24.6 miles (21.4 n.m.) until position 5.5 miles (4.8 n.m.) due East of Port Washington (waypoint position 43° 23.000' N 087° 45.000' W). Then steer 013° for 26.0 miles (22.6 n.m.) to a position 3.0 miles (2.6 n.m.) due East of Sheboygan (waypoint position 43° 45.000' N 087° 38.000' W), and then steer 008° for 17.4 miles (15.1 n.m.) to position 7.0 miles (6.1 n.m.) South-Southeast of Manitowoc (waypoint position 44° 00.000' N 087° 35.000' W). Then steer 024° for 16.0 miles (13.9 n.m.) to position 3.0 miles (2.6 n.m.) off Rawley Point Light bearing 090° (waypoint position 44° 12.650' N 087° 26.900' W). Then steer 005° for 16.6 miles (14.4 n.m.) to position 2.4 miles (2.1

n.m.) due East of Kewaunee Shoal Light (waypoint position 44° 27.000' N 087° 25.000' W). From this position, steer 021° for 22.3 miles (19.4 n.m.) to position approximately 4.0 miles (3.5 n.m.) Southeast of Sturgeon Bay Ship Canal (waypoint position 44° 45.000' N 087° 15.000' W). Then steer 031° for 63.6 miles (55.3 n.m.) to position 4.0 miles (3.5 n.m.) Southeast of Summer Island Light (waypoint position 45° 32.000' N 086° 34.000' W). Then steer 038° for 31.0 miles (26.9 n.m.) to position 5.8 miles (5.0 n.m.) Southeast of Manistique (waypoint position 45° 53.000' N 086° 10.000' W). Then steer 088° for 29.2 miles (25.4 n.m.) to position 0.8 miles (0.7 n.m.) South of Lansing Shoals Light (waypoint position 45° 53.531' N 085° 33.710' W). From this position, steer 097° for 40.6 miles (35.3 n.m.) heading to a point under the center span of the Mackinac Bridge (waypoint position 45°48.920' N 084°43.680' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Junction position North of Calumet Buoy 2	41° 47.200' N 087° 27.200' W	347° for 25.7 (22.3)
Wpt 2	Position off RB #4	42° 09.000' N 087° 33.500' W	333° for 16.4 (14.3)
Wpt 3	Position approximately 5.5 miles (4.8 n.m.) due East of Waukegan	42° 21.800' N 087° 42.000' W	002° for 28.8 (25.0)
Wpt 4	4.0 miles (3.5 n.m.) due East of Wind Pt. Lt.	42° 46.800' N 087° 40.800' W	348° for 17.4 (15.1)
Wpt 5	6.5 miles (5.6 n.m.) due East of Milwaukee	43° 01.600' N 087° 45.000' W	000° for 24.6 (21.4)
Wpt 6	5.5 miles (4.8 n.m.) due East of Port Washington	43° 23.000' N 087° 45.000' W	013° for 26.0 (22.6)
Wpt 7	3.0 miles (2.6 n.m.) due East of Sheboygan	43° 45.000' N 087° 38.000' W	008° for 17.4 (15.1)
Wpt 8	7.0 miles (6.1 n.m.) SSE of Manitowoc	44° 00.000' N 087° 35.000' W	024° for 16.0 (13.9)
Wpt 9	3.0 miles (2.6 n.m.) off Rawley Pt. Lt. bearing 090°	44° 12.650' N 087° 26.900' W	005° for 16.6 (14.4)
Wpt 10	2.4 miles (2.1 n.m.) due East of	44° 27.000' N	021° for 22.3 (19.4)

	Kewaunee Shoal Lt.	087° 25.000' W	
Wpt 11	About 4.0 miles (3.5 n.m.) SE of Sturgeon Bay	44° 45.000' N 087° 15.000' W	031° for 63.6 (55.3)
Wpt 12	4.0 miles (3.5 n.m.) SE of Summer Island Lt.	45° 32.000' N 086° 34.000' W	038° for 31.0 (26.9)
Wpt 13	5.8 miles (5.0 n.m.) SE of Manistique	45° 53.000' N 086° 10.000' W	088° for 29.2 (25.4)
Wpt 14	0.8 miles (0.7 n.m.) South of Lansing Shoals Lt.	45° 53.531' N 085° 33.710' W	097° for 40.6 (35.3)
Wpt 15	Center of Mackinac Bridge	45°48.920' N 084°43.680' W	

Easterly Shore Weather Route from Southern Lake Michigan to Pt. Betsie: From a starting position for the East Weather Route 1.0 miles (0.9 n.m.) North of Indiana Shoals "N2" (waypoint position 41° 47.100' N 087° 23.400' W), steer 119° for 15.1 miles (13.1 n.m.) to a position 2.0 miles (1.7 n.m.) North of Burns Harbor East Light (waypoint position 41° 40.600' N 087° 08.200' W). Then steer 061° for 22.7 miles (19.7 n.m.) to a position 2.0 miles (1.7 n.m.) North of New Buffalo (waypoint position 41° 50.000' N 086° 45.000' W). From this position, steer 028° for 23.1 miles (20.1 n.m.) to 2.3 miles (2.0 n.m.) West-Northwest of Benton Harbor (waypoint position 42° 07.700' N 086° 32.200' W). Then steer 029° for 21.5 miles (18.7 n.m.) to position 2.5 miles (2.2 n.m.) West of South Haven (waypoint position 42° 24.000' N 086° 20.000' W). Then steer 007° for 26.0 miles (22.6 n.m.) to position 2.6 miles (2.3 n.m.) West of Holland (waypoint position 42° 46.400' N 086° 16.000' W). Then steer 355° for 19.7 miles (17.1 n.m.) to a position 2.0 miles (1.7 n.m.) West of Grand Haven (waypoint position 43° 03.500' N 086° 17.700' W). Then steer 337° for 12.0 miles (10.4 n.m.) to a position 2.0 miles (1.7 n.m.) West-Southwest of Muskegon (waypoint position 43° 13.100' N 086° 23.200' W). Then steer 332° for 12.2 miles (10.6 n.m.) to position 3.5 miles (3.0 n.m.) West of White Lake (waypoint position 43° 22.500' N 086° 30.000' W). Then steer 345° for 19.8 miles (17.2 n.m.) to a position 2.8 miles (2.4 n.m.) due West of Little Sable Point (waypoint position 43° 39.160' N 086° 35.850' W). Then steer 028° for 10.3 miles (9.0 n.m.) until Pentwater bears East at 2.8 miles (2.4 n.m.) (waypoint position 43° 47.000' N 086° 30.000' W). Then steer 350° for 19.3 miles (16.8 n.m.) to a point 2.5 miles (2.2 n.m.) due West of Big Sable Light (waypoint position 44° 03.500' N 086° 34.000' W). From this position, steer 029° for 23.9 miles (20.8 n.m.) to a position 3.3 miles (2.9 n.m.) West of Portage Lake (waypoint position 44° 21.700' N 086°

20.000' W). From this position, steer 000° for 22.7 miles (19.7 n.m.) to position 3.8 miles (3.3 n.m.) due West of Point Betsie Light (waypoint position 44° 41.460' N 086° 19.860' W). Then join previously outlined recommended courses Northbound via Lansing Shoals or via Grays Reef Passage.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Starting position of East Weather Route 1.0 miles (0.9 n.m.) North of Indiana Shoals "N2"	41° 47.100' N 087° 23.400' W	119° for 15.1 (13.1)
Wpt 2	2.0 miles (1.7 n.m.) North of Burns Harbor	41° 40.600' N 087° 08.200' W	061° for 22.7 (19.7)
Wpt 3	2.0 miles (1.7 n.m.) North of New Buffalo	41° 50.000' N 086° 45.000' W	028° for 23.1 (20.1)
Wpt 4	2.3 miles (2.0 n.m.) WNW of Benton Harbor	42° 07.700' N 086° 32.200' W	029° for 21.5 (18.7)
Wpt 5	2.5 miles (2.2 n.m.) West of South Haven	42° 24.000' N 086° 20.000' W	007° for 26.0 (22.6)
Wpt 6	2.6 miles (2.3 n.m.) West of Holland	42° 46.400' N 086° 16.000' W	355° for 19.7 (17.1)
Wpt 7	2.0 miles (1.7 n.m.) West of Grand Haven	43° 03.500' N 086° 17.700' W	337° for 12.0 (10.4)
Wpt 8	2.0 miles (1.7 n.m.) off Muskegon	43° 13.100' N 086° 23.200' W	332° for 12.2 (10.6)
Wpt 9	3.5 miles (3.0 n.m.) West of White Lake	43° 22.500' N 086° 30.000' W	345° for 19.8 (17.2)
Wpt 10	2.8 miles (2.4 n.m.) due West of Little Sable	43° 39.160' N 086° 35.850' W	028° for 10.3 (9.0)
Wpt 11	Pentwater bearing East at 2.8 miles (2.4 n.m.)	43° 47.000' N 086° 30.000' W	350° for 19.3 (16.8)
Wpt 12	Big Sable Lt. due East at 2.5 miles (2.2 n.m.)	44° 03.500' N 086° 34.000' W	029° for 23.9 (20.8)

Wpt 13	3.3 miles (2.9 n.m.) West of Portage Lake	44° 21.700' N 086° 20.000' W	000° for 22.7 (19.7)
Wpt 14	Pt. Betsie Lt. bears due East at 3.8 miles (3.3 n.m.)	44° 41.460' N 086° 19.860' W	Join previously outlined recommended courses for Northbound routes

RECOMMENDED COURSES

LAKE HURON Downbound/Outbound

DeTour Passage to Lake Huron Cut Buoys 11 and 12: From a departure position with Detour Reef Light bearing 308° at 0.75 miles (0.65 n.m.)(waypoint position 45°56.558'N 083°53.436'W), steer 137° for 56.1 miles (48.7 n.m.) to a position not less than 15 miles (13 n.m.) bearing 225° to Middle Island Light (waypoint position 45°20.809'N 083°06.164'W). Then steer 161° for 105 miles (91.2 n.m.) to position not less than 12 miles (10.4 n.m.) 247° to Harbor Beach Light 2 (waypoint position 43°54.809'N 082°24.608'W). From this position, steer 179° for 51.6 miles (44.8 n.m.) to a position 5.2 mi (4.5) 005° from Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°10.000'N 082°24.300'W), and then steer 185° for 5.6 miles (4.9 n.m.) to the Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°05.466'N 082°24.708'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Detour Departure bearing 308° at ¾ mi (0.7 n.m.) to Detour Reef Lt.	45°56.558'N 083°53.436'W	137° for 56.1 (48.7)
Wpt 2	Middle Island Lt. brg. 225° and 15 miles (13 n.m.)	45°20.809'N 083°06.164'W	161° for 105 (91.2)
Wpt 3	Harbor Beach Lt. brg. 247° and 12 miles (10.4 n.m.)	43°54.809'N 082°24.608'W	179° for 51.6 (44.8)
Wpt 4	Position 5.2 mi (4.5) 005° from Lake Huron Cut Buoys 11 & 12	43°10.000'N 082°24.300'W	185° for 5.6 (4.9)

Wpt 5	Lake Huron Cut Buoys 11 and 12	043° 05.466'N 082° 24.708'W	
-------	--------------------------------	--------------------------------	--

Straits of Mackinac to Huron Cut via Round Island Passage: From a departure position 0.5 (0.4) miles East from the center of the Mackinac Bridge (waypoint position 45°48.857'N 084°43.055'W), steer 069° for 5.6 miles (4.9 n.m.) to the East end of Round Island Passage off LB 3 (waypoint position 45°50.558'N 084°36.537'W). From this position, steer 090° for 9.1 miles (7.9 n.m.) until Bois Blanc Light bears 180° at 2.3 mi (2.0 nm) (waypoint position 45°50.556'N 084°25.240'W). The steer 105° for 14.2 miles (12.3 n.m.) to 1 mile (0.9 nm) North of Spectacle Reef Light (waypoint position 45°47.280'N 084°08.285'W). From this position, steer 121° for 58.7 miles (51.0 n.m.) until Middle Island Light bears 225° at 15 mi (13.0 nm) (waypoint position 45°20.809'N 083°06.164'W). From this position, steer 161° for 105 miles (91.2 n.m.) until Harbor Beach Light 2 bears 247° at 12 miles (10.4 n.m.) (waypoint position 43°54.809'N 082°24.608'W), and then steer 179° for 51.6 miles (44.8 n.m.) to a position 5.2 mi (4.5) 005° from Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°10.000'N 082°24.300'W). Then steer 185° for 5.6 miles (4.9 n.m.) to the Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°05.466'N 082°24.708'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Mackinac Bridge 0.5 mi (0.4 n.m.) East from center	45°48.857'N 084°43.055'W	069° for 5.6 (4.9)
Wpt 2	East end of Round Island Passage off LB G"3"	45°50.558'N 084°36.537'W	090° for 9.1 (7.9)
Wpt 3	Bois Blanc Lt. bearing 180° at 2.3 mi (2.0 n.m.)	45°50.556'N 084°25.240'W	105° for 14.2 (12.3)
Wpt 4	1 mile (0.9 nm) North of Spectacle Reef Lt.	45°47.280'N 084°08.285'W	121° for 58.7 (51.0)
Wpt 5	Middle Island Lt. at 225° 15 mi (13.0 n.m.)	45°20.809'N 083°06.164'W	161° for 105 (91.2)
Wpt 6	Harbor Beach Lt. brg. 247° and 12	43°54.809'N	179° for 51.6 (44.8)

	miles (10.4 n.m.)	082°24.608'W	
Wpt 7	5.2 mi (4.5 n.m.) 005° from Lake Huron Cut Buoys 11 and 12	43°10.000'N 082°24.300'W	185° for 5.6 (4.9)
Wpt 8	At Lake Huron Cut Buoys 11 and 12	043° 05.466'N 082° 24.708'W	

Straits of Mackinac to Huron Cut via Poe Reef Passage: From a departure position 0.5 (0.4) miles East from the center of the Mackinac Bridge (waypoint position 45°48.857'N 084°43.055'W), steer 122° for 14.2 miles (12.3 n.m.) to position passing to the South of the Cheboygan Traffic Lighted Bell Buoy (waypoint position 45°42.289'N 084°28.175'N). Then steer 108° for 5.5 miles (4.8 n.m.) until Poe Reef Light bears North at 1.1 mi (1.0 nm) (waypoint position 45°40.744'N 084°21.710'W). From this position, steer 077° for 3.2 miles (2.8 n.m.) until Cordwood Point Lighted Buoy 1 bears 196° at 0.5 mi (0.4 nm) (waypoint position 45°41.327'N 084°17.812'W). Then steer 053° for 3.4 miles (3.0 n.m.) until Poe Reef Light bears 254° at 6.1 miles (5.3 n.m.) (waypoint position 45°43.109'N 084°14.416'W). From this position, steer 115° for 61 miles (53 n.m.) to join the regular downbound course from DeTour Passage at a position not less than 15 miles (13 n.m.) bearing 045° from Middle Island Light (waypoint position 45°20.809'N 083°06.164'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Mackinac Bridge 0.5 mi (0.4 n.m.) East from center	45°48.857'N 084°43.055'W	122° for 14.2 (12.3)
Wpt 2	Cheboygan Traffic LBB	45°42.289'N 084°28.175'N	108° for 5.5 (4.8)
Wpt 3	Poe Reef Lt. bearing North at 1.1 mi (1.0 n.m.)	45°40.744'N 084°21.710'W	077° for 3.2 (2.8)
Wpt 4	Cordwood Pt. LB1 bearing 196° at 0.5 mi (0.4 n.m.)	45°41.327'N 084°17.812'W	053° for 3.4 (3.0)
Wpt 5	Poe Reef Lt. bearing 254° at 6.1 mi (5.3 n.m.)	45°43.109'N 084°14.416'W	115° for 61 (53)

Wpt 6	Middle Island Lt. brg. 225° and 15 (13 n.m.)	45°20.809'N 083°06.164'W	Joining recommended downbound course.
-------	--	-----------------------------	---------------------------------------

Detour to Mackinac Bridge via Round Island: From a departure position with Detour Reef Light bearing 308° at 0.75 miles (0.65 n.m.) (waypoint position 45°56.558'N 083°53.436'W), steer 255° for 12.8 miles (11.1 n.m.) to position with Martin Reef Light bearing North at 1.2 mi. (1.0 n.m.) (waypoint position 45°53.748'N 084°08.905'W). Then steer 260° for 22.5 miles (19.6 n.m.) to the East End of Round Island Passage off LB 3 (waypoint position 45°50.558'N 084°36.537'W). From this position, steer 249° for 5.6 miles (4.9 n.m.) to 0.5 mi (0.4 n.m.) East of the center of the Mackinac Bridge (waypoint position 45°48.857'N 084°43.055'W). **From this position, steer the recommended courses for Lake Michigan applicable to port destination.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Detour Departure bearing 308° at ¾ mi. (0.7 n.m.) to Detour Reef Lt.	45°56.558'N 083°53.436'W	255° for 12.8 (11.1)
Wpt 2	Martin Reef Lt. bearing North at 1.2 mi. (1.0 n.m.)	45°53.748'N 084°08.905'W	260° for 22.5 (19.6)
Wpt 3	East end of Round Island Passage off LB 3	45°50.558'N 084°36.537'W	249° for 5.6 (4.9)
Wpt 4	Mackinac Bridge 0.5 mi. (0.4 n.m.) East from center	45°48.857'N 084°43.055'W	Then to recommended courses for Lake Michigan

Mackinac Bridge to Alpena or Saginaw via Poe Reef Passage: : From a departure position 0.5 (0.4) miles East from the center of the Mackinac Bridge (waypoint position 45°48.857'N 084°43.055'W), steer 122° for 14.2 miles (12.3 n.m.) passing to the South of the Cheboygan Traffic Lighted Bell Buoy (waypoint position 45°42.289'N 084°28.175'N). Then steer 108° for 5.5 miles (4.8 n.m.) until Poe Reef Light bears North at 1.1 mi. (1.0 n.m.) (waypoint position 45°40.744'N 084°21.710'W). From this position, steer 077° for 3.2 miles (2.8 n.m.) to Cordwood Point Lighted Bell Buoy 1 bears 196° at 0.5 mi. (0.4 n.m.) (waypoint position 45°41.327'N 084°17.812'W). Then steer 117° for 45.6 miles (39.6 n.m.) until Presque Isle Light bears 215° at 2.5 mi (2.2n.m.) (waypoint position 45°23.187'N 083°27.731'W). Then steer 138° for 23.3 miles (20.2 n.m.) to 0.6 mi (0.5 n.m.) East of Nordmeer Wreck Lighted Buoy WR1 (waypoint position 45°08.165'N 083°08.482'W). Then steer recommended courses to Alpena or Saginaw as appropriate.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Mackinac Bridge 0.5 mi (0.4 n.m.) East from center	45°48.857'N 084°43.055'W	122° for 14.2 (12.3)
Wpt 2	Cheboygan Traffic LBB	45°42.289'N 084°28.175'N	108° for 5.5 (4.8)
Wpt 3	Poe Reef Lt. bearing North at 1.1 mi. (1.0 n.m.)	45°40.744'N 084°21.710'W	077° for 3.2 (2.8)
Wpt 4	Cordwood Pt. LB1 bearing 196° at 0.5 mi. (0.4 n.m.)	45°41.327'N 084°17.812'W	117° for 45.6 (39.6)
Wpt 5	Presque Isle Lt. bearing 215° at 2.5 mi. (2.2 n.m.)	45°23.187'N 083°27.731'W	138° for 23.3 (20.2)
Wpt 6	0.6 mi. (0.5 n.m.) East of Nordmeer Wreck LB WR1	45°08.165'N 083°08.482'W	Then recommended courses to Alpena or Saginaw as appropriate

To Alpena: From 0.6 mi (0.5 nm) East of Nordmeer Wreck Lighted Buoy WR1 (waypoint position 45°08.165'N 083°08.482'W), steer 189° for 7 miles (6.1 n.m.) to position 100° and 1.5 mi (1.3 n.m.) from Thunder Bay Island Light (waypoint position 45°01.949'N 083°09.883'W). Then steer 227° for 5.2 miles (4.5 n.m.) to the Thunder Bay Traffic Lighted Bell Buoy TB (waypoint position 44°58.525'N 083°15.011'W), and then steer 304° for 9 miles (7.8 n.m.) to the Alpena Channel Entrance (waypoint position 45°02.800'N 083°23.800'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	0.6 mi. (0.5 n.m.) East of Nordmeer Wreck LB WR1	45°08.165'N 083°08.482'W	189° for 7.0 (6.1)
Wpt 2	100° and 1.5 mi (1.3 n.m.) from Thunder Bay Island Lt.	45°01.949'N 083°09.883'W	227° for 5.2 (4.5)
Wpt 3	Thunder Bay Traffic LBB "TB"	44°58.525'N 083°15.011'W	304° for 9.0 (7.8)
Wpt 4	Alpena Channel Entrance	45°02.800'N 083°23.800'W	

To Saginaw: From 0.6 mi (0.5 nm) East of Nordmeer Wreck Lighted Buoy WR1 (waypoint position 45°08.165'N 083°08.482'W), steer 181° for 29.2 miles (25.4 n.m.) to 6 mi (5.2 n.m.) East of Sturgeon Point Light (waypoint position 44°42.837'N 083°09.068'W). Then steer 188° for 27.8 miles (24.2 n.m.) to 3 mi. (2.6 n.m.) East of Au Sable Point Lighted Buoy 1 (waypoint position 44°18.941'N 083°13.667'W). From this position, steer 224° for 19.5 miles (16.9 n.m.) to just North of Charity Island Shoal Lighted Bell Buoy 1 (waypoint position 44°06.618'N 083°29.840'W). Then steer 194° for 6.5 miles (5.7 n.m.) to 0.5 mi. (0.4 n.m.) East from Gravelly Shoal Light (waypoint position 44°01.145'N 083°31.737'W). Then steer 213° for 16.0 miles (13.9 n.m.) to the Saginaw Bay Channel Light 1 (waypoint position 43°49.476'N 083°42.249'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer

Wpt 1	0.6 mi. (0.5 n.m.) East of Nordmeer Wreck LB WR1	45°08.165'N 083°08.482'W	181° for 29.2 (25.4)
Wpt 2	6 mi. (5.2 n.m.) East of Sturgeon Pt. Lt.	44°42.837'N 083°09.068'W	188° for 27.8 (24.2)
Wpt 3	3 mi. (2.6 n.m.) East of Au Sable LB1	44°18.941'N 083°13.667'W	224° for 19.5 (16.9)
Wpt 4	Just North of Charity Island Shoal LBB 1	44°06.618'N 083°29.840'W	194° for 6.5 (5.7)
Wpt 5	0.5 mi. (0.4 n.m.) East from Gravelly Shoal Lt.	44°01.145'N 083°31.737'W	213° for 16.0 (13.9)
Wpt 6	Saginaw Bay Channel Lt. 1	43°49.476'N 083°42.249'W	

Mackinac Bridge to Cove Island via Poe Reef Passage: From a departure position 0.5 (0.4) miles East from the center of the Mackinac Bridge (waypoint position 45°48.857'N 084°43.055'W), steer 122° for 14.2 miles (12.3 n.m.) passing to the South of the Cheboygan Traffic Lighted Bell Buoy (waypoint position 45°42.289'N 084°28.175'N). Then steer 108° for 5.5 miles (4.8 n.m.) until Poe Reef Light bears North at 1.1 mi. (1.0 n.m.) (waypoint position 45°40.744'N 084°21.710'W). From this position, steer 077° for 3.2 miles (2.8 n.m.) to Cordwood Point Light Buoy 1 bears 196° at 0.5 mi. (0.4 n.m.) (waypoint position 45°41.327'N 084°17.812'W). Then steer 101° for 60 miles (52.1 n.m.) until Great Duck Island Light bears 033° at 10 mi (8.7 n.m.) (waypoint position 45°31.265'N 083°04.516'W). Then steer 103° for 60.1 miles (52.2 n.m.) to a position 268° and 6.6 miles (5.7 n.m.) from Cove Island Light (waypoint position 45°19.482'N 081°52.219'W). **From this position, steer recommended courses for Georgian Bay to destination ports.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Mackinac Bridge 0.5 mi. (0.4 n.m.) East from center	45°48.857'N 084°43.055'W	122° for 14.2 (12.3)
Wpt 2	Cheboygan Traffic LBB	45°42.289'N 084°28.175'N	108° for 5.5 (4.8)
Wpt 3	Poe Reef Lt. bearing North at 1.1	45°40.744'N	077° for 3.2 (2.8)

	mi. (1.0 n.m.)	084°21.710'W	
Wpt 4	Cordwood Pt. LB1 bearing 196° at 0.5 mi. (0.4 n.m.)	45°41.327'N 084°17.812'W	101° for 60 (52.1)
Wpt 5	Great Duck Island Lt. bearing 033° at 10 mi. (8.7 n.m.)	45°31.265'N 083°04.516'W	103° for 60.1 (52.2)
Wpt 6	268° and 6.6 miles (5.7 n.m.) from Cove Island Lt.	45°19.482'N 081°52.219'W	Then recommended courses for Georgian Bay

Mackinac Bridge to Cove Island via Round Island: From a departure position 0.5 (0.4) miles East from the center of the Mackinac Bridge (waypoint position 45°48.857'N 084°43.055'W), steer 069° for 5.6 miles (4.9 n.m.) to East End of Round Island Passage off LB 3 (waypoint position 45°50.558'N 084°36.537'W). Then steer 090° for 9.1 miles (7.9 n.m.) until Bois Blanc Light bears 180° at 2.3 mi. (2.0 n.m.) (waypoint position 45°50.556'N 084°25.240'W). From this position, steer 105° for 14.2 miles (12.3 n.m.) to 1 mile (0.9 n.m.) North of Spectacle Reef Light (waypoint position 45°47.280'N 084°08.285'W). Then steer 110° for 55.0 miles (47.8 n.m.) until Great Duck Island Light bears 033° at 10 mi. (8.7 n.m.) (waypoint position 45°31.265'N 083°04.516'W). Then steer 103° for 60.1 miles (52.2 n.m.) to the position of 268° and 6.6 miles (5.7 n.m.) from Cove Island Light (waypoint position 45°19.482'N 081°52.219'W). **From this position, steer recommended courses for Georgian Bay to destination ports.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Mackinac Bridge 0.5 mi. (0.4 n.m.) East from center	45°48.857'N 084°43.055'W	069° for 5.6 (4.9)
Wpt 2	East end of Round Island Passage off LB 3	45°50.558'N 084°36.537'W	090° for 9.1 (7.9)
Wpt 3	Bois Blanc Lt. bearing 180° at 2.3 mi. (2.0 n.m.)	45°50.556'N 084°25.240'W	105° for 14.2 (12.3)
Wpt 4	1 mile (0.9 nm) North of Spectacle Reef Lt.	45°47.280'N 084°08.285'W	110° for 55.0 (47.8)
Wpt 5	Great Duck Island Lt. bearing 033° at 10 mi. (8.7 n.m.)	45°31.265'N 083°04.516'W	103° for 60.1 (52.2)

Wpt 6	268° and 6.6 miles (5.7 n.m.) from Cove Island Lt.	45°19.482'N 081°52.219'W	Then recommended courses for Georgian Bay
-------	--	-----------------------------	---

Detour to Cove Island: From a departure position with Detour Reef Light bearing 308° at 0.75 miles (0.65 n.m.) (waypoint position 45°56.558'N 083°53.436'W), steer 137° for 12.0 miles (10.4 n.m.) until Detour Reef Light bears 316° at 12.7 mi. (11.0 n.m.) (waypoint position 45°48.914'N 083°43.286'W). From this position, steer 122° for 37.3 miles (32.4 n.m.) until Great Duck Island Light bears 033° at 10 miles (8.7 n.m.) (waypoint position 45°31.265'N 083°04.516'W). Then steer 103° for 60.1 miles (52.2 n.m.) to a position 268° and 6.6 mi (5.7 n.m.) from Cove Island Light (waypoint position 45°19.482'N 081°52.219'W). **From this position, steer recommended courses for Georgian Bay to destination ports.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Detour Departure bearing 308° at ¾ mi. (0.7 n.m.) to Detour Reef Lt.	45°56.558'N 083°53.436'W	137° for 12 (10.4)
Wpt 2	Detour Reef Lt. bearing 316° at 12.7 mi. (11.0 n.m.)	45°48.914'N 083°43.286'W	122° for 37.3 (32.4)
Wpt 3	Great Duck Island Lt. brg. 033° at 10 miles (8.7 n.m.)	45°31.265'N 083°04.516'W	103° for 60.1 (52.2)
Wpt 4	Position 268° and 6.6 miles (5.7 n.m.) from Cove Island Lt.	45°19.482'N 081°52.219'W	Then recommended courses for Georgian Bay

Detour to Calcite: From a departure position with Detour Reef Light bearing 308° at 0.75 miles (0.65 n.m.) (waypoint position 45°56.558'N 083°53.436'W), steer 170° for 35.2 miles (30.6 n.m.) until Calcite Breakwater Light 2 bears South at 1.5 mi. (1.3 n.m.) (waypoint position 45°26.377'N 083°46.360'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Detour Departure bearing 308° at ¾ mi. (0.7 n.m.) to Detour Reef Lt.	45°56.558'N 083°53.436'W	170° for 35.2 (30.6)
Wpt 2	Calcite Brkw. Lt. 2 bearing South at 1.5 mi. (1.3 n.m.)	45°26.377'N 083°46.360'W	

Calcite (Downbound): From a departure position 0.7 mile (0.6 n.m.) off Adams Point (waypoint position 45°25.536'N 083°42.924'W), steer 100° for 30 miles (26.1 n.m.) miles until Middle Island Light bears 225° at 15.0 (13.0) miles (waypoint position 45°20.809'N 083°06.164'W) . Then steer 161° for 105 (91.2) miles until Harbor Beach Light 2 bears 247° at 12.0 (10.4) miles (waypoint position 43°54.809'N 082°24.608'W). From this position, steer 179° for 51.6 (44.8) miles to a position 005° at 5.2 (4.5) miles from Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°10.000'N 082°24.300'W), and then steer 185° for 5.6 (4.9) miles to Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 043° 05.466'N 082° 24.708'W)

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Adams Pt. 0.7 mile off (0.6 n.m.)	45°25.536'N 083°42.924'W	100° for 30 (26.1)
Wpt 2	Middle Island Lt. brg. 045° and 15 (13 n.m.)	45°20.809'N 083°06.164'W	Joining recommended downbound course.

Stoneport (Downbound): From a departure position with Stoneport Light bearing 278° at 1.0 mi. (0.9 n.m.) (waypoint position 45°17.660'N 083°23.928'W), steer 098° for 16.8 miles (14.6 n.m.) to intersect the regular downbound course from DeTour Passage at a position 14 miles (12.2 n.m.) bearing 071° from Middle Island Light (waypoint position 45°15.406'N 083°03.477'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to
----------	-----------	----------	------------------------

			Steer
Wpt 1	Stoneport Lt. bearing 278° at 1.0 mi. (0.9 n.m.)	45°17.660'N 083°23.928'W	098° for 16.8.(14.6)
Wpt 1	Middle Island Lt. brg. 071° and 14 (12.17 n.m.)	45°15.406'N 083°03.477'W	Joining recommended downbound course.

Middle Island to Goderich: From a departure position 15.0 (13.0) miles, 225° to Middle Island Light (waypoint position 45°20.809'N 083°06.164'W), steer 149° for 128 miles (111.2 n.m.) until Goderich North Breakwater Light bears 086° at 3.5 (3.0) miles (waypoint position 43°44.574'N 081°48.379'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Middle Island at 225° and 15 mi. (13.0 n.m.)	45°20.809'N 083°06.164'W	149° for 128 (111.2)
Wpt 2	3.5 mi (3.0 n.m.) at 086° to Goderich North Breakwater Lt.	43°44.574'N 081°48.379'W	

Meldrum Bay to Lake Huron Cut: From a departure position in Mississagi Strait with Green Island bearing 090° at 4.95 miles (4.3 n.m.) (waypoint position 45°50.463'N 083°14.669'W), steer 162° for 139.0 miles (120.8 n.m.) to join downbound course at 12 mi. (10.4 n.m.) and 067° from Harbor Beach Light 2. (waypoint position 43°54.809'N 082°24.608'W). From this position steer 179° for 51.6 miles (44.8 n.m.) to a position 5.2 mi. (4.5 n.m.) 005° from Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°10.000'N 082° 24.300'W). Then steer 185° for 5.6 miles (4.9 n.m.) to the Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°05.466'N 082°24.708'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Green Island brg. 090° at 5.0 miles (4.3 n.m.)	45°50.463'N 083°14.669'W	162° for 139.0 (120.8)
Wpt 2	Harbor Beach Lt. brg. 247° and 12 miles (10.4 n.m.)	43°54.809'N 082°24.608'W	179° for 51.6 (44.8)

Wpt 3	5.2 mi. (4.5 n.m.) 005° from Lake Huron Cut Buoys 11 and 12	43°10.000'N 082°24.300'W	185° for 5.6 (4.9)
Wpt 4	Lake Huron Cut Buoys 11 and 12	43°05.466'N 082°24.708'W	

Alpena to Huron Cut: From a departure position off Alpena at the Thunder Bay Traffic Lighted Bell Buoy TB (waypoint position 44°58.525'N 083°15.011'W), steer 159° for 58 (50.4) miles until Pte. Aux Barques Light bears 353° at 12.0 (10.4) miles (waypoint position 44°11.751'N 082°49.209'W). Then steer 134° for 28 miles (24.33 n.m.) to intersect the regular downbound course at a position 12 miles (10.4 n.m.) bearing 067° from Harbor Beach Light (waypoint position 43°54.809'N 082°24.608'W). From this position, steer 179° for 51.6 miles (44.8 n.m.) to a position 005° at 5.2 mi. (4.5 n.m.) from Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°10.000'N 082°24.300'W). Then steer 185° for 5.6 miles (4.9 n.m.) to the Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°05.466'N 082°24.708'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Thunder Bay Traffic LBB TB	44°58.525'N 083°15.011'W	159° for 58 (50.40)
Wpt 2	Pte. Aux Barques Lt. brg. 353° and 12 miles (10.43 n.m.) miles	44°11.751'N 082°49.209'W	134° for 28 (24.3)
Wpt 3	Harbor Beach Lt. brg. 247° and 12 miles (10.4 n.m.)	43°54.809'N 082°24.608'W	179° for 51.6 (44.8)
Wpt 4	5.2 mi. (4.5 n.m.) 005° from Lake Huron Cut Buoys 11 and 12	43°10.000'N 082°24.300'W	185° for 5.6 (4.9)
Wpt 5	Lake Huron Cut Buoys 11 and 12	43°05.466'N 082°24.708'W	

Saginaw to Lake Huron Cut: From a departure position from Saginaw Bay Channel Light 1 (waypoint position 43°49.476'N 083°42.249'W), steer 033° for 16.0 miles (13.9 n.m.) to position 0.5 mi. (0.4 n.m.) from Gravelly Shoal Light (waypoint position 44°01.145'N 083°31.737'W). Then steer 014° for 6.5 miles (5.7 n.m.) to a position just North of Charity Island Shoal Lighted Bell Buoy 1 (waypoint position 44°06.618'N 083°29.840'W). Then steer 080° for 34.2 miles (29.7 n.m.) until Pte. Aux Barques Light bears 353° at 12.0 (10.4) miles (waypoint position 44°11.751'N 082°49.209'W). Then steer 134° for 28.2 miles (24.5 n.m.) until Harbor Beach Light 2 bears 247° at 12.0 (10.4) miles (waypoint position 43°54.809'N 082°24.608'W). From this position, steer 179° for 51.6 miles (44.8 n.m.) to a position 005° at 5.2 mi. (4.5 n.m.) from Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°10.000'N 082°24.300'W). Then steer 185° for 5.6 miles (4.9 n.m.) to the Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°05.466'N 082°24.708'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Saginaw Outer Lt. #1	43°49.476'N 083°42.249'W	033° for 16 (13.9)
Wpt 2	0.5 mi. (0.4 n.m.) from Gravelly Shoal Lt.	44°01.145'N 083°31.737'W	014° for 6.5 (5.7)
Wpt 3	Just North of Charity Island Shoal LBB 1	44°06.618'N 083°29.840'W	080° for 34.2 (29.7)
Wpt 4	12 mi. (10.4 n.m.) 353° from Pt. Aux Barques Lt.	44°11.751'N 082°49.209'W	134° for 28.2 (24.5)
Wpt 5	Harbor Beach Lt. brg. 247° and 12 miles (10.4 n.m.)	43°54.809'N 082°24.608'W	179° for 51.6 (44.8)
Wpt 6	5.2 mi. (4.5 n.m.) 005° from Lake Huron Cut Buoys 11 and 12	43°10.000'N 082°24.300'W	185° for 5.6 (4.9)
Wpt 7	Lake Huron Cut Buoys 11 and 12	043° 05.466'N 082° 24.708'W	

Cove Island (Georgian Bay) to Lake Huron Cut: From a departure position at 268° and 6.6 miles (5.7 n.m.) from Cove Island Light (waypoint position 45°19.482'N 081°52.219'W), steer 217° for 6.2 miles (5.4 n.m.) until Cape Hurd Light bears 281° at 10.9 (9.5) miles (waypoint

position 45°15.170'N 081°56.834'W). From this position, steer 189° for 151.0 miles (131.2 n.m.) to the Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°05.466'N 082°24.708'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From position 268° and 6.6 miles (5.7 n.m.) from Cove Island Lt.	45°19.482'N 081°52.219'W	217° for 6.2 (5.4)
Wpt 2	281° and 10.9 mi. (9.5 n.m.) from Cape Hurd Lt.	45°15.170'N 081°56.834'W	189° for 151 (131.2)
Wpt 3	Lake Huron Cut Buoys 11 and 12	43°05.466'N 082°24.708'W	

Goderich to Lake Huron Cut Buoys 11 and 12: From a departure position off Goderich with Goderich North Breakwater Light bearing 086° at 3.5 miles (3.0 n.m.) (waypoint position 43°40.700'N 081°52.000'W), steer 214° for 54.3 miles (47.2 n.m.) to Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°05.466'N 082°24.708'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Off Goderich North Brkw. Lt. brg. 086° at 3.5 miles (3.0 n.m.)	043° 44.574'N 081° 48.379'W	214° for 54.3 (47.2)
Wpt 2	Lake Huron Cut Buoys 11 and 12	43°05.466'N 082°24.708'W	

RECOMMENDED COURSES

LAKE HURON

Upbound/Inbound

Lake Huron Cut Buoys 11 and 12 to Detour: From departure position at Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°05.466'N 082°24.708'W), steer 353° for 54.4 miles (47.3 n.m.) until Harbor Beach Light 2 bears 247° at 5.0 (4.3) miles (waypoint position 43°52.422'N 082°32.375'W). Then steer 341° for 91.8 miles (79.8 n.m.) to pass not less than 1.5 miles (1.3 n.m.) East of the Nordmeer Wreck Lighted Buoy WR1 (waypoint position 45°08.165'N 083°07.393'W). From this position, steer 325° for 65.7 miles (57.1 n.m.) until DeTour Reef Light bears 330° at 2.0 (1.7 n.m.) (waypoint position 45°55.432'N 083°52.991'W) for entry to the St. Mary's River.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Lake Huron Cut Buoys 11 and 12	43°05.466'N 082°24.708'W	353° for 54.4 (47.3)
Wpt 2	from Harbor Beach Lt. 2 brg. 247° and 5.0 miles (4.3 n.m.)	43°52.422'N 082°32.375'W	341° for 91.8 (79.8)
Wpt 3	Nordmeer Wreck LB brg. West at 1.5 miles (1.3 n.m.)	45°08.165'N 083°07.393'W	325° for 65.7 (57.1)
Wpt 4	Detour Reef Lt. brg. 330° at 2.0 miles (1.7 n.m.)	45°55.432'N 083°52.991'W	

Lake Huron Cut Buoys 11 and 12 to Mackinac Bridge via Round Island Passage: From departure position at Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°05.466'N 082°24.708'W), steer 353° for 54.4 miles (47.3 n.m.) until Harbor Beach Light 2 bears 247° at 5.0 (4.3) miles (waypoint position 43°52.422'N 082°32.375'W). Then steer 341° for 91.8 miles (79.8 n.m.) to pass not less than 1.5 miles (1.3 n.m.) East of Nordmeer Wreck Lighted Buoy WR1 (waypoint position 45°08.165'N 083°07.393'W). From this position, steer 322° for 23.2 miles (20.2 n.m.) until Presque Isle Light bears 230° at 5.0 (4.4 n.m.) miles (waypoint position 45°24.158'N 083°24.725'W). Then steer 307° for 44.1 miles (38.3 n.m.) to a position 1.0 miles (0.9 n.m.) North of Spectacle Reef Light (waypoint position 45°47.280'N 084°08.285'W). Then steer 291° for 14.6 miles (12.7 n.m.) to 3.7 miles (3.2 n.m.) due North of Bois Blanc Island Light (waypoint position 45°51.880'N 084°25.240'W). From this position, steer 260° for 9.2 miles (8.0 n.m.) to the East end of Round Island Passage off LB 3 (waypoint position

45°50.558'N 084°36.537'W). Then steer 249° for 5.6 miles (4.9 n.m.) to 0.5 mile (0.4 n.m.) East of the center of the Mackinac Bridge (waypoint position 45°48.857'N 084°43.055'W). **From this position, steer recommended courses for Lake Michigan port destinations.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Lake Huron Cut Buoys 11 and 12	43°05.466'N 082°24.708'W	353° for 54.4 (47.3)
Wpt 2	Harbor Beach Lt. 2 bearing 247° and 5.0 miles (4.3 n.m.)	43°52.422'N 082°32.375'W	341° for 91.8 (79.8)
Wpt 3	Nordmeer Wreck LB brg. West at 1.5 miles (1.3 n.m.)	45°08.165'N 083°07.393'W	322° for 65.7 (57.1)
Wpt 4	Presque Isle Lt. brg. 050° and 5 miles (4.4 n.m.)	45°24.158'N 083°24.725'W	307° for 44.1 (38.3)
Wpt 5	1.0 miles (0.9 n.m.) North of Spectacle Reef Lt.	45°47.280'N 084°08.285'W	291° for 14.6 (12.7)
Wpt 6	3.7 miles (3.2 n.m.) due North of Bois Blanc Island Lt.	45°51.880'N 084°25.240'W	260° for 9.2 (8.0)
Wpt 7	East end of Round Island Passage off LB 3	45°50.558'N 084°36.537'W	249° for 5.6 (4.9)
Wpt 8	0.5 mile (0.4 n.m.) East of the Mackinac Bridge	45°48.857'N 084°43.055'W	Then steer recommended courses for Lake Michigan

Lake Huron Route - Nordmeer Wreck to Straits of Mackinac Via Poe Reef Passage: From departure position off Nordmeer Wreck Lighted Buoy WR1 bearing West at 1.5 miles (1.3 n.m.) (waypoint position 45°08.165'N 083°07.393'W), steer 322° for 23.2 miles (20.2 n.m.) until Presque Isle Light bears 230° at 5.0 (4.4 n.m.) miles (waypoint position 45°24.158'N 083°24.725'W). Then steer 296° for 44.8 miles (38.9 n.m.) to a position with Poe Reef Light

bearing 270° at 6.0 miles (5.2 n.m.) (waypoint position 45°41.690'N 084°14.231'W). From this position, steer 270° for 4.0 miles (3.5 n.m.) to a position 2 miles due East of Poe Reef Light (waypoint position 45°41.690'N 084°19.220'W). Then steer 251° for 2.1 miles (1.8 n.m.) to a position 0.7 miles (0.6 n.m.) due South of Poe Reef Light (waypoint position 45°41.100'N 084°21.710'W). From this position, steer 284° for 5.4 miles (4.7 n.m.) to the Cheboygan Traffic Lighted Bell Buoy (waypoint position 45°42.289'N 084°28.175'W). Then steer 302° for 14.2 miles (12.3 n.m.) to a position 0.5 miles (0.4 n.m.) East of the center of the Mackinac Bridge (waypoint position 45°48.857'N 084°43.055'W). **From this position, steer the recommended courses for Lake Michigan ports.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Nordmeer Wreck LB WR1 bearing West at 1.5 miles (1.3 n.m.)	45°08.165'N 083°07.393'W	322° for 23.2 (20.2)
Wpt 2	Presque Isle Lt. brg. 230° and 5 miles (4.4 n.m.)	45°24.158'N 083°24.725'W	296° for 44.8 (38.9)
Wpt 3	Poe Reef Lt. bearing 270° at 6.0 miles (5.2 n.m.)	45°41.690'N 084°14.231'W	270° for 4.0 (3.5)
Wpt 4	2 miles due East of Poe Reef Lt.	45°41.690'N 084°19.220'W	251° for 2.1 (1.8)
Wpt 5	0.7 miles (0.6 n.m.) due South of Poe Reef Lt.	45°41.100'N 084°21.710'W	284° for 5.4 (4.7)
Wpt 6	Cheboygan Traffic LBB	45°42.289'N 084°28.175'W	302° for 14.2 (12.3)
Wpt 7	0.5 miles (0.4 n.m.) East of the center of the Mackinac Bridge	45°48.857'N 084°43.055'W	Then to recommended courses for Lake Michigan

Lake Huron Cut Buoys 11 and 12 to Goderich: From a departure position at Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 043° 05.466'N 082° 24.708'W), steer 034° for

54.4 miles (47.4 n.m.) to a position off Goderich with Goderich North Breakwater Light bearing 086° at 3.5 miles (3.0 n.m.) (waypoint position 043° 44.574'N 081° 48.379'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Lake Huron Cut LB 11 and 12	043° 05.466'N 082° 24.708'W	034° for 54.4 (47.4)
Wpt 2	Goderich North Brkw Lt. brg. 086° and 3.5 miles (3.4 n.m.)	043° 44.574'N 081° 48.379'W	

Lake Huron Cut Buoys 11 and 12 to Cove Island (Georgian Bay): From departure position at Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 043° 05.466'N 082° 24.708'W), steer 034° for 16.2 miles (14.1 n.m.) to a position 034° and 16.2 miles (14.1 n.m.) from the Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°17.129'N 082°13.928'W). Then steer a course of 007° for 142.0 miles (123.4 n.m.) to position 268° and 6.6 miles (5.7 n.m.) from Cove Island Light (waypoint position 45°19.482'N 081°52.219'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Lake Huron Cut LB 11 and 12	043° 05.466'N 082° 24.708'W	034° for 16.2 (14.1)
Wpt 2	Position 034° 16.2 miles (14.1 n.m.) from Lake Huron Cut LB 11 and 12	43°17.129'N 082°13.928'W	007° for 142.0 (123.4)
Wpt 3	Position 268° and 6.6 miles (5.7 n.m.) from Cove Island Lt.	45°19.482'N 081°52.219'W	

Huron Cut Buoys 11 and 12 to Mississagi Strait (Meldrum Bay): From a departure position at Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 043° 05.466'N 082°24.708'W), steer 353° for 54.4 miles (47.3 n.m.) with Harbor Beach Light 2 bearing 247° at 5.0 miles (4.3

n.m.) (waypoint position 043° 52.422'N 082° 32.375'W). Then steer 341° for 91.8 miles (79.8 n.m.) to pass not less than 1.5 miles (1.3 n.m.) East of Nordmeer Wreck Lighted Buoy WR1 (waypoint position 45°08.165'N 083°07.393'W). From this position, steer 353° for 49.0 miles (42.7 n.m.) to a position 5.0 miles (4.3 n.m.) off Green Island (waypoint position 045° 50.463'N; 083° 14.669'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 0	From Lake Huron Cut LB 11 and 12	043° 05.466'N 082° 24.708'W	353° for 54.4 (47.3)
Wpt 1	Harbor Beach Lt. 2 bearing 247° at 5.0 miles (4.3 n.m.)	043° 52.422'N 082° 32.375'W	341° for 91.8 (79.8)
Wpt 2	1.5 miles (1.3 n.m.) East of Nordmeer Wreck LB WR1	45°08.165'N 083°07.393'W	353° for 49.0 (42.7)
Wpt 3	Abeam Green Island at 5.0 miles (4.3 n.m.)	045° 50.463'N 083° 14.669'W	

Cove Island (Georgian Bay) to DeTour Passage: From a departure position 280° and 2.0 (1.7) miles from Cove Island Light on Gig Point (waypoint position 45°19.950'N 081°46.540'W), steer 284° for 61.2 miles (53.2 n.m.) until Great Duck Island Light bears 014° at 6.0 miles (5.2 n.m.) (waypoint position 45°33.491'N 082°59.647'W). Then steer 300° for 49.9 miles (43.4 n.m.) to a position with Detour Reef Light bearing 330° at 2.0 miles (1.7 n.m.) (waypoint position 45°55.432'N 083°52.991'W) for entry to the St. Mary's River.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	280° and 2.0 (1.7) miles from Cove Island Light on Gig Point	45°19.950'N 081°46.540'W	284° for 61.2 (53.2)
Wpt 2	Great Duck Island Lt. brg. 014° and 6 miles (5.2 n.m.).	45°33.491'N 082°59.647'W	300° for 49.9 (43.4)
Wpt 3	Detour Reef Lt. brg. 330° at 2.0 miles (1.7 n.m.)	45°55.432'N 083°52.991'W	

Eastbound vessels from Round Island Passage to Detour: From a departure position exiting East End of Round Island Passage off LB 3 (waypoint position 45°50.558'N 084°36.537'W), steer 090° for 22 miles (19.12 n.m.) to a position 4.8 miles (4.2 n.m.) off Martin Reef Light (waypoint position 45°50.558'N 084°08.905'W). Then steer 061° for 13.4 miles (11.6 n.m.) to a position with Detour Light bearing North at 1.0 miles (0.9 n.m.) (waypoint position 45°56.066'N 083°54.225'W) for entry to the St. Mary's River.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	East End of Round Island Passage off LB 3	45°50.558'N 084°36.537'W	090° for 22 (19.12)
Wpt 1	Martin Reef Lt. brg 000° and 4.8 miles (4.2 n.m.)	45°50.558'N 084°08.905'W	061° for 13.4 (11.6)
Wpt 3	Detour Reef Lt. brg. 000° at 1.0 miles (0.9 n.m.)	45°56.066'N 083°54.225'W	

Meldrum Bay to Straits of Mackinac: From a departure position with Green Island bearing 090° at 5.0 miles (4.3 n.m.) (waypoint position 045° 50.463'N; 083° 14.669'W), steer 228° for 6.6 miles (5.7 n.m.) bringing the South end of Cockburn Island (Boom Point) to bear 000° at 5.2 miles (4.5 n.m.) (waypoint position 045° 46.503'N; 083° 20.943'W). Then steer 276° for 52.1 miles (45.2 n.m.) to Bois Blanc Light bearing 180° at 3.7 miles (3.2 n.m.) (waypoint position 045°51.880'N 084° 25.240'W). Then follow recommended courses previously outlined to Round Island and Mackinaw Bridge.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 0	Green Island brg. 090° and 5.0 miles (4.3 n.m.)	045° 50.463'N 083° 14.669'W	228° for 6.6 (5.7)
Wpt 1	Boom Point brg. 000° and 5.2 miles (4.5 n.m.)	045° 46.503'N 083° 20.943'W	276° for 52.0 (45.2)
Wpt 3	Bois Blanc Lt. brg. 180° and 3.7 miles (3.2 n.m.)	045°51.880'N 084° 25.240'W	Then recommended courses to Round Island and Mackinaw Bridge

Harbor Beach to Saginaw: From departure position with Harbor Beach Light 2 bearing 247° at 5.0 miles (4.3 n.m.) (waypoint position 043°52.422'N 082°32.375'W), steer 327° for 26.3 miles (22.9 n.m.) until Pte. Aux Barques Light bears 173° at 12.0 miles (10.4 n.m.) (waypoint position 44°11.751'N 082°49.209'W). Then steer 260° for 34.2 miles (29.7 n.m.) to just North of Charity Island Shoal Lighted Bell Buoy 1 (waypoint position 44° 06.618'N 083°29.840'W). From this position, steer 194° for 6.5 miles (5.7 n.m.) to 0.5 miles (0.4 n.m.) East of Gravelly Shoal Light (waypoint position 44° 01.145'N 083° 31.737'W). Then steer 213° for 16.0 miles (13.9 n.m.) to Saginaw Channel Entry (waypoint position 43°49.476'N 083° 42.249'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Departure position Harbor Beach Lt. 2 bearing 247° at 5.0 miles (4.3 n.m.)	43° 52.422'N 082° 32.375'W	327° for 26.3 (22.9)
Wpt 2	Pte. Aux Barques Lt. bearing 173° at 12.0 miles (10.4 n.m.)	044° 11.751'N 082° 49.209'W	260° for 34.2 (29.7)
Wpt 3	Just North of Charity Island Shoal LBB 1	044° 06.618'N 083° 29.840'W	194° for 6.5 (5.7)
Wpt 4	0.5 miles (0.4 n.m.) East of Gravelly Shoal Lt.	044° 01.145'N 083° 31.737'W	213° for 16.0 (13.9)
Wpt 5	Saginaw Channel Entry	043° 49.476'N 083° 42.249'W	

Cove Island to Mackinac Bridge via Round Island From a departure position 280° and 2.0 (1.7) miles from Cove Island Light on Gig Point (waypoint position 45°19.950'N 081°46.540'W), steer 284° for 61.2 miles (53.2 n.m.) until Great Duck Island Light bears 014° at 6 miles (5.2 n.m.) (waypoint position 45°33.491'N 082°59.647'W). Then steer 287° for 72.2 miles (62.7 n.m.) to a position with Bois Blanc Light bearing 180° at 3.7 miles (3.2 n.m.) (waypoint position 045°51.880'°N 084° 25.240'W). From this position, steer 260° for 9.2 miles (8.0 n.m.) to East end of Round Island Passage off LB 3 (waypoint position 45°50.558'N 084°36.537'W). Then steer 249° for 5.6 miles (4.9 n.m.) to 0.5 mile (0.4 n.m.) East of the center of the Mackinac Bridge (waypoint position 45°48.857'N 084°43.055'W). **Then steer recommended courses for Lake Michigan port destinations.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From a departure position 280° and 2.0 (1.7) miles from Cove Island Light on Gig Point "	45°19.950'N 081°46.540'W	284° for 61.2 (53.2)
Wpt 2	Great Duck Island Lt. brg. 014° and 6 miles (5.2 n.m.).	45°33.491'N 082°59.647'W	287° for 72.2 (62.7)
Wpt 3	Bois Blanc Lt. brg. 180° and 3.7 miles (3.2 n.m.)	045°51.880'N 084° 25.240'W	260° for 9.2 (8.0)
Wpt 4	East end of Round Island Passage at LB 3	45°50.558'N 084°36.537'W	249° for 5.6 (4.9)
Wpt 5	0.5 mile (0.4 n.m.) East of the Center of the Mackinac Bridge	45°48.857'N 084°43.055'W	Then to Lake Michigan Courses

Cove Island (Georgian Bay) to Mackinac Bridge via Poe Reef Passage: From a departure position 280° and 2.0 (1.7) miles from Cove Island Light on Gig Point (waypoint position 45°19.950'N 081°46.540'W), steer 284° for 61.2 miles (53.2 n.m.) until Great Duck Island Light bears 014° at 6 miles (5.2 n.m.) (waypoint position 45°33.491'N 082°59.647'W). Then steer 278° for 61.0 miles (53.0 n.m.) to a position with Poe Reef Light bearing 270° at 6.0 miles (5.2 n.m.) (waypoint position 45°41.690'N 084°14.231'W). From this position, steer 270° for 4.0 miles (3.5 n.m.) to a position 2 miles (1.7 n.m.) due East of Poe Reef Light (waypoint position 45°41.690'N 084°19.220'W). Then steer 251° for 2.1 miles (1.8 n.m.) to a position 0.7 miles (0.6 n.m.) due South of Poe Reef Light (waypoint position 45°41.100'N 084°21.710'W). From this position, steer 284° for 5.4 miles (4.7 n.m.) to Cheboygan Traffic Lighted Bell Buoy (waypoint position 45°42.289'N 084°28.175'W). Then steer 302° for 14.2 miles (12.3 n.m.) to a position 0.5 miles (0.4 n.m.) East of the center of the Mackinac Bridge (waypoint position 45°48.857'N 084°43.055'W). **Then steer recommended courses for Lake Michigan port destinations.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From a departure position 280° and 2.0 (1.7) miles from Cove	45°19.950'N 081°46.540'W	284° for 61.2 (53.2)

	Island Light on Gig Point		
Wpt 2	Great Duck Island Lt. brg. 014° and 6 miles (5.2 n.m.).	45°33.491'N 082°59.647'W	278° for 61.0 (53.0)
Wpt 3	Poe Reef Lt. bearing 270° at 6.0 miles (5.2 n.m.)	45°41.690'N 084°14.231'W	270° for 4.0 (3.5)
Wpt 4	2 miles (1.7 n.m.) due East of Poe Reef Lt.	45°41.690'N 084°19.220'W	251° for 2.1 (1.8)
Wpt 5	0.7 miles (0.6 n.m.) due South of Poe Reef Lt.	45°41.100'N 084°21.710'W	284° for 5.4 (4.7)
Wpt 6	Cheboygan Traffic LBB	45°42.289'N 084°28.175'W	302° for 14.2 (12.3)
Wpt 7	0.5 miles (0.4 n.m.) East of the center of the Mackinac Bridge	45°48.857'N 084°43.055'W	Then to Lake Michigan Courses

Poe Reef to Detour: From a position with Poe Reef Light bearing due North at 1.1 miles (1.0 n.m.) (waypoint position 45°40.744'N 084°21.710'W), steer 077° for 3.2 miles (2.8 n.m.) to Cordwood Point Lighted Buoy 1 bears South at 0.5 miles (0.4 n.m.) (waypoint position 45°41.327'N 084°17.812'W). From this position, steer 048° for 10.3 miles (9.0 n.m.) to 1 mile North of Spectacle Reef Light (waypoint position 45°47.280'N 084°08.285'W). Continue to steer 048° for another 15.2 miles (13.2 n.m.) to a position with Detour Reef Light bearing North at 1.0 miles (0.9 n.m.) (waypoint position 45°56.066'N 083°54.225'W) for entry into the St. Mary's River.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Poe Reef Lt. bearing North at 1.1 mi. (1.0 n.m.)	45°40.744'N 084°21.710'W	077° for 3.2 (2.8)
Wpt 2	Cordwood Pt. LB1 bearing South at 0.5 miles (0.4 n.m.)	45°41.327'N 084°17.812'W	048° for 10.3 (9.0)
Wpt 3	1.0 miles (0.9 n.m.) North of Spectacle Reef Lt.	45°47.280'N 084°08.285'W	048° for 15.2 (13.2)
Wpt 4	Detour Reef Lt. brg. 000° at 1.0	45°56.066'N	

	miles (0.9 n.m.)	083°54.225'W	
--	------------------	--------------	--

Calcite to Detour: From departure position with Calcite Breakwater Light 2 bearing South at 1.5 miles (1.3 n.m.), steer 350° for 33.9 miles (29.5 n.m.) (waypoint position 45°26.377'N 083°46.360'W) to a position with Detour Reef Light bearing 330° at 2.0 miles (1.7 n.m.) (waypoint position 45°55.432'N 083°52.991'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Calcite Brkw. Lt. 2 bearing South at 1.5 miles (1.3 n.m.)	45°26.377'N 083°46.360'W	350° for 33.9 (39.5)
Wpt 2	Detour Reef Lt. bearing 330° at 2.0 miles (1.7 n.m.)	45°55.432'N 083°52.991'W	Enter St. Mary's River

Martin Reef Lt. to Cedarville: From a position with Martin Reef Light bearing North at 1.2 miles (1.0 n.m.) (waypoint position 45° 53.748'N 084° 08.905'W), steer 300° for 3.5 miles (3.0 n.m.) to 0.25 miles (0.2 n.m.) Southwest of Pomeroy Reef Lighted Gong Buoy 2PR (waypoint position 45° 55.279'N 085°12.687'W). Then steer 336° for 2.9 miles (2.5 n.m.) to a position 0.6 (0.5) mile Southeast of Crow Island Leading Light, and then to destination.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Martin Reef Lt. bearing North at 1.2 miles (1.0 n.m.)	45°53.748'N 084°08.905'W	300° for 3.5 miles (3.0 n.m.)
Wpt 2	Southwest of Pomeroy Reef Lighted Gong Buoy 2PR	45°55.279'N 085°12.687'W	336° for 2.9 miles (2.5 n.m.)
Wpt 3	to a position 0.6 (0.5) mile Southeast of Crow Island Leading Light	45°57.587'N 084°14.138'W	Then to destination

Optional Lake Huron Eastern Shore Weather Route Huron Cut to Detour for Easterly Weather. Note: This course can be run from either North or South:

From Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°05.466'N 082°24.708'W), steer 034° for 49.2 miles (42.8 n.m.) to Goderich North Breakwater Light bears 057° at 8.2 miles (7.1 n.m.) (waypoint position 43°40.700'N 081°52.000'W). Then steer 000°

for 27.6 miles (24.0 n.m.) until Point Clark Light bears East at 5.3 miles (4.6 n.m.) (waypoint position 44°04.700'N 081°52.000'W). Then steer 025° for 20.9 miles (18.2 n.m.) until the dome at Macpherson Point bears 110° at 4.4 miles (3.8 n.m.) (waypoint position 44°21.000'N 081°41.000'W). Then steer 035° for 22.6 miles (19.6 n.m.) until Chantry Island Light bears 176° at 8.4 miles (7.3 n.m.) (waypoint position 44° 37.000'N 081°25.000'W). Then steer 349° for 22.2 miles (19.3 n.m.) until Lyal Island Light bears 072° at 4.0 miles (3.5 n.m.) (waypoint position 44°56.000'N 081°30.000'W). From this position, steer 319° for 23.5 miles (20.4 n.m.) to have Cape Hurd Light bearing 063° at 4.5 miles (3.9 n.m.) (waypoint position 45°11.500'N 081°48.700'W). Then steer 336° for 23.2 miles (20.2 n.m.) to 4 Miles (3.5 n.m.) South of South Baymouth (waypoint position 45°30.000'N 082°00.000'W). From this position, steer 274° for 48.4 miles (42.1 n.m.) until Great Duck Island Light bears 014° at 6.0 miles (5.2 n.m.) (waypoint position 45°33.419'N 082°59.647'W). Then steer 300° for 49.9 miles (43.4 n.m.) until Detour Reef Light bears 330° at 2.0 miles (1.7 n.m.) (waypoint position 45°55.432'N 083°52.991'W) for entry to the St. Mary's River.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Lake Huron Cut Buoys 11 and 12 departure position	43°05.466'N 082°24.708'W	034° for 49.2 (42.8)
Wpt 2	Goderich North Brkw. Lt. bearing 057° at 8.2 miles (7.1 n.m.)	43°40.700'N 081°52.000'W	000 for 27.6 (24.0)
Wpt 3	Pt. Clark Lt. bearing East at 5.3 miles (4.6 n.m.)	44°04.700'N 081°52.000'W	025° for 20.9 (18.2)
Wpt 4	Dome at Macpherson Pt. bears 110° at 4.4 miles (3.8 n.m.)	44°21.000'N 081°41.000'W	035° for 22.6 (19.6)
Wpt 5	Chantry Island Lt. bears 176° at 8.4 miles (7.3 n.m.)	44° 37.000'N 081°25.000'W	349° for 22.2 (19.3)
Wpt 6	Lyal Island Lt. bears 072° at 4.0 miles (3.5 n.m.)	44°56.000'N 081°30.000'W	319° for 23.5 (20.4)
Wpt 7	Cape Hurd Lt. bearing 063° at 4.5 miles (3.9 n.m.)	45°11.500'N 081°48.700'W	336° for 23.2 (20.2)

Wpt 8	4 miles (3.5 n.m.) South of South Baymouth	45°30.000'N 082°00.000'W	274° for 48.4 (42.1)
Wpt 9	Great Duck Island Lt. Bearing 014° at 6.0 miles (5.2 n.m.)	45°33.419'N 082°59.647'W	300° for 49.9 (43.4)
Wpt 10	Detour Reef Lt. bears 330° at 2.0 miles (1.7 n.m.)	45°55.432'N 083°52.991'W	Entry to St. Mary's River

Optional Lake Huron Westerly Shore Weather Route Huron Cut to Nordmeer Wreck for Westerly Weather. Note: this course can be run from either North or South:

From departure position at Lake Huron Cut Lighted Buoys 11 and 12 (waypoint position 43°05.466'N 082°24.708'W), steer 351° for 53.9 miles (46.8 n.m.) to a position 3.0 miles (2.6 n.m.) at 247° to Harbor Beach Light 2t. (waypoint position 43°51.780'N 082°34.555'W). Then steer 335° for 14.1 miles (12.3 n.m.) until Pte. Aux Barques Light bears 251° at 5.2 miles (4.5 n.m.) (waypoint position 44°02.945'N 082°41.573'W). From this position, steer 304° for 32.3 miles (28.1 n.m.) to a position 3 miles (2.6 n.m.) East of Au Sable Point Lighted Buoy 1 (waypoint position 44°18.941'N 083°13.667'W). Then steer 007° for 27.8 miles (24.2 n.m.) to 6 miles (5.2 n.m.) East of Sturgeon Point Light (waypoint position 44°42.837'N 083°09.068'W). Then steer 000° for 29.2 miles (25.4 n.m.) to 1.5 miles (1.3 n.m.) East of Nordmeer Wreck Lighted Buoy WR1 (waypoint position 45°08.165'N 083°07.393'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Lake Huron Cut Buoys 11 and 12	43°05.466'N 082°24.708'W	351° for 53.9 (46.8)
Wpt 2	3.0 miles (2.6 n.m.) at 067° from Harbor Beach Lt. 2	43°51.780'N 082°34.555'W	335° for 14.1 (12.3)
Wpt 3	Pt. Aux Barques Lt. bears 251° at 5.2 miles (4.5 n.m.)	44°02.945'N 082°41.573'W	304° for 32.3 (28.1)
Wpt 4	3 miles (2.6 n.m.) East of Au Sable LB 1	44°18.941'N 083°13.667'W	007°for 27.8 (24.2)
Wpt 5	6 miles (5.2 n.m.) East of Sturgeon Pt. Lt.	44°42.837'N 083°09.068'W	000° for 29.2 (25.4)

Wpt 6	1.5 miles (1.3 n.m.) East of the Nordmeer Wreck LB WR1	45°08.165'N 083°07.393'W	Then to further routing as required
-------	--	-----------------------------	-------------------------------------

Anchorage:

It is recommended that the following limit of anchorage be observed in Lake Huron off DeTour Light so that vessels may enter or leave DeTour Passage in time of congestion due to fog or other conditions: No vessel to anchor East of bearing on DeTour Light of 340°, or closer than .75 mile (0.65 n.m.) to the light or North of the DeTour - Martin Reef course.

Georgian Bay Recommended Courses

Cove Island Passage Eastbound/Inbound (Entrance to Georgian Bay): From a position 268° and 6.6 mi (5.7 n.m.) from Cove Island Lt. (former Cove Island Traffic Buoy) (waypoint position 045° 19.482'N 081° 52.219'W), steer 083° for 6.6 miles (5.7 n.m.) to abeam Gig Point on Cove Island brg. 180° at 0.6 miles (0.5 n.m.) (waypoint position 45°20.134'N 081°44.115'W) . Then steer 108° for 3.2 miles (2.8 n.m.) on Flower Pot Island Lt., and when abeam Echo Island bears 200° at 0.9 miles (0.8 n.m.) (waypoint position 45° 19.244'N 081° 40.300'W), steer 090° on the North tip of Bears Rump Island for 2.8 miles (2.4 n.m.) (waypoint position 045°19.242'N 081°36.849'W). From position abeam Flower Pot Island brg 180° at 0.9 miles (0.8nm), steer 075° for 2.0 miles (1.7 n.m.) until the North tip of Bears Rump Island Lt. is bearing 180° at 0.7 miles (0.6 n.m.) (waypoint position 045°19.847'N 081°33.629'W). From this position, steer for North Channel destinations in Georgian Bay **OR** continue to steer 092° for 13.1 miles (11.4 n.m.) to a position 5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180° (waypoint position 045°19.418'N 081°17.513'W); then continue to Eastern **OR** Southern Georgian Bay port destinations.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Position at former Cove Island Traffic Buoy (Cove Is. Lt. brg. 088°@ 6.6 miles (5.7 n.m.)	45° 19.482'N 081° 52.219'W	083° for 6.6 (5.7)
Wpt 2	Abeam Gig Point on Cove Island brg. 180° at 0.6 miles (0.5 n.m.), steer on Flower Pot Is. Lt.	45°20.134'N 081°44.115'W	108° for 3.2 (2.8)
Wpt 3	Abeam Echo Island brg. 200° at	45° 19.244'N 081° 40.300'W	090° for 2.8 (2.4)

	0.86 miles (0.75 n.m.)		
Wpt 4	Abeam Flower Pot Island Lt. brg. 180° at 0.9 miles (0.8 n.m.)	45° 19.242'N 081° 36.849'W	075° for 2.0 (1.7)
Wpt 5	Bears Rump Island Lt. brg. 180° at 0.7 miles (0.6 n.m.)	45° 19.847'N 081° 33.629'W	092° for 13.1(11.4)
Wpt 6	Cabot Head brg. 180° at 5.4 miles (4.7 n.m.)	45° 19.418'N 081° 17.513'W	Then for East and South Georgian Bay port destinations

Using the Cove Island Entrance (as above):

Southbound to Owen Sound: From departure position 5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180° (waypoint position 45°19.418'N 081°17.513'W), steer 135° for 29.5 miles (25.7 n.m.) to a position 6.3 miles (5.5 n.m.) from Cape Croker Light brg. 226° (waypoint position 45°01.178'N 080°52.000'W). Then steer 180° for 19.6 miles (17.1 n.m.) to a position 1.0 mile (0.9 n.m.) off Payette Point brg. 270° (waypoint position 44°44.100'N 080° 52.000'W). From this position, steer 199° for 8.3 miles (7.2 n.m.) to the intersection of the Owen Sound Harbour range lights [195.2°/015.2°] where Squaw Point is 0.7 mile (0.60 n.m.) bearing 110° (waypoint position 44°37.299'N 080°55.463'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180°	45°19.418'N 081°17.513'W	135° for 29.5 (25.7)
Wpt 2	6.3 miles (5.5 n.m.) from Cape Croker Light brg. 226°	45°01.178'N 080°52.000'W	180° for 19.6 (17.1)
Wpt 3	1.0 mile (0.9 n.m.) off Payette Point brg. 270°	44°44.100'N 080° 52.000'W	199° for 8.3 (7.2)
Wpt 4	0.7 mile (0.60 n.m.) bearing 110° off Squaw Point (Owen Sound	44°37.299'N 080°55.463'W	This course intersects the Owen Sound Range

	Harbour Approach)		[195.2°/015.2°] at Squaw Point
--	-------------------	--	--------------------------------

Southbound to Collingwood: From a departure position 5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180° (waypoint position 45° 19.418'N 081° 17.513'W), steer 135° for 74.3 miles (64.6 n.m.) to a position 2.7 miles (2.4 n.m.) North of the Collingwood outer approach buoys (waypoint position 44° 33.500'N 080° 13.544'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180°	45° 19.418'N 081° 17.513'W	135° for 74.3 (64.6)
Wpt 2	Collingwood outer Channel Buoys brg. 180° at 2.7 miles (2.4 n.m.)	44°33.500'N 080° 13.544'W	From this Wpt, steer to enter the Collingwood Harbour Channel buoys.

Southbound to Midland: From a departure position 5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180° (waypoint position 45°19.418'N 081°17.513'W), steer 115° for 47.6 miles (41.4 nm) to Western Islands bearing 074° at 3.1 miles (2.7 n.m.) (waypoint position 45°01.423'N 080°24.858'W). Then continue to steer 115° for 13 miles (11.3 n.m.) to abeam Lottie Wolf Rock Buoy (waypoint position 44°56.500'N 080°10.500'W). Then steer 124° for 8.8 miles (7.7 n.m.) to Giants Tomb Island Buoy and entry into Midland (waypoint position 44°52.200'N 080°01.600'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Cabot's Head 180° at 5.4 miles (4.7 n.m.)	45°19.418'N 081°17.513'W	115° for 47.6 (41.4)
Wpt 2	Western Islands brg. 074° at 3.1 miles (2.7 n.m.)	45°01.423'N 080°24.858'W	115° for 13 (11.3)
Wpt 3	Abeam Lottie Wolf Rock Buoy Hope Is. Lt. brg, 165° at 1.6 miles	44°56.500'N 080°10.500'W	124° for 8.8 (7.7)
Wpt 4	Abeam Giants Tomb Island LB for entry into Midland. Giants Tomb	44°52.200'N	

	Is. Lt. 053° at 1.1 miles (1.0 n.m.)	080°01.600'W	
--	--------------------------------------	--------------	--

Eastbound to Parry Sound: From departure position 5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180° (waypoint position 45°19.418'N 081°17.513'W), steer 092° for 37.2 miles (32.35 n.m.) to Parry Sound Outer Channel Entrance at Seguin Bank Buoy (waypoint position 45°18.200'N 080°31.700'W)

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Cabot's Head 180° at 5.4 miles (4.7 n.m.)	45°19.418'N 081°17.513'W	092° for 37.2 (32.35)
Wpt 2	Abeam Seguin Bank Buoy and Outer Channel Entrance to Parry Sound	45°18.200'N 080°31.700'W	

Cove Island Passage Westbound/Outbound (Departure from Georgian Bay): From a departure position with the North tip of Bears Rump Island Lt. bearing 180° at 0.7 miles (0.6 n.m.) (waypoint position 45°19.847'N 081°33.629'W), steer 255° for 2.8 miles (2.4 n.m.) on Echo Island. From a position 0.9 miles (0.8 n.m.) North of Flower Pot Island (waypoint position 45°19.242'N 081°36.849'W), steer 270° for 2.9 miles (2.5 n.m.) to abeam Echo Island (waypoint position 45°19.244'N 081°40.300'W). From this position, steer 288° for 3.3 (2.8 n.m.) to a position 0.6 miles (0.5 n.m.) North of Gig Point on Cove Island (waypoint position 45°20.134'N 081°44.115'W). Then steer outbound course of 263° to intersect with Westbound course when at a departure position 280° and 2.0 (1.7) miles from Cove Island Light on Gig Point (clear of the old O'Brian Patch Buoy TC) **OR** the Southbound course for Lake Huron (waypoint position 45°19.482'N 081°52.219'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Bears Rump Island Lt. bearing 180° at 0.7 miles (0.6 n.m.)	45°19.847'N 081°33.629'W	255° for 2.8 (2.4)
Wpt 2	0.9 miles (0.8 n.m.) North of	45°19.242'N	270° for 2.9 (2.5)

	Flower Pot Island Lt.	081°36.849'W	
Wpt 3	Abeam Echo Island bearing 200° at 0.9 mi. (0.8 n.m.)	45°19.244'N 081°40.300'W	288° for 3.2 (2.8)
Wpt 4	0.6 miles (0.5 n.m.) North of Gig Point on Cove Island	45°20.134'N 081°44.115'W	263° to intersect lake courses
Wpt 5	Position at Cove Is. Lt. Brg 089° @ 6.5 miles (5.7 n.m.) (former Cove Island Traffic Buoy)	45°19.482'N 081°52.219'W	

Owen Sound to Cove Island, from the intersection of the Owen Sound Harbour Range Lights [195.2°/015.2°] where Squaw Point is 0.7 mile (0.60 n.m.) bearing 110° (waypoint position 45°20.134'N 081°44.115'W), steer 019° for 8.3 miles (7.2 n.m.)) to a position 1.0 mile (0.9 n.m.) off Payette Point brg. 270° (waypoint position 44°44.100'N 080°52.000'W). Then steer 000° for 19.6 miles (17.1 n.m.) to a position 6.3 miles (5.5 n.m.) from Cape Croker Light brg. 226° (waypoint position 45°01.178'N 080°52.000'W). Then steer 315° for 29.5 miles (25.7 n.m.) to a position 5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180° (waypoint position 45°19.418'N 081°17.513'W). **From this position, steer recommended courses for intended destination ports.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	0.7 mile (0.60 n.m.) miles bearing 110° off Squaw Point (Owen Sound Harbour Approach)	45°20.134'N 081°44.115'W	019° for 8.3' (7.24)
Wpt 2	1.0 mile (0.9 n.m.) off Payette Point brg. 270°	44°44.100'N 080°52.000'W	000° for 19.6 (17.1)
Wpt 3	6.3 miles (5.5 n.m.) from Cape Croker Light brg. 226°	45°01.178'N 080°52.000'W	315° for 29.5 (25.7)
Wpt 4	5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180°	45°19.418'N 081°17.513'W	

Collingwood Northbound to Cabot Head, from a position 2.7 miles (2.4 n.m.) North of the Collingwood Outer Approach Buoys (waypoint position 44°33.500'N 080° 13.544'W), steer 315° for 74.3' (64.6 n.m.) to a position 5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180° (waypoint position 45°19.418'N 081°17.513'W). **From this position, steer recommended courses previously outlined or through the Cove Island Passage Westbound.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Collingwood outer Channel Buoys brg. 180° at 2.7 miles (2.4 n.m.)	44°33.500'N 080° 13.544'W	315° for 74.3 (64.6)
Wpt 2	5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180°	45°19.418'N 081°17.513'W	

Midland Northbound to Cove Island from departure position abeam Giants Tomb Island Buoy outbound from Midland with Giants Tomb Is. Lt. 053° at 1.1 miles (1.0 nm) (waypoint position 44°52.200'N 080°01.600'W), steer 304° for 8.8 miles (7.7 n.m.) to abeam Lottie Wolf Rock Buoy (waypoint position 44°56.500'N 080°10.500'W). Then steer 295° for 13 miles (11.3 n.m.) to Western Islands bearing 074° at 3.1 miles (2.7 n.m.) (waypoint position 45°01.423'N 080°24.858'W). From this position, steer 295° for 47.6 miles (41.4 n.m.) until at a position 5.4 (4.7 n.m.) North of Cabot Head Light brg. 180° (waypoint position 45°19.418'N 081°17.513'W). **From this position, steer recommended courses previously outlined or through the Cove Island Passage Westbound.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Abeam Giants Tomb Island Buoy. Giants Tomb Is Lt. 053° at 1.1 miles (1.0 n.m.)	44°52.200'N 080°01.600'W	304° for 8.8 (7.7)
Wpt 2	Abeam Lottie Wolf Rock Buoy w/ Hope Island Lt. bearing 165° at 1.6 miles (1.4 n.m.)	44°56.500'N 080°10.500'W	295° for 13 (11.3)
Wpt 3	Western Islands bearing 074° at	45°01.423'N	295° for 47.6 (41.4)

	3.1 miles (2.7 n.m.)	080°24.858'W	
Wpt 4	Cabot Head bearing 180° at 5.4 miles (4.7 n.m.)	45°19.418'N 081°17.513'W	

Parry Sound Westbound to Cove Island from Parry Sound Outer Channel Entrance at Seguin Bank Buoy (waypoint 45°18.200'N 080°31.700'W), steer 272° for 37.2 miles (32.4 n.m.) to a position 5.4 miles (4.7 n.m.) North of Cabot Head Light brg. 180° (waypoint position 45°19.418'N 081°17.513'W). **From this position, steer recommended courses previously outlined or through the Cove Island Passage Westbound.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Abeam Seguin Bank Buoy & outer channel entrance to Parry Sound	45°18.200'N 080°31.700'W	272° for 37.2 (32.4)
Wpt 2	Cabot's Head 180° @ 5.4 (4.7nm)	45°19.418'N 081°17.513'W	

Cove Island Passage to Little Current:

From a departure position at the West End of Bears Rump Island (waypoint position 45° 19.560'N 081° 35.000'W), steer 004° for 16.3 miles (14.2 n.m.) to a position where Lonely Is. West Fl. Lt. brg. 090° at 3.6 miles (3.1 n.m.) (waypoint position 45°33.652'N 081°33.600'W). Then steer 000° for 15.4' (13.4 n.m.) to a position where Cape Smith Light bears 270° at 0.9 miles (0.7 n.m.) (waypoint position 45°47.065'N 081°33.600'W). Then steer 356° for 8.4 miles (7.3 n.m.) heading on Kokanongwi Island Southeast tip. At Bernard Rock Buoys "J"/ J13", Kokanongwi Is. bearing 356° at 1.0 mile (0.9 n.m.) (waypoint position 45°55.000'N 081°34.300'W), steer 270° for 10.9 miles (9.5 n.m.). At Heywood Island - Wharton Pt. Lt. Brg 035° at 0.7 mile (0.6 n.m.) (waypoint position 45°55.000'N 081°47.750'W), steer 342° for 2.4 miles (2.1 n.m.). When abeam of Langevin Rock Buoy "J17" (waypoint position 45°57.000'N 081°48.680'W), steer 326° for 1.6 miles (1.4 n.m.). At the Caron Reef Buoy "J19" (waypoint position 45°58.200'N 081°49.800'W), steer 289° for 1.0 mile (0.9 n.m.) to enter the channel with the Strawberry Island Light bearing 242° at a distance of 2 cables (0.2 miles) (waypoint position 45°58.500'N 081°51.000'W), then steer 270° for 0.9 mile (0.8 nm). From abeam of

Middle Bank Buoy “J21” (waypoint position 45°58.500'N 081°52.100'W), steer 244° for 0.5 mile (0.46 n.m.) until abeam of Beauty Island where the course intersects the Gibbons Point Range (waypoint position 45°58.300'N 081°52.700'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Snake Island Northbound point of departure	45°19.560'N 081° 35.000'W	004° for 16.1 (14.0)
Wpt 2	Lonely Is. West Fl. Lt. brg. 090° at 3.6 miles (3.1 n.m.)	45°33.652'N 081°33.600'W	000° for 15.4 (13.4)
Wpt 3	Cape Smith Fl. Lt. brg, 270° at 0.9 miles (0.7 n.m.)	45°47.065'N 081°33.600'W	356° for 9.1 (8.0)
Wpt 4	Bernard Rock Buoys "J" and "J13" w/ Kokanongwi Island bearing 356° at 1.0 miles (0.9 n.m.)	45°55.000'N 081°34.300'W	270° for 10.8 (9.5)
Wpt 5	Heywood Island - Wharton Pt. Lt. brg. 035° at 0.7 miles (0.6 n.m.)	45°55.000'N 081°47.750'W	342° for 2.4(2.1)
Wpt 6	Langevin Rock Buoy “J17”	45°57.000'N 081°48.680'W	326° for 1.6 (1.4)
Wpt 7	Caron Reef Buoy “J19”	45°58.200'N 081°49.800'W	289° for 1.0' (0.9)
Wpt 8	Strawberry Island Light brg. 242° at 2 cables (0.2 miles)	45°58.500'N 081°51.000'W	270° for 0.9 (0.8)
Wpt 9	Middle Bank Buoy “J21”	45°58.500'N 081°52.100'W	244° for 0.5 (0.46)
Wpt 10	Beauty Island	45°58.300'N 081°52.700'W	Intersects Gibbons Point Range.

Northbound to Fisher Harbour: While steering 270° for 6.7 miles (5.8 n.m.) from Bernard Rock Buoys “J” and “J13” from a departure point abeam Partridge Island (buoy “EE2”), and Partridge Island West tip bearing 000° (waypoint position 45°55.000'N 081°42.600'W), steer 354° for 6.3 miles (5.5 n.m.) to the intersection of the Fraser Bay Ranges at the Duncan City Rock Buoys ”EE5” and “EE6” (waypoint position 46°00.242'N 081°43.360'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Turn into/from Fraser Bay at Partridge Island West Tip bearing 000° and clearing Buoy "EE2"	45°55.000'N 081°42.600'W	From the existing Northerly Route 354° for 6.3 (5.5)
Wpt 2	Intersect MacGregor Pt. Range, abeam the Duncan City Rock Buoys”EE5” and “EE6”	46°00.242'N 081°43.360'W	

Southbound from Fisher Harbour: From a departure point abeam the intersection of the Fraser Bay Ranges at the Duncan City Rock Buoys ”EE5” and “EE6” (waypoint position 46°00.230'N 081°42.600'W), steer 174° for 6.3 miles (5.5 n.m.) to Partridge Island (Buoy “EE2”) (waypoint 46°00.242'N 081°43.360'W). This is at the intersection of the Southbound track going towards Cove Island and heading 090° for 6.7 miles (5.8 n.m.).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Intersect MacGregor Pt. Range, abeam the Duncan City Rock Buoys”EE5” and “EE6”	46°00.242'N 081°43.360'W	174° for 6.3 (5.5)
Wpt 2	Turn from Fraser Bay at Partridge Is. Buoy “EE2”	45°55.000'N 081°42.600'W	090° for 6.7 (5.8) to join existing route

Little Current to Cove Island Passage (Snake Island Entry Point): From abeam Beauty Island where the course intersects the Gibbons Point Range (waypoint position 45°58.300'N

081°52.700'W), steer 064° for 0.5 mile (0.46 n.m.) until abeam of Buoy “J21” (waypoint position 45°58.500'N 081°52.100'W). Then steer 090° for 0.9' (0.8 n.m.). With Strawberry Island Lt. bearing 242° at a distance of 2 cables (0.2 mile) (waypoint position 45°58.500'N 081°51.000'W), steer 109° for 1.0 mile (0.9 nm). At Caron Reef Buoy “J19” (waypoint position 45°58.200'N 081°49.800'W), steer 146° for 1.6 miles (1.4 n.m.). When abeam of Langevin Rock Buoy “J17” (waypoint position 45°57.000'N 081°48.680'W), steer 162° for 2.4 miles (2.1 n.m.). Then steer 090° for 10.8 miles (9.4 n.m.) when at Heywood Island - Wharton Pt. Lt. brg. 035° at 0.7' (0.6 n.m.) (waypoint position 45°55.000'N 081°47.750'W). At Bernard Rock Buoys “J”/ J13” with Kokanongwi Is. bearing 356° at 1.0 mile (0.9 n.m.) (waypoint position 45°55.000'N 081°34.300'W), steer 176° for 9.1 miles (8.0 n.m.) to a position where Cape Smith bears 270° at 0.9 miles (0.8 n.m.) (waypoint position 45°47.065'N 081°33.600'W). From this position, steer 180° for 15.4 miles (13.4 n.m.) to a position where Lonely Is. West Fl Lt. brg. 090° at 3.6 miles (3.1 n.m.) (waypoint position 45°33.652'N 081°33.600'W). Then steer 184° for 16.1 miles (14.0 n.m.) to a position abeam Snake Island (waypoint position 45°19.560'N 081°35.000'W) where this intersects the Cove Island Passage track line.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Beauty Island intersects Gibbons Point Range.	45°58.300'N 081°52.700'W	064° for 0.5 (0.46)
Wpt 2	Middle Bank Buoy “J21”	45°58.500'N 081°52.100'W	090° for 0.9 (0.8)
Wpt 3	Strawberry Island Light brg. 242° at 2 cables (0.2 miles)	45°58.500'N 081°51.000'W	109° for 1.0(0.9)
Wpt 4	Caron Reef Buoy “J19”	45°58.200'N 081°49.800'W	146° for 1.64(1.4)
Wpt 5	Langevin Rock Buoy “J17”	45°57.000'N 081°48.680'W	162° for 2.4(2.1)
Wpt 6	Heywood Island - Wharton Pt. Lt. brg. 035° at 0.7 mile (0.6 n.m.)	45°55.000'N 081°47.750'W	090° for 10.8(9.4)
Wpt 7	Bernard Rock Buoys “J”/ J13” Kokanongwi Is. bearing 356° at 1.0 mile (0.9 n.m.)	45°55.000'N 081°34.300'W	176° for 9.1(8.0)
Wpt 8	Cape Smith Fl. Lt. brg. 270° at 0.9 mile (0.8 n.m.)	45°47.065'N 081°33.600'W	180° for 15.4(13.4)

Wpt 9	Lonely Is. West Fl. Lt. brg. 090° at 3.6 miles (3.1 n.m.)	45°33.652'N 081°33.600'W	184° for 16.1(14.0)
Wpt 10	Snake Island Northbound Point of Departure, Southbound Point of joining to exit at Cove Island	45°19.560'N 081° 35.000'W	

RECOMMENDED COURSES

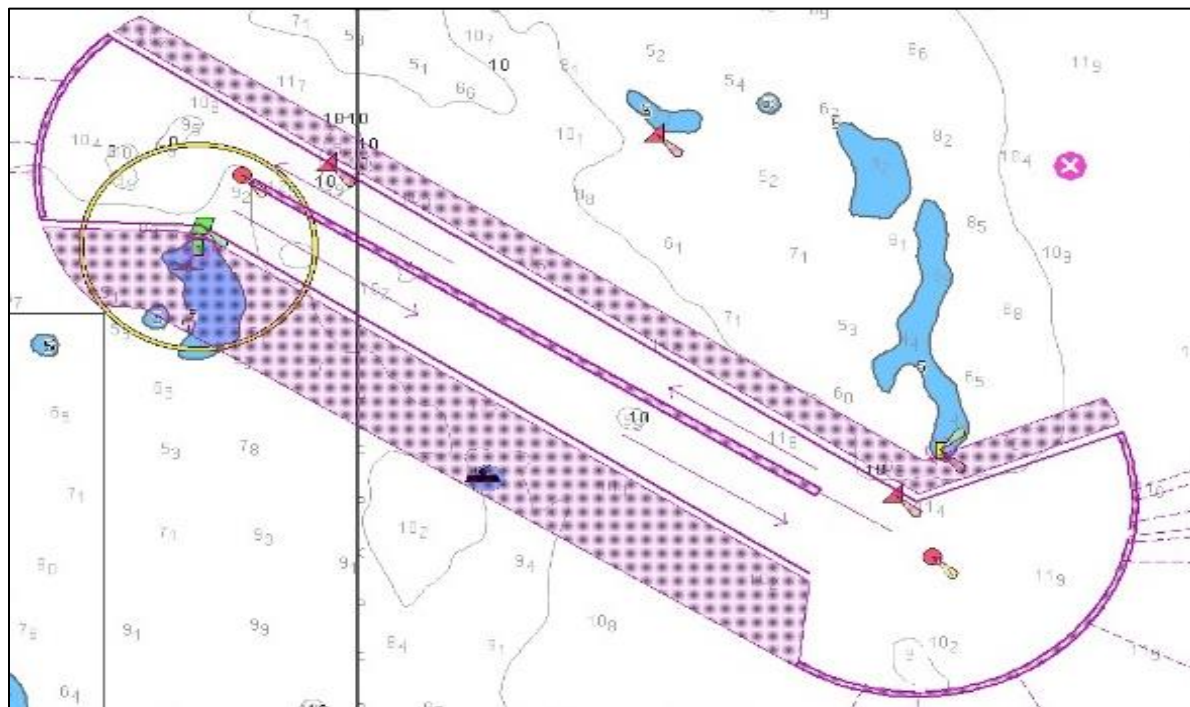
LAKE ERIE

Downbound/Outbound

Departing Detroit River East Outer Channel for Southeast Shoal: Steer 164° until East Outer Channel Light 1E bears 340° at 0.9 mile (0.8 n.m.) (waypoint position 41°54.116'N 083°06.066'W); then steer 095° for 27.3 miles (23.7 n.m.) for Pelee Passage Traffic Lighted Buoy P (waypoint position 41°51.816'N 082°34.450'W). From this position, steer 122° for 6.8 miles (5.9 n.m.) to pass 1.0 mile (0.9 n.m.) South of Southeast Shoal Light (waypoint position 41° 048.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
	From East Outer Channel		164° for 0.9 (0.8)
Wpt 1	East Outer Channel Lt. 1E bears 340° at 0.9 mile (0.8 n.m.)	41°54.116'N 083°06.066'W	095° for 27.3 (23.7)
Wpt 2	Pelee Passage Traffic LB “P”	41°51.816'N 82°34.450'W	122° for 6.8 (5.9)
Wpt 3	Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695N 082° 27.798W	

Note: The chartlet below shows in detail how traffic separation areas should be navigated in the Pelee Passage-Southeast Shoal Area.



Departing Detroit River East Outer Channel to Toledo: From a position with East Outer Channel Light 1E bearing 340° at 0.9 mile (0.8 n.m.) (waypoint position 41°54.116'N 083°06.066'W), steer 217° for 5.8 miles (5.0 n.m.) to a position 1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2 (waypoint position 41° 50.092'N 083° 10.093'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	East Outer Channel Lt. 1E brg. 340° at 0.9 mile (0.8 n.m.)	41° 54.116'N 083° 06.066'W	217° for 5.8 (5.0)
Wpt 2	1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2 at the Maumee Safe Water VAIS	41° 50.150'N 083° 10. 150'W	

Departing Detroit River West Outer Channel to Monroe: From departure position at West Outer Channel (waypoint position 41°56.783'N 083°09.500'W), steer 220° for 7.3 (6.3 n.m.) to a position 1.8 miles Southeast of the Monroe Harbor Entrance Channel (waypoint position 41° 51.593'N 083°15.000'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From West Outer Channel	41°56.783'N 083°09.500'W	220° for 7.3 (6.3)
Wpt 2	1.8 miles (1.5 n.m.) Southeast of Monroe Harbor Entrance Channel	41° 51.983'N 083° 15.000'W	

Departing Detroit River West Outer Channel to Toledo: From a departure position at West Outer Channel (waypoint position 41°56.783'N 083°09.500'W), steer 184° for 7.7 miles (6.7 n.m.) to a position 1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2 (waypoint position 41° 50.150'N 083° 10.150'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From West Outer Channel	41°56.783'N 083°09.500'W	184° for 7.7 (6.7)
Wpt 2	1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2 at the Maumee Safe Water VAIS	41° 50.150'N 083° 10. 150'W	

Departing Toledo for Southeast Shoal and beyond: From a departure position 1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2 (waypoint position 41°50.150'N 083°10.150'W), steer 073° for 9.2 miles (4.4 n.m.) to a position 1.5 miles (1.3 n.m.) North of Middle Sister Island (waypoint position 41°52.433'N 082° 59.900'W). Then steer 091° for 21.9 miles (19.0 n.m.) for Pelee Passage Traffic Lighted Buoy P (waypoint position 41°51.816'N 082°34.450'W). From this position, steer 122° for 6.8 miles (5.9 n.m.) to pass 1.0 mile (0.9 n.m.) South of Southeast Shoal Light (waypoint position 41° 048.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2 at the Maumee Safe Water VAIS	41°50.150'N 083°10.150'W	073° for 9.2 (8.0)

Wpt 2	1.5 miles (1.3 n.m.) North of Middle Sister Island	41°52.433'N 082°59.900'W	091° for 21.9 (19.0)
Wpt 3	Pelee Passage Traffic LB “P”	41°51.816'N 082°34.450'W	122° for 6.8 (5.9)
Wpt 4	Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695N 082° 27.798W	

Departing Monroe for Southeast Shoal and beyond: From a departure position 1.8 miles (1.5 n.m.) Southeast of Monroe Harbor Monroe Harbor Entrance Channel (waypoint position 41°51.983'N 083°15.000'W), steer 087° for 13 miles (11.3 n.m.) to intersect the downbound course from Toledo at 1.5 miles (1.3 n.m.) North of Middle Sister Island (waypoint position 41°52.433'N 082°59.900'W). Then steer 091° for 21.9 miles (19.0 n.m.) for Pelee Passage Traffic Lighted Buoy P (waypoint position 41°51.816'N 082°34.450'W). From this position, steer 122° for 6.8 miles (5.9 n.m.) to pass 1.0 mile (0.9 n.m.) South of Southeast Shoal Light (waypoint 41° 048.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	1.8 miles (1.5 n.m.) Southeast of Monroe Harbor Entrance Channel	41°51.983'N 083°15.000'W	087° for 13 (11.3)
Wpt 2	1.5 miles (1.3 n.m.) North of Middle Sister Island	41°52.433'N 082°59.900'W	091° for 21.9 (19.0)
Wpt 3	Pelee Passage Traffic LB P	41°51.816'N 082°34.450'W	122° for 6.8 (5.9)
Wpt 4	Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

Southeast Shoal to Port Colborne or Buffalo: From point of departure at Southeast Shoal Light (waypoint position 41° 48.695; 082° 27.798), steer 071° for 135 miles (117.3 n.m.) to pass off Long Point Light bearing 332° at 8.5 miles (7.4 n.m.) (waypoint position 42°26.283'N 079° 58.250'W). Then steer 053° for 44.4 miles (38.6 n.m.) to Port Colborne Call-in Point 16 with Port Colborne Outer Light bearing 015° at 3.0 miles (2.6 n.m.) miles (waypoint position 42° 49.258'N 079° 16.235'W); **OR for Buffalo**, steer 062° for 60 miles (52.1 n.m.) until Buffalo Harbor South Entrance Light 2 bears 090° at 2.5 miles (2.2 n.m.) (waypoint position 42° 50.150'N 078° 55.450'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	071° for 135 (117.3)
Wpt 2	Long Point Lt. brg. 332° at 8.5 miles (7.4 n.m.)	42° 26.283'N 079°58.250'W	053° for 44.4 (38.6)
Wpt 3	To Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.3 n.m.)	42° 49.258'N 079° 16.235'W	
	Or To Buffalo		
Wpt 2	Long Point Lt. brg. 332° at 8.5 miles (7.4 n.m.)	42°26.283'N 079°58.250'W	062° for 60 (52.1)
Wpt 3A	To Buffalo Harbor South Entrance Lt. 2 brg. 090° at 2.5 miles (2.3 n.m.)	42° 50.150'N 078° 55.450'W	

Southeast Shoal to Sandusky: From a departure position bearing 001° and 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N; 082° 27.798'W), steer 206° for 23.5 miles (20.4 n.m.) to Sandusky Bay Moseley Entrance Channel (waypoint position 41° 30.383'N 082° 39.766'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From South of Southeast Shoal Lt. bearing 001° at 1.0 mile (0.9 n.m.)	41° 48.695'N 082° 27.798'W	206° for 23.5 (20.4)
Wpt 2	Sandusky Bay Moseley Entrance Channel	41° 30.383'N 082° 39.766'W	

Southeast Shoal to Marblehead: From a departure position bearing 001° and 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 206° for 19.6 miles (17.0 n.m.) to a position 4.7 miles (4.1 n.m.) North-Northeast of the Sandusky Harbor Breakwater Light (waypoint position 41°33.420'N 082°37.800'N). Then steer 265° for 5.0 miles

(4.3 n.m.) to a position 0.35 mile (0.30 n.m.) North of Marblehead Stone Dock (waypoint position 41° 33.044'N 082° 43.607'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From South of Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	206° for 19.6 (17.0)
Wpt 2	Junction position 4.7 (4.1 n.m.) North-Northeast of the Sandusky Harbor Breakwater Light	41°33.420'N 082° 37.800'W	265° for 5.0 (4.3)
Wpt 3	Position 0.35 mile (0.30 n.m.) North of Marblehead Stone Dock	41° 33.044'N 082° 43.607'W	

Southeast Shoal to Huron: From a departure position bearing 001° and 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 186° for 27.2 miles (23.6 n.m.) to a position bearing 219° at 1.4 miles (1.3 n.m.) to Huron Harbor Light (waypoint position 41° 25.249'N 082° 31.568'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From South of Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	186° for 27.2 (23.6)
Wpt 2	Huron Harbor Lt. brg. 219° at 1.4 miles (1.3 n.m.)	41° 25.249'N 082° 31.568'W	

Southeast Shoal to Lorain: From a departure position bearing 001° and 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 149° for 26.5 miles (23.0 n.m.) to Lorain Harbor Lake Approach Channel (waypoint position 41°28.916'N 082° 12.183'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer

Wpt 1	From South of Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	149° for 26.5 (23)
Wpt 2	Lorain Harbor Lake Approach Channel	41°28.916'N 082°12.183'W	

Southeast Shoal to Cleveland: From a departure position bearing 001° and 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 116° for 42.0 miles (36.0 n.m.) to a position bearing 329° at 2.3 miles (2.0 n.m.) off the Cleveland Harbor Main Entrance Light (waypoint position 41°32.233'N 081°44.433'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From South of Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	116° for 42.0 (36.0)
Wpt 2	To 2.3 miles (2.0 n.m.) 329° off the Cleveland Harbor Main Entrance Lt.	41°32.233'N 081°44.433'W	

Southeast Shoal to Fairport: From a departure position bearing 001° and 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 091° for 61.0 miles (53.0 n.m.) to the Fairport Harbor Lake Approach Channel (waypoint position 41° 47.483'N 081° 16.900'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From South of Southeast Shoal bearing 001° at 1.0 miles (0.9	41°48.695'N 082°27.798'W	091° for 61.0 (53.0)

	n.m.)		
Wpt 2	Fairport Harbor Lake Approach Channel	41°47.483'N 081°16.900'W	

Southeast Shoal to Ashtabula: From a departure position bearing 001° and 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 084° for 86.3 miles (75.0 n.m.) to a position bearing 166.5° at 1.1 miles (1.0 n.m.) to the Ashtabula Lake Approach Channel (waypoint position 41° 56.134'N 080° 48.000'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From South of Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	084° for 86.3 (75.0)
Wpt 2	1.1 miles (1 n.m.) to Ashtabula Lake Approach Channel brg. 166.5°	41° 56.134'N 080° 48.000'W	

Southeast Shoal to Conneaut: From a departure position bearing 001° and 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 082° for 98.9 miles (85.9 n.m.) to a position bearing 169.4° at 1.5 miles (1.3 n.m.) off Conneaut Outer Harbor Channel (waypoint position 42° 00.133'N 080° 33.783'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From South of Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	082° for 98.9 (85.9)
Wpt 2	1.5 miles (1.3 n.m.) off Conneaut Outer Harbor Channel brg. 169.4°	42° 00.133'N 080° 33.783'W	

Southeast Shoal to Erie: From a departure position bearing 001° and 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 077° for 123.7 miles (107.5 n.m.) to a position bearing 180° at 1.7 miles (1.5 n.m.) to Presque Isle Light (waypoint position 42° 11.469'N 080° 06.911'W). Then steer 110° for 3.8 miles (3.3 n.m.) to Erie Harbor Entrance Channel (waypoint position 42°10.289'N 80°02.748'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From South of Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	077° for 123.7 (107.5)
Wpt 2	1.7 miles (1.5 n.m.) to Presque Isle Lt. brg. 180°	42° 11.469'N 080° 06.911'W	110° for 3.8 (3.3)
Wpt 3	Erie Harbor Entrance Channel	42°10.289'N 080°02.748'W	

Long Point to Nanticoke: From departure position at Southeast Shoal Light to Port Colborne recommended course with Long Point Light bearing 332° at 8.5 miles (7.4 n.m.) (waypoint position 42° 26.283'N 079° 58.250'W), steer 349° for 7.8 miles (6.8 n.m.) to position with Long Point Light bearing 270° at 2.3 miles (2.0 n.m.) (waypoint position 42° 32.943'N 079° 59.882'W). From there, steer 330° for 13.2 miles (11.5 n.m.) to channel approach for Nanticoke with Port Dover West Pier Light bearing 318° at 5.9 miles (5.1 n.m.) (waypoint position 42° 43.009'N 080° 07.489'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Long Point Lt. brg. 332° at 8.5 miles (7.4 n.m.)	42° 26.283'N 079° 58.250'W	349° for 7.8 (6.8)
Wpt 2	With Long Point Lt. brg. 270° at 2.3 miles (2.0 n.m.)	42° 32.943'N 079° 59.882'W	330° for 13.2 (11.5)
Wpt 3	Nanticoke Channel Approach with Port Dover West Pier Lt. brg. 318° at 5.9 miles (5.1 n.m.)	42° 43.009'N 080° 07.489'W	

Nanticoke to Port Colborne: From departure position exiting Nanticoke Channel with Port Dover West Pier Light bearing 318° at 5.9 miles (5.1 n.m.) (waypoint position 42° 43.009'N 080° 07.489'W), steer 109° for 6.8 miles (5.9 n.m.) to a junction position off Nanticoke Shoal with Nanticoke Shoal Buoy EA8 bearing 314° at 4.4 miles (3.8 n.m.) (waypoint position 42°41.000'N 080° 00.000'W). From this position, steer 075° for 38.3 miles (33.3 n.m.) to Port Colborne Call-in Point 16 with Port Colborne Outer Light bearing 015° at 3.0 miles (2.6 n.m.) (waypoint position 42° 49.258'N 79° 16.235'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From exiting Nanticoke Channel with Port Dover West Pier Lt. brg. 318° at 5.9 miles (5.1 n.m.)	42° 43.009'N 080° 07.489'W	109° for 6.8 (5.9)
Wpt 2	Junction position off Nanticoke Shoal with Nanticoke Shoal Buoy EA8 brg, 314° at 4.4 miles (3.8 n.m.)	42°41.000'N 080° 00.000'W	075° for 38.3 (33.3)
Wpt 2	Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	

Rondeau to Cleveland: From departure at Rondeau Bay Entrance bearing 007° 0.9 miles (0.8 n.m.) (waypoint position 42°14.533'N 081°54.616'W), steer 169° for 49.5 miles (43 n.m.) to a position 2.3 miles (2.0 n.m.) 329° from the Cleveland Harbor Main Entrance Light (waypoint position 41°32.233'N 081°44.433'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Rondeau Bay Entrance brg. 007° at 0.9 miles (0.8 n.m.)	42°14.533'N 081°54.616'W	169° for 49.5 (43.0)
Wpt 2	To 2.3 miles (2.0 n.m.) brg. 329° from Cleveland Harbor Main Entrance Lt.	41°32.233'N 081°44.433'W	

Port Stanley to Cleveland: From departure position bearing 355° at 0.6 miles (0.5 n.m.) to Port Stanley West Breakwater (waypoint position 42° 38.842'N 081° 12.761'W), steer 199° for 81.3 miles (70.6 n.m.) to position 2.3 miles (2.0 n.m.) 329° from the Cleveland Harbor Main Entrance Light (waypoint position 41°32.233'N 081°44.433'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Port Stanley West Breakwater brg. 355° at 0.6 miles (0.5 n.m.)	42° 38.842'N 081° 12.761'W	199° for 81.3 (70.6)
Wpt 2	To 2.3 miles (2.0 n.m.) brg. 329° from Cleveland Harbor Main Entrance Lt.	41°32.233'N 081°44.433'W	

Port Stanley to Ashtabula: From departure position bearing 355° at 0.6 miles (0.5 n.m.) to Port Stanley West Breakwater (waypoint position 42° 38.842'N 081° 12.761'W), steer 156° for 53.5 miles (46.5 n.m.) to a position bearing 166.5° at 1.1 (1.0 n.m.) miles to the Ashtabula Lake Approach Channel (waypoint position 41° 56.134'N 080° 48.009'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From a position with Port Stanley West Breakwater brg. 355° at 0.6 miles (0.5 n.m.)	42° 38.842'N 081° 12.761'W	156° for 53.5 (46.5)
Wpt 2	1.1 miles (1 n.m.) to Ashtabula Lake Approach Channel brg. 166.5°	41° 56.134'N 080° 48.000'W	

Port Stanley to Conneaut: From departure position bearing 355° at 0.6 miles (0.5 n.m.) to Port Stanley West Breakwater (waypoint position 42° 38.842'N 081° 12.761'W), steer 143° for 55.6 miles (48.3 n.m.) to a position off 1.5 miles (1.3 n.m.) off Conneaut Outer Harbor Channel bearing 169° (waypoint position 42°00.133'N 080°33.783'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	With Port Stanley West Breakwater brg. 355° at 0.6 miles (0.5 n.m.)	42° 38.842'N 081° 12.761'W	143° for 55.6 (48.3)
Wpt 2	1.5 miles (1.3 n.m.) to the Conneaut Outer Harbor Channel brg. 169°	42°00.133'N 080°33.783'W	

Marblehead to Lorain: From 0.35 miles (0.30 n.m.) North of Marblehead Stone Dock (waypoint position 41°33.044'N 082 43.607 W), steer 099° for 27.6 miles (24.0 n.m.) to Lorain Harbor Lake Approach Channel (waypoint position 41°28.916'N 082°12.183'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From 0.35 miles (0.30 n.m.) North of Marblehead Stone Dock	41°33.044'N 082 43.607 W	099° for 27.6 (24.0)
Wpt 2	Lorain Harbor Lake Approach Channel	41°28.916'N 082°12.183'W	

Marblehead to Cleveland: From 0.35 miles (0.30 n.m.) North of Marblehead Stone Dock (waypoint position 41°33.044'N 082 43.607 W), steer 085° for 25.4 miles (22.1 n.m.) to 7.3 miles (6.3 n.m.) 342° from Lorain Harbor Lake Approach Channel (waypoint position 41°34.875'N 082° 14.300'W). Then steer 096° for 26.0 miles (22.6 n.m.) to position 2.3 miles (2.0 n.m.) 329° from the Cleveland Harbor Main Entrance Light (waypoint position 41°32.233'N 081°44.433'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From 0.35 miles (0.30 n.m.) North of Marblehead Stone Dock	41°33.044'N 082 43.607 W	085° for 25.4 (22.1)
Wpt 2	7.3 miles (6.3 n.m.) 342° from Lorain Harbor Lake Approach Channel	41°34.875'N 082°14.300'W	096° for 26.0 (22.6)
Wpt 3	2.3 miles (2.0 n.m.) 329° from the Cleveland Harbor Main Entrance Lt.	41°32.233'N 081°44.433'W	

For Lake Erie Ports further East: Steer 076° for 30.2 miles (26.2 n.m.) to a position 10.1 miles (8.8 n.m.) 024° from the Cleveland Intake Crib (waypoint position 41° 40.947'N 081° 40.224'W) to join the Southshore recommended courses. Then steer 064° for various distances to intersect the recommended courses from SE Shoal to appropriate destination as outlined below.

For Fairport: Steer 064° for 17.3 miles (15.0 n.m.) to the Southshore recommended course intersection to Fairport (waypoint position 41°47.617'N 081°22.117'W). Then steer 091° to arrive at the Fairport Harbor Lake Approach Channel (waypoint position 41°47.483'N 081°16.900'W).

For Ashtabula: Steer 064° for 37.3 miles (32.4 n.m.) to the Southshore recommended course intersection to Ashtabula (waypoint position 41°55.134'N 081°01.100'W). Then steer 084° for 11.3 miles (9.8 n.m.) to position 1.1 miles (1 n.m.) to the Ashtabula Lake Approach Channel bearing 166.5° (waypoint position 41°56.134'N 080°48.000'W).

For Conneaut: Steer 064° for 45.6 miles (39.6 n.m.) to the Southshore recommended course intersection to Conneaut (waypoint position 41°58.284'N 080°52.422'W). Then steer 082° for 16.1 miles (14.0 n.m.) to position bearing 169.4° at 1.5 miles (1.3 n.m.) to the Conneaut Outer Harbor Channel (waypoint position 42°00.133'N 080°33.783'W).

For Erie, Buffalo and Port Colborne as follows: At position 5 miles (4.3 n.m.) Northwest of Presque Isle Light (waypoint position 42°13.250'N 080°10.650'W), steer 056° for 77 miles (66.9 n.m.) **for Buffalo;** or steer 048° for 62 miles (53.9 n.m.) **for Port Colborne;** or steer 116° for 7.6 miles (6.6 n.m.) to **Erie Harbor Pierhead** Light bearing 231° at 1.7 miles (1.5 n.m.) (waypoint position 42° 10.289'N 080° 02.748'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From 0.35 miles (0.30 n.m.) North of Marblehead Stone Dock	41°33.044'N 082 43.607'W	085° for 25.4 (22.1)
Wpt 2	7.3 miles (6.3 n.m.) 342° from Lorain Brkw.	41°34.875'N 082°14.300'W	076° for 30.2 (26.2)
Wpt 3	10.1 miles (8.8 n.m.) 024° from Cleveland Intake Crib	41° 40.947'N 081° 40.224'W	064° for 17.3 (15.0) (for Fairport) 064° for 37.3 (32.4) (for Ashtabula) 064° for 45.6 (39.6) (for Conneaut) 064° for 85.5 (74.3) (for Erie, Buffalo and Port Colborne)
Wpt 4 To Fairport	Southshore recommended courses intersection to Fairport 064° for 17.3 miles (15.0 n.m.)	41°47.617'N 081°22.117'W	091° for 4.3 (3.7)
Wpt 5	Fairport Harbor Lake Approach Channel	41°47.483'N 081°16.900'W	
Wpt 4 To Ashtabula	Southshore recommended courses intersection to Ashtabula 064° for 37.2 miles (32.4 n.m.)	41°55.134'N 081°01.100'W	084° for 11.3 (9.8)
Wpt 5	1.1 miles (1 n.m.) off Ashtabula Lake Approach Channel brg. 166.5°	41°56.134'N 080°48.000'W	

Wpt 4 To Conneaut	Southshore recommended courses intersection to Conneaut 064° for 45.6 miles (39.6 n.m.)	41°58.284'N 080°52.422'W	082° for 16.1 (14.0)
Wpt 5	1.5 miles (1.3 n.m.) off Conneaut Outer Harbor Channel brg. 169.4°	42°00.133'N 080°33.783'W	
Wpt 4 To Port Colborne	Junction position off Erie, PA 5 miles (4.3 n.m.) NW of Presque Isle Light 064° 85.5 miles (74.3 n.m.)	42°13.250'N 080°10.650'W	048° for 62.0 (53.9)
Wpt 5	Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015.7° at 3.0 miles (2.3 n.m.)	42° 49.258'N 079° 16.235'W	
Wpt 4 To Buffalo	Junction position off Erie, PA 5 miles (4.3 n.m.) NW of Presque Isle Light 064° 85.5 miles (74.3 n.m.)	42°13.250'N., 080°10.650'W	056° for 77.0(66.9)
Wpt 5	Buffalo Harbor South Entrance Lt. 2 bearing 090° at 2.5 (2.2)	42°50.150'N., 078°55.450'W	
Wpt 4 To Erie	Junction position off Erie, PA 5 miles (4.3 n.m.) NW of Presque Isle Light	42°13.250'N 080°10.650'W	116° for 7.6 (6.6)
Wpt 5	Erie Harbor Pierhead Lt. brg. 231° at 1.7 miles (1.5 n.m.)	42° 10.289'N 080° 02.748'W	

Sandusky to Points East on Lake Erie South Shore:

For Lorain: From Sandusky Bay Moseley Entrance Channel (waypoint position 41°30.383'N 082 39.766' W), steer 094° for 23.9 miles (20.8 n.m.) to Lorain Harbor Entrance Channel (waypoint position 41°28.916'N 082°12.183'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Sandusky Bay Moseley Entrance Channel	41°30.383'N 082 39.766' W	094° for 23.9 (20.8)
Wpt 2	Lorain Harbor Entrance Channel	41°28.916'N 082°12.183'W	

For Cleveland: From Sandusky Bay Moseley Entrance Channel (waypoint position 41°30.383'N 082 39.766' W), steer 076 for 22.6 miles (19.6 n.m.) to the junction position NNW of Lorain bearing 342° at 7.3 miles (6.3 n.m.) (waypoint position 41°34.875'N 082°14.300'W). Then steer 096° for 26.0 miles (22.6 n.m.) to 2.3 miles (2.0 n.m.) bearing 329° from the Cleveland Harbor Main Entrance Channel (waypoint position 41°32.233'N 081°44.433'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Sandusky Bay Moseley Entrance Channel	41°30.383'N 082 39.766' W	076° for 22.6 (19.6)
Wpt 2	Junction position NNW of Lorain brg 342° at 7.3 miles (6.3 n.m.)	41°34.875'N 082°14.300'W	096° for 26.0 (22.6)
Wpt 3	2.3 miles (2.0 n.m.) 329° from the Cleveland Harbor Main Entrance Channel	41°32.233'N 081°44.433'W	

For Ports further East: From Sandusky Bay Moseley Entrance Channel (waypoint position 41°30.383'N 082 39.766' W), steer 076° for 30.2 miles (26.2 n.m.) to position 10.1 miles (8.8 n.m.) brg. 024° from the Cleveland Intake Crib (waypoint position 41° 40.947'N 081° 40.224'W) to join the Eastbound Southshore recommended courses. Then steer 064° for various mileages to intersect the course lines from SE Shoal to appropriate destination port. **See recommended courses previously outlined in the Marblehead to points further East routing.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Sandusky Bay Moseley Entrance Channel	41°33.044'N 082 43.607 W	076° for 22.6 (19.6)
Wpt 2	Junction position NNW of Lorain brg 342° at 7.3 miles (6.3 n.m.)	41°34.875'N 082°14.300'W	076° for 30.2 (26.2)
Wpt 3	Junction position 10.1 miles (8.8 n.m.) 024° from Cleveland Intake Crib	41° 40.947'N 081° 40.224'W	064° for 17.3 (15.0) (for Fairport) 064° for 37.3 (32.4) (for Ashtabula) 064° for 45.6 (39.6) (for Conneaut) 064° for 85.5 (74.3) (for Erie, Buffalo and Port Colborne)

Lorain to Port Colborne: From departure position at the Lorain Harbor Lake Approach Channel (waypoint position 41° 28.916'N 082°12.183'W), steer 345° to the junction position NNW of Lorain brg 342° at 7.3 miles (6.3 n.m.) (waypoint position 41°28.916'N 082°12.183'W). Then steer 063° for 131 miles (113.8 n.m.) to position off Long Point Light bearing 332° at 8.5 miles (7.4 n.m.) (waypoint position 42° 26.283'N 079° 58.250'W). From this position, steer 053° for 44.4 miles (38.6 n.m.) to Port Colborne Call-in Point 16 with Port Colborne Outer Light bearing 015° at 3.0 miles (2.6 n.m.) (waypoint position 42° 49.258'N 079° 16.235'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Lorain Harbor Lake Approach Channel	41°28.916'N 082°12.183'W	345° for 7.1 (6.2)
Wpt 2	Junction position NNW of Lorain brg 342° at 7.3 miles (6.3 n.m.)	41°34.875'N 082°14.300'W	063° for 131 (113.8)
Wpt 3	Position with Long Point Lt. brg. 332° at 8.5 miles (7.4 n.m.)	42° 26.283'N 079° 58.250'W	053° for 44.4 (38.6)
Wpt 4	Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	

Cleveland to Port Colborne: From a departure position bearing 329° at 2.3 miles (2.0 n.m.) from Cleveland Harbor Main Entrance Light (waypoint position 41° 32.233'N 081° 44.433'W), steer 019° for 10.7 miles (9.3 n.m.) to position bearing 024° at 10.1 miles (8.8 n.m.) from Cleveland Intake Crib (waypoint position 41°40.947'N 081°40.224'W). Then steer 059° for 102 miles (88.6 n.m.) to position off Long Point Light bearing 332° at 8.5 miles (7.4 n.m.) (waypoint position 42° 26.283'N 079° 58.250'W). Then steer 053° for 45.1 miles (39.2 n.m.) to Call-in Point 16 bearing 015° at 3.0 miles (2.6 n.m.) off Port Colborne Outer Light (waypoint position 42° 49.258'N 079° 16.234'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	To 2.3 miles (2.0 n.m.) 329° off Cleveland Harbor Main Entrance Lt.	41°32.233'N 081°44.433'W	019° for 10.7 (9.3)
Wpt 2	Junction position 10.1 miles (8.8 n.m.) 024° from Cleveland Intake Crib	41° 40.947'N 081° 40.224'W	059° for 102 (88.6)
Wpt 3	Position with Long Point Lt. brg. 332° at 8.5 miles (7.4 n.m.)	42° 26.283'N 079° 58.250'W	053° for 45.1 (39.2)

Wpt 4	Port Colborne CIP 16 with Pt. Colborne Outer Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	
-------	--	-------------------------------	--

Erie to Buffalo: From a departure position with the Erie North Pier Light bearing 231° at 1.7 miles (1.5 n.m.) waypoint position 42° 10.280'N 080° 12.748'W), steer 051° for 73.4 miles (63.8 n.m.) to a position bearing 090° at 2.5 (2.2 n.m.) miles to Buffalo Harbor South Entrance Light 2 (waypoint position 42° 50.015'N 078° 55.450'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt1	Position with Erie North Pier Lt. brg. 231° at 1.7 (1.46 n.m.) miles	42° 10.289'N 080° 02.748 'W	051° for 73.4 (63.8)
Wpt 2	Position Off Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 (2.2)	42° 50.150'N 078° 55.450'W	

Erie to Port Colborne: From a departure position bearing 231° at 1.7 miles (1.5 n.m.) to Erie North Pier Light (waypoint position 42° 10.278'N 080° 02.478'W), steer 41° for 69.1 miles (60 n.m.) to Port Colborne Call-in Point 16 with Port Colborne Outer Light bearing 015° at 3.0 miles (2.6 n.m.) (waypoint position 42° 49.258'N 079° 16.234'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Position with Erie North Pier Lt. brg. 231° at 1.7 miles (1.5 n.m.)	42° 10.280'N 080° 12.748'W	41° for 69.1 (60)
Wpt 2	Port Colborne CIP 16 with Port Colborne Outer Light brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.234'W	

Buffalo to Port Colborne: From a departure position bearing 090° 2.5 miles (2.2 n.m.) to Buffalo Harbor South Entrance Light 2 (waypoint position 42° 50.150'N 078° 55.450'W), steer 253° for 9.1 miles (7.9 n.m.) to a position bearing 001° at 2.5 miles (2.2 n.m.) to Point Abino

(waypoint position 42° 47.850'N 079° 05.770'W). Then steer 280° for 9.0 miles (7.8 n.m.) to Call-in Point 16 and a position bearing 015° at 3.0 miles (2.6 n.m.) to Port Colborne Outer Light (waypoint position 42° 49.258'N 079° 16.235'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Buffalo Harbor South Entrance Lt. 2 brg. 090° at 2.5 miles (2.2 n.m.)	42° 50.150'N 078° 55.450'W	253° for 9.1 (7.9)
Wpt 2	Pt. Abino brg. 001° at 2.5 miles (2.2 n.m.)	42°47.850'N 079° 05.770' W	280° for 9.0 (7.8)
Wpt 3	Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	

Optional Lake Erie North Shore Weather Route Southeast Shoal to Port Colborne or Buffalo:

From departure position at Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 071° for 5.3 miles (4.6 n.m.) to position 5 miles (4.3 n.m.) East of Southeast Shoal Light (waypoint position 41° 51.150'N 082° 22.000'W). Then steer 000° for 11.3 miles (9.8 n.m.) to position 12.9 miles (11.2 n.m.) NNE of Southeast Shoal Light (waypoint position 42° 00.000'N 082° 22.000'W). Then steer 061° for 32.5 miles (28.2 n.m.) to position 3.1 miles (2.7 n.m.) Southeast of Pte. Aux Pins Main Light (waypoint position 42° 13.460'N 081° 48.700'W). Then steer 053° for 37.9 miles (32.9 n.m.) to position 7.7 miles (6.5 n.m.) South of Port Stanley Breakwater Light (waypoint position 42° 33.120'N 081° 13.000'W). Then steer 093° for 62.2 miles (54.1 n.m.) to position 4.3 miles (3.7 n.m.) Southeast of Long Point Light (waypoint position 42° 30.000'N 080° 00.000'W). Then steer 000° for 14.2 miles (12.4 n.m.) miles to junction position off Nanticoke Shoal with Nanticoke Shoal Buoy EA8 bearing 314° at 4.4 miles (3.8 n.m.) (waypoint position 42° 41.000'N 080° 00.000' W).

Choose Port Colborne destination, steer 075° for 38.3 miles (33.3 n.m.) to Port Colborne Call-in Point 16 with Port Colborne Outer Lt. bearing 015° at 3.0 miles (2.3 n.m.) (waypoint position 42° 49.258'N 079° 16.235'W)

OR

Choose Buffalo destination, steer 080° for 46.7 miles (40.6 n.m.) to position 2.5 miles (2.2 n.m.) South of Point Abino (waypoint position 42° 47.850'N 079° 05.770'W). Then steer 073° for 9.1 miles (7.9 n.m.) to position at bearing 090° at 2.5 (2.2 n.m.) miles to the Buffalo Harbor

South Entrance Light 2 (waypoint position 42° 50.150'N 078° 55.450'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Southeast Shoal bearing 001° at 1.0 miles (0.9)	41° 48.695'N 082° 27.798'W	071° for 5.3 (4.6)
Wpt 2	5 miles (4.34 n.m.) East of Southeast Shoal Lt.	41° 51.150'N 082° 22.000'W	000° for 11.3 (9.8)
Wpt 3	12.9 miles (11.2 n.m.) NNE of Southeast Shoal Lt.	42° 00.000'N 082° 22.000'W	061° for 32.5 (28.2)
Wpt 4	3.1 miles (2.7 n.m.) SE of Pte. aux Pins Lt.	42° 13.460'N 081° 48.700'W	053° for 37.9 (32.9)
Wpt 5	7.7 miles (6.5 n.m.) South of Port Stanley Lt.	42° 33.120'N 081° 13.000'W	093° for 62.2 (54.1)
Wpt 6	4.3 miles (3.7 n.m.) SE of Long Point Lt.	42° 30.000'N 080° 00.000'W	000° for 14.2 (12.4)
Wpt 7	Junction position off Nanticoke Shoal with Nanticoke Shoal Buoy brg, 314° at 4.4 miles (3.8 n.m.)	42° 41.000'N 080° 00.000'W	Steer for Port Colborne or Buffalo
	To Port Colborne		
Wpt 8	To Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.3 n.m.)	42° 49.258'N 079° 16.235'W	075° for 38.3 (33.3)
	or To Buffalo		
Wpt 8A	To a position with Pt. Abino brg. 000° at 2.5 miles (2.2 n.m.)	42°47.850'N 79° 05.770' W	080° for 46.7 (40.6)
Wpt 8B	To a position bearing 090° at 2.5 (2.2) miles to Buffalo Harbor South Entrance Light 2	42° 50.150'N 078° 55.450'W	073° for 9.1 (7.9)

RECOMMENDED COURSES

LAKE ERIE

Upbound/Inbound

Port Colborne to Southeast Shoal: From a departure position at Port Colborne Call-in Point 16 with Port Colborne Outer Light bearing 015° and 3.0 miles (2.6 n.m.) (waypoint position 42° 49.258'N 079° 16.235'W), steer 240° for 44 miles (38.2 n.m.) to position not over 3 miles (2.6 n.m.) off Long Point Light (waypoint position 42° 30.800'N 080° 01.133'W). Then steer 248° for 134 miles (116.4 n.m.) to a position bearing 001° and 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	240° for 44 (38.2)
Wpt 2	Long Point Lt. brg 326° at 2.9 miles (2.5 n.m.)	42°30.800'N 080°01.133'W	248° for 134 (116.4)
Wpt 3	Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

Buffalo to Southeast Shoal: From a departure position off Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 miles (2.2 n.m.) (waypoint position 42° 50.150'N 078°55.450'N), steer 248° for 60 miles (52.1 n.m.); then join the Port Colborne to Southeast Shoal recommended course at the Long Point junction position with Long Point Lt. brg 326° at 2.9 miles (2.5 n.m.) (waypoint position 42°30.800'N 080°01.133'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Buffalo South Harbor Lt. 2 brg. 090° at 2.5 miles (2.2 n.m.)	42°50.150'N 078°55.450'W	248° for 60 (52.1)
Wpt 2	Long Point Lt. brg 326° at 2.9 miles (2.5 n.m.)	42°30.800'N 080°01.133'W	248° for 134 (116.4)

Wpt 3	Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	
-------	--	-------------------------------	--

Port Colborne to Buffalo: From a departure position at Port Colborne Call-in Point 16 with Port Colborne Outer Light bearing 015° at 3.0 miles (2.6 n.m.) (waypoint position 42° 49.258'N 079°16.235'W), steer 100° for 9.0 miles (7.8 n.m.) to a position with Pt. Abino Light bearing 001° at 2.5 miles (2.2 n.m.) (waypoint position 42° 47.850' N 079° 05.770' W). Then steer 073° for 9.1 miles (7.9 n.m.) to Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 miles (2.2 n.m.) (waypoint position 42° 50.150'N 078° 55.450'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	100° for 9.0 (7.8)
Wpt 2	Off Point Abino brg.001° at 1.7 miles (1.5 n.m.)	42° 48.672'N 079° 05.737'W	073° for 9.1 (7.9)
Wpt 3	Off Buffalo Harbor South Entrance Lt. 2 brg. 090° at 2.5 miles (2.2 n.m.)	42° 50.150'N 078° 55.450'W	

Port Colborne to Dunkirk: From departure position at Port Colborne Call-in Point 16 with Port Colborne Outer Light bearing 015° at 3.0 miles (2.6 n.m.) (waypoint position 42° 49.258'N 079° 16.235'W), steer 191° for 22.1 miles (19.2 n.m.) to Dunkirk Harbor Entrance Channel (waypoint position 42°30.466'N 079°21.550'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	191° for 22.1 (19.2)
Wpt 2	Dunkirk Harbor Entrance Channel	42°30.466'N 079°21.550'W	

Port Colborne to Nanticoke: From a departure position at Port Colborne Call-in Point 16 with Port Colborne Outer Light bearing 015° at 3.0 miles (2.6 n.m.) (waypoint position 42° 49.258'N

079° 16.235'W), steer 255° for 38.3 miles (33.3 n.m.) to junction position off Nanticoke Shoal with Nanticoke Shoal Buoy EA8 bearing 314° at 4.4 miles (3.8 n.m.) (waypoint position 42°41.000'N 080° 00.000'W). Then steer 289° for 6.8 miles (5.9 n.m.) to the Nanticoke Channel Approach with Port Dover West Pier Light bearing 318° at 5.9 miles (5.1 n.m.) (waypoint position 42°43.009'N 080° 07.489'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	255° for 38.3 (33.3)
Wpt 2	Junction position off Nanticoke Shoal with Nanticoke Shoal Buoy EA8 brg. 314° at 4.4 miles (3.8 n.m.)	42°41.000'N 080° 00.000'W	289° for 6.8 (5.9)
Wpt 3	Nanticoke Channel Approach with Port Dover West Pier Lt. brg. 318° at 5.9 miles (5.1 n.m.)	42°43.009'N 080° 07.489'W	

Nanticoke to Long Point: From a departure position off Nanticoke Channel with Port Dover Harbour Light bearing 318° and 5.9 miles (5.1 n.m.) (waypoint position 42° 43.009'N 080° 07.498'W), steer 150° for 13.3 miles (11.6 n.m.) to position off Long Point with Long Point Light bearing 270° and 2.3 miles (2.0 n.m.) (waypoint position 42°32.943'N 079°59.882'W). Then steer 203° for 2.7 miles (2.3 n.m.) to Long Point Call-in Point with Long Point Light bearing 326° at 2.9 miles (2.5 n.m.) (waypoint position 42°30.800'N 080°01.133'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Nanticoke Channel Approach with Port Dover Breakwater Lt brg. 318° at 5.9 miles (5.1 n.m.)	42° 43.009'N 080° 07.489'W	150° for 13.3 (11.6)
Wpt 2	Long Point Lt. brg. 270° at 2.3 miles (2.0 n.m.)	42°32.943'N 079° 59.882'W	203° for 2.7 (2.3)
Wpt 3	Long Point Lt. brg 326° at 2.9 miles (2.5 n.m.)	42°30.800'N 080°01.133'W	Join existing upbound recommended course.

Port Colborne to Erie: From departure position at Port Colborne Call-in Point 16 with Port Colborne Outer Light bearing 015° at 3.0 miles (2.6 n.m.) (waypoint position 42° 49.258'N 079° 16.235'W), steer 221.4° for 69.1 miles (60 n.m.) to position off Erie Channel with Erie Harbor Pierhead Light bearing 231° at 1.7 miles (1.5 n.m.) (waypoint position 42° 10.289'N 080° 02.748'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	221° for 69.1 (60)
Wpt 2	Erie Harbor Pierhead Lt. brg. 231° at 1.7 miles (1.5 n.m.)	42° 10.289'N 080° 12.748'W	

Buffalo to Erie: From a departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 miles (2.2 n.m.) (waypoint position 42° 50.150'N 078° 55.450'W), steer 231° for 73.4 (63.8 n.m.) miles to position with Erie Harbor Pierhead Light bearing 231° at 1.7 miles (1.5 n.m.) (waypoint position 42° 10.289'N 080° 12.748'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Off Buffalo Harbor South Entrance Lt. 2 brg. 090° at 2.5 miles (2.2 n.m.)	42° 50.150'N 078° 55.450'W	231° for 73.4 (63.8)
Wpt 2	Erie Harbor Pierhead Lt. brg. 231° at 1.7 miles (1.5 n.m.)	42° 10.289'N 080° 12.748'W	

Port Colborne to Lake Erie South Shore Ports: From departure position at Port Colborne Call-in Point 16 with Port Colborne Outer Light bearing 015° and 3.0 miles (2.6 n.m.) (waypoint position 42°49.258'N 079°16.235'W), steer 228° for 62.2 miles (54.0 n.m.) to the junction position off Erie, PA at 5.0 miles (4.3 n.m.) Northwest of Presque Isle Light (waypoint position 42° 13.250'N 080° 10.650'W). Then steer recommended courses as outlined below.

Waypoint	Position Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	228° for 62.2 (54.0)
Wpt 2	Junction position off Erie, PA at 5.0 miles (4.3 n.m.) NW of Presque Isle Light	42° 13.250'N 080° 10.650'W	(see destinations listed below)

Buffalo to Lake Erie South Short Ports: From departure position with Buffalo Harbor South Entrance Light bearing 090° at 2.5 miles (2.2 n.m.) (waypoint position 42°50.150'N 078°55.450'W), steer 236° for 76.8 miles (66.7 n.m.) to the junction position off Erie, PA at 5.0 miles (4.3 n.m.) Northwest of Presque Isle Light (waypoint position 42° 13.250'N 080° 10.650'W).

Waypoint	Position Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Buffalo Harbor South Entrance Lt. brg. 090° at 2.5 miles (2.2 n.m.)	42°50.150'N 078°55.450'W	236° for 76.8 (66.7)
Wpt 2	Junction at Erie, PA at 5.0 miles (4.3 n.m.) NW of Presque Isle Light	42° 13.250'N 080° 10.650'W	(see destinations listed below)

To Conneaut: Steer 232° for 24.9 miles (21.6 n.m.) to 1.5 miles (1.3 n.m.) North of Conneaut Harbor Outer Harbor Channel (waypoint position 42° 00.133'N 080° 33.783'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
			232° for 24.9 (21.6)
Wpt 3	1.5 miles (1.3 n.m.) off Conneaut Piers brg. 169°	42° 00.133'N 080° 33.783'W	

To Ashtabula: Steer 238° for 37.6 miles (32.7 n.m.) to 1.1 miles (1.0 n.m.) North of Ashtabula Piers bearing 166° (waypoint position 41° 56.134'N 080° 48.000'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
			238° for 37.6 (30)
Wpt 3	1.1 miles (1 n.m.) off Ashtabula Piers brg. 166°	41° 56.134'N 080° 48.000'W	

To Fairport: Steer 244° for 63.0 miles (54.7 n.m.) to position 3.8 miles (3.3 n.m.) North of Fairport Harbor Lake Approach Channel (waypoint position 41°49.449'N 081°16.826'W). Then steer 181° for 2.2 miles (1.9 n.m.) to Fairport Harbor Lake Approach Channel (waypoint position 41°47.483'N 081°16.900'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
			244° for 63.0 (54.7)
Wpt 3	3.8 Miles (3.3 n.m.) North of Fairport Harbor Lake Approach Channel	41°49.449'N 081° 16.826'W	181° for 2.2 (1.9)
Wpt 4	Fairport Harbor Lake Approach Channel	41°47.483'N 081°16.900'W	

To Cleveland: Steer 244° for 85.5 miles (74.3 n.m.) to position 10.1 miles (8.8 n.m.) bearing 024° from Cleveland Intake Crib (waypoint position 41° 40.947'N 081°40.224'W). Then steer 199° for 10.7 miles (9.3 n.m.) to a position bearing 329° at 2.3 miles (2.0 n.m.) from the Cleveland Main Entrance Light (waypoint position 41° 32.233'N 081°44.433'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
			244° for 85.5 (74.3)
Wpt 3	10.1 miles (8.8 n.m.) 024° from Cleveland Intake Crib	41° 40.947'N 081° 40.224'W	199° for 10.7 (9.3)
Wpt 4	To 2.3 miles (2.0 n.m.) 329° from Cleveland Main Entrance Lt.	41°32.233'N 081°44.433'W	

To Lorain: Steer 244° for 85.5 miles (74.3 n.m.) to position 10.1 miles (8.8 n.m.) NNE of the Cleveland Intake Crib (waypoint position 41° 40.947'N 081° 40.224'W). Then steer 256° for 30.2 miles (26.3 n.m.) to the junction position NNW of Lorain bearing 342° at 7.3 miles (6.3 n.m.) (waypoint position 41°34.875'N 081°14.300'W). Then steer 165° for 7.1 miles (6.2 n.m.) to the Lorain Harbor Lake Approach Channel (waypoint position 41°28.916'N 082°12.183'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
			244° for 85.5 (74.3)
Wpt 3	10.1 miles (8.8 n.m.) 024° from Cleveland Intake Crib	41° 40.947'N 081° 40.224'W	256° for 30.2 (26.2)
Wpt 4	Junction position NNW of Lorain brg 342° at 7.3 miles (6.3 n.m.)	41°34.875'N 081°14.300'W	165° for 7.1 (6.2)
Wpt 5	Lorain Harbor Lake Approach Channel	41°28.916'N 082°12.183'W	

To Huron: Steer 244° for 85.5 miles (74.3 n.m.) to position 10.1 miles (8.8 n.m.) NNE of the Cleveland Intake Crib (waypoint position 41° 40.947'N 081° 40.224'W). Then steer 256° for

30.2 miles (26.3 n.m.) to the junction position NNW of Lorain bearing 342° at 7.3 miles (6.3 n.m.) (waypoint position 41°34.875'N 081°14.300'W). Then steer 233° for 18.6 miles (16.2 n.m.) to Huron Harbor Lake Approach Channel with Huron Outer Light bearing 219° at 1.4 miles (1.3 n.m.) (waypoint position 41° 25.249'N 082 31.568'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
			244° for 85.5 (74.3)
Wpt 3	10.1 miles (8.8 n.m.) 024° from Cleveland Intake Crib	41° 40.947'N 081° 40.224'W	256° for 30.2 (26.2)
Wpt 4	Junction position NNW of Lorain brg 342° at 7.3 miles (6.3 n.m.)	41°34.875'N 081°14.300'W	233° for 18.6 (16.2)
Wpt 5	Huron Outer Lt. brg. 219° at 1.4 miles (1.3 n.m.)	41° 25.249'N 082° 31.568'W	

To Sandusky: Steer 244° for 85.5 miles (74.3 n.m.) to position 10.1 miles (8.8 n.m.) NNE of the Cleveland Intake Crib (waypoint position 41° 40.947'N 081° 40.224'W). Then steer 256° for 52.8 miles (45.9 n.m.) to Moseley Entrance Channel at the Sandusky Bay Entrance (waypoint position 41° 30.383'N 082° 39.766'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
			244° for 85.5 (74.3)
Wpt 3	10.1 miles (8.8 n.m.) 024° from Cleveland Intake Crib	41° 40.947'N 081° 40.224'W	256° for 52.8 (45.9)
Wpt 4	Sandusky Bay Moseley Entrance Channel	41° 30.383'N 082° 39.766'W	

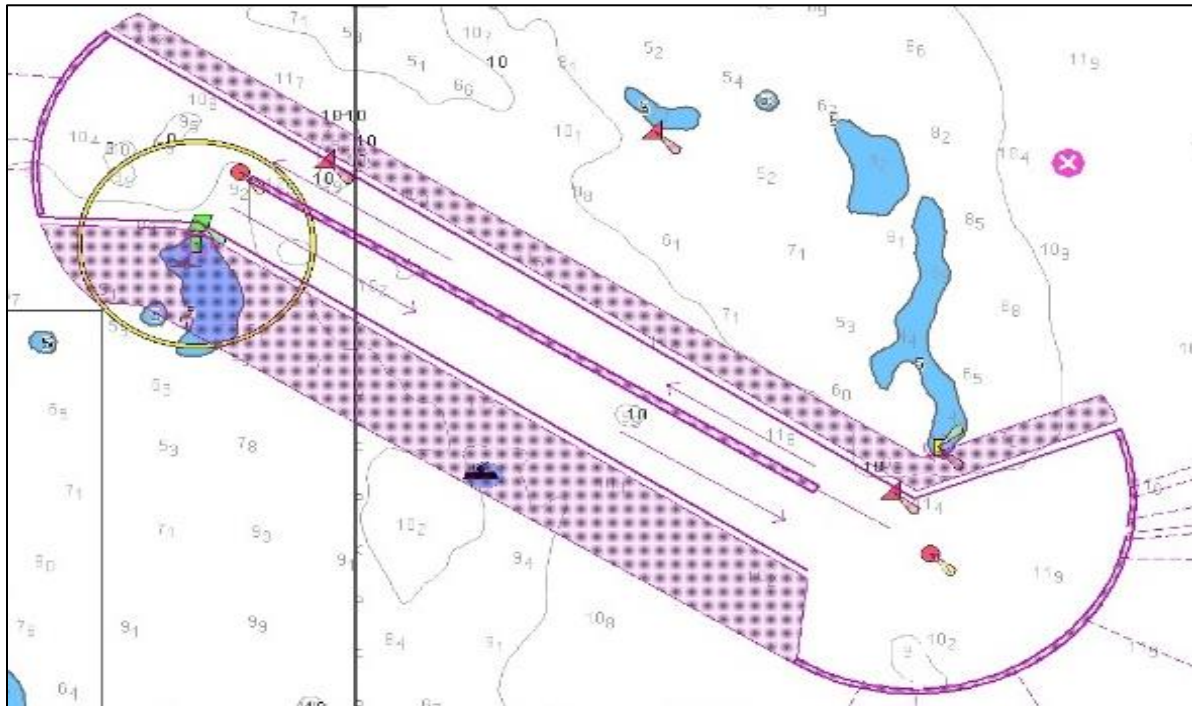
To Marblehead: Steer 244° for 85.5 miles (74.3 n.m.) to position 10.1 miles (8.8 n.m.) NNE of Cleveland Intake Crib (waypoint position 41° 40.947'N 081° 40.224'W). Then steer 256° for 30.2 miles (26.3 n.m.) to junction position NNW of Lorain bearing 342° at 7.3 miles (6.3 n.m.) (waypoint position 41°34.875'N 081°14.300'W). Then steer 265° for 25.4 miles (22.1 n.m.) to position 0.35 miles (0.30 n.m.) off Marblehead (waypoint position 41° 33.044'N 082° 43.607'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
			244° for 85.5 (74.3)
Wpt 3	10.1 miles (8.8 n.m.) 024° from Cleveland Intake Crib	41° 40.947'N 081° 40.224'W	256° for 30.2 (26.2)
Wpt 4	Route Junction NNW of Lorain brg 342° at 7.3 miles (6.3 n.m.)	41°34.875'N 081°14.300'W	265° for 25.4 (22)
Wpt 5	Position 0.35 miles (0.30 n.m.) off Marblehead	41° 33.044'N 082° 43.607'W	

Southeast Shoal to Detroit River: Departing from position 1 mile (0.9 n.m.) South of Southeast Shoal Lt. (waypoint 41° 48.695'N 082° 27.798'W), steer 302° for 8.5 miles (7.4 n.m.) to position 326° and 1.8 miles (1.5 n.m.) from Pelee Passage Light (waypoint position 41°52.583'N 082°36.116'W). Then steer 275° for 25.2 miles (21.9 n.m.) to position 1 mile (0.9 n.m.) off East Outer Channel Light 1E (waypoint position 41°54.741'W 083°05.282'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	To Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	302° for 8.5 (7.4)
Wpt 2	1.8 miles (1.5 n.m.) off Pelee Passage Lt. brg. 326°	41°52.583'N 082°36.116'W	275° for 25.2 (21.9)
Wpt 3	1 mile (0.9 n.m.) off East Outer Channel Lt. 1E	41°54.741'W 083°05.282'W	

Note: The chartlet below shows in detail how traffic separation areas should be navigated in the Pelee Passage-Southeast Shoal Area



Departing Toledo to Detroit River Entrance: From a position 1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2 (waypoint position 41° 50.150'N 083° 10.150'W), steer 037° for 5.8 miles (5.0 n.m.) to position with East Outer Channel Light 1E bearing 340° at 0.9 mile (0.8 n.m.) (waypoint position 41°54.116'N 083°06.066'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From a position 1.4 (1.2) miles 60° from Maumee Bay Entrance Light 2 at the Maumee Safe Water VAIS	41°50.150'N 083° 10.150'W	037° for 5.8 (5.0)
Wpt 2	East Outer Channel Lt. 1E brg. 340° at 0.9 mile (0.8 n.m.)	41°54.116'N 083°06.066'W	

Departing Monroe to Detroit River Entrance: From departing position 1.8 miles (1.5 n.m.) Southeast of Monroe Harbor Entrance Channel (waypoint position 41° 51.983'N 083° 15.000'W), steer 072° for 8.1 miles (7.0 n.m.) to position with East Outer Channel Light 1E bearing 340° at 0.9 mile (0.8 n.m.) (waypoint position 41°54.116'N 083°06.066'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	1.8 miles (1.5 n.m.) Southeast of Monroe Harbor Entrance Channel	41°51.983'N 083° 15.000'W	072° for 8.1 (7.0)
Wpt 2	East Outer Channel Lt. 1E brg. 340° at 0.9 mile (0.8 n.m.)	41°54.116'N 083°06.066'W	

Southeast Shoal to Toledo or Monroe: From a position 1 mile (0.9 n.m.) South of Southeast Shoal Lt. (waypoint 41° 48.695'N 082° 27.798'W), steer 302° for 6.8 miles (5.9 n.m.) to 0.8 miles (0.7 n.m.) off Pelee Passage Light (waypoint 41°51.816'N 082°34.450'W). Then steer 271° to pass 1.5 miles (1.3 n.m.) North of Middle Sister Island Lt. (waypoint position 41°52.433'N 082°59.900'W); **then steer recommended courses to appropriate destination.**

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	To Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798 'W	302° for 6.8 (5.9)
Wpt 1	0.8 miles (0.7 n.m.) 045° from Pelee Passage Lt.	41°51.816'N 082°34.450'W	271° for 21.9 (19.3)
Wpt 2	1.5 miles (1.3 n.m.) North of Middle Sister Is. Lt.	41°52.433'N 082°59.900'W	Then steer recommended courses to destinations as listed below.

For Toledo: Steer 253° for 9.2 miles (8.0 n.m.) to a position 1.4 (1.4 n.m.) miles 060° from Maumee Bay Entrance Light 2 (waypoint position 41°50.150'N 083°10.150'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 2	1.5 miles (1.3 n.m.) North of Middle Sister Is. Lt.	41°52.433'N 082°59.900'W	253° for 9.2 (8.0)
Wpt 3	1.4 (1.4 n.m.) miles 060° from Maumee Bay Entrance Light 2 at the Maumee Safe Water VAIS	41°50.150'N 083°10.150'W	

For Monroe: Steer 267° for 13 miles (11.3 n.m.) to position 1.8 miles (1.5 n.m.) Southeast of Monroe Harbor Entrance Channel (waypoint position 41° 51.593'N 083° 14.596'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 2	1.5 miles (1.3 n.m.) North of Middle Sister Is. Lt.	41°52.433'N 082°59.900'W	267° for 13.0 (11.3)
Wpt 3A	1.8 miles (1.5 n.m.) Southeast of Monroe Harbor Entrance Channel	41°51.983'N 083° 15.000'W	

Sandusky to Southeast Shoal: From the Sandusky Bay Moseley Entrance Channel (waypoint position 41°30.383'N 082° 39.766'W), steer 026° for 23.5 miles (20.4 n.m.) to Southeast Shoal Light bearing 001° and 1.0 miles (0.9 n.m.) (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Sandusky Bay Moseley Entrance Channel	41°30.383'N 082° 39.766'W	026° for 23.5 (20.4)
Wpt 2	To Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

Marblehead to Southeast Shoal: From departure position off Marblehead, steer 085° for 5.0 miles (4.3 n.m.) to intersect the course from Sandusky (waypoint 41°33.420'N 082°37.800'W). Then steer 026° for 19.6 miles (17.0 n.m.) to 1.0 (0.9 n.m.) mile South of Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Off Marblehead departure position	41°33.044'N 082°43.607'W	085° for 5 (4.3)
Wpt 2	To join existing upbound course to Southeast Shoal	41°33.420'N 082°37.800'W	026° for 19.6 (17.03)
Wpt 3	To Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

Huron to Southeast Shoal: From departure position bearing 219° and 1.4 miles (1.3 n.m.) from Huron Outer Light (waypoint position 41° 25.249'N 082° 31.568'W), steer 006° for 27.2 miles (23.6 n.m.) to Southeast Shoal Light bearing 001° and 1.0 miles (0.9 n.m.) (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Huron Outer Lt. brg. 219° at 1.4 (1.3 n.m.) miles	41° 25.249'N 082° 31.568'W	006° for 27.2 (23.6)
Wpt 2	To Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

Lorain to Southeast Shoal: From the Lorain Harbor Lake Approach Channel (waypoint position 41°28.916'N 082°12.183'W), steer 329° for 26.5 miles (23 n.m.) to Southeast Shoal Light bearing 001° at 1.0 miles (0.9 n.m.) (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Lorain Harbor Lake Approach Channel	41°28.916'N 082°12.183'W	329° for 26.5 (23.0)
Wpt 2	To Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

Cleveland to Southeast Shoal: From departure position at 2.3 miles (2.0 n.m.) 329° from the Cleveland Harbor Main Entrance Light (waypoint position 41°32.233'N 081°44.433'W), steer 296° for 41.9 miles (36.4 n.m.) to position bearing 001° at 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From 2.3 miles (2.0 n.m.) 329° off Cleveland Harbor Main Entrance Lt,	41°32.233'N 081°44.433'W	296° for 41.9 (36.4)
Wpt 2	To Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

Fairport to Southeast Shoal: From departure position off Fairport Harbor Lake Approach Channel (waypoint position 41°47.483'N 081°16.900'W), steer 271° for 61.0 miles (53.0 n.m.) to position bearing 001° at 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Fairport Harbor Lake Approach Channel	41°47.483'N 081° 16.900'W	271° for 61 (53)

Wpt 2	To Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	
-------	---	-------------------------------	--

Ashtabula to Southeast Shoal: From a departure position with the Ashtabula Lake Approach Channel bearing 166.5° at 1.1 miles (1 n.m.) (waypoint position 41° 56.134'N 080° 48.000'W), steer 264° for 86.3 miles (75 n.m.) to position bearing 001° at 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	1.1 miles (1 n.m.) North of Ashtabula Lake Approach Channel brg. 166.5°	41° 56.134'N 080° 48.000'W	264° for 86.3 (75)
Wpt 2	To Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

Conneaut to Southeast Shoal: From a departure position bearing 169.4° and 1.5 miles (1.3 n.m.) off Conneaut Outer Harbor Channel (waypoint position 42°00.133'N 080°33.783'W), steer 262° for 98.9 miles (85.9 n.m.) to position bearing 001° at 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	1.5 miles (1.3 n.m.) off Conneaut Outer Harbor Channel brg. 169.4°	42°00.133'N 080°33.783'W	262° for 98.9 (85.9)
Wpt 2	To Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

Erie to Southeast Shoal: From departure position off Erie Harbor Pierhead Light bearing 231° at 1.7 miles (1.5 n.m.) (waypoint position 42° 10.289'N 080° 02.748'W), steer 290° for 3.6 miles (3.1 n.m.) to position with Presque Isle Light bearing 180° at 1.7 (1.5 n.m.) miles (waypoint position 42° 11.468'N 080° 06.912'W). Then steer 257° for 124 miles (107.7 n.m.) to position bearing 001° at 1.0 miles (0.9 n.m.) to Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Erie Harbor Pierhead Lt. brg. 231° at 1.7 miles (1.5 n.m.)	42° 10.289'N 080° 02.748'W	290° for 3.6 (3.1)
Wpt 2	1.8 miles (1.5 n.m.) off Presque Isle Lt. brg. 180°	42° 11.469'N 080° 06.911'W	257° for 124 (107.7)
Wpt 3	To Southeast Shoal Lt. bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

Cleveland to Port Stanley: From departure position 2.3 miles (2.0 n.m.) 329° from the Cleveland Harbor Main Entrance Light (waypoint position 41°32.233'N 081°44.433'W), steer 019° for 81.3 miles (70.6 n.m.) to position bearing 355° at 0.6 miles (0.5 n.m.) from Port Stanley West Breakwater (waypoint position 42° 38.842'N 081° 12.761'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From position 2.3 miles (2.0 n.m.) 329° from the Cleveland Main Entrance Lt.	41°32.233'N 081°44.433'W	019° 81.3 (70.6)
Wpt 2	Port Stanley West Breakwater brg. 355° at 0.6 miles (0.5 n.m.)	42° 38.842'N 081° 12.761'W	

Cleveland to Rondeau Bay: From departure position 2.3 miles (2.0 n.m.) 329° from the Cleveland Harbor Main Entrance Light (waypoint position 41°32.233'N 081°44.433'W), steer 349° for 49.5 miles (43 n.m.) to Rondeau Bay Entrance Channel bearing 007° at 0.9 miles (0.8 n.m.) (waypoint position 42°14.533'N 081°54.616'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Position 2.3 miles (2.0 n.m.) 329° from the Cleveland Main Entrance Lt.	41°32.233'N 081°44.433'W	349° for 49.5 (43)
Wpt 2	Rondeau Bay Entrance Channel brg. 007° at 0.9 miles (0.8 n.m.)	42°14.533'N 081°54.616'W	

Ashtabula to Port Stanley: From position with Ashtabula Lake Approach Channel bearing 166.5° at 1.1 miles (1 n.m.) (waypoint position 41° 56.134'N 080° 48.000'W), steer 336° for 53.3 miles (46.3 n.m.) to position bearing 355° at 0.6 miles (0.5 n.m.) to Port Stanley West Breakwater (waypoint position 42° 38.842'N 081° 12.761'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	1.1 miles (1 n.m.) off Ashtabula Lake Approach Channel brg. 166.5°	41° 56.134'N 080° 48.000'W	336° for 53.3 (46.3)
Wpt 2	Port Stanley West Brkw. brg. 355° at 0.6 miles (0.5 n.m.)	42° 38.842'N 081° 12.761'W	

Conneaut to Port Stanley: From 1.5 miles (1.3 n.m.) North of Conneaut Harbor Outer Channel (waypoint position 42° 00.133'N 080° 33.785'W), steer 323° for 55.6 miles (48.3 n.m.) to position bearing 355° at 0.6 miles (0.5 n.m.) to Port Stanley West Breakwater (waypoint position 42° 38.842'N 081° 12.761'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From 1.5 miles (1.3 n.m.) North of Conneaut Harbor Outer Channel	42° 00.133'N 080° 33.783'W	323° for 55.6 (48.3)
Wpt 2	Port Stanley West Brkw. brg. 355° at 0.6 miles (0.5 n.m.)	42° 38.842'N 081° 12.761'W	

Optional Lake Erie North Shore Weather Route:

From Buffalo

From departure position with Buffalo Harbor South Entrance Light 2 bearing 090° at 2.5 miles (2.2 n.m.) (waypoint position 42° 50.150'N 078° 55.450'W), steer 253° for 9.1 miles (7.9 n.m.) to position with Pt. Abino 000° at 2.5 miles (2.2 n.m.) (waypoint position 42° 47.850' N 079° 05.770' W). Then steer 260° for 46.7 miles (40.6 n.m.) to join the Northshore weather routes at junction position off Nanticoke Shoal.

From Port Colborne

From departure at Port Colborne Call-in Point 16 with Port Colborne Outer Light bearing 015° at 3.0 miles (2.6 n.m.) (waypoint position 42° 49.258'N 079° 16.235'W), steer 255° for 38.3 miles (33.3 n.m.) miles to join the Northshore weather routes at junction position off Nanticoke Shoal.

Continuing

From the junction position off Nanticoke Shoal with Nanticoke Shoal Buoy EA8 bearing 314° at 4.4 miles (3.8 n.m.) (waypoint position 42° 41.000'N 080° 00.000'W), steer 180° for 12.7 miles (11.0 n.m.) to position 4.3 miles (3.7 n.m.) Southeast of Long Point Light (waypoint position 42° 30.000'N 080° 00.000'W). Then steer 273° for 62.2 miles (54.1 n.m.) to position 7.7 miles (6.5 n.m.) South of Port Stanley Light (waypoint position 42° 33.120'N 081° 13.000'W). Then steer 233° for 37.9 miles (32.9 n.m.) to 3.1 miles (2.7 n.m.) Southeast of Pte. aux Pins Light (waypoint position 42° 13.460'N 081° 48.700'W). Then steer 241° for 32.5 miles (28.2 n.m.) to position at 12.9 miles (11.2 n.m.) miles North-Northeast of Southeast Shoal Light (waypoint position 42° 00.000'N 082° 22.000 'W). Then steer 180° for 11.3 miles (9.8 n.m.) to 5 miles (4.3 n.m.) East of Southeast Shoal Light (waypoint position 41° 50.150'N 082° 22.000'W). Then steer 251° for 5.3 miles (4.6 n.m.) to join the regular upbound recommended course with Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.) (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wp 1B	Buffalo Harbor South Entrance Lt. 2 brg. 090° at 2.5 miles (2.2 n.m.)	42° 50.150'N 078° 55.450'W	253° for 9.1 (7.9)
Wpt 1C	Pt. Abino 000° at 2.5 miles (2.2 n.m.)	42° 47.850'N 079° 05.770'W	260° for 46.7 (40.6)
	Continue at Wpt 2		

Wpt 1	Port Colborne CIP 16 with Port Colborne Outer Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	255° for 38.3 (33.3)
	Continue at Wpt 2		
Wpt 2	Junction position off Nanticoke Shoal with Nanticoke Shoal Buoy EA8 brg. 314° at 4.4 miles (3.8 n.m.)	42° 41.000'N 080° 00.000'W	180° for 12.7 (11.0)
Wpt 3	4.3 miles (3.7 n.m.) SE of Long Point Lt.	42° 30.000'N 080° 00.000'W	273° for 62.2 (54.1)
Wpt 4	7.7 miles (6.5 n.m.) South of Port Stanley Lt.	42° 33.120'N 081° 13.000'W	233° for 37.9 (32.9)
Wpt 5	3.1 miles (2.7 n.m.) SE of Pte. aux Pins Lt.	42° 13.460'N 081° 48.700'N	241° for 32.5 (28.2)
Wpt 6	12.9 miles (11.2 n.m.) NNE of Southeast Shoal Lt.	42° 00.000'N 082° 22.000 'W	180° for 11.3 (9.8)
Wpt 7	5 miles (4.3 n.m.) East of Southeast Shoal Lt.	42° 00.000'N 082° 22.000 'W	251° for 5.3 (4.6)
Wpt 8	To Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41°50.150'N 082° 22.000'W	

RECOMMENDED COURSES

LAKE ONTARIO ***Downbound/Outbound***

Port Weller to Cape Vincent/St. Lawrence River: From a position 0.60 miles (0.5 n.m.) off with Port Weller Breakwaters bearing 180° (waypoint position 43° 15.221' N 079° 12.991' W), steer 049° for 8.5 miles (7.4 n.m.) to pass not more than 5.1 miles (4.4 n.m.) off Fort Niagara bearing 166° off Niagara Bar LB 2 (waypoint position 43° 20.010' N 079° 05.380' W). Then steer 074° for 103 miles (89.5 n.m.) to a position not less than 7 miles (6.1 n.m.) off Point Petre Light (waypoint position 43° 44.483' N 077° 07.286' W). Then steer 068° for 27 miles (23.5 n.m.) to a position with Main Duck Island (abeam South point on Main Duck Is.) at 3.5 miles (3.3 n.m.) bearing 314.6° (waypoint position 43° 53.550' N 076° 35.035'). Then steer 034° for 12.2 miles (9.7 n.m.) to a position 1.5 miles (1.2 n.m.) Southeast of East Charity Shoal Light (waypoint position 44° 01.415' N 076° 27.577' W) and then steer 027° for 5.9 miles (5.1 n.m.) to the Tibbetts Point Traffic Lighted Buoy (waypoint position 44°06.62' N 076°24.256' W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	0.6 miles (0.5 n.m.) off with Pt. Weller Breakwaters brg. 180°	43° 15.221' N 079° 12.991' W	049° for 8.5 (7.4)
Wpt 2	5.1 miles (4.4 n.m.) off with Fort Niagara brg. 166° (off Niagara Bar LB 2)	43° 20.010' N 079° 05.380' W	074° for 103 (89.5)
Wpt 3	7 miles (6.1 n.m.) off Pte. Petre Lt.	43° 44.483' N 077° 07.286' W	068° for 27 (23.5)
Wpt 4	3.5 miles (3.3n.m.) off with Main Duck Is. South point brg. 314.6°	43° 53.550' N 076° 35.035' W	034° for 12.2 (9.7)
Wpt 5	1.5 miles Southeast of East Charity Shoal Light	44°01.415' N 076° 27.577' W	027° for 5.9 (5.1)
Wpt 6	Off Tibbetts Point Traffic Lighted Buoy	44°06.062' N 076°24.265' W	

Port Weller to Hamilton/Burlington: From a position 0.60 miles (0.5 n.m.) off with Port Weller Breakwaters bearing 180° (waypoint position 43° 15.221'N 079° 12.991'W), steer 314° for 4 miles (3.5 n.m.) with Port Weller Breakwaters bearing 140° at 4.4 miles (3.8 n.m.) (waypoint position 43° 17.676'N 079° 16.376'W). Then steer 273° for 24.5 miles (21.3 n.m.) to a position 2 miles (1.8 n.m.) off with Burlington Piers bearing 235.5° (waypoint position 43° 19.095'N 079° 45.424'W).

Waypoint	Brg/Range	Lat/Long	Course to Steer and Distance to go
Wpt 1	0.6 miles (0.5 n.m.) off with Pt. Weller Breakwaters brg. 180°	43° 15.221'N 079° 12.991'W	314° for 4 (3.5)
Wpt 2	4.4 miles (3.8 n.m.) off Pt Weller Breakwaters brg. 140°	43° 17.676'N 079° 16.376'W	273° for 24.5 (21.3)
Wpt 3	2 miles (1.8 n.m.) off with Burlington Piers brg. 235.5°	43° 19.095'N 079° 45.424'W	

Port Weller to Toronto: From a position 0.60 miles (0.5 n.m.) off with Port Weller Breakwaters bearing 180° (waypoint position 43° 15.221'N 079° 12.991'W), steer 314° for 4 miles (3.5 n.m.) with Port Weller Breakwaters bearing 140° at 4.4 miles (3.8 n.m.) (waypoint position 43° 17.676'N 079° 16.376'W). Then steer 348° for 20 miles (17.4 n.m.) to a position with Toronto Eastern Gap Outer Harbour East Headland Light (Leslie Street Spit Lt.) bearing 007° at 2.3 miles (2 n.m.) (waypoint position 43° 34.818'N 079° 20.961'W).

Waypoint	Brg/Range	Lat/Long	Course to Steer and Distance to go
Wpt 1	0.6 miles (0.5 n.m.) off with Pt. Weller Breakwaters brg. 180°	43° 15.221'N 079° 12.991'W	314° for 4 (3.5)
Wpt 2	4.4 miles (3.8 n.m.) off with Pt. Weller Breakwaters brg. 140°	43° 17.676'N 079° 16.376'W	348° for 20 (17.4)
Wpt 3	2.3 miles (2.0 n.m.) off with Toronto Eastern Gap Outer Harbour East Headland Lt. brg. 007°	43° 34.818'N 079° 20.961'W	

Port Weller to Bronte: From a position 0.60 miles (0.5 n.m.) off with Port Weller Breakwaters bearing 180° (waypoint position 43° 15.221'N 079° 12.991'W), steer 314° for 4 miles (3.5 n.m.) with Port Weller Breakwaters bearing 140° at 4.4 miles (3.8 n.m.) (waypoint position 43° 17.676'N 079° 16.376'W). Then steer 281° for 21.9 miles (19.0 n.m.) to position 1.0 miles (0.8 n.m.) bearing 135° from Bronte Pier (waypoint position 43° 21.605'N 079° 41.912'W).

Waypoint	Brg/Range	Lat/Long	Course to Steer and Distance to go
Wpt 1	0.6 miles (0.5n.m.) off with Pt. Weller Piers brg. 180°	43° 15.221'N 079° 12.991'W	314° for 4 (3.5)
Wpt 2	4.4 miles (3.8 n.m.) off with Pt Weller Piers brg. 140°	43° 17.676'N 079° 16.376'W	281° for 21.9 (19.0)
Wpt 2	1.0 miles (0.8 n.m.) off Bronte Oil Terminal Pier brg. 315°	43° 21.605'N 079° 41.912'W	

Port Weller to Clarkson: From a position 0.60 miles (0.5 n.m.) off with Port Weller Breakwaters bearing 180° (waypoint position 43° 15.182'N 079° 12.994'W), steer 308° for 24.3 miles (21.1 n.m.) to a position with the Clarkson Cement Terminal 1.2 miles (1 n.m.) off bearing 309° (waypoint position 43° 28.424'N 079 35.526'W) or 1.6 miles (1.4 n.m.) bearing 338° to the Clarkson (Tanker Berth) or Clarkson Oil Terminal.

Waypoint	Brg/Range	Lat/Long	Course to Steer and Distance to go
Wpt 1	0.6 miles (0.5 n.m.) off with Pt. Weller Breakwaters brg. 180°	43° 15.221'N 079° 12.991'W	308° for 24.3 (21.1)
Wpt 2	1.2 miles (1.0 n.m.) off Clarkson Cement Terminal Pier brg. 309°	43° 28.424'N 079° 35.526'W	

Port Weller to Oshawa: From position 4.3 miles (3.8 n.m.) off with Port Weller Breakwaters bearing 180° (waypoint position 43° 18.884'N 079° 12.994'W), steer 029° for 42.4 miles (36.8 n.m.) to position with a bearing 327° and 1.3 miles (1.2 n.m.) to the Oshawa Pier Front Range Light (waypoint position 43° 50.884'N 078° 48.451'W).

Waypoint	Brg/Range	Lat/Long	Course to Steer and Distance to go
Wpt 1	4.3 miles (3.8 n.m.) off with Pt. Weller Breakwaters brg. 180°	43° 18.884'N 079° 12.994'W	029° for 42.4 (36.8)
Wpt 2	1.3 miles (1.2 n.m.) off Oshawa Pier Front Rng. Lt. brg. 327°	43° 50.884'N 078° 48.451'W	

Port Weller to Bowmanville: From position 4.3 miles (3.8 n.m.) off with Port Weller Breakwaters bearing 180° (waypoint position 43° 18.884'N 079° 12.994'W), steer 36° for 46.4 miles (40.3 n.m.) to a position with a bearing of 335° and 1.2 miles (1.0 n.m.) to the Bowmanville Dock (waypoint position 43° 51.488'N 078° 40.318'W).

Waypoint	Brg/Range	Lat/Long	Course to Steer and Distance to go
Wpt 1	4.3 miles (3.8 n.m.) off with Pt. Weller Breakwaters brg. 180°	43° 18.884'N 079° 12.994'W	036° for 46.4 (40.3)
Wpt 2	1.2 miles (1.0 n.m.) off Bowmanville Dock brg, 333°	43° 51.488'N 078° 40.318'W	

Port Weller to Rochester or Oswego: From a position 0.60 miles (0.5 n.m.) off with Port Weller Breakwaters bearing 180° (position 43° 15.221'N 079° 12.991'W), steer 049° for 8.5 miles (7.4 n.m.) to 1.5 miles (1.2 n.m.) off Niagara Bar Lighted Buoy 2 (waypoint position 43° 20.010'N 079° 05.380'W). Then steer 074° for 31.5 miles (27.4 n.m.) to a position with Thirty Mile Point Light bearing 180° and 6.1 miles (5.3 n.m.) (waypoint position 43° 27.680'N 078° 29.234'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	0.6 miles (0.5 n.m.) off with Pt. Weller Piers brg. 180°	43° 15.221'N 079° 12.991'W	049° for 8.5 (7.4)
Wpt 2	5.1 miles (4.4 n.m.) off with Fort Niagara Lt. 5 brg. 166° (1.5 (1.2) off Niagara Bar LB 2)	43° 20.010'N 079° 05.380'W	074° for 31.5 (27.4)
Wpt 3	6.1 miles (5.3 n.m.) off with Thirty Mile Pt. brg. 180°	43° 27.680'N 078° 29.234'W	See Rochester or Oswego below

For Rochester: steer 100° for 37.1 miles (32.2 n.m.) to a position with Braddock Point Light bearing 180° and 1.8 miles (1.6 n.m.) (waypoint position 43° 22.016'N 077° 45.739'W); then steer 115° for 10.8 miles (9.4 n.m.) to a position with Rochester Piers bearing 212° and 2.9 miles (2.5 n.m.) (waypoint position 43° 17.973'N 077° 34.116'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 3	From Wpt 3 position from above		100° for 37.1 (32.2)
Wpt 4	1.8 miles (1.6 n.m.) off with Braddock Pt. Lt. brg. 180°	43° 22.016'N 077° 45.739'W	115° for 10.8 (9.4)
Wpt 5	2.9 miles (2.5 n.m.) miles off with Rochester Piers brg. 212°	43° 17.973'N 077° 34.116'W	

For Oswego: steer 089° for 98.4 miles (85.5 n.m.) to position with Oswego West Pierhead Light bearing 102° and 0.8 miles (0.67 n.m.) off (waypoint position 43° 28.718'N 076° 31.841'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 3	From Wpt 3 position from above		089° for 98.4 (85.5)
Wpt 4	0.8 miles (0.7 n.m.) off Oswego West Pierhead Light brg. 102°	43° 28.718'N 076° 31.841'W	

Toronto, Port Credit or Clarkson to Cape Vincent: From a position with Toronto Eastern Gap Outer Harbour East Headland Light (Leslie Street Spit Lt.) bearing 007° and 2.3 miles (2 n.m.) (waypoint 43° 34.818'N 079° 20.961'W), steer 084° for 113.8 miles (98.9 n.m.) to position not less than 7 miles (6.1 n.m.) off Point Petre Light (waypoint position 43° 44.483'N 077° 07.286'W). Then join and continue recommended downbound courses to East Charity Shoal.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.3 miles (2.0 n.m.) off with Toronto Eastern Gap Outer Harbour East Headland Lt. brg. 007°	43° 34.818'N 079° 20.961'W	084° for 113.8 (98.9)
Wpt 2	7 miles (6.1 n.m.) off Pt. Petre Lt.	43° 44.483'N 077° 07.286'W	To join recommended downbound course to East Charity Shoal.

Toronto to Rochester: From a position with Toronto Eastern Gap Outer Harbour East Headland Light (Leslie Street Spit Lt.) bearing 007° and 2.3 miles (2 n.m.) (waypoint position 43° 34.818'N 079° 20.961'W), steer 100° for 44.1 miles (38.3 n.m.) to a position with Thirty Mile Point Light bearing 180° at 6.1 miles (5.3 n.m.) (waypoint position 43° 27.680'N 078° 29.234'N). From this position, steer 100° for 37.1 miles (32.2 n.m.) to position with Braddock

Point Light bearing 180° at 1.8 miles (1.6 n.m.) (waypoint position 43° 22.016'N 077° 45.739'W) to then steer 115° for 10.8 (9.4) to position bearing 212° and 2.9 miles (2.5 n.m.) off Rochester Piers (waypoint position 43° 17.973'N 77° 34.116'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.3 miles (2.0 n.m.) off with Toronto Eastern Gap Outer Harbour East Headland Lt. brg. 007°	43° 34.818'N 079° 20.961'W	100° for 44.1 (38.3)
Wpt 2	6.1 miles (5.3 n.m.) off Thirty Mile Pt. Lt. brg. 180°	43° 27.680'N 078° 29.234'W	100° for 37.1 (32.2)
Wpt 3	1.8 miles (1.6 n.m.) off Braddock Pt. brg. 180°	43° 22.016'N 077° 45.739'W	115° for 10.8 (9.4)
Wpt 4	2.9 miles (2.5 n.m.) off Rochester Piers brg. 212°	43° 17.973'N 077° 34.116'W	

Toronto to Oswego: From a position with Toronto Eastern Gap Outer Harbour East Headland Light (Leslie Street Spit Lt.) bearing 007° and 2.3 miles (2 n.m.) (waypoint position 43° 34.818'N 079° 20.961'W), steer 092° for 141.8 miles (123.2 n.m.) to position with Oswego West Pierhead Light bearing 102° and 0.8 miles (0.7 n.m.) off (waypoint position 43° 28.718'N 076° 31.841'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.3 miles (2.0 n.m.) off with Toronto Eastern Gap Outer Harbour East Headland Lt. brg. 007°	43° 34.818'N 079° 20.961'W	092° for 141.8 (123.2)
Wpt 2	0.8 miles (0.7 n.m.) off Oswego West Pierhead Light brg. 102°	43° 28.718'N 076° 31.841'W	

Hamilton/Burlington Piers to Cape Vincent: From position with the Burlington Outer Piers bearing 235° at 2.0 miles (1.8 n.m.) (waypoint position 43° 19.095'N 079° 45.424'W), steer 088° for 34 miles (29.5 n.m.) to a position bearing 165° and 5.1 miles (4.5 n.m.) to Fort Niagara

Light 1.5 miles (1.2n.m.) off Niagara Bar Lighted Buoy 2 (waypoint position 43° 20.039'N 079° 05.331'W) to join existing downbound courses to Cape Vincent.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2 miles (1.8 n.m.) off Burlington Outer Piers brg. 235.5°	43° 19.095'N 079° 45.424'W	088° for 34 (29.5)
Wpt 2	5.1 miles (4.5 n.m.) miles off Fort Niagara Lt. brg. 165° (1.5 (1.2) off Niagara Bar LB 2)	43° 20.010'N 079° 05.380'W	To join existing recommended downbound course to Cape Vincent.

Hamilton/Burlington to Clarkson: From position with the Burlington Outer Piers bearing 235° at 2.0 miles (1.8 n.m.) (waypoint position 43° 19.095'N 079° 45.424'W), steer 050° for 6.4 miles (5.6 n.m.) to a position with Oakville Harbor Light bearing 302° at 2.3 miles (2.0 n.m.) (waypoint position 43° 22.486'N 079° 39.781'W). Then steer 027° for 7.9 miles (6.9 n.m.) off with Clarkson Dock bearing 311° at 1.2 miles (1.0. n.m.) (waypoint position 43° 28.404'N 079° 35.514'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2 miles (1.8 n.m.) off Burlington Piers brg. 235.5°	43° 19.095'N 079° 45.424'W	050° for 6.4 (5.6)
Wpt 2	2.3 miles (2.0 n.m.) off Oakville Hrb. Lt. brg 302°	43° 22.486'N 079° 39.781'W	027° for 7.9 (6.9)
Wpt 3	1.2 miles (1.0 n.m.) off Clarkson Dock brg. 311°	43° 28.404'N 079° 35.514'W	

Clarkson to Colborne: From position with Clarkson Dock bearing 311° and 1.2 miles (1.0 n.m.) off (waypoint position 43° 28.404'N 079° 35.514'W), steer 068° for 92.2 miles (80.1 n.m.) to position with Colborne Dock bearing 000° and 1.2 miles (1.1 n.m.) (waypoint position 43° 57.409'N 077° 52.520'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	1.2 miles (1.0 n.m.) off with Clarkson Cement Terminal Pier brg. 309°	43° 28.424'N 079° 35.526'W	068° for 92.2 (80.1)
Wpt 2	1.2 miles (1.1 n.m.) off with Colborne Dock brg. 000°	43° 57.409'N 077° 52.520'W	

Oshawa to Cape Vincent: From a departure with Oshawa West Outer Pier Light at 1.3 miles (1.2 n.m.) bearing 327° (waypoint position 43° 50.884'N 078° 48.451'W), steer 101° for 53.7 miles (46.7 n.m.) to position 24.4 miles (21.2 n.m.) off with Braddock Point bearing 181° (waypoint position 43° 41.780'N 077° 45.000'W); then join and follow existing downbound lake courses to Cape Vincent.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	1.3 miles (1.2 n.m.) off with Oshawa West Outer Pier Lt. brg. 327°	43° 50.884'N 078° 48.451'W	101° for 53.7 (46.7)
Wpt 2	24.4 miles (21.2 n.m.) off with Braddock Pt. brg. 181°	43° 41.780'N 077° 45.000'W	To join existing downbound courses to Cape Vincent

Rochester to Oswego: From a departure position with Rochester Piers bearing 212° and 2.9 miles (2.5 n.m.) off (position 43° 17.976'N 077° 34.106'W), steer 076° for 53.0 miles (46.1 n.m.) miles to position with Oswego West Pierhead Light bearing 102° and 0.8 miles (0.7 n.m.) off (position 43° 28.718'N 076° 31.841'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
----------	-----------	----------	------------------------------

Wpt 1	2.9 miles (2.5 n.m.) off Rochester Piers	43° 17.973'N 077° 34.116'W	076° for 53.0 (46.1)
Wpt 2	0.8 miles (0.7 n.m.) off Oswego West Pierhead Light brg. 102°	43° 28.718'N 076° 31.841'W	

Oswego to Bath/Picton: From departure position with Oswego West Pierhead Light bearing 102° and 0.8 miles (0.7 n.m.) off (waypoint position 43° 28.718'N 076° 31.841'W), steer 332° for 32.8 miles (28.5 n.m.) for position 0.70 miles (0.6 n.m.) Southeast of Traverse Shoal Buoy K14 (waypoint position 43°54.000'N 076° 50.000' W). Then steer 033° for 4.0 miles (3.5 n.m.) to position with False Ducks Light bearing 270° at 0.5 miles (0.4 n.m.) (waypoint position 43°56.890'N 076°47.320'W). Then steer 350° for 8.3 miles (7.2 n.m.) to position with Grape Island bearing 034° at 2.5 miles (2.2 n.m.) off (waypoint position 44°04.000'N 076° 49.000'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	0.8 miles (0.7 n.m.) off Oswego West Pierhead Light brg. 102°	43° 28.718'N 076° 31.841'W	332° for 32.8 (28.5)
Wpt 2	0.70 miles (0.6 n.m.) Southeast of Traverse Shoal Buoy K14	43°54.000'N 076° 50.000' W	033° for 4.0 (3.5)
Wpt 3	False Duck Island Lt. bearing 270° at 0.5 miles (0.4 n.m.)	43° 56.890'N 076° 47.320'W	350° for 8.3 (7.2)
Wpt 4	2.5 miles (2.2 n.m.) off Grape Island brg. 034°	44° 04.000'N 076° 49.000'W	

Rochester to Bath/Picton: From a departure position with Rochester Piers bearing 212° and 2.9 miles (2.5 n.m.) off (waypoint position 43° 17.963'N 077° 34.121'W), steer 041° for 55.5 miles (48.2 n.m.) to position 0.70 miles (0.6 n.m.) Southeast of Traverse Shoal Buoy K14 (waypoint position 43°54.000'N 076° 50.000' W). Then steer 033° for 4.0 miles (3.5 n.m.) to position with False Ducks Light bearing 270° at 0.5 miles (0.4 n.m.) (waypoint position 43°56.890'N 076°47.320'W). Then steer 350° for 8.3 miles (7.2 n.m.) to position with Grape Island bearing 034° at 2.5 miles (2.2 n.m.) off (waypoint position 44°04.000'N 076° 49.000'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.9 miles (2.5 n.m.) off Rochester Piers brg. 211°	43° 17.973'N 077° 34.116'W	041° for 55.5 (48.2)
Wpt 2	0.70 miles (0.6 n.m.) Southeast of Traverse Shoal Buoy K14	43°54.000'N 076° 50.000' W	033° for 4.0 (3.5)
Wpt 3	False Ducks Lt. bearing 270° at 0.5 miles (0.4 n.m.)	43° 56.890'N 076° 47.320'W	350° for 8.3 (7.2)
Wpt 4	2.5 miles (2.2 n.m.) off Grape Island brg. 034°	44° 04.000'N 076° 49.000'W	

Cobourg to Oswego: From position off Cobourg Piers (waypoint position 43° 55.990'N 078° 09.363'W), steer 111° for 87.3 miles (75.9 n.m.) to position with Oswego Harbor West Pierhead Light bearing 102° and 0.8 miles (0.67 n.m.) off (waypoint position 43° 28.718'N 076° 31.841'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Departing Cobourg Piers	43° 55.990'N 078° 09.363'W	111° for 87.3 (75.9)
Wpt 2	0.8 miles (0.7 n.m.) off Oswego West Pierhead Light brg. 102°	43° 28.718'N 076° 31.841'W	

RECOMMENDED COURSES

LAKE ONTARIO

Upbound/Inbound

St. Lawrence River/Cape Vincent to Port Weller: From a position off Tibbetts Point Traffic Lighted Buoy (waypoint position 44° 06.062'N 076° 24.265'W), steer 207° for 5.9 miles (5.1 n.m.). Then from Southeast of East Charity Shoal Light (waypoint position 44° 01.415'N 076° 27.577'W), steer 239° for 14.5 miles (12.7 n.m.) to position 0.5 miles (0.4 n.m.) off Psyche Shoal LB M10 (waypoint position 43° 55.000'N 076° 42.635'W). Then steer 248° for 22.5 miles (19.9 n.m.) to position not more than 3.0 miles (2.6 n.m.) off Point Petre Light (waypoint position 43° 47.807'N 077° 08.360'W). Then steer 254° for 102 miles (88.6 n.m.) to position not less than 5.5 miles (4.8 n.m.) off Niagara Bar LB 2 (Fort Niagara Lt. bearing 168.5° at 9.2 (8.0 n.m.) miles (waypoint position 43° 23.606'N 079° 06.034'W). Then steer 214° for 10.3 miles (9.0 n.m.) to position 1.7 (1.5 n.m.) miles off bearing 180° to Port Weller Breakwaters (waypoint position 43° 16.183'N 079° 12.994'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Off Tibbetts Pt. Traffic LB	44° 06.062'N 076° 24.265'W	207° for 5.9 (5.1)
Wpt 2	From East Charity Shoal Traffic LB	44° 01.415'N 076° 27.577'W	239° for 14.5 (12.7)
Wpt 3	0.5 miles (0.4 n.m.) off Psyche Shoal LB M10	43° 55.000'N 076° 42.635'W	248° for 22.5 (19.9)
Wpt 4	3.0 miles (2.6 n.m.) off Pte Petre	43° 47.807'N 077° 08.360'W	254° for 102 (88.6)
Wpt 5	5.5 miles (4.8 n.m.) off Niagara Bar Buoy LB2 (Fort Niagara Lt. brg. 168.5° at 9.2 miles (8.0 n.m.)	43° 23.606'N 079° 06.034'W	214° for 10.34 (8.99)
Wpt 6	1.7 miles (1.5 n.m.) off Port Weller Piers brg. 180°	43° 16.183'N 079° 12.994'W	

Cape Vincent to Toronto, Port Credit, or Clarkson: From a position off Tibbetts Point Traffic Lighted Buoy (waypoint position 44° 06.062'N 076° 24.265'W), steer 207° for 5.9 miles (5.1 n.m.). Then from Southeast of East Charity Shoal Light (waypoint position 44° 01.415'N 076°27.577'W), steer 239° for 14.5 miles (12.7 n.m.) to position 0.5 miles (0.4 n.m.) off Psyche Shoal LB M10 (waypoint position 43° 55.000'N 076° 42.635'W). Then steer 248° for 22.5 miles (19.9 n.m.) to position not more than 3.0 miles (2.6 n.m.) off Point Petre Light (waypoint position 43° 47.807'N 077° 08.360'W). Then steer 262° for 113.25 miles (98.4 n.m.) to position not more than 1.2 miles (1.0 n.m.) from a position with Toronto Eastern Gap Outer Harbour East Headland Light (Leslie Street Spit Lt.) bearing 007° (waypoint position 43° 35.727'N 079° 20.952'W; **OR** further to Port Credit or Clarkson.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Off Tibbetts Pt. Traffic LB	44° 06.062'N 076° 24.265'W	207° for 5.9 (5.1)
Wpt 2	From East Charity Shoal Traffic LB	44° 01.415'N 076° 27.577'W	239° for 14.5 (12.7)
Wpt 3	0.5 miles (0.4 n.m.) off Psyche Shoal LB M10	43° 55.000'N 076° 42.635'W	248° for 22.5 (19.9)
Wpt 4	3.0 miles (2.6 n.m.) off Pte. Petre	43° 47.807'N 077° 08.360'W	262° for 113.25 (98.4)
Wpt 5	1.2 miles (1.0 n.m.) off Toronto Eastern Gap Leslie Street Spit Lt. brg. 007°	43° 35.727'N 079° 20.952'W	For Toronto, or further for Port Credit or Clarkson.

Cape Vincent to Hamilton/Burlington: From a position off Tibbetts Point Traffic Lighted Buoy (waypoint position 44° 06.062'N 076° 24.265'W), steer 207° for 5.9 miles (5.1 n.m.). Then from Southeast of East Charity Shoal Light (waypoint position 44° 01.415'N 076°27.577'W), steer 239° for 14.5 miles (12.7 n.m.) to position 0.5 miles (0.4 n.m.) off Psyche Shoal LB M10 (waypoint position 43° 55.000'N 076° 42.635'W). Then steer 248° for 22.5 miles (19.9 n.m.) to position not more than 3.0 miles (2.6 n.m.) off Point Petre (waypoint position 43° 47.807'N 077° 08.360'W). From this position, steer 255° for 135.8 miles (118 n.m.) to position 2.0 miles (1.7 n.m.) off Burlington Piers (waypoint position 43° 19.095'N 079° 45.424'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Off Tibbetts Pt. Traffic LB	44° 06.062'N 076° 24.265'W	207° for 5.9 (5.1)
Wpt 2	From East Charity Shoal Traffic LB	44° 01.415'N 076° 27.577'W	239° for 14.5 (12.7)
Wpt 3	0.5 miles (0.4 n.m.) off Psyche Shoal	43° 55.000'N 076° 42.635'W	248° for 22.5 (19.9)
Wpt 4	3.0 miles (2.6 n.m.) off Pte Petre	43° 47.807'N 077° 08.360'W	255° for 135.8 (118)
Wpt 5	2.0 miles (1.7 n.m.) off Burlington Outer Piers	43° 19.095'N 079° 45.424'W	

Cape Vincent to Oswego: From a position off Tibbetts Point Traffic Lighted Buoy (waypoint position 44° 06.062'N 076° 24.265'W), steer 200° for 15.7 miles (13.6 n.m.) to position bearing 090° and 4.0 miles (3.5 n.m.) to the Southern point of Galloo Island (waypoint position 43° 53.300'N 076° 30.876'W). Then steer 181° for 28.3 miles (24.6 n.m.) to Oswego West Pierhead Light (waypoint position 43° 28.718'N 076° 31.841'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Off Tibbetts Pt. Traffic LB	44° 06.062'N 076° 24.265'W	200° for 15.7 (13.6)
Wpt 2	4.0 miles (3.5 n.m.) off Southern point of Galloo Is. brg. 090°	43° 53.300'N 076° 30.876'W	181° for 28.3 (24.6)
Wpt 3	0.8 miles (0.7 n.m.) off Oswego West Pierhead Light brg. 102°	43° 28.718'N 076° 31.841'W	

Cape Vincent to Sodus Bay: From a position off Tibbetts Point Traffic Lighted Buoy (waypoint position 44° 06.062'N 076° 24.265'W), steer 200° for 15.7 miles (13.6 n.m.) to position bearing 090° and 4.0 miles (3.5 n.m.) off the Southern point of Galloo Island (waypoint position 43° 53.300'N 076° 30.876'W). Then steer 209° for 46.3 miles (40.2 n.m.) to position 2.0 miles (1.7 n.m.) off Sodus Bay Piers (waypoint position 43° 18.338'N 076° 58.284'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Off Tibbetts Pt. Traffic LB	44° 06.062'N 076° 24.265'W	200° for 15.7 (13.6)
Wpt 2	4.0 miles (3.5 n.m.) off Southern point of Galloo Is. brg. 090°	43° 53.300'N 076° 30.876'W	209° for 46.3 (40.2)
Wpt 3	2.0 miles (1.7 n.m.) off Sodus Bay Piers	43° 18.338'N 076° 58.284'W	

Cape Vincent to Rochester: From a position off Tibbetts Point Traffic Lighted Buoy (waypoint position 44° 06.062'N 076° 24.265'W), steer 200° for 15.7 miles (13.6 n.m.) to position bearing 090° and 4.0 miles (3.5 n.m.) off the Southern point of Galloo Island (waypoint position 43° 53.300'N 076° 30.876'W). Then steer 232° for 66.7 miles (58.0 n.m.) to position 2.9 miles (2.5 n.m.) off Rochester Piers (waypoint position 43° 17.973'N 077° 34.119'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to
----------	-----------	----------	------------------------

			Steer
Wpt 1	Off Tibbetts Pt. Traffic LB	44° 06.062'N 076° 24.265'W	200° for 15.7 (13.6)
Wpt 2	4.0 miles (3.5 n.m.) off Southern point of Galloo Is. brg. 090°	43° 53.300'N 076° 30.876'W	232° for 66.7 (58.0)
Wpt 3	2.9 miles (2.5 n.m.) off Rochester Piers	43° 17.973'N 077° 34.116'W	

Kingston to Psyche Shoal/Main Duck Island: From position departing Kingston (waypoint position 44° 09.935'N 076° 36.333'W), steer 196° for 18.9 miles (16.4 n.m.) to position West of Main Duck Island Light (waypoint position 43° 55.000'N 076° 42.635'W) and 0.5 miles (0.4 nm) off Psyche Shoal.

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Departing Kingston Piers with Sector Lt. astern	44° 09.935'N 076° 36.333'W	196° for 18.9 (16.4)
Wpt 2	West of Main Duck Isl. Lt. and 0.5 miles (0.4 nm) off Psyche Shoal	43° 55.000'N 076° 42.635'W	

Oswego to Cobourg: From position with Oswego Harbor West Pierhead Light bearing 102° and 0.8 miles (0.67 n.m.) off (waypoint position 43° 28.718'N 076° 31.841'W) steer 291° for 87.3 miles (75.9 n.m.) to position off Cobourg Piers (waypoint position 43° 55.990'N 078° 09.363'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	0.8 miles (0.7 n.m.) off Oswego West Pierhead Light brg. 102°	43° 28.718'N 076° 31.841'W	291° for 87.3 (75.9)
Wpt 2	off Cobourg Piers	43° 55.990'N 078° 09.363'W	

Toronto to Port Weller: From departure position bearing 187° and 2.3 miles (2.0 n.m.) from Toronto Eastern Gap Outer Harbour East Headland Light (Leslie Street Spit Light). (waypoint position 43° 34.818'N 079° 20.961'W), steer 162° for 22.4 miles (19.5 n.m.) to a position with Port Weller Breakwaters bearing 180° and 1.7 miles (1.5 n.m.) off (waypoint position 43° 16.183'N 079° 12.994'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.3 miles (2.0 n.m.) off with Toronto Eastern Gap Outer Harbour East Headland Lt. brg. 007°	43° 34.818'N 079° 20.961'W	162° for 22.4 (19.5)
Wpt 2	1.7 miles (1.5 n.m.) off Port Weller Breakwaters brg. 180°.	43° 16.183'N 079° 12.994'W	

Hamilton/Burlington to Port Weller: From position 2.0 miles (1.8 n.m.) off Burlington Piers (waypoint position 43° 19.095'N 079° 45.424'W), steer 097° for 27.4 miles (23.8 n.m.) to a position with Port Weller Breakwaters bearing 180° and 1.7 miles (1.5 n.m.) off (waypoint position 43° 16.183'N 079° 12.994'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Departing 2.0 miles (1.8 n.m.) from Burlington Outer Piers	43° 19.095'N 079° 45.424'W	097° for 27.4 (23.8)
Wpt 2	1.7 miles (1.5 n.m.) off Port Weller Breakwaters brg. 180°.	43° 16.183'N 079° 12.994'W	

Bronte to Port Weller: From departure position with Bronte Piers bearing 315° and 1.0 miles (0.8 n.m.) off (waypoint position 43° 21.605'N 079° 41.912'W), steer 104° to a position with Port Weller Breakwaters bearing 180° and 1.7 miles (1.5 n.m.) off (waypoint position 43° 16.183'N 079° 12.994'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer

Wpt 1	Departing 1.0 miles (0.8 n.m.) off Bronte Piers brg. 315°	43° 21.605'N 079° 41.912'W	104° for 25.1 (21.8)
Wpt 2	1.7 miles (1.5 n.m.) off Port Weller Breakwaters brg. 180°.	43° 16.183'N 079° 12.994'W	

Clarkson to Port Weller: From departure position with Clarkson Piers bearing 309° and 1.3 miles (1.1 n.m.) off (waypoint position 43° 28.424'N 079° 35.526'W), steer 126° for 23.6 miles (20.5 n.m.) to a position with Port Weller Breakwaters bearing 180° and 1.7 miles (1.5 n.m.) off (waypoint position 43° 16.183'N 079° 12.994'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Departing 1.3 miles (1.1 n.m.) off Clarkson Piers brg. 309°	43° 28.424'N 079° 35.526'W	126° for 23.6 (20.5)
Wpt 2	1.7 miles (1.5 n.m.) off Port Weller Breakwaters brg. 180°.	43° 16.183'N 079° 12.994W	

Oshawa to Port Weller: From position with Oshawa Front Range Light bearing 326.5° and 1.3 miles (1.1 n.m.) off (waypoint position 43° 50.884'N 078° 48.451'W), steer 207° for 44.9 miles (39.0 n.m.) to a position with Port Weller Breakwaters bearing 180° and 1.7 miles (1.5 n.m.) off (waypoint position 43° 16.183'N 079° 12.994'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Departing 1.3 miles (1.1 n.m.) off Oshawa and Oshawa Front Range Lt. brg. 326.5°	43° 50.884'N 078° 48.451'W	207° for 44.9 (39.0)
Wpt 2	1.7 miles (1.5 n.m.) off Port Weller Breakwaters brg. 180°.	43° 16.183'N 079° 12.994'W	

Bowmanville to Port Weller: From position with Bowmanville Dock bearing 333° and 1.2 miles (1.0 n.m.) off (waypoint position 43° 51.488'N 078° 40.318'W), steer 213° for 49 miles (42.6 n.m.) to a position with Port Weller Breakwaters bearing 180° and 1.7 miles (1.5 n.m.) off (waypoint position 43° 16.183'N 079° 12.994'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Departing 1.2 miles (1.0 n.m.) off Bowmanville Dock brg. 335°	43° 51.488'N 078° 40.318'W	213° for 49 (42.6)
Wpt 2	1.7 miles (1.5 n.m.) off Port Weller Breakwaters brg. 180°.	43° 16.183'N 079° 12.994'W	

Oswego to Rochester: From departure position with Oswego West Pierhead Light bearing 102° and 0.8 miles (0.7 n.m.) off (waypoint position 43° 28.718'N 076° 31.841'W), steer 273° for 11 miles (9.6 n.m.) to position bearing 167° and 9.7 miles (8.4 n.m.) off Little Sodus Pier (waypoint position 43° 29.259'N 076° 45.000'W). Then steer 252° for 43.2 miles (37.5 n.m.) to position 2.9 miles (2.5 n.m.) off with Rochester Piers bearing 212° (waypoint position 43° 17.973'N 077° 34.116'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	0.8 miles (0.7 n.m.) off Oswego West Pierhead Light brg. 102°	43° 28.718'N 076° 31.841'W	273° for 11 (9.6)
Wpt 2	9.7 miles (8.4 n.m.) off Little Sodus Pier brg. 167°	43° 29.259'N 076° 45.000'W	252° for 43.2 (37.5)
Wpt 3	2.9 miles (2.5 n.m.) off Rochester Piers brg. 212°	43° 17.973'N 077° 34.116'W	

Bath/Picton to Oswego: From 2.5 miles (2.2 n.m.) off with Grape Island bearing 034° (waypoint position 44° 04.000'N 076° 49.000'W), steer 170° for 8.3 miles (7.2 n.m.) to False Duck Island Light. bearing 270° at 0.5 miles (0.4 n.m.) (waypoint position 43° 56.890'N 076° 47.320'W). Then steer 213° for 4.0 miles (3.5 n.m.) to 0.70 miles (0.6 n.m.) Southeast of Traverse Shoal Buoy K14 (waypoint position 43° 54.000'N 076° 50.000'W). Then steer 152° for 32.8 miles (28.5 n.m.) to position bearing 102° and 0.8 miles (0.7 n.m.) to Oswego West Pierhead Light (waypoint position 43° 28.718'N 076° 31.841'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From 2.5 miles (2.2 n.m.) off with	44° 04.000'N 076° 49.000'W	170° for 8.3 (7.2)

	Grape Is. brg. 034°		
Wpt 2	False Duck Island Lt. bearing 270° at 0.5 miles (0.4 n.m.)	43° 56.890'N 076° 47.320'W	213° for 4.0 (3.5)
Wpt 3	0.70 miles (0.6 n.m.) Southeast of Traverse Shoal Buoy K14	43° 54.000' N 076° 50.000' W	152° for 32.8 (28.5)
Wpt 4	0.8 miles (0.7 n.m.) off Oswego West Pierhead Light brg. 102°	43° 28.718'N 076° 31.841'W	

Bath/Picton to Rochester: From 2.5 miles (2.2 n.m.) off with Grape Island bearing 034° (waypoint position 44° 04.000'N 076° 49.000'W), steer 170° for 8.3 miles (7.2 n.m.) to False Duck Island Light bearing 270° at 0.5 miles (0.4 n.m.) (waypoint position 43° 56.890'N 076° 47.320'W). Then steer 213° for 4.0 miles (3.5 n.m.) to 0.70 miles (0.6 n.m.) Southeast of Traverse Shoal Buoy K14 (waypoint position 43°54.000'N 076° 50.000'W). Then steer 221° for 55.5 miles (48.2 n.m.) to position with Rochester Piers bearing 212° and 2.9 miles (2.5 n.m.) (waypoint position 43° 17.973'N 077° 34.116'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From 2.5 miles (2.2 n.m.) off with Grape Is. brg. 034°	44° 04.000'N 076° 49.000'W	170° for 8.3 (7.2)
Wpt 2	False Duck Island Lt. bearing 270° at 0.5 miles (0.4 n.m.)	43° 56.890'N 076° 47.320'W	213° for 4.0 (3.5)
Wpt 3	0.70 miles (0.6 n.m.) Southeast of Traverse Shoal Buoy K14	43°54.000'N 076° 50.000' W	221° for 55.5 (48.2)
Wpt 4	2.9 miles (2.5 n.m.) from Rochester Piers brg. 212°	43° 17.973'N 077° 34.116'W	

Rochester to Toronto: From a position with Rochester Piers bearing 212° and 2.9 miles (2.5 n.m.) (waypoint position 43° 17.973'N 77° 34.116'W) steer 295° for 10.8 (9.4) to position with Braddock Point Light bearing 180° at 1.8 miles (1.6 n.m.) (waypoint position 43° 22.016'N 077° 45.739'W). From this position, steer 280° for 37.1 miles (32.2 n.m.) to a position with Thirty Mile Point Light bearing 180° at 6.1 miles (5.3 n.m.) (waypoint position 43° 27.680'N 078° 29.234'N) then steer 280° for 44.1 miles (38.3 n.m.) to a position with Toronto Eastern Gap

Outer Harbour East Headland Light (Leslie Street Spit Lt.) bearing 007° and 2.3 miles (2 n.m.) (waypoint position 43° 34.818'N 079° 20.961'W),

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	2.9 miles (2.5 n.m.) off Rochester Piers brg. 212°	43° 17.973'N 077° 34.116'W	295° for 10.8 (9.4)
Wpt 2	1.8 miles (1.6 n.m.) off Braddock Pt. brg. 180°	43° 22.016'N 077° 45.739'W	280° for 37.1 (32.2)
Wpt 3	6.1 miles (5.3 n.m.) off Thirty Mile Pt. Lt. brg. 180°	43° 27.680'N 078° 29.234'W	280° for 44.1 (38.3)
Wpt 4	2.3 miles (2.0 n.m.) off with Toronto Eastern Gap Outer Harbour East Headland Lt. brg. 007°	43° 34.818'N 079° 20.961'W	

Oswego to Toronto: From a position with Oswego West Pierhead Light bearing 102° and 0.8 miles (0.7 n.m.) off (waypoint position 43° 28.718'N 076° 31.841'W) steer 272° for 141.8 miles (123.2 n.m.) to position with Toronto Eastern Gap Outer Harbour East Headland Light (Leslie Street Spit Lt.) bearing 007° and 2.3 miles (2 n.m.) (waypoint position 43° 34.818'N 079° 20.961'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	0.8 miles (0.7 n.m.) off Oswego West Pierhead Light brg. 102°	43° 28.718'N 076° 31.841'W	
Wpt 2	2.3 miles (2.0 n.m.) off with Toronto Eastern Gap Outer Harbour East Headland Lt. brg. 007°	43° 34.818'N 079° 20.961'W	272° for 141.8 (123.2)