

# 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 pamphlet 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.

While strict observance of these courses is recommended for all Masters, Navigating Officers of the Watch, and their vessels in the interest of 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.

For guidance in the use of this course reference booklet, miles are expressed first in statute miles followed by corresponding (nautical miles), waypoint positions are expressed in "lat/long to 3 decimal points" to correspond to ENC positioning data, lake courses are indexed under "upbound and downbound courses with the exception of Lake Michigan which is referenced as northbound and southbound."

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 courses when ice, weather, vessel traffic or other conditions are such as to warrant departure.

**LAKE CARRIERS' ASSOCIATION**

**CHAMBER OF MARINE COMMERCE**

FEBRUARY 2019 (Revision)

## **Guidance to Recommended Courses**

1. Recommended Courses are provided as voluntary guidance for courses to steer with navigation safety and application of the Collision Regulations always taking priority.
2. Statute Miles and (Nautical Miles) are referenced for all course distance and distance bearing references.
3. Course alternation positions are provided in both a “verbal text description” and in “electronic waypoint data” for use by the mariner.
4. Electronic Waypoint course alterations are expressed as “Wpt” with the departure position waypoint starting as “Wpt 1”.
5. 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 when in any meeting, overtaking or crossing situations.
6. All courses are expressed in True (T).
7. All bearings are expressed in True (T).
8. Based on the geographical location of the Great Lakes, all latitude references are North (N) and all longitudinal references are West (W).

## RECOMMENDED COURSES

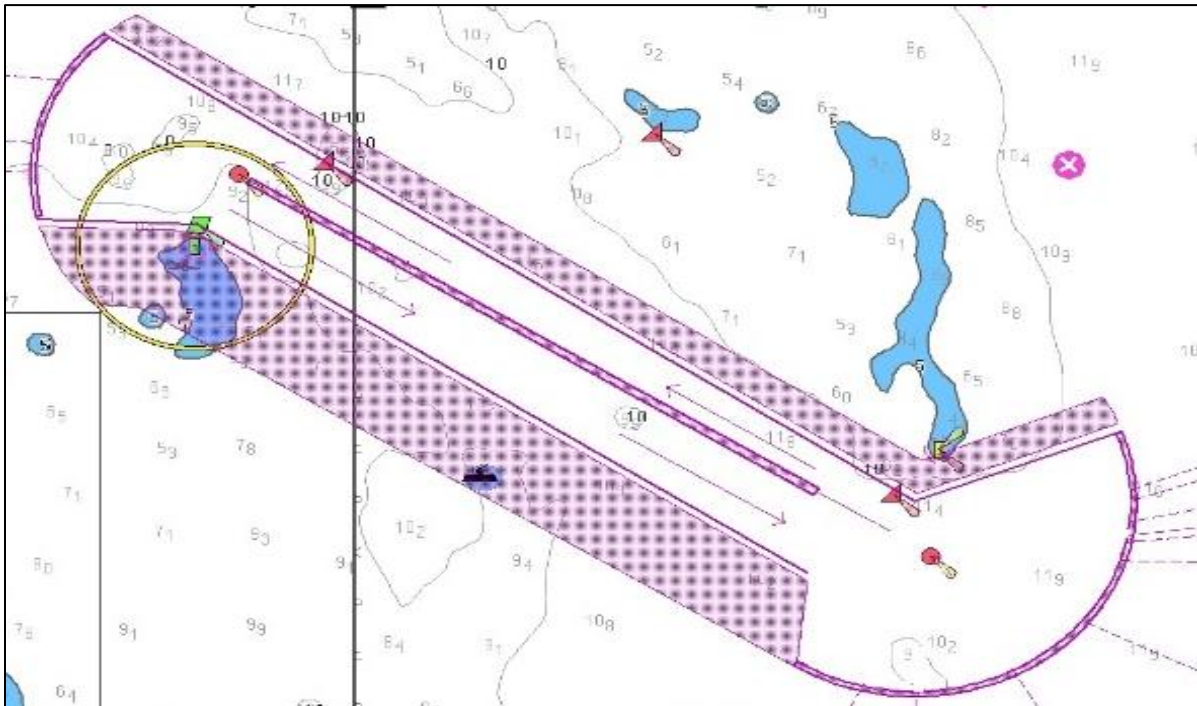
### *LAKE ERIE*

#### *Downbound*

**Departing Detroit River East Outer Channel for Southeast Shoal**, steer 164° until East Outer Channel Lt. 1 brg. 340° at 0.9 mile (0.8 n.m.) (waypoint position 41°54.116'N 083°06.066'W); then steer 095° for 27 miles (23.5 n.m.) for Pelee Passage Traffic LBB (waypoint position 41°51.816'N 082°34.450'W); then steer 122° for 8.5 miles (7.4 n.m.) to pass 1.0 mile (0.9 n.m.) south of Southeast Shoal Lt. (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. 1 brg. 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 LBB	41°51.816'N 082°34.450'W	122° for 6.8 (5.9)
Wpt 3	Southeast Shoal bearing 001° at 1.0 (0.9 n.m.) miles	41° 48.695'N 082° 27.798'W	

**Note:** The below shows in detail how traffic should be divided in the Pelee Passage-Southeast Shoal Area



**Departing Detroit River East Outer Channel to Toledo** from a position with East Outer Channel Lt. 1 brg. 340° at 0.9 mile (0.8 n.m.) (waypoint position 41°54.116'N 083°06.066'W) steer 217.5° for 5.75 miles (5.0 n.m.) to a position abeam the Maumee Fairway Buoy (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. 1 brg. 340° at 0.9 mile (0.8 n.m.)	41° 54.116'N 083° 06.066'W	217.5° for 5.8 (5.0)
Wpt 2	Abeam Maumee F/W Buoy	41° 50.150'N 083° 10. 150'W	237.8° on the Manhattan Range

**Departing Detroit River East Outer Channel to Monroe** from a position with then East Outer Channel Lt. 1 brg. 340° at 0.9 mile (0.8 n.m.) (waypoint position 41°54.116'N 083°06.066'W) steer 252° for 8.1 miles (7.0 n.m.) to a position 1.8 miles (1.5 n.m.) southeast of Monroe Outer Buoys (waypoint position 41° 51.593'N 083° 15.000'W)

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	East Outer Channel Lt. 1 brg. 340° at 0.9 mile (0.78 n.m.)	41° 54.116'N 083° 06.066'W	252° for 8.1 (7.0)
Wpt 2	1.8 (1.5) miles southeast of Monroe Outer Buoys	41° 51.983'N 083° 15.000'W	237.8° on the Monroe Channel Range

**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 220.5° 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	220.5° for 7.3 (6.3)
Wpt 2	1.75 (1.52) miles southeast of Monroe Harbor Channel Entrance	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 191.2° for 8.5 (7.4 n.m.) to the Maumee F/W Buoy (waypoint position 41° 50.150'N 083° 10. 150'W).

<b>Waypoint</b>	<b>Brg/Range</b>	<b>Lat/Long</b>	<b>Course and Distance to Steer</b>
Wpt 1	From West Outer Channel	41°56.783'N 083°09.500'W	184° for 7.7 (6.7)
Wpt 2	Maumee F/W Buoy	41° 50.150'N 083° 10. 150'W	

**Departing Toledo for Southeast Shoal and beyond**, from departure position at Maumee F/W Buoy (waypoint position 41°50.150'N 083°10.150'W), steer 073° for 9.2 miles (4.4 n.m.) to 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 092° for 21.9 miles (19.0 n.m.) for Pelee Passage Traffic LBB (waypoint position 41°51.816'N 082°34.450'W); then steer 122° for 8.5 miles (7.4 n.m.) to pass 1.0 mile (0.9 n.m.) South of Southeast Shoal Lt. (waypoint position 41° 048.695'N 082° 27.798'W)

<b>Waypoint</b>	<b>Brg/Range</b>	<b>Lat/Long</b>	<b>Course and Distance to Steer</b>
Wpt 1	Maumee F/W Buoy	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	092° for 21.9 (19.0)
Wpt 3	Pelee Passage Traffic LBB	41°51.816'N 082°34.450'W	122° for 6.8 (5.9)
Wpt 4	Southeast Shoal 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 Entrance Channel (waypoint position 41°51.983'N 083°15.000'W), steer 082° 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 092° for 21.9 miles (19.0 n.m.) for Pelee Passage Traffic LBB (waypoint position 41°51.816'N 082°34.450'W); then steer 122° for 8.5 miles (7.4 n.m.) to pass 1.0 mile (0.9 n.m.) south of Southeast Shoal Lt. (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	092° for 21.9 (19.0)
Wpt 3	Pelee Passage Traffic LBB	41°51.816'N 082°34.450'W	122° for 6.8 (5.9)
Wpt 4	Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695N 082° 27.798W	

**Southeast Shoal to Port Colborne or Buffalo** from point of departure at Southeast Shoal (waypoint position 41° 48.695; 082° 27.798), steer 071° for 135 miles (117.3 n.m.) to pass off Long Pt. 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 CIP 16 with Port Colborne West Pier Lt. brg. 015.7° 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.) to Buffalo South Harbor Lt. brg. 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 bearing 001° at 1.0 (0.9 n.m.) miles	41° 48.695'N 082° 27.798'N	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	054° for 44.4 (38.6)
Wpt 3	To Port Colborne CIP 16 with Port Colborne West Pier Lt. brg. 015.7° at 3.0 miles (2.3 n.m.)	42° 49.258'N 079° 16.235'W	
<b>Or To Buffalo</b>			
Wpt 2	Long Point Lt. brg. 332° at 8.5 miles (7.4 n.m.)	42°26.283'N 079°58.250'W	063° for 60 (52.1)
Wpt 3A	To Buffalo South Harbor Lt. brg. 090° at 2.5 miles (2.3 n.m.)	42° 50.150'N 078° 55.450'W	

**Southeast Shoal to Port Colborne or Buffalo North Shore Weather Route**

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 Lt., (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 Lt., (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.) SE of Pte. Aux Pins Lt. (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 Lt. (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 (3.7 n.m.) SE of Long Point Lt. (waypoint position 42° 30.000'N 080° 00.000'W), then steer 000° for 12.7 miles to position of the Route Junction Off Nanticoke Shoal with Nanticoke Shoal Buoy brg, 314° at 4.4 miles (3.8 n.m.) (waypoint position 42° 41.000'N 080° 00.000' W)

**Choose Port Colborne**, steer 075° for 38.3 miles (33.3 n.m.) to Port Colborne (waypoint position 42° 49.258'N 079° 16.235'W)

**OR**

**Choose Buffalo**, 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 Buffalo Junction (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° 48.695 082° 27.798	071° for 5.3 (4.6)
Wpt 2	5 miles (4.34 n.m.) East of Southeast Shoal Lt.	41° 51.150 082° 22.000	000° for 11.3 (9.8)
Wpt 3	12.9 miles (11.2 n.m.) NNE of Southeast Shoal Lt.	42° 00.000 082° 22.000	061° for 32.5 (28.2)
Wpt 4	3.1 miles (2.7 n.m.) SE of Pte. aux Pins Lt.	42° 13.460 081° 48.700	053° for 37.9 (32.9)
Wpt 5	7.7 miles (6.5 n.m.) South of Port Stanley Lt.	42° 33.120 081° 13.000	093° for 62.2 (54.1)
Wpt 6	4.3 miles (3.7 n.m.) SE of Long Point Lt.	42° 30.000 080° 00.000	000° for 14.2 (12.4)
Wpt 7	Route Junction Off Nanticoke Shoal with Nanticoke Shoal Buoy brg, 314° at 4.4 miles (3.8 n.m.)	42° 41.000 080° 00.000	Steer for Port Colborne or Buffalo
	<b>To Port Colborne</b>		
Wpt 8	To Port Colborne CIP 16 with Port	42° 49.258'N	075° for 38.3 (33.3)



	Colborne West Pier Lt. brg. 015.7° at 3.0 miles (2.3 n.m.)	079° 16.235'W	
	<b>or To Buffalo</b>		
Wpt 8A	To Buffalo to position Pt. Abino North 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 Buffalo F/W Buoy Junction	42° 50.150 078° 55.450	073° for 9.1 (7.9)

**Southeast Shoal to Sandusky** from a departure position bearing 001° and 1.0 miles (0.9 n.m.) off 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 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 Southeast Shoal 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 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.) off 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.) NNE of the Sandusky Jetty Lt (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 off 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 Southeast Shoal 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	Route Junction 5 miles (4.3 n.m.) East of Marblehead to join course to SE Shoal	41°33.420'N 082° 37.800'W	265° for 5 (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.) off Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 186.9° for 27.2 miles (23.6 n.m.) to a position bearing 219.1° at 1.4 miles (1.3 n.m.) off Huron Outer Lt. (waypoint position 41° 25.249'N 082° 31.568'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	186.9° for 27.2 (23.6)
Wpt 2	Huron Outer Lt. brg. 219.1° 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.) off Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 149.5° 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 Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	149.5° 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.) off Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 117° for 42 miles (36 n.m.) to a position bearing 329° at 2.3 miles (2.0 n.m.) off the Main Entrance Lt. (waypoint position 41°32.233'N 081°44.433'W)

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	117° for 42 (36)
Wpt 2	To 2.3 miles (2.0 n.m.) 329° of the 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.) off Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 091.3° for 61.0 miles (53 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 Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41°48.695'N 082°27.798'W	091.3° for 61 (53)
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.) off Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 084.3° for 86.3 miles (75 n.m.) to a position bearing 166.5° at 1.1 miles (1.0 n.m.) off Ashtabula (waypoint position 41° 56.134'N 080° 48.000'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	084.3° for 86.3 (75)
Wpt 2	1.1 miles (1 n.m.) off Ashtabula Piers 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.) off Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 082.4° for 98.9 miles (85.9 n.m.) to a position bearing 169.4° at 1.5 miles (1.3 n.m.) off Conneaut Piers. (waypoint position 42° 00.133'N 080° 33.783'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	082.4° for 98.9 (85.9)
Wpt 2	1.5 miles (1.3 n.m.) off Conneaut Piers 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.) off Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W), steer 077.8° for 123.7 miles (107.5 n.m.) to a position bearing 180° at 1.7 miles (1.5 n.m.) off Presque Isle Lt. (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 Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	077.8° for 123.7 (107.5)
Wpt 2	1.75 miles (1.5 n.m.) off 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 on Southeast Shoal to Port Colborne recommended course at Long Point Lt. 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 Lt. bearing 270° at 2.3 miles (2.0 n.m.) (waypoint position 42° 32.943'N 079° 59.882'W); then steer 331° for 13.2 miles (11.5 n.m.) to channel approach for Nanticoke with Port Dover Breakwater Lt. 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	331° for 13.2 (11.5)
Wpt 3	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	

**Nanticoke to Port Colborne** from departure position exiting Nanticoke Channel with Port Dover Breakwater Lt. bearing 318° at 5.9 miles (5.11 n.m.) (waypoint position 42° 43.009'N 080° 07.489'W), steer 109° for 6.8 miles (5.9 n.m.) to Route Junction Off Nanticoke Shoal with Nanticoke Shoal Buoy brg, 314° at 4.4 miles (3.8 n.m.) (waypoint position 42°41.000'N 080° 00.000'W), then steer 075° for 38.3 miles (33.3 n.m.) to Port Colborne CIP 16 with Port Colborne West Pier Lt. brg. 016° 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 Breakwater 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	Route Junction 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	075° for 38.3 (33.3)
Wpt 2	Port Colborne CIP 16 with Port Colborne West Pier Lt. brg. 016° 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 Channel brg. 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 Main Entrance Lt (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 Channel brg. 007° 0.9 miles (0.76 n.m.)	42°14.533'N 081°54.616'W	169° for 49.5 (43)
Wpt 2	To 2.3 miles (2.0 n.m.) 329° of the Cleveland 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.) from Port Stanley West Pier (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 Main Entrance Lt (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 Pier 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.) 329° of the Cleveland 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.) from Port Stanley West Pier (waypoint position 42° 38.842'N 081° 12.761'W), steer 156° for 53.5 miles (46.5 n.m.) to a position off Ashtabula Outer Piers (waypoint position 41° 56.134'N 080° 48.009'W)

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Port Stanley West Pier 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.) off Ashtabula Piers 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.) from Port Stanley West Pier (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 Piers brg. 169.4° (waypoint position 42°00.133'N 080°33.783'W)

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	From Port Stanley West Pier 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.) off Conneaut Piers brg. 169.4°	42°00.133'N 080°33.783'W	

**Marblehead to Lorain:** From 0.35 miles (0.30) 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) 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) 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 342° from Lorain Brkw. (waypoint position 41°34.875'N 082° 14.300'W) then steer 096 for 26.0 miles (22.6 n.m.) to a position 2.3 miles (2.0 n.m.) 329° of the Cleveland Main Entrance Lt. (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) North of Marblehead Stone Dock	41°33.044'N 082 43.607 W	085° for 25.4 (22.1)
Wpt 2	To 7.3 miles (6.3 n.m.) 342° from Lorain Brkw.	41°34.875'N 082°14.300'W	096° for 26.0 (22.6)
Wpt 3	To 2.3 miles (2.0 n.m.) 329° of the Main Entrance Lt	41°32.233'N 081°44.433'W	

**For Ports further East:** steer 256° for 30.2 miles (26.2 n.m.) to a point 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 Route. Then steer 064° for various mileages to intersect the courselines from SE Shoal to your desired destination. At the point located 5 Miles N of Presque Isle Lt. 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 North Pier Lt. brg. 230.9° 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) North of Marblehead Stone Dock	41°33.044'N 082 43.607 W	085° for 25.4 (22.1)
Wpt 2	To 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	To 10.1 miles (8.8 n.m.) 024° from the Cleveland Intake Crib	41° 40.947'N 081° 40.224'W	064° for 17.3(15.0) 064° for 37.3(32.4) 064° for 45.6(39.6) 064° for 85.5(74.3)
Wpt 4 Fairport	South Shore Route Intersection to Fairport 064° for 17.3 miles (15.0 n.m.)	41°47.617'N 081°22.117'W	091.3° for 4.3 (3.7)
Wpt 5 Fairport	To Fairport Harbor Lake Approach Channel	41°47.483'N 081°16.900'W	

Wpt 4 <b>Ashtabula</b>	South Shore Route Intersection to Ashtabula 064° for 37.2 miles (32.4 n.m.)	41°55.134'N 081°01.100'W	084.3° for 11.3 (9.8)
Wpt 5 <b>Ashtabula</b>	1.1 miles (1 n.m.) off Ashtabula Piers brg. 166.5°	41°56.134'N., 080°48.000'W	
Wpt 4 <b>Conneaut</b>	South Shore Route Intersection to Conneaut 064° for 45.6 miles (39.6 n.m.)	41°58.284'N 080°52.422'W	082.3° for 16.1 (14.0)
Wpt 5 <b>Conneaut</b>	1.5 miles (1.3 n.m.) off Conneaut Piers brg. 169.4°	42°00.133'N 080°33.783'W	
Wpt 4 <b>Colborne</b>	Junction at Erie, PA 5 miles (4.3 n.m.) NE 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 <b>Colborne</b>	To Port Colborne CIP 16 with Port Colborne West Pier Lt. brg. 015.7° at 3.0 miles (2.3 n.m.)	42° 49.258'N 079° 16.235'W	
Wpt 4 <b>Buffalo</b>	Junction at Erie, PA 5 miles (4.3 n.m.) NE 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 <b>Buffalo</b>	2.0 miles (1.7 n.m.) SW of Buffalo Harbor Entrance	42°50.150'N., 078°55.450'W	
Wpt 4 <b>Erie</b>	Junction at Erie, PA 5 miles (4.3 n.m.) NE of Presque Isle Light	42°13.250'N 080°10.650'W	116° for 7.6 (6.6)
Wpt 5 <b>Erie</b>	Erie North Pier Lt. brg. 230.9° 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 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	From Sandusky Moseley Entrance Channel	41°30.383'N 082 39.766' W	094° for 23.9 (20.8)
Wpt 2	To Lorain Harbor Entrance Channel	41°28.916'N 082°12.183'W	



**For Cleveland** From Sandusky 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 Route Junction NNW of Lorain brg 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 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	From Sandusky Moseley Entrance Channel	41°30.383'N 082 39.766' W	076° for 22.6 (19.6)
Wpt 2	Route Junction 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	To 2.3 miles (2.0 n.m.) 329° of the Main Entrance Lt	41°32.233'N 081°44.433'W	

**For Ports further East** From Sandusky Moseley Entrance Channel (waypoint position 41°30.383'N 082 39.766' W) steer 076° for 30.2 miles (26.2 n.m.) to a point 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 Eastbound Southshore Route. Then steer 064° for various mileages to intersect the courselines from SE Shoal to your desired destination. At the point located 5 Miles N or Presque Isle Lt. steer 056° for 77 miles (66.9 n.m.) for Buffalo (waypoint position 42°50.150'N 078°55.450'W) or steer 048° for 62 miles (53.9 n.m.) for Port Colborne (waypoint position 42° 49.258'N 079° 16.235'W) or steer 116° for 7.6 miles (6.6 n.m.) to Erie North Pier Lt. brg. 230.9° 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 Sandusky Moseley Entrance Channel	41°33.044'N 082 43.607' W	076° for 22.6 (19.6)
Wpt 2	Route Junction 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	Route Junction 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) 064° for 37.3(32.4) 064° for 45.6(39.6) 064° for 85.5(74.3)
Wpt 4 Fairport	South Shore Route Intersection to Fairport 064° for 17.3 miles (15.0 n.m.)	41°47.617'N 081°22.117'W	091.3° for 4.3 (3.7)

Wpt 5 <b>Fairport</b>	To Fairport Harbor Lake Approach Channel	41°47.483'N 081°16.900'W	
Wpt 4 <b>Ashtabula</b>	South Shore Route Intersection to Ashtabula 064° for 37.2 miles (32.4 n.m.)	41°55.134'N 081°01.100'W	084.3° for 11.3 (9.8)
Wpt 5 <b>Ashtabula</b>	1.1 miles (1 n.m.) off Ashtabula Piers brg. 166.5°	41°56.133'N 080°48.016'W	
Wpt 4 <b>Conneaut</b>	South Shore Route Intersection to Conneaut 064° for 45.6 miles (39.6 n.m.)	41°58.284'N 080°52.422'W	082.3° for 16.1 (14.0)
Wpt 5 <b>Conneaut</b>	1.5 miles (1.3 n.m.) off Conneaut Piers brg. 169.4°	42°00.133'N 080°33.783'W	
Wpt 4 <b>Colborne</b>	Junction at Erie, PA 5 miles (4.3 n.m.) NE 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 <b>Colborne</b>	To Port Colborne CIP 16 with Port Colborne West Pier Lt. brg. 015.7° at 3.0 miles (2.3 n.m.)	42° 49.258'N 079° 16.235'W	
Wpt 4 <b>Buffalo</b>	Junction at Erie, PA 5 miles (4.3 n.m.) NE 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 <b>Buffalo</b>	2.0 miles (1.7 n.m.) SW of Buffalo Harbor Entrance	42°50.150'N 078°55.450'W	
Wpt 4 <b>Erie</b>	Junction at Erie, PA 5 miles (4.3 n.m.) NE of Presque Isle Light	42°13.250'N 080°10.650'W	116° for 7.6 (6.6)
Wpt 5 <b>Erie</b>	Erie North Pier Lt. brg. 230.9° at 1.7 miles (1.5 n.m.)	42° 10.289'N 080° 02.748'W	

**Lorain to Port Colborne** from a departure position at the Lorain Harbor Lake Approach Channel (waypoint position 41° 28.916'N 082° 12.183'W) steer 345° to the Route Junction 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 a position off Long Point 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 CIP 16 with Port Colborne West Pier brg. 015.7° 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	Route Junction 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	From 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 West Pier brg. 015.7° 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 149° at 2.3 miles (2.0 n.m.) off Cleveland West Pier (waypoint position 41° 32.233'N 081° 44.433'W), steer 019° for 10.7 miles (9.3 n.m.) to a position bearing 024° at 10.1 miles (8.8 n.m.) from the Cleveland Crib (waypoint position 41°40.947'N 081°40.224'W); then steer 059° for 102 miles (88.6 n.m.) to a position off Long Point bearing 332° at 8.5 miles (7.4 n.m.) (waypoint position 42° 26.283'N 079° 58.250'W); then steer 054° for 45.1 miles (39.2 n.m.) to CIP 16 bearing 015° at 3.0 miles (2.6 n.m.) off Port Colborne West Pier Lt. (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° of the Main Entrance Lt	41°32.233'N 081°44.433'W	019° for 10.7 (9.3)
Wpt 2	Route Junction 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	From Long Point Lt. brg. 332° at 8.5 miles (7.4 n.m.)	42° 26.283'N 079° 58.250'W	054° for 45.1 (39.2)
Wpt 4	Port Colborne CIP 16 with Port Colborne West Pier Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	

**Erie to Buffalo** from departure position bearing 230.9° at 1.7 miles (1.5 n.m.) off Erie North Pier Lt. (waypoint position 42° 10.280'N 080° 12.748'W), steer 051° for 73.4 miles (63.8 n.m.) to Buffalo Entrance F/W Buoy (waypoint position 42° 50.015'N 078° 55.450'W)

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt1	From Erie North Pier Lt. brg. 230.9° at 1.7 (1.46 n.m.) miles	42° 10.289'N 080° 02.748 'W	051° for 73.4 (63.8)
Wpt 2	Off Buffalo Entrance F/W Buoy	42° 50.150'N 078° 55.450'W	

**Erie to Port Colborne** from a departure position bearing 230.9° at 1.7 miles (1.5 n.m.) off Erie North Pier Lt. (waypoint position 42° 10.278'N 080° 02.478'W), steer 41.4° for 69.1 miles (60 n.m.) to Port Colborne CIP 16 with Port Colborne West Pier Lt. bearing 015.7° 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	From Erie North Pier Lt. brg. 230.9° at 1.7 miles (1.5 n.m.)	42° 10.280'N 080° 12.748'W	41.4° for 69.1 (60)
Wpt 2	Port Colborne CIP 16 with Port Colborne West Pier Lt. 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.) off Buffalo South Harbor Lt. #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.) from Point Abino (waypoint position 42° 47.850'N 079° 05.770'W); then steer 280° for 9.0 miles (7.8 n.m.) to CIP 16 and a position bearing 015.7° at 3.0 miles (2.6 n.m.) off Port Colborne West Pier Lt (waypoint position 42° 49.258'N 079° 16.235'W)

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	Buffalo South Harbor Lt. 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 North 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 West Pier Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	

**RECOMMENDED COURSES**

***LAKE ERIE***

***Upbound***

**Port Colborne to Southeast Shoal** from a position off Port Colborne CIP 16 with Port Colborne West Pier Lt. bearing 015° and 3.0 miles (2.6 n.m.) (waypoint position 42° 49.258'N 079° 16.235'W), steer 241° for 44 miles (38.2 n.m.) to pass not over 3 miles (2.6 n.m.) off Long Point (waypoint position 42° 30.800'N 080° 01.133'W), and then steer 249° for 134 miles (116.4 n.m.) to a position bearing 001° and 1.0 miles (0.9 n.m.) off Southeast Shoal Light (waypoint position 41° 48.695'N 082° 27.798'W).

<b>Waypoint</b>	<b>Brg/Range</b>	<b>Lat/Long</b>	<b>Course and Distance to Steer</b>
Wpt 1	Port Colborne CIP 16 with Port Colborne West Pier Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	241° 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	249° for 134 (116.4)
Wpt 3	To 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 South Harbor Lt. brg. 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 Port Colborne to Southeast Shoal course at Long Point position.

<b>Waypoint</b>	<b>Brg/Range</b>	<b>Lat/Long</b>	<b>Course and Distance to Steer</b>
Wpt 1	Buffalo South Harbor Lt. 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	249° for 134 (116.4)
Wpt 3	To Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

## Lake Erie North Shore Weather Route

### From Buffalo

From departure position at Buffalo South Harbor Lt. brg. 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 a position with Pt. Abino North 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 North Shore Weather Route at the Route Junction off Nanticoke Shoal.

### From Port Colborne

From Departure at Port Colborne CIP 16 with Port Colborne West Pier Lt. brg. 015.7° 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 North Shore Weather Route at the Route Junction off Nanticoke Shoal.

### Continuing

From the Route Junction Off Nanticoke Shoal with Nanticoke Shoal Buoy brg. 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 a position 4.3 (3.7 n.m.) SE of Long Point Lt (waypoint position 42° 30.000'N 080° 00.000'W). Then steer 273° for 62.2 miles (54.1 n.m.) to a position 7.7 miles (6.5 n.m.) South of Port Stanley Lt. (waypoint position 42° 33.120'N 081° 13.000'W) and then steer 233° for 37.9 miles (32.9 n.m.) to 3.1 miles (2.7 n.m.) SE of Pte. aux Pins Lt. (waypoint position 42° 13.460'N 081° 48.700'W). From there steer 241° for 32.5 miles (28.2 n.m.) to position at 12.9 miles (11.2 n.m.) miles NNE of Southeast Shoal Lt. then steer 180° for 11.3 miles (9.8 n.m.) to 5 miles (4.3 n.m.) East of Southeast Shoal Lt. (waypoint position 41° 50.150'N 082° 22.000'W). From there steer 251° for 5.3 miles (4.6 n.m.) to join the regular upbound route at 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 South Harbor Lt. 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 North at 2.5 miles (2.2 n.m.)	42° 47.850'N 079° 05.770'W	260° for 46.7 (40.6)
	<b>Continue at Wpt 2</b>		
Wpt 1	Port Colborne CIP 16 with Port Colborne West Pier 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)
	<b>Continue at Wpt 2</b>		

Wpt 2	Route Junction 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	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.) miles 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	

**Port Colborne to Buffalo** from departure position at CIP 16 with Port Colborne West Pier Lt. bearing 015.7° 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 off Pt. Abino North 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 South Harbor Lt bearing 090.1° 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 West Pier 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 South Harbor Lt. 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 CIP 16 with Port Colborne West Pier Lt. bearing 015.7° 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)

<b>Waypoint</b>	<b>Brg/Range</b>	<b>Lat/Long</b>	<b>Course and Distance to Steer</b>
Wpt 1	Port Colborne CIP 16 with Port Colborne West Pier 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 CIP 16 with Port Colborne West Pier Lt. brg. 015.7° 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 the Route Junction Off Nanticoke Shoal with Nanticoke Shoal Buoy brg, 314° at 4.4 miles (3.8 n.m.)(waypoint position 42°41.000'N 080° 00.000'W) the steer 289° for 6.8 miles (5.9 n.m.) to the Nanticoke Channel Approach with Port Dover Breakwater Lt brg. 318° at 5.9 miles (5.1 n.m.) (waypoint position 42°43.009'N 080° 07.489'W)

<b>Waypoint</b>	<b>Brg/Range</b>	<b>Lat/Long</b>	<b>Course and Distance to Steer</b>
Wpt 1	Port Colborne CIP 16 with Port Colborne West Pier Lt. brg. 015.7° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	255° for 38.3 (33.3)
Wpt 2	Route Junction 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	289° for 6.8 (5.9)
Wpt 3	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	



**Nanticoke to Long Point** from a departure position off Nanticoke Channel with Port Dover Harbour 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 a position off Long Point with Long Point Lt 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 CIP with Long Point Lt. 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 CIP 16 with Port Colborne West Pier Lt. bearing 015.1° 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 North Pier 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 West Pier Lt. brg. 015° at 3.0 miles (2.6 n.m.)	42° 49.258'N 079° 16.235'W	221.4° for 69.1 (60)
Wpt 2	Erie North Pier Lt. brg. 230.9° at 1.7 miles (1.5 n.m.)	42° 10.289'N 080° 12.748'W	

**Buffalo to Erie** from a departure position Off Buffalo South Harbor Lt. brg. 090° at 2.5 miles (2.2 n.m.) (waypoint position 42° 50.150'N 078° 55.450'W), steer 231.2° for 73.4 (63.8 n.m.) miles to a position off Erie North Pier Lt. bearing 230.9° 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 South Harbor Lt. 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 North Pier Lt. brg. 230.9° 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 CIP 16 Port Colborne with Port Colborne West Pier Lt. bearing 015.1° 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 Route Junction at Erie, PA at 5.0 miles (4.3 n.m.) NE 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	Port Colborne CIP 16 with Port Colborne West Pier 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 at Erie, PA at 5.0 miles (4.3 n.m.) NE 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 off Buffalo South Harbor Lt. brg. 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 Route Junction at Erie, PA at 5.0 miles (4.3 n.m.) NE 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 South Harbor 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.) NE 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. 169.4°	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 166.5° (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. 166.5°	41° 56.134'N 080° 48.000'W	

**To Fairport**, steer 244° for 63.0 miles (54.7 n.m.) to point 3.8 (3.3 n.m.) miles 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 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
			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 a position 10.1 miles (8.8 n.m.) from Cleveland Crib (waypoint position 41° 40.947'N 081°40.224'W); then steer 199° for 10.7 miles (9.3 n.m.) to arrive off Cleveland with Cleveland West Pier bearing 329° at 2.3 miles (2.0 n.m.) (waypoint position 41° 32.233'N 081°44.433'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
			244.4° for 85.5 (74.3)
Wpt 3	10.1 (8.8 n.m.) miles 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° of the Main Entrance Lt	41°32.233'N 081°44.433'W	

**To Lorain**, steer 244° for 85.5 miles (74.3 n.m.) to a point 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 Route Junction NNW of Lorain brg 342° at 7.3 miles (6.3 n.m.) (waypoint position 41°34.875'N 081°14.300'W). Then turn to 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	Route Junction 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 a point 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 Route Junction NNW of Lorain brg 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 the Huron Harbor Lake Approach Channel with Huron Outer Lt. brg. 219.1° 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	Route Junction 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. 219.1° 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 a point 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 Moseley Entrance Channel	41° 30.383'N 082° 39.766'W	

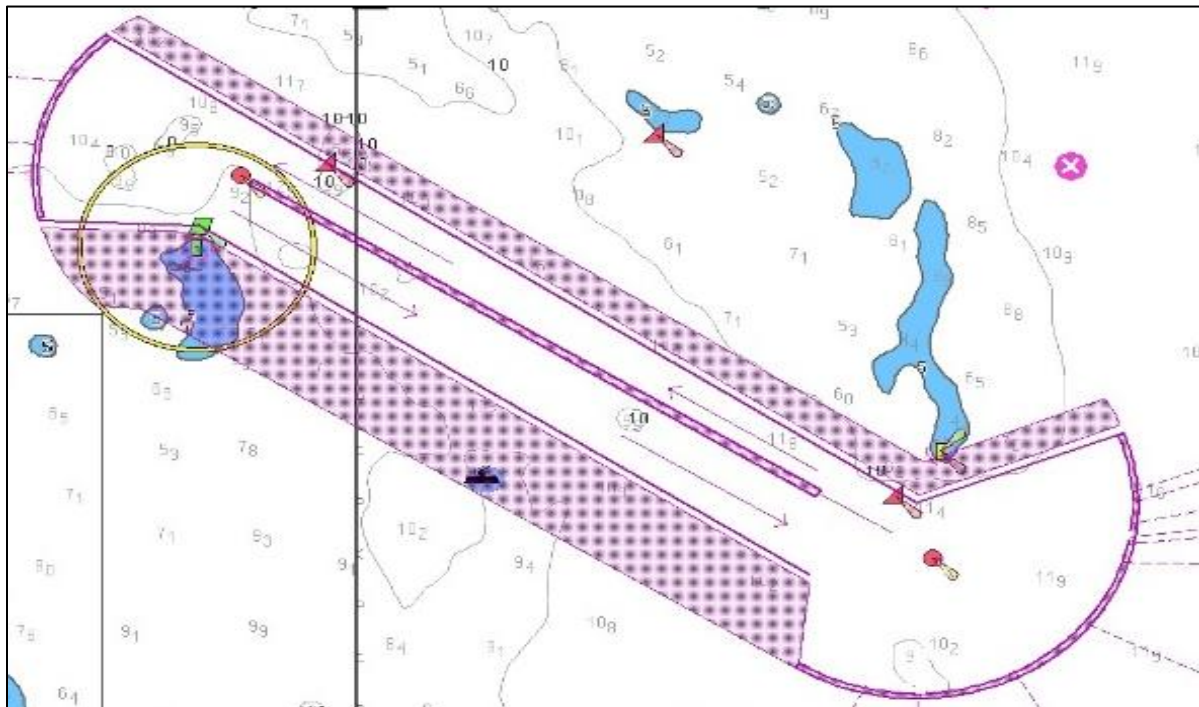
**To Marblehead**, steer 244° for 85.5 miles (74.3 n.m.) to a point 10.1 miles (8.8 n.m.) NNE of the Cleveland Intake Crib (waypoint position 41° 40.947'N 081° 40.224'W); then steer 256° for 30.2 miles (26.3 n.m.) to the Route Junction NNW of Lorain brg 342° at 7.3 miles (6.3 n.m.) (waypoint position 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 a position 1 mile (0.9 n.m.) south of Southeast Shoal Lt. (waypoint  $41^{\circ} 48.695'N$   $082^{\circ} 27.798'W$ ), steer  $302^{\circ}$  for 8.5 miles (7.4 n.m.) to a position  $325.75^{\circ}$  and 1.8 miles (1.5 n.m.) from Pelee Passage Lt. (waypoint position  $41^{\circ}52.583'N$   $082^{\circ}36.116'W$ ); then steer  $275^{\circ}$  for 25.2 miles (21.9 n.m.) to a position 1 mile (0.9 n.m.) off East Outer Channel Lt. 1 (waypoint position  $41^{\circ}54.741'W$   $083^{\circ}05.282'W$ ).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	To Southeast Shoal bearing $001^{\circ}$ at 1.0 miles (0.9 n.m.)	$41^{\circ} 48.695$ $082^{\circ} 27.798$	$302^{\circ}$ for 8.5 (7.4.)
Wpt 2	1.8 miles (1.5 n.m.) off Pelee Passage Lt. brg. $325.75^{\circ}$	$41^{\circ}52.583'N$ $082^{\circ}36.116'W$	$275^{\circ}$ for 25.2 (21.9)
Wpt 3	1 mile (0.9 n.m.) off East Outer Channel Lt. 1	$41^{\circ}54.741'W$ $083^{\circ}05.282'W$	

**Note:** The below shows in detail how traffic should be divided in the Pelee Passage-Southeast Shoal Area



**Departing Toledo to Detroit River Entrance** from Abeam the Maumee F/W Buoy (waypoint position 41° 50.150'N 083° 10. 150'W) steer 037° for 5.8 miles (5.0 n.m.) to a position with East Outer Channel Lt. 1 brg. 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	Abeam Maumee F/W Buoy	41°50.150'N 083° 10. 150'W	037° for 5.8 (5.0)
Wpt 2	East Outer Channel Lt. 1 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 a departing position 1.8 miles (1.5 n.m.) southeast of Monroe Outer Buoys (waypoint position 41° 51.983'N 083° 15.000'W) steer 072° for 8.1 miles (7.0 n.m.) to a position with East Outer Channel Lt. 1 brg. 340° at 0.9 mile (0.78 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 Outer Buoys	41°51.983'N 083° 15.000'W	072 for 8.1 (7.0)
Wpt 2	East Outer Channel Lt. 1 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 Lt. (waypoint 41°51.816'N 082°34.450'W) then steer 272° 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 to 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° 48.695 082° 27.798	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	272° 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 to destination as listed below.

**For Toledo** steer 253° for 9.2 miles (8.0 n.m.) to the Maumee F/W Buoy (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	Maumee F/W Buoy	41°50.150'N 083°10.150'W	

**For Monroe** steer 267° for 13 miles (11.3 n.m.) to 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 Outer Buoys	41°51.983'N 083° 15.000'W	

**Sandusky to Southeast Shoal** from the Sandusky Moseley Entrance Channel (waypoint position 41°30.383'N 082° 39.766'W), steer 026.1° for 23.5 miles (20.4 n.m.) to Southeast Shoal 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 Moseley Entrance Channel	41°30.383'N 082° 39.766'W	026.1° for 23.5 (20.4)
Wpt 2	To Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	



**Marblehead to Southeast Shoal** from a 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 Lt. (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 bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

**Huron to Southeast Shoal** from a departing position bearing 219.1° and 1.4 miles (1.3 n.m.) from Huron Outer Lt. (waypoint position 41° 25.249'N 082° 31.568'W), steer 007° for 27.2 miles (23.6 n.m.) to Southeast Shoal 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. 219.1° at 1.4 (1.3 n.m.) miles	41° 25.249'N 082° 31.568'W	007° for 27.2 (23.6)
Wpt 2	To Southeast Shoal 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 329.5° for 26.5 miles (23 n.m.) To 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
Wpt 1	Lorain Harbor Lake Approach Channel	41°28.916'N 082°12.183'W	329.5° for 26.5 (23.0)
Wpt 2	To Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

**Cleveland to Southeast Shoal** From departure at 2.3 miles (2.0 n.m.) 329° from the Cleveland Main Entrance Lt (waypoint position 41°32.233'N 081°44.433'W) steer 296° for 41.9 miles (36.4 n.m.) to a position bearing 001° at 1.0 miles (0.9 n.m.) to Southeast Shoal (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° of the Main Entrance Lt	41°32.233'N 081°44.433'W	296° for 41.9 (36.4)
Wpt 2	To Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

**Fairport to Southeast Shoal** from a departure position off Fairport Harbor Lake Approach Channel (waypoint position 41°47.483'N 081°16.900'W), steer 271.3° for 61.0 miles (53.0 n.m.) to a position bearing 001° at 1.0 miles (0.9 n.m.) from Southeast Shoal (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	271.3° for 61 (53)
Wpt 2	To Southeast Shoal 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 1.1 miles (1 n.m.) off Ashtabula Piers brg. 166.5° (waypoint position 41° 56.134'N 080° 48.000'W), steer 264° for 86.3 miles (75 n.m.) to a position bearing 001° at 1.0 miles (0.9 n.m.) from Southeast Shoal (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.) off Ashtabula Piers brg. 166.5°	41° 56.134'N 080° 48.000'W	264 for 86.3 (75)
Wpt 2	To Southeast Shoal 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 (waypoint position 42°00.133'N 080°33.783'W), steer 262.4° for 98.9 miles (85.9 n.m.) to a position bearing 001° at 1.0 miles (0.9 n.m.) from Southeast Shoal (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 Piers brg. 169.4°	42°00.133'N 080°33.783'W	262.4 for 98.9 (85.9)
Wpt 2	To Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

**Erie to Southeast Shoal** from a departure position off Erie North Pier Lt. brg. 230.9° at 1.7 miles (1.5 n.m.) (waypoint position 42° 10.289'N 080° 02.748'W), steer 291° for 3.6 miles (3.1 n.m.) to a position off Presque Isle (waypoint position 42° 11.468'N 080° 06.912'W); then steer 258° for 124 miles (107.7 n.m.) to a position bearing 001° at 1.0 miles (0.9 n.m.) from Southeast Shoal (waypoint position 41° 48.695'N 082° 27.798'W).

Waypoint	Brg/Range	Lat/Long	Course and Distance to Steer
Wpt 1	off Erie North Pier Lt. brg. 230.9° at 1.7 miles (1.5 n.m.)	42° 10.289'N 080° 02.748'W	291° 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	258° for 124 (107.7)
Wpt 3	To Southeast Shoal bearing 001° at 1.0 miles (0.9 n.m.)	41° 48.695'N 082° 27.798'W	

**Cleveland to Port Stanley** from a departure position 2.3 miles (2.0 n.m.) 329° from the Cleveland Main Entrance Lt (waypoint position 41°32.233'N 081°44.433'W) steer 019° for 81.3 miles (70.6 n.m.) to a position bearing 355° at 0.6 miles (0.5 n.m.) from Port Stanley West Pier (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 Pier 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 Main Entrance Lt (waypoint position 41°32.233'N 081°44.433'W) steer 349° for 49.5 miles (43 n.m.) to Rondeau Bay Entrance Channel brg. 007° 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° 0.9 miles (0.8 n.m.)	42°14.533'N 081°54.616'W	

**Ashtabula to Port Stanley** from a position off Ashtabula Outer Piers (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.) from Port Stanley West Pier (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 Piers brg. 166.5°	41° 56.134'N 080° 48.000'W	336° for 53.3 (46.3)
Wpt 2	From Port Stanley West Pier 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 323.2° for 55.6 miles (48.3 n.m.) to a position bearing 355° at 0.6 miles (0.5 n.m.) from Port Stanley West Pier (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	323.2 for 55.6 (48.3)
Wpt 2	Port Stanley West Pier brg. 355° at 0.6 miles (0.5 n.m.)	42° 38.842'N 081° 12.761'W	