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LIST
OF
LIGHTS AND FOG SIGNALS
OF THE
UNITED STATES
AND THE
DOMINION OF CANADA
ON THE
NORTHERN LAKES AND RIVERS
AND OF THE
UNLIGHTED AIDS TO NAVIGATION OF THE
UNITED STATES ON THOSE WATERS

CORRECTED TO JULY 15

1910

*Edited by Max Hansman
and A. B. Simons*



WASHINGTON
GOVERNMENT PRINTING OFFICE
1910

RICHELIEU RIVER.

Canadian Department of Marine and Fisheries Charts XXIII and VII, and U. S. Hydrographic Office Charts 1355 and 1354.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
<i>Range.</i> Lacolle Front Light (C.).		White.....	Octagonal, wood, on crib.	Rear light, SE ⁷ ly.....	<i>Fed.</i>	Reflector light, fixed white; 7 feet above water; visible 8 miles. On W ⁷ ly bank of river. Lat. N, 45° 04' 40"; long. W, 73° 18' 15".
Lacolle Rear Light (C.).		White.....	Octagonal, wood.....			Reflector light, fixed white; 18 feet above water; visible 6½ miles. Range line indicates channel to Sturgeon Point.
Lacolle Railway Bridge Light (C.).				Ash Island light, 127° 30', 1,040 feet (¾ mile).		Fixed white and red lights. On pivot pier. Pass on either side of pivot pier. At night center of swing is marked by a light, on top of ironwork, which shows white when draw is open, and red when closed. Each of four guide piers is marked by a white light. Maintained by Canada Atlantic Railway. Lat. N, 45° 06' 08"; long. W, 73° 19' 09".
Ash Island Light-Station (C.).		White.....	Square, wood, dwelling attached.			Reflector light, fixed white; 44 feet above water; visible 4½ miles. On S ⁷ ly end of island. Lat. N, 45° 03' 00"; long. W, 73° 19' 00".
Bloody Island Light (C.).		White, black pier.	Octagonal, wood on pier.			Reflector light, fixed white; 12 feet above water; visible 4½ miles. About ¼ mile above Ash Island. Lat. N, 45° 02' 15"; long. W, 73° 19' 2".

LAKE CHAMPLAIN.

ROUSE POINT, N. Y., TO BURLINGTON, VT.

Coast and Geodetic Survey Charts 551, 553, and 554.

Windmill Point Light-Station (Vt.).		Dark blue.....	Tower, 40 feet high.....			6th-order fixed white light; 52 feet above water; visible 13 miles. On Windmill Point, opposite Rouse Point. Lat. N, 44° 58' 33"; long. W, 73° 20' 32".
<i>Breakwater</i> Rouse Point Pierhead Light (N. Y.). <i>Sept 2/11</i>		Brown.....	Lantern on post on concrete block.	Vermont Central Railroad bridge, center of draw, 350° 20'.		Fixed red lens-lantern light; 32 feet above water. On outer end of breakwater making off Stony Point, S ⁷ ly of Rouse Point. Lat. N, 44° 58' (26"); long. W, 73° 21' (04").
Motte Reef Buoy.....	5-1	Black.....	3d-class spar.....	Isle la Motte Light-House, 193° 15'. Pointe au Fer, tangent, 271° 45'. Rouse Point Pierhead Light, 346° 15'.	11	On W ⁷ ly side of Motte Reef; portions bare at low water; rocky bottom.
Pointe au Fer Reef Buoy.....	4-2	Red.....	3d-class spar.....	Windmill Point Light-House, 3° 30'. Isle la Motte Light-House, 174° 15'. Pointe au Fer, left tangent, 337° 45'.	13	Marks E ⁷ ly side of rocky reef making off SSE ⁷ ly from Pointe au Fer.
Ferryall Reef Buoy.....	6-4	Red.....	3d-class spar.....	Pointe au Fer, right tangent, 21° 30'. Isle la Motte Light-House, 97° 00'. Fisk Point, 178° 30'.	13	Marks E ⁷ ly side of rocky reef, partly bare at low water, making off N'd and E'd from Ferryall Point.
Isle la Motte Light-Station (Vt.).		Red; white dwelling.	Tower, 25 feet high; 1½-story dwelling.	Windmill Point Light-House, 1° 40', 4½ miles.		6th-order fixed white light; 46 feet above water; visible 13 miles. On W ⁷ ly side of N ⁷ ly end of Isle la Motte. Lat. N, 44° 54' 23"; long. W, 73° 20' 38".
Pointe aux Roches Light-Station (N. Y.).		Gray.....	Limestone tower, 50 feet high; dwelling, wood.			6th-order fixed white light; 54 feet above water; visible 13 miles. On Pointe aux Roches, W ⁷ ly shore of lake, opposite S ⁷ ly point of Isle la Motte. Lat. N, 44° 47' 58"; long. W, 73° 21' 40".
Pointe aux Roches Shoal Buoy.....		Red and black horizontal stripes.	3d-class spar.....	The Head, 7° 30'. Hills Island, right tangent, 25° 00'. Pointe aux Roches Light-House, 280° 30'.	13	On N ⁷ ly side of shoal; rocky bottom.
<i>Buoy 10</i> <i>South Head Light</i> Bull Shoal Buoy.....		Red and black horizontal stripes.	3d-class spar.....	Bow-Arrow Point, 91° 00'. Rocky Point, 286° 30'. Pointe aux Roches Light-House, 338° 00'.	12	On S ⁷ ly end of Middle Reef; rocky bottom. Local knowledge necessary for channel between shoal and Vermont shore.
Sister Shoal Buoy.....		Red and black horizontal stripes.	3d-class spar.....	Tobias Landing Dock, 77° 30'. Gravelly Point, 240° 00'. Southern Sister, left tangent, 330° 30'.	18	On E ⁷ ly side of rocky shoal, with 3½ feet of water on it; ¼ mile S'd of Sisters Islands and off Tobias Landing.
<i>Breakwater</i> Gordon Landing Pierhead Light (Vt.).		White.....	Lantern on post.....	Sawyers Island, right tangent, 183° 45'. Crab Island, right tangent, 22° 45'. Cumberland Head Light-House, 277° 15'.		Fixed white post-lantern light; 32 feet above water; on NW ⁷ ly end of Gordon Landing Breakwater. Lat. N, 44° 21' (18"); long. W, 73° 21' (00").
Cumberland Head Light-Station (N. Y.).		Dark blue.....	Limestone tower, 50 feet high, covered way to dwelling.			4th-order fixed white light; 55 feet above water; visible 14 miles. On S ⁷ ly end of Cumberland Head, about 3 miles E'd of Plattsburg Harbor. Lat. N, 44° 41' 30"; long. W, 73° 23' 08".

LAKE CHAMPLAIN.

ROUSE POINT, N. Y., TO BURLINGTON, VT.—Continued.

Coast and Geodetic Survey Charts 551, 553, and 554.

Cumberland Bay

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Plattsburg Breakwater Northeast Light (N. Y.)		White	Structure, 27 feet high.	Cumberland Head Light - House; ESE'y, about 2½ miles.	Feet.	6th-order fixed red light; 32 feet above water; visible 8½ miles. On NE'y end of breakwater. Lat. N, 44° 41' (42°); long. W, 73° 26' (20').
Plattsburg Breakwater Southwest Light (N. Y.)		White	Structure, 27 feet high.	Plattsburg Breakwater Northeast Light, 43° 00', ½ mile.		6th-order fixed red light; 32 feet above water; visible 8½ miles. On SW'y end of breakwater. Lat. N, 44° 41' 30"; long. W, 73° 26' 27".
Valcour Shoal Buoy	12	Red and black horizontal stripes.	3d-class spar	Crab Island, right tangent, 25° 45'. Valcour Island, N'y point, 88° 15'. Bluff Point Light-House, 178° 15', 1 mile.	12	Rocky bottom. On shoal in passage between Valcour Island and New York shore.
Bluff Point Shoal Buoy	18	Red and black horizontal stripes.	3d-class spar	Cove Point, 80° 45'. Bluff Point Light-House, 166° 45', ¼ mile.	18	On isolated rocky bunch, with 5 feet of water on it.
Bluff Point Light-Station (N. Y.)		Dark blue; dwelling roof brown.	Tower, 36 feet high, on limestone dwelling with Mansard roof.			5th-order fixed white light; 95 feet above water; visible 12½ miles. On bluff, W'y end of Valcour Island. Lat. N, 44° 37' (23°); long. W, 73° 25' (54').
Garden Island Ledge Buoy		Red and black horizontal stripes.	4th-class spar	Colchester Reef Light-House, 131° 45', 5 miles. Port Kent Wharf, 180° 15'. Port Jackson Wharf, 275° 15', 1½ miles.		
Aliens Point Buoy	1	Black	4th-class spar	Colchester Reef Light-House, 204° 15', 2¼ miles. Stave Island, left tangent, 200° 45'. Providence Island, left tangent, 294° 45'.	8	Only 1¼ feet of water N'y of buoy.
Jones Rock Buoy		Red and black horizontal stripes.	3d-class spar	Stave Island, right tangent, 13° 00'. Aliens Point, tangent, 57° 00'. Colchester Reef Light-House, 160° 45'.	14	
Stave Island Buoy		Red and black horizontal stripes.	3d-class spar	Stave Island, right tangent, 19° 15'. Aliens Point, 64° 45'. Colchester Reef Light-House, 165° 15'.	14	On N'y side of reef.
Hogback Reef Buoy	7	Black	3d-class spar	Law Island, right tangent, 86° 45'. Colchester Reef Light-House, 220° 15', ¼ mile. Stave Island, right tangent, 348° 15'.	13	Rocky bottom. On S'y end of reef.
Colchester Reef Light-Station (Vt.)		White; black lantern.	Octagonal tower, 35 feet high, connected with one-story dwelling, with Mansard roof.	Juniper Island Light-House, 160° 00', 6¼ miles.		6th-order fixed red light; 51 feet above water; visible 8¼ miles. On Middle Bunch, off Colchester Point. Lat. N, 44° 35' (19°); long. W, 73° 19' (47°). May be passed on either side, but channel to W'd recommended, at not less than 200 feet. Fog signal: Bell struck by machinery, thus:
Colchester Shoal Buoy	9	Black	3d-class spar	Colchester Reef Light-House, 53° 15'. Mills Point, 70° 45'. Stave Island, left tangent, 352° 30'.		2 blows Silent interval 2 blows Silent interval 30 sec. 30 sec.
Au Sable Point Buoy	18	Red	3d-class spar	Garden Island, right tangent, 3° 45'. Stave Island, S'y point, 70° 45'. Au Sable Point, 305° 15'.	18	On W'y side of Colchester Shoal. Marks E'y end of shoal off point.
Au Sable River Flats Buoy	20	Red	3d-class spar	Sunset Island, left tangent, 70° 45'. Port Kent Wharf, 176° 45'. Au Sable Point, 336° 45'.	18	Marks end of flats off shoal off river.

LAKE CHAMPLAIN.

ROUSE POINT, N. Y., TO BURLINGTON, VT.—Continued.

Coast and Geodetic Survey Charts 551, 553, and 554.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Ferris Shoal Buoy		Red and black horizontal stripes.	3d-class spar.	Colchester Reef Light-House, 34° 50'. Juniper Island Light-House, 141° 20'. Schuyler Island, right tangent, 216° 50'.	Fret. 12	On Ferris Rock, about 2¼ miles E'y of Port Kent; rocky bottom.								
Schuyler Reef Buoy		Red and black horizontal stripes.	3d-class spar.	Colchester Reef Light-House, 12° 20', 45¼ miles. Appletree Point, 82° 20'. Juniper Island Light-House, 127° 20', 45¼ miles.	12	On rocky shoal, about 1¼ miles S'd and E'd of Schuyler Island.								
Four Brothers Islands Reef Buoy.		Red and black horizontal stripes.	3d-class spar.	Juniper Island Light-House, 72° 45', 25½ miles. Willsborough Point, 287° 20'. Colchester Reef Light-House, 359° 30', 8¼ miles.		On E'y side of N'y end of reef and about ½ mile N'y of nearest island.								
Appletree Shoal Buoy		Red and black horizontal stripes.	3d-class spar.	Lone Rock Point, 103° 20', 1¼ mile. Juniper Island, 189° 20'. Appletree Point, 317° 20', nearly ½ mile.	12	The shoal is nearly midway between Appletree and Lone Rock points, in track of vessels coming from N'd into Burlington Bay; rocky bottom.								
Juniper Island Rock Buoy.		Red and black horizontal stripes.	4th-class spar.	Burlington Breakwater South Light, 63° 20'. Sheelburne Point, 121° 50'. Juniper Island Light-House, 206° 20', ¼ mile.		5 feet of water over rock.								
Juniper Island Reef Buoy.	1	Black	4th-class spar.	Burlington Breakwater North Extension Pierhead North End Light, 43° 20'. Rock Dunder, 110° 50'. Juniper Island Light-House, 287° 50', ¼ mile.	10	Marks end of reef making off E'd from Juniper Island.								
Burlington Breakwater North Extension Pierhead North End Light (Vt.).		White	Movable structure			Fixed red lens-lantern light; 21¼ feet above water; visible 8½ miles; on N'y end of N'y extension of breakwater. Lat. N, 44° 28' (45°); long. W, 73° 13' (45°).								
Burlington North Extension Pierhead South End Light (Vt.).		White	Lantern on post		5	Fixed white post-lantern light, on S'y end of N'y extension and marks opening between N'y and S'y breakwaters. Lat. N, 44° 28' (45°); long. W, 73° 13' (43°).								
Burlington Breakwater South Light (Vt.).		White	Movable structure			Fixed red lens-lantern light; 33 feet above water; visible 12 miles. Near S'y end of breakwater. Lat. N, 44° 28' (22°); long. W, 73° 13' (33°). Fog signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>2 blows</td> <td>Silent interval</td> <td>2 blows</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>12 sec.</td> <td></td> <td>12 sec.</td> </tr> </table>	2 blows	Silent interval	2 blows	Silent interval		12 sec.		12 sec.
2 blows	Silent interval	2 blows	Silent interval											
	12 sec.		12 sec.											
Juniper Island Light-Station (Vt.).		White	Tower, 25 feet high, covered way to dwelling.	Colchester Reef Light-House, 340° 00', 6¼ miles.		4th-order fixed white light; 93 feet above water; visible 17 miles On Juniper Island, S'y side of entrance to Burlington Harbor Lat. N, 44° 27' 00"; long. W, 73° 16' 30". Fog signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>1 blow</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>15 sec.</td> <td></td> <td>15 sec.</td> </tr> </table>	1 blow	Silent interval	1 blow	Silent interval		15 sec.		15 sec.
1 blow	Silent interval	1 blow	Silent interval											
	15 sec.		15 sec.											

ALBURGH PASSAGE, BETWEEN NORTH HERO ISLAND AND ALBURGH TONGUE, VT.

Coast and Geodetic Survey Chart 553.

Hills Shoal Buoy		Red and black horizontal stripes.	3d-class spar.	Pelot Point, 61° 30'. Pointe aux Roches, 224° 00'. Hills Island, right tangent, 323° 30'.	18	On isolated rocky bunch, with but 5 feet of water on it, between Hills Island and Towne Reef. Keeping to W'd of buoy avoids Towne Reef.
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From Reef Buoy 5, being 2 m. west of
 Alburgh Reef Buoy H.

LAKE CHAMPLAIN.

BURLINGTON TO SHELBURNE BAY, VT.

Coast and Geodetic Survey Charts 551, 554, and 555.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Juniper Island Light-Station (Vt.).		White	Tower, 25 feet high, coveredway to dwelling.		Fet.	4th-order fixed white light; 93 feet above water; visible 17 miles. On Juniper Island, W'y of entrance to Shelburne Bay. Lat. N, 44° 27' 00"; long. W, 73° 16' 30". Fog signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>1 blow</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>15 sec.</td> <td></td> <td>15 sec.</td> </tr> </table>	1 blow	Silent interval	1 blow	Silent interval		15 sec.		15 sec.
1 blow	Silent interval	1 blow	Silent interval											
	15 sec.		15 sec.											
Proctor Shoal Buoy		Red and black horizontal stripes.	3d-class spar	Burlington Breakwater South Light, 35° 20'. Juniper Island Light-House, 263° 20'. Appletree Point, 334° 50'.	11	Marks W'y end of shoal off entrance to Shelburne Bay; rocky bottom.								
Shelburne Shoal Buoy		Red and black horizontal stripes.	4th-class spar	Shelburne Point, right tangent, 218° 45'. Juniper Island Light-House, 301° 00'. Appletree Point, 341° 20'.	7	About $\frac{1}{2}$ mile N'y of Shelburne Point; may be passed on either side; rocky bottom.								

BURLINGTON, VT., TO WHITEHALL NARROWS, N. Y.

Coast and Geodetic Survey Charts 551, 554, 555, and 556.

Juniper Island Reef Buoy	1	Black	4th-class spar	Burlington Breakwater North Extension Pierhead North End Light, 43° 20'. Rock Dunder, 110° 50'. Juniper Island Light-House, 287° 45', $\frac{1}{8}$ mile.	10	On E'y end of reef making off E'd from Juniper Island.								
Juniper Island Light-Station (Vt.).		White	Tower, 25 feet high, coveredway to dwelling.	Colchester Reef Light-House, 340° 00', 6 $\frac{1}{4}$ miles.		4th-order fixed white light; 93 feet above water; visible 17 miles. On Juniper Island, S'y side of entrance to Burlington Harbor. Lat. N, 44° 27' 00"; long. W, 73° 16' 30". Fog signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>1 blow</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>15 sec.</td> <td></td> <td>15 sec.</td> </tr> </table>	1 blow	Silent interval	1 blow	Silent interval		15 sec.		15 sec.
1 blow	Silent interval	1 blow	Silent interval											
	15 sec.		15 sec.											
Juniper Ledge Buoy		Red and black horizontal stripes.	4th-class spar	Shelburne Point, tangent, 71° 20'. Queneska Island, right tangent, 127° 40'. Juniper Island Light-House, 350° 45', $\frac{1}{4}$ mile.	8 $\frac{1}{2}$	On S'y side of ledge.								
Saxton Reef Buoy		Red and black horizontal stripes.	4th-class spar	Juniper Island Light-House, 6° 45', $3\frac{1}{4}$ miles. Saxton Point, right tangent, 147° 45', $\frac{1}{2}$ mile. Ligonier Point Wharf, right tangent, 283° 45'.	8	On SW'y end of reef.								
Quaker Smith Reef Buoy		Red and black horizontal stripes.	4th-class spar	Saxton Point, left tangent, 44° 15'. Menck Island, right tangent, 150° 15'. Ligonier Point Wharf, right tangent, 301° 15'.	7	On W'y side of reef, and about $\frac{1}{2}$ mile W'd of 5 $\frac{1}{2}$ -foot spot on W'y end of reef making off from E'y shore of lake.								
Split Rock Light-Station (N. Y.).		Dark blue; white dwelling.	Limestone tower, 39 feet high, coveredway to dwelling.			4th-order fixed white light; 100 feet above water; visible 17 $\frac{1}{2}$ miles. On W'y side of lake and about 2 miles S'd and E'd of Essex, N. Y. Lat. N, 44° 16' 06"; long. W, 73° 19' 21".								
Summers Point Buoy	7	Black	4th-class spar	Split Rock Light-House, 14° 30', 3 miles. Thompsons Point, left tangent, 29° 40'. Otter Creek Light, 89° 00', $\frac{1}{8}$ mile.	11	Marks point of shoal extending about $\frac{1}{2}$ mile N'y from point, Fields Bay.								
Otter Creek Light (Vt.).		Red	Post on conical pier.	Split Rock Light-House, 4° 15', $2\frac{1}{4}$ miles.		Fixed red post-lantern light; 20 feet above water. On ledge making out from Fort Cassin Point, N'y side of entrance to Otter Creek, Vt. Lat. N 44° 13' (36"); long. W, 73° 19' (38").								

LAKE CHAMPLAIN.

BURLINGTON, VT. TO WHITEHALL NARROWS, N. Y.—Continued.

Coast and Geodetic Survey Charts 551, 554, 555, and 556.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Barber Point Light-Station (N. Y.).		Dark drab; blue dwelling, brown roof, black lantern.	Octagonal tower on dwelling with Mansard roof.		Feet.	5th-order fixed white light; 83 feet above water; visible 14½ miles. Lat. N, 44° 09' 16"; long. W, 73° 24' 17". On bluff at Barber Point, about 2¼ miles S'd and E'd of Westport, N. Y., and about 7¼ miles SW'ly from Split Rock Light-House.
Crown Point Light-Station (N. Y.).		Gray; white dwelling; black lantern.	Limestone tower, 55 feet high, covered way to 1½-story dwelling.			5th-order fixed white light; 85 feet above water; visible 15 miles. On NE'ly point of Crown Point peninsula, W'ly side of lake, near old French fort. Lat. N, 44° 01' 48"; long. W, 73° 25' 19".
Watch Point Light (Vt.).		White.	Lantern suspended from bracket on post on small wooden house.			Fixed white post-lantern light; 17 feet above water. On point. Lat. N, 43° 33' (07"); long. W, 73° 22' (32").

WHITEHALL NARROWS TO TOWN OF WHITEHALL, N. Y.

Coast and Geodetic Survey Chart 556.

No. 1, Old Maid Place Light (Vt.).	1	Black; white number.	Movable structure, number on side.			Fixed white post-lantern light; 18 feet above water; about ¾ mile S'ly of Benson Landing. Lat. N, 43° 43' 20"; long. W, 73° 22' 11".
No. 2, Lower End of Four Channels and Narrows Light (N. Y.).	2	Red and black horizontal stripes; white number.	Movable structure, number on side.			Fixed red post-lantern light; 17 feet above water; about 1 mile SW'ly of light No. 1. Lat. N, 43° 42' (47"); long. W, 73° 23' (07").
No. 4, Pulpit Point Light (N. Y.).	4	Red; white number.	Mast and small lampouse on pyramidal crib; number on side.			Fixed red post-lantern light; 17 feet above water; about 1¼ miles SSW'ly of light No. 2. Lat. N, 43° 41' (55"); long. W, 73° 23' (42").
No. 3, Above Pulpit Point Light (Vt.).	3	Black; white number.	Movable structure, number on side.			Fixed white post-lantern light; 18 feet above water; about ½ mile S'ly from light No. 4. Lat. N, 43° 41' (30"); long. W, 73° 24' (13").
No. 5, Opposite Beiden Dock Light (Vt.).	5	Black; white number.	Movable structure, number on side.			Fixed white post-lantern light; 18 feet above water; about ¼ mile SSW'ly from light No. 3. Lat. N, 43° 41' (18"); long. W, 73° 24' (18").
No. 6, Chilson Bend Light (N. Y.).	6	Red; white number.	Movable structure, number on side.			Fixed red post-lantern light; 18 feet above water; about ½ mile SSE'ly from light No. 5. Lat. N, 43° 41' 08"; long. W, 73° 24' 16".
No. 8, Lower End of Two Channels Light (N. Y.).	8	Red and black horizontal stripes; white number.	Movable structure, number on side.			Fixed red post-lantern light; 18 feet above water; about 2¼ miles SSW'ly from light No. 6. Lat. N, 43° 39' 16"; long. W, 73° 24' 39".
No. 10, Maple Bend Light (N. Y.).	10	Red; white number.	Mast and small lampouse on pyramidal crib; number on side.			Fixed red post-lantern light; 45 feet above water; nearly ½ mile S'ly from light No. 8. Lat. N, 43° 38' (53"); long. W, 73° 25' 04".
No. 12, Head of Two Channels Light (N. Y.).	12	Red and black horizontal stripes; white number.	Movable structure, number on side.			Fixed red post-lantern light; 18 feet above water; about 1 mile SW'ly from light No. 10. Lat. N, 43° 38' (13"); long. W, 73° 25' (47").
No. 14, Long Reach Light (N. Y.).	14	Red; white number.	Movable structure, number on side.			Fixed red post-lantern light; 17 feet above water; about ¾ mile SSW'ly from light No. 12. Lat. N, 43° 37' (42"); long. W, 73° 25' (24").
No. 16, Steam-Mill Point Light (N. Y.).	16	Red; white number.	Movable structure, number on side.			Fixed red post-lantern light; 18 feet above water; about ½ mile SSW'ly from light No. 14. Lat. N, 43° 37' 19"; long. W, 73° 25' 08".
No. 7, South of Snody Dock Light (Vt.).	7	Black; white number.	Movable structure, number on side.			Fixed white post-lantern light; 18 feet above water; about ¾ mile SSW'ly from light No. 16. Lat. N, 43° 36' (44"); long. W, 73° 25' (26").
No. 18, Opposite Chapman Dock Light (N. Y.).	18	Red; white number.	Mast and small lampouse on pyramidal crib; number on side.			Fixed red post-lantern light; 30 feet above water; about ¾ mile S'ly from light No. 7. Lat. N, 43° 36' (11"); long. W, 73° 25' (25").
No. 20, Carey Camp Light (N. Y.).	20	Red; white number.	Movable structure, number on side.			Fixed red post-lantern light; 20 feet above water; about 1 mile SSW'ly from light No. 18. Lat. N, 43° 35' (24"); long. W, 73° 25' (55").
No. 9, Benjamin Place Light (Vt.).	9	Black; white number.	Post and oilhouse, number on side, on pyramidal crib.			Fixed white post-lantern light; 18 feet above water; about ¾ mile SE'ly from light No. 20. Lat. N, 43° 34' 57"; long. W, 73° 25' 19".

RIVER ST. LAWRENCE.

OGDENSBURG HARBOR, MAIN OR W'LY CHANNEL—Continued.

U. S. Lake Survey Charts 0, 13, and 131.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Ogdensburg Light-Station (N. Y.) (L. S. Chart 131.)		Lower half gray, upper half cream color; red; black lantern.	Square tower, 29½ feet high, dwelling attached; on house 30 feet W'ly.			4th-order, fixed white light, 63 feet above water; visible 15½ miles. On low, rocky point, connected with mainland by side-track of R. W. and O. R. R., which extends about ¼ mile beyond the light-house. Lat. N. 44° 41' 32"; long. W. 75° 39' 14". Flats extend beyond the light-house nearly halfway across the St. Lawrence, and vessels bound up or down should keep over toward the Canadian shore. The dredged channel passes about 200 feet E'd of light-house point.
East Buoy	3	Black	20-foot spar	Windmill Point Light-House (Canada), 25° 00', 1¼ miles. Elevator, left tangent, 64° 00', 1½ miles. Ogdensburg Light-House, 234° 45', ¼ mile.	12	E'ly side of channel, just inside buoy No. 4. Marks slight projection of channel bank.
Ogdensburg Inner Gas Buoy (N. Y.)	5	Black	Conical, surmounted by pyramidal lattice-work and lantern.	Windmill Point Light-House (Canada), 22° 30', 1¼ miles. Park Dock, North End, 53° 00'. Ogdensburg Light-House, 266° 00', ¼ mile.	15	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. In angle of E'ly side of main channel and N'ly side of shore channel. <i>Weather Bureau signals displayed from flagstaff on cupola of Rutland Railroad building.</i>

MAIN CHANNEL.

U. S. Lake Survey Charts 0, 2, 21, 13, 14, 15, and 16, and U. S. Hydrographic Chart 1477 issued at Lake Survey Office.

The river is buoyed for 14 feet draft of water.

SAILING DIRECTIONS.—The St. Lawrence River bottom is either soft or rocky, and very irregular, varying from 7 to 30 fathoms in depth, in mid-channel and within short distances. Good anchorage may be had at many points in bights or bays along shore, and among the islands. Unless otherwise stated, shoals marked by buoys are rocky. The current is from 1 to 2 miles per hour (except at certain points specially mentioned), depending upon the width of river. Both current and depth of water vary with the winds on Lake Ontario, being increased by SW'ly and decreased by NE'ly winds. From abreast Ogdensburg Shoal Buoy, 1, 238° 30', true (SW by W ¼ W, mag.), carries between Macnair Islands, 10½ miles, and HS buoy on North Macnair Shoal. No dangers in this reach. Either shore may be approached within ¼ mile; average width of river rather more than 1 mile; thence SW, mag., 2 miles, carries to entrance to Narrows channel NW'ly of Brocks Group; a reef, partly bare, lies on SE'ly side of channel, nearly in mid-river opposite Brockville, Canada. Narrows channel is 3 miles long, ¼ to ½ mile wide, bold on both sides, with 3 to 4 mile current. Foul ground extends from SW'ly end of Brocks Group more than halfway to Cole Ferry Shoal Buoy, 3.

Prescott Light (C.)		White	Skeleton steel structure, 21 feet high.			7th-order fixed red (a.) light, 25 feet above water, visible 7 miles. On outer end of E'ly pier, Dominion Light-House Depot, Prescott. Lat. N. 44° 42' 21"; long. W. 75° 31' 10".
Brockville Narrows Gas Buoy (C.)		Red	Cylindrical, steel, surmounted by pyramidal steel framework and lantern.			7th-order occulting white (a.) light. Off SE'ly end of most E'ly island of Brock Group, E'ly end of Brockville Narrows. Lat. N. 44° 34' 38"; long. W. 75° 41' 40".
Hillcrest Gas Buoy (C.)		Red	Steel, spar surmounted by lantern.		18	7th-order occulting white (a.) light, 13 feet above water, visible 4½ miles. On SE'ly edge of rock, Hillcrest Shoal, 250 feet from NW'ly shore, in the Narrows W'ly of Brock Group. Lat. N. 44° 33' 04"; long. W. 75° 43' 51". Best channel is SE'ly of buoy.
Cole Ferry Shoal Buoy	3	Black	20-foot spar	Brocks Group, left tangent to SW'ly island, 45° 00', 1 mile. Mid-Channel Reef Buoy, 219° 20', 1¼ miles. Cole Shoal Light-House (Canada), 256° 00', ¼ mile.	11½	On SE'ly side of main channel; marks NW'ly edge of 5-foot shoal 600 feet across, in mid-river.
Cole Shoal Light-Station (C.)		White	Square, wood, on pier.			7th-order fixed white (a.) light, 33 feet above water, visible 7 miles. About 5 miles W'ly of Brockville, ½ mile from NW'ly shore of river. Lat. N. 44° 32' 00"; long. W. 75° 45' 21".
Fifteen-Foot Patch Gas Buoy, No. 6T (C.)	6T	Red	Cylindrical, steel, surmounted by pyramidal steel framework and lantern.		18	7th-order occulting red (a.) light. On S'ly side of shoal, about ½ mile SW'ly of Cole Shoal Light-House. Lat. N. 44° 31' 32"; long. W. 75° 45' 33".
Mid-Channel Reef Buoy		Red and black horizontal stripes.	20-foot spar	Cole Shoal Light-House (Canada), 3° 00', 1¼ mile. Cross-Over Island Light-House, 209° 30', 2¼ miles. Union Park Pier, left tangent, 257° 40'	11½	Near NW'ly end of narrow 9½-foot reef, lying athwart and nearly in mid-river; may be passed on either side, but best channel is NW'ly.

RIVER ST. LAWRENCE.

MAIN CHANNEL—Continued.

U. S. Lake Survey Charts 0, 2, 21, 13, 14, 15, and 16, and U. S. Hydrographic Chart 1477 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Oak Point Shoal Buoy....	5	Black.....	25-foot spar.....	Oak Point left tangent, 62° 00'; Whaleback Island, right tangent, 158° 00', 1/2 mile. Cross-Over Island Light-House, 209° 30' 1 mile.	Fet. 14	SE'ly side of channel; marks N'ly edge of small 10 1/2-foot shoal, about 1/2 mile off Whaleback Shoal.
Bay State Shoal Gas Buoy, No. 7 (N. Y.).	7	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Cole Shoal Light-House (Canada), 25° 20', 2 1/4 miles. Cross-Over Island Light-House, 195° 20', 1/2 mile. Islands off Jones Creek, right tangent, 282° 40', 1 1/4 mile.	12	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks SW'ly end of small 5-foot shoal on E'ly side of channel.
Whaleback Shoal Buoy..	9	Black.....	25-foot spar.....	Cole Shoal Light-House (Canada), 17° 00', 2 1/4 miles. Chippewa Point, tangent, 201° 00', 2 1/2 miles. Cross-Over Island Light-House, 264° 20', 7/8 mile.	17	On E'ly side of channel, marks S'ly end of shoal, lying 1/2 mile off end of Whaleback Shoal.
Cross-Over Island Light-Station (N. Y.).		White; black lantern.	Conical, iron tower 26 feet high; oil-house 25 feet S W'ly; dwelling W'ly.			6th-order fixed white light, 34 feet above water, visible 12 1/4 miles. On Cross-Over Island, W'ly side of channel. Lat. N. 44° 29' 49"; long. W. 73° 46' 44". Reef extends about 1/2 mile SW'ly from island.
Superior Shoal Gas Buoy, No. 11 (N. Y.).	11	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Cross-Over Island Light-House, 19° 00', 2 1/4 miles. Chippewa Point, right tangent, 156° 00', 3/4 mile. Rock, abreast buoy, 208° 13', 1/2 mile.	15	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. At N'ly end of long, narrow ledge about 1/2 mile off Chippewa Point. Reef extends SSW'ly from buoy above Chippewa Point; least depth, 3 feet, close to buoy. Reefs make out from S'ly end of Chippewa Point.
Scow Island Shoal Buoy..	13	Black.....	20-foot spar.....	Dark Island, right tangent, 21° 45', 4 1/2 miles. Scow Island, right tangent, 125° 30', 7/8 mile. Sister Islands Light-House, 223° 00', 1 1/2 miles.	12	Marks NW'ly edge of 4-foot shoal. Small 10-foot shoal half-way between this buoy and Scow Island.
Empire Shoal Gas Buoy, No. 4 (N. Y.).	4	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Pilot Island, right tangent, 38° 00'. Halfway Island, left tangent, 163° 30', 7/8 mile. Sister Islands Light-House, 188° 20', nearly 1/2 mile.	11 1/2	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks SE'ly edge of 8-foot shoal on NW'ly side of channel.
Sister Islands Buoy.....	15	Black.....	20-foot spar.....	Halfway Island, left tangent, 92° 15'. Sister Islands Light-House, 162° 30', 300 feet. Lone Brother Island, right tangent, 207° 00'.	12	On NW'ly side of shoal, N'ly of Sister Islands. Course to Sunken Rock Light-House, 217° 00', true (SW 1/4 W, mag.), 6 miles.
Sister Islands Light-Station (N. Y.).		Gray; black lantern; white boat-house.	Square tower on limestone dwelling; light, 41 1/2 feet above ground; bathhouse and square oilhouse NE'ly.	Sunken Rock Light-House, 217° 00', 5 1/8 miles.		6th-order fixed white light, 47 feet above water, visible 12 1/4 miles. On the N'ly of the Sister Islands, three small islands connected by causeways, SE'ly side of channel. Lat. N. 44° 24' 51"; long. W. 73° 50' 41".
Ironsides Shoal Buoy....	17	Black.....	20-foot spar.....	Lone Brother Island, left tangent, 28° 00', 3/4 mile. Ironsides Island, right tangent, 138° 40', about 1/4 mile. Whiskey Island, left tangent, 230° 40'.	11 1/2	Marks NW'ly side of a 5-foot shoal.
Grenadier Island Light-Station (C.).		White.....	Square, wood.....			7th-order fixed white (a.) light, 55 feet above water, visible 11 1/2 miles. On S'ly side of SW'ly end of Grenadier Island, N'ly side of entrance to Canadian channel of river, and about 4 1/4 miles SW'ly of Sister Islands Light-House. Lat. N. 44° 25' 00"; long. W. 73° 54' 25".
Sunken Rock Light-Station (N. Y.).		White; black lantern.	Conical iron tower; wooden wharf and bathhouse near.			6th-order fixed red light, 27 1/2 feet above water, visible 8 1/2 miles. On Sunken Rock, SE'ly side of channel, 1/2 mile N'ly of Alexandria Bay. Lat. N. 44° 20' 45"; long. W. 73° 54' 07".

RIVER ST. LAWRENCE.

MAIN CHANNEL—Continued.

U. S. Lake Survey Charts 0, 2, 21, 13, 14, 15, and 16, and U. S. Hydrographic Chart 1477 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Sunken Rock Gas Buoy, No. 19 (N. Y.).	19	Black	Conical, surmounted by pyramidal latticework and lantern.	Sunken Rock Light-House, 45° 45', 1/8 mile. Bonnie Castle, 112° 30', 1/4 mile. Cherry Island, right tangent, 214° 20'.	18	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; on S'y side of channel; marks W'y edge of reef.
Frontenac Shoal Buoy	6	Red	20-foot spar	Sunken Rock Light-House, 52° 00', 1/2 mile. Bonnie Castle, 87° 00', 1/2 mile. Imperial Isle, right tangent, 327° 00', 1/2 mile.	12	Marks SE'y edge of shoal, NW'y side of channel opposite Alexandria Bay.
Broadway Shoal Buoy		Red and black horizontal stripes.	25-foot spar	Sunken Rock Light-House, 32° 00', 1/2 mile. Alexandria Bay, S'y point, 95° 00', 1/2 mile. Hart Island, left tangent, 342° 40', 1/3 mile.	12	On N'y end of shoal.
Pullman Shoal Buoy	8	Red	20-foot spar	Sunken Rock Light-House, 54° 20', 1 mile. Cherry Island, left tangent, 116° 08', 1/2 mile. Cherry Island, right tangent, 189° 00'.	11 1/2	Marks E'y edge of 5-foot shoal, on NW'y side of channel, about 1/2 mile SW'y of Alexandria Bay; narrow channel N'y of shoal.
Comfort Island Shoal Gas Buoy, No. 21 (N. Y.).	21	Black	Conical, surmounted by pyramidal latticework and lantern.		L. D.	To be established. White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. On SW'y point of shoal making off SW'y from Comfort Island.
Niagara Shoal Buoy	21	Black	20-foot spar	Island to E'd, right tangent, 102° 30', 1/5 mile. Rock Island Light-House, 230° 45', 3/4 mile. Fineview Dock, left tangent 254° 40', 1/2 mile.	12	Marks NW'y edge of 5-foot shoal, on SE'y side of channel.
Granite State Shoal Gas Buoy, No. 10 (N. Y.).	10	Red	Conical, surmounted by pyramidal latticework and lantern.	Fishers Landing, left tangent, 126° 30', 5/8 mile. Rock Island Light-House, 193° 30', 1/2 mile. Wells Island, left tangent, 276° 30', 5/8 mile.	17	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks E'y point of shoal, 3/4 mile long; on NW'y side of channel, at head of Narrows.
Rock Island Light-Station (N. Y.).		Upper half white, lower half cream-colored brick; black lantern; red dwelling.	Conical iron tower; gillhouse and dwelling E'y; buoy shed and wharf on NE'y end of island.			6th-order fixed red light; 50 feet above water; visible 8 1/2 miles. On NW'y point of Rock Island, SE'y side of channel, at head of Narrows. Lat. N, 44° 10' 49"; long. W, 76° 01' 01".
Chapman Shoal Gas Buoy, No. 12 (N. Y.).	12	Red	Conical, surmounted by pyramidal latticework and lantern.	North Colborne Island, left tangent, 09° 30'. Round Island, right tangent, 146° 15'. Bluff Island, left tangent, 350° 00', 3/8 mile.	18	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; on SE'y point of shoal, about 250 feet from rock showing above water.
Carleton Island Light-Station (N. Y.).		White	Mast; dwelling and boathouse to S'd and N'd, respectively; oilhouse E'y.			Fixed white lens-lantern light; 95 feet above water. On NW'y part of Carleton Island, about 6 1/2 miles NNE'y from Tibbetts Point Light-House. Lat. N, 44° 10' 52"; long. W, 76° 18' 40" (mag.), and 285° 30', true (WNW 5/8 W, mag.).
Hinckley Point Split Buoy	14	Red	25-foot spar	Carleton Island Light, 45° 15', 1 1/4 miles. Carleton Island, right tangent, 88° 30'. Cape Vincent Breakwater East End Light, 180° 20'.	14	On E'y side of N'y end of split making off to N'd from Hinckley Point, W'y side of main channel of river, and opposite SW'y point of Carleton Island. W'y side of Carleton Island is bold.
Feather-Bed Shoal Gas Buoy, No. 25 (N. Y.).	25	Black	Conical, surmounted by pyramidal latticework and lantern.	Carleton Island Light, 13° 00', 1 1/2 miles. Carleton Island, right tangent, 58° 45', 3 miles. Cape Vincent Breakwater West End Light, 207° 00', 1 1/4 miles.	17	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. On W'y edge of shoal, E'y side of channel between Carleton Island and Cape Vincent, N. Y. From abreast Carleton Island Light 195° 00', true (SSW 3/4 W, mag.), 3 1/2 miles carries to Cape Vincent and passes nearly 3/4 mile to W'd of this buoy.

RIVER ST. LAWRENCE.

MAIN CHANNEL—Continued.

U. S. Lake Survey Charts 0, 2, 21, 13, 14, 15, and 16, and U. S. Hydrographic Chart 1477 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Cape Vincent Breakwater East End Light (N. Y.).		White; black lantern.	Square, 1-story, inclosed, frame structure; octagonal lantern.	Cape Vincent Breakwater West End Light, 253° 00', 830 feet.	Feet.	Fixed red lens-lantern light; 25½ feet above water; about 20 feet from E by end of breakwater.								
Cape Vincent Breakwater West End Light (N. Y.).		White; black lantern.	Square, 1-story, inclosed, frame structure; octagonal lantern.	Cape Vincent Breakwater East End Light, 73° 00', 830 feet.		Fixed red lens-lantern light; 25½ feet above water; about 20 feet from W by end of breakwater. Lat. N. 44° 07' 34"; long. W. 76° 00' 08". Good harbor behind breakwater. Weather Bureau signals displayed from tower E'd of Fish Hatchery.								
* Newnam Basin Light (N. Y.).		Green.	Post.	Cape Vincent Breakwater East End Light, 36° 15', 4 miles. U. S. Fish Hatchery, W by corner, 83° 00', 4 miles. Cape Vincent Breakwater West End Light, 331° 15', 54 miles.		Fixed green, post-lantern light. Guide to Basin. Maintained by Capt. R. L. E. Newman, of Cape Vincent, N. Y. <i>See notes on end of page</i>								
Tibbets Point Light-Station (N. Y.).		White; black lantern; red brick fog-signal house.	Circular tower, 32½ feet high; all-house near dwelling; to N' d, fog-signal house W'd.	Galloo Island Light-House, 134° 00', 13 miles. East Charity Shoal Gas Buoy, No. 2, 230° 30', 7½ miles. Plover Island, Light-House (Canadian), 255° 00'.		4th-order fixed white light; 68½ feet above water; visible 16 miles. On Tibbets Point, S by side of head of St. Lawrence River. Lat. N. 44° 06' 02"; long. W. 76° 22' 14". Beels extend ¼ mile off point. Fog-signal: 10-inch steam whistle sounds, thus: <table border="1"> <tr> <td>Blust</td> <td>Interval</td> <td>Blust</td> <td>Interval</td> </tr> <tr> <td>3 sec.</td> <td>17 sec.</td> <td>3 sec.</td> <td>37 sec.</td> </tr> </table>	Blust	Interval	Blust	Interval	3 sec.	17 sec.	3 sec.	37 sec.
Blust	Interval	Blust	Interval											
3 sec.	17 sec.	3 sec.	37 sec.											

CHANNEL S'LY OF CARLETON ISLAND.

U. S. Lake Survey Charts 0, 2, and 21, and U. S. Hydrographic Office Chart 1477 issued at Lake Survey Office.

This channel lies between Carleton Island and Feather-Bed Shoal, and is buoyed for 12 feet draft of water; buoys mark narrowest part, about 80 feet wide, near head of island.

Lower Buoy	1	Black	20-foot spar	Carleton Island, right tangent, 65° 00'. Cape Vincent Breakwater East End Light, 219° 20', 2½ miles. Carleton Island, left tangent, 22° 00'.	16	On S by side of channel, about 1½ miles W'd of E by end of Carleton Island.
Upper Buoy	3	Black	20-foot spar	Carleton Island, right tangent, 66° 30'. Cape Vincent Breakwater East End Light, 211° 30', 2½ miles. Carleton Island, left tangent, 308° 30'.	16½	On S by side of channel, opposite W by end of Carleton Island.

CANADIAN CHANNEL.

U. S. Lake Survey Charts 15, 16, 21, 2, and 0, and U. S. Hydrographic Office Charts 1477 and 1837 issued at Lake Survey Office.

Grenadier Island Light-Station (C.).		White.	Square, wood.			7th-order fixed white (a.) light; 55 feet above water; visible 12½ miles. On SW by point of island, N by shore of channel, 2½ miles E'd of Rockport. Lat. N. 44° 23' 00"; long. W. 75° 54' 25".
Fiddlers Elbow Gas Buoy (C.).		Red.	Steel spar, surmounted by lantern.		13	7th-order occulting white (a.) light; 13 feet above water. Moored on NW by side of shoal, NW by of Wood Island. Lat. N. 44° 21' 39"; long. W. 75° 39' 40".
Lindoe Island Light-Station (C.).		White.	Square, wood.			7th-order fixed white (a.) light; 40 feet above water; visible 8 miles. On NW by point of island, S by side of channel, 3 miles W by of Rockport. Lat. 44° 21' 02"; long. W. 76° 00' 20".
Gananoque Narrows Gas Buoy (C.).		Red.	Cylindrical, surmounted by conical stackwork and lantern.			7th-order occulting white (a.) light. Moored abreast of Gananoque Narrows Light-House. Lat. N. 44° 19' 32"; long. W. 76° 04' 33".
Gananoque Narrows Light-Station (C.).		White.	Square, wood.			7th-order fixed white (a.) light; 44 feet above water; visible 8 miles. On NE by end of Little Slave Island, S by side of channel, 4 miles E'd of Gananoque. Lat. N. 44° 19' 32"; long. W. 76° 04' 33". Fog signal: Hand horn, answers signals from vessels.
Jackstraw Shoal Light-Station (C.).		White.	Square, wood, on pier.			7th-order fixed red (a.) light; 34 feet above water; visible 8 miles. On S by side of channel, 2 miles E'd of Gananoque. Lat. N. 44° 19' 28"; long. W. 76° 02' 15". Small pier, surmounted by red drum on mast, 700 feet (¼ mile) SE ¼ E, mag. from light, marks S by edge of channel.

RIVER ST. LAWRENCE.

CANADIAN CHANNEL—Continued.

U. S. Lake Survey Charts 15, 16, 21, 2, and 0, and U. S. Hydrographic Office Charts 1477 and 1837 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Spectacle Shoal Light-Station (C.).		White	Square, wood, on pier.		Feet.	7th-order fixed white (a.) light; 28 feet above water; visible 10½ miles. On N'Ely side of channel, 1¼ miles W'ly of Gananoque. Lat. N, 44° 18' 40"; long. W, 76° 11' 09".								
Red Horse Rock Light-Station (C.).		White	Square, wood, on pier.			7th-order fixed white (a.) light; 28 feet above water; visible 10½ miles. On SW'ly end of Buck Island, S'E'ly side of channel, ¼ mile above Spectacle Shoal. Lat. N, 44° 18' 08"; long. W, 76° 11' 32".								
Burnt Island Light (C.).		White, red frame and lantern.	Cylindrical steel, surmounted by steel pyramidal frame and lantern.			7th-order fixed white (a.) light; 70 feet above water; visible 5½ miles. On E'ly point of island, N'ly side of main channel, ½ mile S'ly of Red Horse Rock Light-Station. Lat. N, 44° 17' 45"; long. W, 76° 11' 33". Light is unwatched.								
Wolfe Island Cut Gas Buoy (C.).		Red	Steel spar, surmounted by lantern.			7th-order occulting white (a.) light; 13 feet above water. Moored at S'E'ly end of dredged cut through Blanket Shoal, at E'ly end of Wolfe Island. Lat. N, 44° 14' 06"; long. W, 76° 10' 46".								
Wolfe Island Light-Station (C.).		White	Square, wood.			7th-order fixed white (a.) light; 46 feet above water; visible 7 miles. On Quebec or East Point. Lat. N, 44° 14' 17"; long. W, 76° 11' 10".								
Cold Bath Shoal Gas Buoy (C.).		Red	Steel spar, surmounted by lantern.		14	7th-order occulting white (a.) light; 13 feet above water. Moored at S'E'ly end of Cold Bath Shoal, the middle ground between SW'ly end of Howe Island and Oak Point, Wolfe Island. Lat. N, 44° 14' 30"; long. W, 76° 20' 28".								
Knapp Point Light-Station (C.).		White	Square, wood.			7th-order fixed white (a.) light; 28 feet above water; visible 11½ miles. On Knapp Point, N'ly side of Wolfe Island. Lat. N, 44° 13' 57"; long. W, 76° 24' 03". Fog signal: Hand horn, answers signals from vessels.								
Barrieffield Common Front Light (C.).		Red, white daymark, brown shed.	Iron tripod, oval slatted daymark at top, shed at base.	Rear light, 36° 00', 1,500 feet (¾ mile).		Reflector light, fixed white; 48 feet above water; visible 13¼ miles. 50 feet (¼ mile) from E'ly end of bridge to Kingston. Lat. N, 44° 14' 04"; long. W, 76° 28' 24".								
Barrieffield Common Rear Light (C.).		Red, white daymark, brown shed.	Iron tripod, oval slatted daymark at top, shed at base.			Reflector light, fixed white; 75 feet above water; visible 13¼ miles. Lights show over small arc on each side of range line which leads inside Carruthers and Point Frederick shoals.								
Kingston Light (C.).			Lamp on pole; stone building.			Fixed white (e. a.) light. On city hall. Lat. N, 44° 13' 50"; long. W, 76° 28' 33".								
Penitentiary Shoal Gas Buoy (C.).		Red and black horizontal stripes.	Cylindrical, surmounted by pyramidal steel frame and lantern.			7th-order fixed white (a.) light. On Penitentiary Shoal, approach to Kingston. Lat. N, 44° 12' 38"; long. W, 76° 30' 38".								
Snake Island Light-Station (C.).		White, red lantern.	Octagonal, wood, on pier; iron lantern, boathouse at base.			7th-order fixed white (a.) light; 33 feet above water; visible 7 miles. On pier, on bar, N'ly side of channel, 4 miles SW'ly of Kingston. Lat. N, 44° 11' 09"; long. W, 76° 32' 11". Moved 1900.								
Four-Mile Point Fog-Signal Station (C.).						Hand horn answers signals from steamers. On NW'ly point of Simcoe Island, ¼ mile E'ly of Snake Island Light-Station.								
Middle Ground Gas Buoy (C.).		Black	Steel spar, surmounted by lantern.			Fixed white (g.) light; 13 feet above water. Moored on N'ly side of W'ly end of Middle Ground between Snake Island and Seven-Acre Shoal. Lat. N, 44° 10' 38"; long. W, 76° 33' 30".								
Ninemile Point Light-Station (C.).		White, red lantern; white fog-signal building, brown roof.	Circular, stone, polygonal iron lantern; fog-signal building square, wood, NW'ly; horn points SW'ly, 16 feet above water.			4th-order white (l. o. v.) light 6 sec., eclipse 4 sec.; 45 feet above water; visible 13¼ miles. On SW'ly point of Simcoe Island, 6½ miles SW'd of Kingston. Lat. N, 44° 09' 12"; long. W, 76° 33' 30". Fog signal: Compressed-air diaphone, sounds thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Silent Interval</td> </tr> <tr> <td>7 sec.</td> <td>53 sec.</td> <td>7 sec.</td> <td>53 sec.</td> </tr> </table>	Blast	Interval	Blast	Silent Interval	7 sec.	53 sec.	7 sec.	53 sec.
Blast	Interval	Blast	Silent Interval											
7 sec.	53 sec.	7 sec.	53 sec.											

LAKE ONTARIO.

E'LY AND S'LY SHORES.

U. S. Lake Survey Charts 0, 2, 21, 22, 23, 24, 25, 225, 227, 234, and 241, and U. S. Hydrographic Office Chart 1477 issued at Lake Survey Office.

NE'ly gales sometimes lower water at E'ly end of lake about a foot, and SW'd gales may raise it nearly 2 feet.

Charity Shoal Buoy	Red and black horizontal stripes.	2d-class nun.	Tibbetts Point Light-House, 56° 00', 7¼ miles. Galloo Island Light-House, 165° 40', 10½ miles. Pigeon Island Light-House (Canadian), 305° 40', 3¼ miles.	24	On E'ly side of S'ly end of narrow rocky shoal, about ¼ mile long NE'ly and SW'ly; least depth, 3 feet. N'ly of buoy.
East Charity Shoal Gas Buoy, No. 2 (N. Y.).	2 Red	Conical, surmounted by pyramidal lattice-work and lantern.	Tibbetts Point Light-House, 49° 30', 7¼ miles. Gronailler Island, right tangent, 90° 30', 3¼ miles. Galloo Island Light-House, 168° 45', 10 miles.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. South Charity Shoal, least depth 10 feet, lies about ¼ mile W'ly. If bound for main channel of St. Lawrence River, between Galloo Island and Main Duck Island (Canadian), keep S'E'ly of this buoy, which marks S'ly edge of Allen Otty Shoal, ¼ mile long, with 15 to 18 feet of water on it, 2¼ miles NE'ly.

LAKE ONTARIO.

E'LY AND S'LY SHORES—Continued.

U. S. Lake Survey Charts 0, 2, 21, 22, 23, 24, 25, 225, 227, 234, and 241, and U. S. Hydrographic Office Chart 1477 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Point Peninsula Gas Buoy, No. 1 (N. Y.).	1	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.		Fath. 24	To be established. On point of shoal making off from SW'ly point of Point Peninsula.
Sacketts Harbor Light-Station (N. Y.).		White; black lantern.	Square brick tower, 30 feet high, attached to brick and frame dwelling; oilhouse NE'ly; barn SW'ly.			5th-order fixed white light; 57 feet above water; visible 15 miles. On N'ly side of Horse Island, S'ly side of entrance to Black River Bay and E'ly of E'ly entrance to Henderson Bay, and about 1½ miles W'd of entrance to Sacketts Harbor. Lat. N, 43° 56' 35"; long. W, 76° 08' 43". Shore between Horse Island and Sacketts Harbor is bold. Weather Bureau signals displayed at Sacketts Harbor.

CHAUMONT BAY.

U. S. Lake Survey Charts 0, 2, and 21.

Cherry Island Light (N. Y.).						To be established. Fixed white lens-lantern light; on SW'ly point of island.
Johnson Shoal Buoy.....		Red and black horizontal stripes.	25-foot spar.....		15	To be established. On point of shoal making off from Independence Point.
Range: Chaumont Front Light (N. Y.).						To be established.
Chaumont Rear Light (N. Y.).						

E'LY AND S'LY SHORES—Continued.

U. S. Lake Survey Charts 0, 2, 21, 22, 23, 24, 25, 225, 227, 234, and 241, and U. S. Hydrographic Office Chart 1477 issued at Lake Survey Office.

Galloo Island Shoal Gas Buoy, No. 2 (N. Y.).	1	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Galloo Island, left tangent, 62° 00'; Galloo Island Light-House, 115° 36', 1½ miles. Oswego Light-House, 184° 20', 30 miles.	24	White lens-lantern light, 10 sec., eclipse 10 sec.; 10 feet above water. Marks SW'ly side of rocky shoal.								
GALLOO ISLAND LIGHT - STATION (N. Y.).		Gray; black lantern; red-brick fog-signal house; white boat-house; gray and light-drab dwelling.	Conical tower, 54½ feet high, covered-way to limestone dwelling; oilhouse SE'ly; fog-signal house and boat-house, about 300 feet SW'ly; dwelling NW'ly.	Oswego Light-House, 187° 15', 29 miles.		4th-order fixed white light; 58½ feet above water; visible 15 miles. On SW'ly end of Galloo Island, about 8 miles WN'ly from Stony Point Light-House. Lat. N, 43° 53' 19"; long. W, 76° 26' 41". Fog signal: 10-inch steam whistle, sounds thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>10 sec.</td> <td>30 sec.</td> <td>10 sec.</td> <td>30 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	10 sec.	30 sec.	10 sec.	30 sec.
Blast	Silent interval	Blast	Silent interval											
10 sec.	30 sec.	10 sec.	30 sec.											
Calf Island Spit Buoy....	3	Black.....	2d-class can.....	Stony Island, right tangent, 64° 45'; Stony Point Light-House, 107° 30', 4½ miles. Galloo Island Light-House, 303° 00', 3½ miles.	15	Marks SW'ly end of narrow rocky spit, extending 1½ miles SW'ly from Calf Island; shoal water between Calf and Stony islands.								
STONY POINT LIGHT - STATION (N. Y.).		White; black lantern; brown oil-house.	Square tower, 33½ feet high; dwelling attached.	Oswego Breakwater Light-House, 203° 00', 28 miles.		4th-order light, flashing white every 5 sec.; 58 feet above water; visible 15½ miles. On Stony Point, E'ly end of lake, about 8 miles ESE'ly from Galloo Island Light-House. Lat. N, 43° 50' 22"; long. W, 76° 17' 50".								
Oswego Breakwater Light-Station (N. Y.). (L. S. Chart 225.)		White; black lantern.	Octagonal iron tower, 27 feet high; boathouse near.	Oswego Light-House, 146° 50', ½ mile.		4th-order fixed red light; 33 feet above water; visible 12 miles. On crib inside angle of outer (W'ly) breakwater, Oswego Harbor, mouth of Oswego River. Lat. N, 43° 28' 03"; long. W, 76° 30' 59". Fog signal: Bell, struck by machinery, thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1 blow</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>12 sec.</td> <td></td> <td>12 sec.</td> </tr> </table>	1 blow	Silent interval	1 blow	Silent interval		12 sec.		12 sec.
1 blow	Silent interval	1 blow	Silent interval											
	12 sec.		12 sec.											
OSWEGO LIGHT-STATION (N. Y.).		Gray; black lantern; brown oil-house.	Octagonal, pyramidal tower, 66½ feet high, watchroom attached; square, iron oil-house 12 feet W'ly.	Oswego Breakwater Light-House, 326° 50', ¼ mile.		3d-order fixed white light; 75 feet above water; visible 16½ miles. On E'ly end of inner W'ly pier, W'ly side of entrance to Oswego River. Lat. N, 43° 27' 54"; long. W, 76° 30' 49". Entrance 300 feet wide. Direction of pier, 332° 30' N by W ¼, W, mag. 3. Weather Bureau signals displayed at W'ly side of Fort Ontario E'ly bank of Oswego River.								
Ford Shoal Buoy.....	5	Black.....	25-foot spar.....	Oswego Breakwater Light-House, 66° 40', 4 miles. First point of land E'ly of buoy, 74° 40', 1½ miles. Nine-Mile Point, 224° 40', 3 miles.	17	Marks outer edge of shoal, about ¼ mile off shore.								

LAKE ONTARIO.

Ely and S'ly Shores—Continued.

U. S. Lake Survey Charts 0, 2, 21, 22, 23, 24, 25, 225, 227, 234, and 241, and U. S. Hydrographic Office Chart 1477 issued at Lake Survey Office.

1	2	3	4	5	6	7																		
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.																		
FAIR HAVEN RANGE FRONT LIGHT STATION (N. Y.).		Brown below, white above; black lantern; white dwelling.	Square, pyramidal tower, 20½ feet high; elevated walk along pier to shore; dwelling on bluff W'ly of harbor.	Rear light, 175° 15', 1,806 feet (½ mile).	Fath.	4th-order fixed white light; 31¼ feet above water; visible 12¼ miles. Near outer end of W'ly pier, entrance to Sodus Sodus Bay. Lat. N, 43° 20' 54"; long. W, 76° 42' 32". Width between piers 235 feet, direction of piers, 353° 15', true (N ½ E, mag.). This light opened brightly, leads past point of land 1 mile to W'd, in 2 fathoms of water; farther inshore naked light shows dimly. Lens-lantern light shown in place of 4th-order light during repairs to pier. Fog signal: Bell, struck by machinery, thus: 2 blows <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>Silent</td><td>interval</td><td>2 blows</td><td>Silent</td><td>interval</td></tr><tr><td></td><td>20 sec.</td><td></td><td></td><td>20 sec.</td></tr></table>	Silent	interval	2 blows	Silent	interval		20 sec.			20 sec.								
				Silent			interval	2 blows	Silent	interval														
	20 sec.			20 sec.																				
249° 30', 15 miles.																								
Fair Haven Range Rear Light (N. Y.). (L. S. Chart 227.)		White	Square, pyramidal, wooden tower; octagonal lantern; square iron oilhouse, 100 feet W'ly.	Front light, 355° 15', ¼ mile.		Fixed white lens-lantern light, 20½ feet above water; near inner end of W'ly pier. Lat. N, 43° 20' (42"); long. W, 76° 42' (36"). With preceding marks a range for approaching the entrance between piers. Weather Bureau signals displayed at Custom-House, North Fair Haven.																		
Sodus Outer Light-Station (N. Y.). (L. S. Chart 234.)		Brown below, white above; black lantern.	Square, pyramidal tower, 42 feet high; elevated walk along pier to shore.	Sodus Inner Light, 183° 43', 1,330 feet (½ mile).		4th-order fixed white light varied by a white flash every 30 seconds; 47½ feet above water; visible 14½ miles. On outer end of W'ly pier, entrance to Sodus Bay. Lat. N, 43° 16' 36"; long. W, 76° 58' 28". Width between piers, 450 feet; E'ly pier, 180 feet, shorter at S'ly end.																		
Sodus Inner Light (N. Y.). at Nov 17/10 2312		White; copper lantern roof; square iron oilhouse 32 feet N'ly.	Square, pyramidal tower, 20 feet high.	Sodus Outer Light-House, 3° 45'.		Fixed red lens-lantern light; 24 feet above water. At elbow of W pier. Lat. N, 43° 16' 21"; long. W, 76° 58' 29". Weather Bureau signals displayed about 1 mile W'd.																		
Genesee East Pier Light (N. Y.).		White; black lantern.	Square, pyramidal, corrugated - iron tower, 23¼ feet high.			Fixed red lens-lantern light; 34 feet above water. Near outer end of E'ly pier, entrance to Charlotte Harbor, mouth of Genesee River. Weather Bureau signals displayed from United States Custom-House.																		
GENESEE LIGHT-STATION (N. Y.). (L. S. Chart 241.)		Brown below, white above; black lantern; brown fog - signal house.	Square, pyramidal tower, 30 feet high; corrugated - iron fog - signal house in rear; elevated walk along pier to shore; square oilhouse 112 feet in rear of fog-signal house.			4th-order fixed red light; 34 feet above water; visible 12¼ miles. Near outer end of W'ly pier, entrance to Charlotte Harbor, mouth of Genesee River, 9¼ miles SE'ly from Braddock Point Light-House. Lat. N, 43° 15' 47"; long. W, 77° 35' 59". Width between piers, 450 feet. Fog signal: 1st-class compressed-air siren, sounds thus: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>Blast</td><td>Silent interval</td><td>Blast</td><td>Silent interval</td></tr><tr><td>3 sec.</td><td>57 sec.</td><td>3 sec.</td><td>57 sec.</td></tr></table> If siren is disabled, a bell will be struck by machinery, thus: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>Silent interval</td><td>1 blow</td><td>Silent interval</td><td>1 blow</td><td>Silent interval</td></tr><tr><td></td><td>30 sec.</td><td></td><td></td><td>30 sec.</td></tr></table>	Blast	Silent interval	Blast	Silent interval	3 sec.	57 sec.	3 sec.	57 sec.	Silent interval	1 blow	Silent interval	1 blow	Silent interval		30 sec.			30 sec.
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3 sec.	57 sec.	3 sec.	57 sec.																					
Silent interval	1 blow	Silent interval	1 blow	Silent interval																				
	30 sec.			30 sec.																				
BRADDOCK POINT LIGHT - STATION (N. Y.).		Red; lantern and story below black lantern; brown oilhouse.	Octagonal pyramidal tower attached to W'ly side of dwelling; oilhouse N'ly; barn and wooded S'ly.			3½-order fixed white light; 92½ feet above water; visible 17.8 miles. On Bogus Point, about 2½ miles WNW'ly of Braddock Point, 9¼ miles NW'ly from Genesee Light-House. Lat. N, 43° 20' 27"; long. W, 77° 45' 45".																		
OAK ORCHARD LIGHT - STATION (N. Y.).		Brown below, white above; black lantern; brown oilhouse.	Square, pyramidal tower, 27 feet high; elevated walk along pier to shore; square, iron oilhouse near shore end of pier.			Fixed white lens-lantern light; 29½ feet above water. On outer end of W'ly pier, entrance to Oak Orchard Harbor, 14¼ miles E'ly from Thirty-Mile Point Light-House. Lat. N, 43° 22' 29"; long. W, 78° 11' 33". Width between piers, 190 feet.																		
THIRTY-MILE POINT LIGHT-STATION (N. Y.).		Dark-gray; black lantern and watchroom; brown oilhouses; white out-buildings.	Square tower, 53¼ feet high, on N'ly front of dwelling; 2 oilhouses 25 feet SW'ly; out-buildings E'd.			3d-order light, flashing white every 10 sec.; 71¼ feet above water; visible 16¼ miles. On Thirty-Mile Point, about 30 miles E'ly of mouth of Niagara River, 12 miles E'ly from Olcott Light-House. Lat. N, 43° 22' 30"; long. W, 78° 29' 11".																		
Olcott Light-Station (N. Y.).		Brown below, white above; black lantern; brown oilhouse.	Square, pyramidal tower, 27½ feet high; square, iron oilhouse 50 feet S'ly; elevated walk along pier to shore.			6th-order fixed white light; 30½ feet above water; visible 12¼ miles. On outer end of W'ly pier, entrance to Olcott Harbor, mouth of Eighteen-Mile Creek, 18 miles E'ly of Fort Niagara Light-House. Lat. N, 43° 20' 26"; long. W, 78° 43' 11". Width between piers, 175 feet.																		

Geo. H. Oct. 1910.

7

LAKE ONTARIO.

NIAGARA RIVER, BELOW THE FALLS.

U. S. Lake Survey Charts 25 and 256, and U. S. Hydrographic Office Chart 1477 issued at Lake Survey Office.

SAILING DIRECTIONS.—To enter Niagara River from Lake Ontario bring Fort Niagara Light to bear 149° , true (SSE $\frac{1}{2}$ E, mag.), distant 4 miles, thence keep Niagara-on-the-Lake Range Lights (Canadian) in range, passing to W'd of Fort Niagara Shoal Buoy, 1, and E'd of the Canadian gas and bell buoy until Fort Niagara Light is abeam, thence steer a mid-channel course up the river. The range line carries through a least depth of 15 feet; just inside the gas and bell buoy. Least depth on bar $9\frac{1}{2}$ feet, about $\frac{1}{4}$ mile W'd of the range line and $\frac{1}{2}$ mile inside the gas and bell buoy; an 11 $\frac{1}{2}$ -foot spot lies about 3 miles, 344° , true (N $\frac{3}{4}$ W, mag.), from Fort Niagara Light and about $\frac{3}{4}$ mile NE'y from the gas and bell buoy. The river is $\frac{1}{2}$ mile wide from mouth to Lewiston, N. Y., 6 miles above; depth, 5 to 12 fathoms; muddy or rocky bottom; banks bold and high. At Lewiston, the head of navigation, halfway to the Falls, current runs about 4 miles per hour, decreasing to 3 at mouth of river and $\frac{1}{4}$ mile 2 miles offshore.

E'y winds raise water level at W'y end of lake and in mouth of river and decrease current; W'y winds lower water and increase current; difference in water level may vary 3 feet either way.

1	2	3	4	5	6	7												
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.												
Fort Niagara Shoal Buoy.	1	Black	23-foot spar.	Fort Niagara Light-House, $140^{\circ} 15'$, $\frac{3}{4}$ mile. Fort Massasauga (Canadian), left tangent, $215^{\circ} 40'$, $\frac{1}{2}$ mile. Four-Mile Pond, tangent to point W'd of, $257^{\circ} 40'$, 3 miles.	Fet. 14	Marks W'y side of rocky shoal, E'y side of entrance to river and about $\frac{1}{4}$ mile inside 18-foot curve.												
FORT NIAGARA LIGHT - STATION (N. Y.).		Gray; white upper part; black lantern; brown oilhouse.	Octagonal tower, 60 feet high, oilroom attached; square, iron oilhouse 25 feet S'y; detached dwelling.			4th-order fixed white light; 89 $\frac{1}{2}$ feet above water; visible 17 $\frac{1}{2}$ miles. On high E'y bank of river, $\frac{1}{4}$ mile from its mouth. Lat. N, $43^{\circ} 15' 42''$; long. W, $79^{\circ} 03' 39''$. Only upper half of tower is visible from lake, $\frac{1}{2}$ mile off shore; to E'd, light is shut in by woods; in river it is occasionally shut in by trees. Port Dalhousie, entrance to Welland Canal, 11 miles W'd. <i>Weather Bureau signals displayed from life-saving station.</i>												
Niagara Gas and Bell Buoy (C.).		Red.	Cylindrical, steel, surmounted by pyramidal framework with bell and lantern.	Fort Niagara Light-House, $146^{\circ} 00'$, 2.3 miles. Fort Massasauga, $162^{\circ} 45'$. Four-Mile Point, $215^{\circ} 15'$.	20	7th-order occulting (a.) light. Moored off W'y side of mouth of river. May be passed close-to. Lat. N, $43^{\circ} 17' 40''$; long. W, $79^{\circ} 05' 30''$.												
Niagara-on-the-Lake Front Light (C.).		White; red lantern; red-roofed fog-signal building.	Square, wood; wooden fog-signal building on cribwork, 1,080 feet ($\frac{1}{2}$ mile) below; trumpet 10 feet above water.	Rear light, $132^{\circ} 30'$, 690 feet ($\frac{1}{2}$ mile).		4th-order fixed red light; 30 feet above water; visible 8 miles. Near SE'y corner of Niagara Navigation Co.'s wharf. Lat. N $43^{\circ} 15' 22''$; long. W, $79^{\circ} 03' 54''$.												
Niagara-on-the-Lake Rear Light-Station (C.).		White; red lantern.	Square, wood; iron lantern.			4th-order fixed red light; 43 feet above water; visible 9 $\frac{1}{4}$ miles. Lights visible in and over small arcs on each side of range line; range leads S by E $\frac{1}{4}$ E, mag., into river from gas and bell buoy on outermost shoal at entrance. Fog signal: Compressed-air diaphone, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent</td> </tr> <tr> <td style="text-align: center;">-----</td> <td style="text-align: center;">-----</td> <td style="text-align: center;">-----</td> <td style="text-align: center;">-----</td> </tr> <tr> <td style="text-align: center;">5 sec.</td> <td style="text-align: center;">115 sec.</td> <td style="text-align: center;">5 sec.</td> <td style="text-align: center;">115 sec.</td> </tr> </table>	Blast	Silent	Blast	Silent	-----	-----	-----	-----	5 sec.	115 sec.	5 sec.	115 sec.
Blast	Silent	Blast	Silent															
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5 sec.	115 sec.	5 sec.	115 sec.															

N'LY SHORE.

U. S. Lake Survey Charts 2 and 21, and U. S. Hydrographic Office Charts 1477 and 1837 issued at Lake Survey Office.

Pigeon Island Light-Station (C.).	White, red lantern; white dwelling.	Steel skeleton tower, inclosing stair-cylinder, and surmounted by wooden watch-room and cylindrical metal lantern; 85 feet high; wooden dwelling ENE'y.				4th-order (l. o. v.) light, white double flash every 5 sec. (flash 0.22 sec., eclipses alternately 0.78 sec. and 3.78 sec.); 65 feet above water; visible 13 miles. Four miles from head of Wolfe Island. Lat. N, $44^{\circ} 03' 30''$; long. W, $78^{\circ} 53' 10''$. Fog signal: Hand horn, answers signals from vessels.												
Outer Drake or False Ducks Light-Station (C.).	White, red lantern, red-roofed fog-signal building.	Circular, stone, rectangular wooden fog-signal building, trumpet, 15 feet above water, points S'y.				3rd-order fixed white light; 68 feet above water; visible 15 miles on E'y point of island. Lat. N, $43^{\circ} 56' 55''$; long. W, $78^{\circ} 48' 02''$. Fog signal: Compressed-air diaphone, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent</td> </tr> <tr> <td style="text-align: center;">-----</td> <td style="text-align: center;">-----</td> <td style="text-align: center;">-----</td> <td style="text-align: center;">-----</td> </tr> <tr> <td style="text-align: center;">4 sec.</td> <td style="text-align: center;">56 sec.</td> <td style="text-align: center;">4 sec.</td> <td style="text-align: center;">56 sec.</td> </tr> </table>	Blast	Silent	Blast	Silent	-----	-----	-----	-----	4 sec.	56 sec.	4 sec.	56 sec.
Blast	Silent	Blast	Silent															
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4 sec.	56 sec.	4 sec.	56 sec.															
South Bay Point Light-Station (C.).	White.	Square, wood, dwelling attached.				Reflector light, fixed red; 36 feet above water; visible 11 $\frac{1}{2}$ miles on Point Traverse. Lat. N, $43^{\circ} 56' 10''$; long. W, $78^{\circ} 51' 50''$.												

NIAGARA RIVER.

MAIN CHANNEL ABOVE STRAWBERRY ISLAND.

U. S. Lake Survey Charts 0, 3, 31, and 312.

Channel is buoyed for 14 feet draft of water.

SAILING DIRECTIONS.—Narrows reach, beginning at N'y end of Squaw Island, is 2 miles long, about $\frac{1}{2}$ mile wide, and from 3 to 6 fathoms deep; good water to within $\frac{1}{2}$ mile of either side; current 5 miles per hour, increasing to 7 at S'y end. The International bridge spans river near middle of Squaw Island; draw near E'y shore is lighted at night. The signal to open draw, a continuous whistle of at least 30 seconds' duration, should be made on entering river. Pass through draw on W'y side of pivot pier. If draw can not be opened, a red flag will be hoisted on "swing." Niagara Intake Crib, at S'y end of Narrows, may be passed on either side, but best channel is to W'd. Black Rock Harbor, a canal $3\frac{1}{2}$ miles long and 100 to 800 feet wide, formed along river front of Buffalo by Squaw Island and a pier extending from its S'y end is used by light-draft vessels bound up, to avoid the strong current of the Narrows: 7 feet of water may be carried through; a lock near its N'y end.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Range.	Niagara River Front Light (N. Y.).	White.....	Inclosed wooden tower, lower part cylindrical, upper part conical and shingled; rectangular concrete base.	Rear light, 29° 00', about $\frac{1}{2}$ mile.	Feet.	Fixed red lens-lantern light; 57½ feet above water; on Bird Island pier. Near E'y bank of Niagara River, nearly abreast Niagara Intake Crib. Lat. N. 42° 54' 20"; long. W. 78° 54' 08". With the following guides into Niagara River.
	Niagara River Rear Light-Station (N. Y.). (L. S. Chart 312.)	White; lantern and dome, part white, part black.	Octagonal, inclosed wooden tower, pyramidal above lower story; lantern with high dome.	Front light, 209° 00', about $\frac{1}{2}$ mile.		Fixed red lens-lantern light; 103 feet above water; in angle of small park, corner of Niagara and Hampshire streets, Buffalo, N. Y. Lat. N. 42° 54' (36"); long. W. 78° 54' (00").
	★ Niagara River Intake Crib Light (N. Y.).		Lantern on crib.....	Niagara River Range Rear Light-House, 71° 40', $\frac{1}{4}$ mile. Niagara River Range Front Light-House, 129° 30', $\frac{1}{4}$ mile. Horseshoe Reef Light-House, 195° 40', $1\frac{1}{2}$ miles.	15	Fixed red light, on crib. Maintained by city of Buffalo, N. Y.
	Fort Erie Point Buoy.....	2 Red.....	2d-class nun.....	Niagara River Intake Crib Light, 22° 30'. Niagara River Range Front Light, 46° 45'. Buffalo North Breakwater South End Light, 155° 30'.	17	Water shoals downstream to 14 feet.
	Bird Island Reef Buoy.....	1 Black.....	25-foot spar.....	Niagara Intake Crib, 17° 00', $\frac{1}{2}$ mile. Buffalo Light-House, 140° 40', $1\frac{1}{2}$ miles. Horseshoe Reef Light-House, 195° 30', 1 mile.	14	Marks W'y point of reef off angle of Black Rock Harbor pier, 17 feet in channel between this and buoy No. 4.
	Southeast Shoal Buoy.....	3 Black.....	25-foot spar.....	Niagara River Range Front Light-House, 28° 15', $1\frac{1}{2}$ miles. Buffalo Light-House, 129° 20', about $1\frac{1}{2}$ miles. Horseshoe Reef Light-House, 190° 00', about $\frac{3}{4}$ mile.	13	About 300 feet SE'y of Niagara River Range line.
	Limekiln Reef Buoy.....	4 Red.....	2d-class nun.....	Niagara Intake Crib Light, 27° 00', $1\frac{1}{2}$ miles. Buffalo Light-House, 131° 15', $1\frac{1}{4}$ miles. Horseshoe Reef Light-House, 182° 00', $\frac{3}{4}$ mile.	14	About $\frac{1}{2}$ mile from Canadian shore, nearly opposite buoy No. 3 and marks E'y point of reef; current, 4 miles per hour.
	Twelve-Foot Shoal Lower Buoy.	4½ Red.....	25-foot spar.....	Niagara River Range Front Light-House, 53° 45', $1\frac{1}{4}$ miles. Buffalo Light-House, 125° 15', $1\frac{1}{4}$ miles. Horseshoe Reef Light-House, 177° 15', $2\frac{1}{2}$ miles.	13	Marks 13-foot spot, about $\frac{1}{4}$ mile NNE'y of buoy No. 6.
	Twelve-Foot Shoal Upper Buoy.	6 Red.....	25-foot spar.....	Niagara River Range Rear Light-House, 52° 20', $1\frac{1}{4}$ miles. Buffalo Light-House, 118° 00', $1\frac{1}{2}$ miles. Horseshoe Reef Light-House, 164° 00', $\frac{1}{2}$ mile.	14	Marks 12-foot spot, about $\frac{1}{2}$ mile W'y of Niagara River Range line.
	Middle Reef Buoy.....	5 Black.....	2d-class can.....	Niagara River Range Front Light-House, 28° 45', $1\frac{1}{4}$ miles. Buffalo Light-House, 105° 40', $1\frac{1}{2}$ miles. Horseshoe Reef Light-House, 134° 40', about $\frac{1}{4}$ mile.	13	Marks W'y point of reef. Current, $1\frac{1}{2}$ miles per hour.

NIAGARA RIVER.

MAIN CHANNEL ABOVE STRAWBERRY ISLAND—Continued.

U. S. Lake Survey Charts 0, 3, 31, and 312.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Horseshoe Reef Light-Station (U. S.).	White; black lantern; red oilhouse.	Square, 1-story tower, elevated 10 feet above masonry pier, cribwork ice breaker on S'y and W'y sides; square, iron oilhouse on SW'y side.	.....	Fath. 6	4th-order light, flashing red every 5 sec.; 44½ feet above water, visible 14 miles. In Canadian waters, on Middle Reef, near S'y end, entrance from Lake Erie to Niagara River, and on N'y side of approach to Buffalo Harbor. Lat. N, 42° 52' 53"; long. W, 78° 54' 55". Reef separates main or Canadian Channel from Emerald Channel.

EMERALD CHANNEL.

U. S. Lake Survey Charts 0, 3, 31, and 312.

SAILING DIRECTIONS.—Channel for light-draft vessels bound to Buffalo; lies between Middle Reef on W'y and Bird Island and Horseshoe reefs on E'y side. From abreast Bird Island Reef Buoy, 1, steer 108°, true (S 1½ E, mag.), ¼ mile to abreast buoy No. 8, having passed about ¼ mile E'd of Southeast Shoal Buoy, 3, thence 154°, true (S by E ¼ E, mag.), ¼ mile to gas buoy No. 3 and round this to E'd to enter either outer or inner harbor of Buffalo. Current sets strong across channel.

Emerald Channel Buoy..	8	Red.....	3d-class nun.....	Buffalo Breakwater North End Light-House, 139° 30', about 1 mile. Horseshoe Reef Light-House, 203° 00', about ½ mile. Strawberry Island Upper Cut Range Rear Light, 0° 15', 4½ miles.	14	Marks N'y end of Middle Reef. Current, 1½ miles per hour.
Horseshoe Reef Gas Buoy, No. 3 (N. Y.).	3	Black.....	Conical, surmounted by pyramidal latticework and lantern.	Buffalo Breakwater South End Light, 77° 15'. Buffalo Breakwater North End Light-House, 117° 30', about ¼ mile. Horseshoe Reef Light-House, 283° 00'.	21	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. On E'y side of S'y entrance to Emerald Channel; also on N'y side of North Entrance to Buffalo Harbor. Current, 1 mile per hour.

LAKE ERIE.

BUFFALO HARBOR, N. Y.

U. S. Lake Survey Charts 0, 3, 31, and 312, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

BUFFALO HARBOR includes Buffalo River, City Ship Canal, and Lehigh Valley Basins, forming inner harbor, and outer harbor, which embraces Black Rock Harbor, Erie Basin, and large Outer Harbor. **BUFFALO RIVER** varies from 175 to 300 feet in width for 3½ miles from its mouth; least depth 22 feet. **CITY SHIP CANAL**, an artificial waterway, extends SE'y about 2¼ miles from mouth of river, between river and lake shore, to entrance to **LEHIGH VALLEY BASINS**; average width about 200 feet, least depth 19 feet. **BLACK ROCK HARBOR** extends along Niagara River front of Buffalo and is separated from river by Bird Island Pier and Squaw Island, and from Erie Canal, to E'd, by an embankment. **ERIE BASIN** is formed by New York State Breakwater, extending about ½ mile NNW'y from a point off mouth of Buffalo River; channel along fronts of piers on E'y side of basin. **NORTH BREAKWATER**, extending from shoalest part of Horseshoe Reef SE'y about ½ mile, protects SE'y part of Black Rock Harbor and N'y entrance to Erie Basin. **OUTER HARBOR**, formed by Old, South, and Stony Point breakwaters, running nearly 4 miles, approximately parallel with and about ½ mile offshore, to S'd of mouth of Buffalo River, affords good anchorage; clay and sand bottom. The curve of 18 feet runs nearly midway between line of breakwaters and shore line, the deeper water, varying from 19 to 30 feet, being in W'y half of harbor. **NORTH ENTRANCE** has a least depth of 22 feet; is direct approach to inner harbor, also approach to both entrances to Erie Basin, the S'y entrance to Black Rock Harbor, and to N'y entrance to Outer Harbor. **SOUTH ENTRANCE** is 550 feet wide, between ends of South and Stony Point breakwaters, has a least depth of 25 feet, is about 3¼ miles to S'd and E'd of North Entrance, and carries into S'y part of Outer Harbor.

SAILING DIRECTIONS.—SW'y gales may raise the water in harbor from 3 to 6 feet; gales from opposite direction may lower it 2 to 3 feet.

NORTH ENTRANCE: Deepest water is marked by one spar and three gas buoys. From either side of Waverly Shoal Gas Buoy pass gas buoys Nos. 1 and 2 close-to, then midway between gas buoy No. 3 and spar buoy No. 4, thence, if bound into inner harbor, steer for Buffalo Light and pass close to N'd of it into mouth of river. If bound to S'y entrance to **ERIE BASIN**, when abreast of light-house haul up to pass between S'y end of New York State Breakwater and W'y end of N'y pier at mouth of river. **BLACK ROCK HARBOR** (S'y end), or N'y entrance to **ERIE BASIN** should be approached by steering from abreast Buffalo Breakwater North End Light to pass to S'd of Buffalo North Breakwater South End Light and when abreast of it change course to about NE by N, mag., and follow buoys. **OUTER HARBOR**: N'y entrance; from abreast Buffalo Breakwater North End Light swing to S'd. **SOUTH ENTRANCE**: Pass close to N'y side of gas buoy No. 10, thence midway between lights marking ends of breakwaters and straight ahead if bound to entrance to Buffalo and Susquehanna Iron Company Canal, or swing to S'd for Lackawanna Steel Company, or to N'd for anchorage.

Horseshoe Reef Light-Station (U. S.).	.....	White; black lantern, red oilhouse.	Square, 1-story tower, elevated 10 feet above masonry pier, cribwork ice breaker on S'y and W'y sides; square, iron oilhouse on SW'y side.	.....	6	4th-order light, flashing red every 5 sec.; 44½ feet above water; visible 14 miles. In Canadian waters, on Middle Reef, near its S'y end, S'y entrance to Niagara River, and N'y side of approach to Buffalo Harbor. Lat. N, 42° 52' 53"; long. W, 78° 54' 55".
★Buffalo Intake Crib Light (N. Y.).	.....	.....	Lantern on crib.....	Niagara River Range Front Light, 14° 45'. Buffalo Light-House, 94° 45'. Horseshoe Reef Light-House, 310° 49', about ¼ mile.	17	Two fixed white lights. On SE'y part of Middle Reef, N'y side of North Entrance to harbor. Maintained by city of Buffalo.

LAKE ERIE.

BUFFALO HARBOR, N. Y.—Continued.

U. S. Lake Survey Charts 0, 3, 31, and 312, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7																				
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.																				
North Entrance Shoal Gas Buoy, No. 1 (N. Y.).	1	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Buffalo Breakwater North End Light-House, 72° 30', about $\frac{1}{4}$ mile. Old Breakwater, right tangent, 124° 30'. Horseshoe Reef Light-House, 344° 00'.	<i>Fath.</i> 22	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. On NWly side of deepest channel in North Entrance, and about $\frac{1}{4}$ mile ESEly from 18-foot shoal.																				
Channel Shoal Gas Buoy (N. Y.).	2	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	North Breakwater, left tangent, 24° 45'. Buffalo Breakwater North End Light-House, 89° 00', $\frac{3}{4}$ mile. Horseshoe Reef Light-House, 299° 45'.	21	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water On Sly side of North Entrance																				
Breakwater Shoal Buoy (N. Y.).	4	Red.....	25-foot spar.....	North Breakwater, left tangent, 8° 30'. Buffalo Breakwater North End Light-House, 95° 45', about $\frac{1}{4}$ mile. Horseshoe Reef Light-House, 290° 30'.	22	Marks Nly end of shoal.																				
Horseshoe Reef Gas Buoy, No. 3 (N. Y.).	3	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Buffalo North Breakwater South End Light, 77° 15', about $\frac{3}{4}$ mile. Buffalo Breakwater North End Light-House, 117° 30', about $\frac{1}{4}$ mile. Horseshoe Reef Light-House, 283° 00'.	21	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. On Nly side of North Entrance; also on Ely side of Sly entrance to Emerald Channel between Horseshoe Reef and Middle Reef.																				
Buffalo Breakwater North End Light-Station (N. Y.).		White; black lantern; brown fog-signal house.	Square, 1-story lower, octagonal watchroom; on crib.	Buffalo Light-House, 86° 00', $\frac{1}{2}$ mile, nearly.	22	4th-order fixed red light; 53½ feet above water; visible 13 miles. At Sly side of entrance to harbor, behind Nly end of Old Breakwater. Lat. N, 42° 52' 40"; long. W, 78° 53' 56". Give berth of not less than 50 feet in passing. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">Silent interval</td> <td></td> <td style="text-align: center;">Silent interval</td> </tr> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">3 sec.</td> </tr> <tr> <td></td> <td style="text-align: center;">57 sec.</td> <td></td> <td style="text-align: center;">57 sec.</td> </tr> </table> If whistle be disabled, a bell will be struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">Silent interval</td> <td></td> <td style="text-align: center;">Silent interval</td> </tr> <tr> <td style="text-align: center;">3 blows</td> <td style="text-align: center;">30 sec.</td> <td style="text-align: center;">3 blows</td> <td style="text-align: center;">30 sec.</td> </tr> </table>		Silent interval		Silent interval	Blast	3 sec.	Blast	3 sec.		57 sec.		57 sec.		Silent interval		Silent interval	3 blows	30 sec.	3 blows	30 sec.
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	57 sec.		57 sec.																							
	Silent interval		Silent interval																							
3 blows	30 sec.	3 blows	30 sec.																							
Buffalo North Breakwater South End Light (N. Y.).		White.....	Bottle-shaped iron structure.	Buffalo Breakwater North End Light-House, 216° 15', $\frac{1}{4}$ mile.	21	Fixed red lens-lantern light; 36½ feet above water; visible 8½ miles. On Nly side of entrance to harbor, near SEly end of North Breakwater. Lat. N, 42° 52' 48"; long. W, 78° 53' 44".																				
Buffalo River Junction Buoy.		Red and black horizontal stripes.	25-foot spar.....	Buffalo Light-House, 106° 30', $\frac{1}{4}$ mile. Buffalo Breakwater North End Light-House, 245° 00', $\frac{1}{4}$ mile. Buffalo North Breakwater South End Light, 341° 45', $\frac{1}{4}$ mile.	23	Marks junction of channels to Buffalo River and Black Rock Harbor.																				
Buffalo River Buoy.....	1	Black.....	25-foot spar.....	Buffalo Light-House, 127° 00', $\frac{1}{4}$ mile. Buffalo Breakwater North End Light-House, 254° 00', $\frac{1}{4}$ mile. Buffalo North Breakwater South End Light, 296° 00', $\frac{1}{4}$ mile.	23	Marks Nly edge of entrance channel to Buffalo River.																				
BUFFALO LIGHT-STATION (N. Y.).		White; black lantern; brown oil-house.	Octagonal tower, 61½ feet high; square, iron oil-house about 50 feet Ely.	Dunkirk Light-House, 222° 15', 3½ miles. Buffalo Breakwater North End Light-House, 260° 00', $\frac{1}{2}$ mile, nearly.		3d-order light flashing white every 5 sec.; 76 feet above water; visible 16½ miles. On Sly pier of entrance to harbor, 342 feet from outer end. Lat. N, 42° 52' 40"; long. W, 78° 53' 23". The Sly pier projects 900 feet beyond the Nly; width between piers, 200 feet; 21 feet of water in mid-channel and alongside Nly pier; and 10 to 14 feet alongside Sly pier; soft bottom. Weather Bureau signals displayed from roof of Prudential Building, Life-Saving Station on S pier.																				
Black Rock Harbor Entrance Buoy.	2	Red.....	25-foot spar.....	N. Y. State Breakwater, NWly corner, 28° 45', $\frac{1}{4}$ mile. Buffalo Light-House, 145° 30', $\frac{1}{2}$ mile. Buffalo North Breakwater South End Light, 239° 45', $\frac{1}{4}$ mile.	23	Marks Ely edge of channel to Black Rock Harbor.																				

LAKE ERIE.

BUFFALO HARBOR, N. Y.—Continued.

U. S. Lake Survey Charts 0, 3, 31, and 312, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7										
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.										
Black Rock Harbor Entrance Buoy.	1	Black.....	25-foot spar.....	N. Y. State Breakwater, NW'ly corner, 55° 00', 1/2 mile. Buffalo Light-House, 148° 00', 1/2 mile. Buffalo North Breakwater South End Light, 210° 15', 1/2 mile.	Fct. 23	Marks W'ly edge of channel to Black Rock Harbor.										
Black Rock Harbor Entrance Buoy.	3	Black.....	25-foot spar.....	N. Y. State Breakwater, NW'ly corner, 146° 15', 1/2 mile. Buffalo North Breakwater South End Light, 209° 30', 1/2 mile. Bird Island Pier, right tangent, 315° 00', 1/2 mile.	23	Marks turning point in channel to Black Rock Harbor.										
Black Rock Harbor Entrance Buoy.	5	Black.....	25-foot spar.....	N. Y. State Breakwater, NW'ly corner, 143° 15', 1/2 mile. Buffalo North Breakwater South End Light, 188° 00', 1/2 mile. Bird Island Pier, left tangent, 308° 30', 1/2 mile.	23	Marks W'ly edge of channel to Black Rock Harbor.										
Black Rock Harbor Entrance Buoy.	7	Black.....	25-foot spar.....	N. Y. State Breakwater, NW'ly corner, 141° 30', 1/2 mile. Buffalo North Breakwater South End Light, 175° 30', 5/8 mile. Bird Island Pier, left tangent, 219° 45', 3/8 mile.	23											
Black Rock Harbor Entrance Buoy.	4	Red.....	25-foot spar.....	N. Y. State Breakwater, NW'ly corner, 146° 15', 1/2 mile. Buffalo North Breakwater South End Light, 178° 00', 1/2 mile. Bird Island Pier, left tangent, 225° 00', 1/2 mile.	23	Marks E'ly edge of channel to Black Rock Harbor.										
Buffalo South Entrance Gas Buoy, No. 10 (N. Y.).	10	Red.....	Conical, surmounted by pyramidal latticework and lantern.	South Buffalo North Side Light, 84° 30', 1/2 mile. South Buffalo South Side Light-House, 117° 00', 1 mile. South Breakwater, left tangent, 338° 45', 1 1/2 miles.	32	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; at S'ly entrance to outer harbor of Buffalo, E'ly end of Lake Erie. Marks outer end of lakeward extension of Stony Point Breakwater, in process of construction.										
South Buffalo North Side Light (N. Y.).		White.....	Bottle-shaped iron structure.			Fixed white lens-lantern light; 36 1/4 feet above water; on N'ly side of the main S'ly entrance to harbor of Buffalo. Lat. N, 42° 50' 04"; long. W, 78° 52' 04".										
South Buffalo South Side Light-Station (N. Y.).		Lower part reddish brown, upper part white; black lantern; brown fog-signal house.	Iron tower, lower part cylindrical, upper part conical; fog-signal house adjoining.			4th-order flashing light, one red and two white flashes alternately; intervals 10 sec.; 52 1/2 feet above water; visible 13 miles. On NW'ly end of Stony Point Breakwater, S'ly side of main S'ly entrance to harbor of Buffalo. Lat. N, 42° 49' 58"; long. W, 78° 52' 03". Fog signal: 1st-class, automatic compressed-air siren, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>Blast</td> <td>Silent Interval</td> <td>Blast</td> <td>Silent Interval</td> </tr> <tr> <td></td> <td>2 sec.</td> <td>28 sec.</td> <td>2 sec.</td> <td>28 sec.</td> </tr> </table>		Blast	Silent Interval	Blast	Silent Interval		2 sec.	28 sec.	2 sec.	28 sec.
	Blast	Silent Interval	Blast	Silent Interval												
	2 sec.	28 sec.	2 sec.	28 sec.												
Lackawanna Front Light (N. Y.).			Post.	Rear light, 127° 00', 350 feet.		Fixed red (a. a.) lights, visible 4 miles. Range for dredged entrance to slip. Maintained by Lackawanna Steel Company, of Lackawanna, N. Y.										
Lackawanna Rear Light (N. Y.).			Post.													
Buffalo South Entrance Temporary Buoy.	1	Black.....	Spar.....	Buffalo and Susquehanna Canal Entrance, 90° 00', 1/2 mile. South Buffalo South Side Light-House, 281° 15', 1/2 mile. South Buffalo North Side Light, 303° 45', 1/2 mile.		Marks N'ly side of entrance to dredged channel into Buffalo and Susquehanna Iron Company's canal.										

LAKE ERIE.

S'LY SHORE, BETWEEN BUFFALO AND DUNKIRK HARBORS, N. Y.

U. S. Lake Survey Charts 0, 3, 31, and 312, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Waverly Shoal Gas Buoy (N. Y.).		Red and black horizontal stripes.	Conical, surmounted by pyramidal latticework and lantern.	Horseshoe Reef Light-House, 44° 13', 1¼ miles. Buffalo Light-House, 68° 15', 2¼ miles. Windmill Point (Canada), left tangent, 274° 30', 3¼ miles.	<i>Fath.</i> 16	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; near SW'ly end of shoal. Least water 12 feet, about 600 feet NE'ly of buoy. Shoal, about 100 feet wide, extends about ½ mile NE'ly.
Seneca Shoal Gas Buoy, No. 1 (N. Y.).	1	Black	Conical, surmounted by pyramidal latticework and lantern.	Buffalo Breakwater North End Light-House, 16° 20', 6¼ miles. Point Abino (Canada), 289° 30', 8¼ miles. South Buffalo South Side Light-House, 49° 20', 4¼ miles.	17	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; on NW'ly side of shoal, and about 600 feet SW'ly from 1¼-foot spot.

DUNKIRK HARBOR, N. Y.

U. S. Lake Survey Charts 0, 3, 31, 32, and 318, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

There is 19 feet depth in channel between breakwater and pier, and 18 feet in dredged part of harbor.

Protection of harbor consists of detached breakwater nearly 3,000 feet long and a pier extending from W'ly side of harbor toward breakwater, leaving an entrance with a 200-foot channel between W'ly end of breakwater and E'ly end of pier.

SAILING DIRECTIONS.—In approaching harbor get Dunkirk Pierhead Light to bear 146°, true (SSE ½ E, mag.), and run for it until abreast Outer Buoy, 2; then steer for entrance, midway between breakwater and pier; thence parallel to channel arm of breakwater until abreast Elbow Buoy, 6; thence midway between buoys 1 and 8; then steer for docks.

DUNKIRK LIGHT-STATION (N. Y.).		Reddish gray; white above main gallery; black lantern; drab dwelling.	Square tower, 53½ feet high, covered way to brick dwelling; another dwelling E'ly; barn between dwellings, partly hidden by trees.	Presque Isle Pierhead Light-House, 237° 39', 44¼ miles.		3d-order fixed white light varied by white flash every 45 sec.; 82 feet above water; visible 17 miles. On Point Gratiot, about ½ mile W'ly of entrance to harbor. Lat. N, 42° 29' 38"; long. W, 79° 21' 15".
Outer Buoy	2	Red	3d-class nun	Breakwater, left tangent, 83° 30'. Dunkirk Pierhead Light 131° 00'. Dunkirk Light-House 256° 40'.	15	Marks W'ly side of entrance to dredged channel.
Dunkirk Pierhead Light (N. Y.).		Brown base; white upper part; red lantern roof.	Inclosed tower, square base; upper part, pyramidal, octagonal lantern.			Fixed red lens-lantern light; 41 feet above water; on outer end of W pier, S'ly side of entrance to channel, and about ½ mile E'ly of Dunkirk Light-House. Lat. N, 42° 29' 36"; long. W, 79° 20' 42".
Pierhead Light Buoy	4	Red	20-foot spar	Breakwater, left tangent, 4° 00'. Waterworks crib, 163° 00'. Dunkirk Pierhead Light, 292° 00'.	13	Marks S'ly side of dredged channel.
Elbow Buoy	6	Red	20-foot spar	Breakwater, E'ly end, 32° 20'. Waterworks crib, 192° 00'. Angle in breakwater, 319° 15'.	13	Marks elbow in dredged channel.
Inner Buoy	8	Red	20-foot spar	Breakwater, E'ly end, 44° 40'. Waterworks crib, 202° 00'. Breakwater angle, 314° 45'.	13	Marks SW'ly side of inner end of dredged channel.
North Bank Buoy	1	Black	20-foot-spar	Breakwater, E'ly end, 49° 15'. Waterworks crib, 201° 30'. Breakwater angle, 285° 40'.	13	Marks N'ly side of inner end of dredged channel.

LAKE ERIE.

ERIE HARBOR, PA.

U. S. Lake Survey Charts 0, 3, 32, 33, and 332, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

There is 19 feet depth in channel into harbor.

Piers 360 feet apart, both rippared inside. Strong currents between piers when water level outside is changed by E'ly or W'ly winds. The general depth of water in Erie Harbor is from 3 to 5 fathoms, mud, clay, or sand bottom, chiefly mud in deep water and sand on shoals; 3 fathoms of water can be carried to within about ½ mile of N'ly and S'ly shores, except opposite Waterworks Pumping Station, where a shoal makes out from N'ly shore nearly halfway across bay.

SAILING DIRECTIONS.—Erie Harbor Outer Gas Buoy, No. 2, may be approached from E'd on any course between S by W ½ W, mag., and SW by W ½ W, mag. Presque Isle Pierhead Light-House and Erie Range, No. 1, Light-House form range for approaching entrance between piers; from W'ly end of N pier a straight channel, 300 feet wide, 20 feet deep, leads to inner harbor. Course leads between piers until Erie Range Light, No. 1, on W'ly end of pier, is in range astern with Erie Range Light, No. 2, near SW'ly corner of keeper's dwelling; then follow range to Elbow Buoy, 5; thence steer for docks.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Presque Isle Fog-Signal Station (Pa.)		White	Rectangular 1-story building; two black stacks.			On NE'ly shore of peninsula, about 1¼ miles NW'ly of entrance to Erie Harbor and about 1½ miles E'ly of Presque Isle Light-House. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>25 sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	25 sec.	5 sec.	25 sec.
Blast	Silent interval	Blast	Silent interval											
5 sec.	25 sec.	5 sec.	25 sec.											
Erie Harbor Outer Gas Buoy, No. 2 (Pa.)	2	Red	Conical, surmounted by pyramidal lattice work and lantern.	Erie Unused Light-House, 168° 00'. Presque Isle Pierhead Light-House, 237° 30'. Presque Isle Light-House, 280° 00'.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks shoal on N'ly side of entrance to harbor.								
Outer Buoy	1	Black	25-foot spar.	Erie Unused Light-House, 151° 30'; ½ mile. Erie Range Light, No. 1, 250° 45'; ¾ mile. Presque Isle Pierhead Light-House, 286° 17'; ¾ mile.	17	Marks S'ly side of entrance to channel, in sandy bottom, nearly abreast outer end of N pier.								
Range. Presque Isle Pierhead Light-Station (Pa.)		White, brown trimmings; black lantern; white fog-signal house.	Pyramidal tower, 32 feet high; square pyramidal bell tower 300 feet E'ly; elevated walk along pier to shore.	Erie Range Light, No. 1, 242° 15', 2,650 feet (½ mile).		4th-order fixed red light; 40½ feet above water; visible 13 miles. About 530 feet inside E'ly end of N pier. Lat. N, 42° 09' 04"; long. W, 80° 04' 22". Fog-signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>1 blow</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>10 sec.</td> <td></td> <td>10 sec.</td> </tr> </table>	1 blow	Silent interval	1 blow	Silent interval		10 sec.		10 sec.
1 blow	Silent interval	1 blow	Silent interval											
	10 sec.		10 sec.											
Range. Erie Light, No. 1 (Pa.)		White	Octagonal lantern on square, pyramidal, wooden tower.	Erie Range Light, No. 2, 54° 15', 875 feet.		Fixed white lights. No. 1, 6th-order light; 33 feet above water; visible 12½ miles; on W'ly end of N pier. Lat. N, 42° 09' 04"; long. W, 80° 04' 54". No. 2, lens-lantern; 54½ feet above water. Lat. N, 42° 09' 12"; long. W, 80° 04' 49". Presque Isle Pierhead Light forms range with light No. 1 for approaching piers; after passing light No. 1, range between it and Erie Range Light, No. 2, guides through dredged channel inside harbor into deep water.								
Erie Light, No. 2 (Pa.)		White; black daymark; yellow dwelling; white out-houses.	Mast, with round daymark near top; dwelling just NE'ly; square oil-house W'ly.	Erie Range Light, No. 1, 234° 15', 875 feet.		Brown life-saving station behind pier W'ly of dwelling.								
North Bank Buoy	4	Red	16-foot spar.	Erie Range Light, No. 1, 64° 45', 1,150 feet. Erie Unused Light-House, 111° 00', 1¼ miles. Waterworks Stand-pipe, 205° 15'.	10½	On N'ly bank of dredged channel, midway between W'ly end of N pier and buoy No. 6.								
South Bank Buoy	3	Black	16-foot spar.	Erie Range Light, No. 1, 48° 00', 1,520 feet. Erie Unused Light-House, 106° 30', 1¼ miles. Waterworks Stand-pipe, 205° 15'.	10½	At angle of S'ly bank.								
Middle Buoy	6	Red	20-foot spar.	Erie Range Light, No. 1, 62° 00'. Storm-Signal Station, 104° 00'. Waterworks Stand-pipe, 200° 00'.	13½	On N'ly bank close to channel.								
Elbow Buoy	5	Black	25-foot spar.	Erie Range Light, No. 1, 50° 20', ¾ mile. Coal Trestle, right tangent, 150° 45'. Waterworks Stand-pipe, 202° 00', ¼ miles.	18	On S'ly side of dredged channel, at elbow of channel and dredged basin of harbor.								

LAKE ERIE.

ERIE HARBOR, PA.—Continued.

U. S. Lake Survey Charts 0, 3, 32, 33, and 332, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Inner Buoy.....	7	Black.....	25-foot spar.....	Erie Range Light, No. 1, 18° 45', 2½ mile. Coal Trestle, right tangent, 174° 20', ¼ mile. Waterworks Stand-pipe, 217° 00', 1 mile.	Fect. 17	On E'y edge of dredged basin of harbor.
Erie Harbor Inner Gas Buoy, No. 8 (Pa.).	8	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Erie Range Light, No. 1, 57° 00', ¾ mile. Coal Trestle, left tangent, 137° 00'. Waterworks Stand-pipe, 195° 30'.	16.	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; on N'y bank, near inner end of dredged channel. Weather Bureau signals displayed from life-saving station.

S'LY SHORE, BETWEEN PRESQUE ISLE AND SANDUSKY BAYS.

U. S. Survey Charts 0, 3, 33, 34, 35, and 36, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7												
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.												
PRESQUE ISLE LIGHT-STATION (Pa.) (L. S. Chart 332.)		White; red dwelling; black lantern; brown oilhouse.	Square tower, 64½ feet high, attached to brick dwelling partly hidden by trees; square oilhouse N'y.	Conneaut Harbor Range Front Light-House, 240° 00', 26 miles. Presque Isle Fog-Signal Station, 78° 00', 1½ miles.		4th-order light, flashing alternately red and white, interval 10 sec.; 73½ feet above water; visible 16½ miles. On NW'y shore of peninsula, 400 feet from lake, about 1 mile W'd of N'y projection of peninsula, and 3 miles by water, W'd of entrance to Erie Harbor. Lat. N, 42° 09' 57"; long. W, 80° 00' 53".												
CONNEAUT HARBOR FRONT LIGHT-STATION (Ohio).		White; black lantern; white bell-tower.	2-story wooden tower, lower story cylindrical, upper story conical; cylindrical lantern; bell-tower along-side.	Rear light, 161° 00', ¼ mile. Presque Isle Light-House, 60° 00', 26 miles. Ashtabula Harbor Range Front Light-House, 251° 00', 13½ miles.	20	5th-order fixed white light, visible 13½ miles; 42 feet above water; on pierhead at NE'y end of west breakwater. Lat. N, 41° 58' 39"; long. W, 80° 33' 10". With next marks approach to harbor. Fog signal: Bell struck by machinery, thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>2 blows</td> <td>Silent</td> <td>2 blows</td> <td>Silent</td> </tr> <tr> <td></td> <td>interval</td> <td></td> <td>interval</td> </tr> <tr> <td></td> <td>30 sec.</td> <td></td> <td>30 sec.</td> </tr> </table>	2 blows	Silent	2 blows	Silent		interval		interval		30 sec.		30 sec.
2 blows	Silent	2 blows	Silent															
	interval		interval															
	30 sec.		30 sec.															
Conneaut Harbor Rear Light (Ohio). (L. S. Chart 335.)		Dark red; black lantern; brown oilhouse; lead-colored boathouse.	Square, pyramidal tower; small boathouse 1,003 feet S'y on W'y side of west pier; square oilhouse 50 feet S'y; elevated walk along pier to shore.			5th-order fixed red light; 61½ feet above water; visible 9½ miles; at outer end of west pier. Weather Bureau signals displayed from tower on highest bluff of harbor, near Perry Co.'s building.												
ASHTABULA HARBOR FRONT LIGHT-STATION (Ohio). (L. S. Chart 342.)		White; black lantern.	Square, 2-story, iron house, pyramidal roof, surmounted by low cylindrical tower; cylindrical lantern.	Rear light, 178° 32', 1,885 feet.		4th-order fixed red light; 42 feet above water; visible 13 miles. On NE'y end of west breakwater at entrance to Ashtabula Harbor. Lat. N, 41° 54' 49"; long. W, 80° 47' 57". Channel dredged to 20 feet, but depth is unstable. Fog signal: 1st-class, automatic compressed-air siren, sounds thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent</td> <td>Blast</td> <td>Silent</td> </tr> <tr> <td>interval</td> <td>interval</td> <td>interval</td> <td>interval</td> </tr> <tr> <td>4 sec.</td> <td>33 sec.</td> <td>4 sec.</td> <td>33 sec.</td> </tr> </table>	Blast	Silent	Blast	Silent	interval	interval	interval	interval	4 sec.	33 sec.	4 sec.	33 sec.
Blast	Silent	Blast	Silent															
interval	interval	interval	interval															
4 sec.	33 sec.	4 sec.	33 sec.															
Ashtabula Harbor Rear Light (Ohio)		Brown; black lantern.	Square, pyramidal tower, octagonal lantern; square oilhouse 50 feet S'y; elevated walk along pier to shore.			Fixed red lens-lantern light; 68 feet above water; on W'y side of channel, 40 feet from outer end of pier; with preceding forms range for approaching harbor. Weather Bureau signals displayed from tower on river bank near E'y end of bridge.												
FAIRPORT LIGHT-STATION (Ohio). (L. S. Chart 346.)		Gray; black lantern; red dwelling.	Conical tower, 60 feet high, covered; square oilhouse 50 feet N'y.	Cleveland West Breakwater East End Light-House, 222° 00', 28½ miles.		3d-order fixed white light; 102½ feet above water; visible 18½ miles. On the bluff, E'y side of mouth of Grand River, at Fairport, Ohio. Lat. N, 41° 45' 25"; long. W, 81° 16' 39".												
Fairport Pierhead Front Light (Ohio)		Brown below; white above; black lantern	Square pyramidal wooden tower, 28 feet high; elevated walk along pier to shore.	Rear light, 177° 00', 1,035 feet.		6th-order fixed white light; 37 feet above water; visible 13 miles. About 20 feet from outer end of E pier, entrance to Fairport Harbor, mouth of Grand River. Lat. N, 41° 45' 45"; long. W, 81° 16' 50". Width between piers, 200 feet; best water near E pier; sandy bottom.												
Fairport Pierhead Rear Light (Ohio)		Red.....	Square, pyramidal, wooden framework, square lantern, 48 feet high.			Fixed red lens-lantern light; 55 feet above water; near shore end of E pier. With preceding forms range for approaching entrance to harbor. Direction of piers, 357° 00', true (N 4 E, mag.). Weather Bureau signals displayed from tower on bluff near reservoir.												
Cleveland East Breakwater Pierhead Light (Ohio)			Square, pyramidal, open wooden framework.	Cleveland East Breakwater West End Light, 143° 10', 1,050 feet.	57	Fixed red lens-lantern light; 27 feet above water. On pierhead at NW'y end of rubble mound breakwater connecting with old E breakwater, E'y side of main entrance to Cleveland Harbor.												
Cleveland West Breakwater Pierhead Light (Ohio)			Square, pyramidal, open wooden framework.	Cleveland West Breakwater East End Light-House, 146° 00'	57	Fixed white lens-lantern light; 27 feet above water. On pierhead at N'y end of rubble mound breakwater connecting with old W breakwater, W'y side of main entrance to Cleveland Harbor. Lat. N, 41° 30' (35"); long. W, 81° 43' (05").												
Cleveland East Breakwater West End Light (Ohio)		Brown; buff lantern room.	Square, pyramidal open framework tower; octagonal lantern.			Fixed red lens-lantern light; 35 feet above water; near W'y end of E breakwater. Lat. N, 41° 30' 29"; long. W, 81° 42' 47".												

LAKE ERIE.

SHLY SHORE, BETWEEN PRESQUE ISLE AND SANDUSKY BAYS—Continued.

U. S. Survey Charts 0, 3, 33, 34, 35, and 36, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7																								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.																								
Cleveland West Breakwater East End Light-Station (Ohio). (L. S. Chart 354.)		Brown; black lantern;	Octagonal pyramidal tower, 46½ feet high; corrugated iron fog-signal house on crib.			4th-order light, flashing alternately red and white. Interval 10 sec.; 35½ feet above water; visible 14.9 miles. On crib, 24 feet S'ly of E'ly end of W breakwater. Lat. N, 41° 30' 23"; long. W, 81° 42' 55". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>Silent</td> <td></td> <td>Silent</td> </tr> <tr> <td>Blast</td> <td>interval</td> <td>Blast</td> <td>interval</td> </tr> <tr> <td>3 sec.</td> <td>57 sec.</td> <td>3 sec.</td> <td>57 sec.</td> </tr> </table> If whistle be disabled, a bell will be struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>Silent</td> <td></td> <td>Silent</td> </tr> <tr> <td>1 blow</td> <td>interval</td> <td>1 blow</td> <td>interval</td> </tr> <tr> <td></td> <td>10 sec.</td> <td></td> <td>10 sec.</td> </tr> </table> White flag displayed from flagstaff at this station during day or red light at night is a distress signal to life-saving crew.		Silent		Silent	Blast	interval	Blast	interval	3 sec.	57 sec.	3 sec.	57 sec.		Silent		Silent	1 blow	interval	1 blow	interval		10 sec.		10 sec.
	Silent		Silent																											
Blast	interval	Blast	interval																											
3 sec.	57 sec.	3 sec.	57 sec.																											
	Silent		Silent																											
1 blow	interval	1 blow	interval																											
	10 sec.		10 sec.																											
Cleveland East Pier Light (Ohio).		Brown; black lantern.	Square, pyramidal tower, 30½ feet high.	Cleveland East Breakwater West End Light-House, 338° 00', 5½ miles.		6th-order fixed red light; 36½ feet above water; visible 8½ miles. Near outer end of E pier, entrance to Cuyahoga River, Cleveland Harbor. Lat. N, 41° 30' 15"; long. W, 81° 42' 42". Width between piers, 200 feet; depth, 18 feet, soft bottom. Direction of piers, 329° 20', true (NNW ¼ W, mag.).																								
Cleveland West Pier Light (Ohio).		Buff; black lantern.	Cylindrical tower, 44½ feet high.			4th-order light, flashing white every 5 sec.; 32½ feet above water; visible 14½ miles. Near outer end of W pier, entrance to Cuyahoga River, Cleveland Harbor. Lat. N, 41° 30' 14"; long. W, 81° 42' 47". Weather Bureau signals displayed from flagstaff on roof of Cleveland Yacht Club building, foot of Erie street, and from tower at Life-Saving Station.																								
*Cleveland Old Intake Crib Light (Ohio).			Lantern on waterworks crib.	Cleveland West Breakwater Pier-head Light, 84° 00' 1¼ miles. West Breakwater, NW angle, 129° 25', ¼ mile.	38	Fixed white light. Maintained by city of Cleveland.																								
*Cleveland Waterworks Intake Crib Light (Ohio).			Lantern on waterworks crib.	Cleveland West Breakwater Pier-head, 147° 00', 3¾ miles.	54	5th-order fixed white light. Fog-signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>Silent</td> <td></td> <td>Silent</td> </tr> <tr> <td>3 blows</td> <td>interval</td> <td>3 blows</td> <td>interval</td> </tr> <tr> <td></td> <td>30 sec.</td> <td></td> <td>30 sec.</td> </tr> </table> Maintained by city of Cleveland.		Silent		Silent	3 blows	interval	3 blows	interval		30 sec.		30 sec.												
	Silent		Silent																											
3 blows	interval	3 blows	interval																											
	30 sec.		30 sec.																											
Rocky River Gas Buoy, No. 1 (Ohio).	1	Black.	Conical, surmounted by pyramidal lattice-work and lantern.	Cleveland Waterworks Crib Light, 53° 15'. Cleveland Crib Light, 82° 30'. Rocky River Pier, N'ly end, 142° 30'.	30	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Off submerged outer end of E pier at entrance to river.																								
LORAIN FRONT LIGHT-STATION (Ohio). (L. S. Chart 357.)		Brown below, white above; black lantern.	Square, pyramidal tower, 49½ feet high; cylindrical oilhouse 380 feet S'ly; elevated walk along pier to shore.	Rear light, 137° 45', 992 feet. Vermilion Light-House, 251° 20', 9¼ miles.		4th-order fixed white light; 50 feet above water; visible 14½ miles. Near outer end of W pier, entrance to Lorain Harbor and Black River. Lat. N, 41° 28' 25"; long. W, 82° 11' 08". Width between piers, 300 feet; 17 feet of water can be carried through, in mid-channel; sandy bottom. Along W pier 12 feet of water at outer end, shoaling to about 9 feet near middle; farther in, less water and rocky bottom close to pier.																								
Lorain Rear Light (Ohio).		White, black roof.	Square, pyramidal, wooden tower.			Fixed red lens-lantern light; 65½ feet above water; on W'ly side of shore end of W pier. With preceding forms range to mark W'ly side of channel to harbor. Direction of pier, 315°, true (NW ¼ N, mag.). Weather Bureau signals displayed about ½ mile S'ly of harbor entrance.																								
Lorain Harbor East Breakwater Pier-head Light (Ohio).		Unpainted.	Square, pyramidal, wooden framework.	Lorain Range Front Light, 153° 40'.		Fixed red lens-lantern light; 20 feet above water. On pierhead at NW'ly end of rubble mound breakwater, E'ly side of entrance to harbor.																								
Lorain Harbor West Breakwater Pier-head Light (Ohio).		Unpainted.	Square, pyramidal, wooden framework.	Lorain Range Front Light, 137° 15'.		Fixed white lens-lantern light; 20 feet above water. On pierhead at N'ly end of rubble mound breakwater, W'ly side of entrance to harbor.																								
Vermilion Light-Station (Ohio).		Brown below, white above; black lantern; brown oilhouse.	Octagonal, iron tower, 29 feet high; elevated walk along pier to shore; square, iron oilhouse S'ly from tower.	Lorain Range Front Light-House, 71° 20', 9¼ miles. Huron Light-House, 250° 00', 9¼ miles.		5th-order fixed red light; 34½ feet above water; visible 9¼ miles. Near outer end of W pier, entrance to Vermilion Harbor. Lat. N, 41° 25' 42"; long. W, 82° 21' 34". Width between piers, 150 feet; 10 feet of water can be carried through, in mid-channel, into mouth of river; sandy and rocky bottom. Direction of piers, 1° 20', true (N ¼ E, mag.).																								
*Vermilion Crib Buoy.		Red and black horizontal stripes.	Spar.	Vermilion Light-House, 100° 00', ¼ mile.	12	Marks submerged waterworks crib near entrance to harbor. Maintained by village of Vermilion from April 1 to December 1 of each year.																								
Huron Light-Station (Ohio). (L. S. Chart 363.)		White; black lantern.	Square, iron tower, 30½ feet high; iron oilhouse 14 feet W'ly; elevated walk along pier to shore.	Vermilion Light-House, 79° 00', 9½ miles. Sandusky Bay Outside Gas Buoy, 310° 15', 9¼ miles. Marblehead Light-House, 317° 30', 12½ miles.		4th-order fixed white light; 48½ feet above water; visible 10¼ miles. On outer end of W pier, entrance to Huron Harbor. Lat. N, 41° 24' 04"; long. W, 82° 42' 49". Width between piers, 130 feet; 16 to 17 feet of water can be carried through, in mid-channel, into mouth of river; sandy and stony bottom; 8 to 10 feet alongside W pier. Direction of piers, 30° 40', true (NE ¼ N, mag.). Weather Bureau signals displayed from tower foot of Main street.																								

SANDUSKY BAY.

U. S. Lake Survey Charts 0, 3, 36, and 365, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Turning Buoy.....	14	Red.....	25-foot spar.....	Sandusky Bay Inner Range Front Light-House, 43° 30', 550 feet ($\frac{1}{2}$ mile). Cedar Point Range Front Unused Light-House, 100° 00', $\frac{1}{4}$ mile.	Fet. 14	On N'y side of channel, near S'y end of Sand Point Shoal. Marks turning point into inner straight channel.
Outer Range. Sandusky Bay Front Light-Station (Ohio).		White; red foundation crib.	Square tower projecting slightly from NE'y side of square 1-story frame dwelling on square crib; octagonal lantern.	Rear light, 237° 00', 2,620 feet ($\frac{1}{2}$ mile).	5½	Two 5th-order fixed white lights. On SW'y prolongation of axis of improved channel over outer bar, entrance to bay. Range leads SW by W $\frac{1}{2}$ W, mag., through improved channel and "Deep Hole" to Sandusky Bay Inner Range line. Front light illuminates 225° 00' of horizon; visible 12½ miles. Lat. N, 41° 29' 07"; long. W, 82° 46' 16". Rear light illuminates 90° on each side of range line, and is visible 15 miles. Front light 34½ feet and rear light 60 feet above water.
Sandusky Bay Rear Light (Ohio).		White; red foundation crib.	Square, pyramidal, wooden tower, on square crib; octagonal lantern.	Front light, 57° 00', 2,620 feet ($\frac{1}{2}$ mile).	6½	
Inner Range. Sandusky Bay Front Light-Station (Ohio).		Red; gray foundation crib; roof of dwelling dark red.	Square tower projecting slightly from front of square 1½-story dwelling; on square crib.	Sandusky Bay Inner Range Rear Light-House, 17° 04', 1,500 feet ($\frac{1}{2}$ mile).	5½	Two fixed red lens-lantern lights, on N'y prolongation of axis of Straight Channel, Sandusky Bay. Front light at junction of W'y end of west jetty and E'y end of submerged dam building toward Sand Point and on N'y side of Deep Hole off Cedar Point. Lat. N, 41° 29' 25"; long. W, 82° 41' 49". The front light, 33½ feet above water, illuminates 45° on either side of range line. Vessels entering bay on Sandusky Bay Outer Range line should begin turning into straight channel as soon as this light becomes visible. The rear light, 50 feet above water, illuminates 45° on either side of range line.
Sandusky Bay Rear Light (Ohio).		Red; gray foundation crib.	Square, pyramidal tower, on square crib.	Sandusky Bay Inner Range Front Light-House, 197° 04', 1,500 feet.	8½	
Inner Straight Channel Entrance Buoy.	5	Black.....	25-foot spar.....	Sandusky Bay Inner Range Front Light-House, 10° 30', $\frac{1}{4}$ mile. Rosebush Point, tangent, 145° 00'. Sandusky Bay Outer Range Front Light-House, 267° 00', $\frac{1}{2}$ mile.	14	On E'y side of entrance to inner dredged channel.
Inner Straight Channel Entrance Buoy.	16	Red.....	25-foot spar.....	Sandusky Bay Inner Range Front Light-House, 24° 15', $\frac{1}{2}$ mile. Sandusky Bay Outer Range Rear Light-House, 248° 15'. Sandusky Bay Outer Range Front Light-House, 299° 15', $\frac{3}{4}$ mile.	15	On W'y side of entrance to inner dredged channel and on SE'y bank of Deep Hole.
East Bank Buoy.....	7	Black.....	20-foot spar.....	Sandusky Bay Inner Range Front Light-House, 12° 00'. Sandusky Bay Outer Range Rear Light-House, 265° 20', $\frac{3}{4}$ mile. Sandusky Bay Outer Range Front Light-House, 308° 30', $\frac{1}{2}$ mile.	13	On E'y side of inner dredged channel.
West Bank Buoy.....	18	Red.....	20-foot spar.....	Sandusky Bay Inner Range Front Light-House, 20° 15'. Sandusky Bay Outer Range Rear Light-House, 278° 15', $\frac{1}{2}$ mile. Sandusky Bay Outer Range Front Light-House, 339° 15', $\frac{3}{4}$ mile.	13	On W'y side of inner dredged channel.
East Bank Buoy.....	9	Black.....	20-foot spar.....	Sandusky Bay Inner Range Front Light-House, 14° 30'. Sandusky Bay Outer Range Rear Light-House, 304° 20', $\frac{3}{4}$ mile. Sandusky Bay Outer Range Front Light-House, 348° 30', $\frac{1}{2}$ mile.	13	

SANDUSKY BAY.

U. S. Lake Survey Charts 0, 3, 36, and 365, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Dock Channel Buoy.....	34	Red.....	20-foot spar.....	Sandusky Bay Outer Range Rear Light-House, 21° 30'. City Hall Tower, 98° 15', ½ mile. Short Line docks, right tangent, 233° 15'.	Fath. 13	On N'y side of dredged channel, 900 feet from buoy No. 32.
Dock Channel Inner End Buoy.	36	Red.....	20-foot spar.....	Sandusky Bay Outer Range Rear Light-House, 24° 20'. City Hall Tower, 89° 00', ½ mile. Short Line docks, right tangent, 232° 40'.	13	On N'y side of dredged channel, ½ mile from buoy No. 34.
Dock Channel Buoy.....	17	Black.....	20-foot spar.....	Sandusky Bay Outer Range Rear Light-House, 23° 40'. City Hall Tower, 86° 45', ½ mile. Short Line docks, right tangent, 241° 30'.	14	On S'y side of dredged channel, opposite buoy No. 36.
Dock Channel End Buoy.	38	Red.....	20-foot spar.....	Sandusky Bay Outer Range Rear Light-House, 27° 00'. City Hall Tower, 86° 15', 1 mile. Short Line docks, left tangent, 177° 00'.	13	On N'y side of dredged channel, 800 feet from buoy No. 36.

LAKE ERIE.

BAY ON N'LY SIDE OF KELLEYS ISLAND, FROM E'D.

U. S. Lake Survey Charts 0, 3, and 36, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

SAILING DIRECTIONS.—Pass midway between NE'y point of Kelleys Island and buoy No. 2 until point is passed; then round gradually into bay.

Kelleys Island Shoal West End Buoy.	2	Red.....	3d-class nun.....	Kelleys Island, left tangent, 194° 30', 2½ miles. Kelleys Island, right tangent, 249° 45', 3 miles. Middle Island Light-House (Canadian), 345° 15', 3½ miles.	16	Marks SW'y end of shoal NE'y of Kelleys Island; shoal extends ENE'y about 1½ miles from buoy; least water, 6 feet.
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N'LY OF KELLEYS AND SOUTH BASS ISLANDS, W'LY END OF LAKE.

U. S. Lake Survey Charts 0, 3, and 36, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

SAILING DIRECTIONS.—Pass midway between Middle Island (Canadian) and gas buoy No. 3. If drawing over 12 feet of water, pass to N'd of Ballast Island; light-draft vessels may use S'y channel; rocky 16-foot shoal in channel W'y of S'y end of Ballast Island and nearly ¼ mile E'y of Middle Bass Island.

Kelleys Island Shoal East End Buoy.	1	Black.....	2d-class can.....	Marblehead Light-House, 207° 40', 8¼ miles. Kelleys Island, right tangent, 250° 00'. Middle Island Light-House (Canadian), 323° 00', 3½ miles.	16	Marks E'y end of shoal NE'y of Kelleys Island; extends WSW'y 1½ miles from buoy; least water 6 feet; deep water 150 feet E'y of buoy.
Gull Island Shoal Gas Buoy, No. 3 (Ohio).	3	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Mill Point, tangent, 28° 20', 6½ miles. Middle Bass Island, left tangent, 270° 20', 7 miles. Middle Island Light-House (Canadian), 332° 30', ¾ mile.	17	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Moored in rocky bottom on NE'y point of shoal. Water shoals gradually SW'y of buoy until rocks show above water ½ mile SW'y.
Middle Island Light (C.).		White.....	Square, wood.....			7th-order fixed red light; 70 feet above water; visible 13½ miles. Between Pelee and Kelleys Islands. Lat. N. 41° 41' 00"; long. W. 82° 40' 40".
Ballast Island Outer Channel Buoy.	5	Black.....	25-foot spar.....	Middle Bass Island, S tangent, 269° 15', 1½ miles. Ballast Island, right tangent 7° 20', ¼ mile. South Bass Island Light-House, 224° 45', 4½ miles.	15	Moored in rocky bottom at S'y side of E'y entrance to Ballast Island Channel; 14 to 15 feet of water N'd of buoys and within ¼ mile of Ballast Island. N'y side of Ballast Island may be passed close-to.

LAKE ERIE.

N'LY OF KELLEYS AND SOUTH BASS ISLANDS, W'LY END OF LAKE—Continued.

U. S. Lake Survey Charts 0, 3, and 36, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Ballast Island Inner Channel Buoy.	7	Black.....	20-foot spar.....	Middle Bass Island, right tangent, 20° 16', 1½ miles. South Bass Island Light-House, 220° 40', 4½ miles. Middle Bass Island, left tangent, 263° 20', 1½ miles.	Fath. 16	On S'ly side and near W'ly end of Ballast Island Channel.

PUT IN BAY, SOUTH BASS ISLAND, FROM WD.

U. S. Lake Survey Charts 0, 3, and 36, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

SAILING DIRECTIONS.—Pass to N'd of buoy and round bold NE'ly end of Gibraltar Island. Good anchorage and safe harbor.

Peach Orchard Point Gas Buoy, No. 2 (Ohio).	2	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Gibraltar Island, NE point, 140° 54', ¼ mile. South Bass Island, right tangent, 238° 15', ¼ mile. Sugar Island, W end, 348° 29', 2 miles.	15	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks elbow of rocky shoal extending about ½ mile NE'ly from Peach Orchard Point, W'ly side of bay; thence toward Gibraltar Island.
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S'LY SHORE OF LAKE, S'LY OF KELLEYS AND SOUTH BASS ISLANDS, BETWEEN SANDUSKY AND MAUMEE BAY.

U. S. Lake Survey Charts 0, 3, and 36, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

MARBLEHEAD LIGHT-STATION (Ohio).		White; black lantern; brown oil-house.	Conical tower, 60 feet high; detached dwelling W'd; square, from oil-house 20 feet S'ly from tower.			3½-order light, flashing white every 10 sec.; 67½ feet above water; visible 16 miles. On NE'ly end of Marblehead Point, S'ly side of E'ly entrance to South Passage between Kelleys and Bass Islands and mainland. Lat. N, 41° 32' 11"; long. W, 82° 42' 43". The shore is low and rocky, with deep water 800 feet distant. Weather Bureau signals displayed from Life-Saving Station, Marblehead Point.
American Eagle Shoal Buoy.		Red and black horizontal stripes.	25-foot spar.....	Kelleys Island, left tangent, 62° 45'. Marblehead Light-House, 146° 40', 5¼ miles. South Bass Island Light-House, 297° 30', 4¼ miles.	11	Marks 11-foot shoal, ¼ mile W'ly of Kelleys Island. There are several shoals between this buoy and Kelleys Island South Shoal Gas Buoy, No. 2. Weather Bureau signals displayed from tower near Reinheimer's dock S'ly side of Kelleys Island.
Kelleys Island South Shoal Gas Buoy, No. 2 (Ohio).	2	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Marblehead Light-House, 136° 15', 5½ miles. Mouse Island, right tangent, 263° 20'. South Bass Island Light-House, 309° 00', 3½ miles.	19	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks SW'ly end of shoal, extending about ¾ mile E'ly and W'ly and ¼ mile N'ly and S'ly. Do not pass between this and American Eagle Shoal Buoy.
Scott Point Shoal Buoy.	1	Black.....	24-class can.....	Marblehead Light-House, 132° 00', 6½ miles. Mouse Island, right tangent, 245° 00'. Green Island Light-House, 314° 20', 4¼ miles.	16	Marks NE'ly point of rocky shoal, extending halfway to Mouse Island; least water 12 feet, near buoy.
Starve Island Reef Gas Buoy, No. 4 (Ohio).	4	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Mouse Island, left tangent, 210° 30'. South Bass Island Light-House and Green Island Light-House, 309° 15'. Ballast Island, right tangent, 19° 15', 4½ miles.	14	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks SW'ly point of reef, 400 feet in diameter, on N'ly side of channel. When Green Island can be seen clear of South Bass Island, vessels are clear of S'ly end of reef; least depth 11 feet. A reef extends from South Bass Island to Starve Island.
Mouse Island Reef Buoy.	3	Black.....	34-class can.....	Starve Island, right tangent, 20° 40', 1½ miles. Mouse Island, left tangent, 178° 37', 1½ miles. Green Island Light-House, 324° 15', 3¼ miles.	16	Marks N'ly side of small reef; least water, 12 feet, about 450 feet SW by W ¼ W, mag.
SOUTH BASS ISLAND LIGHT-STATION (Ohio).		Red; black lantern.	Square brick tower projecting from SW'ly corner of square, 2-story brick dwelling with slated roof; oil house W'd.	Marblehead Light-House, 133° 45', 9¼ miles. Green Island Light-House, 310° 00', 1¼ miles.		4th-order fixed red light; 60½ feet above water; visible 13 miles. On SW'ly point of island. Lat. N, 41° 37' 43"; long. W, 82° 50' 28". Light illuminates entire horizon, but is not visible from lake between 173°, true (S ½ E, mag.), and 240° 00', true (WSW ¼ W, mag.), owing to trees on island.

LAKE ERIE.

S'LY SHORE OF LAKE, S'LY OF KELLEYS AND SOUTH BASS ISLANDS, BETWEEN SANDUSKY AND MAUMEE BAY—Continued.

U. S. Lake Survey Charts 0, 3, and 36, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
GREEN ISLAND LIGHT-STATION (Ohio).		Gray; black lantern.	Square tower, 44 feet high attached to dwelling; oilhouse 35 feet W'ly.	West Sister Island Light-House, 296° 40', 14 miles.		4th-order light, flashing alternately red and white; interval 30 sec.; 60 feet above water; visible 15½ miles. Lat. N, 41° 38' 44"; long. W, 82° 22' 03". Near W'ly end of rocky, wooded island, 1 mile W'ly of South Bass Island; shores bold; light shut in by woods from 236° 15', true (SW by W ¼ W, mag.); to 303° 45', true (NW ¾ W, mag.).
Port Clinton Light-Station (Ohio).		White; black lantern roof; concrete foundation.	Square, pyramidal, wooden tower; cylindrical oilhouse 60 feet SSW'ly.	Green Island Light-House, 22° 30', 9½ miles. West Sister Island Light-House, 329° 45', 17½ miles.		Fixed red lens-lantern light; 25½ feet above water. On end of W pier, entrance to Port Clinton. Lat. N, 41° 39' 07"; long. W, 82° 56' 10". Direction of pier, 21°, true (NNE, mag.).
Niagara Reef Gas Buoy, No. 5 (Ohio).	5	Black.	Conical, surmounted by pyramidal lattice-work and lantern.	North Bass Island, left tangent, 63° 15', 8½ miles. Green Island Light-House, 103° 30', 5½ miles. West Sister Island, right tangent, 307° 20', 8½ miles.	17	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks N'ly side of small reef, with 7 feet of water on it and deep close-to, lying 1½ miles S'ly of course from Green Island to West Sister Island Light-House. Foul ground between reef and S'ly shore; strangers should not attempt the passage on that side.
WEST SISTER ISLAND LIGHT-STATION (Ohio).		White; black lantern; gray and white dwelling.	Conical tower, 50½ feet high, covered-way to dwelling; cylindrical oilhouse 103 feet NE'ly.	Green Island Light-House, 116° 40', 14 miles. Toledo Harbor Light-House, 278° 45', 11½ miles.		4th-order fixed white light; 57 feet above water; visible 15 miles. On SW'ly end of West Sister Island. Lat. N, 41° 44' 13"; long. W, 83° 06' 38". A reef extends ¾ mile from SE'ly side of island; bold, rocky shore on other sides. Passing ½ mile to S'd of island, the course to Toledo Harbor Light is 282°, true (WNW ¾ W, mag.), 11½ miles. Light obscured by trees on NE'ly side of island through arc of about 3 points; other scattered trees also obscure the light at intervals. A red light shown from the station in place of the usual white light is distress signal.

MAUMEE BAY.

STRAIGHT CHANNEL.

U. S. Lake Survey Charts 0, 3, 36, and 374, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

SAILING DIRECTIONS.—This channel is dredged for 8 miles in one straight reach, 400 feet wide, 21 feet deep, excepting that it is 200 feet on either side of the Maumee Bay Ranges.

The outer entrance is marked by Toledo Harbor Light-Station, which may be approached from E'd on any course between 315°, true (NW ¾ N, mag.), and 180°, true (S ¼ W, mag.). The course through channel is 237° 45', true (SW by W ¼ W, mag.), to buoy No. 16, then haul off on either side to pass cribs and pile work. When up to buoy No. 20, get on the range again, and steer between the buoys until past Inner End of Channel Buoy, No. 31. From this point steer for draw of Wheeling and Lake Erie Railroad bridge, and, passing Middle Ground Buoy, No. 38, steer for draw of Pennsylvania Railroad bridge and to docks.

TOLEDO HARBOR LIGHT-STATION (Ohio).		Buff; black lantern and roof.	Square, 3-story brick dwelling, surmounted by cylindrical lantern; 1-story brick fog-signal house attached to NE'ly side.	Munroe Light-House, 359° 15', about 9 miles.	21	3½-order light, one red and two white flashes, alternately; interval 10 sec.; 72 feet above water; visible 10½ miles. Off outer entrance to Straight Channel, about 400 feet NW'ly of E'ly prolongation of axis and about ¾ mile lakeward from Maumee Straight Channel Entrance Gas Buoy, No. 1. Lat. N, 41° 43' 43"; long. W, 83° 19' 44". Fog signal: 1st-class automatic compressed-air siren, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blas</td> <td style="text-align: center;">Silent</td> <td style="text-align: center;">Blas</td> <td style="text-align: center;">Silent</td> </tr> <tr> <td style="text-align: center;">2 sec.</td> <td style="text-align: center;">Interval</td> <td style="text-align: center;">2 sec.</td> <td style="text-align: center;">Interval</td> </tr> <tr> <td style="text-align: center;">24 sec.</td> <td style="text-align: center;">24 sec.</td> <td style="text-align: center;">24 sec.</td> <td style="text-align: center;">24 sec.</td> </tr> </table>	Blas	Silent	Blas	Silent	2 sec.	Interval	2 sec.	Interval	24 sec.	24 sec.	24 sec.	24 sec.
Blas	Silent	Blas	Silent															
2 sec.	Interval	2 sec.	Interval															
24 sec.	24 sec.	24 sec.	24 sec.															
Maumee Straight Channel Entrance Gas Buoy, No. 1 (Ohio).	1	Black.	Conical, surmounted by pyramidal lattice-work and lantern.	Toledo Harbor Light-House, 47° 20', 1½ mile. Maumee Bay Easterly Range Front Westery Range Rear Light-House, 238° 15', about 3½ miles.	17½	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks SE'ly side of entrance to channel; 20 feet SE'ly of channel bank.												
Lower Entrance Buoy	2	Red.	2d-class nun.	Toledo Harbor Light-House, 53° 30', 1½ mile. Cedar Point, right tangent, 184° 15', 2½ miles.	19	Marks NW'ly side of entrance to channel, opposite buoy No. 1.												
Third Buoy	4	Red.	25-foot spar.	Toledo Harbor Light-House, 55° 15', 1 mile. Cedar Point, right tangent, 179° 00', 2½ miles.	19	On NW'ly bank of channel.												
Fourth Buoy	3	Black.	25-foot spar.	Toledo Harbor Light-House, 50° 30', 1½ mile. Cedar Point, right tangent, 179° 15', 2½ miles.	19	On SE'ly bank of channel.												

MAUMEE BAY.

STRAIGHT CHANNEL—Continued.

U. S. Lake Survey Charts 0, 3, 36, and 374, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Fifth Buoy.....	6	Red.....	25-foot spar.....	Toledo Harbor Light-House, 55° 45', 1½ miles. Cedar Point, right tangent, 170° 00', 2½ miles.	Fct. 19	On NW'y bank of channel.
Sixth Buoy.....	5	Black.....	25-foot spar.....	Toledo Harbor Light-House, 52° 40', 1½ miles. Cedar Point, right tangent 170° 00', 2½ miles.	19	On SE'y bank of channel.
Seventh Buoy.....	8	Red.....	25-foot spar.....	Toledo Harbor Light-House, 56° 15', 1½ miles. Cedar Point, right tangent, 160° 20', 2½ miles.	19	On NW'y bank of channel.
Eighth Buoy.....	7	Black.....	25-foot spar.....	Toledo Harbor Light-House, 53° 40', 2 miles. Cedar Point, right tangent, 159° 45', 2½ miles.	19	On SE'y bank of channel.
Ninth Buoy.....	10	Red.....	25-foot spar.....	Toledo Harbor Light-House, 56° 20', 2½ miles. Cedar Point, right tangent, 149° 20', 2½ miles.	19	On NW'y bank of channel.
Tenth Buoy.....	9	Black.....	25-foot spar.....	Toledo Harbor Light-House, 54° 20', 2½ miles. Cedar Point, right tangent, 148° 30'.	19	On SE'y bank of channel.
Eleventh Buoy.....	12	Red.....	25-foot spar.....	Cedar Point, 138° 00', 2½ miles. Maumee Bay Easterly Range Front and Westerly Range Rear Light-House, 234° 40', about 1 mile.	19	On NW'y bank of channel.
Twelfth Buoy.....	11	Black.....	25-foot spar.....	Cedar Point, 134° 00', 2½ miles. Maumee Bay Easterly Range Front and Westerly Range Rear Light-House, 240° 45', ½ mile.	19	On SE'y bank of channel.
Thirteenth Buoy.....	14	Red.....	25-foot spar.....	Cedar Point, 127° 45', 2½ miles. Maumee Bay Easterly Range Front and Westerly Range Rear Light-House, 232° 40', ½ mile.	19	On NW'y bank of channel.
Lower Elbow Buoy.....	13	Black.....	25-foot spar.....	Cedar Point, 119° 30', 2½ miles. Maumee Bay Easterly Range Front and Westerly Range Rear Light-House, 235° 15', ½ mile.	19	On SE'y bank of channel, at elbow where channel widens to pass cribs and pilework.
Lower Elbow Buoy.....	16	Red.....	25-foot spar.....	Cedar Point, 120° 45', 2½ miles. Maumee Bay Easterly Range Front and Westerly Range Rear Light-House, 224° 00', ½ mile.	19	Marks elbow where channel widens to pass cribs and pilework.
Straight Channel Ranges.	Maumee Bay Easterly Front and Westerly Rear Light (Ohio).	Red; white lantern and watchroom.	Square, pyramidal, skeleton, iron structure; square watchroom and octagonal lantern.	Rear light, 237° 45', 1,240 feet.	.....	5th-order fixed white light; 42 feet above water; visible 13½ miles; illuminates entire horizon except between E ¼ N and SE ¼ E, mag. On NE'y end of artificial island. Lat. N, 41° 43' 53"; long. W, 83° 23' 24".
	Maumee Bay Easterly Rear and Westerly Front Light-Station (Ohio).	Red; white lantern and watchroom; white dwelling.	Square, pyramidal, skeleton, iron tower; two square watchrooms and octagonal lanterns; dwelling 65 feet NE'y; square oil-house 30 feet SW'y.	Rear light, 57° 45', 1,240 feet. Manhattan Range Front Light-House, 237° 45', 4½ miles.	.....	Two 5th-order fixed white lights; 64 and 25 feet above water; the upper one visible 15½ miles. On SW'y end of artificial island. Upper light is rear light of E'y Range, lower light is front light of W'y Range. Ranges mark axis of dredged channel. Each light visible 90° on either side of range line. Lat. N, 41° 43' 47"; long. W, 83° 23' 40".

MAUMEE BAY.

STRAIGHT CHANNEL—Continued.

U. S. Lake Survey Charts 0, 3, 36, and 374, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Twenty-seventh Buoy	25	Black	25-foot spar	Maumee Middle Range Front Unused Light-House, 271° 00', 1½ miles. Maumee Outer Range Front Unused Light-House, 292° 20', nearly 1½ miles.	Feet. 19	On SE'y bank of channel.
Twenty-eighth Buoy	30	Red	25-foot spar	Maumee Middle Range Front Unused Light-House, 280° 40', about 1½ miles. Maumee Outer Range Front Unused Light-House, 308° 20', 1½ miles.	19	On NW'y bank of channel.
Twenty-ninth Buoy	27	Black	25-foot spar	Maumee Bay Easterly Range Rear and Westerly Range Front Light-House, 57° 00', 3½ miles. Maumee Middle Range Front Unused Light-House, 284° 20', ½ mile. Maumee Outer Range Front Unused Light-House, 310° 45', nearly 1½ miles.	19	On SE'y bank of channel.
Thirtieth Buoy	32	Red	25-foot spar	Maumee Bay Easterly Range Rear and Westerly Range Front Light-House, 58° 20', nearly 4 miles. Maumee Middle Range Front Unused Light-House, 303° 20', 1 mile. Maumee Outer Range Front Unused Light-House, 332° 00', 1½ miles.	19	On NW'y bank of channel.
Thirty-first Buoy	29	Black	25-foot spar	Maumee Bay Easterly Range Rear and Westerly Range Front Light-House, 57° 15', 4½ miles. Maumee Middle Range Front Unused Light-House, 310° 20', 1½ miles. Maumee Outer Range Front Unused Light-House, 336° 00', 1½ miles.	19	On SE'y bank of channel.
Channel Inner End Buoy	31	Black	25-foot spar	Maumee Bay Easterly Range Rear and Westerly Range Front Light-House, 57° 20', 4½ miles. Manhattan Range Front Light-House, 243° 00', ½ mile. Maumee Outer Range Front Unused Light-House, 348° 45', 1½ miles.	19	Marks SE'y side of inner end of channel.
Maumee Straight Channel Inner Gas Buoy, No. 34 (Ohio).	34	Red	Conical, surmounted by pyramidal lattice-work and lantern.	Maumee Bay Easterly Range Rear and Westerly Range Front Light-House, 58° 30', 4½ miles. Manhattan Range Front Light-House, 222° 00', ½ mile. Maumee Outer Range Front Unused Light-House, 330° 00', 1½ miles.	18	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks NW'y bank of inner end of channel.
Range. Manhattan Front Light (Ohio).		White; red lantern roof.	Square, pyramidal, wooden tower; octagonal lantern.	Rear light 237° 45', ½ mile.		6th-order fixed red light; 28 feet above water; visible 5½ miles. On an artificial island; with next marks axis of straight channel in Maumee Bay. Lat. N, 41° 41' 32"; long. W, 83° 28' 23". Do not approach nearer than ½ mile on range line before turning into Maumee River.
	Manhattan Rear Light (Ohio).	White; red lantern roof.	Square, pyramidal, wooden tower; octagonal lantern; square oilhouse NW'y.	Front light 57° 45', ½ mile.		5th-order fixed red light; 53 feet above water; visible 2½ miles. On slope of river bank at Manhattan Point, North Toledo; lat. N, 41° 41' 15"; long. W, 83° 29' 02", and, with the preceding, marks axis of straight channel in Maumee Bay.

MAUMEE BAY.

STRAIGHT CHANNEL—Continued.

U. S. Lake Survey Charts 0, 3, 36, and 374, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Twenty-seventh Buoy	25	Black	25-foot spar	Maumee Middle Range Front Unused Light-House, 271° 00', 1½ miles. Maumee Outer Range Front Unused Light-House, 292° 20', nearly 1½ miles.	Feet. 19	On SE'y bank of channel.
Twenty-eighth Buoy	30	Red	25-foot spar	Maumee Middle Range Front Unused Light-House, 280° 40', about 1½ miles. Maumee Outer Range Front Unused Light-House, 308° 20', 1½ miles.	19	On NW'y bank of channel.
Twenty-ninth Buoy	27	Black	25-foot spar	Maumee Bay Easterly Range Rear and Westerly Range Front Light-House, 57° 00', 3½ miles. Maumee Middle Range Front Unused Light-House, 284° 20', ½ mile. Maumee Outer Range Front Unused Light-House, 310° 45', nearly 1½ miles.	19	On SE'y bank of channel.
Thirtieth Buoy	32	Red	25-foot spar	Maumee Bay Easterly Range Rear and Westerly Range Front Light-House, 58° 20', nearly 4 miles. Maumee Middle Range Front Unused Light-House, 303° 20', 1 mile. Maumee Outer Range Front Unused Light-House, 332° 00', 1½ miles.	19	On NW'y bank of channel.
Thirty-first Buoy	29	Black	25-foot spar	Maumee Bay Easterly Range Rear and Westerly Range Front Light-House, 57° 15', 4½ miles. Maumee Middle Range Front Unused Light-House, 310° 20', 1½ miles. Maumee Outer Range Front Unused Light-House, 336° 00', 1½ miles.	19	On SE'y bank of channel.
Channel Inner End Buoy	31	Black	25-foot spar	Maumee Bay Easterly Range Rear and Westerly Range Front Light-House, 57° 20', 4½ miles. Manhattan Range Front Light-House, 243° 00', ½ mile. Maumee Outer Range Front Unused Light-House, 348° 45', 1½ miles.	19	Marks SE'y side of inner end of channel.
Maumee Straight Channel Inner Gas Buoy, No. 34 (Ohio).	34	Red	Conical, surmounted by pyramidal lattice-work and lantern.	Maumee Bay Easterly Range Rear and Westerly Range Front Light-House, 58° 30', 4½ miles. Manhattan Range Front Light-House, 222° 00', ½ mile. Maumee Outer Range Front Unused Light-House, 330° 00', 1½ miles.	18	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks NW'y bank of inner end of channel.
Range. Manhattan Front Light (Ohio).		White; red lantern roof.	Square, pyramidal, wooden tower; octagonal lantern.	Rear light 237° 45', ½ mile.		6th-order fixed red light; 28 feet above water; visible 5½ miles. On an artificial island; with next marks axis of straight channel in Maumee Bay. Lat. N, 41° 41' 32"; long. W, 83° 28' 23". Do not approach nearer than ½ mile on range line before turning into Maumee River.
	Manhattan Rear Light (Ohio).	White; red lantern roof.	Square, pyramidal, wooden tower; octagonal lantern; square oilhouse NW'y.	Front light 57° 45', ½ mile.		5th-order fixed red light; 53 feet above water; visible 2½ miles. On slope of river bank at Manhattan Point, North Toledo; lat. N, 41° 41' 15"; long. W, 83° 29' 02", and, with the preceding, marks axis of straight channel in Maumee Bay.

LAKE ERIE.

N'LY SHORE—Continued.

U. S. LAKE SURVEY CHARTS 0, 3, 32, 33, and 36, and U. S. Hydrographic Office Charts 1466, 1477, 1478, 1583, and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Range.	Kingsville Front Light (C.).	Natural.	Lantern on pole.	Rear light, 346° 15', 1,900 feet (1/5 mile).	Feet.	7th-order, fixed red light; 27 feet above water; visible 5 1/2 miles. On outer end of E'ly breakerwater pier, 10 feet from W'ly edge. Lat. N, 42° 01' 37"; long. W, 82° 43' 50".								
	Kingsville Rear Light (C.).	White, red lantern.	Square, wood, iron lantern.			7th-order, fixed red light; 55 feet above water; visible 9 1/2 miles. On top of bank at head of E'ly pier. Lat. N, 42° 01' 48"; long. W, 82° 43' 55". Lights in range lead N by W, mag., to entrance, outer light being left on starboard hand in entering. Rear light moved, 1889.								
Colchester Reef Light-Station (C.).	White, red lantern.	Hexagonal, wooden tower; on circular stone pier, iron lantern; fog bell on S'ly side.				3d-order, fixed white light; 72 feet above water; visible 16 miles. Near S'E'ly edge of reef. Lat. N, 41° 56' 02"; long. W, 82° 53' 33". Fog signal: Bell struck by machinery, thus: <table border="1"> <tr> <td>Blow</td> <td>Silent interval</td> <td>Blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>15 sec.</td> <td></td> <td>15 sec.</td> </tr> </table>	Blow	Silent interval	Blow	Silent interval		15 sec.		15 sec.
Blow	Silent interval	Blow	Silent interval											
	15 sec.		15 sec.											

W'LY SHORE OF LAKE.

U. S. Lake Survey Charts 0, 3, and 37.

SW'ly gales lower water at this end of lake from 2 to 3 feet, and NE'ly gales raise it about as much.

MONROE LIGHT-STATION (Mich.).	White; black lantern; lead-colored trimmings, green blinds.	Square, low tower on dwelling; cylindrical oilhouse 20 feet W'ly.	Stony Point, 51° 30', 4 1/2 miles. Detroit River Light-House, 52° 15', 12 1/2 miles. Toledo Harbor Light-House, 179° 15', 9 miles.	4th-order fixed red light; 46 1/2 feet above water; visible 13 miles. On crib at outer end of N'ly pier of entrance to ship canal leading into River Raisin, and about 1 1/2 miles N'ly of mouth of river. Lat. N, 41° 33' 27"; long. W, 83° 19' 52". Width between piers, 200 feet at outer end, 100 feet inside. N'ly pier projects 140 feet beyond S'ly pier.
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The can, nun, bell, and gas buoys of the United States in open waters of lakes St. Clair, Huron, and Superior are taken up every fall between the 10th and 20th of November and their places indicated by wooden markers similarly colored in each case; markers remain until carried away by ice.

In the Detroit, St. Clair, St. Marys, etc., rivers all buoys remain till as near the close of navigation as practicable, regardless of date.

DETROIT RIVER.

IMPROVED CHANNEL.

U. S. Lake Survey Charts 0, 3, 37, and 41.

W'ly gales of any duration lower water in Detroit River from 1 to 3 feet, NE'ly gales raise it about as much. Current, from 1 to 2 1/2 miles per hour. Channel partly in Canadian waters.

Channel from Lake Erie, passing to E'ly side of Detroit River Light-House, is 800 feet wide and 22 feet deep.

Bar Point Shoal Channel, from Detroit River Light-House through the shoal, is 600 feet wide and 21 feet deep.

Hackett Reach Channel, axis marked by Amherstburg Range lights, is 600 feet wide and 21 feet deep, except for an area about 500 feet long and 100 feet wide in E'ly half abreast of Elliott Point with least depth of 20 1/2 feet.

Amherstburg Reach Channel, axis marked by Elliott Point Range lights, is 600 feet wide and 21 feet deep, except for an area 100 feet square in W'ly half at head of Bois Blanc Island with least depth of 20 feet.

Limekiln Crossing Channel is 600 feet wide and 21 feet deep, marked by two small light-vessels, about 3,200 feet apart, at S'ly and N'ly ends of W'ly bank of cut, also marked by three sets of range lights on two lines 300 feet apart and 150 feet from each edge of channel; E'ly range, for upbound vessels only, on Canadian shore, near Texas Dock; W'ly ranges, for downbound vessels only, one at Texas Dock and the other, in shallow water near E'ly bank of Bois Blanc Island, opposite Amherstburg; also marked on E'ly side by spar buoys with red lights and on W'ly side by similar buoys with white lights.

Ballard Reef Channel is 600 feet wide and 19 1/2 feet deep, axis marked by Grosse Isle South Channel Range for upbound vessels; also marked by Fort Malden Range for downbound vessels, line parallel with preceding and 150 feet W'ly; also marked on E'ly side by gas buoys showing occulting red lights and on W'ly side by similar buoys showing occulting white lights.

SAILING DIRECTIONS.—Pass E'ly of Detroit River Light-House, get it directly astern, then run straight for Bois Blanc Light-House (passing about 700 feet to E' of Bar Point Shoal Light-Vessel, No. 39) until Amherstburg Range lights are in line, follow this range, then, successively, the Elliott Point Range (lights in range astern), Texas Dock E'ly Range (from head of Bois Blanc Island), Grosse Isle South Channel Range, Grosse Isle North Channel Range (lights in range astern), Grassy Island South Channel Range, Mamajuda Range (lights in range astern), Ecorse Range, and Grassy Island North Channel Range (lights in range astern) to Detroit, thence steer up river in mid-channel.

All vessels, when signaled so to do, must slow down in passing any part of the plant engaged on channel improvements.

DETROIT RIVER LIGHT-STATION (Mich.).	White; black lantern; brown fog-signal house.	Conical, iron tower, 44 feet high, fog-signal house adjoining; on hexagonal stone pier, 11 feet high.	Bois Blanc Light-House (Canadian), 10° 37', 6 1/2 miles. Monroe Light-House, 232° 15', 12 1/2 miles.	4th-order white light, fixed 30 sec., followed by six consecutive flashes, interval 2 sec.; 55 feet above water; visible 14 1/2 miles. Lat. N, 42° 00' 03"; long. W, 83° 08' 28". Fog signal: 1st-class, automatic, compressed-air siren, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>3 sec.</td> <td>27 sec.</td> <td>3 sec.</td> <td>27 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	3 sec.	27 sec.	3 sec.	27 sec.
Blast	Silent interval	Blast	Silent interval									
3 sec.	27 sec.	3 sec.	27 sec.									
Bar Point Cut Gas Buoy (C.).	Red.	Cylindrical, surmounted by pyramidal steel framework and lantern.		18 Fixed white (a.) light; 9 feet above water; visible 4 1/2 miles. On E'ly side of S'ly end of dredged channel off Bar Point.								

DETROIT RIVER.

IMPROVED CHANNEL—Continued.

U. S. Lake Survey Charts 0, 3, 37, and 41.

1	2	3	4	5	6	7																
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.																
BAR BLANC SHOAL LIGHT-VESSEL, NO. 26 (Mich.).	Bar Point Shoal, No. 50.	Black hull, daymark, smokestack, and fog signal, white lettering.	Schooner rigged; circular cage-work daymark on foremasthead, smokestack and fog signal between masts.	Bois Blanc Light-House (Canadian), 13° 00', about 3½ miles. Detroit River Light-House, 188° 00', nearly 2¼ miles. Hickory Island, left tangent, 337° 00'.	Feet. 23	Fixed white lens-lantern light (three lanterns encircling foremast); 33 feet above water; visible 13½ miles. Moored between Amherstburg and Livingstone channels, at junction, mouth of Detroit River, Wly end of Lake Erie, about 1¼ miles SWly of Bar Point, Canada, and about 750 feet W'd of line drawn from Detroit River Light-House to Bois Blanc (Canadian) Light-House. Lat. N, 42° 02' (32"); long. W, 83° 08' (00"). Fog signal: 6-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>10 sec.</td> <td>30 sec.</td> <td>10 sec.</td> <td>30 sec.</td> </tr> </table> If whistle be disabled a bell will be rung by hand continuously for about 10 sec., silent intervals about 30 sec. Submarine bell strikes thus: <table border="1"> <tr> <td>3 strokes</td> <td>Silent interval</td> <td>3 strokes</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>13 sec.</td> <td></td> <td>13 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	10 sec.	30 sec.	10 sec.	30 sec.	3 strokes	Silent interval	3 strokes	Silent interval		13 sec.		13 sec.
Blast	Silent interval	Blast	Silent interval																			
10 sec.	30 sec.	10 sec.	30 sec.																			
3 strokes	Silent interval	3 strokes	Silent interval																			
	13 sec.		13 sec.																			
Downbound (Wly Bar Point) Channel. See page 79.																						
BOIS BLANC LIGHT-STATION (C.),		White; red lantern.	Circular, stone; dwelling Ely; iron lantern.			Fixed white reflector light; 56 feet above water; visible 16 miles. On Sly end of island, below and opposite Amherstburg. Lat. N, 42° 05' 11"; long. W, 83° 06' 45".																
Amherstburg Front Light.		White daymark.	Open frame, square, pyramidal, wooden structure, lower 10 feet inclosed, surmounted by elliptical slatted disk.	Rear light, 14° 35', 539 feet.		Two fixed red reflector lights. Front light, 54 feet above water. Lat. N, 42° 05' 48"; long. W, 83° 06' 45". Rear light, 73 feet above water. Lat. N, 42° 05' (52"); long. W, 83° 06' (40"). Located at Amherstburg, Canadian shore of river. Mark center line of dredged channel. Maintained by contract with Lake Carriers' Association, Detroit, Mich.																
Amherstburg Rear Light.		Red daymark.	Open frame, square, pyramidal, steel structure, surmounted by elliptical slatted disk.																			
Hackett Reach Buoy Lights, 1, 2, 3, 4, 5, 6, 7, 8.		Black buoys on Wly, red buoys on Ely side of channel.	30-foot spars.			Four fixed white and four fixed red post-lantern lights; 5 feet above water; marking limits of Hackett Reach dredged channel. Black buoys with white lights on Wly side of channel; red buoys with red lights on Ely side of channel. Positions of lights changed with changes in channel. Maintained by contract with Lake Carriers' Association, Detroit, Mich.																
Elliott Point Front Light.		Red daymark.	Pyramidal, skeleton metal tower; elliptical daymark of horizontal slats at top.	Rear light, 175° 45', ¼ mile.		Two fixed red reflector lights. Range marks axis of Amherstburg Reach channel. Front light 50 feet above water. Lat. N, 42° 05' 00"; long. W, 83° 06' 52". On Ely bank of river. Rear light 70 feet above water. Lat. N, 42° 04' (50"); long. W, 83° 06' (51"). Maintained by contract with Lake Carriers' Association, Detroit, Mich.																
Elliott Point Rear Light.		Red daymark.	Pyramidal, skeleton metal tower; elliptical daymark of horizontal slats at top.																			
Amherstburg Reach Float Lights, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14.		Black floats on Wly, red floats on Ely side of channel.	Small wooden floats, with uprights supporting lantern.			Five fixed white and seven fixed red post-lantern lights; 4 feet above water; marking edges of channel between Bois Blanc Island and Amherstburg, white lights on Bois Blanc side of channel and red lights on Amherstburg side. The positions of these lights are changed with changes in channel. Maintained by contract with Lake Carriers' Association, Detroit, Mich.																
Texas Dock Front Light.		White mast and daymark; vertical black stripe.	Mast; rectangular, horizontally-slatted daymark.	Rear light, 2° 56', 1,630 feet (¼ mile).		Front light, fixed green reflector; 31 feet above water. On Texas Dock, Ely side of river. Lat. N, 42° 07' 33"; long. W, 83° 06' 55". Rear light, fixed white reflector; 42 feet above water. Range through Limekiln Crossing Cut for upbound vessels only. Maintained by the Lake Carriers' Association, Detroit, Mich.																
Texas Dock Rear Light.		White mast and daymark; vertical black stripe.	Mast; rectangular, horizontally-slatted daymark.																			
Texas Dock Front Light.		White daymark; with vertical black stripe.	Upright with rectangular, horizontally-slatted daymark.	Rear light, 2° 56', 1,450 feet.		Front light, fixed red reflector; 16 feet above water. On NWly corner of Texas Dock, Ely side of river. Lat. N, 42° 07' 40"; long. W, 83° 06' 57". Rear light, fixed white reflector; 39 feet above water; on bank above Texas Dock. In range astern guide through Limekiln Crossing Cut for downbound vessels only. Maintained by contract with the Lake Carriers' Association, Detroit, Mich.																
Texas Dock Rear Light.		White daymark; with vertical black stripe.	Upright with rectangular, horizontally-slatted daymark.	Front light, 182° 56', 1,450 feet.																		

DETROIT RIVER.

IMPROVED CHANNEL—Continued.

U. S. Lake Survey Charts 0, 3, 37, and 41.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Range. Limekiln Crossing Front (C.). Limekiln Crossing Rear (C.).		White; black vertical stripe.	Lantern attached to diamond-shaped target; on piles.	Rear light, 182° 56', 703 feet.	Feet.	Two fixed white 7th-order lights; visible 2 miles; front 10 feet above water. Lat. N. 46° 06' 07"; long. W. 83° 07' 04"; rear light 20 feet above water. Range through Limekiln Crossing Cut for downbound vessels only from Fort Malden Range line to Elliott Point Range line.								
		White; black vertical stripe.	Lantern attached to diamond-shaped target; on piles.											
LIMEKILN CROSSING SOUTH LIGHT-VESSEL, NO. 64 (Mich.).	Limekiln Crossing South, No. 64.	White, red name.	Small flat-bottom scow, with trunk cabin.	Texas Dock W'y Range Front Light (Canada), 5° 15' 11 miles. Fort Malden Range Front Light, 107° 42', 1/2 mile. Stony Island Pier, left tangent, 333° 20', 1/2 mile.	18	Fixed white lens-lantern light; 15 feet above water. Moored on W'y side of the S'y end of Limekiln Crossing Cut. Fog signal: Bell struck by hand, thus: <table style="margin-left: auto; margin-right: auto;"><tr><td>3 blows</td><td>Silent interval</td><td>3 blows</td><td>Silent interval</td></tr><tr><td>...</td><td>15 sec.</td><td>...</td><td>15 sec.</td></tr></table>	3 blows	Silent interval	3 blows	Silent interval	...	15 sec.	...	15 sec.
3 blows	Silent interval	3 blows	Silent interval											
...	15 sec.	...	15 sec.											
LIMEKILN CROSSING NORTH LIGHT-VESSEL, NO. 65 (Mich.).	Limekiln Crossing North, No. 65.	White, red name.	Small flat-bottom scow, with trunk cabin.	Texas Dock W'y Range Front Light, 10° 30', 3/4 mile. Fort Malden Range Front Light, 159° 15', 1/2 mile. Stony Island Pier, left tangent, 287° 45', 3/4 mile.	18	Fixed white lens-lantern light; 12 feet above water. Moored on W'y side of the N'y end of Limekiln Crossing Cut. Fog signal: Bell struck by hand, thus: <table style="margin-left: auto; margin-right: auto;"><tr><td>2 blows</td><td>Silent interval</td><td>2 blows</td><td>Silent interval</td></tr><tr><td>...</td><td>15 sec.</td><td>...</td><td>15 sec.</td></tr></table>	2 blows	Silent interval	2 blows	Silent interval	...	15 sec.	...	15 sec.
2 blows	Silent interval	2 blows	Silent interval											
...	15 sec.	...	15 sec.											
Limekiln Crossing Float Lights, 11, 13, 16, 18, 20, 22, 24.		Black floats on W'y, red floats on E'y side of channel.	Small wooden floats, with uprights supporting lantern.			Two fixed white and five fixed red post-lantern lights; 4 feet above water; mark edges of Limekiln Crossing dredged channel; white lights on W'y and red lights on E'y edge of channel. Maintained by contract with the Lake Carriers' Association, Detroit, Mich.								
Range. Fort Malden Front Light. Fort Malden Rear Light.		White, black daymark.	Square, pyramidal, skeleton steel tower, lower 10 feet inclosed, surmounted by elliptical slatted disk.	Rear light, 162° 35', 700 feet.		Front light, fixed white reflector; 71 feet above water. Lat. N. 42° 06' 47"; long. W. 83° 06' 43". On edge of bank, E'y side of river, about 3/4 mile S'y of railway station, and abreast of lower end of Limekiln Crossing Cut. Rear light, fixed red reflector; 98 feet above water. Lat. N. 42° 06' (40"); long. W. 83° 06' (42"). Range for downbound vessels from Grosse Isle North Channel Range to Texas Dock W'y Range.								
		Red, black daymark.	Square, pyramidal, skeleton steel tower, lower 10 feet inclosed, surmounted by elliptical slatted disk.			Maintained by contract with the Lake Carriers' Association, Detroit, Mich.								
Ballard Reef Channel South Gas Buoy, No. 1 (Mich.).	1	Black.	Conical, surmounted by pyramidal latticework and lantern.	Texas Dock W'y Range Rear Light, 53° 30', 1/4 mile. Texas Dock W'y Range Front Light, 118° 20', 3/4 mile. Stony Island, right tangent, 268° 45', 3/4 mile.	21	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks W'y bank of channel.								
Ballard Reef Channel South Gas Buoy, No. 2 (Mich.).	2	Red.	Conical, surmounted by pyramidal latticework and lantern.	Texas Dock W'y Range Rear Light, 131° 30', 1/4 mile. Texas Dock W'y Range Front Light, 159° 02', 1/2 mile. Stony Island, NW point, right tangent, 244° 00', 1/4 mile.	21	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; on E'y bank of channel.								
Ballard Reef Channel Middle Gas Buoy, No. 3 (Mich.).	3	Black.	Conical, surmounted by pyramidal latticework and lantern.	Texas Dock W'y Range Rear Light, 141° 00', 3/4 mile. Texas Dock W'y Range Front Light, 152° 45', 1/2 mile. Stony Island right tangent, 216° 30', 1 mile.	24	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks W'y bank of channel.								
Ballard Reef Channel Middle Gas Buoy, No. 4 (Mich.).	4	Red.	Conical, surmounted by pyramidal latticework and lantern.	Texas Dock W'y Range Rear Light, 152° 20', 3/4 mile. Stony Island, right tangent, 215° 30'. Grosse Isle North Channel Range Front Light-House, 333° 00', 2 1/4 miles.	22	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; on E'y bank of channel.								
Ballard Reef Channel North Gas Buoy, No. 5 (Mich.).	6	Red.	Conical, surmounted by pyramidal latticework and lantern.	Texas Dock W'y Range Rear Light, 158° 55', 1 1/4 miles. Stony Island, right tangent, 201° 00'. Grosse Isle North Channel Range Front Light-House, 330° 30', 1 1/2 miles.	22	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. The three red gas buoys are about 350 feet E'd of Grosse Isle South Channel Range line.								

DETROIT RIVER.

IMPROVED CHANNEL—Continued.

U. S. Lake Survey Charts 0, 3, 37, and 41.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Ballard Reef Channel North Gas Buoy, No. 5 (Mich.).	5	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Texas Dock W'y Range Rear Light, 151° 07', 1½ miles. Stony Island, right tangent, 195° 20', 1¼ miles. Grosse Isle North Channel Range Front Light-House, 334° 40', 1½ miles.	Feet. 21	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks W'y bank of channel. The three black gas buoys are about 350 feet W'd of Grosse Isle South Channel Range line.
South Channel Range. Grosse Isle Front Light-Station (Mich.).		White; red boathouse.	Square, pyramidal, wooden tower; octagonal lantern; square oilhouse 87 feet N'y; 1-story boathouse 30 feet WSW'y.	Rear light, 342° 35', ¼ mile.		Two fixed red 5th-order lights. Front light, 30 feet above water. Lat. N, 42° 11' 00"; long. W, 83° 08' 32". Rear light, 50 feet above water. Lat. N, 42° 11' (19"); long. W, 83° 08' (35"). Range for main channel of river from Limekin Crossing to Grosse Isle North Channel Range line.
Grosse Isle Rear Light (Mich.).		White.....	Square, pyramidal, wooden tower; octagonal lantern.			
Fighting Island Lower Buoy.	8	Red.....	20-foot spar.....	Turkey Island, right tangent, 69° 15', 1½ miles. Grosse Isle North Channel Range Rear Light-House, 297° 15', ¼ mile. Mamajuda Range Rear Light-House, 350° 32', 1¼ miles.	10½	E'y side of channel at lower end of Fighting Island; soft bottom; deep water close-to.
North Channel Range. Grosse Isle Front Light (Mich.).		White; black lantern roof; white boathouse; brown oilhouse.	Octagonal, wooden tower; upper part pyramidal; octagonal lantern; boathouse and oilhouse on wharf, near tower.	Rear light, 191° 22', ¼ mile.	3½	Fixed white lens-lantern light, 45 feet above water; about 175 feet from E'y shore of Grosse Isle, nearly abreast the S'y end of Fighting Island. Lat. N, 42° 10' 04"; long. W, 83° 08' 24".
Grosse Isle Rear Light-Station (Mich.).		White; black lantern roof.	Octagonal, wooden tower; upper part pyramidal; lower part obscured by trees; octagonal lantern.	Front light, 11° 22', ¼ mile.		Fixed white lens-lantern light, 75 feet above water; about 450 feet to W'd of E'y shore of Grosse Isle. Lat. N, 42° 09' (50"); long. W, 83° 08' (26"). Each light illuminates 60° to E'd and 30° to W'd of range line; mark best water from Grosse Isle South Channel Range to Grassy Island South Channel Range line. The range line passes about 750 feet to E'd of Mamajuda Range Rear Light-House, or about 350 feet to E'd of the 18-foot curve abreast of that light.
South Channel Range. Grassy Island Front Light (Mich.).		White.....	Square, pyramidal tower on low foundation; octagonal lantern.	Rear light, 0° 28', ¼ mile.		Fixed white lens-lantern light, 25 feet above water; illuminating 45° on either side of range line. Lat. N, 42° 13' 14"; long. W, 83° 07' 60". With the next light marks range from Grosse Isle North Channel Range line to Mamajuda Range line.
Grassy Island Rear Light-Station (Mich.).		White; black lantern; white dwelling, lead-colored trimmings.	Square tower attached to dwelling; cylindrical oilhouse 20 feet W'y.			5th-order light, flashing white every 3 sec., 51½ feet above water; visible 14½ miles. On Grassy Island Shoal, W'y side of and 500 feet from channel. Lat. N, 42° 13' 28"; long. W, 83° 07' 60".
Mamajuda Rear Light-Station (Mich.).		White; black lantern.	Round tower on dwelling; cylindrical oilhouse 12 feet E'y; boathouse 150 feet W'y.	Front light, 8° 19', 675 feet.		4th-order fixed red light, 54 feet above water. On S'y end of Mamajuda Island, W'y side of channel; 200 feet from channel. Lat. N, 42° 11' 31"; long. W, 83° 08' 10". Good water within 60 feet of the small pile wharf abreast the light-house. Between this point and Fighting Island Upper Buoy, 12, channel is ¼ mile wide.
Mamajuda Front Light (Mich.).		White.....	Square, pyramidal, wooden tower, on platform; octagonal lantern; causeway to rear light.	Rear light, 188° 19', 675 feet.	3½	Fixed red lens-lantern light, 28 feet above water; on Mamajuda Shoal. Lat. N, 42° 11' 36"; long. W, 83° 08' 09". Light is visible 90° to E'd and 30° to W'd of range line.
East Bank Buoy.....	10	Red.....	20-foot spar.....	Mamajuda Range Front Light-House 133° 20', 1 mile. Point Hennepin, right tangent, 225° 00', 1 mile. Grassy Island, South Channel Range Rear Light-House, 354° 15', 1¼ miles.	11½	On E'y side of channel, about midway between Mamajuda and Grassy Island South Channel Range light-houses; deep water close-to.
Grassy Island Buoy.....	7	Black.....	25-foot spar.....	Mamajuda Range Rear Light-House, 185° 30', 2¼ miles. Grassy Island, South Channel Range Rear Light-House, 245° 40', ¾ mile. Grassy Island North Channel Range Front Light-House, 322° 40', ¾ mile.	14	Marks elbow of Grassy Island Shoal.

DETROIT RIVER.

IMPROVED CHANNEL—Continued.

U. S. Lake Survey Charts 0, 3, 37, and 41.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Range.	Ecorse Front Light-Station (Mich.)	White; red lantern roof and dwelling.	Octagonal lantern on square tower 24½ feet high, projecting from S'ly side of square, 1-story building; square oilhouse 80 feet N'ly.	Rear light, 357° 24', ¾ mile.	Feet. 3½	Two 6th-order fixed red lights, on Ecorse Marsh. Front light, 31½ feet above water. Lat. N, 42° 14' 48"; long. W, 83° 07' 51". Rear light 45 feet above water. Lat. N, 42° 14' 53"; long. W, 83° 07' 52". Each light illuminates 67½° to E'd and 67½° to W'd of range line. Range for main channel of river, intersecting Mamajuda Range line at point about 950 feet to E'd of Grassy Island South Channel Rear Light-House (about 350 feet to E'd of curve of 18 feet depth abreast of that light).
	Ecorse Rear Light (Mich.)	White; red lantern roof.	Square, pyramidal tower, octagonal lantern; 34½ feet high; caseway to front light.		2½	
	Fighting Island Upper Buoy.	12 Red.	20-foot spar.	Fighting Island, left tangent, 39° 00'. Grassy Island South Channel Range Rear Light-House, 194° 20', nearly ¼ mile. Ecorse Range Front Light-House, 350° 45', ¼ mile.	11½	Marks elbow of flats at upper end of Fighting Island, with deep water close-to.
North Channel Range.	Grassy Island Front Light-Station (Mich.)	Light straw-color, white trimmings.	Low, square tower on NE'ly side of square 1-story dwelling; square oilhouse NW'ly; artificial embankment to rear light.	Rear light, 207° 56', ¾ mile.		Fixed red lens-lantern light; 30 feet above water. Lat. N, 42° 13' 47"; long. W, 83° 08' 10".
	Grassy Island Rear Light (Mich.)	Light straw-color, white trimmings.	Square, pyramidal, wooden tower; octagonal lantern.	Front light, 272° 56', ¾ mile.		Fixed red lens-lantern light; 50 feet above water. Lat. N, 42° 13' 29"; long. W, 83° 08' 22". With preceding in range stern, guides from Ecorse Range line to Detroit.
	Mud Island Shoal Buoy.	3 Black.	25-foot spar.	Ecorse Range Rear Light-House, 25° 15', ¼ mile. Fighting Island, left tangent, 71° 00', ¾ mile. Grassy Island North Channel Range Front Light-House, 181° 00', ¾ mile.	19	In sandy bottom at E'ly point of shoal; marks W'ly side of main channel, and N'ly side of E'ly entrance to channel between Mud Island and Grassy Island shoals.

WESTERLY BAR POINT CHANNEL.

For downbound vessels only.

U. S. Lake Survey Charts 0, 3, 37, and 41.

This channel has a width of 400 feet and depth of 22.7 feet at mean stage of water.

The following regulations govern use of channel:

All upbound vessels shall pass to E'd of Detroit River Light-House, entering channel between red and black (Canadian) gas buoys, this being usual course.

All downbound vessels, after passing Bar Point Shoal Light-Vessel, No. 59, shall keep black spar buoys close aboard and pass to W'd of Detroit River Light-House.

Junction Buoy Light	Red and black horizontal stripes.	36-foot spar supporting lantern.	Bar Point, Canada, 20° 00', ¾ miles. Detroit River Light-House, 174° 30', ½ mile. Point Mouillee, Mich., 286° 00', 2 ¼ miles.	21	Fixed red post-lantern light. Marks E'ly edge of channel at point where it is joined by route of upbound vessels.								
DETROIT RIVER LIGHT-STATION (Mich.)	White; black lantern; brown fog-signal house.	Conical, iron tower, 44 feet high, fog-signal house adjoining, on hexagonal stone pier, 11 feet high.	Bois Blanc Light-House (Canadian), 10° 48', 6 ½ miles. Monroe Light-House, 232° 15' 12 ¼ miles.		4th-order white light, fixed 30 sec., followed by six consecutive flashes at intervals of 5 sec.; 55 feet above water; visible 14 ¼ miles. Lat. N, 42° 00' 03"; long. W, 83° 08' 28". Fog signal: 1st-class, automatic, compressed-air siren, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent Interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent Interval</td> </tr> <tr> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">27 sec.</td> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">27 sec.</td> </tr> </table>	Blast	Silent Interval	Blast	Silent Interval	3 sec.	27 sec.	3 sec.	27 sec.
Blast	Silent Interval	Blast	Silent Interval										
3 sec.	27 sec.	3 sec.	27 sec.										
Buoy Light, No. 15	15 Black	36-foot spar supporting lantern.	Bar Point, Canada, 21° 30', 3 ¾ miles. Detroit River Light-House, 183° 00', ¾ mile. Point Mouillee, Mich., 286° 45', 2 miles.	21	Fixed white post-lantern light. Marks W'ly edge of channel.								
Buoy Light, No. 14	14 Red	36-foot spar supporting lantern.	Bar Point, Canada, 19° 40', 3 ¾ miles. Detroit River Light-House, 87° 00', ½ mile. Point Mouillee, Mich., 292° 40', 2 ¾ miles.	21	Fixed red post-lantern light. Marks E'ly edge of channel.								

DETROIT RIVER.

WESTERLY BAR POINT CHANNEL—Continued.

For downbound vessels only—Continued.

U. S. Lake Survey Charts 0, 3, 37, and 41.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Buoy Light, No. 13.....	13	Black.....	36-foot spar supporting lantern.	Bar Point, Canada, 21° 00', 3¼ miles. Detroit River Light-House, 93° 00', ½ mile. Point Mouillee, Mich., 293° 15', 2 miles.	Fect. 21	Fixed white post-lantern light. Marks W'y edge of channel.
Buoy Light, No. 12.....	12	Red.....	36-foot spar supporting lantern.	Detroit River Light-House, 19° 15', ¼ mile. Stony Point, Mich., 238° 45', 7¼ miles. Point Mouillee, Mich., 300° 20', 2¼ miles.	21	Fixed red post-lantern light. Marks E'y edge of channel.
Buoy Light, No. 11.....	11	Black.....	36-foot spar supporting lantern.	Detroit River Light-House, 34° 15', ½ mile. Stony Point, Mich., 233° 30', 7¼ miles. Point Mouillee, Mich., 301° 20', 2¼ miles.	21	Fixed white post-lantern light. Marks W'y edge of channel.
Buoy Light, No. 10.....	10	Red.....	36-foot spar supporting lantern.	Detroit River Light-House, 16° 00', ¾ mile. Stony Point, Mich., 235° 30', 7¼ miles. Point Mouillee, Mich., 308° 00', 2¼ miles.	22	Fixed red post-lantern light. Marks E'y edge of channel.
Buoy Light, No. 9.....	9	Black.....	36-foot spar supporting lantern.	Detroit River Light-House, 22° 45', ¾ mile. Stony Point, Mich., 235° 15', 7¼ miles. Point Mouillee, Mich., 309° 15', 2¼ miles.	22	Fixed white post-lantern light. Marks W'y edge of channel.
Buoy Light, No. 8.....	8	Red.....	36-foot spar supporting lantern.	Detroit River Light-House, 15° 00', 1½ mile. Stony Point, Mich., 237° 15', 7¼ miles. Point Mouillee, Mich., 314° 15', 2¼ miles.	22	Fixed red post-lantern light. Marks E'y edge of channel.
Buoy Light, No. 7.....	7	Black.....	36-foot spar supporting lantern.	Detroit River Light-House, 20° 15', 1 mile. Stony Point, Mich., 237° 00', 7¼ miles. Point Mouillee, Mich., 316° 15', 2¼ miles.	22	Fixed white post-lantern light. Marks W'y edge of channel.
Buoy Light, No. 6.....	6	Red.....	36-foot spar supporting lantern.	Detroit River Light-House, 14° 00', 1½ miles. Stony Point, Mich., 239° 15', 6¼ miles. Point Mouillee, Mich., 320° 00', 2¼ miles.	22	Fixed red post-lantern light. Marks E'y edge of channel.
Buoy Light, No. 5.....	5	Black.....	36-foot spar supporting lantern.	Detroit River Light-House, 17° 45', 1½ miles. Stony Point, Mich., 239° 00', 6¼ miles. Point Mouillee, Mich., 321° 40', 2¼ miles.	22	Fixed white post-lantern light. Marks W'y edge of channel.
Buoy Light, No. 4.....	4	Red.....	36-foot spar supporting lantern.	Detroit River Light-House, 13° 00', 1½ miles. Stony Point, Mich., 341° 40', 6¼ miles. Point Mouillee, Mich., 326° 40', 2¼ miles.	22	Fixed red post-lantern light. Marks E'y edge of channel.
Buoy Light, No. 3.....	3	Black.....	36-foot spar supporting lantern.	Detroit River Light-House, 16° 30', 1½ miles. Stony Point, Mich., 241° 15', 6¼ miles. Point Mouillee, Mich., 327° 00', 2¼ miles.	22	Fixed white post-lantern light. Marks W'y edge of channel.
East Entrance Buoy Light, No. 2.	2	Red.....	36-foot spar supporting lantern.	Detroit River Light-House, 12° 45', 1½ miles. Stony Point, Mich., 243° 15', 6¼ miles. Point Mouillee, Mich., 328° 30', 3¼ miles.	23	Fixed red post-lantern light. Marks E'y entrance to channel.

DETROIT RIVER.

WESTERLY BAR POINT CHANNEL—Continued.

For downbound vessels only—Continued.

U. S. Lake Survey Charts 0, 3, 37, and 41.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
West Entrance Gas Buoy, No. 1.	1	Black.....	Conical, surmounted by pyramidal latticework and lantern.	Detroit River Light-House, 15° 40', 1¼ miles. Stony Point, Mich., 242° 45', 6½ miles. Point Mouillee, Mich., 330° 00', 3¼ miles.	Feet. 23	White lens-lantern light 10 sec., eclipse 10 sec. Marks W'y entrance to channel.

GIBRALTAR OR W'LY CHANNEL.

U. S. Lake Survey Charts 0, 3, 37, and 41.

There is 12 feet of water in channel, but it should not be attempted by strangers.

Grosse Isle Spit Buoy....	2	Red.....	25-foot spar.....	Grassy Island South Channel Range Front Light-House, 22° 30', 1½ miles. Mamajuda Range Front Light-House, 155° 45', 1½ mile. Grosse Isle South Channel Range Rear Light-House, 186° 00', 1 mile.	15	On N'y end of spit making out from head of Grosse Isle, and opposite town of Wyandotte, Mich.
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CHANNEL BETWEEN MAMAJUDA SHOAL AND N'LY END OF GROSSE ISLE, STANDING SOUTH.

U. S. Lake Survey Charts 0, 3, 37, and 41.

SAILING DIRECTIONS.—From W'y channel of river, pass about 100 feet N'd and E'd of Grosse Isle Spit-Buoy, 2, and head for Mamajuda Range Rear Light-House until the N'y point of Grosse Isle is abeam, when haul in for the Grosse Isle shore, and follow it down at a distance of from 450 to 600 feet, past the lower end of Mamajuda Shoal, into the main channel. The lower end of Mamajuda Shoal lies opposite the lower end of the deep bight of the Grosse Isle shore, just below the fish pond. This channel is about 1¼ miles long and 500 feet wide; sandy bottom.

CHANNEL BETWEEN GRASSY ISLAND SHOAL AND MUD ISLAND SHOAL.

U. S. Lake Survey Charts 0, 3, 37, and 41.

SAILING DIRECTIONS.—With Mud Island Shoal Buoy, 1, bearing about 500 feet, N ¾ E, mag., will carry close to red buoys through least depth of 18 feet. During summer grass grows close to channel, at foot of Mud Island. This channel is about ¾ mile long and 500 feet wide; sandy bottom.

Mud Island Shoal South Point Buoy.	1	Black.....	20-foot spar.....	Ecorse Range Front Light-House, 39° 40', 1¼ miles. Grassy Island North Channel Range Front Light-House, 117° 30', ¼ mile. Grassy Island North Channel Range Rear Light-House, 152° 00', ¼ mile.	14	Marks W'y side of S'y entrance to channel and E'y side of S'y entrance to channel between shoal and mainland.
Grassy Island Shoal Northwest Point Buoy.	2	Red.....	20-foot spar.....	Ecorse Range Front Light-House, 34° 40', 1¼ miles. Grassy Island North Channel Range Front Light-House, 121° 45', ½ mile. Grassy Island North Channel Range Rear Light-House, 160° 20', ¾ mile.	14	Marks E'y side of S'y entrance to channel.
Grassy Island Shoal Northwest Side Buoy.	4	Red.....	20-foot spar.....	Ecorse Range Front Light-House, 30° 45', ¾ mile. Grassy Island North Channel Range Front Light-House, 156° 45', ½ mile. Grassy Island North Channel Range Rear Light-House, 179° 30', ¾ mile.	14	In sandy bottom at NW'y side of shoal; marks SE'y side of channel, about midway of its length.
Mud Island Shoal Buoy..	3	Black.....	25-foot spar.....	Ecorse Range Rear Light-House, 25° 15', ¾ mile. Fighting Island, left tangent, 71° 00', ¾ mile. Grassy Island North Channel Range Front Light-House, 181° 00', ¾ mile.	19	In sandy bottom, at E'y point of shoal and N'y side of E'y entrance to channel.

DETROIT RIVER.

SUGAR ISLAND CHANNEL.

U. S. Lake Survey Charts 0, 3, 37, and 41.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Sugar Island Channel Buoy.	1	Black.....	20-foot spar.....	Sugar Island, right tangent, 15° 20'. Elliott Point Range Front Light, 47° 30', 2½ miles. Hickory Island, left tangent, 353° 30'.	<i>Feet.</i> 12	
Sugar Island Channel Buoy.	2	Red.....	20-foot spar.....	Sugar Island, right tangent, 22° 15'. Elliott Point Range Front Light, 59° 00', 2½ miles. Hickory Island, left tangent, 356° 00'.	12	
Sugar Island Channel Buoy.	3	Black.....	20-foot spar.....	Sugar Island, right tangent, 28° 30'. Elliott Point Range Front Light, 66° 30', 2½ miles. Hickory Island, left tangent, 358° 00'.	12	
Sugar Island Channel Buoy.	4	Red.....	20-foot spar.....	Sugar Island, right tangent, 27° 30'. Elliott Point Range Front Light, 68° 00', 2½ miles. Hickory Island, left tangent, 353° 15'.	12	
Sugar Island Channel Buoy.	5	Black.....	20-foot spar.....	Sugar Island, right tangent, 32° 30'. Elliott Point Range Front Light, 72° 40', 2½ miles. Hickory Island, left tangent, 354° 00'.	12	
Sugar Island Channel Buoy.	6	Red.....	20-foot spar.....	Sugar Island, right tangent, 38° 45'. Elliott Point Range Front Light, 79° 20', 2½ miles. Hickory Island, left tangent, 348° 30'.	12	
Sugar Island Channel Buoy.	8	Red.....	20-foot spar.....	Sugar Island, right tangent, 41° 30', ½ mile. Elliott Point Range Front Light, 83° 30', about 2½ miles. Hickory Island, left tangent, 334° 40'.	12	
Sugar Island Channel Buoy.	7	Black.....	20-foot spar.....	Sugar Island, right tangent, 40° 00'. Elliott Point Range Front Light, 86° 20', 2½ miles. Hickory Island, left tangent, 328° 20', ½ mile.	12	
Sugar Island Channel Buoy.	10	Red.....	20-foot spar.....	Sugar Island, right tangent, 43° 30'. Elliott Point Range Front Light, 87° 20', 2 miles. Hickory Island, left tangent, 316° 30', ¾ mile.	12	

DETROIT RIVER.

ABOVE FIGHTING ISLAND.

U. S. Lake Survey Charts 0, 3, 41, and 42.

SAILING DIRECTIONS.—Belle Isle divides the river into two channels; the main channel—on the Canadian side—is about $\frac{1}{2}$ mile wide, and on the American side is about $\frac{1}{4}$ mile wide in its narrowest part. Off SW'y end of Belle Isle a shoal extends $\frac{3}{4}$ mile, the end of which is buoyed, and is the dividing point of the channels. The Canadian channel is free from obstructions S'y of SE'y end of Belle Isle, which can be passed close-to, then steer on Windmill Point Range, which leads fair between the shoal extending E'd of Belle Isle and the one to W'd of Isle aux Pêches; both shoals are buoyed. A bridge with draw crosses American channel, between Belle Isle and the mainland, and has two passageways, each 125 feet wide. Signal to open draw: Three blasts of whistle or fog horn. Scott Middle Ground, between Belle Isle and American shore, extends NE'y and SW'y $1\frac{1}{4}$ miles, NW'y side of which is marked by buoys. In using the American channel, leave Belle Isle West End Buoy to E'd; keeping in mid-channel or nearer the American shore, pass through bridge and to N'd of Scott Middle Ground buoys, and when abreast buoy No. 6 haul up for Windmill Point Light-House, until past N'y point of Belle Isle and in mid-channel, then steer E $\frac{3}{4}$ S, mag., with N'y point of Isle aux Pêches, a little open on starboard bow, until Windmill Point Range line is passed, when haul up the river, keeping Windmill Point shore best on board to clear flat off Isle aux Pêches, and, when abreast of Windmill Point Light-House, steer for gas buoys Nos. 1 and 2, at SW'y entrance to Lake St. Clair 20-foot channel, which commences about $1\frac{1}{2}$ miles ENE'y of Windmill Point.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Wayne Street Buoy.....		Red and black horizontal stripes.	25-foot spar.....	Belle Isle Ferry Dock, left tangent, $60^{\circ} 30'$. Water Works, Windsor, Canada, left tangent, $92^{\circ} 00'$. D. B. I. and W. Ferry Dock, Canada, left tangent, $123^{\circ} 30'$.	Fet. 15 $\frac{1}{2}$	Marks $15\frac{1}{2}$ -foot patch, 350 feet from American dock line.
Belle Isle West End Buoy.....		Red and black horizontal stripes.	25-foot spar.....	Belle Isle Bridge, pivot pier, $42^{\circ} 00'$, about $\frac{1}{4}$ mile. Casino, Belle Isle, left tangent, $79^{\circ} 00'$. Walkers' Distillery, left tangent, $136^{\circ} 00'$.	13	Marks end of shoal off SW'y end of Belle Isle. There are 3 fathoms of water close to buoy.
Scott Middle Ground Lower End Buoy.....	2	Red.....	25-foot spar.....	Belle Isle, left tangent, $70^{\circ} 30'$. Belle Isle Bridge, island end, $187^{\circ} 00'$, $\frac{1}{4}$ mile. Belle Isle Bridge, pivot pier, $200^{\circ} 00'$, 1,200 feet.	11	Marks NW'y point of shoal. From abreast Belle Isle West End Buoy, 51° , true (NE $\frac{1}{2}$ E, mag.) leads clear of SW'y end of Middle Ground.
Scott Middle Ground Middle Buoy.....	4	Red.....	25-foot spar.....	Belle Isle, left tangent, $79^{\circ} 00'$, $1\frac{1}{4}$ miles. Detroit Yacht Club, $131^{\circ} 00'$. Belle Isle Bridge, island end, $210^{\circ} 00'$, $\frac{3}{4}$ mile.	24	On NW'y side and near center of shoal.
Scott Middle Ground Upper End Buoy.....	6	Red.....	25-foot spar.....	Water Works Dock, end, $61^{\circ} 00'$, $\frac{3}{4}$ mile. Belle Isle, left tangent, $82^{\circ} 00'$, $\frac{3}{4}$ mile. Detroit Yacht Club, $149^{\circ} 00'$.	18	On N'y point of the Middle Ground.
BELLE ISLE LIGHT-STATION (Mich.).....		Red.....	Square tower, 36 $\frac{1}{2}$ feet high, dwelling attached; cylindrical iron oil-house 50 feet W'y.	Windmill Point Light-House, $51^{\circ} 00'$, 2 miles.		4th-order fixed red light; 42 feet above water; visible 13 miles. On SE'y point of Belle Isle. Lat. N, $42^{\circ} 20' 24''$; long. W, $82^{\circ} 57' 37''$. Guide between Detroit River and Lake St. Clair
Belle Isle East End Buoy.....		Red and black horizontal stripes.	25-foot spar.....	Windmill Point Light-House, $60^{\circ} 00'$, $1\frac{1}{4}$ miles. Isle aux Pêches, right tangent, $110^{\circ} 00'$, $\frac{1}{2}$ mile. Belle Isle Light-House, $220^{\circ} 00'$, $\frac{3}{4}$ mile.	20	Marks E'y point of shoal off head of Belle Isle and dividing point of channels on either side of island.

DETROIT RIVER.

ABOVE FIGHTING ISLAND—Continued.

U. S. Lake Survey Charts 0, 3, 41, and 42.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Isle aux Pêches West End Buoy.	8	Red.....	25-foot spar.....	Windmill Point Light-House, 45° 00', 1½ miles. Isle aux Pêches, W end, 84° 00', ½ mile. Belle Isle Light-House, 238° 00', ½ mile.	Feet. 20	Marks point of shoal off W'ly end of Isle aux Pêches. Five-fathom channel between islands is about ¼ mile wide.
Windmill Point Front Light (Mich.).		White.....	Conical, steel tower.			Two fixed red reflector lights. Front light, 42 feet above water; Lat. N, 42° 21' 33"; long. W, 82° 55' 50". Rear light, 57 feet above water; lat. N, 42° 21' (33"); long. W, 82° 55' (44"). Mark channel between Belle Isle and Isle aux Pêches. The range line passes 600 feet SE'ly of Belle Isle Light-House and 400 feet NW'ly of buoy No. 8.
Windmill Point Rear Light (Mich.).		White.....	Conical, steel tower.			
WINDMILL POINT LIGHT-STATION (Mich.).		White.....	Conical, brick tower, 51 feet high; coveredway to brick dwelling; cylindrical iron oil-house 20 feet W'ly.	Belle Isle Light-House, 230° 00', 2 miles.		4th-order fixed white light varied by red flash every 15 sec.; 55 feet above water; visible 14½ miles. On N'ly side of Detroit River entrance to Lake St. Clair. Lat. N, 42° 21' (30"); long. W, 82° 55' 49".

LAKE ST. CLAIR.

TWENTY-FOOT CHANNEL.

U. S. Lake Survey Charts 0, 3, 41, and 42, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

This channel, 800 feet wide, commences 1½ miles ENE'ly of Windmill Point and runs 47° 41', true (NE ½ E, mag.), about 6½ miles, and is marked by gas and spar buoys along its edges. The dredged channel again begins 1 mile SW'ly from S'ly entrance to St. Clair Flats canals; in this section, which runs 41° 07', true (NE ¼ N, mag.), E'ly channel is for *upbound* and W'ly channel for *downbound* vessels.

Isle aux Pêches Front Light (Mich.).		White, black lantern.	Conical steel tower, 38 feet high, octagonal lantern. Square 1-story dwelling; on crib 7 feet high.	Rear light, 227° 41', about 3,300 feet (¾ mile). Belle Isle Light-House, 243° 00', 3.1 miles. Windmill Point Light-House, 263° 00'.	20	4th-order (l. o. v.) light, flashing white every 10 sec.; 38 feet above water; visible 13½ miles. Lat. N, 42° 21' 39"; long. W, 82° 54' 29". In range with next marks axis of 20-foot dredged channel.
Isle aux Pêches Rear Light (Mich.).		White, black lantern.	Conical steel tower, 38 feet high, octagonal lantern; on crib 7½ feet high.	Front light, 47° 41', about 3,300 feet (¾ mile).	14	Reflector (a.) light, fixed red; 58½ feet above water; visible 15 miles. Lat. N, 42° 21' 16"; long. W, 82° 54' 53".
Lower Entrance West Side Gas Buoy, No. 1 (Mich.).	1	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Club-House Dock, outer end, 13° 00', 1¼ miles. Windmill Point Light-House, 250° 00', 1½ miles.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks turn from head of Detroit River into lower end of dredged channel.
Lower Entrance East Side Gas Buoy, No. 2 (Mich.).	2	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Club-House Dock, 4° 00'. Windmill Point Light-House, 257° 00'.	20	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Opposite gas buoy No. 1. Marks SE'ly edge of lower end of channel.
Lake St. Clair Buoy.....	3	Black.....	25-foot spar.....	Windmill Point Light-House, 246° 00'. Club-House Dock, 345° 00'.	20	Marks NW'ly edge of dredged channel.
Lake St. Clair Buoy.....	4	Red.....	25-foot spar.....	Windmill Point Light-House, 250° 00'. Club-House Dock, 338° 00'.	20	Marks S'ly edge of dredged channel.
Lake St. Clair Buoy.....	5	Black.....	25-foot spar.....	Windmill Point Light-House, 242° 00'. Club-House Dock, 303° 00'.	20	Marks NW'ly edge of dredged channel.
Lake St. Clair Buoy.....	6	Red.....	25-foot spar.....	Windmill Point Light-House, 246° 00'. Club-House Dock, 305° 00'.	20	Marks SE'ly edge of dredged channel.
Lower Middle West Side Gas Buoy, No. 7 (Mich.).	7	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Windmill Point Light-House, 239° 00'. Club-House Dock, 273° 00'.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Opposite gas buoy No. 8.

LAKE ST. CLAIR.

TWENTY-FOOT CHANNEL—Continued.

U. S. Lake Survey Charts 0, 3, 41, and 42, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Lower Middle East Side Gas Buoy, No. 8 (Mich.).	8	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Windmill Point Light-House, 242° 00' 3¼ miles. Club-House Dock, outer end, 278° 00' 1¼ miles.	Feet. 20	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks SE'y edge of dredged channel.
Lake St. Clair Buoy.....	9	Black.....	25-foot spar.....	Milk River Point, 3° 00'. Club-House Dock, 260° 00'.	20	Marks NW'y edge of dredged channel.
Lake St. Clair Buoy.....	10	Red.....	25-foot spar.....	Milk River Point, 1° 00'. Club-House Dock, 263° 00'.	20	Marks SE'y edge of dredged channel.
Lake St. Clair Buoy.....	11	Black.....	25-foot spar.....	Club-House Dock, 250° 00'. Milk River Point, 357° 00'.	20	Marks NW'y edge of dredged channel.
Lake St. Clair Buoy.....	12	Red.....	25-foot spar.....	Club-House Dock, 256° 00'. Milk River Point, 356° 00'.	20	Marks SE'y edge of dredged channel.
Upper Middle West Side Gas Buoy, No. 13 (Mich.).	13	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Club-House Dock, outer end, 245° 00' 2¼ miles. Milk River Point, 352° 00' 4¼ miles.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks NW'y edge of dredged channel.
Upper Middle East Side Gas Buoy, No. 14 (Mich.).	14	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Club-House Dock, 250° 00'. Milk River Point, 359° 00'.	20	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Opposite gas buoy No. 13.
Lake St. Clair Buoy.....	15	Black.....	25-foot spar.....	Club-House Dock, 243° 00'. Milk River Point, 346° 00'.	20	Marks NW'y edge of dredged channel.
Lake St. Clair Buoy.....	16	Red.....	25-foot spar.....	Club-House Dock, 246° 00'. Milk River Point, 345° 00'.	20	Marks SE'y edge of dredged channel.
Lake St. Clair Buoy.....	17	Black.....	25-foot spar.....	Club-House Dock, 240° 00'. Milk River Point, 339° 00'.	.....	Marks NW'y edge of dredged channel.
Lake St. Clair Buoy.....	18	Red.....	25-foot spar.....	Club-House Dock, 243° 00'. Milk River Point, 337° 30'.	.....	Marks SE'y edge of dredged channel.
Upper West Side Gas Buoy, No. 19 (Mich.).	19	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Club-House Dock, 238° 00'. Milk River Point, 330° 00'.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Opposite gas buoy No. 20. Marks NW'y side of upper end of dredged channel.
Upper East Side Gas Buoy, No. 20 (Mich.).	20	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Club-House Dock, 242° 00' 3¼ miles. Milk River Point, 333° 00' 3¼ miles.	20	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks SW'y entrance to dredged channel.
GROSSEPOINT LIGHT-VESSEL, No. 75 (Mich.).	Grossepoint Light-Vessel, No. 75.	Hull, red; cage and top mast, black.	Scow; one mast, circular cage-work daymark at mast-head.	Windmill Point Light-House, 235° 00' 7½ miles. Milk River Point, 309° 00' 3¼ miles.	20	Fixed white reflector light; 25 feet above water; visible 11¼ miles. Fog signal: Bell rung rapidly by hand every minute.
St. Clair Flats Canal Lower Entrance West Side Gas Buoy, No. 21 (Mich.).	21	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	St. Clair Flats Range Rear Unused Light-House, 18° 00'. St. Clair Flats Canal Lower Light, 46° 00'.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks NW'y edge of S'y entrance to dredged channel.
St. Clair Flats Canal Lower Entrance East Side Gas Buoy, No. 22 (Mich.).	22	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	St. Clair Flats Range Unused Front Light-House, 10° 00' 2¼ miles. St. Clair Flats Canal Lower Light-House, 35° 00' 1¼ miles. Grossepoint Light-Vessel, No. 75, 225° 00' 8¼ miles.	20	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks SE'y edge of S'y end of dredged channel leading into St. Clair Flats Canal, and about ¼ mile S by E ¼ E, mag., from gas buoy No. 21.

LAKE ST. CLAIR.

THAMES RIVER APPROACH.

U. S. Lake Survey Charts 0, 3, 42, and 43, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Thames River Gas Buoy (C.).		Red.....	Cylindrical steel buoy, surmounted by pyramidal steel frame and lantern.		Fed. 14	7th-order occulting white (a.) light. Moored in Lake St. Clair, $1\frac{1}{2}$ miles NW $\frac{1}{4}$ N. mag. from Thames River Range Rear Light. Lat. N. $42^{\circ} 20' 15''$; long. W. $82^{\circ} 28' 30''$.
Thames River Front Light (C.).		Red.....	Square, wood, open frame.	Rear light, $138^{\circ} 13'$, 300 feet ($\frac{1}{4}$ mile).		Reflector light, fixed white; 22 feet above water; visible 7 miles. Range leads SE $\frac{1}{2}$ S, mag., over bar.
Thames River Rear Light (C.).		White.....	Circular, stone.			7th-order fixed white light; 55 feet above water; visible $13\frac{1}{2}$ miles. On S'ly shore, mouth of river. Lat. N. $42^{\circ} 19' 00''$; long. W. $82^{\circ} 26' 50''$.

ST. CLAIR FLATS CANAL WEST CHANNEL.

U. S. Lake Survey Charts 0, 3, 42, and 43, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

West Channel Buoy.....	3	Black.....	25-foot spar.....	St. Clair Flats Lower Light - House, $75^{\circ} 00'$, about 500 feet.	20	
West Channel Buoy.....	5	Black.....	25-foot spar.....	St. Clair Flats Canal Upper Light-House, $45^{\circ} 00'$, about 1 mile.	20	Marks NW'ly side of W'ly channel.
West Channel Buoy.....	7	Black.....	25-foot spar.....	St. Clair Flats Canal Upper Light-House, $49^{\circ} 00'$, about 2,500 feet.	20	
West Channel Gas Buoy, No. 9 (Mich.).	9	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Old Club buildings, left tangent, $14^{\circ} 00'$. St. Clair Flats Canal Lower Light, $218^{\circ} 00'$. St. Clair Flats Range Unused Front Light-House, $283^{\circ} 00'$.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. On NW'ly side of upper entrance to channel; for use of southbound vessels only, along NW'ly side of W'ly pier of the United States Ship Canal from Lake St. Clair through St. Clair Flats into St. Clair River.

CLINTON RIVER APPROACH.

U. S. Lake Survey Charts 0, 3, 42, and 43, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

Point Huron Gas Buoy, No. 1 (Mich.).	1	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	St. Clair Flats Range Unused Light-House, $93^{\circ} 00'$. St. Clair Flats Canal Lower Light-House, $117^{\circ} 00'$. Clinton River Range Front Light, $344^{\circ} 30'$.	$13\frac{1}{2}$	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Moored about $2\frac{1}{2}$ miles SE'ly from Point Huron.
Clinton River Front Light (Mich.).		White.....	Large cluster of old piles; upright, with square day-mark.		$7\frac{1}{2}$	Two fixed white post-lantern lights. Front light, 12 feet above water. Lat. N. $42^{\circ} 35' 44''$; long. W. $82^{\circ} 46' 08''$. Rear light, 30 feet above water. Lat. N. $42^{\circ} 35' (43'')$; long. W. $82^{\circ} 46' (22'')$. Guide to approach mouth of river.
Clinton River Rear Light (Mich.).		White.....	Mast rising from SE'ly corner of old light-house crib.			

OLD CHANNEL FROM LAKE ST. CLAIR.

U. S. Lake Survey Charts 0, 3, 42, and 43, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

The old cut and channel through St. Clair Flats from Lake St. Clair to abreast upper light of ship canal is about $2\frac{1}{2}$ miles long, and from 150 to 180 feet wide in its narrowest part; it is now used only by small craft under sail and tugs towing rafts, as but 12 feet can be carried through it.

SAILING DIRECTIONS.—From Grossepoint Light-Vessel, No. 75, steer 37° , true (NE $\frac{1}{4}$ E, mag.), $9\frac{1}{4}$ miles until St. Clair Flats Range Unused Light-Houses are in range 56° , true (NE by E $\frac{1}{4}$ E, mag.), and follow to about midway between buoys Nos. 2 and 4, when haul gradually to ESE, bringing front structure of range directly astern, then follow buoys until nearly up with West Channel Gas Buoy, No. 9, when haul gradually to N'd, leaving buoy to starboard.

Entrance Buoy.....	1	Black.....	20-foot spar.....	St. Clair Flats Range Unused Front Light-House, $58^{\circ} 00'$, $1\frac{1}{4}$ miles. St. Clair Flats Canal Lower Light, $115^{\circ} 00'$, $1\frac{1}{2}$ miles.	12	Marks NW'ly side of entrance to old cut.
Old Cut Middle Buoy....	2	Red.....	20-foot spar.....	St. Clair Flats Range Unused Front Light-House, $56^{\circ} 00'$, 3,000 feet.	11	Marks point where channel turns slightly to E'd of range (NE by E).
Elbow Off Beacon Lower Buoy.	4	Red.....	20-foot spar.....	St. Clair Flats Range Unused Front Light-House, $39^{\circ} 00'$, 900 feet.	11	Marks lower point of elbow off front range structure.
St. Clair Flats Unused Front Light-House.		Yellow.....	Brick tower, 23 feet high.	Rear Light-House, $57^{\circ} 45'$, 1,000 feet (1 mile).		At head of old cut through flats. Guide through cut.
St. Clair Flats Unused Rear Light-House.		Yellow.....	Conical tower, 37 feet high.			

LAKE ST. CLAIR.

OLD CHANNEL FROM LAKE ST. CLAIR—Continued.

U. S. Lake Survey Charts 0, 3, 42, and 43, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Elbow Off Beacon Middle Buoy.	6	Red.....	20-foot spar.....	St. Clair Flats Range Unused Front Light-House, 318° 00', 540 feet.	Fvt. 11	Marks middle of elbow off front range structure.
Elbow Off Beacon Upper Buoy.	8	Red.....	20-foot spar.....	St. Clair Flats Canal Lower Light, 180° 00', nearly 1½ miles. St. Clair Flats Range Unused Front Light-House, 297° 00', 1,500 feet.	11	Marks upper point of elbow off front range structure.
Elbow Off Upper End of Ship Canal Lower Buoy.	3	Black.....	20-foot spar.....	St. Clair Flats Canal Lower Light, 200° 00', nearly 1½ miles. St. Clair Flats Range Unused Front Light-House, 287° 00', 1½ mile.	12	Marks the elbow off St. Clair Flats Canal Upper Light. Edge of bank is shown by reeds when grown.
Elbow Off Upper End of Ship Canal Upper Buoy.	5	Black.....	20-spar.....	St. Clair Flats Canal Lower Light, 208° 00', 1½ miles. St. Clair Flats Range Unused Front Light-House, 281° 00'.	10	

ST. CLAIR RIVER.

ST. CLAIR FLATS CANAL TO FORT GRATIOT LIGHT-STATION.

U. S. Lake Survey Charts 0, 3, 42, and 43, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

SAILING DIRECTIONS.—St. Clair River, from upper end of St. Clair Flats Canal to Fort Gratiot Light-House is 39½ miles long. After leaving canal, follow mid-channel until abreast of head of Bassett Channel, when haul to W'y shore to avoid shoals off Squirrel Island, edge of which is buoyed. When shoal is passed, take mid-channel until within ½ mile of Woodtick Island, being careful to avoid shoal at head of Russell Island, the end of which is marked by a gas buoy. There are shoals at N'y and S'y ends of Woodtick Island, marked by buoys, and there is a channel on either side of island, but one on American side is more frequently used. After passing Woodtick Island Upper End Buoy, keep in mid-channel until near St. Clair City, when upbound vessels should haul to E'y or Canadian side and downbound vessels to W'y or American side of river to avoid St. Clair Shoals and Middle Ground, buoyed for two separate channels by a gas buoy at each end. When above upper gas buoys, follow mid-channel until within 1 mile of Stag Island, and then channel on either side may be taken. The W'y side of American channel is marked by three fixed white lights abreast Stag Island; spar buoys mark E'y edge of channel; when above upper buoy take mid-channel until 1 mile below Head of Shoal Gas Buoy, No. 9, when haul to Canadian shore, to avoid shoal off Port Huron, until abreast of gas buoy; then steer 332°, true (NNW ¼ W, mag.), 1 mile, after which take mid-channel until abreast of Fort Gratiot Light-House, being careful to avoid spit extending ¼ mile to E'd of light-house.

The shoal ground off Port Huron, formed by Black River, is often dredged out to 15 and 16 feet of water, but vessels of deep draft should not attempt to pass over it unless certain of depth of water at the time. N'y end of shoal is marked by Head of Shoal Gas Buoy, No. 9.

ST. CLAIR FLATS CANAL LOWER LIGHT-STATION (Mich.).		Red.....	Octagonal, brick tower, 40 feet high rising from corner of dwelling; cylindrical iron oil-house 90 feet NE'y.	Windmill Point Light-House, 228° 00', 16¼ miles.		4th-order fixed red light; 45 feet above water; visible 13 miles. Marks lower end of W'y pier of ship canal through St. Clair Flats. Lat. N, 42° 31' 10"; long. W, 82° 41' 15".
ST. CLAIR FLATS CANAL UPPER LIGHT-STATION (Mich.).		Red.....	Octagonal, brick tower, 40 feet high, rising from corner of dwelling; cylindrical iron oil-house 80 feet SW'y.			4th-order fixed red light; 45 feet above water; visible 13 miles. Marks upper end of W'y pier of ship canal through St. Clair Flats. Lat. N, 42° 32' 03"; long. W, 82° 40' 13".
East Bank Buoy.....	2E	Red.....	25-foot spar.....	Lower Reach Lower Light No. 1, 53° 00'. St. Clair Flats Canal Upper Light-House, 225° 00'. St. Clair Flats Range Unused Rear Light-House, 264° 00'.	20	Marks edge of E'y bank of St. Clair River at point about ¾ mile NE'y from St. Clair Flats Canal Upper Light-House.
Lower Reach Lower Light, No. 1 (Mich.).	1	White.....	Cluster of three piles, with mast and target daymark; frame oil-house on shore with connecting walk.			Fixed white post-lantern light, 22 feet above water. On N'y shore in the first bend, about 2¼ miles from St. Clair Flats Canal Upper Light-House. Lat. N, 42° 33' 30"; long. W, 82° 37' 43". Forms range with Light No. 2 for about ¾ mile, in line with W'y gable of Star Island Hotel, to guide through Lower Reach.
Lower Reach Middle Light, No. 2 (Mich.).	2	White.....	Tripod and target daymark.			Fixed red post-lantern light, 35 feet above water. In the marsh 900 feet back of Light No. 1 and 1,000 feet back of Light No. 3 and forms range with each.
Lower Reach Upper Light, No. 3 (Mich.).	3	White.....	Cluster of piles, with mast and target daymark.			Fixed white post-lantern light, 22 feet above water. Near N'y bank. Forms range with Light No. 2 for ¾ mile, to guide between Lower Reach and Southeast Bend. Reach terminates near Light No. 4.
Southeast Bend Lower Light, No. 4 (Mich.).	4	White.....	Cluster of piles with short post.			Fixed red and white post-lantern light, 12 feet above water. Near N'y shore. Lat. N, 42° 33' 02"; long. W, 82° 36' 28". Shows white down fange formed by Lights Nos. 2 and 3, and changes to red at point where range should be left by vessels ascending and taken up by vessels descending river.

ST. CLAIR RIVER.

ST. CLAIR FLATS CANAL TO FORT GRATIOT LIGHT-STATION—Continued.

U. S. Lake Survey Charts 0, 3, 42, and 43, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Southeast Bend Middle Light, No. 5 (Mich.).	5	White.....	Cluster of piles with short post; frame oilhouse on shore.		Fet.	Fixed red post-lantern light, 12 feet above water. On N'y bank of Southeast Bend, near E'y end. Lat. N, 42° 32' 59"; long. W, 82° 35' 54".
Southeast Bend Upper Light, No. 6 (Mich.).	6	White.....	Cluster of piles with short post.			Fixed red and white post-lantern light, 12 feet above water. Lat. N, 42° 33' 05"; long. W, 82° 35' 27". Shows white upstream, and changes to red where Herson Island Range, Nos. 8 and 9, should be left by vessels descending and taken up by vessels ascending river.
Squirrel Island Buoy.....	2	Red.....	20-foot spar.....	Canada Clubhouse, head of Bassett Channel, 200° 00', 1 mile.	11	Marks edge of flat off W'y side of Squirrel Island in South Channel of St. Clair River, 6 miles above St. Clair Flats Canal Upper Light.
Herson Island Lower Light, No. 7 (Mich.).	7	White.....	Tripod and target daymark.			Fixed red post-lantern light, 20 feet above water. In marsh near lower end of Herson Island. Lat. N, 42° 34' 15"; long. W, 82° 34' 45". Forms range with Light No. 8 for 3/4 mile, to guide between that point and Fish Dock.
Herson Island Middle Light, No. 8 (Mich.).	8	White.....	Cluster of piles and target daymark; frame oilhouse on shore with connecting walk.	Light No. 7, 1,050 feet.		Fixed white post-lantern light, 12 feet above water. In water, near shore, below Herson Island. Forms ranges with Lights Nos. 7 and 9.
Herson Island Upper Light, No. 9 (Mich.).	9	White.....	Tripod and target daymark.	Light No. 9, 525 feet.		Fixed red post-lantern light, 25 feet above water. At edge of woods, near lower end of Herson Island. Forms range with Light No. 8 for 1 1/2 miles, between Herson Island and Southeast Bend. Range terminates above Light No. 6, in vicinity of end of Canadian Club Wharf, on E'y side of river.
Russell Island Lower Light, No. 10 (Mich.).	10	White.....	Cluster of piles and target daymark.			Fixed white post-lantern light, 12 feet above water. In marsh near lower end of Russell Island. Lat. N, 42° 36' 24"; long. W, 82° 31' 42". Forms range with Light No. 11 for 2 miles between Russell Island and Fish Dock.
Russell Island Middle Light, No. 11 (Mich.).	11	White.....	Steel skeleton mast, square daymark; frame oilhouse on shore with connecting walk.	Russell Island Upper Light, No. 12, 270° 00'.		Fixed white and red lens-lantern light, 25 feet above water. In water, abreast point of woods on Russell Island. Forms range with Light No. 10 and shows white downstream toward Fish Dock and red upstream toward Baby Point on Canadian shore.
Russell Island Upper Light, No. 12 (Mich.).	12	White.....	Cluster of piles and target daymark.	Light No. 10, 1,640 feet.	15	Fixed red post-lantern light, 14 feet above water. On upper end of shoal at head of Russell Island.
Russell Island Shoal Gas Buoy (Mich.).		Red and black horizontal stripes.	Conical, surmounted by pyramidal lattice-work and lantern.	Point aux Chenes, tangent to docks, 232° 00'; Dana Coal Dock, Algonac, Mich., 298° 00'; Bailey or Fisher Creek entrance, 349° 00'.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks NE'y point of shoal at head of Russell Island, and junction of N and main channels.
Range.	Chenal Ecarté Front Light (C.).	White, black vertical stripe attached to pole.	Lantern on pole; diamond-shaped slat-work daymark.	Rear light, 138° 45', 200 feet.		Post light, fixed white, 10 feet above water, visible 1 1/4 miles. On Walpole Island, 84 feet SE'd of N'y end. Lat. N, 42° 38' 05"; long. W, 82° 30' 00".
	Chenal Ecarté Rear Light (C.).	White, black vertical stripe attached to pole, white shed.	Lantern on pole; diamond-shaped slat-work daymark; shed at base.			Post light, fixed white, 22 feet above water, visible 1 1/4 miles. Lights in range lead NW 1/2 N. mag., into St. Clair River clear of shoals at the entrance. Vessels upward bound will have these lights in range astern.
Woodtick Island Lower End Buoy.		Red and black horizontal stripes.	25-foot spar.....	Woodtick Island and Dock, left tangent, 11° 00'; Woodtick Island, E'y side, 35° 00'; Marine Sugar Co.'s tower, 349° 00'.	20	Marks point of shoal extending to S'd of Woodtick Island. Channel on either side of island; the American, being straighter and wider, is one most frequently used.
Marine City Shoal Buoy....	4	Red.....	25-foot spar.....	Sicken's Dock (Sombra), left tangent, 87° 00'; Meyers' Dock, right tangent, 135° 00'; Woodtick Island, left tangent, 167° 00'.	20	Marks W'y edge of middle of shoal N'd of Woodtick Island.
Woodtick Island Upper End Buoy.		Red and black horizontal stripes.	25-foot spar.....	Lumber Dock (Sombra), 86° 00'; Sicken's Dock, right tangent, 166° 00'; Woodtick Island, left tangent, 186° 00'.	20	Marks N'y end of shoal N'd of Woodtick Island.
St. Clair Middle Ground Lower End Gas Buoy (Mich.).		Red and black horizontal stripes.	Conical, surmounted by pyramidal lattice-work and lantern.	Oakland Hotel Dock, 228° 00'; Oakland Hotel, right tangent, 281° 00'; Schlunkert Coal Dock, 323° 00'.	19	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks dividing point of E'y and W'y channels.

ST. CLAIR RIVER.

ST. CLAIR FLATS CANAL TO FORT GRATIOT LIGHT-STATION—Continued.

U. S. Lake Survey Charts 0, 3, 42, and 43, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
St. Clair Shoal Middle Buoy.	3	Black.....	25-foot spar.....	Michigan Central R. R. Dock (Canada), left tangent, 95° 00'. Ferry Landing Depot, 156° 00'. John Johnson Grain Elevator, 177° 00'.	Feet. 20	Marks NE'y edge of shoal.
St. Clair Middle Ground Lower End Buoy, No. 6 (Mich.).	6	Red.....	25-foot spar.....	Michigan Central R.R. Dock, left tangent, 84° 00'. Oakland House, right tangent, 207° 00'. Pine River Bridge, center, 257° 00', about 1,250 feet (¾ mile).	20	Marks S'y end of shoal, about 1¼ miles long, extending NNE'y and SSW'y, and about 700 feet wide.
St. Clair Middle Ground Buoy (C.).	6MC	Red.....	25-foot spar.....	Somerville Dock, right tangent, 18° 00'. Mooretown Salt Co. Dock, left tangent, 44° 00'. Hopkins Dock, right tangent, 330° 15'.	20	Marks W'y edge of Middle Ground opposite Sheldon's Dock.
St. Clair Middle Ground Gas Buoy (C.).	5	Black.....	Cylindrical, steel, surmounted by pyramidal, steel framework and lantern.	Mooretown Salt Co. (Canada) Dock, 30° 00'. Hopkins Dock, left tangent, 277° 00'. Capt. Rice's (private) Dock, 345° 00'.	20	7th-order fixed white (a.) light. On most N'y 18-foot spot E'y of St. Clair Middle Ground. Lat. N, 42° 49' 44"; long. W, 82° 28' 18".
St. Clair Middle Ground Upper End Gas Buoy (Mich.).	St. Clair Middle Ground.	Red and black horizontal stripes.	Conical, surmounted by pyramidal lattice-work and lantern.	Carter and Kittermaster Dock, left tangent, 48° 00'. Mooretown Salt Co. Dock, left tangent, 90° 00'. Baby Creek Bridge (Canada), 125° 00'.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks N'y end of Middle Ground.
Stag Island Shoal Lower Buoy.		Red and black horizontal stripes.	25-foot spar.....	Stag Island Shoal (Canadian) Light, 13° 00', about 2,500 feet. Elwood Dock, outer end, 259° 00', 1,300 feet.	20	Marks point of shoal extending to S'd of Stag Island; channel on either side.
Stag Island Shoal Light (C.).		White.....	Square, wood, on square concrete pier.			7th-order fixed white light; 20 feet above water; visible 4¼ miles. On S'y end of shoal. Lat. N, 42° 52' 00"; long. W, 82° 27' 50".
Range.	Corunna Front Light (C.).	White, red roof.	Square, pyramidal, wooden tower.	Rear light, 165° 20', 568 feet (¾ mile).		4th-order fixed white (i. o. v.) light; 48 feet above water; visible 4½ miles. In village, at foot of Fane street, near the old wharf. Lat. N, 42° 53' 35"; long. W, 82° 26' 40".
	Corunna Rear Light (C.).	White.....	Square, wood.....			Reflector light, fixed white; 60 feet above water; visible 4¼ miles. On W'y side of Beresford street. Lights visible over a small arc on each side of range line. The range leads NW $\frac{1}{16}$ N, mag., and indicates the best water in Canadian channel past shoals at head of Stag Island on W, and past shoals off mouth of Talford Creek on E side. Vessels upward bound will have these lights in range astern.
Stag Island Lower Light (Mich.).		White.....	Cluster of piles with post.	Stag Island Shoal (Canadian) Light, 84° 00', about 2,000 feet.		Fixed white post-lantern light; 12 feet above water. Marks W'y bank of American channel. Lat. N, 42° 51' 51"; long. W, 82° 28' 25".
Stag Island Shoal Buoy..	6A	Red.....	25-foot spar.....	Stag Island, S'y end, 22° 30', about 3,000 feet. Stag Island Shoal (Canadian) Light, 129° 00', about 1,300 feet.	20	Marks E'y limit of channel about midway of shoal.
Stag Island Middle Light (Mich.).		White.....	Cluster of piles with post.	Stag Island Shoal (Canadian) Light, 164° 00', 1½ miles. Stag Island Lower Light, 179° 00', about 1½ miles.		Fixed white post-lantern light; 12 feet above water. Marks W'y bank of American channel. Lat. N, 42° 53' 14"; long. W, 82° 28' 28".
Stag Island Middle Buoy.	6B	Red.....	25-foot spar.....	Cuttle Creek, mouth, 285° 00', about 1,450 feet.	20	Marks E'y side of channel.
Stag Island Upper Buoy.		Red and black horizontal stripes.	25-foot spar.....	Talford Creek Bridge (Canada), center, 87° 00'. Corunna Range Front Light (Canada), 163° 00'. Stag Island, right tangent, 195° 00'.	20	Marks N'y end of shoal extending to N'd of Stag Island.

ST. CLAIR RIVER.

ST. CLAIR FLATS CANAL TO FORT GRATIOT LIGHT-STATION—Continued.

U. S. Lake Survey Charts 0, 3, 42, and 43, and U. S. Hydrographic Office Charts 1477 and 1665 issued at Lake Survey Office.

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Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Stag Island Upper Light (Mich.).		White.....	Cluster of piles with post.	Corinna Range Front Light (Canadian), 159° 00', about 1½ miles. Stag Island Middle Light, 196° 00'.	<i>Fret.</i>	Fixed white post-lantern light; 12 feet above water. Marks W'yly bank of American channel at S'y end of N. and B. Mills Lumber Dock, Marysville, Mich. Lat. N, 42° 54' 22"; long. W, 82° 27' 58".								
Black River Shoal Buoy.	7	Black.....	25-foot spar.....	Corner of dock at lower entrance to Black River, 330° 00'. Fort Gratiot Light-House, 333° 00'.	20	Marks E'yly side of shoal or middle ground off mouth of Black River, Fort Huron.								
Head of Shoal Gas Buoy, No. 9 (Mich.).	9	Black.....	Conical surmounted by pyramidal lattice-work and lantern.	E. Hall Saw-mill, E end (Sarnia), 20° 00'. Center of drawbridge over Black River, 285° 00'. Fort Gratiot Light-House, 350° 00'.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks extreme N'yly end of shoal off mouth of Black River.								
Point Edward Gas Buoy (C.).		Red.....	Cylindrical, steel buoy surmounted by pyramidal, steel frame and lantern.		20	7th-order occulting white (a) light. Moored opposite the G. T. R. R. elevator, on edge shoal on E'yly side of St. Clair River, about ¼ mile N'yly of Bay Point. Lat. N, 42° 59' 23"; long. W, 82° 25' 10".								
Range Fort Gratiot Front Light (Mich.).		White.....	Square, steel, skeleton mast, cylindrical daymark.			Two fixed red lens-lantern lights. Front light, 44 feet above water; rear light, 69 feet above water. Guide for St. Clair River to and from Lake Huron. On W'yly side of St. Clair River, near Fort Huron. Lat. N, 42° 59' 33"; long. W, 82° 25' 38".								
Range Fort Gratiot Rear Light (Mich.).		White.....	Square, pyramidal, skeleton, iron tower, elliptical daymark.											
Range Point Edward Front Light (C.).		White.....	Square, wood.....	Rear Light, 180° 00'. 579 feet (½ mile).		7th-order fixed red light; 35 feet above water; visible 8 miles from all points approach. On the beach. Lat. N, 43° 00' 11"; long. W, 82° 24' 49".								
Range Point Edward Rear Light (C.).		White.....	Square, wood.....			Reflector light, fixed red; 58 feet above water; visible 9¼ miles on the range line. The lights in range lead N ¼ E, mag., into Lake Huron from St. Clair River. Upward-bound vessels will have these lights in range astern.								
Fort Gratiot Light-Station (Mich.).		White; red-brick dwelling.	Conical tower, 76 feet high; detached dwelling; fog-signal building N'yly; cylindrical oil-house 100 feet SW'yly.			3d-order fixed white light, varied by white flash every minute; 82 feet above water; visible 17 miles. On mainland W'yly side of S'yly end of Lake Huron and entrance to St. Clair River. Lat. N, 43° 00' 22"; long. W, 82° 25' 21". Fog signal: 8-inch steam whistle, sounds thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>3 sec.</td> <td>17 sec.</td> <td>3 sec.</td> <td>17 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	3 sec.	17 sec.	3 sec.	17 sec.
Blast	Silent interval	Blast	Silent interval											
3 sec.	17 sec.	3 sec.	17 sec.											

LAKE HURON.

TO SAGINAW BAY.

U. S. Lake Survey Charts 0, 5, 52, 53, and 528, and U. S. Hydrographic Office Charts 1475, 1476, and 1477 issued at Lake Survey Office.

Harbor Beach Harbor of Refuge, formed by breakwater and piers on W'yly shore of Lake Huron, 39 miles N'yly of Fort Gratiot Light-House, affords good protection in all winds, with good anchorage in from 4 to 4½ fathoms close to breakwater.

All vessels are required to take such berths as may be directed by the government harbor master. The general rule is that "all steam craft will, when practicable, make fast to snubbing posts on breakwater. Sailing craft will so locate themselves that they will not lie in way of other vessels entering harbor, or in any way interfere with work of construction or repairs that may be in progress at the time."

SAILING DIRECTIONS.—To enter harbor from S'd and E'd, bring main light (flashing alternately red and white) to bear anywhere to W'd of NNW ¼ W, and head for it, passing it close-to on starboard hand in entering, then haul at once to N'd, to make fast to post on breakwater.

Vessels drawing not more than 8 feet may enter from S'd; E entrance 600 feet wide, least depth 21 feet; N entrance 300 feet wide, least depth 21 feet.

South pier extends about 2,000 feet S from E entrance; breakwater extends N from E entrance 330 feet, thence NW'yly 4,000 feet, thence 320 feet WNW'yly to N entrance, W pier extends 1,500 feet WNW'yly from N entrance.

Each entrance is marked by a light on either side, the main light with fog signal being on N side of E entrance.

To enter harbor from N'd, bring E'yly light (fixed white) at that entrance to bear nothing to S'd of SW ½ S, and head for it, passing it close-to on port hand in entering, and haul at once to E'd, to make fast to posts on breakwater.

NOTE.—Until further notice lights at N'yly entrance will NOT be LIGHTED, owing to improvements by War Department.

LAKE HURON LIGHT-VESSEL, No. 61 (Mich.).

Lake Huron, No. 61.	Red; black lettering, daymark, smokestack, and fog signal.	Schooner rigged, no bowsprit; cage-work daymark at foremast head; smokestack, and fog signal between masts; three lanterns encircling foremast head.	Hotel on Canadian shore, 129° 00'. Fort Gratiot Light-House, 200° 00', 1¼ miles.	20	Fixed white lens-lantern light; 40 feet above water; visible 13½ miles. Moored to N'd and W'd of Northwest Shoal, S'yly end of the lake. Lat. N, 43° 01' (47"); long. W, 82° 24' (05"). Should be given berth of at least 600 feet. Fog signals: 6-inch steam whistle, sounds thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>2 sec.</td> <td>10 sec.</td> <td>2 sec.</td> <td>10 sec.</td> </tr> </table> Submarine bell, sounds thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Silent interval</td> <td>Silent interval</td> </tr> <tr> <td>5 strokes</td> <td>5 strokes</td> </tr> <tr> <td>5 sec.</td> <td>5 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	2 sec.	10 sec.	2 sec.	10 sec.	Silent interval	Silent interval	5 strokes	5 strokes	5 sec.	5 sec.
Blast	Silent interval	Blast	Silent interval																
2 sec.	10 sec.	2 sec.	10 sec.																
Silent interval	Silent interval																		
5 strokes	5 strokes																		
5 sec.	5 sec.																		

LAKE HURON.

TO SAGINAW BAY—Continued.

U. S. Lake Survey Charts 0, 5, 52, 53, and 528, and U. S. Hydrographic Office Charts 1475, 1476, and 1477 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Lake Huron Cut Buoy	2	Red	30-foot spar	Fort Gratiot Light-House, 198° 00', about 1½ miles.	F ₂₀	Marks edge of channel, about 180 feet to W'd of Lake Huron Light-Vessel, No. 61.								
PORT SANILAC LIGHT-STATION (Mich.)		White	Octagonal tower, covered way to brick dwelling; brick oilhouse.	Fort Gratiot Light-House, 169° 00', 30 miles. Harbor Beach Light-House, 350° 00', 29½ miles.		4th-order fixed red light; 69 feet above water; visible 13 miles. In the village of Port Sanilac. Lat. N. 43° 23' 45"; long. W. 82° 32' 20".								
HARBOR BEACH HARBOR OF REFUGE (Mich.) NORTH EAST ENTRANCE. NORTH MAIN LIGHT. South Light. East Light. West Light.		White; black lantern; brown fog-signal house.	Conical, iron tower on rectangular crib.	Point Clark Light-House (Canadian), 70° 00', 46½ miles. Goderich Light-House (Canadian), 98° 00', 46½ miles. Fort Gratiot Light-House, 169° 00', 59 miles.		4th-order light, flashing alternately red and white, interval 5 sec.; 51½ feet above water; visible 14½ miles. Marks N'y side of E'y entrance to harbor. Lat. N. 43° 50' 45"; long. W. 82° 37' 52". Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>25 sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	25 sec.	5 sec.	25 sec.
	Blast	Silent interval	Blast	Silent interval										
	5 sec.	25 sec.	5 sec.	25 sec.										
			Brown	Iron skeleton tripod.			Fixed red lens-lantern light; 27½ feet above water; on end of S'y breakwater. Marks S'y side of E'y entrance to harbor. Lat. N. 43° 50' 38"; long. W. 82° 37' 51".							
		White	Pyramidal, open framework tower.			5th-order fixed white light; 42 feet above water; visible 13½ miles; on end of breakwater. Marks E'y side of N'y entrance to harbor. Lat. N. 43° 51' 19"; long. W. 82° 38' 31".								
		Brown	Iron skeleton tripod.			Fixed red lens-lantern light; 27½ feet above water; on end of breakwater. Marks W'y side of N'y entrance to harbor. Lat. N. 43° 51' 21"; long. W. 82° 38' 36".								
Pointe aux Barques Reef Bell Buoy	1	Black	Nun-shaped, lattice-work body surmounted by bell.	Stafford's Elevator at Port Hope, 162° 00', 5¼ miles. Pointe aux Barques Light-House, 271° 00', 2¼ miles.	33	Marks reef extending offshore; do not pass inside buoy.								
POINTE AUX BARQUES LIGHT-STATION (Mich.)		White	Conical tower, 79 feet high, covered way to dwelling; cylindrical iron oilhouse 90 feet S'w'y.	Thunder Bay Island Light-House, 345° 00', 73½ miles.		3d-order light, flashing white every 10 sec.; 89 feet above water; visible 17½ miles. On W'y shore of Lake Huron, 75 miles to N'd of Fort Gratiot Light-House, and marks turning point into Saginaw Bay. Between Harbor Beach and Pointe aux Barques lights. Lat. N. 44° 01' 23"; long. W. 82° 47' 35". Shoal water extends out from land from 1 to 2 miles, and care should be exercised in approaching land.								
PORT AUSTIN REEF LIGHT-STATION (Mich.)		Buff	Square brick tower, connected with brick fog-signal building, on high crib.	Port Austin, 193° 00', 2½ miles. Charity Island, 263° 00', 23 miles.		4th-order light, fixed white 1 minute, followed by five consecutive red flashes. Intervals 12 sec.; 89 feet above water; visible 16½ miles. On reef of Old Pointe aux Barques, S'y side of entrance to Saginaw Bay, about 1½ miles from the mainland and 500 feet from end of the reef. Lat. N. 44° 04' 56"; long. W. 82° 58' 57". In passing leave light 2 miles to S'd; no passage-way between it and the mainland. Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>7 sec.</td> <td>80 sec.</td> <td>7 sec.</td> <td>80 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	7 sec.	80 sec.	7 sec.	80 sec.
Blast	Silent interval	Blast	Silent interval											
7 sec.	80 sec.	7 sec.	80 sec.											
Twelve-foot Shoal Buoy	3	Black	2d-class can	Port Austin Reef Light-House, 152° 00', about 1 mile. Flat Rock Point, 214° 00'.	35	Off E'y end of shoal which runs nearly E and W for nearly ¾ mile; least depth 11 feet; no passage to S'd.								
Charity Island Shoal Gas Buoy, No. 5 (Mich.)	5	Black	Conical, surmounted by pyramidal lattice-work and lantern.	Charity Island Light-House, 150° 20', 3¼ miles. Little Charity Island, right tangent, 178° 30'. Point Lookout, tangent, 249° 45'.	20	White lens-lantern light 10 sec., eclipse 10 sec. Marks N'y end of shoal. If bound into Saginaw Bay from S'd of Pointe aux Barques, pass at least 1½ miles to N'd of Port Austin Reef Light-House, then steer 267°, true (W mag.), 23 miles, which leads to N'd of buoy; thence steer 214°, true (SW ¼ S, mag.), for Saginaw River.								
CHARITY ISLAND LIGHT-STATION (Mich.)		White	Conical brick tower, 39 feet high, covered way to frame dwelling; brick oilhouse 100 feet S'w'y.	Port Austin Reef Light-House, 83° 00', 23 miles. Tawa's Light-House, 359° 00', 15 miles.		4th-order fixed white light; 45 feet above water; visible 14 miles. On NW'y point of Charity Island, Saginaw Bay. Lat. N. 44° 02' 16"; long. W. 83° 26' 27". Main channel to W'd of light. Strangers should not pass to E'd of light.								
Gravelly Point Shoal Gas Buoy, No. 4 (Mich.)	4	Red	Conical, surmounted by pyramidal lattice-work and lantern.	Charity Island Light-House, 79° 00', 5 miles. Point aux Gres, 250° 00'. Gravelly Point, 312° 00', 2½ miles.	24	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks point of shoal extending S'y from Gravelly Point. Do not pass between point and buoy.								

SAGINAW RIVER.

U. S. Lake Survey Charts 0, 5, 52, and 524.

SAILING DIRECTIONS.—Fourteen feet will be found anywhere between buoys to Twenty-third Street Bridge. Depth of water at mouth of river is increased from 7 to 15 inches with N'y and NE'y winds, and decreased from 2 to 8 inches with S'y and SW'y winds. To enter river from Saginaw Bay, get lights in range when about 3 miles from front light, pass between gas buoy and spar buoy at entrance to cut, and follow range, 184° 00', true (S ½ W, mag.), between buoys until abreast Saginaw River Channel Light, then change course to pass midway between buoys Nos. 16 and 15, then run 161°, true (S by E ½ E, mag.), for De Courval Dock and Shingle Mill until Bay City Boat Club house bears about S E ¼ S, mag., 1 mile; then follow mid-channel until near Bangor, when haul to the N shore to avoid the shoal ground on the S shore opposite to Lords Mill, after which there is no obstruction until the first drawbridge is reached. The bay near entrance to channel and channel itself are filled with water-logged timbers, and vessels should proceed under slowest possible speed while near or in the channel.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Entrance Buoy.....	1	Black.....	20-foot spar.....	Saginaw River Range Front Light, 185° 00', 2½ miles. Wenona Beach Pavilion, left tangent, 238° 00', about 2¼ miles. Kawkawin River, tangent W'y side of mouth, 236° 00', about 2½ miles.	Fet. 15	Marks E'y side of entrance to cut.
Saginaw River Entrance Gas Buoy, No. 2 (Mich.).....	2	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Saginaw River Range Front Light, 184° 00', 2½ miles. Wenona Beach Pavilion, left tangent, 212° 00', 2¼ miles. Kawkawin River, tangent W'y side of mouth, 226° 00', about 2½ miles.	15	Fixed white lens-lantern light; 10 feet above water. Marks W'y side of entrance to cut.
Channel Buoy.....	3	Black.....	20-foot spar.....	buoy No. 1, 4° 00', ¾ mile.	13	Marks E'y edge of cut.
Channel Buoy.....	4	Red.....	20-foot spar.....		13	Marks W'y edge of cut, abreast of buoy No. 3.
Channel Buoy.....	5	Black.....	20-foot spar.....	Buoy No. 3, 4° 00', ¾ mile.	13	Marks E'y edge of cut.
Channel Buoy.....	6	Red.....	20-foot spar.....		13	Marks W'y edge of cut, abreast of buoy No. 5.
Channel Buoy.....	7	Black.....	20-foot spar.....	Buoy No. 5, 4° 00', ¾ mile.	13	Marks E'y edge of cut.
Channel Buoy.....	8	Red.....	20-foot spar.....		13	Marks W'y edge of cut, abreast of buoy No. 7.
Channel Buoy.....	9	Black.....	20-foot spar.....	Buoy No. 7, 4° 00', ¾ mile.	13	Marks E'y edge of cut.
Channel Buoy.....	10	Red.....	20-foot spar.....		13	Marks W'y edge of cut, abreast of buoy No. 9.
Channel Buoy.....	11	Black.....	20-foot spar.....	Buoy No. 9, 4° 00', ¾ mile.	13	Marks E'y edge of river, at commencement of deep water, inside of bar.
Channel Buoy.....	12	Red.....	20-foot spar.....		13	Marks W'y edge of channel, abreast of buoy No. 11.
Channel Buoy.....	13	Black.....	20-foot spar.....	Buoy No. 11, 4° 00', ¾ mile.	13	Marks E'y edge of channel at mouth of river.
Channel Buoy.....	14	Red.....	20-foot spar.....		13	Marks W'y edge of channel at mouth of river, abreast of buoy No. 13.
Inner Buoy.....	15	Black.....	20-foot spar.....	Williams Fish-House 155° 00'. Saginaw River Range Front Light, 193° 00', 1,200 feet.	13	Marks E'y edge of channel at mouth of river.
Inner Buoy.....	16	Red.....	20-foot spar.....		13	Marks W'y edge of channel at mouth of river, abreast of buoy No. 15.
Saginaw River Front Light (Mich.).....		White.....	Pyramidal, open framework tower, 30 feet high, on crib.	Rear light, 185° 00', 2,330 feet (¾ mile).		Two fixed red lights; front light, 6th-order; 37 feet above water; visible 8½ miles; rear, 4th-order; 61 feet above water; visible 13 miles. On W'y side of entrance to river. Front light, lat. N. 43° 38' 32"; long. W. 83° 50' 59". Rear light, lat. N. 43° 38' 09"; long. W. 83° 51' 01"; range guides through cut to mouth of river.
Saginaw River Rear Light (Mich.).....		Buff.....	Square tower on NE'y corner of brick dwelling, 53 feet high.			
Saginaw River Buoy.....	17	Black.....	25-foot spar.....	Saginaw River Range Rear Light-House, 197° 30', 2,350 feet (¾ mile). Saginaw River Range Front Light-House, 283° 00', 550 feet (¼ mile).	20	On E'y side of channel.
Saginaw River Buoy.....	18	Red.....	25-foot spar.....	Saginaw River Range Rear Light-House, 197° 30', 2,350 feet (¾ mile). Saginaw River Range Front Light-House, 284° 00', 400 feet (¼ mile).	20	On W'y side of channel, abreast buoy No. 17.

SAGINAW RIVER.

U. S. Lake Survey Charts 0, 5, 52, and 524.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Saginaw River Buoy.....	19	Black.....	25-foot spar.....	Saginaw River Range Rear Light-House, 248° 30', 1,475 feet ($\frac{1}{2}$ mile). Saginaw River Range Front Light-House, 228° 00', 2,200 feet ($\frac{1}{2}$ mile).	Fwd. 15	On E'ly side of channel.
Saginaw River Buoy.....	20	Red.....	25-foot spar.....	Saginaw River Range Rear Light-House, 248° 30', 1,200 feet ($\frac{1}{4}$ mile). Saginaw River Range Front Light-House, 333° 15', 2,150 feet (1 mile).	15	On W'ly side of channel, abreast buoy No. 19.
Saginaw River Buoy.....	21	Black.....	25-foot spar.....	Saginaw River Range Rear Light-House, 301° 30', 2,350 feet ($\frac{1}{2}$ mile). Saginaw River Range Front Light-House, 332° 30', 4,000 feet ($\frac{1}{4}$ mile).	13	On E'ly side of channel.
Saginaw River Buoy.....	22	Red.....	25-foot spar.....	Saginaw River Range Rear Light-House, 308° 15', 2,150 feet (1 mile). Saginaw River Range Front Light-House, 337° 00', 4,000 feet ($\frac{1}{4}$ mile).	13	On W'ly side of channel, abreast buoy No. 21.
Saginaw River Buoy.....	23	Black.....	25-foot spar.....	Bay City Boat Club, left tangent, 142° 30', 850 feet ($\frac{1}{4}$ mile). De Courval Dock, left tangent, 166° 30', 1,350 feet ($\frac{1}{4}$ mile).	14	On E'ly side of channel.
Saginaw River Buoy.....	24	Red.....	25-foot spar.....	Bay City Boat Club, left tangent, 128° 15', 950 feet ($\frac{1}{4}$ mile). De Courval Dock, left tangent, 158° 30', 1,400 feet ($\frac{1}{4}$ mile).	14	On W'ly side of channel, abreast buoy No. 23.
Saginaw River Buoy.....	25	Black.....	25-foot spar.....	De Courval Dock, left tangent, 28° 45', 500 feet ($\frac{1}{4}$ mile).	17	On E'ly side of channel, opposite Hecla Cement Co.'s plant.
Saginaw River Buoy.....	26	Red.....	25-foot spar.....	De Courval Dock, left tangent, 48° 15', 650 feet ($\frac{1}{4}$ mile).	17	On W'ly side of channel, abreast buoy No. 25.
McGraw Docks Buoy.....	27	Black.....	Spar.....	McGraw's docks, S'ly end, 72° 45'. Sou-West-Coning Creek, E'ly shore, 209° 00'.	12	On E'ly bank, opposite S'ly end of McGraw's lumber docks.
Sou-West-Coning Creek Buoy.....	28	Red.....	Spar.....	McGraw's docks, S'ly end, 72° 45'. E'ly shore, right tangent, 152° 15'. Sou-West-Coning Creek, E'ly shore, 222° 45'.	15	On W'ly bank, off entrance to creek.
River Buoy.....	29	Black.....	Spar.....	Extreme end of point, E'ly shore, 130° 45'. Sou-West-Coning Creek, E'ly shore, 334° 00'. McGraw's docks, left tangent, 354° 45'.	11	On E'ly bank, S'ly of Sou-West-Coning Creek.
River Buoy.....	30	Red.....	Spar.....	McGraw's docks, left tangent, 0° 30'. E'ly shore, left tangent, 29° 45'. Sou-West-Coning Creek, 342° 15'.	12	On W'ly bank, S'ly of Sou-West-Coning Creek.
West Shore Cut Buoy.....	31	Black.....	Spar.....	E'ly shore, left tangent, 2° 15'. Sou-West-Coning Creek, E'ly shore, 340° 15'. McGraw's docks, left tangent, 351° 30'.	12	On E'ly bank, off entrance to cut S'ly of Sou-West-Coning Creek.
West Shore Cut Buoy.....	32	Red.....	Spar.....	E'ly shore, left tangent, 7° 00'. Sou-West-Coning Creek, 345° 00'. McGraw's docks, left tangent, 355° 00'.	14	On W'ly bank, off entrance to cut S'ly of Sou-West-Coning Creek.

SAGINAW RIVER.

U. S. Lake Survey Charts 0, 5, 52, and 524.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Below Dike Buoy.....	33	Black.....	Spar.....	Interurban Bridge, N'y end, 105° 00'. Interurban Bridge, pivot pier, 115° 20'. Interurban Bridge, S'y shore end, 125° 20'.	Fert. 11'	On N'y bank, W'y from dikes on N'y shore.
Below Dike Buoy.....	34	Red.....	Spar.....	Interurban Bridge, N'y end, 102° 00'. Interurban Bridge, pivot pier, 113° 00'. S'y shore, tangent, 121° 30'.	14'	On S'y bank, W'y from dikes on N'y shore.
Opposite Dike Buoy.....	35	Black.....	Spar.....	Interurban Bridge, N'y end, 94° 30'. Interurban Bridge, pivot pier, 112° 20'. Interurban Bridge, S'y shore end, 123° 40'.	12'	On N'y bank, opposite dikes on N'y shore.
Opposite Dike Buoy.....	36	Red.....	Spar.....	Interurban Bridge, N'y end, 94° 30'. Interurban Bridge, pivot pier, 107° 40'. S'y shore, tangent, 118° 00'.	12'	On S'y bank, opposite dikes on N'y shore.
Interurban Bridge Buoy.	37	Black.....	Spar.....	Interurban Bridge, N'y end, 89° 40'. Interurban Bridge, pivot pier, 110° 00'. Interurban Bridge, S'y end, 126° 45'.	11'	On N'y bank, at end of turn W'y from bridge.
Interurban Bridge Buoy.	38	Red.....	Spar.....	Interurban Bridge, N'y end, 82° 30'. Interurban Bridge, pivot pier, 102° 00'. S'y shore, tangent, 118° 40'.	13'	On S'y bank, at end of turn W'y from bridge.
Interurban Bridge Buoy.	39	Black.....	Spar.....	Interurban Bridge, S'y end, 280° 00'. Interurban Bridge, pivot pier, 303° 15'. Interurban Bridge, N'y end, 320° 45'.	14'	On N'y bank, W'y from bridge.
River Buoy.....	40	Red.....	Spar.....	Interurban Bridge, S'y end, 297° 45'. Interurban Bridge, pivot pier, 312° 00'. Interurban Bridge, N'y end, 320° 30'.	11'	On S'y bank, W'y from Interurban Bridge.
River Buoy.....	41	Black.....	Spar.....	Interurban Bridge, S'y end, 292° 45'. Interurban Bridge, pivot pier, 306° 45'. Interurban Bridge, N'y end, 321° 30'.	12'	On N'y bank, W'y from Interurban Bridge.
Sheboyganning Creek Buoy.	42	Red.....	Spar.....	F. & P. M. R. R. Bridge, N'y end, 111° 00'. Sheboyganning Creek, S'y shore, 130° 30'. E'y shore, tangent, 179° 00'.	12'	On W'y bank, nearly opposite creek.
Sheboyganning Creek Buoy.	43	Black.....	Spar.....	F. & P. M. R. R. Bridge, N'y end, 123° 40'. F. & P. M. R. R. Bridge, S'y shore end, 139° 45'. S'y shore, tangent, 183° 00'.	11'	On E'y bank, nearly opposite creek.
Sheboyganning Creek Buoy.	44	Red.....	Spar.....	F. & P. M. R. R. Bridge, N'y end, 69° 20'. Sheboyganning Creek, S'y shore, 108° 15'. E'y shore, tangent, 180° 15'.	12'	On W'y bank, opposite creek.
Sheboyganning Creek Buoy.	45	Black.....	Spar.....	F. & P. M. R. R. Bridge, N'y end, 60° 45'. Sheboyganning Creek, S'y shore, 102° 00'. E'y shore, tangent, 186° 40'.	12'	On E'y bank, opposite creek.
River Buoy.....	46	Red.....	Spar.....	W'y shore, tangent, 7° 00'. E'y shore, tangent, 30° 40'.	11'	On W'y bank, S'y of Sheboyganning Creek.

SAGINAW RIVER.

U. S. Lake Survey Charts 0, 5, 52, and 524.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
River Buoy.....	47	Black.....	Spar.....	W'y shore, tangent, 2° 40'. E'y shore, tangent, 29° 40'.	Feet. 11	On E'y bank, S'y of Sheboyganning Creek.
Melbourne Buoy.....	48	Red.....	Spar.....	North Cob Dock, N'y end, 130° 45'. South Cob Dock, N'y end, 163° 00'. Whitney & Batchelder's docks, N'y end, 216° 00'.	11	On W'y bank, off N'y end of Whitney & Batchelder's north dock.
Melbourne Buoy.....	49	Black.....	Spar.....	Whitney & Batchelder's docks, left tangent, 116° 45'. North Cob Dock, N'y end, 142° 45'. South Cob Dock, N'y end, 172° 00'.	11	On E'y bank, off N'y end of Whitney & Batchelder's north dock.
Lumber Docks Buoy.....	51	Black.....	Spar.....	Whitney & Batchelder's docks, left tangent, 114° 45'. South Cob Dock, N'y end, 132° 00'.	11	On E'y bank, off center of Whitney & Batchelder's old lumber docks.
Lumber Docks Buoy.....	53	Black.....	Spar.....	Whitney & Batchelder's docks, N'y end, 17° 15'. South Cob Dock, N'y end, 34° 00'. Whitney & Batchelder's docks, S'y end, 278° 45'.	11	On E'y bank, off S'y end of Whitney & Batchelder's docks.
Willow Island Buoy.....	50	Red.....	Spar.....	Willow Island, N'y end, 2° 30'. Pump House, W'y side, 206° 45'. Willow Island, S'y end, 235° 40'.	11	On W'y bank, off middle of island.
Willow Island Buoy.....	55	Black.....	Spar.....	Pump House, W'y side, 211° 00'. Willow Island, S'y end, 254° 15'. Willow Island, N'y end, 344° 15'.	11	On E'y bank off middle of island.
Dumping Ground Buoy..	52	Red.....	Spar.....	Willow Island, right tangent, 37° 00'. Pump House, W'y side, 188° 45'. Red house on W'y shore, SE'y corner, 247° 15'.	11	On W'y bank, off U. S. dumping ground.
Dumping Ground Buoy..	57	Black.....	Spar.....	Willow Island, right tangent, 26° 40'. Pump House, W'y side, 198° 00'. Red house on W'y shore, SE'y corner, 259° 30'.	12	On E'y bank, off U. S. dumping ground.
New York Works Slip Buoy.	59	Black.....	Spar.....	Oneida Channel, W'y shore, 212° 30'. New York Works, S'y slip, 242° 00'. New York Works, N'y slip, 313° 00'.	11	On E'y bank, off N'y end of N'y slip.
New York Works Slip Buoy.	54	Red.....	Spar.....	Oneida Channel, W'y shore, 208° 30'. New York Works, left tangent, 221° 20'. New York Works, S'y slip, 309° 45'.	11	On W'y bank, off N'y end of S'y slip.
Oneida Channel Buoy...	56	Red.....	Spar.....	New York Works, S'y slip, 30° 00'. Oneida Channel, W'y shore, 82° 50'. Crow Island, N'y end, 120° 30'.	12	On W'y bank, opposite Oneida Channel log chute.
Oneida Channel Buoy...	61	Black.....	Spar.....	New York Works, S'y slip, 24° 20'. Oneida Channel, W'y shore, 32° 45'. Crow Island, N'y end, 119° 40'.	12	On E'y bank, opposite Oneida Channel log chute.
Zilwaukee Dock Buoy...	58	Red.....	Spar.....	Crow Island, right tangent, 197° 45'. Zilwaukee Dock, N'y end, 208° 15'.	12	On W'y bank, N'y from N'y end of dock.
Zilwaukee Dock Buoy...	63	Black.....	Spar.....	Crow Island, right tangent, 203° 20'. Zilwaukee Dock, N'y end, 222° 45'.	12	On E'y bank, N'y from N'y end of dock.

SAGINAW RIVER.

U. S. Lake Survey Charts 0, 5, 52, and 524.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Zilwaukee Buoy.....	60	Red.....	Spar.....	U. S. Wingdam extension, N'y end, 150° 15'. Zilwaukee Island, S'y end, 180° 40'. Zilwaukee Dock, S'y end, 207° 45'.	Fath. 14	On W'y bank, nearly opposite S'y end of Zilwaukee Dock.
Zilwaukee Buoy.....	65	Black.....	Spar.....	Crow Island, right tangent, 163° 00'. Zilwaukee Island, S'y end, 183° 15'. Zilwaukee Dock, S'y end, 242° 15'.	16	On E'y bank, nearly opposite S'y end of Zilwaukee Dock.
Zilwaukee Slip Buoy.....	62	Red.....	Spar.....	U. S. Wingdam extension, N'y end, 203° 00'. West Shore, tangent, 164° 15'. Zilwaukee Slip, S'y end, 263° 15'.	12	On W'y bank, opposite slip.
Zilwaukee Slip Buoy.....	67	Black.....	Spar.....	U. S. Wingdam extension, N'y end, 146° 30'. West Shore, tangent, 174° 15'. Zilwaukee Slip, S'y end, 255° 30'.	12	On E'y bank, opposite slip.
Wingdam Buoy.....	64	Red.....	Spar.....	U. S. Wingdam, S'y end, 95° 30'. U. S. Revetment, N'y end, 185° 20'.	12	On W'y bank, opposite S'y end of U. S. Wingdam.
Wingdam Buoy.....	69	Black.....	Spar.....	U. S. Wingdam, S'y end, 98° 00'. U. S. Revetment, N'y end, 189° 00'.	11	On E'y bank, opposite S'y end of U. S. Wingdam.
Bayou Buoy.....	66	Red.....	Spar.....	Sixth Street Bridge, pivot pier, 59° 00'. Bayou, S'y shore, 133° 45'. Sand Dock, NE'y end, 231° 00'.	12	On NW'y bank, W'y from Sixth Street Bridge.
Bayou Buoy.....	71	Black.....	Spar.....	Sixth Street Bridge, pivot pier, 52° 00'. Bayou, S'y shore, 133° 00'. Sand Dock, NE'y end, 246° 40'.	14	On SE'y bank, W'y from Sixth Street Bridge.
Sand Dock Buoy.....	68	Red.....	Spar.....	Sand Dock, NE'y end, 30° 30'. Sixth Street Bridge, pivot pier, 49° 15'.	13	On NW'y bank, W'y from dock on W'y shore.
Sand Dock Buoy.....	73	Black.....	Spar.....	Sand Dock, NE'y end, 19° 00'. Sixth Street Bridge, pivot pier, 47° 00'.	14	On NE'y bank, W'y from dock on W'y shore.
Clinton Street Buoy.....	70	Red.....	Spar.....	Bristol Street Bridge, NW'y end, 53° 45'. Bristol Street Bridge, E'y draw, 77° 10'.	12	On W'y bank, opposite foot of Clinton street, Saginaw, West Side.
Clinton Street Buoy.....	75	Black.....	Spar.....	Bristol Street Bridge, NW'y end, 51° 20'. Bristol Street Bridge, E'y draw, 73° 45'.	12	On E'y bank, opposite foot of Clinton street, Saginaw, West Side.

LAKE HURON.

WLY SHORE, NORTH OF SAGINAW BAY.

U. S. Lake Survey Charts 0, 5, 6, 52, 58, 513, 515, and 522, and U. S. Hydrographic Office Charts 1475, 1476, and 1477 issued at Lake Survey Office.

TAWAS LIGHT-STATION (Mich.).	White.....	Conical tower, 61½ feet high, covered-way to dwelling; brick oilhouse 100 feet N'y; fog signal ¼ mile SW'y.	Port Austin Reef Light - House, 117° 00', 26¼ miles. Charity Island Light-House, 179° 00', 15 miles.	4th-order light, fixed light 25 sec., eclipse 5 sec.; white light from 135° true to 45° true, red light in sector covering sand flat, from 45° true to 135° true; 70½ feet above water; visible 16 miles. On the SW'y end of Tawas Point, E'y side of Tawas Bay and NW'y side of entrance to Saginaw Bay. Lat. N, 44° 15' (14''); long. W, 83° 27' (26''). Sand flat extends nearly 1 mile to S'd and W'd from light; its NW'y edge is very abrupt, dropping from 6 to 24 feet in a vessel's length. Fog signal: 10-inch steam whistle, sounds thus: Silent Blast Interval Blast Interval 5 sec. 15 sec. 5 sec. 35 sec.
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LAKE HURON.

W'LY SHORE, NORTH OF SAGINAW BAY—Continued.

U. S. Lake Survey Charts 0, 5, 6, 52, 58, 513, 515, and 522, and U. S. Hydrographic Office Charts 1475, 1476, and 1477 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Tawas Point Gas Buoy, No. 6 (Mich.).	6	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Tawas Light - House, 51° 00', 1½ miles. R. R. Dock at Tawas City, 288° 00', 2½ miles.	Fct. 33	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Moored about ¼ mile off SW'yly point of shoal extending to S'd and W'd of Tawas Point. To anchor in Tawas Harbor, pass to S'd and W'd of buoy; anchorage in about 4 fathoms of water—sand and clay bottom—with light-house bearing about SE'yly, about 1 mile; shoal ground extends about ½ mile to S'd and E'd and nearly 1 mile to N'd and W'd of Tawas Point. Entering from E'd at night, vessels will enter red sector of Tawas Light just before they are abreast of gas buoy. ✓								
Tawas Harbor Buoy.....	8	Red.....	25-foot spar.....	Tawas Beach Club house, right tangent, 21° 40'. Tawas Light - House, 125° 00'. Tawas Light-Station fog signal, 170° 30'.	16	Marks NW'yly point of shoal extending off Tawas Point.								
Au Sable Pierhead Light-Station (Mich.).		Brown.....	Pyramidal, open framework tower, 27 feet high, on small crib.	Sturgeon Point Light-House, 6° 00', 21½ miles. Port Austin Reef Light - House, 142° 00', 28½ miles.		5th-order fixed red light; 32 feet above water; visible 9½ miles. Outside of N pier at mouth of Au Sable River. Lat. N, 44° 24' 26"; long. W, 83° 19' 16". Guide into river.								
STURGEON POINT LIGHT-STATION (Mich.).		White.....	Conical tower, 65 feet high, covered-way to dwelling; cylindrical iron oilhouse 113 feet SW'yly.	Thunder Bay Island Light - House, 10° 00', 23 miles. Port Austin Reef Light - House, 162° 00', 46½ miles.		3½-order fixed white light; 69 feet above water; visible 16 miles. On W'yly shore of Lake Huron, on most E'yly point between Saginaw and Thunder bays. Lat. N, 44° 42' 37"; long. W, 83° 16' 07".								
North Point Gas Buoy, No. 10 (Mich.).	10	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Thunder Bay Island Light-House, 53° 00', 3½ miles. Alpena Light-House, 225° 30', 9¼ miles. North Point, E end, 339° 00', 1¼ miles.	22	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks end of shoal extending SE'yly from North Point in Thunder Bay. Do not pass to N'd of buoy.								
Alpena Light-Station (Mich.).		Brown.....	Pyramidal, skeleton tower, 44½ feet high, brick and houses on crib. <i>1 R. Sun 2/11</i>	Thunder Bay Island Light-House, 100° 00', 11 miles. Sturgeon Point Light-House, 163° 00', 25½ miles.		4th-order fixed red light; 53 feet above water; visible 13 miles. On N'yly side of entrance to Thunder Bay River. Lat. N, 45° 03' 39"; long. W, 83° 25' 25". Fog signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">1 blow</td> <td style="text-align: center;">Silent interval</td> <td style="text-align: center;">1 blow</td> <td style="text-align: center;">Silent interval</td> </tr> <tr> <td style="text-align: center;">10 sec.</td> <td style="text-align: center;">10 sec.</td> <td style="text-align: center;">10 sec.</td> <td style="text-align: center;">10 sec.</td> </tr> </table>	1 blow	Silent interval	1 blow	Silent interval	10 sec.	10 sec.	10 sec.	10 sec.
1 blow	Silent interval	1 blow	Silent interval											
10 sec.	10 sec.	10 sec.	10 sec.											
East Alpena Channel Buoy.	1	Black.....	Spar.....	Huron P. C. dock, right tangent, 39° 00'. Alpena Light-House, 272° 00'. Richardson lumber dock, left tangent, 346° 00'.	18	Marks W'yly side of entrance to dredged channel to Huron Portland Cement Co.'s plant.								
East Alpena Channel Buoy.	2	Red.....	Spar.....	Huron P. C. dock, right tangent, 37° 00'. Alpena Light-House, 272° 00'. Richardson lumber dock, left tangent, 343° 00'.	18	Marks E'yly side of entrance to dredged channel. <i>Subst. is or clipped from Gen Buoy 1349 at 12/18</i>								
THUNDER BAY ISLAND LIGHT-STATION (Mich.).		Yellow.....	Conical tower, rubble-stone base, brick above, 66 feet high, covered-way to brick dwelling; brick oilhouse 75 feet S'yly.	Sturgeon Point Light-House, 100° 00', 23 miles. Detour Light-House, 332° 00', 72½ miles.		4th-order light, flashing white every 90 sec.; 59 feet above water; visible 15¼ miles. On E'yly shore of island and about ¼ mile from SE'yly end. Lat. N, 45° 02' 15"; long. W, 83° 11' 38". Do not pass between island and mainland. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> </tr> <tr> <td style="text-align: center;">8 sec.</td> <td style="text-align: center;">10 sec.</td> <td style="text-align: center;">2 sec.</td> <td style="text-align: center;">40 sec.</td> </tr> </table> Weather Bureau signals are shown at this station.	Blast	Silent interval	Blast	Silent interval	8 sec.	10 sec.	2 sec.	40 sec.
Blast	Silent interval	Blast	Silent interval											
8 sec.	10 sec.	2 sec.	40 sec.											
MIDDLE ISLAND LIGHT-STATION (Mich.).		Buff; black lantern; dwelling and fog-signal house, red brick.	Conical tower, square service-room attached; dwelling 350 feet; fog-signal house 700 feet NW'yly of tower.	Thunder Bay Island Light-House, 150° 00', 12¼ miles. False Presque Isle, right tangent, 332° 00', 6¼ miles.		4th-order fixed red light; 78 feet above water; visible 13 miles. On E'yly side of Middle Island, W'yly side of N'yly part of Lake Huron. Lat. N, 45° 11' 26"; long. W, 83° 19' 02". Shoals extend about 1 mile ESE'yly from light-house. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> </tr> <tr> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">17 sec.</td> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">17 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	3 sec.	17 sec.	3 sec.	17 sec.
Blast	Silent interval	Blast	Silent interval											
3 sec.	17 sec.	3 sec.	17 sec.											
Middle Island Buoy.....	12	Red.....	2d-class nun.....	Middle Island Light-House, 153° 00', 11½ miles. Middle Island, SE point, tangent, 291° 30', ½ mile.	21	S'yly of shoal off E'yly part of Middle Island. To anchor between island and mainland, coming from N'd, give buoy berth of ¼ mile, and when in range with light-house haul up to 256', true (W by S, mag.), and when W'yly point of island bears 348°, true (N ¼ W, mag.), haul up for it, anchoring in 4 or 4½ fathoms of water, about ½ mile from island, which forms a lee for NE'yly winds. ✓								

LAKE HURON.

WLY SHORE, NORTH OF SAGINAW BAY—Continued.

U. S. Lake Survey Charts 0, 5, 6, 52, 58, 513, 515, and 522, and U. S. Hydrographic Office Charts 1475, 1476, and 1477 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Range. Presque Isle Harbor Front Light (Mich.).		White.....	Wooden tower, 16 feet high.	Rear light, 273° 32', 950 feet.	Feet.	Two fixed white lens-lantern lights; front light, 18 feet above water; rear light, 36 feet above water; visible 9½ and 12 miles. On Wly shore of Presque Isle Harbor. Front light, lat. N; 45° 20' 16"; long. W, 83° 29' 23"; rear light, lat. N; 45° 20' 15"; long. W, 83° 28' 58". To anchor in harbor, bring lights in range when in 7 fathoms of water off the harbor and run for them until unused light-house bears 22°, true (NNE ¼ E, mag.), and haul up a short distance to either side of range, and anchor in 3 or 3½ fathoms of water.
	Presque Isle Harbor Rear Light (Mich.).	White.....	Frame dwelling, 25 feet high; brick oilhouse 100 feet Ely.			
PRESQUE ISLE LIGHT-STATION (Mich.).		White.....	Conical tower, 100 feet high, covered way to dwelling; brick oilhouse 100 feet Wly.	Spectacle Reef Light-House, 314° 00', 42½ miles. Detour Light-House, 335° 00', 47 miles.		3d-order fixed white light; 123 feet above water; visible 19½ miles. About ¼ mile from NWly end of Presque Isle. Lat. N, 45° 21' 24"; long. W, 83° 29' 31". Fog signal: 10-inch steam whistle, sounds thus: Blast interval Blast interval 5 sec. 25 sec. 5 sec. 25 sec. Weather Bureau signals shown at this station.
FORTY-MILE POINT LIGHT-STATION (Mich.).		Red.....	Square, brick tower rising in front of brick dwelling; brick oilhouse 100 feet SEly.	Spectacle Reef Light-House, 330° 00', 22½ miles. Presque Isle Light-House, 114° 00', 22½ miles.		4th-order light, flashing white every 10 sec.; 66 feet above water; visible 15½ miles. Lat. N, 45° 29' 11"; long. W, 83° 54' 48". Fog signal: 10-inch steam whistle, sounds thus: Blast interval Blast interval 3 sec. 17 sec. 3 sec. 17 sec.
Spectacle Reef South End Buoy.	14	Red.....	2d-class nun.	Cheboygan Light-House, 245° 00', 15¼ miles. Bois Blanc Light-House, 283° 00', 14¼ miles. Spectacle Reef Light-House, 349° 00', about ½ mile.	20	Marks S'ly end of reef.
SPECTACLE REEF LIGHT-STATION (Mich.).		Gray; dome and railings black; red fog signal and boat-house.	Conical, stone tower; square concrete pier, 12 feet high, surrounds tower.	Detour Light-House, 39° 00', 16½ miles. Cheboygan Light-House, 242° 00', 15¼ miles. Bois Blanc Light-House, 281° 00', 13¼ miles.		2d-order light, flashing alternately red and white, intervals 30 sec.; 86 feet above water; visible 17½ miles. On Wly edge of Spectacle Reef. Lat. N, 45° 46' 24"; long. W, 84° 08' 16". Reef extends about ¾ mile N and S and ¼ mile E and W. Soundings are irregular, with 5 and 12 fathoms close-to. Fog signal: 10-inch steam whistle, sounds thus: Blast interval Blast interval 3 sec. 12 sec. 3 sec. 42 sec.
Thirteen-Foot Shoal Buoy.	13-Foot Shoal.	Red and black horizontal stripes.	2d-class can.	Spectacle Reef Light-House, 98° 00', 3¼ miles. Cheboygan Light-House, 233° 00', 12¼ miles. Bois Blanc Light-House, 283° 00', 10¼ miles.	20	Marks shoal between Bois Blanc and Spectacle Reef. Do not approach nearer than ¼ mile.

ELY SHORE.

U. S. Lake Survey Charts 0, 5, and 55, and U. S. Hydrographic Office Charts 1476, 1477, and 1863b issued at Lake Survey Office.

Goderich Main Light-Station (C.).		White, red-brick waterworks building.	Square, stone; dwelling attached; fog whistle on town waterworks building, with two high brick chimneys, ¼ mile ESEly from outer red light.			4th-order fixed white (l. o. v.) light; 150 feet above water; visible 20½ miles. On high bank, S'ly of entrance to harbor. Lat. N, 43° 44' 33"; long. W, 81° 43' 34". Fog signal (maintained by corporation): 8-inch steam whistle, sounds thus: Blast interval Blast interval 10 sec. 50 sec. 10 sec. 50 sec.
Goderich Breakwater Light (C.).		White, black frame.	Square, pyramidal, concrete tower, surmounted by pyramidal steel frame and lantern.			Fixed white (a.) light; 20 feet above water; visible 9 miles from all points of approach. On Wly end of breakwater off entrance to Goderich Harbor. Lat. N, 43° 44' 31"; long. W, 81° 44' 20". Light is unwatched.
Range. Goderich Front Light (C.).		White.....	Square, open frame on cribwork block 4 feet high.	Rear light, 89° 40', 1,430 feet (¾ mile).		5th-order, fixed white light; 41 feet above water; visible 12½ miles; 15 feet from S'ly edge of N'ly breakwater; 117 feet from its outer end. Lat. N, 43° 44' 48"; long. W, 81° 43' 54".
	Goderich Rear Light (C.).	Galvanized, white upper part.	Square, pyramidal, steel structure, inclosed upper part, square wooden lantern.			

LAKE HURON.

ELY SHORE—Continued.

U. S. Lake Survey Charts 0, 5, and 55, and U. S. Hydrographic Office Charts 1476, 1477, and 1863b issued at Lake Survey Office.

1	2	3	4	5	6	7							
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.							
Point Clark Light-Station (C.).		White.....	Circular, stone.....		<i>Fet.</i>	2d-order, revolving white every 30 sec.; 93 feet above water; visible 17½ miles. On extremity of low point. Lat. N, 44° 04' 23"; long. W, 81° 45' 31".							
Range. Kincardine Front Light (C.).		Brown, white lantern.	Square, steel, skeleton tower; octagonal, wooden lantern.	Rear light, 105°, 1,200 feet (¾ mile).		Reflector light, fixed red; 35 feet above water; visible 8 miles. On N'y pier, 230 feet from W'y end.							
	Kincardine Rear Light-Station (C.).	Fawn-color; whitewaterworks building.	Octagonal, wood, dwelling attached, on high stone foundation; siren, 30 feet above water, on brick waterworks building, with high stack, on lake shore, ¼ mile N'y of harbor entrance.			Reflector light, alternately white and red every 20 sec.; 80 feet above water; visible 16 miles. In the town, on hillside. Lat. N, 44° 10' 38"; long. W, 81° 38' 22". The lights in range lead ESE ¼ E, mag., somewhat to N'd of the head of N'y pier. Lifeboat station on E'y shore of harbor. Fog signal (maintained by corporation): Steam siren, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>2½ sec.</td> <td>42½ sec.</td> <td>2½ sec.</td> <td>42½ sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	2½ sec.	42½ sec.	2½ sec.
Blast	Silent interval	Blast	Silent interval										
2½ sec.	42½ sec.	2½ sec.	42½ sec.										
Range. Port Elgin South Front Light (C.).		White.....	Wooden tower; shed at base.	Rear light, 103° 00', 70 feet.		7th-order, fixed white light; 16 feet above water; visible 4½ miles. On shore about 1,200 feet (¾ mile), S ½ E, mag., from S'y end of government wharf. Lat. N, 44° 26' 25"; long. W, 81° 24' 15".							
	Port Elgin South Rear Light (C.).		Square wooden tower.			7th-order, fixed red light; 20 feet above water; visible 4½ miles.							
Range. Port Elgin North Front Light (C.).			Lantern in corner of freight shed.	Rear light, 31° 00', 660 feet (¼ mile).		7th-order, fixed white light; 21 feet above water; visible 10¼ miles. On N'y end of government wharf.							
Range. Port Elgin North Rear Light (C.).		White.....	Lantern on mast; shed at base.			Reflector light, fixed red; 31 feet above water; visible 4½ miles. Range leads into port through deepest channels. The line marked by the South Range lights should be followed ESE ¼ E, mag., until lights of the North Range are in range, then follow the latter range NE ¼ N, mag., into dredged harbor between breakwater and landing wharf, leaving the front light of North Range on starboard hand, to clear the wharf.							
Chantry Island Light-Station (C.).		White.....	Circular, stone.....			2d-order, fixed white light; 94 feet above water; visible 17½ miles. About 2½ miles W'y from Saugeen. Lat. N, 44° 29' 23"; long. W, 81° 24' 09".							
Range. Southampton Harbor Front Light (C.).		White, red lantern.	Square, wood, octagonal, iron lantern.	Rear light, 179° 30', 7,914 feet (1½ miles).		5th-order, fixed red light; 28 feet above water; visible 8 miles. On E'y end of W'y breakwater, 2,799 feet (½ mile) NE by E, mag., from Chantry Island Light. Lat. N, 44° 29' 44"; long. W, 81° 23' 31". Front light visible from all points of approach.							
	Southampton Harbor Rear Light-Station (C.).	White, yellowish-brick building.	Square, wood; whistle, 28 feet above water, on rectangular building, with smokestack, on lake shore, ¼ mile SW'y from S'y side of mouth of river.			Reflector light, fixed white; 31 feet above water; visible 11½ miles. These lights in range lead S ¾ W, mag., to opening in breakwater at N'y end of harbor. Depth of water in channel 16 feet. Lifeboat station on beach ¼ mile S'd of mouth of Saugeen River. Fog signal: Steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>5 sec.</td> <td>5 sec.</td> <td>45 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	5 sec.	5 sec.
Blast	Silent interval	Blast	Silent interval										
5 sec.	5 sec.	5 sec.	45 sec.										
Range. Saugeen Front Light (C.).		White.....	Square, wood, on crib.	Rear light, 85° 00', 2,350 feet (¾ mile).		Post light, fixed green; 36 feet above water; visible 4½ miles. On breakwater, N'y side of mouth of river. Lat. N, 44° 30' 08"; long. W, 81° 22' 30".							
	Saugeen Rear Light (C.).	White.....	Square, wood.....			Post light, fixed green; 61 feet above water; visible 4½ miles in and over small arc on each side of range line. The lights in range guide small vessels E ¼ S, mag., into mouth of Saugeen River through narrow dredged channel 8 feet deep.							
Southampton Gas Buoy (C.).		Red.....	Cylindrical, surmounted by pyramidal steel framework and lantern.		22	7th-order, occulting white (a.) light. Off N'y end of Chantry Island Bank, about ⅞ mile 299°, true NW by W, mag., from Saugeen Range Front Light. Lat. N, 44° 30' 34"; long. W, 81° 23' 41".							
LYAL ISLAND LIGHT-STATION (C.).		White.....	Square, wood, dwelling attached.			Reflector light, revolving white every 15 sec.; 51 feet above water; visible 13¼ miles. On W'y side of island. Lat. N, 44° 27' 10"; long. W, 81° 25' 10". Coast light and guide to Stokes Bay.							

LAKE HURON.

E'LY SHORE—Continued.

U. S. Lake Survey Charts 0, 5, 55, 57, and 58, and U. S. Hydrographic Office Charts 1476, 1477, 1863a, 1863b, and 1470:

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Range. Stokes Bay Front Light (C.).		White.....	Square, wood.....	Rear light, 69° 00', 4,250 feet (½ mile).	Feet.	Reflector light, fixed white; 30 feet above water; visible 11½ miles. On the NW'ly end of the most W'ly Knife Island. Lat. N, 44° 38' 02"; long. W, 81° 23' 30".
	Stokes Bay Rear Light (C.).	Brown; white upper part.	Square, steel, skeleton tower, inclosed upper part wood.			Reflector light, fixed white; 61 feet above water; visible 15 miles. The lights in range lead ENE ⅓ E, mag., from the Lake, through a least depth of 22 feet, to within 1,800 feet (½ mile) of the Front Light. Local knowledge necessary to reach wharves at night.
Cove Island Light-Station (C.).		White.....	Circular, stone dwelling connected to tower by wooden shed; fog horn 214 feet W'ly.			2d-order white light, 10 sec., eclipse 15 sec.; 90 feet above water; visible 17½ miles. On north point of Cove Island, entrance to Georgian Bay. Lat. N, 45° 19' 40"; long. W, 81° 44' 00". Fog signal: Compressed-air diaphone, sounds thus: Blast Silent Blast Silent Interval Interval Interval Interval 2½ sec. 2½ sec. 2½ sec. 2½ sec. 2½ sec. 47½ sec.
Georgian Bay Lights. See page 101, etc.						
Range. South Baymouth Front Light (C.).		White.....	Square, pyramidal, wood.	Rear light, 25° 15', 772 feet (¼ mile).		7th-order, fixed white light; 28 feet above water; visible 11½ miles. On SE'ly end of bare limestone island off SE'ly shore of Manitoulin Island. Lat. N, 45° 33' 27"; long. W, 82° 06' 50".
	South Baymouth Rear Light (C.).	White.....	Square, pyramidal, wood.			Reflector light, fixed white; 46 feet above water; visible 13½ miles. On Manitoulin Island, in woods behind the village of South Baymouth. These lights in range lead NNE ¼ E, mag., into the entrance to South Bay, Manitoulin Gulf. Vessels should get the lights in range when well offshore and hold it to within 600 feet (¾ mile) of the front light, or until the rock next south of the light-house rock on W'ly side of bay is almost abeam, when they should haul sharply round and steer ENE ¾ E, mag., until clear of S'ly end of village wharf, behind which there is good shelter. This course carries 20 feet of water. A rock with 15 feet of water over it, which breaks in a S'ly sea, lies about ½ mile outside the front light-house, E'd of range line.
Providence Bay Light-Station (C.).		White; red lantern.	Octagonal, wood; octagonal, iron lantern.			7th-order, fixed white light; 43 feet above water; visible 12½ miles. On end of Providence Point. Lat. N, 45° 39' 05"; long. W, 82° 16' 32". Fog signal: Hand horn, answers signals from vessels.
Great Duck Island Light-Station (C.).		White; brown roof.	Square, wood, dwelling attached; fog-signal building 150 feet SE'ly; horn, 20 feet above water, projects SW'ly.			Reflector light, revolving red and white, one red and two white flashes every 2 minutes. Greatest brilliancy every 40 sec.; 64 feet above water; visible 17½ miles. On SW'ly point of island. Lat. N, 45° 38' 30"; long. W, 82° 57' 45". Fog signal: Compressed-air diaphone, sounds thus: Blast Silent Blast Silent Interval Interval Interval Interval 3 sec. 27 sec. 3 sec. 27 sec.
Mississagi Strait Light-Station (C.).		White; red roof and lantern.	Square, wood, dwelling attached, octagonal, iron lantern, rectangular, wooden fog-signal building 125 feet S'ly; diaphone, 33 feet above water, points S'ly.			4th-order, fixed white light; 46 feet above water; visible 15 miles. On SW'ly point of W'ly end of Grand Manitoulin Island. Lat. N, 45° 53' 37"; long. W, 83° 15' 30". For guiding vessels through Mississagi Straits for either entrance. Fog signal: Compressed-air diaphone, sounds thus: Blast Silent Blast Silent Interval Interval Interval Interval 3 sec. 3 sec. 3 sec. 36 sec.
North Channel Lights (C.). See page 103.						
River St. Mary Lights (C.). See page 109.						
Cove Island Light-Station (C.). See above.						
Tobermory Light (C.).		White; red lantern.	Hexagonal, wood, iron lantern.			7th-order, fixed red light, 40 feet above water; visible 9¼ miles. On water's edge, W'ly side of entrance. Lat. N, 45° 15' 25"; long. W, 81° 40' 25". Fog signal: Hand horn, answers signals from vessels.

GEORGIAN BAY.

U. S. Lake Survey Charts 0, 5, 55, and 57, and U. S. Hydrographic Office Charts 1476, 1477, 1863a, 1863b, 1470, 1469, 1458, 1461, and 1460.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Flowerpot Island Light-Station (C.).		White; red roof and lantern.	Square, wood; square wooden lantern; rectangular, wooden, fog-signal building, 50 feet E'y; horn, 50 feet above water, points N'y.			7th-order, fixed white light; 88 feet above water; visible 17½ miles, between ESE ¼ E, mag., to WNW ¼ W, mag. On most N'e'yly point of Flowerpot Island. Lat. N, 45° 18' 30"; long. W, 81° 39' 48". Fog signal: Compressed-air diaphone, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent</td> <td>Blast</td> <td>Silent</td> </tr> <tr> <td>4 sec.</td> <td>56 sec.</td> <td>4 sec.</td> <td>56 sec.</td> </tr> </table>	Blast	Silent	Blast	Silent	4 sec.	56 sec.	4 sec.	56 sec.
Blast	Silent	Blast	Silent											
4 sec.	56 sec.	4 sec.	56 sec.											
Cabot Head Light-Station (C.).		White; red lantern, white fog-signal building.	Square, wooden tower on E'y corner of wooden dwelling; polygonal, iron lantern, rectangular, wooden, fog-signal building, about 200 feet E'y; horn, 20 feet above water, points N'E'y.			Reflector light, revolving white, three flashes separated by intervals of 20 sec., one interval of 40 sec.; 80 feet above water; visible 16 miles. On top of cliff, Cabot Head, about ¾ mile E'd of entrance to Wingfield Basin. Lat. N, 45° 14' 45"; long. W, 81° 17' 25". Fog signal: Compressed-air diaphone, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>3 sec.</td> <td>3 sec.</td> <td>3 sec.</td> <td>51 sec.</td> </tr> </table>	Blast	Interval	Blast	Interval	3 sec.	3 sec.	3 sec.	51 sec.
Blast	Interval	Blast	Interval											
3 sec.	3 sec.	3 sec.	51 sec.											
Lions Head Harbor Light (C.).		Natural.	Lantern on pole.			Reflector light, fixed red; 20 feet above water; visible 6½ miles. On outer end of breakwater at N'yly entrance. Lat. N, 44° 59' 31"; long. W, 81° 14' 55".								
Surprise Shoal Gas, Whistling, and Bell Buoy (C.).		Black.	Cylindrical, surmounted by pyramidal steel frame supporting whistle, bell, and lantern.		90	Occulting white (a.) lens lantern light; 30 feet above water. Moored N'yly of 9-foot patch at W'yly end of Surprise Shoal. Patches with less than 12 feet extend nearly 1½ miles to E'd; deep water nearly ¼ mile S'd of buoy. Lat. N, 45° 03' 27"; long. W, 81° 01' 20". Whistle and bell sounded by motion of waves.								
Cape Croker Light-Station (C.).		White, red lantern.	Octagonal, concrete structure; cylindrical metal lantern; wooden dwelling 43 feet in rear; rectangular, wooden fog-signal building to S'd; horn, 30 feet above water, points N'E'y.			3d-order double flashing white (i. o. v.) light, eclipses alternately ¼ and ¾ sec.; duration of flash, ¼ sec.; 67 feet above water; visible 13 miles. On outer end of point, 1½ miles SE'yly from Cape Croker. Lat. N, 44° 57' 27"; long. W, 80° 57' 33". Fog signal: Compressed-air diaphone, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>5 sec.</td> <td>55 sec.</td> <td>5 sec.</td> <td>55 sec.</td> </tr> </table>	Blast	Interval	Blast	Interval	5 sec.	55 sec.	5 sec.	55 sec.
Blast	Interval	Blast	Interval											
5 sec.	55 sec.	5 sec.	55 sec.											
Warton Light (C.).		White.	Lantern on mast, shed at base.			7th-order, fixed red light; 19 feet above water; visible 6½ miles. Near outer end of breakwater at Warton, head of Colpo'y Bay. Lat. N, 44° 45' 09"; long. W, 81° 08' 10".								
Griffith Island Light-Station (C.).		White.	Circular, stone.			3d-order, fixed white light; 85 feet above water; visible 18¼ miles. N'E'yly side of island, 19½ miles from town of Owen Sound. Lat. N, 44° 51' 03"; long. W, 80° 53' 22". Fog signal: Hand horn, answers signals from vessels.								
Owen Sound Front Light (C.).	Range.	Black, white slatwork and watchroom, red lantern, black, vertical stripe on front tower.	Square, steel, skeleton tower, with wooden slatwork, surmounted by wooden watchroom, octagonal, iron lantern.	Rear light, 189° 38', 1,060 feet (¾ mile).		Reflector light, fixed white; 50 feet above water; visible 13½ miles. On E'yly side of mouth of Sydenham River. Lat. N, 44° 34' 43"; long. W, 80° 56' 19".								
Owen Sound Rear Light (C.).		Galvanized; white slatwork and watchroom, red lantern, red vertical stripe on front.	Square, steel, skeleton tower; wooden slatwork on upper channel face; wooden watchroom; octagonal, iron lantern.			Reflector light, fixed white; 80 feet above water; visible 16 miles. Lights visible in line of range. Lights may be brought in range S by W ¾ W, mag., as soon as seen and held until front light is 900 feet distant, when haul up for entrance, leaving both lights on port hand. N. B.—There are ranges for ascertaining compass errors at this port. Particulars can be obtained from harbor master.								
Valls Point Shoal Gas and Bell Buoy (C.).		Red.	Cylindrical, surmounted by pyramidal steel frame supporting bell and lantern.	Valls Point, 129° 00', 1¼ miles.	60	Fixed white lens-lantern (a.) light. Marks shoal NW'yly of point. Lat. N, 44° 44' 16"; long. W, 80° 46' 22".								
Meaford Breakwater Light (C.).		Brown.	Cylindrical, steel, gas holder, surmounted by lantern.			Occulting white (a.) post-lantern light; 20 feet above water; visible 9¼ miles. On outer end of breakwater on N'yly side of entrance. Lat. N, 44° 36' 58"; long. W, 80° 35' 16". Light is unwatched.								
Meaford Harbor Front Light (C.).	Range.	White.	Diamond-shaped target on pole.	Rear light, 182° 30', 1,100 feet (¾ mile).		Fixed white (e. l.) light. On outer end of E pier, E'yly side of harbor. Fog-signal: Hand horn, on W pier, answers signals from vessels.								
Meaford Harbor Rear Light (C.).		White.	Diamond-shaped target on pole.			Fixed red (e. l.) light. On wharf, in front of elevator. Range line leads S ½ W, mag., and clears new extension of breakwater by about 50 feet.								

GEORGIAN BAY.

U. S. Lake Survey Charts 0, 5, 55, and 56, and U. S. Hydrographic Office Charts 1476, 1477, 1863a, 1863b, 1471, 1469, 1864, 1461, and 1456.

1	2	3	4	5	6	7												
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.												
Range. Thornbury Front Light (C.).		Drab shed.	Mast, shed at base.	Rear light, 189° 23', 376 feet ($\frac{1}{4}$ mile).	Feet.	7th-order fixed white light; 32 feet above water; visible 8 miles. On E'y side of outer end of W breakwater pier. Lat. N, 44° 34' 10"; long. W, 80° 27' 10".												
		Drab shed.	Mast, shed at base.			7th-order fixed red light; 36 feet above water; visible 8 miles. On W'y side of Beaver River. Range leads SW $\frac{1}{2}$ W. mag., through center of dredged channel to entrance between breakwater piers.												
Nottawasaga Island Light-Station (C.).		White.	Circular, stone.			2d-order revolving white light every 20 sec.; 86 feet above water; visible 19 $\frac{1}{2}$ miles. About 2 $\frac{1}{4}$ miles NW'y of Collingwood Harbor. Lat. N, 44° 32' 20"; long. W, 80° 15' 50". Red sector, covering arc of 30° SW'y from Fishermans Point and including Collingwood Harbor, indicates shoals between light and harbor. Collingwood Breakwater Light kept well open NE'd of this light clears Mary Ward Ledges, and white light kept open till breakwater light bears SW, mag., clears shoals between the two. Fog signal: Hand horn, answers signals from vessels.												
Lockerbie Rock Gas Buoy, No. 7C (C.).	7C	Black.	Cylindrical, surmounted by pyramidal, steel framework and lantern.		30	Occulting white (a.) light. Moored 400 feet (about $\frac{1}{4}$ mile) W'y of rock. Lat. N, 44° 32' 13"; long. W, 80° 13' 52".												
Collingwood Breakwater Light-Station (C.).		White, red lanternroof.	Octagonal, wood.			4th-order fixed white light, 41 feet above water; visible 9 $\frac{1}{4}$ miles. On outer end of W breakwater, Collingwood Harbor. Lat. N, 44° 31' 00"; long. W, 80° 13' 50". Fog signal: Hand horn, answers signals from vessels.												
Range. Collingwood Shore and Wharves Front Light for both (C.).		White, red lantern.	Square, wood.	Shore Rear Light, 176° 30' 00", 2,644 feet ($\frac{1}{2}$ mile). Wharves Rear Light, 302° 30', 1,330 feet (about $\frac{1}{3}$ mile).		Fixed red light; 29 feet above water; visible 8 miles. Visible on both range lines: 4th-order on Shore Range; 7th-order on Wharves Range. On pier at turn of dredged channel in Collingwood Harbor. Lat. N, 44° 30' 44"; long. W, 80° 13' 47".												
		Galvanized, white upper part.	Square, steel, skeleton tower, inclosed upper part wood.			Reflector light, fixed red; 58 feet above water; visible 9 miles. On mainland.												
Collingwood Wharves Rear Light (C.).		White.	Square, wood.			Reflector light, fixed white; 34 feet above water. On pier. Rear lights visible on their own range line. Red lights in range lead in S by E. mag., clear of Lockerbie Rock on port hand to curve in dredged channel. Front light (red) in range astern with white light leads from curve in dredged channel to Grand Trunk Railway freight shed wharf. Lifeboat at inner end of Grand Trunk Railway pier.												
Christian Island Light-Station (C.).		White.	Circular, stone.			4th-order fixed white light; 61 feet above water; visible 17 $\frac{1}{4}$ miles. On Bar Point. Lat. N, 44° 47' 02"; long. W, 80° 09' 25". Fog signal: Hand horn, answers signals from vessels.												
Hope Island Light-Station (C.).		White, green roof.	Square, wood; dwelling attached; rectangular, wooden fog-signal building with high concrete chimney 40 feet N'y; horn, 23 feet above water, points NE'y.			Reflector light, revolving white every minute; 54 feet above water; visible 13 $\frac{1}{2}$ miles. Shows all around except when intercepted by trees on island. On NE'y point of island. Lat. N, 44° 54' 50"; long. W, 80° 10' 00". Fog signal: Compressed-air diaphone, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent</td> </tr> <tr> <td style="text-align: center;">interval</td> <td style="text-align: center;">interval</td> <td style="text-align: center;">interval</td> <td style="text-align: center;">interval</td> </tr> <tr> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">21 sec.</td> </tr> </table>	Blast	Silent	Blast	Silent	interval	interval	interval	interval	3 sec.	3 sec.	3 sec.	21 sec.
Blast	Silent	Blast	Silent															
interval	interval	interval	interval															
3 sec.	3 sec.	3 sec.	21 sec.															
Giants Tomb Light-Station (C.).		White, red lantern.	Square, wood; dwelling attached; iron lantern.			7th-order fixed white light; 40 feet above water; visible 12 $\frac{1}{4}$ miles. On S'y end of island. Lat. N, 44° 52' 47"; long. W, 80° 00' 28".												
Range. Brébeuf Front Light (C.).		White, red lantern.	Square, wood; polygonal iron lantern.	Rear light, 81° 15', 2,400 feet ($\frac{1}{4}$ mile).		6th-order fixed white light; 40 feet above water; visible 11 $\frac{1}{2}$ miles. On N'y end of Brébeuf Island. Lat. N, 44° 52' 32"; long. W, 79° 53' 03".												
		White, red roof.	Square, wood; square cribwork pier.			Reflector light, fixed white; 55 feet above water; visible 11 $\frac{1}{2}$ miles. On W'y shore of Beausoleil Island. Lights in range lead E $\frac{1}{4}$ N. mag., from outside Bennet Bank to range line marked by Midland Point Lights.												
Midland Point Front Light (C.).		White, red lantern.	Square, wood; square pyramidal, concrete pier.	Rear light, 151° 30', 3,020 feet ($\frac{1}{2}$ mile).		7th-order fixed white light; 32 feet above water; visible 11 $\frac{1}{2}$ miles. On beach, 3,600 feet ($\frac{1}{2}$ mile) SE ($\frac{1}{2}$ E. mag., from Sucker Creek Point. Lat. N, 44° 48' 20"; long. W, 79° 52' 20".												
Midland Point Rear Light (C.).		White, red lantern.	Square, wood.			7th-order fixed white light; 41 feet above water; visible 12 $\frac{1}{4}$ miles. On beach. The two lights in range lead SSE, mag., from intersection of this range with that marked by Brébeuf Lights to within $\frac{1}{2}$ mile of front light, where these lights should be open on starboard hand. Shore may be kept close aboard until Midland Point is rounded.												
Midland Front Light (C.).			Lamp on pole.	Rear light 230° 40', 1,320 feet ($\frac{1}{4}$ mile).		Fixed red (e. l.) light; 150 feet above water. On hillside in SW'y part of town. Lat. N, 44° 44' 58"; long. W, 79° 53' 50".												
Midland Rear Light (C.).			Lamp on pole.			Fixed red (e. l.) light; 190 feet above water. Lights in range, SW by W, mag., lead in from Midland Point to wharves in harbor, clear to SE'd of Midland Bay Shoal.												

GEORGIAN BAY.

U. S. Lake Survey Charts 0, 5, 55, and 56, and U. S. Hydrographic Office Charts 1476, 1477, 1863a, 1863b, 1471, 1469, 1864, 1461, and 1456.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Whisky Island Light (C.).		White.....	Square, wood.....		<i>Fet.</i>	7th order fixed white; 33 feet above water; visible 12½ miles. Entrance to Penetanguishene Harbor. Lat. N, 44° 48' 53"; long. W, 79° 55' 12".								
Penetanguishene Light (C.).		White.....	Square, wood.....			Fixed white post-lantern light; 17 feet above water; visible 9 miles. On outer end of Reformatory Pier. Lat. N, 44° 48' 28"; long. W, 79° 55' 55".								
Range.	Penetanguishene Harbor Front Light (C.).	Natural; white daymark.	Pole; diamond-shaped slatted daymark.	Rear light, 180° 00', 500 feet.		Reflector (e. l.) light, fixed white; 100 feet above water; visible 3 miles. About ½ mile back from water's edge, on E'y side of a street, and about ½ mile from mouth of Copeland Creek. Lat. N, 44° 45' 23"; long. W, 79° 56' 32".								
	Penetanguishene Harbor Rear Light (C.).	Natural; white daymark.	Pole; diamond-shaped slatted daymark.			Reflector (e. l.) light, fixed white; 130 feet above water; visible 3 miles. Range guides into harbor from about ¼ mile SW'ly from Reformatory Point and passing about 250 feet W'd of Magazine Island.								
Western Islands Light-Station (C.).		White, red lantern.	Octagonal, wood; iron lantern; fog-signal house 80 feet NNW'ly.			4th-order occulting white (a.) light; 74 feet above water; visible 16 miles. On Double Top Rock. Lat. N, 45° 02' 04"; long. W, 80° 21' 31". Fog signal: Steam horn, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> </tr> <tr> <td style="text-align: center;">8 sec.</td> <td style="text-align: center;">40 sec.</td> <td style="text-align: center;">8 sec.</td> <td style="text-align: center;">40 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	8 sec.	40 sec.	8 sec.	40 sec.
Blast	Silent interval	Blast	Silent interval											
8 sec.	40 sec.	8 sec.	40 sec.											
Lone Rock Gas and Whistling Buoy (C.).		Red.....	Cylindrical, surmounted by pyramidal steel framework supporting whistle and lantern.			Occulting white (a.) light. Whistle sounded by motion of waves. About 300 feet from rock, Wabuno Channel. Lat. N, 45° 09' 12"; long. W, 80° 13' 55". Keep on starboard hand going N'd.								
Seguin Bank Gas and Whistling Buoy, No. 1P (C.).	1P	Black.....	Cylindrical, surmounted by pyramidal steel framework supporting whistle and lantern.		24	Fixed white (a.) lens-lantern light; visible 4½ miles. Whistle sounded by motion of waves. Moored on S'y end of Seguin Bank and S'y of shoalest spot. Lat. N, 45° 19' 17"; long. W, 80° 31' 37".								
Red Rock Light-Station (C.).		White.....	Octagonal, wood, on pier; tower rises from middle of roof of dwelling.			4th-order (l. o. v.) light, fixed white 8 sec., eclipse 4 sec.; 63 feet above water; visible 15 miles. At entrance to Parry Sound. Lat. N, 45° 21' 39"; long. W, 80° 24' 50". Fog signal: Hand horn, answers signals from vessels. Moved 1881.								

PARRY SOUND.

U. S. Lake Survey Charts 0, 5, and 56, and U. S. Hydrographic Office Charts 1476, 1863a, 1863b, and 1471.

Three Star Shoal Gas Buoy, No. 8P (C.).	8P	Red.....	Cylindrical, surmounted by pyramidal steel framework and lantern.		48	Occulting white (a.) light. Moored off N'y end of shoal. Lat. N, 45° 21' 29"; long. W, 80° 22' 10".
Range.	Snug Harbor Front Light (C.).	White.....	Square, wood.....	Rear light, 69° 00', 3,100 feet (½ mile).		Reflector light fixed red; 39 feet above water; visible 8 miles. On most W'y Walton Island. Lat. N, 45° 22' 18"; long. W, 80° 19' 38".
	Snug Harbor Rear Light-Station (C.).	White.....	Square, wood; rising from roof of rectangular dwelling.			Reflector light fixed white; 62 feet above water; visible 15 miles. On S'y end of island on N'y side of entrance to Snug Harbor. Lat. N, 45° 22' 27"; long. W, 80° 18' 58". These lights in range ENE ¼ E, mag. lead in S'y of Seguin Bank, marked by Seguin Bank Gas and Whistling Buoy, through main channel to intersection with Jones Island Range.
Middle Ground Gas Buoy, No. 14P (C.).	14P	Red.....	Cylindrical, surmounted by pyramidal steel framework and lantern.			Occulting white (a.) light. Moored on Middle Ground, between Hall Reef and Twin Rock. Lat. N, 45° 20' 28"; long. W, 80° 19' 40".
Hooper Island Shoal Gas Buoy, No. 18P (C.).	18P	Red.....	Cylindrical, surmounted by pyramidal steel framework and lantern.		18	Fixed white lens-lantern light; 7 feet above water; visible about 3½ miles. Moored on axis of Jones Island Range lights and of 15-foot patch N'y of Hooper Island.
Range.	Jones Island Front Light (C.).	White.....	Square, wood.....	Rear light, 130° 45', 8,700 feet (1½ miles).		Reflector light fixed red; 40 feet above water; visible 8 miles. Visible to N'd of SE by E ¼ E, mag., and NW by W ¼ W, mag. Summit of most N'y Gordon Rock. Lat. N, 45° 18' 56"; long. W, 80° 17' 15".
	Jones Island Rear Light-Station (C.).	White.....	Square, wood; rising from roof of rectangular dwelling.			Reflector light fixed white; 63 feet above water; visible 9 miles. Visible in and over small arc on either side of range line. On SW'y point of Jones Island. Lat. N, 45° 18' 00"; long. W, 80° 15' 42". These lights in range lead SE ¼ S, mag. from intersection with Snug Harbor Range to Hooper Island Shoal Gas Buoy.

GEORGIAN BAY.

PARRY SOUND—Continued.

U. S. Lake Survey Charts 0, 5, and 56, and U. S. Hydrographic Office Charts 1476, 1863a, 1863b, and 1471.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Spruce Shoal Light (C.)		Concrete; black gas holder.	Octagonal, pyramidal concrete pier and tower; cylindrical steel gas holder, square box, and lantern.		Fath.	7th-order fixed white (a.) light; 39 feet above water; visible 12½ miles. In water on shoal extending S'ly from Spruce Island. Lat. N, 45° 19' 55"; long. W, 80° 15' 49". Unwatched. Entering Parry Sound pass 600 feet (about ¼ mile) S'ly of Seguin Bank Gas and Whistling Buoy, and steer about 2 miles ENE ½ E, mag., or until Snug Harbor Range lights are in range and lead through main channel. When 2 miles inside of Red Rock Light-House the Jones Island Range lights should be brought in range, and followed closely to within 1,200 feet (about ¼ mile) of Hooper Island Shoal Gas Buoy, then haul gradually to bring Spruce Shoal Light ahead, about E ¾ S, mag., and Hooper Island Shoal Gas Buoy astern. Pass about 300 feet to S'ly of Spruce Shoal Light and head ENE ½ E, mag., for center of Davy Island. Give Carling Rock a berth of 600 feet (about ¼ mile) and steer E ¾ S, mag., for Killbear Point just open N'ly of North Sister Island. Between Red and Carling rocks run half speed. When the last island is passed Depot Island Light-House, ESE, mag., may be steered for. Give Depot Island and Cadotte Point a berth of 300 feet (about ¼ mile) in entering the harbor.
Carling Rock Light-Station (C.)		White; red stripe on W'ly side.	Square, pyramidal, wood.			7th-order fixed white light; 26 feet above water; visible 8 miles. On N'ly part of summit of Carling Rock. Lat. N, 45° 20' 08" long. W, 80° 14' 27".
Killbear Point Light (C.)		White; red box and lantern.	Cylindrical steel gas holder, surmounted by square steel box.			7th-order fixed white (a.) light; 37 feet above water; visible 8 miles. On SW'ly end of point. Lat. N, 45° 20' 01"; long. W, 80° 10' 25". Unwatched.
Depot Island Light (C.)		White.	Square, pyramidal, wood.			7th-order occulting red (a.) light; 25 feet above water; visible 6½ miles. Visible to E'ly of a N and S line. On W'ly end of beach of Depot Island, at entrance to Depot Harbor. Lat. N, 45° 19' 06"; long. W, 80° 07' 10".
Three-Mile Point Light (C.)		Gray; red framework.	Cylindrical steel gas holder, surmounted by square, pyramidal steel framework and lantern.			7th-order fixed white (a.) light; 38 feet above water; visible 5 miles. On E'ly side of Three-Mile Point, on rock 25 feet back from water's edge. Lat. N, 45° 29' 48"; long. W, 80° 03' 30"; Unwatched.
Rose Point Swing Bridge Light (C.)						Fixed green light (bridge open), fixed red light (bridge closed). From most W'n end of Rose Point to Parry Island. Lat. N, 45° 18' 57"; long. W, 80° 02' 49". When bridge is open a 4-foot red and white ball is shown at top of mast on top of swing; ball lowered when swing is closed. Steamers wishing to pass bridge should stop at Sloop Island or E'ly point of Isabella Island and give three long blasts of whistle.

U. S. Lake Survey Charts 0, 5, and 56, and U. S. Hydrographic Office Charts 1476, 1863a, 1863b, and 1471.

Kennedy Bank Gas Buoy (C.)		Red.	Cylindrical steel, surmounted by pyramidal steel frame and lantern.		54	Occulting white (a.) light; ½ mile W'ly from Kennedy Bank. Lat. N, 45° 30' 16"; long. W, 80° 40' 50".
Range. Point au Baril Front Light (C.)		White.	Square, wood; kitchen attached.	Rear light, 103° 30', 4.800 feet (¼ mile).		7th-order fixed white light; 38 feet above water; visible 11½ miles. On S'ly end of point close to water. Lat. N, 45° 33' 33"; long. W, 80° 30' 34".
	Point au Baril Rear Light (C.)	Galvanized, white slat-work and upper part; black vertical stripe on front.	Square, steel skeleton tower, channel face wooden slat-work, inclosed upper part wood.			Reflector light fixed red; 93 feet above water; visible 11½ miles. Visible in and over small arc on each side of range line. On summit of island. Range leads ESE ¾ E, mag., and shows channel between shoals W'd of point. Outer light left on port, inner on starboard hand, in entering.
Byng Inlet Gas Buoy (C.)		Red.	Cylindrical steel buoy, surmounted by pyramidal steel frame and lantern.		54	Occulting white (a.) light; about 4½ miles W ½ S, mag., from Byng Inlet Range Front Light, and 1½ miles W'ly of Maganatawan Ledges. Lat. N, 45° 43' 49"; long. W, 80° 45' 27".
Gereaux Island Light-Station (C.)		White.	Square, wood; dwelling attached.			Reflector light fixed white; 49 feet above water; visible 13½ miles. On S'ly side of entrance to Byng Inlet. Lat. N, 45° 44' 31"; long. W, 80° 39' 52". Fog signal: Hand horn, answers signals from vessels. Moved 1885.
Range. Byng Inlet Front Light-Station (C.)		White.	Square, wood.	Rear light, 74° 32', 1,320 feet (about ¼ mile).		Reflector light fixed red; 34 feet above water; visible about 8½ miles. Close to S'ly side of channel, ¼ mile NE by E ¼ E, from Gereaux Island Light. Lat. N, 45° 45' 09"; long. W, 80° 38' 56".
	Byng Inlet Rear Light (C.)	White.	Square, skeleton wood, lantern and top inclosed, slats below.			Reflector light fixed red; 60 feet above water; visible about 8½ miles. Visible in and over small arc on each side of range line. Range leads E ¾ N, mag., into mouth of Byng Inlet, clear of Maganatawan Ledges on S'ly and Burton Bank on N'ly, with nowhere less than 4 fathoms.
Key Inlet Entrance Gas Buoy, No. 2 (C.)	2	Red.	Cylindrical, surmounted by pyramidal steel framework and lantern.			Occulting white (a.) lens-lantern light. Moored outside all dangers at entrance to channel to Canadian Northern Railway docks in Key Inlet, and on Dead Range, 1½ miles, 218° 30' true, SW ¾ S, mag., from SE rock. Lat. N, 45° 51' 09"; long. W, 80° 32' 46".

GEORGIAN BAY.

U. S. Lake Survey Charts 0, 5, and 56, and U. S. Hydrographic Office Charts 1476, 1863a, 1863b, and 1471.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Key Inlet Gas Buoys, Nos. 8, 14, 20, 24, and 26 (C.).	8 14 20 24 26	Red.....	Each cylindrical, surmounted by pyramidal steel framework and lantern.			Occulting white (a.) lens-lantern lights. Moored to mark turning points, on starboard side of channel to Canadian Northern Railway docks in Key Inlet, NE'ly end of Georgian Bay. Local knowledge required for safe navigation of this channel at night. Course is from one gas buoy to another, each buoy to be passed close-to. Maintained by Canadian Northern Railway.
Bustard Rocks Outer Range Front Light (C.).		White; red lantern.	Square, wood; square wooden lantern.	Rear light, 250° 45', 193 feet.		Fixed white reflector light; 27 feet above water; visible 11½ miles. Visible in and over small are on each side of range line. On rocks. In range with next light leads from deep water clear of Isabel Rock on N and all shoals SW'ly of Bustard Rocks on S.
Bustard Rocks Rear Light-Station (C.).		White; red lantern.	Square, wood; hexagonal iron lantern.	Inner Front Light, 39° 49', 229 feet.		7th-order fixed white light; 48 feet above water; visible 13½ miles. Visible from all points of approach excepting over dangerous rocks and shoals to NE'ly Coast light. On rocky islet, 2½ miles SW'ly of entrance to French River. Lat. N, 45° 53' 25"; long. W, 80° 57' 18". Fog signal: Hand horn, answers signals from vessels.
Bustard Rocks Inner Range Front Light (C.).		White; red lantern.	Square, wood; square wooden lantern.			Fixed white reflector light; 30 feet above water; visible 6½ miles. Visible over small are on each side of range line. In range with preceding leads in from point just clear of North Bustard Rock to intersection of this range with French River Range.
French River Front Light (C.).		White.....	Square, wood, open framework.	Rear light, 35° 00', 5170 feet (about 1 mile).		7th-order fixed red light; 15 feet above water; visible 6½ miles. On Lefroy Island, W'ly side of mouth of river. Lat. N, 45° 26' 08"; long. W, 80° 54' 40".
French River Rear Light-Station (C.).		White; red lantern.	Square, wood; square wooden lantern.			Reflector light fixed red; 37 feet above water; visible 6½ miles. In mill yard, on E'ly side of river, ½ mile, 48° 30' true, NE by E, mag., from head of creek. Range line leads NE; ¼ N, mag., in from its intersection with range line of Bustard Rocks Inner Range lights to Lefroy Island, clear of all obstructions.
Lonely Island Light-Station (C.).		White; red lantern.	Octagonal, wood; cylindrical iron lantern.			3d-order flashing white light every 7½ sec.; two intervals 1¼ sec., one interval ¾ sec., obscured between 324° 30', true (NNW ¼ W, mag.), and 44° 50', true (NE ¼ E, mag.); 195 feet above water; visible 23 miles. To S'd obscured by land. On summit of N'ly bluff. At N'ly side of channel leading into Killarney Harbor from E'd. Fog signal: Hand horn, answers signals from vessels.
Killarney East, or Red Rock Point Light-Station (C.).		White; red lantern.	Square, pyramidal, wood; octagonal, iron lantern.			7th-order fixed white light; 54 feet above water; visible 12 miles. On Red Rock Point, 1 mile E'ly of Killarney. Lat. N, 45° 58' 04"; long. W, 81° 29' 28". Fog signal: Hand horn, answers signals from vessels.
Killarney West, or Partridge Island Light-Station (C.).		White; red lantern.	Square, pyramidal, wood; octagonal, iron lantern.			Reflector light fixed white; 37 feet above water; visible 11 miles. On Partridge Island, 1 mile NW'ly of Killarney. Lat. N, 45° 58' 57"; long. W, 81° 32' 05".

NORTH CHANNEL.

U. S. Lake Survey Charts 0, 5, 57, 58, 61, and 64, and U. S. Hydrographic Office Charts 1474, 1475, 1476, 1863a, 1470, 1472, 1463, and 1464.

Mantowaning Light (C.).		White, red lantern.	Square, wood, iron lantern.			7th-order fixed white light; 80 feet above water; visible 16 miles. On hill in the village, Grand Manitoulin Island. Lat. N, 45° 44' 42"; long. W, 81° 48' 27".
Shegulandah Front Light (C.).		White.....	Post with diamond-shaped daymark.	Rear light, 261° 40', 850 feet (¼ mile).		Fixed white lens-lantern light, 23 feet above water; visible 9 miles. On N'ly shore of Shegulandah Bay, Manitoulin Island. Lat. N, 45° 53' 40"; long. W, 81° 55' 03".
Shegulandah Rear Light (C.).		White.....	Post with diamond-shaped daymark.			Fixed white lens-lantern light, 35 feet above water; visible 11 miles. Range leads into bay clear of Boulton Reef, Leech Island Reef, and reef off S'ly point of Strawberry Island.
Strawberry Island Light-Station (C.).		White.....	Square, wood, dwelling attached.			Reflector light, fixed white; 40 feet above water; visible 12½ miles. On N'ly point of Island. Lat. N, 45° 58' 23"; long. W, 81° 51' 52". Fog signal: Hand horn, answers signals from vessels.
Little Current Front Light (C.).			Lantern on roof of B. H. Turner's warehouse.	Rear light, S'ly.		7th-order fixed red light; 25 feet above water; visible 7 miles. Close to shore, between docks in village. Lat. N, 45° 58' 52"; long. W, 81° 55' 41".
Little Current Rear Light (C.).			Lantern on pole.			7th-order fixed red light; visible 1¼ miles. Range line leads in axis of deepest cut from deep water abreast of Spider Island Light-House to wharves in Little Current, or to turn in front of town. Front light visible from E'd.
Spider Island Light (C.).		White, red lantern.	Square, wood.			Reflector light, fixed white; 40 feet above water; visible 7 miles. On E'ly end of Spider Island. Lat. N, 45° 59' 04"; long. W, 81° 55' 50".
Narrow Island Light-Station (C.).		White.....	Rectangular, wood; octagonal wooden lantern on W'ly end of roof.			7th-order fixed white light, with a fixed red sector between 80° (E ¼ N) and 97° (E ¾ S); 30 feet above water; visible 12½ miles. On W'ly end of Island. Lat. N, 45° 59' 20"; long. W, 81° 58' 50". The red sector covers Foster Bank and near-by shoals and also shoals extending to W'd from the W'ly end of Narrow Island. Fog signal: Hand horn, answers signals from vessels.

GEORGIAN BAY.

NORTH CHANNEL—Continued.

U. S. Lake Survey Charts 0, 5, 57, 58, 61, and 64, and U. S. Hydrographic Office Charts 1474, 1475, 1476, 1863a, 1472, 1470, 1464, and 1463.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Clapperton Island Light-Station (C.).		White.....	Square, wood.....			Reflector light, fixed white; 30 feet above water; visible 11½ miles. On N'yly point of Island. Lat. N, 46° 03' 14"; long. W, 82° 14' 25". Fog signal: Hand horn, answers signals from vessels.
Kagawong Light (C.).		White, red lantern.	Square, wood.....			Reflector light, fixed white; 38 feet above water; visible 12¼ miles. At foot of Mudge Bay, 75 feet back from shore and 100 feet W'd from dock. Lat. N, 45° 54' 31"; long. W, 82° 15' 45".
Boyd Island Light (C.).		White.....	Square, wood.....			7th-order fixed red light; 41 feet above water; visible 7 miles: On small rock near Boyd Island, 1¼ miles SE ¼ E, mag., from Spanish River Lumber Co.'s mill on Aird Island. Lat. N, 46° 07' 20"; long. W, 82° 20' 22".
Range. Cutler Front Light (C.).		Red.....	Lantern on roof of freight shed.	Rear light, 9° 30', 435 feet (¾ mile).		Post light, fixed red; 20 feet above water; visible 3½ miles. On outer end of wharf. Lat. N, 46° 11' 50"; long. W, 82° 27' 50".
Cutler Rear Light (C.).		White.....	Lantern on day-mark of boards crossing mast.			Post light, fixed red; 40 feet above water; visible 3½ miles. Lights in range lead NNE ¾ E, mag., to the wharf from Whalesback Channel, clear of shoals of Tykert Point and Lister Island on starboard and clear of Curran and Casgrain rocks on port hand. Lights maintained by Messrs. Loveland and Stone.
Gore Bay Light-Station (C.).		White.....	Square, wood, dwelling attached.			7th-order fixed white light; 43 feet above water; visible 12½ miles. On Janet Head. Lat. N, 45° 56' 40"; long. W, 82° 28' 58". Fog signal: Hand horn, answers signals from vessels.
Cape Robert Light-Station (C.).		White.....	Square, wood, dwelling attached.			7th-order fixed white light; 46 feet above water; visible 13¼ miles. On N'yly end of Cape. Lat. N, 45° 59' 45"; long. W, 82° 48' 40".
Range. Blind River Outer Front Light (C.).			Lantern on pole.....	Rear light, 362° 32', 295 feet.		Fixed red (e. l.) light; 35 feet above water; visible 8 miles. On elevated tramway to W'd of Eddy Bros. west wharf. Lat. N, 46° 10' 42"; long. W, 82° 57' 54".
Blind River Outer Rear Light (C.).			Lantern on roof of office building.			Fixed red (e. l.) light; 50 feet above water; visible 8 miles. Fixed red oil lights will be shown, temporarily, in case of failure of electric lights. Lights in range N ¾ E, mag., mark axis of dredged channel leading to Eddy wharves.
Range. Blind River Inner Front Light (C.).		Drab.....	Lantern on SE'ly corner of rectangular wooden storehouse.	Rear light, 30° 32', 1,550 feet (¾ mile).		7th-order fixed red light; 25 feet above water; visible 7 miles. On Government Wharf. Lat. N, 46° 10' 42"; long. W, 82° 57' 43".
Blind River Inner Rear Light (C.).			Lantern on pole.....			7th-order fixed red light; 40 feet above water; visible 8 miles. Lights in range NE ¾ N, mag., mark axis of dredged channel leading from the head of Eddy wharves to head of Government Wharf.
Mississagi Island Light-Station (C.).		White.....	Square, wood, dwelling attached.			Reflector light, revolving white every minute; 53 feet above water; visible 13¼ miles. On S'yly end of Island. Lat. N, 46° 06' 23"; long. W, 83° 00' 31". Between SE ¼ S and SSW ¾ W, mag., the light is obscured by trees on N'yly part of island.
Mississagi Strait Light-Station (C.). See page 100.						
Sulphur Island Light (C.).		White, red lantern.	Octagonal, wood, iron lantern.			5th-order fixed white light; 49 feet above water; visible 13¼ miles. On S'yly end of island. Lat. N, 46° 08' 39"; long. W, 83° 36' 30".
Thessalon Light-Station (C.).		White, red lantern.	Square, wood, square wooden lantern, rising from middle of roof.			Reflector light, fixed white; 30 feet above water; visible 11½ miles. On end of long narrow point on W'yly side of mouth of Thessalon River. Lat. N, 46° 14' 12"; long. W, 83° 34' 04". Fog signal: Hand horn, answers signals from vessels.
McKay Island Light-Station (C.).		White.....	Square, wood, square wooden lantern.			6th-order fixed white light; visible 12¼ miles. On E'yly end of McKay Island, 60 feet from water's edge. Lat. N, 46° 16' 54"; long. W, 83° 46' 53".
Bruce Mines Light (C.).		Gray, brown roof.	Rectangular, wooden warehouse, lantern on SE'ly corner.			Reflector light, fixed white; 12 feet above water; visible 5½ miles. On outer end of Government Wharf. Lat. N, 46° 17' 47"; long. W, 83° 47' 24".
West Sister Rock Light-Station (C.).		White.....	Hexagonal, wood, on pier.			7th-order fixed white light; 35 feet above water; visible 12¼ miles. On West Sister Rock. Lat. N, 46° 18' 15"; long. W, 83° 54' 53". Fog signal: Hand horn, answers signals from vessels.
Range. Wilson Channel Front Light (C.).		White.....	Square, wood, octagonal wooden lantern.	Rear light, 233° 20', 730 feet (¾ mile).		7th-order fixed white light; 38 feet above water; visible 3½ miles. On the main shore. Lat. N, 46° 19' 24"; long. W, 83° 58' 55".
Wilson Channel Rear Light (C.).		White.....	Square, wood.....			Reflector light, fixed white; 109 feet above water; visible on the range line. Going to W'd these lights are in range astern, and lead SW by W ¼ W, mag., from Richards Landing Wharf to turn in Wilson Channel, clear of Chicora Shoal, through dredged cut-off Bamford Island Light-House, and clear of shoals to W'd of Wilson Channel.
Bamford Island Light-Station (C.).		White.....	Square, wood, dwelling attached.			7th-order fixed white light; 32 feet above water; visible 11½ miles. On E'yly end of Island, ¼ mile SW'ly of Wilson Channel. Lat. N, 46° 19' 06"; long. W, 83° 58' 35". Fog signal: Hand horn, answers signals from vessels.

GEORGIAN BAY.

NORTH CHANNEL—Continued.

U. S. Lake Survey Charts 0, 5, 57, 58, 61, and 64, and U. S. Hydrographic Office Charts 1474, 1475, 1476, 1863a, 1472, 1470, 1464, and 1463.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Richards Landing Light (C.).			Square lantern on SE'ly corner of warehouse.		<i>Fet.</i>	Reflector light, fixed white; 16 feet above water; visible 3½ miles. On the wharf. Lat. N, 46° 17' 44"; long. W, 84° 02' 12".
Shoal Island Light-Station (C.).		White	Square, wood; square, wooden lantern.			7th-order fixed white light; 32 feet above water; visible 4 miles. On N'ly end of Island, S'ly side of St. Joseph Channel. Lat. N, 46° 18' 51"; long. W, 84° 04' 30". Fog signal: Hand horn, answers signals from vessels.

LAKE HURON.

STRAITS OF MACKINAC, SOUTH CHANNEL.

U. S. Lake Survey Charts 0, 5, 6, 60, and 67, and U. S. Hydrographic Office Charts 1474, 1475, and 1476 issued at Lake Survey Office.

The Straits of Mackinac embrace those waters commencing at the E point of the Isle Bois Blanc and extending to the S point of Beaver Island. For continuation of Straits of Mackinac, to S'd and W'd of Old Mackinac Point, see page 150.

1	2	3	4	5	6	7																
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.																
POE REEF LIGHT-VESSEL, No. 42 (Mich.)	59	Red; black day mark, smoketack, and fog signal.	Schooner rigged, no bowsprit; circular cagework day-mark at foremast head; smoketack and fog signal between masts; 3 lanterns encircling foremast head.	Spectacle Reef Light-House, 62° 00', 11¼ miles. Nine-Mile Point, 120° 00', 7¼ miles. Cheboygan Light-House, 245° 00', 3¼ miles.	30	Fixed, white lens-lantern light; 40 feet above water; visible 13¼ miles. Moored in 30 feet of water off E'ly end of reef, N'ly side of south channel of the straits. Lat. N, 45° 41' (27"); long. W, 84° 21' (22"). Fog signals: 6-inch steam whistle, sounds thus: <table style="margin-left: 20px;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>10 sec.</td> <td>5 sec.</td> <td>10 sec.</td> </tr> </table> Submarine fog bell sounds thus: <table style="margin-left: 20px;"> <tr> <td>5 strokes</td> <td>Silent interval</td> <td>5 strokes</td> <td>Silent interval</td> </tr> <tr> <td>.....</td> <td>10 sec.</td> <td>.....</td> <td>10 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	10 sec.	5 sec.	10 sec.	5 strokes	Silent interval	5 strokes	Silent interval	10 sec.	10 sec.
Blast	Silent interval	Blast	Silent interval																			
5 sec.	10 sec.	5 sec.	10 sec.																			
5 strokes	Silent interval	5 strokes	Silent interval																			
.....	10 sec.	10 sec.																			
Cheboygan Shoal Buoy..	7	Black	2d-class can.	Cheboygan Light-House, 205° 00', ¼ mile. Cheboygan Crib Light, 247° 30'.	20	Marks 14½-foot shoal.																
CHEBOYGAN LIGHT-STATION (Mich.) (L. S. Chart 67.)		White	Square tower, 33 feet high, rising from dwelling; cylindrical iron oil-house 125 feet N W'ly.	Bois Blanc Island, S point, 0° 00', 3¼ miles. Old Fort Mackinac Point, 298° 00', 16¼ miles.		5th-order fixed white light, varied by a white flash every minute; 37 feet above water; visible 13 miles. On N'ly side of point E'd of Dumont Bay, S'ly channel of Straits. Lat. N, 45° 40' 09"; long. W, 84° 25' 11". Guide in S'ly channel. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: 20px;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>25 sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	25 sec.	5 sec.	25 sec.								
Blast	Silent interval	Blast	Silent interval																			
5 sec.	25 sec.	5 sec.	25 sec.																			
Cheboygan Crib Light-Station (Mich.)		White	Iron octagonal tower, 26¼ feet high, on crib.	Spectacle Reef, 65° 00', 17¼ miles. Cheboygan Light-House, 79° 00', 2 miles. Point St. Ignace, 318° 00', 17¼ miles.		4th-order fixed red light; 35 feet above water; visible 13 miles. On W'ly side of dredged channel leading into entrance to Cheboygan River. Lat. N, 45° 39' (48"); long. W, 84° 27' (34"). Pass close-to in entering.																
Cheboygan River Front Light (Mich.)		White; red dwelling; cylindrical iron oilhouse 50 feet SE'ly.	Square tower rising from frame dwelling.	Rear light, 213° 00', 1,112 feet.		Two fixed red lights; front, 6th-order; 42 feet above water; visible 8½ miles; rear, lens lantern; 75 feet above water. On W'ly side of river, on SW'ly prolongation of center line of dredged channel. Front light, lat. N, 45° 38' 51"; long. W, 84° 28' 21".																
Cheboygan River Rear Light (Mich.)		White	Square, pyramidal, skeleton, iron tower, horizontally slatted day-mark.																			
Zela Shoal Buoy	16	Red	2d-class nun.	Old Mackinac Point Light-House 276° 00' Point la Barbe, 295° 00'. Mackinac Island, left tangent, 322° 00'.	20	On W'ly end of shoal, extending 2 miles WNW'ly from Zela Point, S'ly side of Bois Blanc Island. No passage between buoy and island.																
Majors Shoal Buoy		Red and black horizontal stripes.	2d-class can.	Mackinac Island, W side, 3° 00', 3¼ miles. Mackinac Island, E side, 45° 00', 3¼ miles. Round Island Light-House, 53° 00', 2½ miles.	20	On E'ly end of shoal extending about ¼ mile NW'ly and SE'ly.																

LAKE HURON.

STRAITS OF MACKINAC, SOUTH CHANNEL—Continued.

U. S. Lake Survey Charts 0, 5, 6, 60, and 67, and U. S. Hydrographic Office Charts 1474, 1475, and 1476 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
South Graham Shoal Gas and Bell Buoy, No. 18 (Mich.).	18	Red.....	Conical, surmounted by pyramidal latticework, bell and lantern.	Point St. Ignace, 7° 09' 14½ miles. Round Island Light-House, 81° 30', 4½ miles. Old Mackinac Point Light-House, 201° 45', 3 miles.	<i>Fath.</i> 24	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks SE'ly edge of 6-foot shoal. The Graham Shoals bear NNE'ly and SSW'ly, respectively, from each other ¼ mile. Strangers should not attempt the channel between the shoals and Point St. Ignace. Currents in vicinity of shoals and Straits of Mackinac are often strong and irregular. After fresh gales, vessels anchored in the straits often trend to windward.
North Graham Shoal Buoy.	20	Red.....	2d-class nun.....	Round Island Light-House, 92° 45', 3½ miles. Old Mackinac Point Light-House, 209° 45', 4½ miles. Point la Barbe, 270° 20'.	20	On E'ly end of 8-foot shoal.

E'D THROUGH NORTH CHANNEL AND LAKE HURON TO DETOUR PASSAGE.

U. S. Lake Survey Charts 0, 5, 6, 60, and 67, and U. S. Hydrographic Office Charts 1474, 1475, and 1476 issued at Lake Survey Office.

ROUND ISLAND LIGHT-STATION (Mich.).	Red-brick.....	Square tower attached to NE'ly corner of square dwelling; on square pier 8 feet high.	Bois Blanc Light, 98° 00', 9½ miles. Old Mackinac Point Light, 240° 00', 6½ miles.	4th-order fixed white light, varied by red flash every 20 sec.; 53 feet above water; visible 14½ miles. On NW'ly end of Round Island, S'ly side of passage between Round Island and Mackinac Island. Lat. N, 45° 50' 15"; long. W, 84° 36' 00". Fog signal: 10-inch steam whistle, sounds thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>Silent</td> <td></td> <td>Silent</td> </tr> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>5 sec.</td> <td>35 sec.</td> <td>5 sec.</td> <td>55 sec.</td> </tr> </table>		Silent		Silent	Blast	Interval	Blast	Interval	5 sec.	35 sec.	5 sec.	55 sec.
	Silent		Silent															
Blast	Interval	Blast	Interval															
5 sec.	35 sec.	5 sec.	55 sec.															
Mackinac Spit Gas Buoy, No. 22 (Mich.).	32	Red.....	Conical, surmounted by pyramidal latticework and lantern.	Mackinac Island, right tangent, 43° 15'. Round Island Light-House, 193° 00', ½ mile. Old Mackinac Point Light-House, 235° 15'. Mackinac Island, left tangent, 297° 15'.	29	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks end of spit extending off S'ly point of Mackinac Island. Pass to S'd and avoid shoal making off Round Island to point about ¼ mile NE'ly of Round Island Light-House.												
BOIS BLANC LIGHT-STATION (Mich.).	Yellow.....	Square tower, 38 feet high, rising from dwelling; brick oilhouse 100 feet SE'ly.	Detour Light-House, 67° 30', 26¼ miles. Spectacle Reef Light-House, 101° 00', 13½ miles.	4th-order fixed white light, 53 feet above water; visible 14½ miles. On NE'ly point of narrow neck of land extending N'd from E'ly end of Bois Blanc Island. Lat. N, 45° 48' 30"; long. W, 84° 25' 14". Guide in N'ly channel of Straits of Mackinac.												
MARTIN REEF LIGHT-VESSEL, No. 89 (Mich.).	Martin Reef, 89.	Black hull and smoketack; white lettering and deck-houses; red masts and daymark.	Schooner rigged, no bowsprit; circular capwork daymark, and 3 lanterns encircling foremast head; smoketack and fog signal between masts; "Martin Reef" on each side and "89" on each bow and each quarter.	Detour Light-House, 72° 00', 11½ miles. Spectacle Reef Light-House, 178° 00', 9 miles. Bois Blanc Light-House, 244° 20', 14½ miles.	60	Fixed white lens-lantern light, 34½ feet above water; visible 12½ miles. Moored about ¼ mile S'ly from SE'ly end of Martin Reef. Pass ¼ mile to S'd of this vessel. Reefs extend NW'ly from Martin Reef toward mainland; local knowledge necessary for channel ways between them. Fog signal: 6-inch steam whistle, sounds thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>Silent</td> <td></td> <td>Silent</td> </tr> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>3 sec.</td> <td>17 sec.</td> <td>3 sec.</td> <td>17 sec.</td> </tr> </table>		Silent		Silent	Blast	Interval	Blast	Interval	3 sec.	17 sec.	3 sec.	17 sec.
	Silent		Silent															
Blast	Interval	Blast	Interval															
3 sec.	17 sec.	3 sec.	17 sec.															
Goose Island Shoal Buoy.	Goose Island Shoal.	Red and black horizontal stripes.	2d-class nun.....	Brulee Point, 16° 15'. Goose Island, right tangent, 69° 00'. St. Martin Point, left tangent, 337° 00'.	24	Marks W'ly side of Goose Island Shoal, West Entrance Les Cheneaux Islands.												
Brulee Point Buoy (L. S. Chart 60.)	11	Black.....	25-foot spar.....	Long Island, left tangent, 29° 00'. Long Island, right tangent, 69° 00'. Brulee Point, right tangent, 350° 00'.	16	Marks end of shoal off point, West Entrance Les Cheneaux Islands.												
Penny Island Point Buoy.	13	Black.....	25-foot spar.....	Boot Jack Island, right tangent, 76° 00'. Penny Island Point, 305° 00'. Boot Island, left tangent, 350° 00'.	16	Marks end of shoal off point, entrance to Scammons Harbor, Les Cheneaux Islands.												

ST. MARYS RIVER.

LAKE HURON TO ST. MARYS FALLS CANAL.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

The river is 65½ miles long, from Point Detour to Gros Cap Reef Gas Buoy; Point Detour to St. Marys Falls Canal 49½ miles, St. Marys Falls Canal to Gros Cap Reef 15½ miles.

SAILING DIRECTIONS.—Get Detour Reef Gas Buoy and Detour Light-House in range, then bring light-houses on Fryng-Pan Island and Pipe Island in range and run 0° 00', true (N ¼ E, mag), 3¼ miles, until Fryng-Pan Island Light-House bears 225°, true (SW ¾ W, mag.), ¼ mile, then run 347° 30', true (N ¾ W, mag.), 1½ miles for Pipe Island Light-House, or until it is distant ½ mile, thence 2½ miles 421°, true (NW ¾ N, mag.), or until Sweets Point Light bears 180°, true (S ¾ W, mag.), then steer 298°, true (NW by W ¾ W, mag.), ½ mile, till Round Island is about twice the width of island open to W of Lime Island, when change course to 0° 00', true (N ¾ E, mag.), which should bring Round Island Light-House a little open on port bow, and hold this course for about ¼ mile.

After passing Round Island, the ~~1st~~ ~~channel~~ ~~between~~ ~~the~~ ~~two~~ ~~islands~~ ~~will~~ ~~be~~ ~~in~~ ~~range~~ ~~311°~~ ~~true~~ ~~(NW, mag.)~~, and should be held for about 6¼ miles to within about ½ mile of Mud Lake Crib Gas Buoy; then swing gradually until Pilot Island Range Lights come in range astern; keep them so, running 16°, true (N by E ¼ E, mag.), to pass about midway between Rains Island. Float Light and Encampment Crib Light. The E'ly edge of channel is close aboard on this range. Channel around Rains Island is narrow, and is marked by buoys on either side.

When past Johnson Point gradually change course to 313°, true (NW ¾ N, mag.), and follow Point of Woods Range line for about ¼ mile. The turning point into Little Mud Lake is indicated by Dark Hole and Coyle Point Gas buoys, and course through dredged channel 357°, true (N ½ E, mag.), ¾ miles, is shown by Dark Hole Range lights at one end and Harwood Point Range lights at other end; channel banks both marked by buoys. Course should be held till close to Stribling Point Gas Buoy, on E'ly side, then changed to 292° 30', true (NW by W ½ W, mag.), leaving Hay Lake Channel Entrance Gas Buoy on W'ly side; then enter Middle Neebish Cut. Distance on this course, ¾ miles. The Middle Neebish Range lights carry 25 feet to S'd of axis of channel. Sides of channel are marked by buoys and lights, red buoys and lights on N'ly side, and black buoys and white lights on S'ly side. Along N'ly side of channel and about 50 feet from its edge a dike extends for about 6,000 feet, on which red lights are located. At W'ly end of channel, near front range light, channel turns more to N'd into Hay Lake channel. The junction of the two channels is marked by Junction Light, No. 8, red, and edges of channel at turn by buoys. Axis of Lower Hay Lake channel is marked by Lower Hay Lake Cut Range lights on N'ly end of Neebish Island, which, in range astern, guide on axis of channel, 330°, true (NW ¾ W, mag.), 5¼ miles, to above Nine-Mile Point to Middle Hay Lake Channel Range line.

The dredged channel in Lower Hay Lake is 300 feet wide and about 2¼ miles long; its edges are marked by two cribs and two floats with red lights on E'ly side and white lights on W'ly side.

Middle Hay Lake Range guides 339° 30', true (NNW ½ W, mag.), 2¼ miles to Fréchette Point Range line; then follow that range 323°, true (NNW ¾ W, mag.), 1½ miles, to Six-Mile Point Range line (the lights of which will be in range astern), and follow the latter line 333°, true (NNW, mag.), through the Little Rapids Cut for 3½ miles. The turn in channel is marked by red nun buoy, its sides are buoyed, and the ends of upper section of channel are marked by red and white lights on either side.

North Entrance Light, occulting white every 5 sec., marks turn to channel leading to the locks. Bayfield Rock Range Lights, in range astern, lead 289°, true (WNW, mag.), clear of all danger.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
DETOUR LIGHT-STATION (Mich.)		White tower and dwelling, black lantern, red brick, 10 signal building and oil-house.	Skeleton iron tower, 70 feet high, covered way to dwelling; brick oilhouse 120 feet E'ly; 60-foot signal building 400 feet NE'ly of tower.	Spectacle Reef Light-House, 219° 00', 105½ miles. Bois Blanc Light-House, 217° 30', 26¼ miles.	<i>Feet.</i>	3½-order light flashing white every 10 sec.; 75 feet above water; visible 16½ miles. Coast light on S'ly end of Point Detour, on W'ly side of Detour Passage. Lat. N, 45° 57' 22"; long. W, 83° 54' 55". Fog signal; 10-inch steam whistle. When it is foggy on Lake Huron off entrance to Detour Passage and St. Marys River, with clear weather inside, signal sounds thus: Blast <u> </u> Silent <u> </u> Blast <u> </u> Silent <u> </u> Interval <u> </u> Interval <u> </u> Interval <u> </u> Interval <u> </u> 8 sec. <u> </u> 2 sec. <u> </u> 3 sec. <u> </u> 47 sec. When it is thick or foggy both inside and outside of Detour Passage, signal sounds thus: Blast <u> </u> Silent <u> </u> Blast <u> </u> Silent <u> </u> Interval <u> </u> Interval <u> </u> Interval <u> </u> Interval <u> </u> 8 sec. <u> </u> 52 sec. <u> </u> 8 sec. <u> </u> 52 sec.
Detour Submarine Signal Buoy (Mich.)		Black	3d-class can	Fryng-Pan Island Light-House, 4° 30', St. Vital Point, tangent, 28° 45'. Detour Light-House, 308° 00', ¼ mile.	50	<i>Experimental.</i> Marks position of submarine bell. Must be given good berth. Do not anchor near, to avoid fouling cable connecting bell with shore.
Detour Reef Gas Buoy, No. 1 (Mich.)	1	Black	Conical, surmounted by pyramidal lattice-work and lantern.	Fryng-Pan Island Light-House, 10° 00', 2½ miles. Bellevue Island, S end, 73° 00'. Detour Light-House, 308° 00', 3,300 feet.	20	White lens-lantern light, 10 sec., eclipse, 10 sec.; 10 feet above water. Marks SE'ly side of reef off Detour Point.
Detour Shoal Buoy	3	Black	25-foot spar	Fryng-Pan Island Light-House, 10° 00', 1¼ miles. Detour Light-House, 239° 00', ¼ mile.	20	Marks shoal in entrance to St. Marys River. Range formed by Fryng-Pan Island and Pipe Island light-houses passes about ¼ mile E'd of this shoal.
Crab Island Shoal Buoy	2	Red	25-foot spar	Barbed Point, 45° 00'. Detour Light-House, 239° 00'. Fryng-Pan Island Light-House, 346° 00'.	24	Marks most W'ly boulder off Crab Island. There are many boulders in this vicinity with less than 20 feet of water over them.
Fryng-Pan Island Light-Station (Mich.)		White	Conical, iron tower, 15 feet high; frame oilhouse 50 feet W'ly.	Pipe Island Light-House, 354° 00', 2 miles. Detour Light-House, 204° 00', 2¼ miles.		6th-order fixed red light; 18½ feet above water; visible 8½ miles. Lat. N, 45° 59' 13"; long. W, 83° 53' 45". Guide through Detour Passage of St. Marys River.
Watsons Reef Gas Buoy	5	Black	Conical, surmounted by pyramidal lattice-work and lantern.	Black Rock Point, 74° 30'. Watsons coal dock, right tangent, 308° 00'. Pipe Island Light-House, 333° 45'.	30	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. On SE'ly edge of 17-foot spot off Detour.

ST. MARYS RIVER.

LAKE HURON TO ST. MARYS FALLS CANAL—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Pipe Island Shoal Buoy..	4	Red.....	25-foot spar.....	Frying-Pan Island Light-House, 191° 00'; Gaffney Point, 277° 00'; Pipe Island Light-House, 309° 00'.	Feet. 20	Marks end of shoal about $\frac{3}{4}$ mile SE'ly from Pipe Island.
PIPE ISLAND LIGHT-STATION (Mich.).		Yellow; black lantern.	Octagonal, brick tower, 27 feet high; detached 2-story frame dwelling; cylindrical iron oil-house 90 feet S'ly.	Frying-Pan Island Light-House, 174° 00', 2 miles. Sweets Point Light, 308° 00'.		5th-order fixed red light; 37½ feet above water; visible 9½ miles. Lat. N, 46° 00' 59"; long. W, 83° 53' 58". This light forms range with Frying-pan Island Light, and a guide for vessels entering or leaving St. Marys River. The lights are 2 miles apart, on line N and S mag. Anchorage with good holding ground can be had anywhere with Pipe Island bearing between SE and E, in from 4 to 6 fathoms of water.
Sweets Point Light (Mich.).		White post and house; red lantern box.	Post rising from small house on crib.	Pipe Island Light-House, about 128° 00', 2½ miles.	7	Fixed white lens-lantern light; 28 feet above water. Marks turning point in channel and guides up passage to N'd and W'd. Lat. N, 46° 02' 11"; long. W, 83° 56' 08".
Sweets Point Shoal Buoy.	7	Black.....	25-foot spar.....	Sweets Point Light, 160° 00', nearly 600 feet.	20	Marks 14-foot shoal.
Sixteen-Foot Shoal Buoy.	9	Black.....	25-foot spar.....	Round Island Light, 1° 00', $\frac{3}{4}$ mile. Mill Dock, 256° 00'.	20	Marks 16-foot shoal.
Round Island Light-Station (Mich.).		Buff, black lantern.	Square, wooden tower in front of frame dwelling; frame oilhouse 100 feet NW'ly.	Lime Island, right tangent, 165° 00'. Pointe aux Frères, 346° 00', 1½ miles.		Lens-lantern light, fixed white, E'd of 181° 00', and 1° 00', true (S $\frac{1}{4}$ W and N $\frac{1}{4}$ E, mag.), fixed red to W'd of same bearings; 40 feet above water. Lat. N, 46° 06' 33"; long. W, 84° 01' 11". E'ly edge of red sector guides clear of shoals to S'd and W'd of Round Island and with Winter Point Range line also marks turning point into Mud Lake.
Nine-Foot Shoal Buoy...	6	Red.....	25-foot spar.....	Round Island Light, 270° 00', 2,700 feet. Pointe aux Frères, 329° 00'.	20	Marks 9-foot shoal about $\frac{1}{2}$ mile E'ly of Round Island.
Winter Point Front Light (Mich.).		White; white dwelling; red roof.	Skeleton frame tower, square frame lantern.	Rear light, 311° 00', 77½ feet. Pilot Island Range Front Light, 162° 00', 3 miles.		Two fixed white reflector lights; front light, 22½ feet above water; rear light, 68 feet above water. On S'ly end of Neeshish Island. Front light, Lat. N, 46° 13' 04"; long. W, 84° 09' 04". The range leads to or from Mud Lake Crib Gas Buoy.
Winter Point Rear Light (Mich.).		White, black daymark.	Triangular, pyramidal, skeleton iron tower with daymark; brick oil-house 40 feet SE'ly.			
Mud Lake Crib Gas Buoy.		Black, white lettering.	Conical, surmounted by pyramidal lattice-work and lantern.	Encampment Crib Light, 18° 00', 3½ miles. Pilot Island Range Front Light, 163° 00', 1½ miles. Winter Point Range Front Light, 311° 00', 1½ miles.	21	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Lat. N, 46° 12' 06"; long. W, 84° 07' 30". Marks turning point in Mud Lake, and should be passed on E'ly side only.
Pilot Island Front Light (Mich.).		White; black lantern.	Octagonal, pyramidal, frame tower; oilhouse and dwelling on mainland, about 700 feet E'ly.	Rear light, 195° 00', 1,884 feet. Mud Lake Light, 13° 00', 1½ miles. Winter Point Range Front Light, 343° 00'.		Two fixed white reflector lights. Front light on Pilot Island; 39 feet above water; rear light, 58 feet above water. Front light, lat. N, 46° 10' 35"; long. W, 84° 08' 00". The range line intersects Winter Point Range line, and, astern, leads up to Sailors Encampment.
Pilot Island Rear Light (Mich.).		White; black lantern.	Octagonal, pyramidal, frame tower on crib foundation in the water.			
Mud Lake Buoy.....	8	Red.....	24-class nun.....	Everens Point, 11° 00'. Pilot Island Range Front Light, 204° 00'. Winter Point Range Front Light, 297° 00'.	20	Marks edge of shoal on E'ly side of channel at turning point from Mud Lake leading into Sailors Encampment Cut.
Mud Lake Buoy.....	10	Red.....	25-foot spar.....	Everens Point, 20° 00'. Pilot Island Range Front Light, 197° 00'. Winter Point Range Front Light, 283° 00'.	20	Mark edge of shoal on E'ly side of channel.
Mud Lake Buoy.....	12	Red.....	25-foot spar.....	Everens Point, 28° 00'. Pilot Island Range Front Light, 197° 00'. Winter Point Range Front Light, 247° 30'.	20	

ST. MARYS RIVER.

LAKE HURON TO ST. MARYS FALLS CANAL—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Mud Lake Buoy.....	14	Red.....	25-foot spar.....	Everens Point, 128° 00'. Pilot Island Range Front Light, 165° 00'. Winter Point Range Front Light, 236° 00'.	Feet. 20	Marks edge of shoal on E'y side of channel, off Everens Point.
North Wind Rock Buoy.....	16	Red.....	30-foot spar.....	Encampment Crib Light, 11° 00', about 1,250 feet. South end of Ross Dock, 38° 00', about 1,000 feet.	25	Marks E'y edge of new cut at its junction with old 14-foot chan- nel to E'd of Middle Ground.
South Middle Ground Buoy.....		Red and black horizontal stripes.	25-foot spar.....	Encampment Crib Light, 17° 00'. Ross Dock, S end, 90° 00'.	22	Marks S'y end of Middle Ground, between old and new cuts. Sailors Encampment Channel. The new 21-foot cut is to W'd of this buoy.
Rains Island Float Light (Mich.).....		Black.....	Square, wooden float with pyramidal frame surmounted by lantern.	Sailors Encampment Range (Canadian) Front Light, 18° 00'. Rains Wharf Range (Canadian) Front Light, 51° 00'. Ross Dock, 108° 00'.	20	Fixed white post-lantern light; 12 feet above water. Marks W'y edge of channel, about 500 feet from S'y end of Middle Ground.
Encampment Crib Light (Mich.).....		White; red roof.	Upright, rising from small lantern house on crib.	Mud Lake Light, 198° 00', 3½ miles. Ross Dock, S end, 146° 00', about 650 feet. Mill Dock, S end, 233° 00'.	8	Fixed red lens-lantern light; 28 feet above water; off S'y end of Sailors Encampment passage. Lat. N, 46° 14' 59"; long. W, 84° 00' 07". <i>Rains Island</i> <i>See 211</i>
Range. Rains Wharf Front Light (C.).....			Lantern on mast.....	Rear light, 134° 00', 436 feet (½ mile).		Reflector light, fixed red; 21 feet above water; visible 2¼ miles. On shore, N'y of wharf. Lat. N, 46° 13' 00"; long. W, 84° 05' 20".
	Rains Wharf Rear Light (C.).....		Lantern on mast.....			Reflector light, fixed red; 26 feet above water; visible 2¼ miles. This range is in the same alignment as Point of Woods (U. S.) Range and leads NW ¼ N, mag., upstream through Dark Hole Passage from the intersection with Sailors Encampment Range to its intersection with Dark Hole (U. S.) Range. Vessels up- ward bound will have these lights in range astern.
Encampment Crib Buoy.....	18	Red.....	25-foot spar.....	Encampment Crib Light, 00° 00', 40 feet.	20	Marks E'y edge of cut.
Slocums Dock Buoy.....	15	Black.....	25-foot spar.....	Encampment Crib Light, 152° 00'.	20	Marks W'y edge of cut, about 580 feet from Rains Island Float Light.
North Middle Ground Buoy.....		Red and black horizontal stripes.	25-foot spar.....	Encampment Crib Light, 101° 00'. Slocums Dock, 285° 00'.	20	Marks N'y end of Middle Ground, between old and new cuts. The new 21-foot cut is to W'd of this buoy.
Johnsons Dock Buoy.....	17	Black.....	25-foot spar.....	Encampment Crib Light, 181° 00', 1,150 feet.	21	Marks W'y edge of cut, about 300 feet S'y of Johnsons Dock.
Johnsons Point Float Light (Mich.).....		Black.....	Square, wooden float with pyrami- dal frame sur- mounted by lan- tern.	Sailors Encampment Range (Canadian) Front Light, 18° 00'. Rains Wharf Range (Canadian) Front Light, 94° 00'. Ross Dock, 176° 00'.	22	Fixed white post-lantern light; 12 feet above water; marks W'y edge of cut at its first turning point into Dark Hole Passage.
Hotel Dock Buoy.....	22	Red.....	30-foot spar.....	Sailors Encampment Range (Canadian) Front Light, 8° 00'. Shore end of dock, SE of Hotel Dock, 72° 00'. Rains Wharf Range (Canadian) Front Light, 134° 00', 1,550 feet.	24	Marks NE'y edge of cut about 330 feet N'y from Rains Dock Gas Buoy. Vessels in turning into and from Dark Hole Passage can pass close to on W'y side of Rains Dock Gas Buoy, and to buoys Nos. 22 and 4.
Range. Sailors Encampment Front Light (C.).....		White, red lantern roof.	Square, wood.....	Rear light, 20° 00', 807 feet (¾ mile).		Reflector light, fixed white; 35 feet above water; visible 5¼ miles line of range. On Rains Hill, St. Joseph Island. Lat. N, 46° 15' 43"; long. W, 84° 03' 47".
	Sailors Encampment Rear Light (C.).....	White, red lantern roof.	Square, wood.....			Reflector light, fixed white; 83 feet above water; visible 5¼ miles line of range. These lights in range ahead lead N by E ¼ E, mag., through the center of dredged channel from Mud Lake (U. S.). Light to range line marked by Point of Woods (U. S.) Lights.
Rains Island Shoal Float Light (Mich.).....		Black.....	Square, wooden float with pyrami- dal frame sur- mounted by lan- tern.	Sailors Encampment Range (Canadian) Front Light, 44° 00'. Rains Wharf Range (Canadian) Front Light, 122° 00'. Signal Station, John- sons Point, 167°.	22	Fixed white post-lantern light; 12 feet above water; marks SW'y edge of cut at second turn into Dark Hole Passage.

ST. MARYS RIVER.

LAKE HURON TO ST. MARYS FALLS CANAL—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Rains Island Shoal Buoy.	4	Red.....	30-foot spar.....	Sailors Encampment Range (Canadian) Front Light, 45° 00', about 827 feet. Rains Wharf Range (Canadian) Front Light, 142° 00'. Encampment Crib Light, 186° 00'.	Fet. 20	Marks NE'y edge of channel directly opposite turn into Dark Hole Passage marked by Rains Island Shoal Float Light.
Clarks Dock Buoy.....	26	Red.....	25-foot spar.....	Coal Dock, 232° 00'.... Dark Range Front Light, 263° 00'. Point of Woods Range Front Light, 300° 00'.	20	Marks NE'y limit of channel at its widest part. Vessels anchoring clear of range must not pass to N'd of this buoy.

SAILORS ENCAMPMENT CUT—OLD CHANNEL.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

Ross Dock Buoy.....	1	Black.....	25-foot spar.....	Ross Dock, S end, 118° 00'. Encampment Crib Light, 357° 00'.	23	Marks NW'y edge of channel off broadest part of middle ground, about midway between South Middle Ground Buoy and Encampment Crib Light.
Ten-foot Shoal Buoy.....	2	Red.....	25-foot spar.....	Ross Dock, SW end, 180° 00'. Encampment Crib Light, 281° 00'.	15	Marks E'y edge of channel directly in front of 10-foot shoal and opposite Encampment Crib Light.
Encampment Crib Buoy.	3	Black.....	25-foot spar.....		16	Marks W'y edge of channel in front of Encampment Crib Light.
Lumber Dock Buoy.....	5	Black.....	25-foot spar.....		14	Marks W'y edge of channel off 12-foot shoal, about midway between Encampment Crib Light and North Middle Ground Buoy.
Thirteen - Foot Shoal Buoy.	4	Red.....	25-foot spar.....	Encampment Crib Light, 228° 00'. Johnsons Dock, S end, 323° 00'.	15	Marks 13½-foot shoal and E'y edge of channel, about midway between North Middle Ground and Johnsons Dock buoys.
Johnsons Dock Buoy.....	6	Red.....	25-foot spar.....	Encampment Crib Light, 202° 30'. Johnsons Dock, S end, 304° 00'.	15	Marks 13½-foot shoal on E'y edge of channel.

DARK HOLE PASSAGE TO LOWER HAY LAKE CUT.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

Point of Woods Front Light (Mich.).		White.....	Upright.....	Rear Light, 314° 00', 304 feet. Coyle Point, 90° 00'. Dark Hole Range Front Light, 152° 00'.		Two fixed red post-lantern lights; front light, 14½ feet above water; rear light, 44 feet above water; on E'y side of Neeshish Island. Front light, lat. N, 46° 16' 18"; long. W, 84° 07' 18". Range guides through Dark Hole Passage, and at intersection with Dark Hole Range marks turning point to or from lower reach of Little Mud Lake.
Point of Woods Rear Light (Mich.).		White.....	Upright.....			
Dark Hole Buoy.....	1	Black.....	25-foot spar.....	Reed Point, 59° 00'.... Dark Hole Range Front Light, 198° 00'. Mirre Point, 308° 00'.	20	Marks W'y edge of channel, N'y of Rains Island.
Mirre Point Buoy.....	3	Black.....	25-foot spar.....	Mirre Point, 231° 00', 700 feet.	20	Marks W'y side of channel off Mirre Point.
Dark Hole Gas Buoy, No. 2 (Mich.).	2	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Rains Wharf (Canadian) Range Front Light, 138° 00'. Dark Hole Range Front Light, 203° 00'. Point of Woods Range Front Light, 298° 00'.	24	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks E'y edge of rocky shoal off Reed Point at turn into Dark Hole Passage.
Dark Hole Front Light (Mich.).		White.....	Upright.....	Rear light, 166° 00', 512 feet. Coyle Point, 30° 00'.... Point of Woods (Canadian) Range Front Light, 125° 00'. Point of Woods Range Front Light, 322° 00'.		Two fixed white reflector lights; front light 17 feet above water; rear light 45 feet above water; on upper end of Sailors Encampment. Front light, lat. N, 46° 15' 33"; long. W, 84° 06' 54". Range line intersects with Point of Woods Range line and marks turning point in channel.
Dark Hole Rear Light (Mich.).		White.....	Upright.....			

ST. MARYS RIVER.

DARK HOLE PASSAGE TO LOWER HAY LAKE CUT—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, and 62.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Coyle Point Gas Buoy, No. 4 (Mich.).	4	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Rains Wharf (Canadian) Range Front Light, 141° 00'. Dark Hole Range Front Light, 181° 00'. Point of Woods Range Front Light, 271° 00'.	Fet. 24	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks E'y side of channel at turn from Dark Hole Passage into S'y end of Little Mud Lake.
Point of Woods North Buoy.	5	Black.....	25-foot spar.....	Reed Point, 129° 00'. Dark Hole Range Front Light, 173° 00'. Point of Woods Range Front Light, 218° 00'.	20	Marks W'y edge of channel.
Point of Woods North Buoy.	6	Red.....	25-foot spar.....	Reed Point, 135° 00'. Dark Hole Range Front Light, 179° 00'. Point of Woods Range Front Light, 225° 00'.	20	Marks E'y side of channel.
Little Mud Lake Lower Buoy.	7	Black.....	25-foot spar.....	Coyle Point, 155° 00'. Point of Woods Range Front Light, 192° 00'.	20	Marks W'y edge of channel.
Little Mud Lake Lower Buoy.	8	Red.....	25-foot spar.....	Coyle Point, 162° 00'. Point of Woods Range Front Light, 197° 00'.	20	Marks E'y edge of channel.
Green Point South Buoy.	9	Black.....	25-foot spar.....	Green Point, 111° 00'. Coyle Point, 165° 00'.	20	Marks W'y edge of channel.
Green Point South Buoy.	10	Red.....	25-foot spar.....	Coyle Point, 169° 00'.	20	Marks E'y edge of channel.
Green Point North Buoy.	11	Black.....	25-foot spar.....	Coyle Point, 169° 00'. Green Point, 153° 00'. Field Point, 201° 00'.	20	Marks W'y edge of channel.
Green Point North Buoy.	12	Red.....	25-foot spar.....	Green Point, 159° 00'. Field Point, 205° 00'.	20	Marks E'y edge of channel.
Stribling Point Gas Buoy, No. 13 (Mich.).	13	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Harwood Point Range Front Light, 0° 00'. Hen and Chickens Range Front Light, 270° 00', about 2,000 feet. NW end of Rains Dock, 329° 00'.	22	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks W'y edge of channel, upper part of Little Mud Lake, at beginning of turn into Hay Lake Channel, opposite Stribling Point.
Little Mud Lake Upper Buoy.	14	Red.....	25-foot spar.....	Middle Neebish Cut South Side Lower Light, No. 1, 298° 00'. Hen and Chickens Range Front Light, 270° 00'. Harwood Point Range Front Light, 333° 00'.	20	Marks E'y edge of channel opposite Stribling Point Gas Buoy No. 13.
Hen and Chickens Island Buoy.	15	Black.....	30-foot spar.....	Harwood Point Range Front Light, 10° 00'. Middle Neebish Cut South Side Lower Light, No. 1, 295° 00'. Rains Dock, NW end, 330° 00', about 2,050 feet.	22	Marks channel bank midway between gas buoys No. 13 and No. 17, at turn from Little Mud Lake into Hay Lake Channel.
Harwood Point Front Light (Mich.).		White.....	Upright.....	Rear light, 356° 00', 725 feet. Stribling Point (Canadian) Range Front Light, 150° 00'. Hen and Chickens Range Front Light, 267° 00'.		Two fixed white reflector lights. Front light 22 feet above water; rear light 35 feet above water. On SE'y end of Sugar Island. Front light. Lat. N, 46° 19' 19"; long. W, 84° 07' 11". The range line is in line with Dark Hole Range line, and intersects with Stribling Point (Canadian) Range line and Hen and Chickens Range line off Stribling Point, NW'y point of St. Joseph Island.
Harwood Point Rear Light (Mich.).		White.....	Upright.....			
Stribling Point Front Light (C.).		White.....	Square, wood.....	Rear light, 109° 00', 1,447 feet (3/4 mile).		7th-order fixed white light, 30 feet above water; visible 3 1/2 miles from all points of approach. On point on NW'y end of St. Joseph Island. Lat. N, 46° 18' 49"; long. W, 84° 06' 39".
Stribling Point Rear Light (C.).		White.....	Square, wood; octagonal, wooden lantern.			Reflector light, fixed white; 53 feet above water; visible 4 1/2 miles in line of range. The range leads (NW by W 1/2 W, mag.) through center of Middle Neebish Cut from the intersection of their range line with Harwood Point (U. S.) Range line to Lower Hay Lake Cut (U. S.) Range line. Upward-bound vessels will have these lights in range astern.
Hay Lake Channel Entrance Gas Buoy, No. 17 (Mich.).	17	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Harwood Point Range Front Light, 27° 00'. Middle Neebish Cut South Side Lower Light, No. 1, 292° 30'. Rains Dock, NW end, 330° 00', about 1,000 feet.	22	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks S'y edge of channel and turning point into Hay Lake Channel.

ST. MARYS RIVER.

DARK HOLE PASSAGE TO LOWER HAY LAKE CUT—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, and 62.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Entrance Buoy.....	16	Red.....	25-foot spar.....	Hen and Chickens Range Front Light, 22° 00'. Middle Neebish Cut North Side Light, No. 2, 291° 00'. Harwood Point Range Front Light, 359° 00'.	Fath. 22	Marks N'y edge of channel.
Middle Neebish Channel Buoy.	19	Black.....	25-foot spar.....	Rains Dock, NW end, 22° 30'. Harwood Point, 42° 00'. Stribling Point Range Front Light, 168° 00'.	22	Marks S'y edge of channel.
Middle Neebish Channel Buoy.	18	Red.....	25-foot spar.....	Harwood Point, 18° 00'. Hen and Chickens Range Front Light, 212° 00'. Dike, N end, 290° 00'.	22	Marks N'y edge of channel.
Middle Neebish Channel Buoy.	21	Black.....	25-foot spar.....	Dike, end, 300° 00'.	22	Marks S'y edge of channel.
Middle Neebish Channel Buoy.	20	Red.....	25-foot spar.....	Dike, end, 290° 00'.	22	Marks N'y edge of channel.
Middle Neebish Channel Buoy.	23	Black.....	25-foot spar.....	Dike, end, 304° 00'.	21	Marks S'y edge of channel.
Middle Neebish Channel Buoy.	22	Red.....	25-foot spar.....	Dike, end, 288° 00'.	24	Mark N'y edge of channel.
Middle Neebish Channel Buoy.	24	Red.....	25-foot spar.....	Dike, end, 287° 00'.	20	
Dike East End Buoy.....	26	Red.....	25-foot spar.....	Dike, E end, 290° 00', 950 feet.	21	Abreast light No. 1. Marks S'y edge of channel, opposite lower end of dike.
Dike East End Buoy.....	25	Black.....	25-foot spar.....		21	
Middle Neebish Cut South Side Lower Light, No. 1 (Mich.).	1	White.....	Post on lamphouse on pyramidal crib.		7	Fixed white post-lantern light; 20 feet above water; on S'y edge of channel, opposite light No. 2. Lat. N, 46° 19' 21"; long. W, 84° 08' 56".
Middle Neebish Cut North Side Lower Light, No. 2 (Mich.).	2	Red.....	Lantern suspended from outer end of boom of derrick-like structure.			Fixed red post-lantern light; 20 feet above water; near E'y end of dike. Lat. N, 46° 19' 26"; long. W, 84° 08' 53".
Middle Neebish Channel Buoy.	27	Black.....	25-foot spar.....		21	Marks S'y edge of channel.
Middle Neebish Channel Buoy.	28	Red.....	25-foot spar.....		21	Marks N'y edge of channel, about 50 feet from dike.
Middle Neebish Cut South Side Middle Light, No. 3 (Mich.).	3	White.....	Post on lamphouse on pyramidal crib.		7	Fixed white post-lantern light; 20 feet above water; S'y edge of channel opposite light No. 4. Lat. N, 46° 19' 33"; long. W, 84° 09' 37".
Middle Neebish Cut North Side Middle Light, No. 4 (Mich.).	4	Red.....	Lantern suspended from outer end of boom of derrick-like structure.			Fixed red post-lantern light; 20 feet above water; suspended from long cross arm on post near center of dike, 3,010 feet, 291° 00', true, from light No. 2. Lat. N, 46° 19' 37"; long. W, 84° 09' 33".
Middle Neebish Channel Buoy.	29	Black.....	25-foot spar.....		21	Marks S'y edge of channel, about 350 feet from dike.
Middle Neebish Channel Buoy.	30	Red.....	25-foot spar.....		21	Marks N'y edge of channel, about 50 feet from dike.
Middle Neebish Cut South Side Upper Light, No. 5 (Mich.).	5	White.....	Post on lamphouse on pyramidal crib.		7	Fixed white post-lantern light; 20 feet above water; S'y edge of channel. Lat. N, 46° 19' 43"; long. W, 84° 10' 15".
Middle Neebish Cut North Side Upper Light, No. 6 (Mich.).	6	Red.....	Lantern suspended from outer end of boom of derrick-like structure.			Fixed red post-lantern light; 20 feet above water; on W'y end of dike, 6,020 feet, from light No. 2 and opposite light No. 6. Lat. N, 46° 19' 48"; long. W, 84° 10' 13".
Dike West End Buoy.....	31	Black.....	25-foot spar.....		21	Marks S'y edge of channel, abreast end of dike.
Dike West End Buoy.....	32	Red.....	25-foot spar.....		21	Marks N'y edge of channel, about 50 feet from dike.
Middle Neebish Channel Buoy.	33	Black.....	25-foot spar.....		21	Marks S'y edge of channel.
Middle Neebish Cut Front Light, No. 7 (Mich.).	7	Red crib; white day-mark.	Lantern suspended from outer end of boom of derrick-like structure on pyramidal crib.	Rear light, 291° 00', 2,500 feet.	18	Two fixed white post-lantern lights; front light, 17 feet above water; rear light, 34 feet above water. Front light, lat. N, 46° 19' 58"; long. W, 84° 11' 01". Range line 25 feet S'y and parallel with axis of channel.
Middle Neebish Cut Rear Light, No. 9 (Mich.).	9	Red crib; white day-mark.	Lantern suspended from outer end of boom of derrick-like structure on pyramidal crib.		14	

ST. MARYS RIVER.

DARK HOLE PASSAGE TO LOWER HAY LAKE CUT—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, and 62.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Junction Light, No. 8	8	White.....	Post on lamphouse on pyramidal crib.		Feet. 15	Fixed red post-lantern light; 20 feet above water; on N'y edge of channel at turn, opposite Middle Neebish Cut Range Front Light, No. 7. Lat. N, 46° 23' 04"; long. W, 84° 10' 54". Marks angle formed by Middle Neebish and Lower Hay Lake cuts.
Middle Neebish West End Buoy.	35	Black.....	1st-class can.....	Middle Neebish Cut Range Front Light, No. 7, 315° 00', 600 feet.	20	Marks W'y edge of channel at turn from Middle Neebish Cut into Lower Hay Lake Cut.
Junction Buoy.....	37	Black.....	25-foot spar.....	Junction Light, No. 8, 56° 00'. Middle Neebish Cut South Side Upper Light, No. 5, 117° 00'. Middle Neebish Cut Range Front Light, No. 7, 157° 30'.	22	Marks angle of SW'y edge of channel, at junction of Middle Neebish Cut and Lower Hay Lake Cut.

LOWER HAY LAKE CUT TO ST. MARYS FALLS CANAL.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

Range.	Lower Hay Lake Cut Front Light, No. 10 (Mich.).	10	White.....	Square, pyramidal, skeleton, iron tower, 42 feet high, daymark of vertical slats.	Rear light, 150° 00', 1,717 feet.		Two fixed white reflector lights; front light, 44 feet above water; rear light, 94 feet above water. Front light near shore on N'y end of Neebish Island. Lat. N, 46° 19' 29"; long. W, 84° 10' 31". Mark axis of channel through Lower Hay Lake.
	Lower Hay Lake Cut Rear Light, No. 11 (Mich.).	11	White.....	Square, pyramidal, skeleton, iron tower, 70 feet high, daymark of vertical slats.			
	Lower Hay Lake Angle Buoy.	1A.	Black.....	25-foot spar.....	Middle Neebish Cut South Side Upper Light, No. 5, 128° 30'. Middle Neebish Cut Range Front Light, No. 7, 153° 00'. Middle Neebish Cut Range Rear Light, No. 9, 232° 30'.	20	Marks SW'y side of lower end of Lower Hay Lake Cut, at N'y end of turn in channel.
	Lower Hay Lake Channel Buoy.	1	Black.....	25-foot spar.....	Middle Neebish Cut South Side Upper Light, No. 5, 131° 30'. Lower Hay Lake Cut West Side Middle Light, No. 13, 329° 00', 3,000 feet.	21	Marks N'y edge of channel.
	Lower Hay Lake Channel Buoy.	2	Red.....	25-foot spar.....	Middle Neebish Cut South Side Upper Light, No. 5, 135° 15'. Middle Neebish Range Front Light, 162° 00'.	21	Marks E'y edge of channel.
	Lower Hay Lake Buoy.	3	Black.....	25-foot spar.....		20	Marks W'y edge of channel, about 40 feet E'y from Lower Hay Lake Cut West Side Middle Light, No. 13.
	Lower Hay Lake Buoy.	4	Red.....	25-foot spar.....		19	Marks E'y edge of channel, about 40 feet W'y from float light, No. 12.
	Lower Hay Lake Cut East Side Middle Float, Light, No. 12 (Mich.).	12	White.....	Square, wooden float, with pyramidal frame surmounted by lantern.		20	Fixed red post-lantern light; 12 feet above water; on E'y side of and about midway of the length of Lower Hay Lake Cut.
	Lower Hay Lake Cut West Side Middle Light, No. 13 (Mich.).	13	White.....	Post and lamphouse on square pyramidal crib.		21	Fixed white post-lantern light; 20 feet above water; on W'y edge of channel. Lat. N, 46° 20' 47"; long. W, 84° 11' 38".
	Lower Hay Lake Channel Buoy.	5	Black.....	25-foot spar.....	Lower Hay Lake Cut West Side Middle Light, No. 13, 149° 00', 3,000 feet.	20	Marks W'y edge of channel.
	Lower Hay Lake Channel Buoy.	6	Red.....	25-foot spar.....		20	Marks E'y edge of channel.
	Lower Hay Lake Channel Buoy.	7	Black.....	25-foot spar.....		20	Marks W'y edge of channel, about ¼ mile SSE'y from float light at N'y end of cut.
	Lower Hay Lake Channel Buoy.	8	Red.....	25-foot spar.....		20	Marks E'y edge of channel, about ¼ mile SSE'y from float light at N'y end of cut.
	Lower Hay Lake Cut West Side North Entrance Float Light, No. 16 (Mich.).	15	White.....	Square wooden float with pyramidal frame surmounted by lantern.	Nine Mile Point, 353° 00'.	20	Fixed white post-lantern light; 12 feet above water; about 2 miles SSE'y from Nine Mile Point Light, and out W'y edge of N'y entrance to dredged channel opposite light No. 14.

ST. MARYS RIVER.

LOWER HAY LAKE CUT TO ST. MARYS FALLS CANAL—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Lower Hay Lake Cut East Side North Entrance Float Light, No. 14 (Mich.).	14	White.....	Square wooden float with pyramidal framesurmounted by lantern.	Nine-Mile Point, 332° 00'.	<i>Fath.</i> 20	Fixed red post-lantern light; 12 feet above water; about 2 miles SSE'ly from Nine-Mile Point Light, and off E'ly edge of N'ly entrance to dredged channel and about 2¼ miles above Junction Light, No. 8.
Lower Hay Lake Buoy..	9	Black.....	25-foot spar.....	Shingle Point on Sugar Island, 96° 00'; Nine-Mile Point, 337° 30'.	20	Marks W'ly edge of channel abreast of light No. 15.
Lower Hay Lake Buoy..	10	Red.....	25-foot spar.....	Shingle Point on Sugar Island, 94° 00'; Nine-Mile Point, 333° 00'.	20	Marks E'ly edge of channel abreast of light No. 14.
Nine-Mile Point South Buoy.	12	Red.....	25-foot spar.....	Nine-Mile Point Light, No. 16, 336° 00', 1,600 feet.	20	Marks SW'ly edge of shoal extending around Nine-Mile Point.
Nine-Mile Point Light, No. 16 (Mich.).	16	Red.....	Post attached to small house on square pyramidal crib.	.....	12	Fixed red lens-lantern light; 20 feet above water; marks shoal and turning point off Nine-Mile Point. Lat. N, 46° 23' 35"; long. W, 84° 13' 46".
Nine-Mile Point Shoal West Buoy.	11	Black.....	25-foot spar.....	Nine-Mile Point Light, No. 16, 129° 00', about 1½ mile. Bozzell Dock, outer end, 197° 00', about 2,450 feet. Middle Hay Lake Range Front Light, No. 17, 332° 00'.	20	Marks W'ly side of Hay Lake about 1 mile NW'ly of Nine-Mile Point Light.
Nine-Mile Point North Buoy.	14	Red.....	25-foot spar.....	Nine-Mile Point Light, No. 16, 156° 00', about 5,550 feet. Bozzell Dock, outer end, 222° 00', about 4,750 feet. Middle Hay Lake Range Front Light, No. 17, 337° 30'.	22	Marks E'ly side of Hay Lake Channel.
Range. Middle Hay Lake Front Light, No. 17 (Mich.).	17	White post and daymark; red oilhouse and crib.	Post, with horizontally slatted daymark; on square, pyramidal crib.	Rear light, 339° 00', 3,200 feet.	20	Two fixed white lens-lantern lights; front light, 30 feet above water; rear light, 80 feet above water. Front light about ½ mile NE'ly of Six-Mile Point on E'ly side of S'ly end of Upper Hay Lake Cut. Lat. N, 46° 26' 11"; long. W, 84° 18' 29". Range guides from Nine-Mile Point. The front light shows upstream and marks NE'ly edge of widened Upper Hay Lake Cut and must be kept in sight to avoid going too far to E'd.
	Middle Hay Lake Rear Light, No. 18 (Mich.).	18	White tower and daymark; red crib.	Square, pyramidal iron tower, with daymark of horizontal slats; square crib.	.....		8½
Range. Frechette Point Front Light, No. 21 (Mich.).	21	White.....	Square, pyramidal, skeleton iron tower, daymark of horizontal slats.	Rear light, 323° 00', 2,750 feet.	3	Two fixed white lens-lantern lights; front light, 40 feet above water; rear light, 80 feet above water. Front light about ¼ mile below Frechette Point. Lat. N, 46° 27' 17"; long. W, 84° 16' 42". Rear light nearly ½ mile above Frechette Point. Range guides through Upper Hay Lake Cut, Little Rapids.
	Frechette Point Rear Light, No. 22 (Mich.).	22	White.....	Square, pyramidal, skeleton iron tower, daymark of horizontal slats.	.....		10
Six-Mile Point Buoy.....	13	Black.....	25-foot spar.....	Middle Hay Lake Range Front Light, No. 17, 24° 00'. Frechette Point Range Front Light, No. 21, 328° 00'. Triangulation station, No. 10, 346° 00'.	21	Marks edge of shoal ¼ mile E'ly of Six-Mile Point.
Six-Mile Point North Buoy.	15	Black.....	25-foot spar.....	Middle Hay Lake Range Rear Light, No. 18, 28° 00'. Frechette Point Range Front Light, No. 21, 328° 00'. Triangulation station, No. 10, 354° 00'.	21	Marks W'ly edge of channel.
Six-Mile Point North Buoy.	16	Red.....	25-foot spar.....	Middle Hay Lake Range Rear Light, No. 18, 15° 00'. Frechette Point Range Front Light, No. 21, 319° 00'. Triangulation station, No. 10, 347° 00'.	21	Marks E'ly edge of channel.

ST. MARYS RIVER.

LOWER HAY LAKE CUT TO ST. MARYS FALLS CANAL—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Frchette Point South Buoy.	17	Black.....	25-foot spar.....	Triangulation station, No. 10, 275° 00'. Middle Hay Lake Range Rear Light, No. 18, 115° 00'. Frchette Point Range Front Light, No. 21, 328° 00'.	Fath. 21	Marks W'y edge and turn in channel.
Frchette Point South Buoy.	18	Red.....	2d-class nun.....	Middle Hay Lake Range Rear Light, No. 18, 122° 00'. Six-Mile Point Range Rear Light, No. 20, 157° 20'. Six-Mile Point Range Front Light, No. 20, 154° 00'.	21	Marks turn in channel.
Range. (Six-Mile Point Front Light, No. 19 (Mich.)).	19	White.....	Cylindrical steel tower on platform on piles.	Rear light, 153° 00', 1,975 feet (3/4 mile).	8	Two fixed white lens-lantern lights; front light, 28 feet above water; rear light, 47 1/2 feet above water. Front light about 1/2 mile above Six-Mile Point. Lat. N, 46° 29' 21"; long. W, 84° 15' 57". Range marks axis of upper channel of Little Rapids Cut.
	(Six-Mile Point Rear Light, No. 20 (Mich.)).	20	White.....	Cylindrical steel tower on platform on piles; orrick oilhouse on shore opposite.	2	
Frchette Point North Buoy.	19	Black.....	25-foot spar.....	Triangulation station, No. 10, 114° 00'. Middle Hay Lake Range Rear Light, No. 18, 136° 00'. Frchette Point Range Rear Light, No. 22, 207° 00'.	21	Marks W'y edge of channel.
Frchette Point North Buoy.	20	Red.....	25-foot spar.....	Triangulation station, No. 10, 120° 00'. Middle Hay Lake Range Rear Light, No. 18, 141° 00'. Frchette Point Range Front Light, No. 21, 165° 00'.	21	Marks E'y edge of channel.
Little Rapids Cut Lower West Side Light, No. 23 (Mich.).	23	White.....	Post, with oilhouse.....			Fixed white post-lantern light; 18 feet above water; on SE'y side of Island No. 1, and W'y side of lower end of cut through island. Lat. N, 46° 28' 23"; long. W, 84° 17' 31".
Little Rapids Cut Lower East Side Light, No. 24 (Mich.).	24	Red.....	Post, with oilhouse.....			Fixed red post-lantern light; 18 feet above water; on SE'y side of Island No. 1, and E'y side of lower end of cut through island. Lat. N, 46° 28' 30"; long. W, 84° 17' 26".
Little Rapids Cut Upper West Side Light, No. 25 (Mich.).	25	White.....	Post, with oilhouse.....			Fixed white post-lantern light; 18 feet above water; on N'y end of Island B, off Mission Point, and on W'y side of cut. Lat. N, 46° 29' 13"; long. W, 84° 18' 08".
Little Rapids Cut Upper East Side Light, No. 26 (Mich.).	26	Red.....	Post, with oilhouse.....			Fixed red post-lantern light; 18 feet above water; on N'y end of Island No. 1, and E'y side of cut through island. Lat. N, 46° 29' 07"; long. W, 84° 17' 52".
Hay Lake Channel Head West Buoy.	21	Black.....	2d-class nun.....	Topsall Island, S end, 39° 00'. Bayfield Rock Range Front Light, 93° 00'. Little Rapids Cut Upper East Side Light, No. 26, 135° 00'.	21	Marks W'y edge of channel.
Hay Lake Channel Head East Buoy.	22	Red.....	2d-class nun.....	Topsall Island, S end, 31° 00'. Bayfield Rock Range Front Light, 97° 00'. Little Rapids Cut Upper East Side Light, No. 26, 152° 00'.	25	Marks E'y edge of channel.
North Entrance Light, No. 27 (Mich.).		Buff; black lantern.	Square dwelling on square crib.		20	5th-order fixed white light, occulting every 5 sec.: 36 1/2 feet above water; visible 13 miles. Close to W'y side of Little Rapids Cut, at its N'y entrance. Lat. N, 46° 29' 32"; long. W, 84° 18' 22".
Range. (Bayfield Rock Front Light (Mich.)).		White.....	Wooden upright.....	Rear light, 109° 00', 945 feet.		Two fixed white post-lantern lights; front light, 24 feet above water; rear light, 34 feet above water; on NW'y side of Sugar Island. Front light, lat. N, 46° 29' 20"; long. W, 84° 16' 58". In range astern lead past Bayfield Rock to E'y end of canal.
	(Bayfield Rock Rear Light (Mich.)).	White.....	Wooden upright.....			
North Entrance Crib Buoy.	23	Black.....	25-foot spar.....	Topsall Island, right tangent, 66° 00'. Bayfield Rock Range Front Light, 103° 00'. North Entrance Light, No. 27, SW'y, 100 feet.	20	Marks edge of channel at North Entrance Light, No. 27, NE'y from light.

ST. MARYS RIVER.

LOWER HAY LAKE CUT TO ST. MARYS FALLS CANAL—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Prince Rock Buoy.....	24	Red.....	25-foot spar.....	Bayfield Rock Range Front Light, 114° 00'. North Entrance Light, No. 27, 171° 00', ¼ mile. Hickler Dock, right tangent, 241° 00'.	Fet. 20	Marks N'y edge of channel.
Lumber Dock Buoy.....	25	Black.....	25-foot spar.....	North Entrance Light, No. 27, 112° 30'.	20	Marks S'y side of channel.

ST. MARYS FALLS CANAL TO GROS CAP REEF GAS BUOY.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

SAILING DIRECTIONS.—After leaving the canal, steer 256°, true (W ½ S, mag.), 2½ miles, on Vidal Shoals Channel Range line (limits of channel marked by lights on south pier and two gas-lighted buoys) until Pointe aux Pins (Canadian) Range lights are in range, 233° 15', true (SW by W, mag.), follow this range until abreast Brush Point Gas Buoy, No. 3, then change course to 217°, true (SW ½ S, mag.), until abreast Pointe aux Pins (Canadian) Light, then swing gradually to W'd until Brush Point Range lights are in range astern, hold this range for 2½ miles until Cedar Point Range lights are in range astern, follow this range about 1 mile 297°, true (NW by W ¾ W, mag.), which carries through Middle Ground dredged channel (N'y side marked by gas buoy, and S'y side by can and spar buoy) until Birch Point Range lights are in range astern, follow this range about 4½ miles 319° 30', true (NW ½ N, mag.), to pass at least 500 feet SW'd of Gros Cap Reef Gas Buoy, No. 18.

St. Marys Falls Canal South Pier Light (Mich.).		White.....	Electric-light pole.....			Fixed red post-lantern light; 25 feet above water; near W'y end of south pier. Fixed red electric light, 10 feet above lantern light, is maintained by canal authorities, for which Light-House Service is not responsible.
RANGE. Vidal Shoals Channel Front Light (Mich.).		White.....	Conical, iron tower, 35 feet high.	Rear light, 76° 00', 1,400 feet. St. Marys Falls Canal South Pier Light, 245° 00', 1,325 feet.		4th-order light, fixed red varied by a red flash every 10 sec.; 40 feet above water; visible 13¼ miles. On W'y end of N pier at W'y entrance to canal. Lat. N, 46° 30' 11"; long. W, 84° 22' 05".
	Vidal Shoals Channel Rear Light (Mich.).	White; black lantern.	Octagonal, pyramidal frame tower surmounted by lantern; brick oil-house 50 feet E'y.			4th-order light fixed red; 57 feet above water; visible 13 miles. Near railroad embankment at S'y end of International Railroad bridge. With the preceding, in range astern, guides from W'y entrance to canal, through 1,000-foot Vidal Shoals Channel, to Pointe aux Pins (Canadian) Range line. Not visible to E'd of 143° 00' and 8° 00'; true.
Vidal Shoals Channel East End North Side Gas Buoy, No. 2 (Mich.).	2	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Canadian Canal Upper Entrance Range Front Light, 39° 30', 1 mile. Vidal Shoals Channel Range Front Light-House, 83° 30'. Bradley & Watkins Dock, right tangent, 171° 00'.	20	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks center of S'y edge of shoal.
Vidal Shoals Channel West End South Side Gas Buoy, No. 1 (Mich.).	1	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Dick Moore Island, left tangent, 4° 00', ¾ mile. St. Marys Falls Canal South Pier Light, 76° 00', 1 mile.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks S'y side of W'y entrance to channel. Deep water close to buoy.
RANGE. Canadian Canal Lower Entrance Front (C.).		Galvanized; white, day-mark.	Square, steel, skeleton tower; square, wooden lantern; diamond-shaped, slatwork day-mark.	Rear light, 321° 45', 990 feet (¾ mile).		Reflector (e. l.) light, fixed red; 63 feet above water; visible 2¼ miles. On shore of bay N'y of entrance to canal. Lat. N, 46° 30' 54"; long. W, 84° 20' 08".
	Canadian Canal Lower Entrance Rear (C.).	Galvanized; white box.	Square, steel, pyramidal skeleton tower, surmounted by square box.			Reflector (e. l.) light, fixed red; 90 feet above water; visible 2¼ miles. Range leads NW ¾ N, mag., from American channel up middle of dredged approach between red and black buoys to piers at E'y end of canal.
RANGE. Canadian Canal Upper Entrance Front (C.).		Galvanized; white lantern.	Square, pyramidal, skeleton, steel tower; square iron lantern; square, pyramidal, concrete pier.	Rear light, 51° 00', 1,264 feet (¾ mile).		Reflector (e. l.) light, fixed red; 34 feet above water; visible 4¼ miles.
Canadian Canal Upper Entrance Rear (C.).		Galvanized; white box.	Square, pyramidal, steel tower, surmounted by square box; concrete base.			Reflector (e. l.) light, fixed red; 65 feet above water; visible 2¼ miles. Rear light on E'y end of Davignon Point. Lights in range astern lead SW ½ W, mag., from turn at Upper Turning Gas Buoy, between red and black buoys, to Vidal Shoals Range line.
Upper Turning Gas Buoy (C.).		Black.....	Cylindrical, steel buoy surmounted by pyramidal, steel framework and lantern.			7th-order fixed white (a.) light. *On S'y edge of curved part of dredged channel, at turn from W'y entrance to canal.

ST. MARYS RIVER.

ST. MARYS FALLS CANAL TO GROS CAP REEF GAS BUOY—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Vidal Shoal Gas Buoy (C.).		Red.....	Cylindrical, steel buoy surmounted by pyramidal, steel framework and lantern.		Feet.	7th-order fixed red (a.) light; 8 feet above water; visible 2 1/4 miles. Moored on Wly end of Vidal Shoals and N'y edge of Canadian channel. Marks outer edge of Vidal Shoals.
Range. Pointe aux Pins Front (C.).		White.....	Square, wood.....	Rear light, 233° 15', 920 feet (3/4 mile).		Reflector light, fixed white; 28 feet above water; visible 4 1/2 miles. On N'y end of point 1,200 feet (1/4 mile) 4° 00', true, N 3/4 E, mag., from Pointe aux Pins Light. Lat. N, 46° 28' 05"; long. W, 84° 27' 41".
	Pointe aux Pins Rear (C.).	White.....	Square, wood.....			Reflector light, fixed white; 33 feet above water; visible 4 1/2 miles. The lights in range lead SW by W, mag., from the intersection of their range line with range line of Vidal Shoals Channel (U. S.) Range lights to abreast of Brush Point Gas Buoy, No. 3.
Brush Point Gas Buoy, No. 3 (Mich.).	3	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Brush Point, 138° 00'. Pointe aux Pins Light-House (Canadian), 229° 00'.	25	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks SWly edge of channel, off Brush Point.
Pointe aux Pins (C.).		White.....	Square, wood.....			6th-order fixed white light; 30 feet above water; visible 1 1/2 miles from all points of approach. On outer end of low sand point. Lat. N, 46° 27' 52"; long. W, 84° 27' 43".
Range. Brush Point Front Light (Mich.).		White; black oilhouse.	Square, frame tower; frame buildings near; oilhouse 30 feet SWly.	Rear light, 73° 00', 1,430 feet.		Two fixed red lights; front, 6th-order, 18 feet above water, visible 8 1/2 miles; and rear light, 5th-order, 33 feet above water, visible 9 1/4 miles. Lat. N, 46° 27' 53"; long. W, 84° 27' 19". On mainland, nearly opposite Pointe aux Pins (Canadian) Light-House. In range astern guide through cut from off Pointe aux Pins Light-House to Cedar Point Range line.
	Brush Point Rear Light (Mich.).	White.....	Square, pyramidal, frame tower.			
Point Louise Buoy.....	6	Red.....	25-foot spar.....	Brush Point Range Front Light-House, 76° 00'. Cedar Point, left tangent, 161° 30'. Round Island, right tangent, 217° 30'.	20	Marks N'y edge of channel opposite Cedar Point.
Cedar Point Gas Buoy, No. 5 (Mich.).	5	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Cedar Point, left tangent, 131° 00', about 1/2 mile. Round Island Point, right tangent, 188° 30'. Round Island, right tangent, 222° 00'.	23	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks S'y edge of channel.
Range. Cedar Point Front Light (Mich.).		White; black oilhouse.	Square frame tower; frame buildings near; oilhouse 100 feet NWly.	Rear light 117° 20', 1,180 feet.		Two fixed white lights; front, 6th-order, 21 feet above water; rear light, 3th-order, 36 feet above water. Lat. N, 46° 26' 18"; long. W, 84° 30' 09". On mainland about 3/4 mile ESEly of Round Island. In range astern guide through Middle Ground Cut from Brush Point Range line to Birch Point Range line.
	Cedar Point Rear Light (Mich.).	White; red dwelling.	Square, frame tower; frame dwelling.	6/17/11		
Middle Ground East End Buoy.....		Red and black horizontal stripes.	25-foot spar.....	Cedar Point, left tangent, 92° 15'. Cedar Point Range Front Light, 112° 30'. Birch Point Range Front Light, 154° 15'.	24	Off E'y end of Middle Ground and marks junction of main channel with channel to Bay Mills.
Middle Ground Gas Buoy, No. 10 (Mich.).	10	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Pointe aux Pins Light-House (Canadian), 76° 00'. Cedar Point Range Front Light-House, 120° 30'; about 1 1/2 miles. Bay Mills Dock, S'y end, 228° 00'.	27	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks N'y side of E'y end of cut through Middle Ground.
Range. Birch Point Front Light (Mich.).		White.....	Square, pyramidal, skeleton, iron tower with day-mark; frame oilhouse 430 feet SEly.	Rear light, 140° 00', 970 feet. Cedar Point Range Front Light, 69° 00'. Bay Mills Wharf, S'y end, 239° 00'.		Two fixed white reflector lights. Front light 53 feet above water; lat. N, 46° 26' 02"; long. W, 84° 31' 24". Rear light 78 feet above water; lat. N, 46° 25' (55"); long. W, 84° 31' (07"). In range astern guide from Cedar Point Range line to Whitetish Bay.
	Birch Point Rear Light (Mich.).	White.....	Square, pyramidal, skeleton, iron tower with day-mark.			
Middle Ground Southwest Buoy.....	9	Black.....	3d-class can.....	Pointe aux Pins Light (Canadian), 75° 05'. Round Island, left tangent, 112° 30'. Birch Point Front Light, 143° 00'.	24	Marks S'y side of W'y end of cut through Middle Ground.

ST. MARYS RIVER.

ST. MARYS FALLS CANAL TO GROS CAP REEF GAS BUOY—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, 62, 63, and 91.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Middle Ground North-west Buoy.	12	Red.....	25-foot spar.....	Round Island Unused Light - House, 121° 00' 00'; Bay Mills Dock, S'y end, 219° 00'.	Fed. 22	Marks NE'y side of W'y end of cut through Middle Ground.								
Lower Buoy.....	14	Red.....	25-foot spar.....	Round Island Unused Light - House, 129° 00', 2½ miles. Bay Mills Dock, S'y end, 197° 00', 2½ miles.	20	Marks Canadian side of channel.								
Middle Gas Buoy, No. 13 (Mich.).	13	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Cedar Point Range Front Light, 121° 00'. Bay Mills Dock, S'y end, 186° 00'. Point Iroquois Light-House, 291° 00'.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks NE'y edge of Point Iroquois Shoal and SW'y edge of channel.								
Upper Buoy.....	16	Red.....	25-foot spar.....	Bay Mills Dock, S'y end, 190° 00'. Point Iroquois Light-House, 281° 00', 3¾ miles.	20	Marks Canadian side of channel.								
Upper Buoy.....	17	Black.....	25-foot spar.....	Bay Mills Dock, S'y end, 169° 37½ miles. Point Iroquois Light-House, 276° 00'.	21	Marks NW'y end of Point Iroquois Shoal and SW'y edge of channel at its NW'y entrance.								
POINT IROQUOIS LIGHT-STATION (Mich.).		White.....	Conical tower, 55 feet high, covered-way to dwelling; fog-signal house about 400 feet NE'y; cylindrical oilhouse 100 feet SW'y.	Gros Cap (Canada), 31° 00', 37½ miles. Whitefish Point Light-House, 322° 00', 25½ miles. Parisian Island, 340° 00', 12 miles.		4th-order light, flashing white every 30 sec.; 72 feet above water, visible 16¼ miles. On Point Iroquois. Lat. N, 46° 29' 04"; long. W, 84° 37' 55". A guide to and from St. Marys River. Fog signal: 10-inch steam whistle, sounds thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent Interval</td> <td>Blast</td> <td>Silent Interval</td> </tr> <tr> <td>5 sec.</td> <td>25 sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </table>	Blast	Silent Interval	Blast	Silent Interval	5 sec.	25 sec.	5 sec.	25 sec.
Blast	Silent Interval	Blast	Silent Interval											
5 sec.	25 sec.	5 sec.	25 sec.											
Gros Cap Reef Gas Buoy, No. 18.	18	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	South Gros Cap Triangulation Station, 41° 00', 2 miles. Chene Island, 104° 00', 2¼ miles. Round Island Unused Light - House, 135° 00', 6¼ miles. Point Iroquois Light-House, 202° 30', 2¼ miles.	20	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks W'y end of reef running out nearly to mid-channel, and is little to E'd of Birch Point Range line. Pass at least 500 feet to W'd of buoy.								

WEST NEEBISH CHANNEL (FOR DOWNBOUND VESSELS ONLY).

U. S. Lake Survey Charts 0, 5, 6, 9, 61, and 62.

West Side Upper Light, No. 25 (Mich.).	25	White.....	Column with bracket for lantern, small house alongside, on concrete block.	Shingle Point, 117° 00', 3 miles. Middle Neebish Range Rear Light, 151° 00'. Nine-Mile Point Light, 356° 00', 0.9 mile.	20	Fixed white lens-lantern light; 29 feet above water. Marks W'y side of dredged cut in Hay Lake. Lat. N, 46° 22' 48"; long. W, 84° 13' 40".
East Side Upper Light, No. 24 (Mich.).	24	Red.....	Column with bracket for lantern, small house alongside, on concrete block.	Shingle Point, 117° 30', 2.2 miles. Middle Neebish Range Rear Light, 152° 00'. Nine-Mile Point Light, 351° 00', 0.9 mile.	22	Fixed red lens-lantern light; 29 feet above water. Marks E'y side of dredged cut leading south from Hay Lake. Lat. N, 46° 22' 50"; long. W, 84° 13' 35".
West Side Lower Light, No. 23 (Mich.).	23	White.....	Column with bracket for lantern, small house alongside, on concrete block.	Shingle Point, 75° 00', 1.6 miles. Middle Neebish Range Rear Light, 141° 00'. West Side Upper Light No. 25, 339° 00', 1¼ miles.	9	Fixed white lens-lantern light; 29 feet above water. Marks W'y side of the dredged cut in Hay Lake. Lat. N, 46° 21' 33"; long. W, 84° 13' 00".
East Side Light, No. 22 (Mich.).	22	Red.....	Column with bracket for lantern, small house alongside, on concrete block.	Shingle Point, 57° 00', 1½ miles. Middle Neebish Range Rear Light, 142° 00'. West Side Lower Light, No. 23, 332° 00'.	9	Fixed red lens-lantern light; 29 feet above water. Marks E'y side of the dredged cut at angle formed by junction of sections 1 and 2, in Hay Lake. Lat. N, 46° 21' 11"; long. W, 84° 12' 42". Give berth of about 200 feet.
West Side Light, No. 21 (Mich.).	21	White.....	Column with bracket for lantern, small house alongside, on concrete block.	East Side Light No. 22, 10° 00', ½ mile. West Side Middle Light, No. 13, 90° 00', 1 mile. Middle Neebish Range Rear Light, 126° 30', 1.3 miles.	6	Fixed white lens-lantern light; 29 feet above water. Marks W'y side of the dredged cut in Hay Lake. Lat. N, 46° 20' 48"; long. W, 84° 12' 54".

ST. MARYS RIVER.

WEST NEEBISH CHANNEL (FOR DOWNBOUND VESSELS ONLY)—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, and 62.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
East Side Light, No. 20 (Mich.).	20	Red.....	Column with bracket for lantern, small house alongside, on timber crib.	East Side Light, No. 22, 2° 00', 1.2 miles. Middle Neebish Range Rear Light, 74° 20'. Lower Hay Lake Range Front Light, 163° 00'.	Fect. 6	Fixed red lens-lantern light; 29 feet above water. Marks the E'ly side of the dredged cut in Hay Lake. Lat. N, 46° 19' 51"; long. W, 84° 12' 51".
West Side Light, No. 19 (Mich.).	19	White.....	Column with bracket for lantern, small house alongside, on timber crib.	West Side Light No. 21, 2° 00', 1.1 miles. Middle Neebish Range Rear Light, 76° 00'. Lower Hay Lake Range Front Light, 162° 30'.	6	Fixed white lens-lantern light; 29 feet above water. Marks the W'ly side of the dredged cut. Lat. N, 46° 19' 51"; long. W, 84° 12' 56".
East Side Light, No. 18 (Mich.).	18	Red.....	Column with bracket for lantern, small house alongside, on timber platform.	East Side Light, No. 20, 2° 00', 1.2 miles. Middle Neebish Range Rear Light, 35° 00'. Sand Island, left tangent, 150° 00', 0.4 mile.	6	Fixed red lens-lantern light; 29 feet above water. Marks E'ly side of the dredged cut in Hay Lake. Lat. N, 46° 18' 47"; long. W, 84° 12' 49".
West Side Light, No. 17 (Mich.).	17	White.....	Column with bracket for lantern, small house alongside, on timber platform.	West Side Light, No. 19, 2° 00', 1.2 miles. East Side Light, No. 18, 90° 00', 340 feet. Sand Island, left tangent, 141° 00', ½ mile.	6	Fixed white lens-lantern light; 29 feet above water. Marks W'ly side of the dredged cut in Hay Lake. Lat. N, 46° 18' 47"; long. W, 84° 12' 54".
East Side Light, No. 16 (Mich.).	16	Red.....	Column with bracket for lantern, small house alongside, on timber platform.	East Side Light, No. 18, 2° 00', 1 mile. Neebish Island, W'ly point, 169° 00', ½ mile.	22	Fixed red lens-lantern light; 29 feet above water. Marks E'ly side of the dredged cut in Hay Lake. Lat. N, 46° 17' 56"; long. W, 84° 12' 51".
West Side Light, No. 15 (Mich.).	15	White.....	Column with bracket for lantern, small house alongside, on timber platform.	West Side Light, No. 17, 2° 00', 1 mile. Sand Island, lower point, 43° 00', 0.7 mile. East Side Light, No. 16, 90° 00', 340 feet.	22	Fixed white lens-lantern light; 29 feet above water. Marks W'ly side of the dredged cut in Hay Lake. Lat. N, 46° 17' 56"; long. W, 84° 12' 56".
East Side Upper Gas Buoy, No. ESU 16 (Mich.).	ESU 16	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	East Side Light, No. 16, 0° 00', ½ mile. Sand Island, lower end, 20° 30', 1.1 miles. West Side Light, No. 13, 178° 30', 0.4 mile.	18	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Moored on E'ly side of the naturally deep water in angle at the lower end of section 2 and upper end of section 3. Lat. N, 46° 17' 29"; long. W, 84° 12' 48".
East Side Upper Cofferdam Light, No. 14½ (Mich.).	14½	Red.....	Column with bracket for lantern, small house alongside, on crib.	East Side Light, No. 14, 145° 00', 0.3 mile. West Side Light, No. 13, 282° 00', 630 feet. West Side Light, No. 15, 346° 00', 0.9 mile.	.....	Fixed red lens-lantern light; 29 feet above water. Marks E'ly side of the channel above the upper cofferdam, marking the lower end of the turn from section 2 to section 3. Lat. N, 46° 17' 10"; long. W, 84° 12' (32").
West Side Light, No. 13 (Mich.).	13	White.....	Column with bracket for lantern, small house alongside, on rock pile.	Neebish Island, west point, 11° 00', 0.4 mile. West Side North End Rock Cut Light, No. 11, 143° 00'. West Side Light, No. 15, 354° 00', 0.8 mile.	.....	Fixed white lens-lantern light; 29 feet above water. On W'ly side of rock cut below Hay Lake. Lat. N, 46° 17' 11"; long. W, 84° 12' 49".
East Side North End Rock Cut Light, No. 14 (Mich.).	14	Red.....	Column with bracket for lantern, small house alongside, on concrete pier.	East Side Below Retaining Walls Light, No. 12, 143° 00', 1.3 miles. West Side Light, No. 13, 312° 00', 0.4 mile. East Side Light, No. 16, 344° 00', 1.2 miles.	.....	Fixed red lens-lantern light; 29 feet above water. Marks E'ly side of the rock-cut channel below Hay Lake. Lat. N, 46° 16' 57"; long. W, 84° 12' 27".
West Side North End Rock Cut Light, No. 11 (Mich.).	11	White.....	Column with bracket for lantern, small house alongside, on concrete pier.	West Side Below Retaining Walls Light, No. 9, 143° 00', 1.3 miles. West Side Light, No. 13, 323° 00', 0.4 mile. West Side Light, No. 15, 344° 00', 1.2 miles.	.....	Fixed white lens-lantern light; 29 feet above water. Marks W'ly side of the rock-cut channel below Hay Lake. Lat. N, 46° 16' 55"; long. W, 84° 12' 31".
East Side Below Retaining Walls Light, No. 12 (Mich.).	12	Red.....	Column with bracket for lantern, small house alongside, on concrete pier.	Neebish Island, south-west point, 155° 00'. N point Kemps Point, east side, 160° 00', 1.2 miles. West Side North End Rock Cut Light, No. 11, 320° 00'.	15	Fixed red lens-lantern light; 29 feet above water. Marks the E'ly side of rock-cut channel below Hay Lake. Lat. N, 46° 16' 03"; long. W, 84° 11' 29".

ST. MARYS RIVER.

WEST NEEBISH CHANNEL (FOR DOWNBOUND VESSELS ONLY)—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 61, and 62.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
West Side Below Retaining Walls Light, No. 9 (Mich.).	9	White.....	Column with bracket for lantern, small house alongside, on concrete pier.	Neebish Island, southwest point, 152° 00', 1.7 miles. Point N of Kemps Point, east side, 157° 30'. East Side North End Rock Cut Light, No. 14, 325° 00'.	Fect.	Fixed white lens-lantern light; 29 feet above water. On W'y side of rock-cut channel below Hay Lake. Lat. N, 46° 16' 90"; long. W, 84° 11' 33".
East Side Lower Gas Buoy, No. ESL 12 (Mich.).	ESL 12	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	East Side Middle Light, No. 10, 109° 00', 1.3 miles. Kemps Point, east side, 177° 00', 1.1 miles. West Side North End Rock Cut Light, No. 11, 322° 00'.	18	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Moored on E'y side of the naturally deep water below lower cofferdam and rock cut. Lat. N, 46° 15' 26"; long. W, 84° 10' 40".
East Side Middle Light, No. 10 (Mich.).	10	Red.....	Column with bracket for lantern, small house alongside, on concrete pier.	Winter Point Range Rear Light, 140° 00', 1.7 miles. Pilot Island Range Front Light, 154° 00', 4.8 miles. Roach Point, 182° 30', 3.6 miles.	15	Fixed red lens-lantern light; 29 feet above water. On E'y side of dredged cut in Munuscong Bay, above Mud Lake. Lat. N, 46° 14' 17"; long. W, 84° 10' 31".
West Side Middle Light, No. 7 (Mich.).	7	White.....	Column with bracket for lantern, small house alongside, on concrete pier.	Winter Point Range Rear Light, 138° 00'. Pilot Island Range Front Light, 153° 00'. Roach Point, 182° 00', 3.5 miles.	19	Fixed white lens-lantern light; 29 feet above water. On W'y side of dredged cut in Munuscong Bay, above Mud Lake. Lat. N, 46° 14' 18"; long. W, 84° 10' 37".
East Side Lower Light, No. 8 (Mich.).	8	Red.....	Column with bracket for lantern, small house alongside, on submerged crib.	Winter Point Range Rear Light, 122° 00'. Pilot Island Range Front Light, 152° 00', 4 miles. West Side Middle Light, No. 7, 343° 00', 0.8 miles.	12	Fixed red lens-lantern light; 10 feet above water. On E'y side of dredged cut in Munuscong Bay, above Mud Lake. Lat. N, 46° 13' 36"; long. W, 84° 10' 20".
West Side Upper Light, No. 5 (Mich.).	5	White.....	Column with bracket for lantern, small house alongside, on timber platform.	Winter Point Range Rear Light, 102° 00'. Mud Lake Light, 121° 00', 2.7 miles. East Side Middle Light, No. 10, 351° 00', 1.1 miles.	10	Fixed white lens-lantern light; 29 feet above water. On W'y side of dredged cut in Munuscong Bay, at the angle of the junction of lower end of Section 4 and upper end of Section 5. Lat. N, 46° 13' 19"; long. W, 84° 10' 21".
East Side Upper Light, No. 6 (Mich.).	6	Red.....	Column with bracket for lantern, small house alongside, on timber platform.	Winter Point Range Front Light, 99° 30', 0.7 mile. Mud Lake Light, 122° 00', 2.3 miles. Pilot Island Range Front Light, 152° 00', 3.4 miles.	3	Fixed red lens-lantern light; 29 feet above water. On E'y side of dredged cut in Munuscong Bay close to NW'y shore of Moon Island. Lat. N, 46° 13' 11"; long. W, 84° 09' 57".
East Side Middle Light, No. 4 (Mich.).	4	Red.....	Column with bracket for lantern, small house alongside, on timber platform.	Mud Lake Light, 116° 30', 1.3 miles. Pilot Island Range Front Light, 161° 24' miles. Winter Point Range Front Light, 332° 00', ½ mile.	6	Fixed red lens-lantern light; 29 feet above water. On E'y side of dredged cut in Munuscong Bay, just south of Winter Point. Lat. N, 46° 12' 38"; long. W, 84° 08' 58".
West Side Middle Light, No. 3 (Mich.).	3	White.....	Column with bracket for lantern, small house alongside, on timber platform.	Mud Lake Light, 113° 00', 1.3 miles. Pilot Island Range Front Light, 160° 00', 2.4 miles. Winter Point Range Front Light, 357° 00', 0.6 mile.	6	Fixed white lens-lantern light; 29 feet above water. On W'y side of dredged cut in Munuscong Bay, above Mud Lake. Lat. N, 46° 12' 35"; long. W, 84° 09' 01".
East Side Lower Light, No. 2 (Mich.).	2	Red.....	Column with bracket for lantern, small house alongside, on timber platform.	Mud Lake Light, 96° 00', ½ mile. Pilot Island Range Front Light, 176° 00', 1.8 miles. Winter Point Range Front Light, 325° 00', 1.3 miles.	22	Fixed red lens-lantern light; 29 feet above water. On E'y side of dredged cut in Munuscong Bay. Lat. N, 46° 12' 11"; long. W, 84° 08' 07".
West Side Lower Light, No. 1 (Mich.).	1	White.....	Column with bracket for lantern, small house alongside, on submerged crib.	Mud Lake Light, 91° 00', 0.6 mile. Pilot Island Range Front Light, 174° 00', 1.8 miles. Winter Point Range Front Light, 328° 00', 1.3 miles.	22	Fixed white lens-lantern light. On W'y side of dredged cut in Munuscong Bay. Lat. N, 46° 12' 08"; long. W, 84° 08' 11".

ST. MARYS RIVER.

OLD CHANNEL THROUGH LAKE GEORGE TO ST. MARYS FALLS CANAL—STIRBLING POINT TO LAKE GEORGE CUT.

U. S. Lake Survey Charts 0, 5, 6, 9, 62, 63, and 91.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Range. Hen and Chickens Front Light (Mich.).	Chickens Light	White.....	Upright.....	Rear light, 231° 00', 1,700 feet.	Fred.	Two fixed red post-lantern lights. Front light, 22 feet above water; rear light, 32 feet above water. Front light on E'y of the Hen and Chickens Islands, W'y side of N'y end of Little Mud Lake; lat. N, 46° 18' 40"; long. W, 84° 07' 39"; rear light on NE'y shore of Neebish Island. In range stern guide through passage between Sugar Island and St. Joseph Island (Canadian).
		White.....	Upright.....			
Hen and Chickens Rear Light (Mich.).	Chickens Light	White.....	Upright.....		Fred.	Two fixed red post-lantern lights. Front light, 22 feet above water; rear light, 32 feet above water. Front light on E'y of the Hen and Chickens Islands, W'y side of N'y end of Little Mud Lake; lat. N, 46° 18' 40"; long. W, 84° 07' 39"; rear light on NE'y shore of Neebish Island. In range stern guide through passage between Sugar Island and St. Joseph Island (Canadian).
		White.....	Upright.....			
Stirling Point Turning Buoy.	2	Red.....	25-foot spar, with cage near end.	Stirling Point Range Front (Canadian) Light, 121° 00'. Hen and Chickens Range Front Light, 235° 00'. Harwood Point Range Front Light, 350° 00'.	17	On NW'y end of shoal off Stirling Point. Marks turn to E'd to old channel.
Harwood Point Lower Buoy.	1	Black.....	25-foot spar.....	Stirling Point Range Front (Canadian) Light, 187° 00'. Hen and Chickens Range Front Light, 229° 00'. Harwood Point Range Front Light, 280° 00'.	17	Marks W'y edge of channel.
St. Joseph Island North Shoal Buoy.	4	Red.....	25-foot spar.....	Stirling Point Range Front (Canadian) Light, 108° 00'. Hen and Chickens Range Front Light, 235° 00'. Harwood Point Range Front Light, 281° 00'.	17	Marks shoal extending N'd from St. Joseph Island.
Harwood Point Upper Buoy.	3	Black.....	25-foot spar.....	Stirling Point Range Front (Canadian) Light, 198° 00'. Hen and Chickens Range Front Light, 229° 00'. Harwood Point Range Front Light, 266° 00'.	17	Marks E'y edge of shoal off Harwood Point.
Merida Shoal Buoy.....	6	Red.....	25-foot spar.....	Stirling Point Range Front (Canadian) Light, 186° 00'. St. Joseph Island (N) Buoy, 174° 00'. Southeast point of Sugar Island, 207° 00'.	16	Marks rocky patch on which steamer <i>Merida</i> struck.
Channel Buoy.....	5	Black.....	25-foot spar.....	Point Augustus, 309° 00', about 810 feet.	.....	Marks shoal on W'y edge of channel nearly opposite to Neebish Shoal Buoy, No. 8.
Neebish Shoal Buoy.....	8	Red.....	25-foot spar.....	Indian Point Range Front Light, 323° 00', about 4,150 feet.	17	Marks W'y edge of rocky shoal, E'y side of channel.
American Channel Buoy.	7	Black.....	25-foot spar.....	Nearest wood dock, American side, 166° 00', 900 feet. Elisha Point, 320° 00', 2,700 feet.	19	Marks W'y edge of channel.
American Channel Buoy.	10	Red.....	25-foot spar.....	Elisha Point, 298° 00', about 1,300 feet.	14	Marks E'y side of channel.
American Channel Buoy.	9	Black.....	25-foot spar.....	Ned Point, 21° 00', 2,800 feet.	14	Marks W'y side of channel.
American Cut Lower Entrance Buoy.	11	Black.....	25-foot spar.....	Elisha Point, 247° 30', 300 feet.	19	Mark lower end of cut.
American Cut Lower Entrance Buoy.	12	Red.....	25-foot spar.....	East Neebish Range Front Light, 189° 00', 1,000 feet. Indian Point Range Front Light, 300° 00', 750 feet.	15	
American Cut Upper Entrance Buoy.	13	Black.....	25-foot spar.....	Ned Point, 39° 00', 1,680 feet.	14	Mark upper end of cut.
American Cut Upper Entrance Buoy.	14	Red.....	25-foot spar.....		15	
Duck Island Buoy.....	16	Red.....	25-foot spar.....	Birch Point, 48° 00', 2,100 feet. Duck Island, N end, 287° 00', 1,740 feet.	14	Marks 10-foot rock on E'y side of channel, off head of Duck Island, and about 1¼ miles above East Neebish Rapids. Pass well to W'd of buoy.

ST. MARYS RIVER.

LAKE GEORGE, FROM S'LY END OF CUT TO CHURCHVILLE POINT.

U. S. Lake Survey Charts 0, 5, 6, 9, 62, 63, and 91.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Lower Entrance Buoy...	2	Red.....	2d-class nun.....	Pumpkin Point, 46° 00', about ¾ mile.	<i>Fect.</i> 15	On E'ly edge of lower entrance to dredged channel in lake. The cut commences at head of deep water, extends N'ly 3¼ miles, and is about 300 feet wide. The banks of channel and cut are marked by eleven pairs of buoys.
Lower Entrance Buoy...	1	Black.....	20-foot spar.....	Rock Island, left tangent, 201° 00', 2,000 feet.	9	On W'ly edge of lower entrance to dredged channel of lake and abreast buoy No. 2.
Second Buoy.....	4	Red.....	20-foot spar.....		9	Marks E'ly edge of channel.
Second Buoy.....	3	Black.....	20-foot spar.....		9	Marks W'ly edge of channel.
Third Buoy.....	6	Red.....	20-foot spar.....		9	Marks E'ly edge of channel.
Third Buoy.....	5	Black.....	20-foot spar.....		9	Marks W'ly edge of channel.
Fourth Buoy.....	8	Red.....	20-foot spar.....		9	Marks E'ly edge of channel.
Fourth Buoy.....	7	Black.....	20-foot spar.....		9	Marks W'ly edge of channel.
Fifth Buoy.....	10	Red.....	20-foot spar.....		9	Marks E'ly edge of channel.
Fifth Buoy.....	9	Black.....	20-foot spar.....		9	Marks W'ly edge of channel.
Sixth Buoy.....	12	Red.....	20-foot spar.....		9	Marks E'ly edge of channel.
Sixth Buoy.....	11	Black.....	20-foot spar.....		9	Marks W'ly edge of channel.
Seventh Buoy.....	14	Red.....	20-foot spar.....		9	Marks E'ly edge of channel.
Seventh Buoy.....	13	Black.....	20-foot spar.....		9	Marks W'ly edge of channel.
Eighth Buoy.....	16	Red.....	20-foot spar.....		9	Marks E'ly edge of channel.
Eighth Buoy.....	15	Black.....	20-foot spar.....		9	Marks W'ly edge of channel.
Ninth Buoy.....	18	Red.....	20-foot spar.....		9	Marks E'ly edge of channel.
Ninth Buoy.....	17	Black.....	20-foot spar.....		9	Marks W'ly edge of channel.
Tenth Buoy.....	20	Red.....	20-foot spar.....		9	Marks E'ly edge of channel.
Tenth Buoy.....	19	Black.....	20-foot spar.....		9	Marks W'ly edge of channel.
Upper Entrance Buoy...	22	Red.....	2d-class nun.....	Hay Point, 1° 00', 2 miles. Whipple Point, 235° 00', 2 miles. Gem Island, center, 249° 00', 1¼ miles.	16	On E'ly edge of upper entrance to cut.
Upper Entrance Buoy...	21	Black.....	20-foot spar.....		10	Marks W'ly edge of upper entrance to cut, abreast buoy No. 22.

CHURCHVILLE POINT TO ST. MARYS FALLS CANAL.

U. S. Lake Survey Charts 0, 5, 6, 9, 62, 63, and 91.

Church Buoy.....	1	Black.....	35-foot spar.....	Sand Island, right tangent, 109° 30', 1½ miles. Churchville Point, 343° 00', ¼ mile.	30	Marks end of shoal off Churchville Point.
Church Point Buoy.....	3	Black.....	25-foot spar.....		16	Marks old sunken crib; leave to W'd in passing.
Squirrel Island Lower End Buoy.....	2	Red.....	20-foot spar.....	Churchville Point, 294° 00', 960 feet.	11	Marks point of shoal off S'ly end of Squirrel Island, and junction of E'ly and W'ly channels. W'ly channel is shorter and deeper. Only 13 feet of water in E'ly channel.
Church Mill Buoy.....	5	Black.....	25-foot spar.....	Squirrel Island, left tangent, 104° 00'. Squirrel Island, SW point, 154° 30'.	17	Marks N'ly end of rocky shoal near middle of channel.
Squirrel Island Upper End Buoy.....	4	Red.....	25-foot spar.....		17	Marks end of shoal making out from N'ly point of Squirrel Island.
Garden River Buoy.....	7	Black.....	25-foot spar.....	Cunninghams Dock, 66° 00'. Garden River Point, 264° 00'.	16	Marks 12-foot rock.
Point Charles Buoy.....	6	Red.....	25-foot spar.....	Point Charles, 0° 00', 2,475 feet.	18	Marks SE'ly end of middle ground in Little Lake George.
Palmers Point Shoal Buoy.....	9	Black.....	20-foot spar.....	Point Charles, 17° 00', 2,550 feet.	12	Marks W'ly edge of channel. The channel is between Point Charles Buoy and Palmers Point Shoal Buoy.
Palmers Point Buoy.....	11	Black.....	25-foot spar.....		17	Marks W'ly edge of channel off Palmers Point.
Sand Flat Buoy.....	8	Red.....	20-foot spar.....		13	Marks E'ly edge of channel in Little Lake George.
Point aux Pins Buoy.....	13	Black.....	25-foot spar.....		17	Marks rocky shoal nearly opposite and to W'd of Palmers Point.
Partridge Point Buoy.....	15	Black.....	25-foot spar.....	Partridge Point, 276° 00', 975 feet.	17	Marks rocky shoal nearly opposite Partridge Point.

ST. MARYS RIVER.

CHURCHVILLE POINT TO ST. MARYS FALLS CANAL—Continued.

U. S. Lake Survey Charts 0, 5, 6, 9, 62, 63, and 91.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Point Lewis Buoy.....	17	Black.....	25-foot spar.....	Point Lewis, 06° 00', 300 feet.	<i>Fath.</i> 17	Marks end of shoal off Point Lewis.
Cass Point Buoy.....	10	Red.....	25-foot spar.....	Brassar Point, 146° 00', 1,125 feet.	17	} Mark N'y edge of channel.
First Buoy.....	12	Red.....	25-foot spar.....	Brassar Point, 73° 00', ¼ mile.	17	
Farmers Ridges Shoals Second Buoy.	19	Black.....	25-foot spar.....		17	
Farmers Ridges Shoals Third Buoy.	14	Red.....	25-foot spar.....		17	Marks N'y edge of channel.
Farmers Ridges Shoals Fourth Buoy.	21	Black.....	25-foot spar.....		17	} Mark S'y edge of channel.
Farmers Ridges Shoals Fifth Buoy.	23	Black.....	25-foot spar.....		17	
Jenkins Rock Buoy.....	25	Black.....	30-foot spar.....	Sugar Island, NW point, 194° 00', 1,800 feet.	11	Marks rocky 8-foot shoal.
Channel Buoy.....	16	Red.....	25-foot spar.....	Sugar Island, NW point, 163° 00', 1,950 feet.	15	Marks N'y edge of channel.
Marchands Rock Buoy...	27	Black.....	25-foot spar.....	Sugar Island, NW point, 167° 00', 1,650 feet.	15	Marks rocky shoal on S'y side of channel.
Topsail Island Buoy.....	18	Red.....	25-foot spar.....	Topsail Island SE end, 3° 00', 750 feet.	20	On N'y edge of channel, marking shoal water off Topsail Island.
Channel Buoy.....	20	Red.....	25-foot spar.....	Topsail Island, right tangent, 31° 00', about ½ mile.	19	Marks N'y edge of channel.
Mission Point Buoy.....	29	Black.....	25-foot spar.....	The Mission, 187° 40', ¾ mile.	19	Marks S'y edge of channel.

LAKE SUPERIOR.

SOUTH SHORE.

U. S. Lake Survey Charts 0, 9, 91, 93, 94, 96, 901, and 903, and U. S. Hydrographic Office Charts 1474 and 1475 issued at Lake Survey Office.

WHITEFISH POINT LIGHT-STATION (Mich.).	White; buff dwelling with red roof; black lantern.	Skeleton, iron tower, 70 feet high, inclosing stair-cylinder; covered-way to dwelling; cylindrical iron oilhouse 100 feet SW'y.	Parisian Island, N point, 108° 00', 11¼ miles. Point Iroquois Light-House, 111° 00', 25½ miles.	3d-order light, flashing white every 10 sec.; 76 feet above water; visible 16¼ miles. On Whitefish Point. Guide for Whitefish Bay, SE'y end of lake. Lat. N, 46° 46' 17"; long. W, 84° 57' 26". Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <thead> <tr> <th>Blast</th> <th>Silent interval</th> <th>Blast</th> <th>Silent interval</th> </tr> </thead> <tbody> <tr> <td>5 sec.</td> <td>13 sec.</td> <td>2 sec.</td> <td>40 sec.</td> </tr> </tbody> </table> Weather Bureau signals shown at this station.	Blast	Silent interval	Blast	Silent interval	5 sec.	13 sec.	2 sec.	40 sec.				
Blast	Silent interval	Blast	Silent interval													
5 sec.	13 sec.	2 sec.	40 sec.													
CRISP POINT LIGHT-STATION (Mich.).	White; black lantern.	Conical tower; brick oilhouse 50 feet NE'y.	Whitefish Point Light-House, 84° 00', 14¼ miles. Au Sable Light-House, 262° 00', 43 miles. Caribou Island (Canadian) Light-House, 326° 00', 48½ miles.	4th-order fixed red light; 62 feet above water; visible 13 miles. Lat. N, 46° 45' 10"; long. W, 85° 15' 25". Fog signal: 10-inch steam chime whistle, sounds thus: <table border="1"> <thead> <tr> <th>Blast</th> <th>Silent interval</th> <th>Blast</th> <th>Silent interval</th> <th>Blast</th> <th>Silent interval</th> </tr> </thead> <tbody> <tr> <td>4 sec.</td> <td>10 sec.</td> <td>3 sec.</td> <td>10 sec.</td> <td>3 sec.</td> <td>30 sec.</td> </tr> </tbody> </table>	Blast	Silent interval	Blast	Silent interval	Blast	Silent interval	4 sec.	10 sec.	3 sec.	10 sec.	3 sec.	30 sec.
Blast	Silent interval	Blast	Silent interval	Blast	Silent interval											
4 sec.	10 sec.	3 sec.	10 sec.	3 sec.	30 sec.											
Grand Marais Harbor of Refuge Front Light (Mich.).	White; black lantern.	Square, pyramidal, wooden, skeleton tower, upper part inclosed; metal elevated walk along pier to shore.	Rear light, 176° 00', 1,770 feet. Au Sable Light-House, 265° 00', 75½ miles.	6th-order fixed red light; 40 feet above water; visible 8½ miles. About 40 feet from outer end of W pier, entrance to harbor. Lat. N, 46° 41' 08"; long. W, 85° 58' 52". Fog signal: Bell struck by machinery, thus: <table border="1"> <thead> <tr> <th>1 blow</th> <th>Silent interval</th> <th>1 blow</th> <th>Silent interval</th> </tr> </thead> <tbody> <tr> <td></td> <td>30 sec.</td> <td></td> <td>30 sec.</td> </tr> </tbody> </table>	1 blow	Silent interval	1 blow	Silent interval		30 sec.		30 sec.				
1 blow	Silent interval	1 blow	Silent interval													
	30 sec.		30 sec.													
Grand Marais Harbor of Refuge Rear Light (Mich.).	White; black lantern.	Square, pyramidal, skeleton, iron tower, upper part inclosed; brick oilhouse 100 feet N'y.		5th-order fixed red light; 54 feet above water; visible 9¼ miles. On inner end of W pier. With preceding forms range for entering harbor. Caution: Vessels should not go alongside the piers owing to riprap stone within 5 feet of water's surface.												

LAKE SUPERIOR.

SOUTH SHORE—Continued.

U. S. Lake Survey Charts 0, 9, 91, 93, 94, 96, 901, and 903, and U. S. Hydrographic Office Charts 1474 and 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
AU SABLE LIGHT-STATION (Mich.).		White; red-brick dwelling and fog-signal house.	Conical tower, 78 feet high, covered by dwelling; oilhouse 50 feet S'y.	Caribou Island (Canadian) Light-House, 18° 45' 48"; miles. Grand Island Light-House, 254° 00', 27 miles. Stannard Rock Light-House, 905° 15', 62 miles.	Feet.	3d-order fixed white light; 167 feet above water; visible 18½ miles. Coast light on Au Sable Point, 57 miles W'd of Whitefish Point. Lat. N, 46° 40' 29"; long. W, 86° 08' 37". Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>3 sec.</td> <td>17 sec.</td> <td>3 sec.</td> <td>17 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	3 sec.	17 sec.	3 sec.	17 sec.
Blast	Silent interval	Blast	Silent interval											
3 sec.	17 sec.	3 sec.	17 sec.											
GRAND ISLAND LIGHT-STATION (Mich.).		Yellow.	Square tower, 33 feet high, rising from brick dwelling; oilhouse 75 feet W'y.	Au Sable Light-House, 73° 00', 27 miles.		4th-order fixed white light varied by white flash every 90 sec.; 205 feet above water; visible 19¼ miles. On W'y point of the two N'y points of Grand Island. Lat. N, 46° 33' 33"; long. W, 86° 40' 53". A guide into Grand Island Harbor.								
Manhattan Wreck Gas Buoy, No. M2 (Mich.).	2M	Red.	Conical, surmounted by pyramidal lattice-work and lantern.	Castle Point, tangent, 53° 00'. Sand Point, tangent, 183° 00'. Grand Island Harbor Unused Light-House, 228° 00'.	30	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks E'y side of wreck, E'y entrance to Grand Island Harbor.								
Grand Island Harbor Buoy.	2	Red.	20-foot spar.	Grand Island Harbor Unused Light-House, 270° 00', 800 feet.	12	Marks extreme end of shoal off Grand Island Harbor Unused Light-House.								
Munising Front Light (Mich.).		White; black lantern.	Conical, steel tower, 51 feet high; octagonal lantern; brick oilhouse 25 feet E'y.	Rear light, 217° 00', 1,150 feet.		Two fixed red reflector lights. Front light 77 feet above water; visible 10½ miles. Lat. N, 46° 24' (53"); long. W, 86° 39' (40"). Rear light 104 feet above water; visible 12½ miles. Lat. N, 46° 24' (46"); long. W, 86° 39' (50"). In town of Munising. Range guides in channel to anchorage in Grand Island Harbor.								
Munising Rear Light (Mich.).		White.	Conical, steel tower, 25 feet high.											
Grand Island Harbor Front Light (Mich.).		White.	Wooden tower, 19 feet high.	Rear light, 166° 00', 375 feet.		Two fixed white lens-lantern lights. Front light 23 feet, rear light 45 feet above water. On S'y shore, at W'y entrance to harbor and South Bay. Lat. N, 46° 26' 20"; long. W, 86° 41' 30". Range guides in channel on W'y side of Grand Island, and should be held until abreast the gas buoy. Good anchorage with protection from all winds.								
Grand Island Harbor Rear Light (Mich.).		White.	Tower on frame dwelling, 32 feet high.											
Williams Landing Buoy.	1	Black.	20-foot spar.	Williams Landing, 63° 30'. Powell Point, tangent, 97° 00'. Grand Island Harbor Range Front Light, 219° 45', ½ mile.	12	On S'y point of shoal making off from SW'y end of Grand Island.								
Grand Island Harbor West Entrance Gas Buoy (Mich.).		Black and white perpendicular stripes.	Conical, surmounted by pyramidal lattice.	Williams Landing tangent, 73° 45'. Powell Point tangent, 98° 15'. Grand Island Harbor Range Front Light-House, 177° 30', about ½ mile.	54	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Off SW'y end of Grand Island at turning point for entering harbor by W'y entrance.								
MARQUETTE LIGHT-STATION (Mich.).		Yellow.	Square tower, 33 feet high, rising from brick dwelling; fog-signal house close to end of point.	Stannard Rock Light-House, 9° 20', 44½ miles. Grand Island Light-House, 89° 00', 33 miles.		4th-order (l. o. v.) light flashing red every 5 sec.; 77 feet above water; visible 16¼ miles. About 400 feet from end of N'y point of Marquette Harbor. Lat. N, 46° 32' 48"; long. W, 87° 22' 34". Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>25 sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	25 sec.	5 sec.	25 sec.
Blast	Silent interval	Blast	Silent interval											
5 sec.	25 sec.	5 sec.	25 sec.											
Marquette Breakwater Light (Mich.).		White; black lantern.	Square, pyramidal, skeleton, iron tower, 30 feet high; octagonal lantern.	Marquette Light-House, 15° 00', 2,670 feet.		4th-order fixed red (e. l.) light; 40 feet above water; visible 8½ miles. On S'y end of breakwater, Marquette Harbor. The breakwater makes off point about ½ mile SW'y of Light-House Point, and extends S'y 2,900 feet. Lat. N, 46° 32' 11"; long. W, 87° 22' 43". Fog signal: Bell struck by machinery, thus: <table border="1"> <tr> <td>1 blow</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>5 sec.</td> <td></td> <td>5 sec.</td> </tr> </table>	1 blow	Silent interval	1 blow	Silent interval		5 sec.		5 sec.
1 blow	Silent interval	1 blow	Silent interval											
	5 sec.		5 sec.											
GRANITE ISLAND LIGHT-STATION (Mich.).		Granite.	Square tower, 34 feet high, rising from granite dwelling; concrete oilhouse 150 feet SE'y.	Grand Island Light-House, 108° 00', 36½ miles. Presque Isle Point, 169° 00', 9 miles.		4th-order light fixed white varied by red flash every 90 sec.; 93 feet above water; visible 17¼ miles. On Granite Island, about 12½ miles N'd of Marquette. Lat. N, 46° 43' 15"; long. W, 87° 24' 48". Fog signal: Bell struck by machinery, thus: <table border="1"> <tr> <td>1 blow</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>12 sec.</td> <td></td> <td>12 sec.</td> </tr> </table>	1 blow	Silent interval	1 blow	Silent interval		12 sec.		12 sec.
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LAKE SUPERIOR.

SOUTH SHORE—Continued.

U. S. Lake Survey Charts 0, 9, 91, 93, 94, 96, 901, and 903, and U. S. Hydrographic Office Charts 1474 and 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
BIG BAY POINT LIGHT-STATION (Mich.)		Red brick; black lantern.	Square tower rising from center of front of double brick dwelling; brick oilhouse and fog-signal house about 350 feet NW'ly.	Stannard Rock Light-House, 42° 00', 32 miles. Granite Island Light-House, 122° 00', 13½ miles. Huron Island Light-House, 300° 00', 17¼ miles.	<i>Fath.</i> 108	34-order fixed white light varied by a white flash every 20 sec.; 108 feet above water; visible 18½ miles. On point, E'ly side of entrance to Big Bay. Lat. N, 46° 50' 31"; long. W, 87° 40' 47". Fog signal: 10-inch steam whistle, sounds thus: Blast interval Blast interval 3 sec. 17 sec. 3 sec. 17 sec.
Big Bay Point Buoy	1	Black	30-foot spar.	Big Bay Point Light-House, 166° 45', about 1¼ miles. Big Bay Lumber Co. dock, 225° 45'. Salmon Trout Point, tangent, 281° 00'.	20	Marks N'ly end of rocky shoal extending out from Big Bay Point.
STANNARD ROCK LIGHT-STATION (Mich.)		Gray granite.	Conical tower, 78½ feet high, on cylindrical pier.	Stannard Rock Beacon, 160° 00', 2,190 feet. Marquette Light-House, 189° 20', about 4½ miles. Manitou Light-House, 315° 00', 2¼ miles.		2nd-order light flashing white every 30 sec.; 102 feet above water; visible 18½ miles. Near N'ly end of Stannard Rock, a dangerous reef, extending in N by W and S by E direction nearly ¼ mile, and about ½ mile wide. Lat. N, 47° 10' 59"; long. W, 87° 13' 30". Fog signal: 10-inch steam whistle, sounds thus: Blast interval Blast interval 3 sec. 10 sec. 5 sec. 42 sec.
Stannard Rock Beacon		Gray granite.	Stone beacon, 8 feet high and 9 feet diameter at base, surmounted by a wrought-iron shaft.	Stannard Rock Light-House, 340° 00', 2,190 feet.	10	On S'ly shoal of Stannard Rock, about 120 feet from its S'ly end.
HURON ISLAND LIGHT-STATION (Mich.)		Gray granite.	Square tower, 34 feet high, rising from granite dwelling; fog signal on NW'ly point of island.	Manitou Light-House, 31° 00', 37½ miles. Stannard Rock Light-House, 67° 30', 39½ miles.		3½-order fixed white light; 197 feet above water; visible 23½ miles. On NE'ly side and nearly midway between ends of West Huron Island. Lat. N, 46° 57' 48"; long. W, 87° 59' 53". Fog signal: 10-inch steam whistle, sounds thus: Blast interval Blast interval 8 sec. 52 sec. 8 sec. 52 sec.
Point Abbaye Shoal North Buoy.	Point Abbaye Shoal, 3.	Black	1st-class can.	Huron Island Light-House, 96° 00'. Northeast Point Abbaye, 245° 00'. Point Abbaye, 262° 00'.	20	Marks N'ly end of shoal.
Point Abbaye Shoal Southeast Buoy.	Point Abbaye Shoal, 6.	Red	2d-class nun.	Huron Island Light-House, 87° 00'. Point Abbaye, 280° 00'.	22	Marks SE'ly end of shoal.
Sand Point Light-Station (Mich.)		Red brick.	Square tower, 32 feet high, rising from brick dwelling.	Portage River Light-House, 13° 00', 13½ miles. Church at Methodist Mission, 62° 00', 2¼ miles.		5th-order fixed red light; 39 feet above water; visible 9¼ miles. On low sandy point ¾ mile N'd of Sand Point, W'ly side of L'Anse Bay, head of Keweenaw Bay. Lat. N, 46° 47' 03"; long. W, 88° 28' 02".
PORTAGE RIVER LIGHT-STATION (Mich.)		White.	Conical, stone tower, 45 feet high, coveredway to brick dwelling; brick oilhouse 100 feet W'ly.	Point Abbaye, N point, 93° 00', 12½ miles. Sand Point Light-House, 193° 00', 13½ miles.		5th-order fixed white light varied by red flash every minute; 68 feet above water; visible 15 miles. Nearly 1 mile E'ly of S'ly entrance to Portage River, W'ly shore of Keweenaw Bay. Lat. N, 46° 58' 41"; long. W, 88° 24' 50".

PORTAGE RIVER, N'D AND W'D TO PORTAGE LAKE.

U. S. Lake Survey Charts 0, 9, 94, 943, and 944.

The channels have been dredged to mean depth of 20 feet, and are plainly marked by buoys and lights; locations of buoys are stated where practicable.

Portage River Pier-head Light (Mich.)	White	Small house surmounted by upright; 2-story; skeleton, bell tower in front.		Fixed red lens lantern light; 37 feet above water; on end of pier at S'ly entrance to river. Lat. N, 46° 58' 08"; long. W, 88° 25' 50". Fog signal: bell struck by machinery, thus: 1 blow interval 1 blow interval 10 sec. 10 sec.
Portage Front Light (Mich.)	White	Wooden tower, 19 feet high.	Portage River Light-House, 112° 30'.	Two fixed white lights; front lens lantern; 21 feet, rear light, 5th-order, 27 feet above water; visible 12 miles. On W'ly side of river, near its mouth; guide into cut. Lat. N, 46° 59' 03"; long. W, 88° 26' 03".
Portage Rear Light (Mich.)	White	Lantern on frame dwelling, 25 feet high.	730 feet, 352° 00', from front light.	

LAKE SUPERIOR.

PORTAGE RIVER, N'D AND W'D TO PORTAGE LAKE—Continued.

U. S. Lake Survey Charts 0, 9, 94, 943, and 944.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Entrance Buoy.....	1	Black.....	25-foot spar.....	Portage River Light-House, 56° 00'. Portage River Range Front Light, 333° 00'.	<i>Fct.</i> 20	Marks W'y side of entrance to river, about 200 feet NW'y from Portage River Pierhead Light.
Jetty Buoy.....	3	Black.....	25-foot spar.....	Portage River Light-House, 76° 00'. Portage River Pier-head Light, 163° 00', 2,250 feet.	20	Opposite pier. Marks W'y bank of channel, about ¼ mile N'y from Entrance Buoy No. 1.
Portage River Buoy.....	2	Red.....	25-foot spar.....	Portage River Range Front Light, 339° 00', 450 feet.	20	
Portage River Buoy.....	2A	Red.....	25-foot spar.....	Portage Range Front Light-House, 253° 00', 200 feet. Portage Range Rear Light-House, 337° 30'.	20	Marks E'y edge of dredged channel.
Portage River Revetment South Buoy.	3A	Black.....	25-foot spar.....		20	Marks W'y bank of dredged channel, 50 feet E'y of, and directly opposite, S'y end of revetment pier.
Portage River Revetment North Buoy.	3B	Black.....	25-foot spar.....		20	Marks W'y bank of dredged channel, about 50 feet E'y of, and directly opposite, Portage Range Rear Light-House.
Edgerton Dock Buoy.....	4	Red.....	25-foot spar.....		20	Marks E'y bank of dredged channel opposite N'y end of revetment pier.
Light No. 0 (Mich.).....	0	White.....	Small house on crib.	Edgerton Dock, 225° 00', about 500 feet.		Fixed white post-lantern light; 11 feet above water; marking E'y bank of channel. Lat. N, 46° 59' 21"; long. W, 88° 26' 04".
Portage River Buoy.....	6	Red.....	25-foot spar.....		20	Marks E'y bank of channel opposite Light No. 0.
Portage River Buoy.....	5	Black.....	25-foot spar.....		20	Buoys Nos. 5, 7, 9, and 11 mark W'y bank of channel at turn from Edgerton Dock to range line of Lights Nos. 1 and 2.
Portage River Buoy.....	7	Black.....	25-foot spar.....		20	
Portage River Buoy.....	9	Black.....	25-foot spar.....		20	
Range, { Light No. 1 (Mich.)..	1	White.....	Target house on pile cluster.	Light No. 2, 141° 00', 900 feet.		Two fixed white post-lantern lights. No. 1, 12 feet, No. 2, 32 feet above water. In going up river, lights in range astern and should be followed to line of Range Lights Nos. 3 and 4. Light No. 1 also marks turning point in channel when upward bound.
Range, { Light No. 2 (Mich.)..	2	White.....	Upright with target.			
Portage River Buoy.....	11	Black.....	25-foot spar.....		20	
Portage River Buoy.....	8	Red.....	25-foot spar.....		20	Marks NE'y bank of channel, 750 feet NW'y from stone dock.
Portage River Buoy.....	13	Black.....	25-foot spar.....		20	Marks SW'y bank of channel opposite buoy No. 8.
Portage River Buoy.....	10	Red.....	25-foot spar.....		20	Marks NE'y bank of channel opposite buoy No. 15.
Portage River Buoy.....	15	Black.....	25-foot spar.....		20	Buoys Nos. 15, 17, and 19 mark SW'y edge of channel up to Cut No. 2.
Portage River Buoy.....	17	Black.....	25-foot spar.....		20	
Portage River Buoy.....	12	Red.....	25-foot spar.....		20	Marks NW'y bank of channel midway between buoys Nos. 17 and 19.
Portage River Buoy.....	19	Black.....	25-foot spar.....		20	
Range, { Light No. 3 (Mich.)..	3	White.....	Target house on pile cluster.	Light No. 4, 332° 00', 800 feet.		No. 3, fixed white post-lantern light; 10 feet above water; on N'y side of channel. Lat. N, 47° 00' 44"; long. W, 88° 27' 14".
Range, { Light No. 4 (Mich.)..	4	White.....	Upright with target.			No. 4, fixed white post-lantern light; 30 feet above water. Range line should be followed to range line of Lights Nos. 5 and 6.
Range, { Light No. 5 (Mich.)..	5	White.....	Target house on pile cluster.	Light No. 6, 122° 00', 730 feet.		No. 5, fixed white post-lantern light; 12 feet above water; on E'y side of channel. Lat. N, 47° 01' 07"; long. W, 88° 27' 06".
Range, { Light No. 6 (Mich.)..	6	White.....	Upright with target.			No. 6, fixed white post-lantern light; 28 feet above water. Lights in range astern, and should be followed to line of Lights Nos. 7 and 8.
Range, { Light No. 7 (Mich.)..	7	White.....	Lantern on target house.	Light No. 8, 290° 00', 1,400 feet.		No. 7, fixed white post-lantern light; 11 feet above water. Lat. N, 47° 01' 07"; long. W, 88° 28' 13".
Range, { Light No. 8 (Mich.)..	8	White.....	Lantern on post with double target.			No. 8, fixed white post-lantern light; 35 feet above water. Range should be followed to line of Lights Nos. 9 and 10.
Portage River Buoy.....	21	Black.....	25-foot spar.....		20	
Portage River Buoy.....	14	Red.....	25-foot spar.....		20	
Portage River Buoy.....	16	Red.....	25-foot spar.....		20	
Portage River Buoy.....	23	Black.....	25-foot spar.....		20	
Portage River Buoy.....	25	Black.....	25-foot spar.....		20	
Portage River Buoy.....	18	Red.....	25-foot spar.....		20	

LAKE SUPERIOR.

PORTAGE RIVER, N'D AND W'D TO PORTAGE LAKE—Continued.

U. S. Lake Survey Charts 0, 9, 94, 943, and 944.

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Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Portage River Buoy.....	27	Black.....	25-foot spar.....		Feet. 20	
Portage River Buoy.....	20	Red.....	25-foot spar.....		20	
Portage River Buoy.....	29	Black.....	25-foot spar.....		20	
Portage River Buoy.....	22	Red.....	25-foot spar.....		20	
Range. Light No. 9 (Mich.)..	9	White.....	Post with double target.	Light No. 10, 269° 00', 450 feet.		Two fixed red post-lantern lights. No. 9, 12 feet above water. Lat. N, 47° 01' 04"; long. W, 88° 28' 37"; No. 10, 28 feet above water. Range should be followed until Princess Point Light is visible.
Light No. 10 (Mich.)..	10	White.....	Lantern on post with target.			
Princess Point Light (Mich.)..		White.....	Small house on bank of river; frame oilhouse 50 feet N w'ly.			Fixed red lens-lantern light; 10 feet above water. On N'y bank of river, at lower turn at Princess Point and nearly opposite Light No. 9. Lat. N, 47° 01' 08"; long. W, 88° 28' 31". Visible only S'W'y of N'W and SE, and covers turn from range of Lights Nos. 9 and 10 to range of Lights Nos. 9 and 12.
Portage River Buoy.....	31	Black.....	25-foot spar.....		20	
Portage River Buoy.....	33	Black.....	25-foot spar.....		20	
Portage River Buoy.....	24	Red.....	25-foot spar.....		20	
Range. Light No. 9 (Mich.)..	9	White.....	House on pile cluster.	Light No. 12, 185° 30', 375 feet.		No. 12, fixed white post-lantern light; 28 feet above water; No. 9, fixed red post-lantern light; 12 feet above water. In going up river, lights in range astern, and should be taken when Princess Point Light disappears; Light No. 14 will then be directly ahead, 5° 30', true (N ½ E, mag.).
Light No. 12 (Mich.)..	12	White.....	Lantern on post with target.			
Portage River Buoy.....	35	Black.....	25-foot spar.....		20	
Portage River Buoy.....	26	Red.....	25-foot spar.....		20	
Range. Light No. 13 (Mich.)..	13	White.....	Target house.....	Light No. 8, 354° 00', about 370 feet.		Two fixed white post-lantern lights. No. 13, 12 feet above water. Lat. N, 47° 01' 16"; long. W, 88° 28' 33"; No. 8, 35 feet above water. In going up river these lights will be in range astern and should be followed from range of Lights Nos. 9 and 12 to range of Lights Nos. 14 and 15.
Light No. 8 (Mich.)..	8	White.....	Upright with double target.			
Portage River Buoy.....	28	Red.....	25-foot spar.....		20	
Portage River Buoy.....	37	Black.....	25-foot spar.....		20	
Portage River Buoy.....	30	Red.....	25-foot spar.....		20	
Portage River Buoy.....	39	Black.....	25-foot spar.....		20	
Portage River Buoy.....	32	Red.....	25-foot spar.....		20	
Range. Light No. 14 (Mich.)..	14	White.....	Masts with oval day-marks in front of small lamp-houses on square cribs.	Light No. 15, 163° 00', about 600 feet.		Two fixed white post-lantern lights. No. 14, 18 feet above water. Lat. N, 47° 01' 34"; long. W, 88° 28' 34"; No. 15, 25 feet above water. In range astern carry into Portage Lake.
Light No. 15 (Mich.)..	15	White.....				
Portage River Buoy.....	34	Red.....	25-foot spar.....		20	
Portage River Buoy.....	41	Black.....	25-foot spar.....		20	
Portage River Buoy.....	36	Red.....	25-foot spar.....		20	
Portage River Buoy.....	43	Black.....	25-foot spar.....		20	
Portage River Buoy.....	38	Red.....	25-foot spar.....		20	
Portage River Buoy.....	45	Black.....	25-foot spar.....		20	

PORTAGE LAKE, N'D AND W'D.

U. S. Lake Survey Charts 0, 9, 94, and 944.

SAILING DIRECTIONS.—After leaving head of Portage River steer 346°, true (N by W ½ W, mag.), about 5 miles, for Pilgrim Point Light, or until within ½ mile of it, thence N'y until ½ mile beyond the light, having passed about 250 feet to E'd of it; thence 290°, true (WNW ¼ W, mag.), 2½ miles, until abreast Michigan College of Mines; thence keep about midway between shores. N'y of High Point Light, channels carrying to S'y entrance to canals are marked by range lights. A railroad bridge crosses between Houghton and Hancock; four whistles is signal to open draw.

Dangers:

Middle Ground, shoal with 11 feet water over it, extends nearly ¾ mile SE'y from Grossepoint, is marked by buoys.

Shoal off Pilgrim Point Light, is marked by buoy.

Rocky shoal and reef extends along S'y shore to point 1½ miles W'y from Pilgrim Point Light, but opposite shore is bold.

About ¾ mile N'y of Cole Creek Light a shoal makes off mouth of Swedetown Creek, marked by buoy; opposite (W'y) shore is bold.

Middle Ground South End Buoy.	Middle Ground.	Red and black horizontal stripes.	3d-class can.....	Franklin Stamps Dock, right tangent, 87° 00'. Arcadian Stamps Dock, right tangent, 41° 00'. Pilgrim Point Light, 332° 00'.	20	Marks SE'y end of Middle Ground making off Grossepoint.
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LAKE SUPERIOR.

PORTGÆE LAKE, N'D AND W'D—Continued.
U. S. Lake Survey Charts 0, 9, 94, and 944.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Middle Ground Shoal Buoy.	2	Red.....	25-foot spar.....	Franklin S t a m p s Dock, left tangent, 46° 00'. Portage Lake Golf Club Dock, outer end, 315° 00'. Pilgrim Point Light, 337° 30'.	Feet. 20	Marks middle of W'y side of Middle Ground, off Grossepoint.
Grossepoint Buoy.....	4	Red.....	25-foot spar.....	Portage Lake Golf Club Dock, outer end, 300° 00'. Onigamine Yacht Club Dock, outer end, 316° 00'. Pilgrim Point Light, 340° 00'.	22	Marks NW'y end of Middle Ground, off Grossepoint.
Pilgrim Point Light (Mich.).		White.....	Small house on triangular pile cluster.		8	A fixed red lens-lantern light; 16 feet above water; on E'y edge of shoal off Pilgrim Point. Lat. N, 47° 06' 23"; long. W, 88° 30' 38".
Pilgrim Point Buoy.....	1	Black.....	25-foot spar.....	Pilgrim Point Light, 219° 00', 200 feet. Snowshoe Island, S end, 283° 00'.	20	Marks NE'y end of shoal off Pilgrim Point Light.
Snowshoe Island South Buoy.	3	Black.....	25-foot spar.....	Snowshoe Island, S end, 233° 00'. Pilgrim Point, 145° 00'.	20	Marks rocky shoal.
Snowshoe Island North Buoy.	5	Black.....	25-foot spar.....	Snowshoe Island, N end, 135° 00', 2,550 feet.	20	Marks NW'y end of rocky shoal and reef.
Ripley Shoal Buoy.....	6	Red.....	25-foot spar.....	Portage Lake Boiler Works, left tangent, 70° 00'. Portage Lake Boiler Works Dock, right tangent, 98° 00'. Hubbell Ave. Dock, left tangent, 138° 00'.	20	Marks shoal off Ripley and the dock of Portage Coal and Dock Co.
Oscocla Point Light (Mich.).		White.....	Small house.....			Fixed white post-lantern light; 8 feet above water; on end of low projecting point on N'y side of river, about 1 mile W'y of Houghton and Hancock bridge. Lat. N, 47° 07' 20"; long. W, 88° 35' 39".
Atlantic Point Light (Mich.).		White.....	Small house.....			Fixed red post-lantern light; 8 feet above water; on S'y side of river near Atlantic Mine Dock, about 1½ miles W'y of Oscocla Point Light. Lat. N, 47° 07' 28"; long. W, 88° 36' 26".
Grass Island Buoy.....	8	Red.....	25-foot spar.....		20	Marks E'y edge of channel abreast Grass Island.
Cole Creek Light (Mich.).		White.....	Small house on pile cluster.			Fixed white lens-lantern light; 12 feet above water; on SW'y side of river, ¼ mile below mouth of Cole Creek and ¼ mile W'y from Atlantic Point Light. Lat. N, 47° 07' 45"; long. W, 88° 37' 19".
Swedetown Creek Buoy..	10	Red.....	25-foot spar.....	Cole Creek Light, 167° 00', about 3,200 feet.	20	Marks point of shoal at mouth of Swedetown Creek.
Harrington Island Buoy.	7	Black.....	25-foot spar.....		20	Marks W'y edge of channel abreast Harrington Island.
Harrington Island Light (Mich.).		White.....	Small house on pile cluster.			Fixed red lens-lantern light; 12 feet above water; on S'y end of island, W'y side of N'y arm of lake, and about 2¼ miles N'y of Cole Creek Light. Lat. N, 47° 09' 30"; long. W, 88° 38' 00".
High Point Light (Mich.).		White.....	Small house on pile cluster.			Fixed white lens-lantern light; 12 feet above water; on E'y side of lake at High Point. Lat. N, 47° 10' 01"; long. W, 88° 38' 16".
High Point Buoy.....	12	Red.....	25-foot spar.....		20	Marks E'y edge of channel abreast High Point.
Schlot Creek Buoy.....	9	Black.....	25-foot spar.....	North Canal Brick Co. Dock, 24° 00', about 3,200 feet. Mill Point Dock, left tangent, 39° 00', about 2,900 feet. Dock below Schlot Creek, left tangent, 208° 30'.	20	Marks W'y side of S'y end of dredged channel in N'y arm of lake, off mouth of Schlot Creek.
Schlot Creek Buoy.....	14	Red.....	25-foot spar.....	North Canal Brick Co. Dock, 20° 00', about 3,100 feet. Mill Point Dock, left tangent, 35° 00', about 2,750 feet.	20	Marks E'y side of S'y end of dredged channel in N'y arm of lake, off mouth of Schlot Creek.
Brickyard Buoy.....	11	Black.....	25-foot spar.....		20	Marks W'y side of N'y end of dredged channel off Schlot Creek.

LAKE SUPERIOR.

PORTAGE LAKE, N'D AND WD—Continued.

U. S. Lake Survey Charts 0, 9, 94, and 944.

1	2	3	4	5	6	7
Name of Aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Brickyard Buoy.....	16	Red.....	25-foot spar.....	North Canal Brick Co. Dock, 11° 00', about 1,200 feet. Mill Point Dock, left tangent, 39° 00', about 1,450 feet.	Feet. 20	Marks E'y side of N'y end of dredged channel off mouth of Schlot Creek.
Rouleau Point Buoy.....	13	Black.....	25-foot spar.....		20	Marks W'y edge of channel abreast Rouleau Point.
Rouleau Point Buoy.....	18	Red.....	25-foot spar.....		20	Marks E'y edge of channel abreast Rouleau Point.
Range. Rouleau Point Front Light (Mich.).		White.....	Target house on small crib.	Rear light, 33° 30', 450 feet.		Two fixed white post-lantern lights. Front light, 11 feet above water. Lat. N, 47° 11' 41"; long. W, 88° 37' 00"; rear light, 28 feet above water. This range should be followed about 1 1/4 miles to its intersection with range marked by Portage Lake Ship Canals Range Lights.
	Rouleau Point Rear Light (Mich.).	White.....	Upright with target; brick oilhouse 20 feet W'y.			
Range. Portage Lake Ship Canals Front Light (Mich.).		White.....	Small square lamp house.	Rear light, 13° 54' from E. Engineers file No. 704, Dec 11, 1911 13° 54' from E. Engineers file No. 704, Dec 11, 1911 42° 45', 750 feet.		Fixed red post-lantern light; 8 feet above water; on S'y end of E'y pier of canal, at head of lake. Lat. N, 47° 11' 54"; long. W, 88° 37' 06".
	Portage Lake Ship Canals Rear Light (Mich.).	White.....	Upright with triangular daymark.			Fixed red post-lantern light; 28 feet above water. With preceding forms range for approaching S'y entrance to canals. Lat. N, 47° 12' 27"; long. W, 88° 37' 05".
Lily Pond South Light (Mich.).		White.....	Small frame lantern house.			Fixed red lens-lantern light; 12 feet above water; on E'y side of mooring revetment, S'y end of Lily Pond, Portage Lake Ship Canals.
Lily Pond North Light (Mich.).		White.....	Small frame lantern house.			Fixed red lens-lantern light; 12 feet above water; on E'y side of mooring revetment, N'y end of Lily Pond, Portage Lake Ship Canals. Lat. N, 47° 13' 01"; long. W, 88° 37' 05".

TORCH BAY, PORTAGE LAKE.

U. S. Lake Survey Charts 0, 9, 94, and 944.

Lantrande Shoal Buoy..	2	Red.....	25-foot spar.....	Grosspoint, tangent, 285° 00'. Arcadian Stamp Mill dock, left tangent, 321° 00'.	20	Marks S'y edge of channel, opposite Arcadian Stamp Mill.
Torch Bay Buoy.....	1	Black.....	25-foot spar.....	Bootjack dock, 51° 00'. Arcadian Stamp Mill dock, tangent, 270° 00'.	20	Marks N'y edge of channel, E'y end of bay.

S'LY SHORE.

U. S. Lake Survey Charts 0, 9, 93, 94, 944, 946, 947, 948, 949, 951, and 961.

MENDOTA LIGHT-STATION (Mich.).		Buff.....	Square brick tower, 37 1/2 feet high, rising in center of front of brick dwelling, with gable roof; brick oilhouse 100 feet SW'y.			4th-order fixed white light; 44 feet above water; visible 13 1/4 miles. On S'y side of canal entrance to Lac la Belle, Bete Grise Bay, S'y side of the end of Keweenaw Peninsula. Lat. N, 47° 22' 27"; long. W, 87° 58' 00".
MANITOU LIGHT-STATION (Mich.).		White.....	Skeleton, iron tower, with stair cylinder, 70 feet high; connected with frame dwelling.	Stannard Rock Light-House, 135° 00', 24 miles. Granite Island Light-House, 170° 00', 49 1/4 miles. Huron Island Light-House, 211° 00', 37 1/2 miles.		3rd-order fixed white light varied by a white flash every minute; 81 feet above water; visible 17 miles. On E'y point of Manitou Island, 6 miles to E'd of Keweenaw Point. Lat. N, 47° 25' 11"; long. W, 87° 35' 13". Fog signal: 10-inch steam whistle, sounds thus: Blast Silent Blast Silent 3 sec. 26 sec. 5 sec. 26 sec.
Gull Rock Buoy.....	4	Red.....	25-foot spar.....	Manitou Island, southern end, 90° 00'. Gull Rock Light-House, 357° 00', 3/8 mile.	20	Marks shoal about 3/8 mile to S'd of Gull Rock Light-House, on which there is less than 12 feet of water.
GULL ROCK LIGHT-STATION (Mich.).		Yellow brick..	Square tower, 39 feet high, rising from brick dwelling.	Granite Island Light-House, 166° 00', 50 1/2 miles. Huron Island Light-House, 207° 00', 35 1/4 miles. Portage River Light-House, 229° 00', 46 1/4 miles.		4th-order fixed red light; 50 feet above water; visible 13 miles. On Gull Rock, between Manitou Island and Keweenaw Point, and guide through the passage. Lat. N, 47° 25' 02"; long. W, 87° 39' 50".

LAKE SUPERIOR.

S'LY SHORE—Continued.

U. S. Lake Survey Charts 0, 9, 93, 94, 944, 946, 947, 948, 949, 951, and 961.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
COPPER HARBOR LIGHT-STATION (Mich.) (L. S. Chart 946.)		Yellow brick.	Square tower, 35 feet high, rising from brick dwelling.	Copper Harbor Range Front Light, 217° 00', 2,940 feet.		4th-order fixed white light; 65 feet above water; visible 15½ miles. About 150 feet from the E'ly point of entrance into Copper Harbor. Lat. N. 47° 28' 28"; long. W. 87° 51' 36".								
Range. Copper Harbor Front Light (Mich.) Copper Harbor Rear Light (Mich.)		White.	Wooden tower, 16 feet high.	Rear light, 193° 00', 470 feet.		Two fixed white lens-lantern lights; front light 22 feet above water; rear light, 39 feet above water. On S'ly shore of Copper Harbor. Front light, Lat. N. 47° 28' 07"; long. W. 87° 51' 59". Rear light, Lat. N. 47° 28' 03"; long. W. 87° 51' 45". Guide into harbor. <i>Local knowledge necessary.</i>								
		White.	Lantern on frame dwelling, 26 feet high.											
EAGLE HARBOR LIGHT-STATION (Mich.) (L. S. Chart 948.)		Red brick; brown fog-signal house.	Octagonal tower, 38 feet high, rising from corner of brick dwelling; brick oilhouse 100 feet W'ly; corrugated iron fog-signal house, 100 feet NNW'ly.	Eagle Harbor Range Front Light, 131° 00', 2,250 feet.		4th-order fixed white light varied by a white flash every minute; 58 feet above water; visible 15 miles. On W'ly point at entrance into Eagle Harbor. Lat. N. 47° 27' 40"; long. W. 88° 09' 31". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent Interval</td> <td>Blast</td> <td>Silent Interval</td> </tr> <tr> <td>3 sec.</td> <td>12 sec.</td> <td>6 sec.</td> <td>24 sec.</td> </tr> </table>	Blast	Silent Interval	Blast	Silent Interval	3 sec.	12 sec.	6 sec.	24 sec.
Blast	Silent Interval	Blast	Silent Interval											
3 sec.	12 sec.	6 sec.	24 sec.											
Range. Eagle Harbor Front Light (Mich.) Eagle Harbor Rear Light (Mich.)		White.	Wooden tower, 19 feet high; brick oilhouse, 100 feet SE'ly.	Rear light, 132° 00', 1,000 feet.		Two fixed white lens-lantern lights; front light, 20 feet above water; rear light, 29 feet above water. On S'ly side of harbor, W'd of mouth of Cedar Creek. Front light, lat. N. 47° 27' 22"; long. W. 88° 09' 04". Rear light, lat. N. 47° 27' (05"); long. W. 88° 08' (51"). Get lights in range when ¾ mile from front light, and stand in, passing between bulkheads on bar at entrance to harbor, about 200 feet to E'd and W'd of range line; when inside of bulkheads haul to W'd or E'd of them, and anchor in from 3 to 4 fathoms of water.								
		White.	Lantern on frame dwelling, 27 feet high.											
Portage Lake Ship Canals East Breakwater Light (Mich.) (L. S. Chart 944.)		White; black gallery and lantern.	Square, pyramidal, skeleton, steel tower, 34 feet high.			Red lens-lantern (g.) light 10 sec., eclipse 10 sec.; 32 feet above water. Marks W'ly end of breakwater at N'ly entrance to canals. Lat. N. 47° 14' 04"; long. W. 88° 37' 48".								
Portage Lake Ship Canals West Breakwater Light (Mich.)		White; black gallery and lantern.	Square, pyramidal, skeleton, steel tower, 34 feet high.			Red post-lantern (g.) light 10 sec., eclipse 10 sec.; 32 feet above water. Marks E'ly end of breakwater at N'ly entrance to canals. Lat. N. 47° 14' 02"; long. W. 88° 37' 54".								
Portage Lake Ship Canals Pierhead Light-Station (Mich.)		White; black lantern and elevated walk.	Square, pyramidal, open framework tower, 34 feet high; elevated walk along pier to shore.	Outer Island Light-House, 263° 00', 84½ miles. Rock of Ages Light-House, 325° 00', 54½ miles.		6th-order fixed red light; 41 feet above water; visible 8¼ miles. On end of W'ly pier at entrance to canal. Lat. N. 47° 13' 51"; long. W. 88° 37' 45". The light is not intended to range light with the next. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent Interval</td> <td>Blast</td> <td>Silent Interval</td> </tr> <tr> <td>3 sec.</td> <td>17 sec.</td> <td>3 sec.</td> <td>17 sec.</td> </tr> </table>	Blast	Silent Interval	Blast	Silent Interval	3 sec.	17 sec.	3 sec.	17 sec.
Blast	Silent Interval	Blast	Silent Interval											
3 sec.	17 sec.	3 sec.	17 sec.											
PORTAGE LAKE SHIP CANALS LIGHT-STATION (Mich.)		Buff.	Square tower, 43 feet high, attached to brick dwelling; brick oilhouse, 100 feet W'ly.	Isle Royal Light-House, 354° 00', 50 miles.		3½-order fixed white light; 66 feet above water; visible 15.8 miles. On W'ly bank of entrance to canals. Lat. N. 47° 13' 41"; long. W. 88° 37' 38".								
FOURTEEN-MILE POINT LIGHT-STATION (Mich.) (L. S. Chart 94.)		Red build-ings; black watchroom and lantern.	Square, brick tower, rising in center of double brick dwelling; brick oilhouse, 200 feet NE'ly; brick fog-signal house, 150 feet NW'ly.	Ontonagon Light-House, 228° 00', 12¼ miles.		4th-order fixed white light varied by red flash every 20 sec.; 60 feet above water; visible 15¼ miles. On Fourteen-Mile Point. Lat. N. 46° 59' 40"; long. W. 89° 07' 33". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent Interval</td> <td>Blast</td> <td>Silent Interval</td> </tr> <tr> <td>5 sec.</td> <td>25 sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </table>	Blast	Silent Interval	Blast	Silent Interval	5 sec.	25 sec.	5 sec.	25 sec.
Blast	Silent Interval	Blast	Silent Interval											
5 sec.	25 sec.	5 sec.	25 sec.											
Ontonagon Pierhead Light-Station (Mich.)		White.	Square, pyramidal, skeleton, iron tower, upper part inclosed; elevated walk along pier to shore.	Ontonagon Light-House, 132° 00', 3½ miles. Grand Marais Light-House, 323° 00', 77 miles.		4th-order fixed red light; 31 feet above water; visible 12½ miles. About 45 feet from end of W'ly pier, at entrance to Ontonagon River. Lat. N. 46° 52' 49"; long. W. 89° 19' 59". Fog signal: Hand horn sounds blasts of about 10 sec., silent intervals about 10 sec., in answer to vessel's signals.								
ONTONAGON LIGHT-STATION (Mich.) (L. S. Chart 951.)		Yellow.	Square tower, 39 feet high, rising from brick dwelling; brick oilhouse, 56 feet NW'ly.	La Pointe Light-House, 263° 00', 71 miles. Michigan Island Light-House, 270° 00', 53½ miles.		5th-order fixed white light; 47 feet above water; visible 14 miles. On W'ly bank of mouth of Ontonagon River. Lat. N. 46° 52' 27"; long. W. 89° 19' 32". Forms range with preceding for approaching entrance to harbor.								
OUTER ISLAND LIGHT-STATION (Wis.) (L. S. Chart 961.)		White.	Conical, brick tower, 78 feet high, coveredway to brick dwelling; brick oilhouse, 75 feet W'ly.	Rock of Ages Light-House, 42° 00', 75½ miles. Ontonagon Light-House, 105° 00', 54 miles.		3d-order light flashing white every 90 sec.; 130 feet above water; visible 20 miles. On N'ly point of Outer Island, a Apostle Group. Lat. N. 47° 04' 30"; long. W. 90° 24' 59". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent Interval</td> <td>Blast</td> <td>Silent Interval</td> </tr> <tr> <td>8 sec.</td> <td>52 sec.</td> <td>8 sec.</td> <td>52 sec.</td> </tr> </table>	Blast	Silent Interval	Blast	Silent Interval	8 sec.	52 sec.	8 sec.	52 sec.
Blast	Silent Interval	Blast	Silent Interval											
8 sec.	52 sec.	8 sec.	52 sec.											

LAKE SUPERIOR.

S'LY SHORE—Continued.

U. S. Lake Survey Charts 0, 9, 93, 94, 944, 946, 947, 948, 949, 951, and 961.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
MICHIGAN ISLAND LIGHT-STATION (Wis.) (L. S. Chart 962.)		White.....	Conical stone tower, 64 feet high; stone dwelling attached; brick oilhouse, 100 feet NW'ly.	Ontonagon Light-House, 90° 00', 5½ miles.	<i>Fath.</i>	3½-order fixed white light; 129 feet above water; visible 20 miles. On S'ly point of Michigan Island. Lat. N, 46° 52' 17"; long. W, 90° 29' 48". A guide between Michigan, Madaline, and Stockton islands to Bayfield and La Pointe.								
LA POINTE LIGHT-STATION (Wis.) (L. S. Chart 962.)		White; black lantern.	Square, pyramidal, skeleton, iron tower; 60½ feet high; inclosing stair cylinder; fog-signal house E'ly.	Ontonagon Light, 82° 00', 69½ miles.		4th-order fixed white light; 70 feet above water; visible 16 miles. Lat. N, 46° 43' 44"; long. W, 90° 47' 06"; guiding through S'ly channel. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> </tr> <tr> <td style="text-align: center;">5 sec.</td> <td style="text-align: center;">25 sec.</td> <td style="text-align: center;">5 sec.</td> <td style="text-align: center;">25 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	25 sec.	5 sec.	25 sec.
Blast	Silent interval	Blast	Silent interval											
5 sec.	25 sec.	5 sec.	25 sec.											
Madaline Island Buoy	2	Red.....	35-foot spar.....	La Pointe Light-House, 155° 15', 1¼ miles. Chequamegon Point Light-House, 204° 00', about 1½ miles.	24	Marks SW'ly end of shoal extending from Madaline Island.								
Chequamegon Point Light-Station (Wis.) (L. S. Chart 962.)		White; black lantern.	Square, pyramidal, skeleton, iron tower, 35 feet high.	Michigan Island Light, 56° 00', 18 miles.		4th-order fixed red light; 42 feet above water; on extreme end of Chequamegon Point, E'ly side of entrance to Chequamegon Bay. Lat. N, 46° 43' 43"; long. W, 90° 48' 33". Fog signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">1 blow</td> <td style="text-align: center;">Silent interval</td> <td style="text-align: center;">1 blow</td> <td style="text-align: center;">Silent interval</td> </tr> <tr> <td></td> <td style="text-align: center;">20 sec.</td> <td></td> <td style="text-align: center;">20 sec.</td> </tr> </table>	1 blow	Silent interval	1 blow	Silent interval		20 sec.		20 sec.
1 blow	Silent interval	1 blow	Silent interval											
	20 sec.		20 sec.											

CHEQUAMEGON BAY, ASHLAND HARBOR.

U. S. Lake Survey Charts 0, 9, 96, 903, 962, and 964.

Ashland Harbor Entrance Buoy	1	Black.....	Spar.....	Wisconsin Central Ore dock, left tangent, 52° 30'. Pope Lumber Co.'s E dock, left tangent, 111° 40'. Commercial dock, right tangent, 213° 30'.	18	On S'ly edge of channel, at turn from bay into dredged channel.
Ashland Harbor Buoy	2	Red.....	Spar.....	Wisconsin Central Ore dock, left tangent, 58° 20'. Pope Lumber Co.'s E dock, left tangent, 86° 30'. Commercial dock, left tangent, 143° 20'.	20	On N'ly edge of channel, opposite Commercial dock.
Ashland Harbor Buoy	3	Black.....	Spar.....	Wisconsin Central Ore dock, left tangent, 51° 00'. Commercial dock, NW corner, 70° 45'. Keystone Lumber Co.'s dock, right tangent, 180° 40'.	18	On S'ly edge of channel, nearly opposite ruins of Vaughn dock.
Ashland Harbor Buoy	4	Red.....	Spar.....	Wisconsin Central Ore dock, left tangent, 51° 40'. Commercial dock, NW corner, 79° 20'. Keystone Lumber Co.'s dock, right tangent, 173° 45'.	18	On N'ly edge of channel, nearly opposite ruins of Vaughn dock.
Ashland Harbor Buoy	5	Black.....	Spar.....	Commercial dock, left tangent, 56° 30'. Keystone Lumber Co.'s dock, left tangent, 102° 30'. Barker & Stewart Lumber Co.'s E dock, left tangent, 183° 30'.	18	On S'ly edge of channel, opposite Cooperative Coal dock.
Ashland Harbor Buoy	6	Red.....	Spar.....	Commercial dock, left tangent, 61° 30'. Keystone Lumber Co.'s dock, left tangent, 108° 45'. Barker & Stewart Lumber Co.'s E dock, left tangent, 177° 15'.	18	On N'ly edge of channel, opposite Cooperative Coal dock.

LAKE SUPERIOR.

CHEQUAMEGON BAY, ASHLAND HARBOR—Continued.

U. S. Lake Survey Charts 0, 9, 96, 903, 962, and 964.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Ashland Harbor Buoy...	8	Red.....	Spar.....	Barker & Stewart Lumber Co.'s E dock, left tangent, 86° 00'. Durfee Lumber Co.'s E dock, right tangent, 108° 30'. Lake Superior Iron and Chemical Co.'s dock, right tangent, 222° 15'.	Feet. 18	On N'y edge of channel, opposite center of Barker & Stewart's Lumber Co.'s dock.
Ashland Harbor Buoy...	7	Black.....	Spar.....	Barker & Stewart Lumber Co.'s dock, left tangent, 68° 00'. Durfee Lumber Co.'s dock, tangent W extension, 124° 30'. Lake Superior Iron and Chemical Co.'s dock, tangent, 178° 00'.	18	On S'y edge of channel, opposite Durfee Lumber Co.'s W dock.
Ashland Harbor Buoy...	10	Red.....	Spar.....	Barker & Stewart Lumber Co.'s dock, left tangent, 73° 20'. Durfee Lumber Co.'s dock, tangent W extension, 118° 40'. Lake Superior Iron and Chemical Co.'s dock, right tangent, 147° 40'.	16	On N'y edge of channel, at W'y end of dredged improvements.

S'LY SHORE.

U. S. Lake Survey Charts 0, 9, 93, 94, 944, 946, 947, 948, 949, 951, and 961.

*Booth's Bayfield Dock Light (Wis.).		Natural.....	Electric-light pole.....	Chequamegon Point Light-House, 179° 00', about 5½ miles.		Fixed green above fixed white (e. a.) light; about 25 feet above water, on outer end of company's dock at Bayfield. Maintained by Messrs. A. Booth & Co., Bayfield, Wis.															
Raspberry Island Light-Station. (L. S. Chart 961.)		White; red-brick fog-signal house.	Square tower, in center of front of frame dwelling, 37 feet high; fog-signal house, 75 feet and brick oil-house 100 feet SE'y.	Mouth of Raspberry River, 205° 00', 2½ miles.		5th-order light, fixed white varied by white flash every minute; 77 feet above water; visible 16½ miles. On SW'y point of Raspberry Island, Apostle Group. Lat. N, 46° 58' 14"; long. W, 90° 48' 17". Guide for channel between mainland and Raspberry Island. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>Blast</td> <td>Silent</td> <td>Blast</td> <td>Silent</td> </tr> <tr> <td></td> <td>Interval</td> <td>Interval</td> <td>Interval</td> <td>Interval</td> </tr> <tr> <td></td> <td>3 sec.</td> <td>17 sec.</td> <td>3 sec.</td> <td>17 sec.</td> </tr> </table>		Blast	Silent	Blast	Silent		Interval	Interval	Interval	Interval		3 sec.	17 sec.	3 sec.	17 sec.
	Blast	Silent	Blast	Silent																	
	Interval	Interval	Interval	Interval																	
	3 sec.	17 sec.	3 sec.	17 sec.																	
Marina Shoal Buoy.....	1	Black.....	25-foot spar.....	Northwest point of Bear Island, 13° 00'. Raspberry Island Light-House, 55° 00'. York Island, N end, 300° 00'.	19	Marks shoal on which steamer <i>Marina</i> grounded, off S'y end of Raspberry Island; give a good berth.															
DEVILS ISLAND LIGHT-STATION. (L. S. Chart 961.)		White; black lantern.	Cylindrical steel tower, 71 feet high, surmounted by lantern; fog-signal house, 130 feet N'y; brick oil-house—300 feet SE'y.	Outer Island Light-House, 91° 00', 14½ miles. Sand Island Light-House, 242° 00', 11½ miles.		3d-order light flashing alternately red and white, interval 10 sec.; 100 feet above water; visible 18¼ miles. On N'y end of Devils Island, most N'y of Apostle Group. Lat. N, 47° 04' 47"; long. W, 90° 43' 41". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>Blast</td> <td>Silent</td> <td>Blast</td> <td>Silent</td> </tr> <tr> <td></td> <td>Interval</td> <td>Interval</td> <td>Interval</td> <td>Interval</td> </tr> <tr> <td></td> <td>5 sec.</td> <td>10 sec.</td> <td>5 sec.</td> <td>40 sec.</td> </tr> </table>		Blast	Silent	Blast	Silent		Interval	Interval	Interval	Interval		5 sec.	10 sec.	5 sec.	40 sec.
	Blast	Silent	Blast	Silent																	
	Interval	Interval	Interval	Interval																	
	5 sec.	10 sec.	5 sec.	40 sec.																	
York Island Shoals Gas Buoy, No. 1A.	1A	Black.....	Cylindrical, surmounted by pyramidal lattice-work and lantern.	Raspberry Island Light-House, 148° 00'. York Island, right tangent, 203° 00'. Sand Island Light-House, 247° 00'.	30	White lens-lantern (a.) light 10 sec., eclipse 10 sec.; 10 feet above water. Moored off NW'y side of shoals and E'y side of N'y entrance to W'y channel between Apostle Islands.															
Sevona Wreck Buoy.....	2 SW	Red.....	Spar.....	York Island, right tangent, 147° 00'. Sand Island, left tangent, 200° 15'. Sand Island Light-House, 244° 45'.	20	About ¼ mile N'y from 18-foot spot on N'y part of Sand Island Shoals; guides clear of shoals and wreck.															
SAND ISLAND LIGHT-STATION. (L. S. Chart 961.)		Red.....	Octagonal stone tower, 37 feet high, rising from stone dwelling.	Devils Island Light-House, 50° 00', 11½ miles.		4th-order fixed white light; 56 feet above water; visible 15 miles. On N'y point of Sand Island. Lat. N, 47° 00' 12"; long. W, 90° 56' 14".															

SUPERIOR BAY.

SUPERIOR ENTRY TO THE GATE.

U. S. Lake Survey Charts 0, 9, 96, and 966.

Least depth in entry 22 feet; 20 feet in Allouez Bay Channel and Superior Front Channel. The Old Superior Bay and Quebec channels, leading from Superior Entry into Superior Front Channel, have a least depth of 15 feet, are buoyed, and should be used by small steamers and rafts.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Range. SUPERIOR PIER-HEAD FRONT LIGHT-STATION (Wis.).		White.....	Lantern on NE'y corner of roof of fog-signal building.	Rear light, 235° 06', 670 feet.	Feet.	Fixed white lens-lantern light; 30 feet above water, on outer end of South pier. Fog signal: 6-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval.</td> </tr> <tr> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">12 sec.</td> <td style="text-align: center;">3 sec</td> <td style="text-align: center;">12 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval.	3 sec.	12 sec.	3 sec	12 sec.
	Blast	Silent interval	Blast	Silent interval.										
3 sec.	12 sec.	3 sec	12 sec.											
SUPERIOR PIER-HEAD REAR LIGHT (Wis.).		White.....	Mast.			Fixed white reflector light; 60 feet above water; visible 15½ miles; near inner end of South pier. Lat. N, 46° 42' 22"; long. W, 92° 00' 52". With preceding, forms range for approaching entrance.								
Minnesota Point Buoy.....		Red and black horizontal stripes.	25-foot spar.....	Superior Pierhead Range Front Light, 85° 00'. Allouez Bay Light, No. 1, 138° 00'. Superior Harbor Basin Light, No. 2, 285° 30'.	20	At junction of Superior Bay Channel with Superior Harbor Basin.								
Allouez Bay Entrance Buoy.	1	Black.....	25-foot spar.....	Superior Pierhead Range Rear Light, 25° 00'. East Ore Dock, outer end, 264° 00'. Minnesota Point Unused Light-House, 323° 00'.	20	Marks turning point into Allouez Bay channel.								
Nemadji River Buoy.....	3	Black.....	25-foot spar.....	Minnesota Point Unused Light-House, 0° 00'. Superior Pierhead Range Rear Light, 73° 00'. East Ore Dock, outer end, 131° 00'.	20	Marks SW'y edge of channel.								
Superior Front Channel Buoy.	2	Red.....	25-foot spar.....	Superior Pierhead Range Rear Light, 80° 00'. East Ore Dock, outer end, 163° 00'.	20	Marks NE'y edge of channel.								
Superior Harbor Basin Light, No. 2 (Wis.).		Red; white daymark.	Cluster of piles with platform and upright.	Minnesota Point Unused Light-House, 39° 00', about 1,600 feet.	5	Fixed red post-lantern light; 12 feet above water; on N'y side of Superior Harbor Basin Channel. Lat. N, 46° 42' 24"; long. W, 92° 01' 45".								
Superior Front Channel Light, No. 4 (Wis.).		Red; white daymark.	Cluster of piles with platform and upright.	Minnesota Point Unused Light-House, 87° 00'. Superior Harbor Basin Light, No. 2, 121° 00', 2,200 feet.	7	Fixed red post-lantern light; 12 feet above water; on NE'y side of channel, opposite Pittsburg Coal Co. dock. Lat. N, 46° 42' 34"; long. W, 92° 02' 13".								
Superior Front Channel Buoy.	4	Red.....	25-foot spar.....	Minnesota Point Unused Light-House, 86° 00'. Superior Pierhead Range Rear Light, 104° 00'. East Ore Dock, outer end, 127° 00'.	20	Marks NE'y edge of channel, in front of Superior Front Channel Light, No. 4.								
Superior Front Channel Buoy.	5	Black.....	25-foot spar.....	Minnesota Point Unused Light-House, 82° 00'. Superior Pierhead Range Rear Light, 101° 00'. East Ore Dock, outer end, 122° 00'.	20	Marks SW'y edge of channel, at turn off Pittsburg Coal Co. dock, opposite Superior Front Channel Post Light, No. 4.								
Superior Front Channel Buoy.	6	Red.....	25-foot spar.....	Minnesota Point Unused Light-House, 103° 00'. Superior Front Channel Light, No. 4, 132° 00'.	20	Marks NE'y side of Superior Front Channel and N'y side of W'y end of Quebec Channel.								
Superior Front Channel Buoy.	7	Black.....	25-foot spar.....	N. W. Elevator Dock, outer end, 143° 00'.	20	Marks SW'y edge of channel.								
Superior Front Channel Buoy.	8	Red.....	25-foot spar.....	Superior Front Channel Light, No. 4, 136° 00'. N. W. Elevator Dock, outer end, 157° 30'.	20	Marks NE'y edge of channel opposite Superior Front Channel Buoy No. 7.								

SUPERIOR BAY.

SUPERIOR ENTRY TO THE GATE—Continued.

U. S. Lake Survey Charts 0, 9, 96, and 966.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Superior Front Channel Light, No. 6 (Wis.)		Red; white daymark.	Cluster of piles with platform and upright.	Superior Front Channel Light, No. 4, 135° 00', about 5,350 feet.	9	Fixed red post-lantern light; 12 feet above water; on NE'y side of channel. Lat. N, 46° 43' 12"; long. W, 92° 03' 00".
Superior Front Channel Buoy.	9	Black	25-foot spar	Superior Front Channel Light, No. 6, 125° 00'.	20	Marks SW'y edge of channel.
Superior Front Channel Buoy.	10	Red	25-foot spar	Superior Front Channel Light, No. 6, 135° 00'.	20	Marks NW'y edge of channel opposite Superior Front Channel Buoy No. 9.
Superior Front Channel Buoy.	12	Red	25-foot spar	Superior Front Channel Light, No. 6, 135° 00'. D Avenue Dock, right tangent, 286° 00'. Junction Light, 318° 00'.	20	Marks NE'y edge of channel.
Junction Light (Minn.)		Black; white daymark.	Cluster of piles with platform and upright.		10	Fixed white post-lantern light; 12 feet above water; on SE'y side of the junction of Superior Bay and Superior Front Channels. Lat. N, 46° 43' 47"; long. W, 92° 03' 57".
Superior Front Channel Buoy.	11	Black	25-foot spar	Junction Light, 45° 00', about 400 feet. D Avenue Dock, right tangent, 285° 00'. N. W. Fuel Co. coal wharf, No. 1, 311° 00'.	20	Marks SW'y edge of channel, opposite Junction Light.
Junction Buoy		Red and black horizontal stripes.	25-foot spar	Junction Light, 132° 00', 800 feet. D Avenue Dock, left tangent, 212° 30'. N. W. Fuel Co. wharf, No. 1, right tangent, 285° 00'.	20	Marks junction of Superior Bay and Superior Front channels.
Superior Front Channel Buoy.	13	Black	25-foot spar	Junction Light, 124° 00', 2,100 feet. N. W. Fuel Co. wharf, No. 1, left tangent, 145° 00'. N. W. Fuel Co. wharf, No. 1, right tangent, 252° 00'.	20	Marks SW'y edge of channel.
Superior Front Channel Buoy.	14	Red	25-foot spar	Minnesota Point pavilion, right tangent, 48° 30'. Junction Light, 135° 00'. Hanna coal dock, left tangent, 189° 00'.	20	Marks NE'y edge of channel.
Superior Front Channel Buoy.	15	Black	25-foot spar		20	Marks SW'y edge of channel, about 350 feet NNW'y from N'y corner of Philadelphia & Reading coal dock.
Superior Front Channel Buoy.	16	Red	25-foot spar	Minnesota Point pavilion, right tangent, 79° 30'. Hanna coal dock, left tangent, 147° 30'. East Gate Basin Light, No. 2, 315° 30'.	20	Marks NE'y edge of channel, abreast buoy No. 15.
Superior Front Channel Buoy.	18	Red	25-foot spar			On NE'y edge of channel, in front of East Gate Basin Light, No. 2, at junction of Superior Front Channel and East Gate Basin.
East Gate Basin Light, No. 2.	2	Red; white daymark.	Cluster of piles with platform and upright.	Interstate Bridge, pivot pier, 301° 00'. East Gate Basin Light, No. 5, 333° 00'.	15	Fixed red post-lantern light, 12 feet above water; on NE'y edge of channel, at junction of Superior Front Channel with East Gate Basin. Lat. N, 46° 44' 52"; long. W, 92° 03' 32".

SUPERIOR BAY CHANNEL.

U. S. Lake Survey Charts 0, 9, 96, and 966.

Minnesota Point Buoy		Red and black horizontal stripes.	25-foot spar	Superior Pierhead Range Front Light, 85° 00'. Allouez Bay Light No. 1, 138° 00'. Superior Harbor Basin Light, No. 2, 283° 30'.	20	On SW'y side of SE'y entrance to Superior Bay Channel, at junction with Superior Front Channel.
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SUPERIOR BAY.

SUPERIOR BAY CHANNEL—Continued.

U. S. Lake Survey Charts 0, 9, 96, and 966.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Superior Bay Channel Buoy.	1	Black.....	25-foot spar.....	Superior Pier head Range Front Light, 82° 00'. Pittsburg Coal Co.'s dock, No. 5, NW corner, 148° 00'. Great Northern Ry. ore piers, right tangent, 181° 00'.	Fret. 15	Marks SW'y edge of channel at its junction with Superior Harbor Basin.
Superior Bay Channel Buoy.	2	Red.....	25-foot spar.....	Superior Pier head Range Front Light, 86° 00'. Great Northern Ry. ore piers, right tangent, 188° 00'.	15	Marks NE'y edge of channel opposite Superior Bay Channel Buoy, No. 1.
Superior Bay Channel Buoy.	3	Black.....	25-foot spar.....	Superior Harbor Basin Light, No. 2, 169° 00'. Superior Front Channel Light, No. 4, 207° 00'.	15	Marks SW'y edge of channel about ¼ mile from Superior Bay Channel Buoy, No. 1, and about midway between Superior Harbor Basin and entrance to Quebec Channel.
Superior Bay Channel Buoy.	4	Red.....	25-foot spar.....	Minnesota Point Unused Light-House, 103° 00'. Superior Front Channel Light, No. 2, 180° 00'. Superior Front Channel Light, No. 4, 259° 00'.	15	Marks NE'y edge of channel opposite Superior Bay Channel Buoy, No. 3.
Quebec Channel Buoy....	5	Black.....	25-foot spar.....	Minnesota Point Unused Light-House, 115° 00'. Superior Front Channel Light, No. 4, 198° 00'. North Elevator Dock, Superior East End, N corner, 209° 00'.	15	On SW'y edge of Superior Bay Channel and S'y side of entrance to Quebec Channel.
Superior Bay Channel Buoy.	6	Red.....	25-foot spar.....	Minnesota Point Unused Light-House, 125° 00'. Superior Front Channel Light, No. 4, 202° 30'.	15	Marks NE'y edge of channel opposite entrance to Quebec Channel.
Superior Bay Channel Buoy.	7	Black.....	25-foot spar.....	North Elevator Dock, N corner, Superior East End, 194° 00'. Superior Front Channel Light, No. 6, 287° 00'.	15	Marks SW'y edge of channel.
Superior Bay Channel Buoy.	8	Red.....	25-foot spar.....	Coal Dock, NW corner, Superior East End, 169° 00'. North Elevator Dock, E corner, Superior East End, 197° 00'.	15	Marks NE'y edge of channel opposite Superior Bay Channel Buoy, No. 7.
Superior Bay Channel Buoy.	9	Black.....	25-foot spar.....	North Elevator Dock, outer end, Superior East End, 157° 30'. Superior Front Channel Light, No. 6, 180° 00'.	18	Marks SW'y edge of channel about ¼ mile from Superior Bay Channel Buoy, No. 7.
Superior Bay Channel Buoy.	10	Red.....	25-foot spar.....	North Elevator Dock, outer end, Superior East End, 122° 00'. Superior Front Channel Light, No. 6, 191° 00'.	17	Marks NE'y edge of channel opposite Superior Bay Channel Buoy, No. 9.
Superior Bay Channel Buoy.	11	Black.....	25-foot spar.....	Superior Front Channel Light, No. 6, 145° 00'.	16	On SW'y edge of channel ½ mile from Superior Bay Channel Buoy, No. 9.
Superior Bay Channel Buoy.	12	Red.....	25-foot spar.....	Superior Front Channel Light, No. 6, 155° 00'.	18	Marks NE'y edge of channel opposite Superior Bay Channel Buoy, No. 11.
Superior Bay Channel Buoy.	14	Red.....	25-foot spar.....	Junction Light, 228° 00'. N. W. Fuel Co. coal wharf, NW corner, 288° 00'.	16	Marks end of shoal spot on NE'y edge of channel.

SUPERIOR BAY.

ALLOUEZ BAY CHANNEL.

U. S. Lake Survey Charts 0, 9, 96, and 966.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Allouez Bay Entrance Buoy.	1	Black.....	25-foot spar.....	Superior Pierhead Range Rear Light, 30° 00'. Pittsburg Coal Co.'s dock, No. 5, NW corner, 191° 00'. Minnesota Point Unused Light-House, 323° 15'.	Feet. 20	Marks E'y edge of channel at junction of Superior Harbor Basin and Allouez Bay Channel.
Allouez Bay Light, No. 1 (Wis.).		Black; white daymark.	Cluster of piles with platform and upright.	C., St. P., M. & O. Ry. freight wharf, NW'y corner, 154° 00'. Pittsburg Coal Co.'s dock, No. 5, NW corner, 218° 00', 650 feet. Great Northern Ry. ore pier, right tangent, 281° 00'.	5	Fixed white post-lantern light; 12 feet above water; on NE'y edge of channel. Lat. N, 46° 42' 07"; long. W, 92° 00' 59".

DULUTH HARBOR TO EAST GATE BASIN.

U. S. Lake Survey Charts 0, 9, 96, and 966.

Breakwater Buoy.....	2	Red.....	25-foot spar.....	Duluth Range Front Light-House, 167° 00', 2,670 feet. Duluth Range Rear Light, 190° 00'.	21	Marks SW'y corner of outer end of old breakwater about 2,400 feet N'y from outer end of Duluth Ship Canal North Pier.												
Range. DULUTH FRONT LIGHT-STATION (Minn.).		Buff; black lantern; red roof on fog-signal building.	Brick tower, 20 feet high; fog-signal house attached.	Rear light, 245° 00', 1,188 feet.		4th-order fixed red light; 44 feet above water; visible 13 miles. On outer end of south pier at entrance to harbor. Lat. N, 46° 40' 49"; long. W, 92° 03' 16". With next forms range for approaching Duluth Canal from lake. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2">Silent</td> <td colspan="2">Silent</td> </tr> <tr> <td>Blast</td> <td>interval</td> <td>Blast</td> <td>interval</td> </tr> <tr> <td>5 sec.</td> <td>30 sec.</td> <td>5 sec.</td> <td>30 sec.</td> </tr> </table>	Silent		Silent		Blast	interval	Blast	interval	5 sec.	30 sec.	5 sec.	30 sec.
	Silent		Silent															
Blast	interval	Blast	interval															
5 sec.	30 sec.	5 sec.	30 sec.															
DULUTH REAR LIGHT (Minn.).		White; black lantern.	Square, pyramidal skeleton tower, 61 feet high; inclosing stair-cylinder, cylindrical watchroom.			4th-order light, flashing red every 6 sec.; 69 feet above water; visible 16 miles. Near inner end of south pier. Lat. N, 46° 46' (48"); long. W, 92° 05' (20").												
Duluth North Pier Light (Minn.).		White; black lantern.	Cylindrical steel tower, octagonal lantern; 31 feet high.			White lens-lantern (e. l.) light 2 sec., eclipse 2 sec.; 46 feet above water. On outer end of N pier, entrance to harbor. Lat. N, 46° 46' (55"); long. W, 92° 05' (21").												
Duluth Harbor Basin Buoy.	A A 1	Black.....	25-foot spar.....	U. S. Vessel Dock, outer end, 14° 00'. Duluth Boat Club, right tangent, 117° 00'. Duluth Harbor Basin Light, A, 194° 00'.	20	Marks limit of harbor at N'y approach to dredged basin.												
Duluth Harbor Basin Light, A (Minn.).	A	Black; white daymark.	Triangular cluster of piles, upright, and star-shaped daymark.	Duluth Range Rear Light-House, 19° 00'. Duluth Boat Club, right tangent, 74° 00'. Life-Saving Station Dock, outer end, 116° 00'.		Fixed white post-lantern light, 12 feet above water. At N'y angle of dredged basin.												
Ohio Central Coal Dock Light, No. 2 (Minn.).	2	Red; white daymark.	Cluster of piles with platform and upright.	Duluth Range Rear Light-House, 47° 00'. Life-Saving Station Dock, right tangent, 83° 00'. Rice Point Channel Light, No. 1, 147° 00'.		Fixed red post-lantern light, 25 feet above water, on outer end of Pittsburg Coal Dock, N'y end of bay, and on NW'y prolongation of axis of Rice Point Channel.												
Ohio Central Coal Dock Buoy.	2	Red.....	25-foot spar.....	Ohio Central Coal Dock Light, No. 2, 353° 00', about 750 feet. Duluth Range Rear Light-House, 30° 30'. Rice Point Channel Light, No. 1, 137° 40'.	20	Marks W'y edge of Rice Point Channel.												

SUPERIOR BAY.

DULUTH HARBOR TO EAST GATE BASIN—Continued.

U. S. Lake Survey Charts 0, 9, 96, and 966.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Duluth Harbor Basin Buoy.	A 1	Black	25-foot spar	Duluth Boat Club, left tangent, 21° 00'. Life - Saving Station Dock, outer end, 83° 00'. Duluth Harbor Basin Light, A, 335° 00'.	Feet. 20	Marks E'y limit of dredged basin.
Duluth Harbor Basin Buoy.	1	Black	3d-class can	Life - Saving Station Dock, outer end, 42° 00'. Duluth Yacht Club, right tangent, 104° 00'. Duluth Harbor Basin Light, A, 335° 00'.	20	Marks E'y limit of dredged basin; midway between lights A and C.
Duluth Harbor Basin Buoy.	1 A	Black	25-foot spar	Life - Saving Station Dock, outer end, 14° 00'. Duluth Yacht Club, left tangent, 56° 00'. Duluth Harbor Basin Light, C, 155° 00'.	20	Marks E'y limit of dredged basin.
Duluth Harbor Basin Light, C (Minn.).	C	Black; white daymark.	Triangular cluster of piles, upright, and star-shaped daymark.	Pittsburg Coal Dock No. 1, right tangent, 294° 00'. Duluth Range Rear Light - House, 348° 00'.	.....	Fixed white post-lantern light, 12 feet above water. At SE'y angle of dredged basin.
Duluth Harbor Basin Buoy.	3	Black	25-foot spar	Life - Saving Station Dock, outer end, 15° 00'. Duluth Harbor Basin Light, C, 64° 00'. Duluth Harbor Basin Light, A, 349° 00'.	20	Marks S'y limit of dredged basin.
Duluth Harbor Basin Buoy.	5	Black	3d-class can	Duluth Harbor Basin Light, A, 0° 00'. Life - Saving Station Dock, outer end, 24° 00'. Duluth Harbor Basin Light, C, 74° 00'.	20	Marks S'y limit of dredged basin.
Duluth Harbor Basin Buoy.	7	Black	25-foot spar	Duluth Harbor Basin Light, A, 9° 00'. Life - Saving Station Dock, outer end, 31° 00'. Duluth Harbor Basin Light, C, 64° 00'.	20	Marks S'y limit of dredged basin.
Rice Point Channel Light, No. 1 (Minn.).	1	Black; white daymark.	Triangular cluster of piles, upright, and star-shaped daymark.	Duluth Range Rear Light-House, 17° 00'. Life - Saving Station Dock, outer end, 36° 00'. Pittsburg Coal Dock No. 1, right tangent, 328° 00'.	.....	Fixed white post-lantern light, 12 feet above water. At SW'y angle of dredged basin.
Rice Point Channel Front Light, No. 3 (Minn.).	3	Black; white daymark.	Cluster of piles with platform and upright.	Rear light, 153° 00', 1,100 feet.	7	Fixed white post-lantern light; 12 feet above water; on E'y side of turn from Rice Point Channel into East Gate Basin. Lat. N, 46° 45' 14"; long. W, 92° 05' 27".
Rice Point Channel Rear Light (Minn.).	.....	Red; white daymark.	Cluster of piles with platform and upright.	.....	7	Fixed red post-lantern light; 21 feet above water; with preceding forms range to guide through Rice Point Channel.
Elevator Dock Buoy.....	4	Red	25-foot spar	Rice Point Channel Light, No. 1, 119° 45'. Duluth Range Rear Light - House, 27° 00'. Ohio Central Coal Dock Light, No. 2, 340° 00'.	20	Marks SW'y edge of channel.
Flour Mill Dock Buoy.....	6	Red	25-foot spar	Duluth Range Rear Light-House, 10° 00'. Rice Point Channel Range Front Light, No. 3, 146° 00'. Ohio Central Coal Dock Light, No. 2, 335° 15'.	20	Marks SW'y edge of channel.

SUPERIOR BAY.

DULUTH HARBOR TO EAST GATE BASIN—Continued.

U. S. Lake Survey Charts 0, 9, 96, and 966.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Flour Mill Dock Buoy...	9	Black.....	25-foot spar.....	Duluth Range Rear Light-House, 7° 00'. Rice Point Channel Range Front Light, No. 3, 137° 30'. Ohio Central Coal Dock Light, No. 2, 329° 00'.	Feet. 20	Marks NE'y edge of channel, opposite buoy No. 6.
Rice Point Channel Buoy.	8	Red.....	25-foot spar.....	Duluth Range Rear Light-House, 4° 00'. Rice Point Channel Range Front Light, No. 3, 139° 00'. Rice Point Channel Light, No. 1, 341° 30'.	20	Marks SW'y edge of channel at beginning of turn into East Gate Basin.
Rice Point Channel Buoy.	11	Black.....	25-foot spar.....	Duluth Range Rear Light-House, 4° 00'. Rice Point Channel Range Front Light, No. 3, 165° 00'. Rice Point Channel Light, No. 1, 332° 45'.	20	Marks NE'y edge of channel at beginning of turn into East Gate Basin, opposite buoy No. 8.
Turn Buoy.....	13	Black.....	25-foot spar.....	Duluth Range Rear Light-House, 6° 00'. Rice Point Channel Range Front Light, No. 3, 166° 00'. East Gate Basin Light, No. 5, 209° 00'.	20	Marks E'y edge of channel at middle of turn into East Gate Basin.
Turn Buoy.....	10	Red.....	25-foot spar.....	Duluth Rear Range Light-House, 3° 00'. Rice Point Channel Range Front Light, No. 3, 86° 00'. East Gate Basin Light, No. 5, 179° 00'.	20	Marks W'y edge of channel at turn into East Gate Basin.
East Gate Basin Light, No. 5 (Minn.).	5	Black; white daymark.	Cluster of piles with platform and upright.	Superior Front Channel Light, No. 1, 153° 20'. Duluth-Superior Bridge, pivot pier, 274° 00'. Rice Point Channel Range Front Light, No. 3, 356° 00'.	20	Fixed white post-lantern light; 12 feet above water; on NE'y edge of basin. Lat. N, 46° 45' 02"; long. W, 92° 05' 36".
East Gate Basin Buoy....	15	Black.....	25-foot spar.....	Rice Point Channel Range Rear Light, 102° 00'. East Gate Basin Light, No. 2, 160° 00'. Rice Point Channel Range Front Light, No. 3, 358° 00'.	20	Marks NE'y edge of East Gate Basin, directly in front of East Gate Basin Light, No. 5.
East Gate Basin Junction Buoy.	17	Black.....	25-foot spar.....	Rice Point Channel Range Rear Light, 0° 00'. Duluth-Superior Bridge, pivot pier, 288° 00'.	20	Marks NE'y bank of basin about middle of turn from Rice Point Channel to Superior Front Channel.
East Gate Basin Light, No. 2 (Minn.).	2	Red; white daymark.	Cluster of piles with platform and upright.	Duluth-Superior Bridge, pivot pier, 302° 00'. East Gate Basin Light, No. 5, 333° 00'.	15	Fixed red post-lantern light; 12 feet above water. On NE'y edge of channel, at junction of Superior Front Channel with East Gate Basin. Lat. N, 46° 44' 52"; long. W, 92° 05' 32".

ST. LOUIS BAY AND RIVER.

NORTH CHANNEL.

U. S. Lake Survey Charts 0, 9, 96, and 966.

West Gate Basin Buoy ..	1	Black.....	25-foot spar.....	Duluth-Superior Bridge, pivot pier, 98° 30'. N. P. Ry. bridge, S channel, pivot pier, 290° 30'. N. P. Ry. bridge, N channel, pivot pier, 335° 30'.	20	Marks W'y edge of West Gate Basin at turning point into North Channel.
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ST. LOUIS BAY AND RIVER.

NORTH CHANNEL—Continued.

U. S. Lake Survey Charts 0, 9, 96, and 966.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
North Channel Buoy.....	3	Black.....	25-foot spar.....	N. P. Ry. bridge, N channel, pivot pier, 116° 30', 1,250 feet. North Channel East Range Front Light, 315° 00'. North Channel East Range Rear Light, 347° 30'.	<i>Fath.</i> 20	Marks S'y edge of channel in turn.
North Channel Buoy.....	2	Red.....	25-foot spar.....	East Sawmill Dock, outer end, foot of Twenty-seventh street, 259° 00'. North Channel East Range Front Light, 287° 00'. North Channel East Range Rear Light, 328° 00'.	22	Marks N'y edge of channel.
East Range. North Channel Front Light (Minn.).		Red; white daymark.	Cluster of piles with platform and upright; star-shaped daymark.	Rear light, 47° 00', 600 feet.	7	Fixed red post-lantern light; 12 feet above water. At E'y end of North Channel of bay, W'd of Rice Point. Lat. N, 46° 45' 21"; long. W, 92° 06' 52".
North Channel Rear Light (Minn.).		Red; white daymark.	Cluster of piles with platform and upright; star-shaped daymark.		7	Fixed red post-lantern light; 21 feet above water; with preceding forms range for E'y part of North Channel.
North Channel Buoy.....	4	Red.....	25-foot spar.....	N. P. Ry. bridge, N channel, pivot pier, 119° 00'. D. M. & N. coal dock, tangent, 231° 00'. Lumber Dock, outer end, foot of Twenty-fifth avenue, 309° 00'.	17	Marks N'y edge of channel directly in front of North Channel East Range Front Light, at turn from West Gate Basin Channel into North Channel.
North Channel Buoy.....	6	Red.....	25-foot spar.....	N. P. Ry. bridge, N channel, pivot pier, 104° 00'. D. M. & N. coal dock, tangent, 230° 30'. Lumber Dock, outer end, foot of Twenty-fifth avenue, 342° 00'.	17	Marks NW'y edge of channel at end of turn.
North Channel Buoy.....	5	Black.....	25-foot spar.....	N. P. Ry. bridge, N channel, pivot pier, 97° 00'. D. M. & N. coal dock, tangent, 246° 30'. East Lumber Dock, outer end, foot of Twenty-fifth avenue, 337° 30'.	20	Marks SE'y edge of channel at end of turn.
North Channel Buoy.....	8	Red.....	25-foot spar.....	Lumber Dock, outer end, foot of Twenty-seventh avenue, 42° 00'. N. P. Ry. bridge, N channel, pivot pier, 84° 20'. D. M. & N. coal dock, left tangent, 273° 00'.	20	Marks NW'y edge of channel near SW'y corner of D. M. & N. coal dock.
North Channel Buoy.....	7	Black.....	25-foot spar.....	East Lumber Dock, outer end, foot of Twenty-seventh avenue, 27° 00'. N. P. Ry. bridge, N channel, pivot pier, 77° 30'. D. M. & N. coal dock, SW corner, 319° 00'.	20	Marks SE'y edge of channel.
North Channel Buoy.....	9	Black.....	25-foot spar.....	D. M. & N. coal dock, right tangent, 28° 30'. D. M. & N. W'y ore pier, left tangent, 256° 30'. D. M. & N. E'y ore pier, right tangent, 313° 00'.	23	Marks SE'y edge of channel directly opposite D. M. & N. E'y ore dock, also marks E'y limits of N'y entrance to Cross Channel.
West Range. North Channel Front Light, No. 6 (Minn.).	6	Red; white daymark.	Cluster of piles with platform and upright.	Rear light, 227° 00', 800 feet.	7	Fixed red post-lantern light; 12 feet above water. In water near lumber docks, West Duluth, at W'y end of North Channel. Lat. N, 46° 44' 11"; long. W, 92° 08' 39". With next (common to both ranges) forms range for W'y part of channel.
North Channel and South Channel Rear Light (Minn.).		Red; white daymark.	Cluster of piles with platform and upright.		7	Fixed red post-lantern light; 21 feet above water. In water.
South Channel Front Light, No. 8 (Minn.).	8	Red; white daymark.	Cluster of piles with platform and upright.	Rear light, 247° 30', 600 feet.	9	Fixed red post-lantern light; 12 feet above water. Near lumber dock, West Duluth, at W'y end of South Channel. Lat. N, 46° 44' 07"; long. W, 92° 08' 39". With preceding forms range for W'y part of channel.

ST. LOUIS BAY AND RIVER.

NORTH CHANNEL—Continued.

U. S. Lake Survey Charts 0, 9, 96, and 966.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
North Channel Buoy.....	10	Red.....	25-foot spar.....	D. M. & N. ere piers, right tangent, 42° 00'. Red Cliff Lumber Co.'s dock, left tangent, 234° 00'. Boston Coal Dock and Wharf Co.'s dock, right tangent, 351° 00'.	<i>Feet.</i> 20	Marks NW'ly edge of channel.
North Channel Buoy.....	11	Black.....	25-foot spar.....	D. M. & N. W'ly ore piers, right tangent, 0° 00'. Red Cliff Lumber Coal Dock, left tangent, 247° 00'. Boston Coal Dock and Wharf Co.'s dock, left tangent, 277° 30'.	23	Marks SE'ly edge of channel and W'ly limits of N'ly entrance to Cross Channel.
North Channel Buoy.....	12	Red.....	25-foot spar.....	Sawmill Dock, outer end, foot of Forty-first avenue, 22° 30'. N. P. Ry. bridge, pivot pier, 194° 00'. North Channel West Range Front Light, No. 6, 221° 00'.	20	Marks NW'ly edge of channel.
North Channel Buoy.....	13	Black.....	25-foot spar.....	N. P. Ry. bridge, pivot pier, 200° 00'. North Channel West Range Front Light, No. 6, 232° 00'. Sawmill Dock, foot of Forty-first avenue, right tangent, 346° 00'.	20	Marks SE'ly edge of channel directly opposite North Channel Buoy, No. 12.
North Channel Buoy.....	14	Red.....	25-foot spar.....	Red Cliff Lumber Co.'s dock, 41° 00'. P. C. Co.'s dock, No. 3, tangent, 97° 00'. N. P. Ry. bridge, pivot pier, 179° 00'.	20	Marks NW'ly edge of channel.
Junction Buoy.....		Red and black horizontal stripes.	25-foot spar.....	N. P. Ry. bridge, pivot pier, 194° 00'. Alger Smith & Co.'s sawmill docks, left tangent, 208° 30'. North Channel West Range Front Light, No. 6, 246° 00'.	20	Marks junction of N'ly and S'ly channels of St. Louis Bay.
St. Louis River Entrance Buoy.	15	Black.....	25-foot spar.....	N. P. Ry. bridge, pivot pier, 190° 00'. Alger Smith & Co.'s sawmill docks, left tangent, 247° 30'. North Channel West Range Front Light, No. 6, 342° 00'.	20	Marks E'ly edge of channel opposite Alger Smith & Co.'s sawmill docks, midway between South Channel West Range Front Light, No. 8, and N. P. Ry. bridge.
St. Louis River Buoy....	17	Black.....	25-foot spar.....	St. Louis River Range Front Light, No. 1, 208° 00'. Va. & R. L. Co.'s sawmill docks, left tangent, 268° 00'. N. P. Ry. bridge, pivot pier, 346° 00'.	20	Marks E'ly edge of channel.
Grassy Point Buoy.....	19	Black.....	25-foot spar.....	St. Louis River Range Front Light, No. 1, 211° 00'. Va. & R. L. Co.'s sawmill docks, SE'ly corner, 334° 00'. N. P. Ry. bridge, pivot pier, 357° 00'.	20	Marks E'ly edge of channel.
Range { St. Louis River Front Light, No. 1 (Minn.). St. Louis River Rear Light, (Minn.).	1	Black; white daymark.	Cluster of piles with platform and up-right.	Rear light, 84° 30', 450 feet.	12	Two fixed white post-lantern lights. Front light, 12 feet above water. Lat. N. 46° 43' 13"; long. W. 92° 08' 37". Rear light, 21 feet above water. In range astern, guide up river on axis of dredged channel above Grassy Point.
St. Louis River Buoy....	16	Red.....	25-foot spar.....	Va. & R. L. Co.'s sawmill docks, right tangent, 40° 30', 1,560 feet. St. Louis River Range Rear Light, 89° 00', 1,550 feet.	20	Marks N'ly edge of E'ly end of dredged channel.

ST. LOUIS BAY AND RIVER.

NORTH CHANNEL—Continued.

U. S. Lake Survey Charts 0, 9, 96, 966.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
St. Louis River Buoy	21	Black	25-foot spar	St. Louis River Range Front Light, 82° 00', 3,350 feet.	Feet. 20	Marks S'y edge of channel.
St. Louis River Buoy	18	Red	25-foot spar	St. Louis River Range Front Light, 80° 00', 3,350 feet.	20	Marks N'y edge of channel.
St. Louis River Buoy	23	Black	25-foot spar	St. Louis River Light, No. 2, 267° 00', 4,100 feet.	20	Marks S'y edge of channel.
St. Louis River Buoy	20	Red	25-foot spar	St. Louis River Light, No. 10, 266° 00', 4,300 feet.	20	Marks N'y edge of channel.
St. Louis River Buoy	25	Black	25-foot spar	St. Louis River Light, No. 2, 274° 00', 1,200 feet.	20	Marks S'y edge of channel.
St. Louis River Buoy	22	Red	25-foot spar	St. Louis River Light, No. 2, 266° 00', 1,850 feet.	20	Marks N'y edge of channel.
St. Louis River Light, No. 2 (Minn.)	2	Red piles, white day-mark.	Triangular cluster of piles, upright, and star-shaped day-mark.	St. Louis River Range Front Light, No. 1, 84° 45', 1½ miles.	5	Fixed red post-lantern light, 12 feet above water. Marks N'y edge of channel at beginning of turn around Big Island, and abreast NE'y point of island.
St. Louis River Buoy	27	Black	25-foot spar	St. Louis River Light, No. 2, 335° 40', 300 feet.	20	Marks S'y edge of channel.
St. Louis River Light, No. 4 (Minn.)	4	Red piles, white day-mark.	Triangular cluster of piles, upright, and star-shaped day-mark.	St. Louis River Light, No. 2, 64° 30', 2,150 feet.	3	Fixed red post-lantern light, 12 feet above water. Marks N'y edge of channel.
St. Louis River Buoy	29	Black	25-foot spar		20	Marks SE'y edge of channel, opposite light No. 4.
St. Louis River Light, No. 6 (Minn.)	6	Red piles, white day-mark.	Triangular cluster of piles, upright, and star-shaped day-mark.	St. Louis River Light, No. 4, 49° 30', 1,550 feet.	3	Fixed red post-lantern light, 12 feet above water. Marks N'y edge of channel.
St. Louis River Buoy	31	Black	25-foot spar		20	Marks S'y edge of channel, opposite light No. 6.
St. Louis River Light, No. 8 (Minn.)	8	Red piles, white day-mark.	Triangular cluster of piles, upright, and star-shaped day-mark.	St. Louis River Light, No. 6, 34° 30', 1,550 feet.	3	Fixed red post-lantern light, 12 feet above water. Marks W'y edge of channel.
St. Louis River Buoy	33	Black	25-foot spar		20	Marks E'y edge of channel, nearly abreast light No. 8.
St. Louis River Light, No. 10 (Minn.)	10	Red piles, white day-mark.	Triangular cluster of piles, upright, and star-shaped day-mark.	St. Louis River Light, No. 8, 19° 30', 1,700 feet.	2	Fixed red post-lantern light, 12 feet above water. Marks W'y edge of channel.
St. Louis River Buoy	35	Black	25-foot spar		20	Marks E'y edge of channel, opposite light No. 10.
St. Louis River Light, No. 12 (Minn.)	12	Red piles, white day-mark.	Triangular cluster of piles, upright, and star-shaped day-mark.	St. Louis River Light, No. 10, 2° 00', 1,700 feet.	5	Fixed red post-lantern light, 12 feet above water. Marks W'y edge of channel.
St. Louis River Buoy	37	Black	25-foot spar		20	Marks E'y edge of channel, nearly abreast light No. 12.
St. Louis River Light, No. 14 (Minn.)	14	Red piles, white day-mark.	Triangular cluster of piles, upright, and star-shaped day-mark.	St. Louis River Light, No. 12, 332° 00', 1,450 feet.	16	Fixed red post-lantern light, 12 feet above water. Marks S'y edge of channel.
St. Louis River Buoy	39	Black	25-foot spar		20	Marks NE'y edge of channel, opposite light No. 14.
St. Louis River Light, No. 16 (Minn.)	16	Red piles, white day-mark.	Triangular cluster of piles, upright, and star-shaped day-mark.	St. Louis River Light, No. 14, 280° 00', 1,900 feet.	5	Fixed red post-lantern light, 12 feet above water. Marks S'y edge of channel at its upper end, opposite S'y end of Big Island.
St. Louis River Buoy	41	Black	25-foot spar	St. Louis River Light, No. 16, 149° 00', about 250 feet.	20	Marks N'y edge of channel at its upper end, nearly opposite light No. 16.

ST. LOUIS RIVER.

CUT-OFF CHANNEL.

U. S. Lake Survey Charts 0, 9, 96, and 966.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Cut-Off Channel Buoy...	1	Black.....	20-foot spar.....	St. Louis River Range Front Light, 75° 30', 1½ miles.	Feet. 6	Marks S'y edge of Cut-Off Channel about ¼ mile above Grassy Point and near its junction with dredged channel.
Cut-Off Channel Buoy...	2	Red.....	20-foot spar.....	St. Louis River Range Front Light, 77° 30', 1½ miles.	6	Marks N'y edge of Cut-Off Channel near junction with dredged channel, abreast buoy No. 1.
Cut-Off Channel Buoy...	3	Black.....	20-foot spar.....		8½	Marks SE'y edge of Cut-Off Channel, ¼ mile SW'y from buoy No. 1.
Cut-Off Channel Buoy...	4	Red.....	20-foot spar.....		8½	Marks NW'y edge of Cut-Off Channel, abreast buoy No. 3, and nearly ¼ mile SW'y of buoy No. 2.

ST. LOUIS BAY.

SOUTH CHANNEL.

U. S. Lake Survey Charts 0, 9, 96, and 966.

South Channel Buoy.....	2	Red.....	25-foot spar.....	Duluth-Superior Bridge, pivot pier, 70° 00'. N. P. Ry. bridge, S channel, pivot pier, 216° 00'. N. P. Ry. bridge, N channel, pivot pier, 351° 00'.	20	Marks NW'y edge of West Gate Basin at its junction with South Channel, opposite Howards Bay.
South Channel Buoy.....	1	Black.....	25-foot spar.....	N. P. Ry. bridge, S channel, pivot pier, 59° 00'. Pittsburg Coal Co.'s dock, No. 6, NW corner, 234° 30'. Cross Channel South Entrance Light, 298° 00'.	20	Marks SE'y edge of channel off Carnegie coal wharf.
South Channel Buoy.....	4	Red.....	25-foot spar.....	N. P. Ry. bridge, S channel, pivot pier, 71° 00'. Pittsburg Coal Co.'s dock, No. 6, NW corner, 213° 00'. Cross Channel South Entrance Light, 250° 30'.	20	Marks NW'y edge of channel directly opposite buoy No. 1.
South Channel Buoy.....	6	Red.....	25-foot spar.....	Cross Channel Middle Light, 28° 30'. Cross Channel South Entrance Light, 62° 30'. Cross Channel North Entrance Light, 340° 30'.	20	Marks NW'y edge of channel directly opposite buoy No. 3.
South Channel Buoy.....	3	Black.....	25-foot spar.....	Cross Channel Middle Light, 21° 00'. Cross Channel South Entrance Light, 47° 30'. Cross Channel North Entrance Light, 346° 30'.	20	Marks SE'y edge of 400-foot channel, and about ¼ mile WSW'y from buoy No. 1.
South Channel Buoy.....	5	Black.....	25-foot spar.....	D. M. & N. ore piers, right tangent, 10° 00'. Berwind Fuel Co. wharf, outer end, 84° 00'. P. C. Co. dock, No. 3, NE'y corner, 128° 00'.	20	Mark edges of channel and placed in pairs 1,900 feet apart.
South Channel Buoy.....	8	Red.....	25-foot spar.....	D. M. & N. ore piers, right tangent, 13° 00'. Berwind Fuel Co. wharf, outer end, 94° 00'. P. C. Co. dock, No. 3, NE'y corner, 134° 00'.	20	

ST. LOUIS BAY.

SOUTH CHANNEL—Continued.

U. S. Lake Survey Charts 0, 9, 96, and 966.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
South Channel Buoy.....	7	Black.....	25-foot spar.....	D. M. & N. ore piers, right tangent, 29° 30'. Berwind Fuel Co. wharf, outer end, 77° 00'. Y. & L. coal wharf, NW corner, 101° 00'.	Fet. 20	Mark edges of channel and placed in pairs 1,900 feet apart.
South Channel Buoy.....	10	Red.....	25-foot spar.....	D. M. & N. ore piers, right tangent, 33° 00'. Berwind Fuel Co. wharf, outer end, 82° 00'. P. C. Co. dock, No. 3, NEly corner, 105° 30'.	20	
Turning Buoy.....	9	Black.....	25-foot spar.....	N. P. Ry. bridge, pivot pier, 192° 00'. Alger Smith & Co. sawmill docks, left tangent, 215° 30'. South Channel West Range Front Light, 280° 00'.	22	

CROSS CHANNEL.

U. S. Lake Survey Charts 0, 9, 96, and 966.

Cross Channel South Entrance Light (Minn.).....	.....	Red; white daymark.	Triangular cluster of piles, with upright and star-shaped daymark.	N. W. Fuel Co. dock, No. 2, left tangent, 104° 00'. Pittsburg Coal Co. dock, No. 6, left tangent, 168° 00'. P. C. Co. dock, No. 3, right tangent, 205° 00'.	9	Fixed red post-lantern light; 12 feet above water; marks E'ly side of S'ly entrance to Cross Channel at its junction with St. Louis Bay South Channel. Lat. N, 46° 44' 37"; long. W, 92° 07' 06".
Cross Channel South Entrance Buoy.....	2	Red.....	30-foot spar.....	N. W. Fuel Co. dock, No. 2, left tangent, 100° 00'. Pittsburg Coal Co. dock, No. 6, left tangent, 141° 00'. P. C. Co. dock, No. 3, right tangent, 198° 00'.	23	Marks E'ly edge of channel, about midway between Cross Channel South Entrance and Cross Channel Middle lights.
Cross Channel South Entrance Buoy.....	1	Black.....	30-foot spar.....	Pittsburg Coal Co. dock, No. 6, left tangent, 111° 00'. Berwind Fuel Co. wharf, left tangent, 149° 00'. P. C. Co. dock, No. 3, right tangent, 187° 00'.	23	Marks W'ly edge of channel, about 100 feet N'ly from the junction of Cross and South channels.
Cross Channel Middle Light (Minn.).....	.....	Red; white daymark.	Triangular cluster of piles, with upright and star-shaped daymark.	Pittsburg Coal Co. dock, No. 6, left tangent, 134° 00'. Berwind Fuel Co. wharf, left tangent, 165° 00'. P. C. Co. dock, No. 3, right tangent, 190° 00'.	9	Fixed red post-lantern light; 12 feet above water; on E'ly side of channel at the completion of turn at its S'ly entrance, about 850 feet W'ly from Cross Channel South Entrance Light. Lat. N, 46° 43' 39"; long. W, 92° 07' 18".
Cross Channel Middle Buoy.....	4	Red.....	30-foot spar.....	N. W. Fuel Co. dock, No. 2, left tangent, 107° 00'. Pittsburg Coal Co. dock, No. 6, left tangent, 131° 00'. Berwind Fuel Co. wharf, left tangent, 155° 00'.	23	Marks E'ly limits at middle of channel.
Cross Channel Middle Buoy.....	3	Black.....	30-foot spar.....	Pittsburg Coal Co. dock, No. 6, left tangent, 121° 00'. Berwind Fuel Co. wharf, left tangent, 146° 00'. P. C. Co. dock, No. 3, right tangent, 177° 00'.	23	Marks W'ly limits at middle of channel.

ST. LOUIS BAY.

CROSS CHANNEL—Continued.

U. S. Lake Survey Charts 0, 9, 96, and 966.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Cross Channel North Entrance Light (Minn.).		Red; white daymark.	Triangular cluster of piles, with upright and white star-shaped daymark.	Boston Coal Dock and Wharf Co. dock, left tangent, 256° 00'. D. M. & N. ore piers, left tangent, 276° 00'. D. M. & N. ore piers, right tangent, 324° 00'.	9	Fixed red post-lantern light; 12 feet above water; on E'ly side of channel, about 400 feet S'ly from its N'ly entrance and its junction with St. Louis Bay North Channel. Lat. N, 46° 41' 48"; long. W, 92° 07' 30".
Cross Channel Upper Buoy.	5	Black	30-foot spar	Boston Coal Dock and Wharf Co. dock, left tangent, 256° 00'. D. M. & N. ore piers, left tangent, 302° 00'. D. M. & N. ore piers, right tangent, 332° 00'.	23	Marks W'ly limits of channel about 400 feet from the junction of Cross and North channels and opposite Cross Channel North Entrance Light.

RAINY RIVER.

Range.	Ranier Front	White	Steel mast, 12 feet high; rectangular daymark.	Rear light, 95° 40', 175 feet. D., R. L. & W. R. R. bridge, center, 340° 00', 900 feet.		Two fixed white lens-lantern lights, respectively, 17 and 28 feet above water. Front light: Lat. N, 48° 30' (00"); long. W, 93° 30' (30"). Guide through Pithers Point Rapids, Rainy River.
	Ranier Rear (Minn.).	White	Steel mast, 22 feet high; rectangular daymark.			

LAKE OF THE WOODS.

Canadian Department of Marine and Fisheries Chart.

Range.	Rainy River Front Light (C.).	White	Square, wood, on square cribwork pier.	Rear light, 164° 30', 1,494 feet.		7th-order fixed white light, 27 feet above water, visible 10 miles. Off SW'ly end of Sable Island. Lat. N, 48° 53' 07"; long. W, 94° 40' 38".
	Rainy River Rear Light (C.).	White	Square, wood, on square cribwork pier.			Reflector light, fixed red, 37 feet above water, visible 7 miles. Range leads to mouth of river, channel into which is buoyed.
	Oak Point Light (Minn.).	White	Triangular cluster of piles and upright, with star-shaped daymark.	Rainy River Entrance Light, 339° 00', 13½ miles.		Fixed red post-lantern light, 14 feet above water. On E'ly end of Oak Point, entrance to Rainy River from Lake of the Woods.
	Rainy River Entrance Light (Minn.).	White	Triangular cluster of piles and upright, with star-shaped daymark.	Bigsby Island, left tangent, 14° 00'. Burton Island, left tangent, 58° 00'. Oak Point Light, 139° 00', 19½ miles.	7	Fixed white post-lantern light, 12 feet above water. At entrance to Rainy River from Lake of the Woods.
	Tomahawk Island Light (C.).	White	Square, wood			Post-lantern light, fixed white, 35 feet above water, visible 11 miles. On island off McAuley Bay. Lat. N, 49° 01' 38"; long. W, 94° 30' 35".
	Ferris Island Light (C.).	White	Square, wood			7th-order fixed white light, 36 feet above water, visible 11 miles. Off most W'ly point of Bigsby Island. Lat. N, 49° 03' 06"; long. W, 94° 39' 25".
	Squaw Island Light (C.).	White	Square, wood			Post-lantern light, fixed white, 33 feet above water, visible 11 miles. On island W'ly of S'ly point of island 37B. Lat. N, 49° 17' 48"; long. W, 94° 49' 10".
Range.	Bishops Bay Front Light (C.).	White	Square, wood	Rear light, 160° 30'		7th-order fixed white light, 17 feet above water, visible 5 miles. On small island about 200 feet N'ly of NE'ly point of Royal Island. Lat. N, 49° 27' 53"; long. W, 94° 45' 35".
	Bishops Bay Rear Light (C.).	White	Square, wood			Reflector light, fixed white, 26 feet above water, visible 5 miles. On N'ly shore of Royal Island. Range leads through Bishops Bay from Bishops Point, clear of shoals, to small islands NE'ly of Royal Island.
Range.	Warroad Harbor Entrance Front Light (Minn.).	White	Triangular cluster of piles and upright, with star-shaped daymark.	Rear light, 222° 40', 1,000 feet.	5	Two fixed white post-lantern lights. Front light, 16 feet above water; rear light, 25 feet above water; front light on S'ly edge of dredged channel at beginning of turn, and about ½ mile E'ly from Warroad. Range guides SSW ¾ W, mag., in axis of dredged channel from lake to turn opposite Comlins Point.
	Warroad Harbor Entrance Rear Light (Minn.).	White	Triangular cluster of piles and upright, with star-shaped daymark.			
	Comlins Point Light (Minn.).	White	Triangular cluster of piles, with star-shaped daymark.			Fixed red post-lantern light, 15 feet above the water. On Comlins Point, S'ly bank of mouth of Warroad River, about ¼ mile E'ly from Warroad. Entering river on range line, this light becomes visible when bearing 180° 00' true, then haul slowly to W'd until it is directly astern.
	Moody's Point Light (Minn.).	White	Triangular cluster of piles and upright, with star-shaped daymark.			Fixed white post-lantern light, 16 feet above water, on Moody's Point, N'ly bank of river, and about 300 feet E'ly from Mercantile Company's dock. After making turn at Comlins Point, steer for this light, giving it a berth of about 50 feet in passing.

LAKE SUPERIOR.

U. S. Lake Survey Charts 0, 9, 91, 96, 98, 901, 902, 903, and 968, and U. S. Hydrographic Office Charts 1474 and 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
TWO HARBORS LIGHT-STATION (Minn.) (L. S. Chart 968.)		Red; black lantern.	Square, brick tower, 43½ feet high, forms corner of a two-story brick dwelling; brick oilhouse 100 feet SWly.		<i>Fet.</i>	4th-order (l. o. v.) light, flashing red every 5 sec.; 78 feet above water; visible 16¼ miles. On point of land separating Agate and Burlington bays, entrance to Two Harbors. Lat. N, 47° 00' 50"; long. W, 91° 39' 49". Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>17 sec.</td> <td>5 sec.</td> <td>33 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	17 sec.	5 sec.	33 sec.
Blast	Silent interval	Blast	Silent interval											
5 sec.	17 sec.	5 sec.	33 sec.											
Two Harbors Breakwater Light (Minn.)		White; black lantern.	Square, pyramidal, skeleton, iron tower; square watchroom, octagonal lantern.			Red lens-lantern (g.) light 10 sec., eclipse 10 sec.; 33½ feet above water. On outer end of breakwater, Ely side of entrance to Two Harbors. Lat. N, 47° 00' 45"; long. W, 91° 40' 09". Fog signal: Bell struck by machinery, thus: <table border="1"> <tr> <td>1 blow</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>10 sec.</td> <td></td> <td>10 sec.</td> </tr> </table>	1 blow	Silent interval	1 blow	Silent interval		10 sec.		10 sec.
1 blow	Silent interval	1 blow	Silent interval											
	10 sec.		10 sec.											
SPLIT ROCK LIGHT STATION (Minn.) (L. S. Chart 96.)		Buff brick; black lantern; white bars with red roofs; gray oil-house.	Octagonal tower, 38 feet high, cylindrical lantern; oil-house 150 feet NEly; fog-signal house 50 feet Ely; 3 two-story dwellings and 3 barns NWly.	Devils Island Light-House, 105° 50'. Sand Island Light-House, 123° 50'. Two Harbors Light-House, 227° 20', 19 miles.		3d-order (l. o. v.) light, flashing white every 10 sec.; 168 feet above water; visible 22¼ miles. On promontory 1¼ miles NEly from Split Rock Point, NWly shore of lake. Lat. N, 47° 12' (00"); long. W, 91° 22' (00"). Fog signal: 1st-class compressed-air siren, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>2 sec.</td> <td>18 sec.</td> <td>2 sec.</td> <td>18 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	2 sec.	18 sec.	2 sec.	18 sec.
Blast	Silent interval	Blast	Silent interval											
2 sec.	18 sec.	2 sec.	18 sec.											
GRAND MARAIS LIGHT-STATION (Minn.) (L. S. Chart 9.)		White.	Square, pyramidal tower, 37½ feet high.	Outer Island Light-House, 185° 00', 47 miles. Rock of Ages Light-House, 80° 20', 49 miles.		5th-order fixed white light, 38 feet above water; visible 13¼ miles. Marks outer end of breakwater, Grand Marais Harbor. Lat. N, 47° 44' 41"; long. W, 90° 20' 17". Fog signal: Bell struck by machinery, thus: <table border="1"> <tr> <td>2 blows</td> <td>Silent interval</td> <td>2 blows</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>30 sec.</td> <td></td> <td>30 sec.</td> </tr> </table>	2 blows	Silent interval	2 blows	Silent interval		30 sec.		30 sec.
2 blows	Silent interval	2 blows	Silent interval											
	30 sec.		30 sec.											
Grand Marais West Breakwater Light (Minn.)		White.	Skeleton steel tower.			Red lens-lantern light 10 sec., eclipse 10 sec.; 36 feet above water. Marks outer end of Wly breakwater at entrance to Grand Marais Harbor. Lat. N, 47° 44' 39"; long. W, 90° 20' 24".								
ISLE ROYAL LIGHT-STATION (Mich.) (L. S. Chart 98.)		White; dwelling, dark brown.	Octagonal tower, 55 feet high, covered way to dwelling, all stone; concrete oilhouse 100 feet Nly.	Passage Island Light-House, 43° 00', 26½ miles. Eagle Harbor Light-House, 141° 00', 44 miles.		Coast light, 4th-order fixed white; 75 feet above water; visible 16½ miles. On Ely end of Menagerie Island, Sly side of entrance to Siskiwit Bay, Isle Royal. Lat. N, 47° 50' 54"; long. W, 88° 45' 37".								
West End Buoy	2	Red.	2d-class nun.	Rock of Ages Light-House, 17° 30', 5,500 feet (1 mile). Washington Island, left tangent, 40° 00'. Isle Royal, right tangent, 104° 15'.		Marks Wly edge of 12-foot shoal.								
ROCK OF AGES LIGHT-STATION (Mich.) (L. S. Chart 98.)		Buff; black lantern.	Conical tower; cylindrical base, octagonal lantern.	Thunder Cape Light-House, 30° 00', 34.6 miles. Pigeon Point, tangent, 319° 00', 12.5 miles. Victoria Island Light-House, 351° 00', 15 miles.		2d-order (l. o. v.) light, white double flash every 10 sec.; 117 feet above water; visible 19¼ miles. On Rock of Ages, off Wly end of Isle Royal, about 2.4 miles 270° true from the most Wly point of Washington Island. Lat. N, 47° 51' 60"; long. W, 89° 18' 52". Fog signal: 1st-class compressed-air siren, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>2 sec.</td> <td>13 sec.</td> <td>2 sec.</td> <td>13 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	2 sec.	13 sec.	2 sec.	13 sec.
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2 sec.	13 sec.	2 sec.	13 sec.											
PASSAGE ISLAND LIGHT-STATION (Mich.) (L. S. Chart 98.)		Gray.	Octagonal tower, 37 feet high, rising from stone dwelling; concrete oilhouse 100 feet SWly.	Manitou Light-House 146° 00', 67 miles.		4th-order light, flashing white every 10 sec.; 78 feet above water; visible 16¼ miles. On SWly point of Passage Island. Lat. N, 48° 13' 28"; long. W, 88° 21' 53". Guide through channel between Isle Royal and Passage Island. Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>25 sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	25 sec.	5 sec.	25 sec.
Blast	Silent interval	Blast	Silent interval											
5 sec.	25 sec.	5 sec.	25 sec.											
Corbay Point Light-Station (C.)		White.	Octagonal, wood; dwelling attached.			7th-order fixed white light; 77 feet above water; visible 18¾ miles. In Batchawana Bay. Lat. N, 66° 53' 33"; long. W, 84° 36' 05". Fog signal: hand horn, answers signals from vessels.								
Coppermine Point Light-Station (C.)		White, red lantern.	Square, wood, octagonal iron lantern.			5th-order fixed white light; 61 feet above water; visible 15 miles. On NWly end of point. Lat. N, 66° 59' 03"; long. W, 84° 47' 03".								
Gargantua Light-Station (C.)		White, red.	Hexagonal, wood; iron lantern.			7th-order fixed white light; 85 feet above water; visible 17¼ miles. On summit of small island, at entrance of harbor. Lat. N, 47° 33' 30"; long. W, 84° 57' 41". Pass to E'd of light to enter harbor. Fog signal: hand horn, answers signals from vessels.								

LAKE SUPERIOR.

U. S. Lake Survey Charts 0, 9, 91, 98, 901, 902, and 903, and U. S. Hydrographic Office Charts 1474 and 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Michipicoten Harbor Light-Station (C.).		White.....	Square, wooden building, lantern rising from roof.			7th-order fixed white light; 70 feet above water; visible 16 miles from all points of approach by water but not visible from wharves in harbor. On S Ely end of Little Gros Cap. Lat. N, 47° 56' 20"; long. W. 84° 54' 30".								
Caribou Island Light-Station (C.).		White; red lantern; white fog-signal building, red roof.	Octagonal, wood; dwelling attached; fog-signal building 100 feet S'y; horn 18 feet above water, points S'y.			Reflector light, revolving white every 30 seconds; 76 feet above water; visible 16 miles. On small island, SW'y of Caribou Island. Lat. N, 47° 20' 23"; long. W, 85° 49' 32". Fog signal: Compressed-air diaphone, sounds thus: <table border="1"> <thead> <tr> <th>Blast</th> <th>Silent interval</th> <th>Blast</th> <th>Silent interval</th> </tr> </thead> <tbody> <tr> <td>4 sec.</td> <td>26 sec.</td> <td>4 sec.</td> <td>26 sec.</td> </tr> </tbody> </table>	Blast	Silent interval	Blast	Silent interval	4 sec.	26 sec.	4 sec.	26 sec.
Blast	Silent interval	Blast	Silent interval											
4 sec.	26 sec.	4 sec.	26 sec.											
Michipicoten Island Light (C.).		White.....	Square, wood.			Reflector light, fixed white; 56 feet above water; visible 15 miles. In Quebec Harbor, Michipicoten Island. Lat. N, 47° 42' 10"; long. W, 85° 46' 00".								
Agate Island Light (C.).		White.....	Square, wood.			Reflector light, fixed white; 32 feet above water; visible 11½ miles. On headland, E'y side of entrance to Quebec Harbor. Lat. N, 47° 42' 10"; long. W, 85° 47' 00".								
Otter Island Light-Station (C.).		White, red lantern.	Octagonal, wood; polygonal, iron lantern.			7th-order fixed white light; temporarily 97 feet above water; visible 11½ miles. On NW'y end of Otter Island. Lat. N, 48° 09' 15"; long. W, 88° 03' 10". Fog signal; hand horn, answers signals from vessels.								
Peninsula Harbor Light-Station (C.).		White, red lantern.	Square, wood; dwelling attached, iron lantern.			Reflector light, revolving white every 30 sec.; 105 feet above water; visible 18½ miles. Lat. N, 48° 42' 05"; long. W, 86° 22' 15". On S'y end of island, at entrance to harbor. Pass about ¼ mile to E'd of light in entering harbor; good water throughout entrance. Fog signal; hand horn, answers signals from vessels.								
Jackfish Bay Light (C.).		Red.....	Square, pyramidal, steel skeleton structure.			6th-order fixed white light (group of 3 lights); 39 feet above water; visible 12¼ miles from all points of approach lakeward, but is hidden from view in bay by higher parts of island. On rocky knoll near shore on SW'y end of island in bay. Lat. N, 48° 47' 16"; long. W, 86° 56' 33". When light is opened clear of island by vessels leaving coal wharves it may be headed for, giving it a berth of 600 feet. Light is unwatched.								
Slate Island Light-Station (C.).		White; red lantern.	Octagonal, wood; polygonal, iron lantern.			4th-order fixed white light; 224 feet above water; visible 11½ miles. On summit of hill, S'y side of Sunday Harbor, and on S'y end of S'y Slate Island. Lat. N, 48° 36' 50"; long. W, 86° 58' 00". Strangers may enter Sunday Harbor by keeping the coast of the island close aboard from a point about 1 mile W'd of light-house.								
Battle Island Light-Station (C.).		White.....	Square, wood; dwelling 300 feet NE'y.			Reflector light, alternating red and white; greatest brilliancy every 90 sec.; 105 feet above water; visible 18½ miles. On SW'y point of Battle Island, E'y entrance to Nipigon Bay. Lat. N, 48° 45' 00"; long. W, 87° 33' 40". Fog signal; hand horn, answers signals from vessels.								
Lamb Island Light-Station (C.).		White.....	Square, wood; dwelling attached.			Reflector light, fixed white; 90 feet above water; visible 17½ miles. W'y entrance to Nipigon Bay. Lat. N, 48° 36' 23"; long. W, 88° 09' 10". Fog signal; hand horn, answers signals from vessels.								
Shaganash Island Light-Station (C.).		White.....	Square, wood, dwelling; square wooden lantern rising from roof.			5th-order fixed white light, 36 feet above water, visible 11 miles. On W'y end of Island No. 10, to W'd of Shaganash Island, N'y side of Lake Superior. Lat. N, 48° 26' 10"; long. W, 88° 28' 50".								
Porphyry Point Light-Station (C.).		White.....	Square, wood; square wooden fog-signal building 25 feet NE'y, horn 29 feet above water, projects SE'y.			Reflector light, fixed white; 56 feet above water; visible 15 miles. Entrance to Black Bay, Edward Island, Algoma. Lat. N, 48° 20' 40"; long. W, 88° 36' 10". Fog signal: Compressed-air diaphone, sounds thus: <table border="1"> <thead> <tr> <th>Blast</th> <th>Silent interval</th> <th>Blast</th> <th>Silent interval</th> </tr> </thead> <tbody> <tr> <td>2½ sec.</td> <td>57½ sec.</td> <td>2½ sec.</td> <td>57½ sec.</td> </tr> </tbody> </table>	Blast	Silent interval	Blast	Silent interval	2½ sec.	57½ sec.	2½ sec.	57½ sec.
Blast	Silent interval	Blast	Silent interval											
2½ sec.	57½ sec.	2½ sec.	57½ sec.											
Range. Silver Islet Front Light (C.).			Lantern on post.....	Rear light, 56° 46', 116 feet.		7th-order fixed white light; 10 feet above water; visible 2¼ miles. On wharf, near SW'y end, on mainland, inside of Burnt Island. Lat. N, 48° 20' 27"; long. W, 88° 48' 17".								
Silver Islet Rear Light (C.).			Lantern on post.....			7th-order fixed white light; 16 feet above water; visible 2¼ miles. Lights in range lead NE ¼ E, mag., to the wharf from SW'd between the shoals of Burnt Island and Catholic Church Point.								
Thunder Cape Light-Station (C.).		White, brown-roofed fog-signal building.	Square, wood; dwelling attached; horn, 23 feet above water, projects S'y.			Reflector light, revolving white every 30 sec.; 45 feet above water; visible 13¼ miles. Entrance to Thunder Bay. Lat. N, 48° 18' 23"; long. W, 88° 56' 40". Fog signal: Compressed-air diaphone, sounds thus: <table border="1"> <thead> <tr> <th>Blast</th> <th>Silent interval</th> <th>Blast</th> <th>Silent interval</th> </tr> </thead> <tbody> <tr> <td>3 sec.</td> <td>27 sec.</td> <td>3 sec.</td> <td>27 sec.</td> </tr> </tbody> </table>	Blast	Silent interval	Blast	Silent interval	3 sec.	27 sec.	3 sec.	27 sec.
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3 sec.	27 sec.	3 sec.	27 sec.											

LAKE SUPERIOR.

U. S. Lake Survey Charts 0, 9, 98, 902, and 903, and U. S. Hydrographic Office Chart 1474 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Welcome Islands Light-Station (C.).		White; red roof; white lantern and fog-signal building.	Square, wood; octagonal, wooden lantern; fog-signal building, 50 feet NE'y; horn 90 feet above water, projects E'y.		Feet.	7th-order fixed white light; 112 feet above water; visible 15½ miles. On NE'y end of the E'y Welcome Island, Thunder Bay. Lat. N, 48° 22' 14"; long. W, 89° 07' 13". Fog signal: Compressed-air diaphone, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast interval</td> <td>Silent interval</td> </tr> <tr> <td>2½ sec.</td> <td>5 sec.</td> <td>2½ sec.</td> <td>60 sec.</td> </tr> </table>	Blast	Silent interval	Blast interval	Silent interval	2½ sec.	5 sec.	2½ sec.	60 sec.
Blast	Silent interval	Blast interval	Silent interval											
2½ sec.	5 sec.	2½ sec.	60 sec.											
Fort William South Gas Buoy (C.).		Black	Cylindrical, steel, surmounted by pyramidal, steel frame work and lantern.			Fixed white (a.) lens-lantern light. Moored at outer end of S'y edge of dredged channel at mouth of Kaministikwia River.								
Fort William North Gas Buoy (C.).		Red	Cylindrical, steel, surmounted by pyramidal, steel frame work and lantern.			7th-order occulting white (a.) light. Moored at outer end of N'y edge of dredged channel at mouth of Kaministikwia River. Lat. N, 48° 23' 53"; long. W, 89° 12' 53".								
Fort William Light (C.).		White	Lantern on pole; small shed.			7th-order fixed red light; 25 feet above water; visible 11½ miles. On S'y side of Empire elevator wharf, 125 feet from outer end, at Fort William, entrance to Kaministikwia River. Lat. N, 48° 23' 41"; long. W, 89° 12' 48".								
Port Arthur Gas Buoy (C.).		Red	Cylindrical, steel, surmounted by pyramidal, steel frame work and lantern.		30	7th-order occulting white (a.) light; visible 5½ miles. Moored on prolongation of NE'y edge of dredged channel. Lat. N, 48° 25' 30"; long. W, 89° 12' 05".								
Port Arthur Light-Station (C.).		White	Square, wood, on cribwork block.			Red light, fixed red 4th-order occulting white light; 43 feet above water; visible 8 miles; 31 feet from S'y end of N'y breakwater. Lat. N, 48° 25' 50"; long. W, 89° 12' 30". Fog signal; hand horn, answers signals from vessels. Moved 1887.								
Pie Island Light-Station (C.).		White	Square, wood; wooden dwelling NE'y.			7th-order fixed white light; 34 feet above water; visible 12½ miles from all points of approach excepting the E'd where covered by high land of island. On point at W'y end of island, W'y entrance to Thunder Bay. Lat. N, 48° 14' 05"; long. W, 89° 10' 26". Fog signal; hand horn, answers signals from vessels.								
Victoria Island Light-Station (C.).		White; red lantern.	Square, wood; iron lantern, wooden building SE'y.			7th-order fixed white light; 45 feet above water; visible 13½ miles from all points of approach in channel and from the W'd. On end of point at NW'y end of island. Lat. N, 48° 04' 54"; long. W, 89° 21' 41". Fog signal; hand horn, answers signals from vessels.								

LAKE SIMCOE.

For Island Light (C.).		Brown	Square, wood			Reflector light, fixed white; 46 feet above water; visible 13¼ miles. Lat. N, 44° 18' 00"; long. W, 79° 27' 15".
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MUSKOKA LAKES.

Gravenhurst Narrows Light-Station (C.).		White	Square, wood; masonry foundation.			6th-order fixed white light; 28 feet above water; visible 11½ miles. On SE'y point of Denisons Island, Lake Muskoka. Lat. N, 44° 58' 20"; long. W, 79° 22' 25".
Rosseau Light (C.).		White; red lantern.	Square, wood; on cribwork pier.			7th-order light, fixed white; 28 feet above water. On Ditchburns Shoal, near head of Lake Rosseau, about 1 mile S'y of wharf. Lat. N, 45° 13' 35"; long. W, 79° 35' 45".
Cecebe Lake Light (C.).		White	Square, wood; on square cribwork pier.			7th-order fixed white light; 21 feet above water; visible 3½ miles. On shoal about 1 mile above Magnatawan Village. Lat. N, 45° 39' 09"; long. W, 79° 35' 56".

LAKE NIPISSING.

Southeast Bay Light (C.).		White; red roof.	Square, wood; on cribwork.			Post-lantern light, fixed white; 30 feet above water. On S'y side of entrance. Lat. N, 46° 07' 35"; long. W, 79° 22' 30".
South River Light (C.).		White	Lantern on mast, shed at base.			Post-lantern light, fixed white; 28 feet above water, visible 11½ miles. On point near tannery, W'y side of mouth. Lat. N, 46° 03' 40"; long. W, 79° 32' 30". Guide to mouth of river past shoals that extend N'y and E'y from mouth.
Sturgeon River Entrance Gas Buoy (C.).		Red	Cylindrical, surmounted by pyramidal frame-work and lantern.			7th-order occulting white (a.) light; 8 feet above water. Moored in lake, off mouth of river. Lat. N, 46° 14' 00"; long. W, 79° 54' 36". Dredged channel in lake, about 1 mile long, 50 feet wide, 36'. Dredged channel in lake, about 1 mile long, 50 feet wide, extends N'y from deep water N'y of Iron Island and passes to E'd of Cockburn Island. The axis of E'y half of channel is marked to S'd by a daymark on W'y end of Iron Island, and to N'd by a pair of daymarks on shore on E'y side of mouth of Sturgeon River.

STRAITS OF MACKINAC.

U. S. Lake Survey Charts 0, 5, 6, 7, 70, 71, and 72, and U. S. Hydrographic Office Charts 1474, 1475, and 1476 issued at Lake Survey Office.

For the straits to N'd and E'd of Old Mackinac Point, see page 157.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
OLD MACKINAC POINT LIGHT-STATION (Mich.)		Yellow; red roof, black lantern; cylindrical house.	Cylindrical tower, forming NW'ly corner of brick dwelling; brick fog-signal house 33 feet E'ly; cylindrical iron oil-house SE'ly.		Fath.	4th-order light, flashing red every 15 sec.; 62 feet above water; visible 15 1/4 miles. On Old Mackinac Point, S'ly side of straits. Lat. N. 43° 47' 10"; long. W. 84° 43' 40". Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>17 sec.</td> <td>3 sec.</td> <td>33 sec.</td> </tr> </table> Weather Bureau signals are shown at this station.	Blast	Silent interval	Blast	Silent interval	5 sec.	17 sec.	3 sec.	33 sec.
Blast	Silent interval	Blast	Silent interval											
5 sec.	17 sec.	3 sec.	33 sec.											
ST. HELENA LIGHT-STATION (Mich.)		White; red dwelling.	Conical tower, 65 feet high, covered way to brick dwelling; brick oil-house 105 feet N'ly.			1 1/2-order fixed red light; 71 feet above water; visible 10 1/2 miles. On SE'ly point of St. Helena Island. Lat. N. 43° 31' 12"; long. W. 84° 31' 45".								
St. Helena Southeast Shoal Buoy.	1	Black	3d-class spar.	Round Island Light-House, 95° 00'. Old Mackinac Point Light - House, 126° 00'. St. Helena Light-House, 326° 30'.	18	On SE'ly end of shoal extending 1/2 mile SE'ly of St. Helena Light-House. In entering St. Helena Harbor from W'd give buoy berth of 300 feet.								
St. Helena Shoal Buoy.	S H S	Red and black horizontal stripes.	2d-class can.	St. Helena Island, N point, 84° 30'. Old Mackinac Point Light - House, 126° 00'. Wangushance Light-House, 247° 00'.	19	On S'ly side of 8-foot shoal 1 1/4 miles W'ly of NW'ly end of St. Helena Island. Shoal extends about 1/2 mile NW'ly and SE'ly and 1/2 mile NE'ly and SW'ly; 5 feet of water on shoal; part soundings irregular; rocky bottom, with 3 to 4 fathoms close to.								
New Shoal Gas Buoy, No. 1 (Mich.)	1	Black	Conical, surmounted by pyramidal lattice-work and lantern.	St. Helena Light-House, 71° 00'. Old Mackinac Point Light - House, 96° 30'. Wangushance Light-House, 233° 30'.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; on E'ly end of new shoals to N'd of Wangushance Shoal.								
New Shoal Gas Buoy, No. 2 (Mich.)	1	Black	Conical, surmounted by pyramidal lattice-work and lantern.	St. Helena Light-House, 76° 00'. Old Mackinac Point Light - House, 95° 00'. Wangushance Light-House, 134° 00'.	21	Fixed white lens-lantern light; 10 feet above water; on W'ly end of new shoals N'd of Wangushance Shoal.								
Manitou Paymen Shoal Buoy.		Red and black horizontal stripes.	3d-class spar.	Point aux Chenes, 118° 00'. Wangushance Light-House, 188° 00'. Point Esquette, 324° 30'.	17	On SW'ly point of Manitou Paymen Shoal, center of which is about 4 miles from N'ly shore. The shoal is about 1 mile in extent NE and SW, and 1/2 mile NW and SE; least water, 4 feet.								
WANGUSHANCE LIGHT-STATION (Mich.)		Red and white horizontal bands; white under gallery; red band covers roof of dwelling; white below.	Iron tower, 85 feet high; dwelling and fog-signal building on square pier.			6th-order light, fixed white, varied by white flash every 45 sec.; 74 feet above water; visible 10 1/2 miles. On point of shoal extending NW'ly of Wangushance Island, at turn from Straits of Mackinac into Lake Michigan. Lat. N. 43° 47' 10"; long. W. 83° 05' 20". Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>25 sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	25 sec.	5 sec.	25 sec.
Blast	Silent interval	Blast	Silent interval											
5 sec.	25 sec.	5 sec.	25 sec.											
Wangushance Sixteen-Foot Shoal Buoy.	SW	Black	2d-class can.	St. Helena Light-House, 71° 00'. Wangushance Light-House, 143° 00'. De Aux Galets Light-House, 196° 00'.	22	Marks NW'ly end of Base or Wangushance Shoal.								
WHITE SHOAL LIGHT-STATION (Mich.)		White, narrow black band, silver-gray lantern.	Conical tower, 32 feet high, white on S'ly side; on square concrete pier, 21 feet high.			2d-order (i. o. v.) light, flashing white every 8 sec.; 125 feet above water; visible 20 miles; obscured in narrow sector to SW'd. On E'ly end of shoal, NE'ly end of Lake Michigan and off W'ly entrance to Straits of Mackinac. Lat. N. 43° 30' (30"); long. W. 83° 08' (88° 7'). Fog signal: 6-inch compressed-air whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>2 sec.</td> <td>18 sec.</td> <td>1 sec.</td> <td>17 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	2 sec.	18 sec.	1 sec.	17 sec.
Blast	Silent interval	Blast	Silent interval											
2 sec.	18 sec.	1 sec.	17 sec.											
Simmons Reef Gas Buoy, No. 2 (Mich.)	2	Red	Conical, surmounted by pyramidal lattice-work and lantern.	St. Helena Light-House, 301° 30'. Wangushance Light-House, 144° 00'. De Aux Galets Light-House, 172° 30'.	23	Fixed white lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. On S'ly end of Simmons Reef.								

STRAITS OF MACKINAC.

U. S. Lake Survey Charts 0, 5, 6, 7, 70, 71, and 72, and U. S. Hydrographic Office Charts 1474, 1475, and 1476 issued at Lake Survey Office.

1	2	3	4	5	6	7																				
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.																				
White Shoal Buoy.....		Red and black horizon tal stripes.	2d-class spar.....	St. Helena Light-House, 85° 00'. Waugoshance Light-House, 134° 00'. Ile Aux Galets Light-House, 182° 45'.	Fret. 17	At SW'y end of White Shoal.																				
Vienna Shoal Buoy.....	V	Red and black horizon tal stripes.	2d-class can.....	Waugoshance Light-House, 70° 15'. Ile Aux Galets Light-House, 198° 15'. North end Hat Island, 287° 00'.	18	Marks NW'y point of Vienna Shoal.																				
GRAYS REEF LIGHT-VESSEL, NO. 57 (Mich.).	Grays Reef, No. 57.	Red hull, white bulwarks; black lettering, smoke-stack and daymark on foremast; red daymark on mainmast.	Steam vessel; two masts, schooner-rigged, no bowsprit. "Grays Reef," on each side, "57" on each bow and each quarter; smoke-stack and fog signal between masts; oval cage-work daymark on each mast.	Waugoshance Light-House, 84° 30'. Ile Aux Galets Light-House, 178° 30'. Hog Island, 83° 1' tangent, 264° 30'.	20	Two lens-lantern lights, fixed white, at foremasthead, fixed red at mainmasthead, each 30 feet above water; visible 13½ miles. Moored off E'y end of Grays Reef, N'E'y end of Lake Michigan, Michigan. Lat. N, 45° 46' 51"; long. W, 85° 10' 34". Fog signal: 6-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Silent Interval</td> </tr> <tr> <td>1 sec.</td> <td>20 sec.</td> <td>1 sec.</td> <td>20 sec.</td> <td>3 sec.</td> <td>15 sec.</td> </tr> </table> Submarine bell strikes thus: <table border="1"> <tr> <td>Silent</td> <td>Interval</td> <td>Silent</td> <td>Interval</td> </tr> <tr> <td>5 strokes</td> <td>6 sec.</td> <td>5 strokes</td> <td>6 sec.</td> </tr> </table>	Blast	Interval	Blast	Interval	Blast	Silent Interval	1 sec.	20 sec.	1 sec.	20 sec.	3 sec.	15 sec.	Silent	Interval	Silent	Interval	5 strokes	6 sec.	5 strokes	6 sec.
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1 sec.	20 sec.	1 sec.	20 sec.	3 sec.	15 sec.																					
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5 strokes	6 sec.	5 strokes	6 sec.																							
Middle Shoal Gas Buoy (Mich.).	Middle Shoal	Red and black horizon tal stripes.	Conical, surmounted by pyramidal latticework and lantern.	Waugoshance Light-House, 69° 30'. Ile Aux Galets Light-House, 183° 30'. Hog Island, left tangent, 270° 00'.	18	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks center of small 17½-foot shoal; 20 feet depth 300 feet from buoy in any direction.																				
Ile Aux Galets East End Buoy.	2	Red.....	2d-class spar.....	White Shoal Light-House, 0° 00'. Waugoshance Island, right tangent, 35° 00'. Ile Aux Galets Light-House, 256° 30'.	20	Marks E'y end of shoal extending ENE'y from light-house.																				
Ile Aux Galets Buoy.....	7 S	Black.....	3d-class can.....	Waugoshance Light-House, 30° 30'. Ile Aux Galets Light-House, 124° 00'. Beaver Island Harbor Light-House, 285° 30'.	18	Marks end of shoal extending NW'y from Ile Aux Galets Light-House. No passage between buoy and light-house.																				
ILE AUX GALETS LIGHT-STATION (Mich.).		White; red roofs.	Octagonal brick tower, 52 feet high, coveredway to dwelling; two fog-signal buildings near tower; brick oilhouse NE'y.			4th order fixed white light; 58 feet above water; visible 15½ miles. On Ile Aux Galets Rock, 5¼ miles from mainland. Lat. N, 45° 40' 35"; long. W, 85° 10' 19". Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent Interval</td> <td>Blast</td> <td>Silent Interval</td> </tr> <tr> <td>5 sec.</td> <td>10 sec.</td> <td>5 sec.</td> <td>40 sec.</td> </tr> </table>	Blast	Silent Interval	Blast	Silent Interval	5 sec.	10 sec.	5 sec.	40 sec.												
Blast	Silent Interval	Blast	Silent Interval																							
5 sec.	10 sec.	5 sec.	40 sec.																							
Dahlia Shoal Buoy.....		Red and black horizon tal stripes.	2d-class can.....	Ile Aux Galets Light-House, 30° 00'. Beaver Island Harbor Light-House, 299° 30'.	17	On SW'y end of 14-foot shoal. Foul ground extends about ¼ mile N'd and E'd.																				
Hog Island Reef Buoy...	H I R	Red and black horizon tal stripes.	2d-class can.....	Waugoshance Light-House, 70° 30'. Ile Aux Galets Light-House, 133° 30'. Beaver Island Harbor Light-House, 279° 15'.	18	Off SE'y end of reef. Reef extends ¼ mile E'y and W'y and N'y and S'y; 6 feet on W'y end of reef, with soundings to W'd, close-to, of 4 and 5 fathoms.																				
Beaver Island Shoal Northeast End Buoy.	1	Black.....	3d-class spar.....	Ile Aux Galets Light-House, 112° 00'. Beaver Island, NW point, 266° 30'. Squaw Island Light-House, 320° 00'.	15	Marks N'y edge of shoal making out from NE'y end of Beaver Island.																				
Beaver Island Harbor Light-Station (Mich.).		White; red roofs.	Cylindrical tower, 34 feet high; coveredway to dwelling; oilhouse N'y.			4th order fixed red light, 37 feet above water; visible 13 miles. On N'y side of entrance to harbor. Lat. N, 45° 44' 34"; long. W, 85° 30' 30". Avoid shoal on N'y side of entrance. Give light-house berth of about 600 feet. Good anchorage in center of harbor. Life-saving station about 163 feet W'y of light-house. Weather Bureau signals shown from tower on S'y side of harbor.																				

STRAITS OF MACKINAC.

U. S. Lake Survey Charts 0, 5, 6, 7, 70, 71, and 72, and U. S. Hydrographic Office Charts 1474, 1475, and 1476 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Stony Point Shoal Buoy.	1	Black.....	3d-class spar.....	Tangent of land to S'd 18° 00'. North point of Sandy Bay, 233° 30'. Beaver Island Harbor Light - House, 316° 30'.	Feet. 20	Marks E'y end of shoal off point, S'y side of entrance to Beaver Island Harbor.								
BEAVER ISLAND LIGHT-STATION (Mich.).		Yellow; red roofs.	Cylindrical tower, 40 feet high; covered way to dwelling; fog-signal house on point about 650 feet SW'y; brick oil-house SW'y.			4th-order light, fixed white, varied by white flash every minute 103 feet above water, visible 18½ miles. On bluff, about 60 feet high at S'y end of island. Lat. N, 45° 34' 33"; long. W, 85° 34' 24". Guide through channel, 9½ miles wide between Beaver and North Fox islands. Fog signal: 1st-class steam siren, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>7 sec.</td> <td>42 sec.</td> <td>7 sec.</td> <td>42 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	7 sec.	42 sec.	7 sec.	42 sec.
Blast	Silent interval	Blast	Silent interval											
7 sec.	42 sec.	7 sec.	42 sec.											

LAKE MICHIGAN.

S'D ALONG E'LY SHORE AND ADJACENT ISLANDS.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Charts 1475 and 1476 issued at Lake Survey Office.

Little Traverse Light-Station (Mich.).		Red; buff fog-bell tower, red roof.	Square tower, 34 feet high, attached to S'y end of brick dwelling; fog bell in tower, 20 feet high, 100 feet SE'y; brick oil-house NW'y.			4th order fixed red light; 41 feet above water; visible 13 miles. Lat. N, 45° 25' 08"; long. W, 84° 58' 49". Fog signal: Bell struck by machinery, thus: <table border="1"> <tr> <td>2 blows</td> <td>Silent interval</td> <td>2 blows</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>30 sec.</td> <td></td> <td>30 sec.</td> </tr> </table> <i>Weather Bureau signals displayed from tower on bluff.</i>	2 blows	Silent interval	2 blows	Silent interval		30 sec.		30 sec.		
2 blows	Silent interval	2 blows	Silent interval													
	30 sec.		30 sec.													
Petoskey Light (Mich.).		Red.....	Lantern on post, small lamphouse at base.			Fixed red lens-lantern light vertically above fixed white lens-lantern light, 25 and 18 feet above water; on N'y end of W'y breakwater, Petoskey Harbor, Little Traverse Bay. Lat. N, 45° 22' 42"; long. W, 84° 57' 48".										
Charlevoix Pierhead Light-Station (Mich.). (L. S. Chart 717.)		White.....	Square, open-frame tower, 30¾ feet high, upper part inclosed; fog bell attached to W'y side; metal elevated walk along pier to shore; frame oilhouse 197 feet in rear.			5th-order fixed red light; 37 feet above water; visible 9½ miles. On outer end of N'y pier, entrance to Charlevoix Harbor. Lat. N, 45° 19' 14"; long. W, 85° 15' 53". Width between piers at entrance, 160 feet. Fog signal: Bell struck by machinery, thus: <table border="1"> <tr> <td>2 blows</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>20 sec.</td> <td></td> <td>20 sec.</td> </tr> </table> <i>Weather Bureau signals shown from tower on bluff near Life-Saving Station.</i>	2 blows	Silent interval	1 blow	Silent interval		20 sec.		20 sec.		
2 blows	Silent interval	1 blow	Silent interval													
	20 sec.		20 sec.													
Fisherman Island Shoal Buoy.	1	Black.....	3d-class spar.....	Charlevoix, S point, tangent, 63° 30'. Grand Traverse Bay, tangent E'y side, 192° 30'. Grand Traverse Light-House, 236° 30'.	20	On NW'y end of rocky shoal extending about ¼ mile NW'y from island, E'y side of entrance to Grand Traverse Bay.										
GRAND TRAVERSE LIGHT-STATION (Mich.).		Yellow; red fog-signal house.	Square tower on brick dwelling; brick fog-signal house 160 feet SW'y; brick oil-house SW'y.			4th-order fixed white (l. o. v.) light; 40 feet above water; visible 13½ miles. On NW'y point of Light-House Point, W'y side of entrance to Grand Traverse Bay. Lat. N, 45° 12' 37"; long. W, 85° 32' 59". Fog-signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td></td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> <td>W. H. 10 s.</td> </tr> <tr> <td>3 sec.</td> <td>12 sec.</td> <td>6 sec.</td> <td>24 sec.</td> <td></td> </tr> </table>		Silent interval	Blast	Silent interval	W. H. 10 s.	3 sec.	12 sec.	6 sec.	24 sec.	
	Silent interval	Blast	Silent interval	W. H. 10 s.												
3 sec.	12 sec.	6 sec.	24 sec.													
Northport Point Gas and Bell Buoy No. 2.	2	Red - - -	BELL													
Mission Point Bell Buoy	MP	HS - - -														
MISSION POINT LIGHT-STATION (Mich.).		White; red roofs.	Square tower on frame dwelling; brick oilhouse SE'y.			5th-order fixed white light; 48 feet above water; visible 14 miles. On NE'y point of Old Mission Point, Grand Traverse Bay. Lat. N, 44° 59' 20"; long. W, 85° 28' 43".										
SOUTH FOX ISLAND LIGHT-STATION (Mich.).		Yellow; brown fog-signal house.	Square tower, 39 feet high, attached to S'y end of dwelling, both brick; brick oilhouse S'y; fog-signal building 420 feet SW'y.			4th-order light, fixed red; varied by red flash every 2 minutes; 68 feet above water; visible 16 miles. On S'y end of island. Lat. N, 45° 22' 37"; long. W, 85° 50' 16". An irregular shoal extends 9½ miles S'y from island. Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>3 sec.</td> <td>17 sec.</td> <td>3 sec.</td> <td>17 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	3 sec.	17 sec.	3 sec.	17 sec.		
Blast	Silent interval	Blast	Silent interval													
3 sec.	17 sec.	3 sec.	17 sec.													
South Fox Island Shoals Gas Buoy, No. 1 (Mich.). (L. S. Chart 716.)	1	Black.....	Conical, surmounted by pyramidal latticework and lantern.	Beaver Island Light-House, 39° 00'. Grand Traverse Light-House, 125° 00'. South Fox Island Light-House, 350° 00'.	26	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks S'y side of passage S of island.										

LAKE MICHIGAN.

S'D ALONG E'LY SHORE AND ADJACENT ISLANDS—Continued.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Charts 1475 and 1476 issued at Lake Survey Office.

1	2	3	4	5	6	7																
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.																
Fox Island Shoals Inside Buoy.	S F I	Red and black horizontal stripes.	2d-class nun.	South Fox Island Light-House, 10° 00'; Grand Traverse Light-House, 116° 00'; North Manitou Light-House, 197° 00'.	Fath. 20	S'yly and close to inner spot of reef extending S'yly from island. Rocky bottom; soundings irregular.																
Fox Island Shoals Middle Buoy.		Red and black horizontal stripes.	3d-class spar.	South Fox Island Light-House, 7° 30'; Grand Traverse Light-House, 109° 00'; North Manitou Light-House, 199° 00'.	17	Marks two 13-foot spots, lying NW'yly and SE'yly, about 1/4 mile apart; on S'yly edge of NW'yly spot. Avoid 5-fathom line in thick weather.																
Fox Island Shoals Outside Buoy.	S F O	Red and black horizontal stripes.	3d-class can.	South Fox Island Light-House, 6° 00', 7 1/2 miles. Grand Traverse Light-House, 106° 00'. North Manitou Light-House, 200° 15'.	20	S'yly and close to outer shoal of reef extending S'yly from island. Avoid locality in thick weather.																
South Fox Island Shoals South Buoy.	S S F S	Red.	2d-class nun.	South Fox Island Light-House, 1° 00'. Grand Traverse Light-House, 98° 30'. North Manitou Light-House, 203° 30'.	30	Marks S'yly end of shoals.																
NORTH MANITOU LIGHT-STATION (Mich.). L. S. Chart 714.)		White; black lantern.	Square, pyramidal, inclosed frame tower; fog-signal house about 80 feet NE'yly; brick oilhouse NW'yly.			4th-order light, flashing alternately red and white; intervals 10 sec.; 70 feet above water; visible 14.2 miles. On point making off E'yly from SE'yly part of island. Lat. N, 45° 03' 48"; long. W, 85° 57' 47". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>interval</td> <td>Blast</td> <td>interval</td> </tr> <tr> <td>5 sec.</td> <td>25 sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </table>	Blast	interval	Blast	interval	5 sec.	25 sec.	5 sec.	25 sec.								
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NORTH MANITOU SHOAL LIGHT-VESSEL, NO. 56 (Mich.).	56 N M I S	White hull and boats; black lettering, smoke-stack, and daymarks; straw-colored masts.	Steam vessel, schooner rigged, no bowsprit; name on each side, number on each bow and quarter; smoke-stack and fog signal between masts; oval cage-work daymark at each masthead.	Pyramid Point, peak, 156° 30'. South Manitou Light-House, 262° 30'. North Manitou Light-House, 354° 00', 2 1/2 miles.	21	Two fixed white lens-lantern lights (three lanterns encircling each masthead), each 30 feet above water; visible 11 1/2 miles. On S'yly end of shoals extending from SE'yly point of North Manitou Island. Lat. N, 45° 01' (16"); long. W, 85° 57' (25"). Fog signals: 6-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>2 sec.</td> <td>18 sec.</td> <td>2 sec.</td> <td>18 sec.</td> </tr> </table> Submarine bell strikes thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>2 strokes</td> <td>Silent interval</td> <td>2 strokes</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>4 sec.</td> <td></td> <td>8 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	2 sec.	18 sec.	2 sec.	18 sec.	2 strokes	Silent interval	2 strokes	Silent interval		4 sec.		8 sec.
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2 sec.	18 sec.	2 sec.	18 sec.																			
2 strokes	Silent interval	2 strokes	Silent interval																			
	4 sec.		8 sec.																			
North Manitou Shoal Southwest End Buoy.	6 N M S	Red.	2d-class nun.	North Manitou Light-House, 28° 00'. Point Betsie Light-House, 209° 00'. South Manitou Light-House, 272° 00'.	20	Marks SW'yly end of shoal. Foul water extends to island.																
SOUTH MANITOU LIGHT-STATION (Mich.).		White; yellow brick dwelling; red roofs.	Conical tower, 91 feet high; covered way to dwelling; cylindrical iron and brick oilhouses N'yly; fog-signal houses 100 feet NE'yly.			3d-order fixed white (l. o. v.) light; 104 feet above water; visible 18 1/2 miles. On SE'yly point of South Manitou Island. Lat. N, 45° 00' 28"; long. W, 86° 05' 37". Guide through channel to E'd of Manitou and to Manitou Harbor. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>52 sec.</td> <td>8 sec.</td> <td>52 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	52 sec.	8 sec.	52 sec.								
Blast	Silent interval	Blast	Silent interval																			
5 sec.	52 sec.	8 sec.	52 sec.																			
POINT BETSIE LIGHT-STATION (Mich.).		White; red roofs; brown fog-signal house.	Cylindrical tower, 34 feet high, covered way to dwelling, corrugated iron fog-signal house 175 feet N'yly; cylindrical oilhouse N'yly.			4th-order light, flashing white every 10 sec.; 53 feet above water; visible 14 1/2 miles. On Point Betsie. Lat. N, 44° 41' 29"; long. W, 86° 15' 18". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>10 sec.</td> <td>5 sec.</td> <td>40 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	10 sec.	5 sec.	40 sec.								
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LAKE MICHIGAN.

S'D ALONG ELY SHORE AND ADJACENT ISLANDS—Continued.

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Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.												
Range.	Frankfort Pierhead Front Light-Station (Mich.). (L. S. Chart 897.)	White.....	Square tower, 25 feet high, covered way to tower in rear; elevated walk along pier to shore; frame oil-house at inner end of pier.	Rear light, 94° 00', 500 feet.	6th-order fixed red light; 35 feet above water; visible 8½ miles. Near outer end of S pier at Frankfort. Width between piers at entrance, 200 feet. Lat. N, 44° 37' 50"; long. W, 86° 14' 56". Fog signal: Compressed-air siren, sounds thus: <table border="1"> <thead> <tr> <th colspan="2">Silent</th> <th colspan="2">Silent</th> </tr> <tr> <th>Blast</th> <th>Interval</th> <th>Blast</th> <th>Interval</th> </tr> </thead> <tbody> <tr> <td>3 sec.</td> <td>3 sec.</td> <td>3 sec.</td> <td>3 sec.</td> </tr> </tbody> </table>	Silent		Silent		Blast	Interval	Blast	Interval	3 sec.	3 sec.	3 sec.	3 sec.
	Silent		Silent															
Blast	Interval	Blast	Interval															
3 sec.	3 sec.	3 sec.	3 sec.															
Frankfort Pierhead Rear Light (Mich.).	White.....	Post supporting lantern.	Fixed red lens-lantern light; 50 feet above water; on outer third of S pier. Forms range with preceding, showing direction for approaching harbor. Weather Bureau signals shown from life-saving station.												
Range.	Portage Lake Pierhead Front Light (Mich.). (L. S. Chart 895.)	White.....	Post supporting lantern.	Rear light, 95° 30', 66 feet.	Fixed red lens-lantern light; 23 feet above water; on outer end of N pier. Forms range with following for approaching harbor.												
	Portage Lake Pierhead Rear Light-Station (Mich.).	White.....	Square, pyramidal, framework tower, upper part inclosed; metal elevated walk along pier to shore.	4th-order fixed red light; 40 feet above water; visible 13 miles. Near outer end of N pier at entrance to Portage Lake. Lat. N, 44° 21' 31"; long. W, 86° 16' 14". Width between piers at entrance, 370 feet.												
Range.	Manistee Pierhead Light (Mich.). (L. S. Chart 893.)	Brown; black lantern.	Tower on gable end of corrugated-iron fog-signal house; elevated walk along pier shoreward.	Manistee Light-House, 113° 15', ¾ mile.	6th-order fixed red light; 33½ feet above water; visible 8¼ miles. On outer end of N pier. Lat. N, 44° 15' 08"; long. W, 86° 20' 45". With the following forms range for approaching harbor. Width between piers at entrance, 185 feet. Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <thead> <tr> <th colspan="2">Silent</th> <th colspan="2">Silent</th> </tr> <tr> <th>Blast</th> <th>Interval</th> <th>Blast</th> <th>Interval</th> </tr> </thead> <tbody> <tr> <td>5 sec.</td> <td>2½ sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </tbody> </table>	Silent		Silent		Blast	Interval	Blast	Interval	5 sec.	2½ sec.	5 sec.	25 sec.
	Silent		Silent															
Blast	Interval	Blast	Interval															
5 sec.	2½ sec.	5 sec.	25 sec.															
MANISTEE LIGHT-STATION (Mich.).	White; black lantern.	Square tower on lakeward end of frame dwelling; brick oilhouse SEly.	5th-order fixed white light, varied by red flash every 45 sec.; 45 feet above water; visible 14 miles. On Nly side of mouth of Manistee River. Lat. N, 44° 15' 01"; long. W, 86° 20' 21". Light is obscured when bearing 112° 00' true (ESE ¾ E mag.) at points less than 800 feet from outer end of Nly pier.												
BIG SABLE LIGHT-STATION (Mich.).	Lower and upper third of tower, including lantern, white; middle third, black; yellow brick dwelling.	Conical tower, covered way to dwelling; cylindrical iron and brick oil-houses Sly; fog-signal house about 200 feet Wly.	3d-order fixed white (L. o. v.) light; 106 feet above water; visible 18½ miles. On Big Sable Point, Ely shore of Lake Michigan. Lat. N, 44° 03' 29"; long. W, 85° 30' 53". Fog signal: 1st-class, automatic, compressed-air siren, sounds thus: <table border="1"> <thead> <tr> <th colspan="2">Silent</th> <th colspan="2">Silent</th> </tr> <tr> <th>Blast</th> <th>Interval</th> <th>Blast</th> <th>Interval</th> </tr> </thead> <tbody> <tr> <td>3 sec.</td> <td>12 sec.</td> <td>3 sec.</td> <td>27 sec.</td> </tr> </tbody> </table>	Silent		Silent		Blast	Interval	Blast	Interval	3 sec.	12 sec.	3 sec.	27 sec.
Silent		Silent																
Blast	Interval	Blast	Interval															
3 sec.	12 sec.	3 sec.	27 sec.															
Ludington North Breakwater Light (Mich.).	Concrete.....	Lantern on square concrete column and pedestal.	Fixed red lens-lantern (a.) light; 30 feet above water. On N breakwater, 50 feet from outer end.												
Range.	Ludington South Breakwater Light (Mich.). (L. S. Chart 889.)	Concrete.....	Lantern on square concrete column and pedestal.	Ludington South Pierhead Light-House, 89° 15'.	Fixed red lens-lantern (a.) light; 30 feet above water. On NWly end of S breakwater.												
	Ludington South Pierhead Light (Mich.).	Skeleton tower; fog-signal house in front; elevated walk along pier to shore; frame oil-house at inner end of pier.	Fixed red lens-lantern light; 61 feet above water. On S pier, near outer end, entrance to Ludington Harbor and Pere Marquette Lake. Lat. N, 43° 57' 10"; long. W, 86° 27' 46". Width between piers at entrance, 470 feet. With preceding forms range, E ¾ S mag., for approaching harbor. Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <thead> <tr> <th colspan="2">Silent</th> <th colspan="2">Silent</th> </tr> <tr> <th>Blast</th> <th>Interval</th> <th>Blast</th> <th>Interval</th> </tr> </thead> <tbody> <tr> <td>3 sec.</td> <td>17 sec.</td> <td>3 sec.</td> <td>17 sec.</td> </tr> </tbody> </table>	Silent		Silent		Blast	Interval	Blast	Interval	3 sec.	17 sec.	3 sec.	17 sec.
Silent		Silent																
Blast	Interval	Blast	Interval															
3 sec.	17 sec.	3 sec.	17 sec.															
Range.	Pentwater Pierhead Front Light (Mich.).	Post supporting lantern.	Rear light, 111° 00'.	Fixed red post-lantern light; 25 feet above water. At end of pier, and forms range with following for approaching harbor. Lat. N, 43° 46' 57"; long. W, 86° 26' 42".												
	Pentwater Pierhead Rear Light-Station (Mich.).	White.....	Square, pyramidal, open framework tower, 25 feet high; elevated walk along pier to shore; frame oil-house at inner end of pier.	6th-order fixed red light; 33 feet above water; visible 8¼ miles. Near end of Sly pier at Pentwater entrance to Pentwater Lake and River. Lat. N, 43° 46' 57"; long. W, 86° 26' 30". Width between piers, 150 feet at entrance. Life-saving station near inner end of Nly pier.												

LAKE MICHIGAN.

S'D ALONG E'LY SHORE AND ADJACENT ISLANDS—Continued.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and U. S. Hydrographic Office Charts 1475 and 1476 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
LITTLE SABLE LIGHT-STATION (Mich.).		White; red-brick dwelling.	Conical tower, 100 feet high, covered way, dwelling; cylindrical brick oilhouse N'y.		Fet.	3d-order fixed white light varied by white flash every 30 sec.; 108 feet above water; visible 18½ miles. Coast light on Little Sable Point. Lat. N, 43° 39' 10"; long. W, 86° 32' 23".								
White River Pierhead Light-Station (Mich.).		White.	Square, pyramidal, framework tower, upper part inclosed, 27 feet high; metal elevated walk along pier to shore.	White River Light-House, 91° 30'.		6th-order fixed red light; 33 feet above water; visible 8½ miles. Near outer end of S pier at entrance to White Lake. Lat. N, 43° 22' 30"; long. W, 86° 25' 48". Width between piers, 190 feet at entrance. Life-saving station near inner end of N'y pier.								
WHITE RIVER LIGHT-STATION (Mich.).		Yellow.	Octagonal tower, 38 feet high, attached to NW'y corner of brick dwelling; brick oilhouse SE'y.			4th-order light, flashing alternately red and white; interval 20 sec.; 37 feet above water; visible 14 miles. On S'y bank, at entrance to White Lake and River. Lat. N, 43° 22' 30"; long. W, 86° 25' 28".								
Indian Point Shoal Buoy.	1	Black.	3d-class spar.	White River Light-House, 296° 00'. Indian Point, right tangent, 345° 00'.	21									
Long Point Shoal Buoy.	3	Black.	3d-class spar.	White River Light-House, 265° 00'. Long Point, right tangent, 332° 30'.	18									
Dowles Point Shoal Buoy.	5	Black.	3d-class spar.	Dowles Point, right tangent, 25° 00'. Long Point, left tangent, 242° 00'.	18									
Middle Ground Buoy.	2	Red.	3d-class spar.	Sawmill dock, left tangent, 99° 00'. Long Point, left tangent, 234° 30'.	20									
Muskegon Pierhead Front Light (Mich.). (L. S. Chart 881.)			Lantern on gable end of fog-signal building; elevated walk along pier to shore.	Rear light, 60° 30', 993 feet (¾ mile).		6th-order fixed red light; 33 feet above water; visible 8½ miles. On outer end of S'y pier, with following forms range showing direction for approaching harbor. Lat. N, 43° 13' 34"; long. W, 86° 29' 41". Width between piers, 300 feet at entrance. Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent</td> <td>Blast</td> <td>Silent</td> </tr> <tr> <td>5 sec.</td> <td>10 sec.</td> <td>5 sec.</td> <td>40 sec.</td> </tr> </table> <i>Long 1/2 File</i>	Blast	Silent	Blast	Silent	5 sec.	10 sec.	5 sec.	40 sec.
Blast	Silent	Blast	Silent											
5 sec.	10 sec.	5 sec.	40 sec.											
MUSKEGON PIER-HEAD REAR LIGHT-STATION (Mich.).		White; black lantern.	Conical iron tower; brick oilhouse near dwelling.			4th-order fixed white light; 51 feet above water; visible 13½ miles. On S'y pier, at entrance to Muskegon Lake. Lat. N, 43° 13' 34"; long. W, 86° 29' 30". (59) Life-saving station near inner end of S'y pier. Weather Bureau signals shown on life-saving reservation.								
Muskegon Lake Light (Mich.).		White.	Lantern post on lamp-house.			Fixed red lens-lantern light; 21 feet above water. On S'y pier, at elbow near E'y end. Lat. N, 43° 13' 54"; long. W, 86° 19' 42".								
Bank Point Light (Mich.). (L. S. Chart 881.)		Concrete.	Lantern on concrete column on square concrete base.		9	Fixed red lens-lantern (a.) light; 17 feet above water; not visible between 135° and 225° true; marks point of shoal extending ¼ mile to S'd of Bank Point, Muskegon Lake, and also marks turning point. Lat. N, 43° 13' 54"; long. W, 86° 17' 42". No passage N'd of light. 53 24								
Grand Haven Pierhead Front Light (Mich.). (L. S. Chart 876.)		Red; black lantern.	Lantern on gable end of fog-signal house; elevated walk along pier to shore.	Rear light, 81° 30', 600 feet.		6th-order fixed red light; 36 feet above water; visible 7½ miles. On outer end of S'y pier at entrance to Grand Haven. Lat. N, 43° 03' 27"; long. W, 86° 13' 23". Width between piers, 400 feet at entrance. Fog signal: 1st-class compressed-air siren, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent</td> <td>Blast</td> <td>Silent</td> </tr> <tr> <td>3 sec.</td> <td>37 sec.</td> <td>3 sec.</td> <td>37 sec.</td> </tr> </table>	Blast	Silent	Blast	Silent	3 sec.	37 sec.	3 sec.	37 sec.
Blast	Silent	Blast	Silent											
3 sec.	37 sec.	3 sec.	37 sec.											
Grand Haven Pierhead Rear Light-Station (Mich.).		White; black lantern.	Cylindrical metal tower.			4th-order fixed white light varied by white flash every minute; 51 feet above water; visible 14½ miles. Lat. N, 43° 03' (29"); long. W, 86° 15' (13"). With preceding forms range for approaching harbor. Life-saving station near inner end of N'y pier.								
Holland (Black Lake) Front Light (Mich.). (L. S. Chart 873.)		White.	Oval steel tower.	Rear light, 87° 10', 885 feet. <i>86° 30' 37"</i> <i>LS May 4, 11. 1011 x (4).</i>		4th-order fixed red light on outer end of S'y breakwater; 45 feet above water; visible 13 miles. Lat. N, 42° 46' 24"; long. W, 86° 12' 50". With following forms range showing direction for entering harbor.								
Holland (Black Lake) Rear Light (Mich.).		White; black lantern; buff fog-signal house; red roof.	Square, pyramidal, steel tower, lower half open, upper half inclosed; attached to front of metal fog-signal house; elevated walk along pier to shore; brick oilhouse near dwelling.			Fixed red (a.) light; 30 feet above water. Near outer end of S'y pier at entrance to Black Lake, Michigan. Lat. N, 42° 46' 24"; long. W, 86° 12' 45". Width between piers, 220 feet at entrance. Fog signal: 10-inch steam whistle, sounds thus: <table border="1"> <tr> <td>Blast</td> <td>Silent</td> <td>Blast</td> <td>Silent</td> </tr> <tr> <td>5 sec.</td> <td>25 sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </table> Life-saving station near inner end of S'y pier. Weather Bureau signals shown on life-saving reservation.	Blast	Silent	Blast	Silent	5 sec.	25 sec.	5 sec.	25 sec.
Blast	Silent	Blast	Silent											
5 sec.	25 sec.	5 sec.	25 sec.											

LAKE MICHIGAN.

S'D ALONG ELY SHORE AND ADJACENT ISLANDS—Continued.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Charts 1475 and 1476 issued at Lake Survey Office.

1	2	3	4	5	6	7												
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.												
Middle Ground Light (Mich.).		White	Lantern on lamp-house on 3-pile structure.		13	Fixed red ^{white} lens-lantern light; 12 feet above water. On SE'ly point of Middle Ground, N'ly side of channel in Black Lake. Lat. N, 42° 48' (48°); long. W, 86° 10' (43°).												
Drake Point Light (Mich.).		White	Lantern on lamp-house on 3-pile structure.		14	Fixed red lens-lantern light; 12 feet above water. On point of shoal on S'ly side of channel in Black Lake. Lat. N, 42° 46' (47°); long. W, 86° 10' (23°).												
Point Superior Light (Mich.).		White	Lantern on lamp-house on 3-pile structure.		9	Fixed red lens-lantern light; 15 feet above water. Off Superior Point, N'ly side of channel in Black Lake. Lat. N, 42° 46' (47°); long. W, 86° 09' (19°).												
Saugatuck Harbor North Entrance Light (Mich.).		White	Concrete pedestal, surmounted by concrete column and lantern.			Fixed red (a.) lens-lantern light; 30 feet above water; near outer end of S'ly pier, new entrance to harbor. Lat. N, 42° 40' 33"; long. W, 86° 13' 01".												
KALAMAZOO LIGHT-STATION (Mich.).		Yellow; black lantern.	Square tower, 35 feet high, on S'ly end of wooden dwelling; oilhouse near.			5th-order fixed white light; 33 feet above water; visible 14½ miles. On S'ly side of Kalamazoo River. Lat. N, 42° 40' 00"; long. W, 86° 12' 48". <i>3/8 mile S'ly of entrance Insp.</i>												
South Haven Pier-head Light-Station (Mich.) (L. S. Chart 868.)		White; black lantern.	Conical tower, elevated walk along pier toward shore.			5th-order fixed red light; 36 feet above water; visible 9¼ miles. On outer end of S'ly pier, at South Haven, entrance to South Black River. Lat. N, 42° 24' 00"; long. W, 86° 17' 14". Width between piers, 180 feet at entrance. Life-saving station near inner end of S'ly pier. <i>Weather Bureau signals shown on Light-House reservation.</i>												
St. Joseph Pierhead Front Light (Mich.) (L. S. Chart 864.)		White; black lantern.	Cylindrical steel tower.	Rear light, 107° 28', 314 feet.		5th-order fixed red light; 31 feet above water; visible 9¼ miles. On outer end of N'ly pier, entrance to St. Joseph River. Lat. N, 42° 06' 54"; long. W, 86° 29' 40". Width between piers, 325 feet at entrance.												
St. Joseph Pierhead Rear Light-Station (Mich.).		White; black lantern.	Square metal structure, pyramidal roof, surmounted by octagonal tower, cylindrical lantern; oilhouse on pier.			4th-order fixed red light; 52½ feet above water; visible 13 miles. With preceding forms range showing direction for approaching harbor. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2">Silent</td> <td colspan="2">Silent</td> </tr> <tr> <td>Blast</td> <td>interval</td> <td>Blast</td> <td>interval</td> </tr> <tr> <td>3 sec.</td> <td>17 sec.</td> <td>3 sec.</td> <td>17 sec.</td> </tr> </table>	Silent		Silent		Blast	interval	Blast	interval	3 sec.	17 sec.	3 sec.	17 sec.
Silent		Silent																
Blast	interval	Blast	interval															
3 sec.	17 sec.	3 sec.	17 sec.															
ST. JOSEPH LIGHT-STATION (Mich.).		Buff, red roof.	Square tower, 43 feet high, on frame dwelling.			4th-order light, flashing white every 30 sec.; 101 feet above water. Visible 18½ miles. Coast light, on bluff in city of St. Joseph, Lat. N, 42° 06' 28"; long. W, 86° 29' 03".												

S'LY AND W'LY SHORES AND ADJACENT ISLANDS.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

MICHIGAN CITY EAST PIERHEAD LIGHT-STATION (Ind.) (L. S. Chart 857.)		Buff; red roof, black lantern.	Square metal building, pyramidal roof, surmounted by octagonal tower, cylindrical lantern; brick oil-house near.			5th-order fixed white light; 50 feet above water; visible 14½ miles. Lat. N, 41° 43' 43"; long. W, 86° 54' 41". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2">Silent</td> <td colspan="2">Silent</td> </tr> <tr> <td>Blast</td> <td>interval</td> <td>Blast</td> <td>interval</td> </tr> <tr> <td>5 sec.</td> <td>55 sec.</td> <td>5 sec.</td> <td>55 sec.</td> </tr> </table> <i>Weather Bureau signals near north end of Franklin Street Bridge.</i>	Silent		Silent		Blast	interval	Blast	interval	5 sec.	55 sec.	5 sec.	55 sec.
Silent		Silent																
Blast	interval	Blast	interval															
5 sec.	55 sec.	5 sec.	55 sec.															
Michigan City Breakwater Light (Ind.).		White	Post	Michigan City East Pierhead Light-House, 117° 30'.		Fixed red lens-lantern light; 20 feet above water; on NE'ly end of breakwater off entrance to Michigan City Harbor. Lat. N, 41° 43' 46"; long. W, 86° 54' 49".												
Michigan City West Pierhead Light (Ind.).		Buff; black lantern.	Cylindrical metal tower, octagonal lantern.	Michigan City East Pierhead Light-House, 332° 30'.		Fixed red lens-lantern light; 20 feet above water; on N'ly end of W'ly pier. Lat. N, 41° 43' 35"; long. W, 86° 54' 33".												
Indiana Shoals Gas Buoy, No. 2 (Ind.).	2	Red	Conical, surmounted by pyramidal lattice-work and lantern.	Michigan City East Pierhead Light-House, 89° 30', 22½ miles. Gary Harbor Entrance, 169° 00', 7¼ miles. Calumet Harbor Light-House, 276° 00', 8¼ miles.	47	White light 10 sec., eclipse 10 sec.; 10 feet above water. About 7¼ miles N by W ¼ W, mag., from Gary Harbor entrance, about 6¼ miles NE'ly from Indiana Harbor, and on NE'ly end of shoals extending N'd and E'd of Indiana Harbor.												
Indiana Shoals Bell Buoy (Ind.).	4	Red	Num-shaped lattice-work body surmounted by bell.		47	About 100 feet S'ly of Indiana Shoals Gas Buoy, No. 2.												

LAKE MICHIGAN.

S'LY AND W'LY SHORES AND ADJACENT ISLANDS—Continued.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
★ Gary Breakwater Gas Buoy, No. 2 (Inl.).	2	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Michigan City East Pierhead Light-House, 72° 00'. W pier, entrance to Gary, N E'ly corner, 214° 30'. Calumet Harbor Light-House, 307° 00'.	Fet.	Fixed red lens-lantern (a.) light; 10 feet above water. Marks E'ly end of submerged breakwater under construction. Maintained by Indiana Steel Co. from April 1 to December 1 of each year.								
★ Indiana Harbor Buoy.	2	Red.....	Spar.....	North Harbor Pier, E'ly end, 265° 45'.	22	Maintained by Inland Steel Co. Channel midway between buoys.								
★ Indiana Harbor Buoy.	1	Black.....	Spar.....	North Harbor Pier, E'ly end, 295° 15'. St. Joseph Pierhead Range Front Light-House, 04° 00'.	22									
Calumet Bar Gas Buoy (Ill.). <i>N to M</i>		Red and black horizontal stripes.	Conical, surmounted by pyramidal lattice-work and lantern.	Calumet Harbor Light-House, 209° 30'. Chicago Harbor Light-House, 335° 00'. St. Joseph Pierhead Range Front Light-House, 64° 00'. Michigan City East Pierhead Light-House, 272° 00'.	21	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks N'ly end of Calumet Bar, and 300 feet to N'd of 17½-foot jump-off entrance to Calumet River, South Chicago Ill.								
CALUMET HARBOR LIGHT-STATION (Ill.). (L. S. Chart 851.)		Buff; black lantern.	Rectangular metal structure, pyramidal roof, surmounted by cylindrical tower and lantern.	Calumet Pierhead (South Chicago) Light-House, 262° 15'.		4th-order fixed white light; 40 feet above water; visible 13½ miles. On SE'ly end of breakwater, Calumet Harbor, Illinois. Lat. N, 41° 44' 16"; long. W, 87° 30' 32". Fog signal: 1st-class compressed-air siren, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>3 sec.</td> <td>12 sec.</td> <td>3 sec.</td> <td>42 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	3 sec.	12 sec.	3 sec.	42 sec.
Blast	Silent interval	Blast	Silent interval											
3 sec.	12 sec.	3 sec.	42 sec.											
Calumet Pierhead (South Chicago) Light-Station (Ill.). (L. S. Chart 851.)		Gray; black lantern; brown fog-signal building.	Cylindrical, iron tower, corrugated-iron fog-signal house in rear; elevated walk along pier to shore; brick oilhouse near dwelling.			6th-order fixed red light; 37 feet above water; visible 8½ miles. On outer end of N'ly pier at entrance to Calumet River. Lat. N, 41° 44' 07"; long. W, 87° 31' 40". Width between piers, 300 feet. Fog signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>1 blow</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>20 sec.</td> <td></td> <td>20 sec.</td> </tr> </table>	1 blow	Silent interval	1 blow	Silent interval		20 sec.		20 sec.
1 blow	Silent interval	1 blow	Silent interval											
	20 sec.		20 sec.											
★ Illinois Steel Co. Channel Buoy.	2	Red.....	Spar.....	Calumet Harbor Light-House, 130° 30'. Calumet Pierhead Light-House, 215° 30'.	22	Marks N'ly side of dredged channel to company's slip. <i>Maintained by the Illinois Steel Co. from April 1 to January 1 of each year.</i>								
Illinois Steel Co. Channel Buoy.	1	Black.....	Spar.....	Calumet Harbor Light-House, 101° 00'. Calumet Pierhead Light-House, 214° 30'.	22	Marks S'ly side of dredged channel to company's slip.								
★ Illinois Steel Company Entrance South Light (Ill.).		Natural.....	Post.....			Fixed green (e. l.) light; 18 feet above water. On S'ly side of entrance to slip. Maintained by Illinois Steel Co. from April 1 to January 1 of each year.								
★ Illinois Steel Company Entrance North Light (Ill.).		Natural.....	Post.....			Fixed red (e. l.) light; 18 feet above water. On N'ly side of entrance to slip. Maintained by Illinois Steel Co. from April 1 to January 1 of each year.								
Clarke Point Buoy.....	18	Red.....	3d-class spar.	Calumet Harbor Light-House, 147° 30'. Calumet Pierhead (South Chicago) Light-House, 180° 00'. 1½ miles. Hyde Park Crib Light, 355° 00'.	18	Marks E'ly side of rocky reef. Do not pass between buoy and shore.								
★ Casino Pier Outer Light (Ill.).			Lantern on post			Fixed red lens-lantern light, 22 feet above water. On outer end of Casino Pier, Jackson Park, Chicago. Maintained by South Park Commissioners from April 1 to November 15 of each year.								
★ Casino Pier Middle Light (Ill.).			Lantern on post			Fixed red lens-lantern light, 26 feet above water. On S'ly side of inner end of pier, N'ly side of entrance to lagoon. Maintained by South Park Commissioners from April 1 to November 15 of each year.								

LAKE MICHIGAN.

S'LY AND W'LY SHORES AND ADJACENT ISLANDS—Continued.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
*Casino Pier Inside Light (Ill.).			Lantern on post		Feet.	Fixed red lens-lantern light, 33 feet above water. On S'ly side of inner end of pier at S'ly side of entrance to lagoon. Maintained by South Park Commissioners from April 1 to November 15 of each year.
*Hyde Park Crib Light (Ill.).			Lantern on Water-works Crib.			Fixed white light. Marks crib. Maintained by city of Chicago. Fog signal: Bell struck by hand machinery. 1/24/12
South Park Shoal Buoy. (L. S. Chart 851.)	SPS	Red and black horizontal stripes.	2d-class can.	Hyde Park Crib Light, 142° 00' Calumet Pierhead Light-House, 170° 15' Chicago Pierhead Range Rear Light-House, 331° 45'.	28	Marks S'ly side of 6-foot shoal off park.
Madison Park Shoal Buoy.		Red and black horizontal stripes.	3d-class spar.	Hyde Park Crib Light, 128° 00'. Calumet Harbor Light-House, 150° 00'. Chicago Breakwater South Light-House, 332° 30'.	16	Marks center of small 16-foot shoal off park. Give berth of 30 feet.
Hyde Park Shoal Outside Buoy.	HP	Red and black horizontal stripes.	2d-class nun.	Four-Mile Crib Light, 0° 00'. Hyde Park Crib Light, 157° 00'. Chicago Pierhead Range Rear Light-House, 329° 30'.	18	Marks N'ly side of small 11-foot shoal off park, 2 miles from beach.
Hyde Park Shoal Inside Buoy.		Red and black horizontal stripes.	3d-class spar.	Four-Mile Crib Light, 115° 30'. Hyde Park Crib Light, 135° 00'. Chicago Breakwater South Light-House, 332° 00'.	17	Marks N'ly side of 12-foot shoal.
Morgans Reef Outside Buoy.	1	Black	4th-class spar.	Four-Mile Crib Light, 18° 30'. Hyde Park Crib Light, 128° 30'. Chicago Breakwater South Light-House, 336° 30'.	13	Marks E'ly side of reef, off Chicago.
Morgans Reef Inside Buoy.	2	Red	4th-class spar.	Hyde Park Crib Light, 118° 00'. Douglas Monument, 323° 30'. Chicago Breakwater South Light-House, 344° 00'.	12	Marks W'ly side of reef, off Chicago. Only 12 feet of water in channel W'd of buoy.
Oakland Shoal Outside Buoy. (L. S. Chart 851.)	3OS	Black	2d-class can.	Four-Mile Crib Light, 32° 00'. Douglas Monument, 293° 00'. Chicago Breakwater South Light-House, 341° 00'.	26	Marks E'ly end of shoal, off Chicago.
Oakland Shoal Inside Buoy.	4	Red	3d-class spar.	Four-Mile Crib Light, 35° 30'. Douglas Monument, 307° 30'. Chicago Breakwater South Light-House, 346° 30'.	16½	Marks W'ly edge of shoal, off Chicago.
Chicago Harbor Outer Gas Buoy (Ill.) <i>and Bell</i>		Black and white perpendicular stripes.	Conical, surmounted by pyramidal latticework and lantern.	Hyde Park Crib Light, 202° 00'. Four-Mile Crib Light, 233° 30'. Chicago Pierhead Range Front Light, 254° 00', 8 miles.	60	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. About 8 miles ENE'ly of Chicago Harbor. Dumping refuse inside a line parallel to the shore and passing through this buoy is prohibited by act of Congress, approved June 23, 1910.
*Four-Mile Crib Light (Ill.).			Lantern on crib.			Fixed white light. Marks crib. Maintained by city of Chicago. Fog signal: Bell struck by hand.
Chicago Breakwater South Light (Ill.). (L. S. Chart 851.)		Gray; black lantern.	Conical, iron tower.			5th-order fixed red light; 36½ feet above water; visible 9¼ miles. On S'ly end of N'ly section of inner breakwater, forming outer basin of Chicago Harbor. Lat. N, 41° 32' 38"; long. W, 87° 36' 34". Breakwater commences on S'ly side of entrance into Chicago River. There is also an entrance, 500 feet wide, from river into harbor on its N'ly side.

LAKE MICHIGAN.

S'LY AND W'LY SHORES AND ADJACENT ISLANDS—Continued.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Chicago Breakwater North Light (Ill.).		White.	Lantern on post.		<i>Fed.</i>	Fixed white lens-lantern light; 34 feet above water; on NE angle of inner breakwater and S'ly side of entrance into harbor. Lat. N, 41° 53' 17"; long. W, 87° 36' 34". Light is obscured along breakwater to S'd.								
Chicago Pierhead Front Light (Ill.).		White; black lantern.	Oval steel tower.	Rear light, 271° 30', 108 feet.		Fixed red lens-lantern light; 30 feet above water; on outer end of N'ly pier; with the following forms range for approaching harbor. Lat. N, 41° 53', 24"; long. W, 87° 36' 23".								
							Chicago Pierhead Rear Light-Station (Ill.). (L. S. Chart 851.)	White; black lantern.	Cylindrical metal tower, cylindrical lantern; fog bell in front of tower; brick oilhouse near dwelling.	6th-order fixed white light; 46 feet above water; visible 14½ miles; near end of N'ly pier at entrance to Chicago River. Lat. N, 41° 53' (24"); long. W, 87° 36' (31"). Width between piers at entrance about 500 feet and narrows inward. N'ly pier extends into lake about 600 feet beyond breakwater. Fog signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Silent</td> <td style="text-align: center;">Silent</td> </tr> <tr> <td style="text-align: center;">2 blows</td> <td style="text-align: center;">1 blow</td> </tr> <tr> <td style="text-align: center;">Interval</td> <td style="text-align: center;">Interval</td> </tr> <tr> <td style="text-align: center;">20 sec.</td> <td style="text-align: center;">20 sec.</td> </tr> </table> Life-saving station on S'ly side of entrance to river. Weather Bureau signals near life-saving station.	Silent	Silent	2 blows	1 blow
Silent	Silent													
2 blows	1 blow													
Interval	Interval													
20 sec.	20 sec.													
CHICAGO HARBOR LIGHT-STATION (Ill.).		Red; black lantern and trimmings.	Conical iron tower, 39½ feet high; two corrugated-iron houses alongside; on rectangular rock-faced masonry pier.			3d-order (i. o. v.) light, flashing alternately red and white, intervals 10 sec.; 67½ feet above water; visible 16 miles. Near SE'ly end of outer breakwater. Lat. N, 41° 53' 45"; long. W, 87° 35' 29". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Interval</td> </tr> <tr> <td style="text-align: center;">5 sec.</td> <td style="text-align: center;">25 sec.</td> <td style="text-align: center;">5 sec.</td> <td style="text-align: center;">25 sec.</td> </tr> </table>	Blast	Interval	Blast	Interval	5 sec.	25 sec.	5 sec.	25 sec.
Blast	Interval	Blast	Interval											
5 sec.	25 sec.	5 sec.	25 sec.											
Chicago Outer Breakwater Northwest End Light (Ill.).		Gray.	Square, pyramidal, skeleton, steel tower surmounted by lantern post and carrying three cylindrical tanks.			Fixed red lens-lantern (g.) light; 55 feet above water; near inshore end of outer breakwater. Lat. N, 41° 54' 12"; long. W, 87° 36' 23".								
★Chicago Waterworks Crib Light (Ill.). (L. S. Chart 851.)			Lantern on crib.			Fixed white light. Marks crib. Maintained by city of Chicago. Fog signal: Bell struck by hand <i>machinery 1/2 in. Pipe 5 in.</i>								
★Carter H. Harrison Crib Light (Ill.).			Lantern on crib.	Four-Mile Crib Light, 154° 30'. Chicago Waterworks Crib Light, 230° 00'. Lake View Crib Light, 330° 00'.		Fixed white light. Marks crib. Maintained by city of Chicago. Fog signal: Bell struck by hand								
★Lakeview Crib Light (Ill.).			Lantern on Waterworks Crib.			Fixed white light. Marks crib. Maintained by city of Chicago. Fog signal: Bell struck by hand								
★Lawrence Avenue Crib Light (Ill.).			Post on crib.			Fixed red lens-lantern light; 42 feet above water. Marks crib. Maintained by city of Chicago.								
GROSSEPOINT LIGHT-STATION (Ill.).		Yellow; red roofs.	Conical tower, 90 feet high, covered-way to dwelling and fog-signal building; brick oilhouse E'ly.			2d-order (i. o. v.) light, fixed white, varied by red flash every 3 minutes; 119½ feet above water; visible 19½ miles. On Grossepoint, 12½ miles from Chicago Harbor Light-House. Lat. N, 42° 03' 51"; long. W, 87° 40' 32". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Interval</td> </tr> <tr> <td style="text-align: center;">5 sec.</td> <td style="text-align: center;">20 sec.</td> <td style="text-align: center;">5 sec.</td> <td style="text-align: center;">40 sec.</td> </tr> </table> Life-saving station ½ mile S'ly of light-house.	Blast	Interval	Blast	Interval	5 sec.	20 sec.	5 sec.	40 sec.
Blast	Interval	Blast	Interval											
5 sec.	20 sec.	5 sec.	40 sec.											
Training Station Intake Crib Buoy.	2	Red.	3d-class spar.	Waukegan Harbor Light-House, 13° 00'. Administration Tower, 246° 00'. Power-house chimney, 296° 00'.	16	Marks crib of Great Lakes Naval Training Station.								
WAUKEGAN HARBOR LIGHT-STATION (Ill.). (L. S. Chart 845.)		Buff, black lantern.	Cylindrical iron tower and lantern; metal fog-signal building attached to W'ly side, metal elevated walk along pier to shore; brick oilhouse near dwelling.			4th-order light, fixed white, 20 sec., followed by 4 red flashes, intervals 5 sec.; 37 feet above water; visible 13 miles. On outer end of S'ly pier, entrance to harbor. Lat. N, 42° 21' 40"; long. W, 87° 48' 51". Fog signal: 1st-class compressed-air siren, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Interval</td> </tr> <tr> <td style="text-align: center;">2 sec.</td> <td style="text-align: center;">18 sec.</td> <td style="text-align: center;">2 sec.</td> <td style="text-align: center;">18 sec.</td> </tr> </table>	Blast	Interval	Blast	Interval	2 sec.	18 sec.	2 sec.	18 sec.
Blast	Interval	Blast	Interval											
2 sec.	18 sec.	2 sec.	18 sec.											
Waukegan Breakwater Light (Ill.).		White.	Hexagonal pyramid surmounted by lantern, capped by dome.			Fixed red lens-lantern light; 31 feet above water; on SE'ly end of breakwater. Lat. N, 42° 21' 46"; long. W, 87° 48' 40".								

LAKE MICHIGAN.

S'LY AND W'LY SHORES AND ADJACENT ISLANDS—Continued.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
Range. Kenosha Break-water Light (Wis.).		White.	Octagonal frame surmounted by lantern, capped by dome.	Rear light, 200° 00'.	Feet.	Fixed red lens-lantern light; 31 feet above water; on SE'ly end of breakwater; with following forms range for approaching harbor. Lat. N, 42° 35' 23"; long. W, 87° 48' 25".								
	KENOSHA LIGHT-STATION (Wis.).	White; black lantern.	Cylindrical metal structure; metal elevated walk along pier to shore; cylindrical iron oilhouse near dwelling.				4th-order light, flashing white every 15 sec.; 51 feet above water; visible 14½ miles. Near end of N'ly pier, at entrance to Kenosha Harbor. Lat. N, 42° 35' 23"; long. W, 87° 48' 28". Width between piers, 250 feet at entrance. Fog signal: Compressed-air siren, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>10 sec.</td> <td>10 sec.</td> <td>10 sec.</td> <td>10 sec.</td> </tr> </table> Weather Bureau signals shown from tower near harbor entrance.	Blast	Interval	Blast	Interval	10 sec.	10 sec.	10 sec.
Blast	Interval	Blast	Interval											
10 sec.	10 sec.	10 sec.	10 sec.											
Racine Reef West End Buoy.	1 It	Black.	1st-class can.	Wind Point (Racine Point) Light-House, 0° 15'. Racine Reef Light-House, 73° 30'. Racine Pierhead Light-House, 316° 30'.	19	Marks W'ly end of Racine Reef. Channel between reef and city is from 2½ to 5 fathoms deep; sand and clay.								
RACINE REEF LIGHT-STATION (Wis.). (L. S. Chart 838.)		Brown and white.	Octagonal tower and dwelling, on octagonal pier.		20	4th-order light, flashing red every 5 sec.; 72 feet above water; visible 16 miles. On E'ly side of Racine Reef. Lat. N, 42° 43' 39"; long. W, 87° 44' 10". The light illuminates 288° of horizon; dark sector to W'd of light. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>5 sec.</td> <td>25 sec.</td> <td>5 sec.</td> <td>25 sec.</td> </tr> </table>	Blast	Interval	Blast	Interval	5 sec.	25 sec.	5 sec.	25 sec.
Blast	Interval	Blast	Interval											
5 sec.	25 sec.	5 sec.	25 sec.											
Range. Racine Breakwater Light (Wis.).		White.	Hexagonal pyramid surmounted by lantern, capped by dome.	Racine Pierhead Light-House, 253° 00'.		Fixed red lens-lantern light; 31 feet above water; on E'ly end of breakwater; with following forms range for approaching harbor. Lat. N, 42° 44' 06"; long. W, 87° 46' 18".								
	RACINE PIER-HEAD LIGHT-STATION (Wis.).	White; black lantern.	Square, pyramidal, steel tower, lower half open, upper half inclosed; bell attached to E'ly side; elevated walk along pier to dwelling; corrugated-iron oilhouse near dwelling.				4th-order fixed red light; 46 feet above water; visible 13 miles. Near outer end of N'ly pier at entrance to Racine. Lat. N, 42° 44' 04"; long. W, 87° 46' 28". In range with Racine Breakwater Light (red) carries clear to N'd of Racine Reef. Width between piers, 270 feet at entrance. Fog signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>1 blow</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>20 sec.</td> <td></td> <td>20 sec.</td> </tr> </table> Life-saving station near inner end of N pier. Weather Bureau signal tower on post-office reservation.	1 blow	Silent interval	1 blow	Silent interval		20 sec.	
1 blow	Silent interval	1 blow	Silent interval											
	20 sec.		20 sec.											
Wind Point South Shoals Buoy.	WPS	Red and black horizontal stripes.	2d-class can.	Racine Reef Light-House, 188° 30'. Racine Pierhead Light-House, 216° 30'. Wind Point (Racine Point) Light-House, 302° 00'.	20	Marks shoalest part of shoals.								
WIND POINT (Racine Point) LIGHT-STATION (Wis.). (L. S. Chart 838.)		Yellow.	Conical tower, 102 feet high, covered-way to brick dwelling; fog-signal building 175 feet NE'ly.	Racine Reef Light-House, 163° 00'. Racine Pierhead Light-House, 194° 00'. Milwaukee Light-House, 344° 00'.		3d-order light, flashing white every 30 sec.; 112 feet above water; visible 19 miles. Lat. N, 42° 46' 52"; long. W, 87° 45' 30". Fog signal: 1st-class compressed-air siren, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>3 sec.</td> <td>57 sec.</td> <td>3 sec.</td> <td>57 sec.</td> </tr> </table>	Blast	Interval	Blast	Interval	3 sec.	57 sec.	3 sec.	57 sec.
Blast	Interval	Blast	Interval											
3 sec.	57 sec.	3 sec.	57 sec.											
Wind Point North Shoals Gas Buoy, No. 14 (Wis.).	14	Red.	Conical, surmounted by pyramidal lattice-work and lantern.	Racine Reef Light-House, 186° 30'. Racine Pierhead Light-House, 211° 00'. Wind Point (Racine Point) Light-House, 243° 30'.	22	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; marks SE'ly end of shoals.								
Milwaukee South Point Buoy. (L. S. Chart 836.)	1 M S P	Black.	2d-class can.	Dome of St. Francis College, 260° 30'. Milwaukee Pierhead Range Front Light-House, 317° 00'. Milwaukee Light-House, 346° 00'.	20	On NE'ly end of shoals off South Point, Milwaukee Bay. Foul water between buoy and South Point, containing rocks with least depth 12 feet.								
Range. Milwaukee Pierhead Front Light-Station (Wis.).		Gray; black lantern.	Cylindrical metal tower; fog-signal building about 200 feet in rear; cylindrical iron oilhouse near dwelling.	Rear light, 267° 00', 550 feet.		4th-order fixed red light; 44 feet above water; visible 13 miles. Near outer end of N'ly pier, at entrance into Milwaukee River. Lat. N, 43° 01' 35"; long. W, 87° 33' 38". Width between piers, 286 feet. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>3 sec.</td> <td>17 sec.</td> <td>3 sec.</td> <td>17 sec.</td> </tr> </table> Life-saving station near inner end of S'ly pier.	Blast	Interval	Blast	Interval	3 sec.	17 sec.	3 sec.	17 sec.
	Blast	Interval	Blast	Interval										
3 sec.	17 sec.	3 sec.	17 sec.											
Milwaukee Pierhead Rear Light (Wis.).		Gray.	Rectangular pyramidal skilet on metal tower.			Fixed red lens-lantern light; 64 feet above water; with preceding forms range for approaching piers. Weather Bureau signals shown from tower SW'ly from light-station.								

LAKE MICHIGAN.

S'LY AND W'LY SHORES AND ADJACENT ISLANDS—Continued.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

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Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.												
Milwaukee Breakwater Extension Gas Buoy (Wis.).		Red.	Conical, surmounted by pyramidal lattice-work and lantern.		30	Red lens lantern light 10 sec. eclipse 10 sec. Maintained by Pere Marquette Railroad Co. Marks S'ly end of rock foundation for extension of present breakwater. Pass to S'ly of buoy.												
Milwaukee Breakwater Light (Wis.).		White.	Hexagonal pyramid, surmounted by lantern, capped by dome.			Red light 5 sec., eclipse 5 sec.; 52 feet above water. On breakwater, about 800 feet from S'ly end; shelter from NE'y gales. Lat. N, 43° 02' 03"; long. W, 87° 52' 54".												
NORTH POINT LIGHT-STATION (Wis.). (L. S. Chart 836.)		Buff; red roof.	Octagonal iron tower, 30½ feet high; coveredway to frame dwelling; brick oilhouse N'y.			4th-order fixed white light varied by white flash every 30 sec.; 122 feet above water; visible 19½ miles. On point about 1 mile N'd and E'd of North Point, N'y side of Milwaukee Bay, 3 miles to N'd of entrance to harbor. Lat. N, 43° 03' 58"; long. W, 87° 52' 11".												
Port Washington Pierhead Light-Station (Wis.).		White.	Square, pyramidal, open framework tower, 36½ feet high.			6th-order fixed red light; 42½ feet above water; visible 8½ miles. On outer end of N'y pier at mouth of Sauk River. Lat. N, 43° 03' 58"; long. W, 87° 52' 11". Width between piers, 170 feet at entrance.												
Range. Sheboygan Breakwater Light (Wis.).		White.	Hexagonal pyramid, surmounted by lantern, capped by dome.	Rear light, 268° 30', 950 feet.		Fixed red lens-lantern light; 31 feet above water. On S'E'y end of breakwater. Lat. N, 43° 45' 00"; long. W, 87° 41' 32"; with following forms range for approaching harbor.												
	Sheboygan Pierhead Light-Station (Wis.). (L. S. Chart 824.)	White; black lantern.	Cylindrical, metal structure.			5th-order fixed red light; 50 feet above water; visible 9½ miles. On outer end of N'y pier, at entrance to Sheboygan River. Lat. N, 43° 45' 00"; long. W, 87° 41' 45". Width between piers, at entrance, 270 feet. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>4 sec.</td> <td>26 sec.</td> <td>4 sec.</td> <td>26 sec.</td> </tr> </table> Life-saving station near inner end of N'y pier. Weather Bureau signals on federal building grounds.	Blast	Silent interval	Blast	Silent interval	4 sec.	26 sec.	4 sec.	26 sec.				
Blast	Silent interval	Blast	Silent interval															
4 sec.	26 sec.	4 sec.	26 sec.															
Sheboygan Reef Buoy	2 S	Red.	2d-class nun.	Manitowoc Breakwater Light-House, 4° 30'. Sheboygan Breakwater Light-House, 211° 00'. Sheboygan unused Light-House, 306° 45'.	38	Off E'y side of Sheboygan Reef.												
Manitowoc Shoal Buoy	1	Black.	3d-class spar.	Two Rivers Pierhead Light-House, 44° 00'. Tangent of land to S'd. of Manitowoc, 203° 30'. Manitowoc Breakwater Light-House, 301° 00'.	20	Marks N'y end of small 15-foot shoal, about ¼ mile S'd and E'd of entrance to Manitowoc Harbor.												
Range. Manitowoc Breakwater Light-Station (Wis.). (L. S. Chart 819.)		Brown.	Lantern on gable end of corrugated-iron fog-signal house.	Rear light, 266° 00'		Fixed red lens-lantern light; 35 feet above water. On S'y end of north breakwater; with following forms range for approaching harbor. Lat. N, 44° 05' 34"; long. W, 87° 38' 29". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>3 sec.</td> <td>12 sec.</td> <td>3 sec.</td> <td>12 sec.</td> <td>6 sec.</td> <td>34 sec.</td> </tr> </table> Weather Bureau signals shown on north side of river front.	Blast	Silent interval	Blast	Silent interval	Blast	Silent interval	3 sec.	12 sec.	3 sec.	12 sec.	6 sec.	34 sec.
	Blast	Silent interval	Blast	Silent interval	Blast	Silent interval												
3 sec.	12 sec.	3 sec.	12 sec.	6 sec.	34 sec.													
Manitowoc Pierhead Light-Station (Wis.).		White.	Square, pyramidal, inclosed, framework tower, 29 feet high; brick oilhouse near dwelling.			6th-order fixed red light; 34 feet above water; visible 8½ miles. Near end of N'y pier and close to the Goodrich Transit Company's dock, at entrance to Manitowoc River. Lat. N, 44° 05' 34"; long. W, 87° 38' 42". Width between piers, 230 feet at entrance.												
Two Rivers Pierhead Light-Station (Wis.).		White.	Square, pyramidal, open framework tower, 30 feet high; metal elevated walk along pier to shore; brick oilhouse near dwelling.			6th-order fixed red light; 33½ feet above water; visible 8½ miles. Lat. N, 44° 08' 34"; long. W, 87° 33' 39". Width between piers, 245 feet at entrance. Fog signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>1 blow</td> <td>Silent interval</td> <td>1 blow</td> <td>Silent interval</td> </tr> <tr> <td></td> <td>15 sec.</td> <td></td> <td>15 sec.</td> </tr> </table> Life-saving station near inner end of N'y pier.	1 blow	Silent interval	1 blow	Silent interval		15 sec.		15 sec.				
1 blow	Silent interval	1 blow	Silent interval															
	15 sec.		15 sec.															
TWIN RIVER POINT LIGHT-STATION (Wis.).		White tower; black lantern.	Octagonal iron skeleton tower, including stair cylinder; fog-signal house, 261 feet S'y; cylindrical, brick oilhouses W'y.			3d-order fixed white (i. o. v.) light varied by white flash every 30 sec.; 111 feet above water; visible 19 miles. On Rawley Point, about 5 miles N'd of Two Rivers. Lat. N, 44° 12' 37"; long. W, 87° 30' 34". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent interval</td> <td>Blast</td> <td>Silent interval</td> </tr> <tr> <td>5 sec.</td> <td>10 sec.</td> <td>5 sec.</td> <td>40 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	5 sec.	10 sec.	5 sec.	40 sec.				
Blast	Silent interval	Blast	Silent interval															
5 sec.	10 sec.	5 sec.	40 sec.															

59° 55' (Computed; letter Maj. Br. to Col. Riché)

LAKE MICHIGAN.

S'LY AND W'LY SHORES AND ADJACENT ISLANDS—Continued.

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Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Range. Kewaunee Pierhead Front Light (Wis.).		White.....	Square, pyramidal, framework tower; frame oilhouse.	Rear light, 292° 00', 400 feet.	Fet.	6th-order fixed red light; 42½ feet above water; visible 8½ miles. On outer end of N'y pier at mouth of Kewaunee River. Lat. N, 44° 27' 33"; long. W, 87° 29' 41". Guide to harbor. Width between piers, 200 feet at entrance. Fog signal: 10-inch steam whistle, sounds thus: Blast Silent Interval Blast Silent 3 sec. 17 sec. 3 sec. 17 sec. Life-saving station at inner end of N'y pier. Weather Bureau signals shown on shore of harbor.
	Kewaunee Pierhead Rear Light-Station (Wis.).	Red.....	Square, pyramidal, skeleton, metal tower in front of fog-signal building.			Fixed red lens-lantern light; 64 feet above water. Lat. N, 44° 27' 34"; long. W, 87° 29' 41". Width preceding forms range showing direction for approaching harbor.
Range. Algoma Pierhead Front Light (Wis.).			Post-supporting lantern.	Rear light, 313° 30', 100 feet.		Fixed red post-lantern light; 22 feet above water. At end of N'y pier, and forms with the following a range showing direction for entering harbor.
	Algoma Pierhead Rear Light-Station (Wis.).	White.....	Square, pyramidal, open framework tower, 30 feet high; frame oilhouse.			5th-order fixed red light; 37 feet above water; visible 9¼ miles. Near outer end of N'y pier at Algoma Harbor. Lat. N, 44° 36' 27"; long. W, 87° 25' 48". Width between piers, 200 feet at entrance. Fog signal: Compressed-air siren, sounds thus: Blast Silent Interval Blast Silent 10 sec. 10 sec. 10 sec. 10 sec.
Canal Shoal Buoy.....	12 CS	Red.....	2d-class nun.....	Algoma Pierhead Range Rear Light-House, 210° 00'. Sturgeon Bay Canal Pierhead Light-House 353° 30'.	21	Marks E'y end of shoal S'y of entrance to Sturgeon Bay Canal.
Sturgeon Bay Canal Pierhead Light-Station (Wis.). (L. S. Chart 749.)		Buff, red roof, black lantern.	Rectangular metal building, concrete foundation, cylindrical tower rising from roof on lakeward end; elevated walk along pier to shore.			5th-order fixed red light; 40 feet above water; visible 9¼ miles. On end of N'y pier at entrance to harbor of refuge and Sturgeon Bay Ship Canal. Lat. N, 44° 47' 31"; long. W, 87° 18' 33". After passing through canal from E'd, Sturgeon Bay, into which canal leads, is buoyed from W'd. Width between piers at entrance, 235 feet. Fog signal: 10-inch steam whistle, sounds thus: Blast Silent Interval Blast Silent 5 sec. 25 sec. 5 sec. 25 sec.
STURGEON BAY CANAL LIGHT-STATION (Wis.).		White; black lantern.	Cylindrical steel tower, surmounted by cylindrical watchroom of larger diameter, and lantern; brick oilhouse SW'y.			3d-order (i. o. v.) light flashing alternately red and white; interval between flashes 10 sec.; 107 feet above water; visible 18½ miles. Lat. N, 44° 47' 42"; long. W, 87° 18' 47". Life-saving station on N'y side of entrance to canal.
STURGEON BAY CANAL (Wis.).	Southeast Entrance, Northeast Side, No. 1, Light.	Red.....	Square, inclosed, wooden structure.			Fixed white lens-lantern light; 15 feet above water. On NE'y side of entrance to canal from harbor of refuge. Lat. N, 44° 47' 39"; long. W, 87° 18' 46".
	Northwest Entrance, No. 3, Light.	White; red roof.	Square, wooden structure.			Fixed red lens-lantern light; 16 feet above water. On SW'y side of entrance to canal from the cut in Sturgeon Bay, and 6,200 feet NW'y from Light No. 1. Lat. N, 44° 48' 19"; long. W, 87° 19' 50".
	Northwest Entrance to Cut, No. 4, Light. (L. S. Chart 749.)		Square, timber crib, surmounted by temporary post supporting lantern.			Fixed red lens-lantern light; 16 feet above water. On N'y side and at elbow of channel at entrance to cut in Sturgeon Bay leading to canal, and 5,500 feet NW'y from Light No. 3. Lat. N, 44° 48' 38"; long. W, 87° 20' 41".
Whitefish Point Shoal Buoy.	10	Red.....	3d-class spar.....	Cave Point, 12° 00'. Sturgeon Bay Canal Pierhead Light-House, 228° 00'. Whitefish Point, 315° 00'.	18	Marks SE'y end of shoal off point.
Range. Bailey Harbor Front Light (Wis.).		White.....	Frame tower, 17 feet high; brick oilhouse near dwelling.	Rear light, 344° 00', 950 feet.		Two fixed white lights in NW'y part of bay, ¼ mile NE'y of village of Bailey Harbor; front light, reflector, 21 feet above water, visible 11 miles; rear, 3th-order, 35 feet above water, visible 13 miles. Lat. N, 45° 04' 18"; long. W, 87° 02' 00". Guide between shoals marked by buoys; keep over ½ mile from land as long as range is open. Anchor not less than ½ mile from N'y shore; best holding ground on E'y side of bay. Life-saving station on E'y side of bay.
	Bailey Harbor Rear Light (Wis.).	White.....	Square tower, 24 feet high, on frame dwelling.			

LAKE MICHIGAN.

S'LY AND W'LY SHORES AND ADJACENT ISLANDS—Continued.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7												
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS												
Bailey Harbor Middle Ground Buoy.	1	Black	3d-class spar.	Bailey Harbor Life-Saving Station, 14° 00'. Bailey Harbor, tangent to point E'y, 33° 00'. Bailey Harbor Range Front Light-House, 322° 30'.	F ⁶ 18	Marks SE'y point of Middle Ground Harbor.												
Bailey Harbor Entrance North Side Buoy.	2	Red	3d-class spar.	Cana Island Light-House, 36° 00'. Bailey Harbor Middle Ground Buoy, 208° 00'. Bailey Harbor Range Front Light-House, 331° 00'.	18	Marks SW'y point of shoal.												
Bailey Harbor Wreck Buoy.	3	Black	3d-class spar.	Bailey Harbor Life-Saving Station, 65° 30'. Bailey Harbor, tangent E'y point, 98° 00'. Bailey Harbor Range Front Light-House, 348° 00'.	19	On N'y side of and close to sunken wreck, about 400 feet W'd of Bailey Harbor Range line.												
CANA ISLAND LIGHT-STATION (Wis.).		Yellow.	Conical brick tower, 80 feet high; coveredway to brick dwelling; stone oilhouse W'y.	Porte des Morts Pilot Island Light-House, 25° 00'. Point Betise Light-House, 125° 00'. Sturgeon Bay Canal Pierhead Light-House, 212° 00'.		3d-order fixed white (l. o. v.) light; 88 feet above water; visible 17½ miles. On Cana Island, between Bailey Harbor and North Bay. Lat. N, 45° 05' 20"; long. W, 87° 02' 47".												
North Bay Entrance South Side Buoy.	1	Black	4th-class spar.	Dentons Point, tangent to shere E'y, 36° 30'. Cana Island Light-House, 180° 00'.	14	Marks point of shoal extending NE'y from S'y side of entrance to North Bay, about 7 miles N'd of Bailey Harbor. Enter midway between buoys and round-to under either point, according to direction of wind; anchorage within ¼ mile of buoys.												
North Bay Entrance North Side Buoy.	2	Red	3d-class spar.	Dentons East Point, 37° 00'. Cana Island Light-House, 185° 00'.	24	Marks point of shoal extending to S'd from N'y side of entrance into North Bay.												
Four-foot Shoal Buoy.	8	Red	3d-class spar.	Porte des Morts Pilot Island Light-House, 22° 00'. Cana Island Light-House, 211° 30'. Dentons South Point, 245° 00'.	18	Marks SE'y point of shoal off Rowley Bay.												
Outer Shoal Bell Buoy.	1	Black	Nun-shaped; lattice-work body surmounted by bell.	Porte des Morts Pilot Island Light-House, 8° 00'. Spider Island, left tangent, 23° 30'. Mainland, NE tangent, 330° 30'.	10½	Off SE'y end of extreme E'y shoal between Gravel and Spider islands. S'y side of entrance into Porte des Morts Passage. Vessels bound through the passage from S'd will pass to E'd of this buoy.												
PORTE DES MORTS (Pilot Island) LIGHT-STATION (Wis.). (L. S. Chart 731.)		Yellow; red roofs.	Square tower, 34 feet high, on brick dwelling; cylindrical iron oilhouse NE'y; fog-signal house, 200 feet S'y.			4th-order fixed white light varied by white flash every 15 sec. 38 feet above water; visible 13¼ miles. On Pilot Island, Bay. Lat. N, 45° 17' 04"; long. W, 86° 55' 10". Fog signal: 1st-class compressed-air siren, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> <tr> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">32 sec.</td> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">32 sec.</td> </tr> </table>	Blast	Silent	Blast	Silent					3 sec.	32 sec.	3 sec.	32 sec.
Blast	Silent	Blast	Silent															
3 sec.	32 sec.	3 sec.	32 sec.															
Nine-foot Shoal Buoy.	3	Black	3d-class spar.	Porte des Morts Pilot Island Light-House, 71° 00'. Gravel Island, 196° 30'. Mainland, tangent, 316° 30'.	21	Marks E'y side of shoal, on SW'y side of channel, Porte des Morts Passage.												
Waverly Shoal Buoy.	5 WS	Black	2d-class can.	Porte des Morts Pilot Island Light-House, 85° 00'. Mainland, tangent, 297° 00'. Plum Island Range Front Light-House, 350° 00'.	20	Marks NE'y point of shoal.												

LAKE MICHIGAN.

S'LY AND W'LY SHORES AND ADJACENT ISLANDS—Continued.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water	GENERAL REMARKS.								
Range Plum Island Front Light (Wis.).		White; black roof.	2-story tower, square base, octagonal top.	Rear light, 330° 30', 1,650 feet.		6th-order fixed red light; 32 feet above water; visible 8½ miles. Lat. N. 45° 18' 14"; long. W. 86° 57' 17".								
	Plum Island Rear Light (Wis.). (L. S. Chart 731.)	White; black lantern; buff brick fog-signal house, red roof.	Square, pyramidal, iron, skeleton tower, cylindrical watchroom; brick oilhouse S E 1/4 ly; fog-signal house 1,280 feet NW 1/4 ly.			4th-order fixed red light; 79½ feet above water; visible 13 miles; with preceding forms range for approaching Porto des Morts Passage. Lat. N. 45° 18' 28"; long. W. 86° 57' 29". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> </tr> <tr> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">17 sec.</td> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">17 sec.</td> </tr> </table> Life-saving station on N'y side of island. <i>Weather Bureau signals on life-saving reservation.</i>	Blast	Silent interval	Blast	Silent interval	3 sec.	17 sec.	3 sec.	17 sec.
Blast	Silent interval	Blast	Silent interval											
3 sec.	17 sec.	3 sec.	17 sec.											
Detroit Island Passage Buoy. (L. S. Chart 731.)	2	Red	4th-class spar	Porto des Morts Pilot Island Light-House, 158° 00'. Plum Island, left tangent, 199° 00'. Plum Island, right tangent, 264° 00'. Plover Island	11	On SW'y side of 8-foot shoal, in passage between Detroit and Plum Islands.								
★ Detroit Harbor Entrance Buoy.		Red and black horizontal stripes.	Spar	Porto des Morts Light-House, 166° 00'. Plum Island, right tangent, 217° 00'. Washington Island, left tangent, 283° 30'.	10	Maintained by A. Kalmbach, Sturgeon Bay, Wis.								
Plum Island Buoy	1	Black	4th-class spar	Detroit Island, left tangent, 31° 30'. Porto des Morts Pilot Island Light-House, 153° 00'. Plum Island, right tangent, 225° 30'.	14	Marks NE'y point of shoal extending to N'd from Plum Island. It can be passed close-to from N'd, but on approaching it from W'd it should be given a berth of at least ½ mile.								
Fisherman Shoal Gas Buoy, No. 8 (Wis.).	6	Red	Conical, surmounted by pyramidal lattice-work and lantern.	Poverty Island Light-House, 24° 00'. Porto des Morts Pilot Island Light-House, 234° 30'. Hog Island, left tangent, 267° 00'.	36	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks SE'y point of shoal.								
POTTAWATOMIE LIGHT-STATION (Wis.). (L. S. Chart 731.)		Gray	Square tower, 34 feet high, on stone dwelling; brick oilhouse E'y.			4th-order fixed white light; 137 feet above water; visible 19½ miles. On NW'y point of Rock Island. Lat. N. 45° 25' 40"; long. W. 86° 49' 41".								
Rock Island Passage Buoy.	2	Red	2d-class spar	Poverty Island Light-House, 38° 30'. Pottawatomie Light-House, 251° 00'. St. Martin Island Light-House, 357° 00'.	22	On SE'y point of detached 13-foot shoal, about 1 mile E'y from St. Martin Shoal Buoy, 4.								
St. Martin Shoals Buoy.	4 S M S	Red	2d-class nun	St. Martin Island, right tangent, 20° 30', 2½ miles. Fish Island, left tangent, 171° 00'. Pottawatomie Light-House, 243° 30', 2½ miles.	21	On SW'y point of shoals, Rock Island Passage into Green Bay Do not pass to N'd.								
ST. MARTIN ISLAND LIGHT-STATION (Wis.). (L. S. Chart 731.)		White; black lantern; buff fog-signal house and dwelling, red roofs.	Hexagonal steel structure; cylindrical lantern; brick oilhouse W'y; fog-signal house and dwelling NW'd.			4th-order light flashing alternately red and white; interval 5 sec.; 84 feet above water; visible 17 miles. On NE'y end of St. Martin Island, W'y side of N'y part of Lake Michigan, on SW'y side of St. Martin Island passage to Green Bay from lake. Lat. N. 45° 30' 13"; long. W. 86° 45' 30". Light illuminates 225° of horizon; dark sector covering island. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> </tr> <tr> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">27 sec.</td> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">27 sec.</td> </tr> </table>	Blast	Silent interval	Blast	Silent interval	3 sec.	27 sec.	3 sec.	27 sec.
Blast	Silent interval	Blast	Silent interval											
3 sec.	27 sec.	3 sec.	27 sec.											
POVERTY ISLAND LIGHT-STATION (Mich.). (L. S. Chart 731.)		White; red roofs.	Conical tower, 65 feet high, covered-way to dwelling; fog signal SE'y; cylindrical iron oilhouse NW'y.			4th-order light flashing red every 15 sec.; 78 feet above water; visible 16½ miles. On S'y point of Poverty Island. Lat. N. 45° 31' 21"; long. W. 86° 39' 59". Guide to passage into Green Bay, between Gull Islands and Poverty Island. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent interval</td> </tr> <tr> <td style="text-align: center;">5 sec.</td> <td style="text-align: center;">45 sec.</td> <td style="text-align: center;">3 sec.</td> <td style="text-align: center;">10 sec.</td> </tr> </table> If bound into Green Bay, keep at least ¼ mile to S'd of Poverty Island and, having passed it, steer midway between buoys on Gravelly Island and Poverty Island shoals.	Blast	Silent interval	Blast	Silent interval	5 sec.	45 sec.	3 sec.	10 sec.
Blast	Silent interval	Blast	Silent interval											
5 sec.	45 sec.	3 sec.	10 sec.											

LAKE MICHIGAN.

S'LY AND W'LY SHORES AND ADJACENT ISLANDS—Continued.

U. S. Lake Survey Charts 0, 6, 7, 70, 71, 80, 86, 87, 88, and 89, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7																								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.																								
Wiggins Point Shoal Gas Buoy, No. 4 (Mich.).	4	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Soul Choix Pointe Light-House, 74° 30' South; Fox Island Light-House, 146° 00' Wiggins Point, 280° 30'.	Feet. 30	White lens-lantern light 10 sec., eclipse 10 sec.; 30 feet above water. Marks E'y end of shoal of point.																								
*Manistique Breakwater Light (Mich.). (L. S. Chart 729.)			Lantern on post.....			Fixed red (e. a.) light. On W'y end of breakwater. Maintained by Chicago Lumbering Co., of Michigan.																								
*Manistique East Pier-head Light (Mich.).			Lantern suspended from pole.....			Fixed white (e. a.) light. On end of E'y pier. Maintained by Chicago Lumbering Co., of Michigan.																								
SEUL CHOIX POINTE LIGHT-STATION (Mich.).		White; red-brick dwelling.	Conical tower, 70 feet high, covered way to dwelling; fog-signal house 124 feet SE'y; two brick oil-houses SW'y.			3d-order fixed white light; 83 feet above water; visible 17 miles. On end of point, N'y end of Lake Michigan. Lat. N, 45° 55' 19"; long. W, 85° 54' 38". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2">Silent</td> <td colspan="2">Silent</td> </tr> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>4 sec.</td> <td>26 sec.</td> <td>4 sec.</td> <td>26 sec.</td> </tr> </table>	Silent		Silent		Blast	Interval	Blast	Interval	4 sec.	26 sec.	4 sec.	26 sec.												
Silent		Silent																												
Blast	Interval	Blast	Interval																											
4 sec.	26 sec.	4 sec.	26 sec.																											
Boulder Reef Buoy.....		Red and black horizontal stripes.	3d-class spar.....	Gull Island, SW point, 45° 00'. Beaver Island Light-House, 92° 00'. South Fox Island Light-House, 155° 00'.	19	Near NW'y end of reef. There is 16½ feet of water near buoy and 16 feet 300 feet SE'y of buoy. A bowlder with 19 feet of water over it and 4 and 5 fathoms in immediate vicinity, 1,830 feet SE'y of buoy. Reef extends SE'y and NW'y. Soundings very irregular.																								
Whisky Island Shoal Buoy.	2	Red.....	3d-class spar.....	Squaw Island Light-House, 83° 30'. Beaver Island Harbor Light-House, 119° 00'. Soul Choix Pointe Light-House, 304° 00'.	17	Marks S'y end of shoal off Whisky Island. Shoal is awash short distance N'd from buoy.																								
SQUAW ISLAND LIGHT-STATION (Mich.).		Red brick.....	Octagonal tower forming NW'y corner of dwelling; fog-signal building 200 feet N'y; brick oil-house E'y.			4th-order fixed red light varied by red flash every 15 sec.; 57 feet above water; visible 15 miles. On N'y point of Squaw Island, most N'y of the Beaver Island group, N'y end of Lake Michigan, Mich. Lat. N, 45° 50' 25"; long. W, 85° 35' 13". Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2">Silent</td> <td colspan="2">Silent</td> </tr> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>5 sec.</td> <td>20 sec.</td> <td>5 sec.</td> <td>40 sec.</td> </tr> </table>	Silent		Silent		Blast	Interval	Blast	Interval	5 sec.	20 sec.	5 sec.	40 sec.												
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5 sec.	20 sec.	5 sec.	40 sec.																											
Squaw Island Shoal Buoy.	1 S I	Black.....	2d-class can.....	Lansing Shoal Light-Vessel, No. 55, 6° 00'. Squaw Island Light-House, 201° 30'. Soul Choix Pointe Light-House, 284° 00'.	23	Marks N'y end of shoal making out from Squaw Island.																								
LANSING SHOAL LIGHT-VESSEL, No. 55 (Mich.).	55 LANSING SHOAL SH.	Red hull, boats and daymarks; white lettering; black smokestack and fog signal.	Steam vessel; two masts, schooner-rigged; no bowsprit; name on each side, number on each bow and quarter; smokestack and fog signal between masts; oval, capework daymark at each masthead.	Waugohance Light-House, 110° 00'. Squaw Island Light-House, 192° 00'. Soul Choix Pointe Light-House, 274° 00'.	33	Two fixed red lens-lantern lights; 30 feet above water; visible 8½ miles. Moored to S'd of Lansing Shoal, N'y end of Lake Michigan. Lat. N, 45° 54' (18"); long. W, 85° 33' (50"). Fog signal: 6-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2">Silent</td> <td colspan="2">Silent</td> </tr> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>5 sec.</td> <td>55 sec.</td> <td>5 sec.</td> <td>55 sec.</td> </tr> </table> Submarine bell strikes thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2">Silent</td> <td colspan="2">Silent</td> </tr> <tr> <td>Blast</td> <td>Interval</td> <td>Blast</td> <td>Interval</td> </tr> <tr> <td>3 strokes</td> <td>11 sec.</td> <td>3 strokes</td> <td>11 sec.</td> </tr> </table>	Silent		Silent		Blast	Interval	Blast	Interval	5 sec.	55 sec.	5 sec.	55 sec.	Silent		Silent		Blast	Interval	Blast	Interval	3 strokes	11 sec.	3 strokes	11 sec.
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Silent		Silent																												
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3 strokes	11 sec.	3 strokes	11 sec.																											
Garden Island Shoal Buoy.	G I	Red and black horizontal stripes.	2d-class can..... B III	Hog Island, N tangent, 118° 30'. Garden Island, W tangent, 214° 00'. Squaw Island Light-House, 248° 30'.	18	Marks NE'y end of 16-foot shoal, N'y from Garden Island. W 10 sec., ecl. 10 sec.																								

GREEN BAY.

N'LY END.

U. S. Lake Survey Charts 0, 7, 70, and 73, and U. S. Hydrographic Office Charts 1474 and 1475 issued at Lake Survey Office.

Poverty Island Shoal Gas Buoy, No. 2 (Mich.). (L. S. Chart 731.)	2	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Poverty Island Light-House, 124° 30'. St. Martin Island Light-House, 226° 00'. Point Peninsula Light-House, 305° 00'.	22	Red lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks narrow rocky ledge, with 15 to 20 feet over it.
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GREEN BAY.

N'LY END—Continued.

U. S. Lake Survey Charts 0, 7, 70, and 73, and U. S. Hydrographic Office Charts 1474 and 1475 issued at Lake Survey Office.

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Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.																
Gravelly Island Shoal Gas Buoy, No. 1 (Mich.).	1	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Poverty Island Light-House, 113° 30'. St. Martin Island Light-House, 214° 00'. Point Peninsula Light-House, 307° 30'.	18	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks small shoal, with 17 feet of water over it, 1½ miles N'y of Gravelly Island.																
Big Bay de Noc Shoal Buoy.	1	Black.....	3d-class spar.....	Garden Bluffs, left tangent, 54° 00'. Poverty Island Light-House, 174° 00'. Point Peninsula Light-House, 248° 00'.	21	Marks S'y end of shoal making off from Indian Point, Big Bay de Noc.																
Drisco Shoal Buoy.....	D S	Red and black horizontal stripes.	2d-class can.....	Poverty Island Light-House, 101° 00'. Pottawatomie Light-House, 146° 30'. Point Peninsula Light-House, 355° 00'.	21	Marks NE'y point of shoal, just S'y of track of vessels from Porto des Morts and Rock Island passages to Little Bay de Noc. Shoal extends nearly ¼ mile NE'y and SW'y. Soundings can not be depended on to give warning of approach in thick weather.																
Minneapolis Shoal Buoy.....		Red and black horizontal stripes.	3d-class spar.....	Point Peninsula Light-House, 14° 00'. Poverty Island Light-House, 104° 00'. Escanaba Light-House, 348° 30'.	18	On center of small rocky shoal; give berth of at least ¼ mile.																
ELEVEN-FOOT SHOAL LIGHT-VESSEL, No. 60 (Mich.).	60	Black hull, boats and daymark; white lettering, smoke-stack and fog signal.	Two mast, schooner-rigged, no bowsprit; name on each side, number on each bow and each quarter; smoke-stack and fog-signal between masts; circular cage-work daymark at foremast-head.	Point Peninsula Light-House, 17° 00'. St. Martin Island Light-House, 121° 00'. Escanaba Light-House, 346° 00'.	60	Fixed white lens-lantern light; 40 feet above water; visible 13½ miles. Moored to S'd and W'd of Corona and Eleven-Foot shoals, N'y end of Green Bay. Lat. N, 45° 36' (40''); long. W, 87° 00' (00''). Fog signal: 6-inch steam whistle, sounds thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Blast</td> <td>Silent</td> <td>Blast</td> <td>Silent</td> </tr> <tr> <td>5 sec.</td> <td>10 sec.</td> <td>5 sec.</td> <td>10 sec.</td> </tr> </table> Submarine bell strikes thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>5 strokes</td> <td>Silent</td> <td>3 strokes</td> <td>Silent</td> </tr> <tr> <td>.....</td> <td>6 sec.</td> <td>.....</td> <td>12 sec.</td> </tr> </table>	Blast	Silent	Blast	Silent	5 sec.	10 sec.	5 sec.	10 sec.	5 strokes	Silent	3 strokes	Silent	6 sec.	12 sec.
Blast	Silent	Blast	Silent																			
5 sec.	10 sec.	5 sec.	10 sec.																			
5 strokes	Silent	3 strokes	Silent																			
.....	6 sec.	12 sec.																			
Corona Shoal Buoy.....		Red and black horizontal stripes.	2d-class spar.....	Poverty Island Light-House, 114° 00'. Pottawatomie Light-House, 153° 30'. Point Peninsula Light-House, 356° 30'.	18	Marks S'y point of Corona Shoal, extending NNE'y and SSW'y; least water, 13 feet.																
Eleven-Foot Shoal Buoy.	4 E F S	Red.....	2d-class nun.....	Point Peninsula Light-House, 18° 30'. St. Martin Island Light-House, 129° 30'. Escanaba Light-House, 338° 30'.	18	On S'y side of shoal, off Point Peninsula.																
Point Peninsula Shoal Buoy.	6	Red.....	3d-class spar.....	Point Peninsula Light-House, 9° 00'. Poverty Island Light-House, 119° 30'. Escanaba Light-House, 333° 00'.	18	Marks S'y end of shoal extending S'y from Point Peninsula. Local knowledge necessary for passage between this buoy and Eleven-Foot Shoal to S'd.																
POINT PENINSULA LIGHT-STATION (Mich.) (L. S. Chart 735.)		Yellow; red roofs.	Square tower, 36 feet high, attached to S'y end of brick dwelling; brick oilhouse NE'y.			4th-order light flashing white every 30 sec.; 41 feet above water; visible 13½ miles. On S'y point of Point Peninsula, between entrances to Little and Big Bays de Noc. Lat. N, 45° 40' 00''; long. W, 86° 58' 00''. Shoals extend 2½ miles S'y.																
Sand Point Buoy.....	3	Black.....	3d-class spar.....	Squaw Point Light-House, 15° 00'. Point Peninsula Light-House, 147° 30'. Escanaba Light-House, 247° 00'.	18	Marks end of shoal extending NE'y from point.																
Escanaba Light-Station (Mich.) (L. S. Chart 735.)		White; red roofs.	Square tower, 39 feet high, attached to dwelling; frame fog-bell tower and brick oilhouse E'y.			4th-order fixed red light; 44 feet above water; visible 13 miles. Near end of Sand Point, S'y side of entrance to Escanaba Harbor and W'y side of Little Bay de Noc. Lat. N, 45° 44' 41''; long. W, 87° 02' 30''. Fog signal: Bell struck by machinery, thus: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1 blow</td> <td>Silent</td> <td>1 blow</td> <td>Silent</td> </tr> <tr> <td>.....</td> <td>15 sec.</td> <td>.....</td> <td>15 sec.</td> </tr> </table> Weather Bureau signals displayed from roof of office building.	1 blow	Silent	1 blow	Silent	15 sec.	15 sec.								
1 blow	Silent	1 blow	Silent																			
.....	15 sec.	15 sec.																			

GREEN BAY.

N'LY END—Continued.

U. S. Lake Survey Charts 0, 7, 70, and 73, and U. S. Hydrographic Office Charts 1474 and 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Little Bay de Noc Shoal Buoy.	S L B N	Red.....	3d-class nun.....	Squaw Point Light-House, 9° 00'. Point Peninsula Light-House, 157° 30'. Escanaba Light-House, 225° 00'.	18	Marks SW'yly point of shoal, E'yly side of Little Bay de Noc.
Squaw Point Light-Station (Mich.). (L. S. Chart 735.)		Buff; black lantern.	Octagonal brick tower, projecting from SW'yly corner of brick dwelling; brick oilhouse N'yly.			6th-order fixed white light, with red sector to E'd of 22° 30'; 40 feet above water; visible 13 miles. Lat. N, 45° 49' 54"; long. W, 87° 00' 17".
Saunders Point Shoal Buoy.	5	Black.....	3d-class spar.....	Maywood Dock, right tangent, 135° 00'. Squaw Point Light-House, 200° 00'.	18	On point of shoal making out from Saunders Point (Gladstone), about 125 feet E'yly of end of wharf.
Saunders Point Shoal Inside Buoy.	7	Black.....	4th-class spar.....	Saunders Point Shoal Buoy, 147° 30'. Squaw Point Light-House, 191° 30'. Soo Ore Dock, right tangent, 294° 30'.	17	Marks N'yly edge of shoal making out from Saunders Point (Gladstone).

N'LY END TO S'D.

U. S. Lake Survey Charts 0, 7, 70, 73, and 74, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

CEDAR RIVER LIGHT-STATION (Mich.).		White.....	Square, pyramidal, open framework tower, 60 feet high.			4th-order fixed white light; 66 feet above water; visible 13½ miles. On W'yly side of entrance to Cedar River. Lat. N, 45° 24' 34"; long. W, 87° 21' 10". Width between piers, 200 feet at entrance.
Range { Cedar River Front Light (Mich.). Cedar River Rear Light (Mich.).		White.....	Lantern on post.....	Rear light, 340° 20', 150 feet.		Two fixed red post-lantern lights. Front light, 21 feet above water; rear light, 26½ feet above water; on W'yly side of channel, near outer end of pier. Lat. N, 45° 24' 24"; long. W, 87° 20' 58". Form range that shows direction of harbor entrance and carries clear of rock 1,665 feet from light-house and nearly in line of direction of W'yly pier.
		White.....	Lantern on post.....			
Cedar River Entrance Buoy.	1	Black.....	4th-class spar.....	Boyers Bluff, N tangent, 86° 30'. Pinn Island Range Rear Light-House, 109° 00'. Chambers Island Light-House, 182° 30'.	15½	Marks rock, with 9 feet of water over it, 1,665 feet from light-house nearly in line of direction of W'yly pier.
Whaleback Shoal East End Gas Buoy, No. 4 (Wis.).	4	Red.....	Conical, surmounted by pyramidal lattice-work and lantern.	Boyers Bluff, N tangent, 67° 30'. Pinn Island Range Rear Light-House, 107° 00'. Chambers Island Light-House, 221° 00'.	18	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks SE'yly point of shoal, which extends 1¼ miles NW'yly from buoy, with spot nearly awash midway between ends. Soundings in vicinity irregular; bottom stone, sand, and gravel.
Whaleback Shoal West End Buoy.	1	Black.....	3d-class spar.....	Boyers Bluff, N tangent, 73° 00'. Chambers Island Light-House, 216° 00'. Cedar River Light-House, 292° 00'.	18	Marks NW'yly point of shoal.
Horseshoe Reef Buoy.....	2 H R	Red.....	2d-class nun.....	Ellison Bluff, tangent, 58° 00'. Eagle Bluff Light-House, 208° 00'. Chambers Island, right tangent, 267° 30'.	30	Marks SE'yly point of reef.
Strawberry Channel Northeast Buoy.	4	Red.....	2d-class spar.....	Horseshoe Island, left tangent, 88° 30'. Eagle Bluff Light-House, 129° 15'. Jack Island, right tangent, 240° 00'.	24	Marks E'yly edge of shoals.
Strawberry Channel Southeast Buoy.	6	Red.....	4th-class spar.....	Eagle Bluff Light-House, 30° 00'. Hat Island, right tangent, 225° 30'. Strawberry Island, right tangent, 321° 30'.	13	Marks SE'yly end of Strawberry Shoals. Pass buoy close-to.

GREEN BAY.

N'LY END TO S'D—Continued.

U. S. Lake Survey Charts 0, 7, 70, 73, and 74, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
EAGLE BLUFF LIGHT-STATION (Wis.)		Yellow; red roof.	Square tower, 38 feet high, attached to NW'ly corner of brick dwelling; brick oilhouse S'ly.		<i>Feet.</i>	3½-order fixed white light; 76 feet above water; visible 16¼ miles. On W'ly point of Eagle Bluff, 2½ miles N'ly of village of Fish Creek. Lat. N, 45° 10' 08"; long. W, 87° 14' 11".								
CHAMBERS ISLAND LIGHT-STATION (Wis.)		Yellow	Octagonal tower, 38 feet high, attached to NW'ly corner of brick dwelling; brick oilhouse W'ly.			4th-order fixed white light varied by white flash every 30 sec.; 68 feet above water; visible 16 miles. On W'ly point of small bay on N'ly side of Chambers Island. Lat. N, 45° 12' 08"; long. W, 87° 21' 53". Reef extends ¾ mile from N'ly point of island.								
Menominee Pierhead Light-Station (Wis.) (L. S. Chart 742.)		White	Octagonal iron tower, 29 feet high; fog-signal house in rear; elevated walk along pier to shore.			4th-order fixed red light; 34 feet above water; visible 12¼ miles. On N'ly pier, at entrance to Menominee River. Lat. N, 45° 06' 44"; long. W, 87° 35' 09". Width between piers, 360 feet at entrance. Fog signal: 10-inch steam whistle, sounds thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent</td> <td style="text-align: center;">Blast</td> <td style="text-align: center;">Silent</td> </tr> <tr> <td style="text-align: center;">5 sec.</td> <td style="text-align: center;">25 sec.</td> <td style="text-align: center;">5 sec.</td> <td style="text-align: center;">25 sec.</td> </tr> </table> <i>Weather Bureau signals displayed from engine house.</i>	Blast	Silent	Blast	Silent	5 sec.	25 sec.	5 sec.	25 sec.
Blast	Silent	Blast	Silent											
5 sec.	25 sec.	5 sec.	25 sec.											
Menekaunee Shoal Buoy.	6 M S	Red.	2d-class nun.	Chambers Island Light-House, 47° 00'. Green Island Light-House, 103° 00'. Menominee Pierhead Light-House, 333° 00'.	28	Marks E'ly end of shoal S'ly of entrance to Menominee River.								
Green Island Shoal Buoy.	1	Black	3d-class spar.	Chambers Island Light-House, 37° 30'. Green Island Light-House, 99° 00'. Menominee Pierhead Light-House, 308° 00'.	18	Marks W'ly point of shoal extending W'ly from island.								
GREEN ISLAND LIGHT-STATION (Wis.)		Yellow	Square tower, 40 feet high, on brick dwelling; brick oilhouse E'ly.			4th-order fixed white light; 55 feet above water; visible 14½ miles. Near SE'ly point of island. Lat. N, 45° 03' 23"; long. W, 87° 29' 34". Reefs extend from W'ly and SE'ly ends of island, ¼ and ½ mile, respectively.								
Monument Shoal Buoy...	1	Black	3d-class spar.	Eagle Bluff Light-House, 29° 30'. Sherwood Point Light-House, 201° 00'. Green Island Light-House, 307° 00'.	18	Marks W'ly point of shoal off Monument Point.								
PESHTIGO REEF LIGHT-VESSEL NO. 77 (Wis.)	77 PESHTIGO REEF VESSEL	Black hull, boats, and daymark; white lettering; buff deck houses.	Two masts, schooner-rigged, no bowsprit; name on each side, number on each bow and each quarter; circular cage-work daymark at foremasthead.	Green Island Light-House, 28° 00'. Sherwood Point Light-House, 122° 00'. Menominee Pierhead Light-House, 356° 00'.	72	Fixed white lens-lantern light; 25 feet above water; visible 11¼ miles. Moored off SE'ly point of Peshtigo Reef. Lat. N, 44° 57' (10"); long. W, 87° 34' (12"). Pass to E'd of light-vessel. Fog-signal: Bell rung by hand. <i>Blast Silent Blast Silent 2 sec. 18 sec. 18 sec. Recommended to appear</i>								
Peshtigo Shoal Buoy	8 P	Red	2d-class nun.	Green Island Light-House, 31° 00'. Sherwood Point Light-House, 122° 30'. Menominee Pierhead Light-House, 357° 30'.	21	Off point of shoal extending SE'ly from Peshtigo Point.								
Sherwood Point Shoal Buoy. (L. S. Chart 749.)		Red and black horizontal stripes.	3d-class spar.	Sherwood Point Light-House, 134° 30'. Menominee Pierhead Light-House, 333° 30'.	20	Marks S'ly end of detached 14-foot shoal about ¼-mile diameter.								

STURGEON BAY.

FROM GREEN BAY.

U. S. Lake Survey Charts 0, 7, 70, 74, and 749, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

SAILING DIRECTIONS.—After passing Sherwood Point Light-House and Quarry Point Buoy, 2, follow Dunlap Reef Range until abreast buoy No. 3, then run for Sturgeon Bay Bridge Light, pass to E'd of Middle Ground Northwest End Buoy, HS, and buoy No. 2, through drawbridge; then keep nearly in mid-channel to entrance to canal. There is good water in channel W'ly of Dunlap Reef, but turn around S'y end is too sharp for vessels bound through canal.

1	2	3	4	5	6	7								
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.								
SHERWOOD POINT LIGHT-STATION (Wis.) (L. S. Chart 749.)		Red	Square tower, 32 feet high, dwelling attached, both of brick; fog bell tower NE'y; brick oilhouse SE'y.		<i>Fed.</i>	4th-order fixed white light varied by red flash every minute; 16 feet above water; visible 15½ miles. On S'y side of W'ly entrance to Sturgeon Bay. Lat. N, 44° 33' 34"; long. W, 87° 26' 00". Fog-signal: Bell struck by machinery, thus: <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Silent</td> <td>Silent</td> </tr> <tr> <td>1 blow</td> <td>1 blow</td> </tr> <tr> <td>Interval</td> <td>Interval</td> </tr> <tr> <td>12 sec.</td> <td>12 sec.</td> </tr> </table>	Silent	Silent	1 blow	1 blow	Interval	Interval	12 sec.	12 sec.
Silent	Silent													
1 blow	1 blow													
Interval	Interval													
12 sec.	12 sec.													
Quarry Point Buoy	2	Red	4th-class spar	Smith Stone Crusher wharf, 23° 30'. Hills Point Daymark, 157° 15'. Sherwood Point, tangent, 347° 00'.	12	Marks E'y side of 6-foot shoal, off entrance to Sawyers Harbor.								
Hills Point Gas Buoy, No. 1 (Wis.)	1	Black	Conical surmounted by pyramidal lattice-work and lantern.	Brewery dock, tangent, 93° 00'. Dunlap Reef Range Front Light-House, 156° 00'. Hills Point Daymark, 264° 40'.	20	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water; at N'y end of E'y side of dredged channel and W'ly edge of shoal ground extending from E'y shore of bay.								
Hills Point Daymark		White	Triangular, slatted target, apex up.	Brewery Dock, outer end, 89° 00'. Dunlap Reef Range Front Light-House, 151° 30'.		Marks point abreast of which vessels bound for Sturgeon Bay Canal should leave Dunlap Reef Range line and head for Sturgeon Bay Bridge Light.								
Hills Point Buoy	3	Black	3d-class spar	Brewery Dock, 39° 00'. Dunlap Reef Range Front Light-House, 157° 30'.	20	Marks SE'y end of dredged channel and SW'y point of the same shoal as No. 1.								
Middle Ground Northwest End Buoy		Red and black horizontal stripes.	3d-class spar	Dunlap Reef Range Front Light-House, 170° 00'.	13	Marks NW'y end of Middle Ground, which lies in mid-channel.								
Dunlap Reef Front Light (Wis.)		Red; storehouse, white; roof, red.	Wooden tower, 14 feet high, attached to storehouse.	Rear light, 153° 26', 707 feet.		Two fixed red lights; front, 6th-order; 18 feet above water; visible 8½ miles. Lat. N, 44° 50' 17"; long. W, 87° 23' 18". Rear, 5th-order; 39 feet above water; visible 9½ miles. Lat. N, 44° 50' 02"; long. W, 87° 22' 55". <i>Weather Bureau signals on east side of Sturgeon Bay near bridge.</i>								
Dunlap Reef Rear Light (Wis.)		White	Square tower, 35 feet high, on dwelling.											
West Channel Buoy	1	Black	4th-class spar	Dunlap Reef Range Rear Light-House, 130° 00'.	12	Marks W'y point of middle ground; guides through W'y channel.								
East Channel Buoy	2	Red	3d-class spar	Dunlap Reef Range Front Light-House, 252° 00'.	15	Marks NE'y edge of middle ground; guides through E'y channel.								
Middle Ground Southeast End Buoy		Red and black horizontal stripes	4th-class spar	Dunlap Reef Range Rear Light-House, 230° 15'.	13	Marks SE'y point of middle ground.								
Sturgeon Bay Bridge Light (Wis.)		Gray	Square, skeleton-steel tower about 10 feet high, on top chord of draw span of bridge.			Fixed white lens-lantern light; 67 feet above water. Lat. N, 44° 50' 02"; long. W, 87° 22' 55".								

GREEN BAY.

ENTRANCE TO GREEN BAY CITY.

U. S. Lake Survey Charts 0, 7, 70, 74, and 746, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

SAILING DIRECTIONS.—To enter from Green Bay give Entrance Buoy, 2, a berth of 100 feet, bringing Entrance Gas Buoy, No. 1, to bear a little on port bow, passing Tall Point Light-House about 300 feet on starboard hand; enter the cut abreast the gas buoy, and follow buoys until buoy No. 20 is passed, where deep water at mouth of river will be reached; then the mid-channel for Green Bay City may be taken. The dredged cut is about 500 feet wide at entrance and narrows to about 200 feet abreast East Bank Buoy, 5, for remainder of channel; long steamers should slow down before making the turn.

The dredged cut commences at Entrance Buoy, 2, and extends to deep water at mouth of river; depth at usual stages of water 17 feet. At Grassy Island there is close piling, with a light at each end on E'y side and keeper's dwelling on island between them.

Sable Point Buoy marks old channel to cut, and remains in position for vessels towing rafts.

At mouth of Fox River NE'y gales usually raise the water from 1 to 2 feet and SW'y gales lower it about as much.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
Entrance Buoy.....	2	Red.....	2d-class nun.....	Tall Point Light-House, 237° 00'. Long Tall Point (unused) Light-House, 312° 00'.	Fect. 21	Marks W'y bank at entrance to dredged channel leading to mouth of Fox River, Wisconsin.
TAIL POINT LIGHT-STATION (Wis.) (L. S. Chart 746.)		Buff; red roof; black lantern.	Cylindrical, iron lantern on frame dwelling on square brick pier.			4th-order fixed white (l. o. v.) light; 38½ feet above water; visible 13 miles. On W'y side of channel in S'y end of Green Bay; near entrance to Fox River. Lat. N, 44° 35' 02"; long. W, 87° 58' 36". Fog signal: Bell struck by machinery, thus: 1 blow <u>Silent Interval</u> 10 sec. 1 blow <u>Silent Interval</u> 10 sec.
Entrance Gas Buoy, No. 1 (Wis.)	1	Black.....	Conical, surmounted by pyramidal lattice-work and lantern.	Tall Point Light-House, 33° 00'. Grassy Island Lower Light-House, 203° 30'.	18	White lens-lantern light 10 sec., eclipse 10 sec.; 10 feet above water. Marks E'y side of turn in dredged channel.
West Bank Buoy.....	2X	Red.....	3d-class spar.....	West Bank Buoy, No. 4, 203° 30'.	16	Marks W'y bank of dredged channel.
Sable Point Buoy.....	1	Black.....	4th-class spar.....	West Bank Buoy, No. 8, 192° 00'.	15	On W'y end of spilt extending 3¼ miles W'y from Sable Point, and marks turning point in old channel.
East Bank Buoy.....	3	Black.....	4th-class spar.....	East Bank Buoy, No. 5, 206° 00'.	14	Marks E'y bank of dredged channel.
West Bank Buoy.....	4	Red.....	4th-class spar.....	West Bank Buoy, No. 6, 203° 30'.	14	Marks W'y bank of dredged channel.
East Bank Buoy.....	5	Black.....	4th-class spar.....	East Bank Buoy, No. 7, 206° 00'.	14	Marks the elbow of E'y bank of dredged channel.
West Bank Buoy.....	6	Red.....	4th-class spar.....	West Bank Buoy, No. 8, 203° 30'.	14	Marks W'y bank of dredged channel.
East Bank Buoy.....	7	Black.....	4th-class spar.....	East Bank Buoy, No. 9, 203° 30'.	14	Marks E'y bank of dredged channel.
West Bank Buoy.....	8	Red.....	4th-class spar.....	West Bank Buoy, No. 10, 203° 30'.	14	Marks W'y bank of dredged channel. Also marks S'y side of upper entrance to straight cut by old channel around Sable Point Buoy, 1.
East Bank Buoy.....	9	Black.....	4th-class spar.....	Grassy Island Lower Light-House, 203° 30'.	14	Marks E'y bank of dredged channel.
West Bank Buoy.....	10	Red.....	4th-class spar.....	Grassy Island Lower Light-House, 194° 30'.	14	Marks W'y bank of dredged channel.
Grassy Island Lower Light-Station (Wis.)		White.....	Inclosed framework tower, 22 feet high; frame dwelling S'y; brick oil-house.	Grassy Island Upper Light-House, 203° 30'.		6th-order fixed white light; 30 feet above water. On N'y end of piling, E'y side of cut through Grassy Island. Lat. N, 44° 33' 57"; long. W, 87° 59' 35".
Grassy Island Upper Light-Station (Wis.)		White.....	Inclosed framework tower, 29 feet high.	Tall Point Light-House, 26° 00'. Elbow Light, 202° 00'.		6th-order fixed white light; 37 feet above water. On S'y end of piling, E'y side of cut through Grassy Island. Lat. N, 44° 33' 31"; long. W, 87° 59' 39".
East Bank Buoy.....	11	Black.....	4th-class spar.....	Elbow Light, 202° 00'.	14	Marks E'y bank of dredged channel.
West Bank Buoy.....	12	Red.....	4th-class spar.....	West Bank Buoy, No. 14, 203° 30'.	14	Marks W'y bank of dredged channel opposite East Bank Buoy, No. 11.
Elbow Light (Wis.)		Red.....	Lantern on concrete post on square concrete base.	Grassy Island Upper Light-House, 22° 00'. Murphys Dock Light, 194° 30'.		Fixed red lens-lantern (s.) light; 16 feet above water. Lat. N, 44° 33' 00"; long. W, 87° 59' 36".
West Bank Buoy.....	14	Red.....	4th-class spar.....	West Bank Buoy, No. 16, 193° 00'.	14	Marks W'y bank of dredged channel opposite Elbow Light.
West Bank Buoy.....	16	Red.....	4th-class spar.....	West Bank Buoy, No. 18, 193° 00'.	14	Marks W'y bank of dredged channel.
East Bank Buoy.....	13	Black.....	4th-class spar.....	East Bank Buoy, No. 15, 193° 00'.	14	Marks E'y bank of dredged channel.
West Bank Buoy.....	18	Red.....	4th-class spar.....	West Bank Buoy, No. 20, 193° 00'.	14	Marks W'y bank of dredged channel.

GREEN BAY.

ENTRANCE TO GREEN BAY CITY—Continued.

U. S. Lake Survey Charts 0, 7, 70, 74, and 746, and U. S. Hydrographic Office Chart 1475 issued at Lake Survey Office.

1	2	3	4	5	6	7
Name of aid.	No. or mark on aid.	Color of aid.	Description of aid.	True bearings and distances of prominent objects from aid.	Depth at mean low water.	GENERAL REMARKS.
East Bank Buoy.....	15	Black.....	4th-class spar.....	Murphys Dock Light, 197° 30'.	<i>Fet.</i> 14	Marks E'y bank of dredged channel.
West Bank Buoy.....	20	Red.....	4th-class spar.....	Murphys Dock Light, 178° 00'.	14	Marks W'y bank and inner end of dredged channel at mouth of Fox River.
Murphys Dock Light (Wis.).		White; red piles.	Lantern on small lamp house on cluster of piles.			Fixed red lens-lantern light; 18 feet above water; E'y side of mouth of river. Lat. N, 44° 32' 17"; long. W, 88° 00' 11".

FOX RIVER.

GREEN BAY CITY TO DE PERE, WISCONSIN.

U. S. Lake Survey Charts 0, 7, 74, 746, and Lake Winnebago.

Twelve red spar buoys, numbered 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, and 24, mark W'y side of channel, between Green Bay City and De Pere.

LITTLE LAKE BUTTES DES MORTS.

U. S. Lake Survey Charts 0 and 7, and Lake Winnebago.

Menasha River Lower Light (Wis.).		White.....	Square, pyramidal crib surmounted by post.		6	Fixed red lens-lantern light; 17 feet above water. In lake; marks W'y side of entrance to 6-foot dredged channel to Menasha Lock. Lat. N, 44° 12' 41"; long. W, 88° 27' 42".
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LAKE WINNEBAGO.

U. S. Lake Survey Charts 0 and 7, and Lake Winnebago.

Menasha River Upper Light (Wis.).		White.....	Square, pyramidal crib surmounted by post.			Fixed red lens-lantern light; 194½ feet above water. In NW'y end of Lake Winnebago, on S'y side of E'y end of dredged part of Fox River North Channel connecting Little Lake Buttes des Morts with Lake Winnebago, and just S E'y of Menasha. Lat. N, 44° 11' 53"; long. W, 88° 25' 29".
Range. Stockbridge Harbor Front Light (Wis.).						} To be established.
Stockbridge Harbor Rear Light (Wis.).						
Range. Calumet Harbor Front Light (Wis.).						} To be established.
Calumet Harbor Rear Light (Wis.).						
Range. Fond du Lac Entrance Front Light (Wis.).				Rear light, 293° 30', ¼ mile.		Fixed red (e. l.) light; 15 feet above water.
*Fond du Lac Entrance Rear Light (Wis.).						Fixed red (e. l.) light; 25 feet above water. Keep slightly to W'd of range line after passing outer piles along dredged channel. Maintained by city of Fond du Lac.
*Rockwell Light (Wis.).			Octagonal concrete tower on concrete foundation.			Fixed red lens-lantern (e. l.) light; 26 feet above water; off SE'y point of Oskosh, N'y side of entrance to Fox River, W'y side of lake. Lat. N, 44° 00' (27"); long. W, 88° 31' (11"). Maintained by William M. Bray, of Oskosh, Wis.

FOX AND WOLF RIVERS.

Range. Butte des Morts Bar Front Light (Wis.).		Red.....	Rectangular wooden float, surmounted by post supporting lantern.	Rear light, 281° 15', 800 feet.	4	Fixed white post-lantern light, 8 feet above water; 15 feet from edge of channel.
Butte des Morts Bar Rear Light (Wis.).		Red.....	Rectangular wooden float, surmounted by post supporting lantern.		4	Fixed white post-lantern light 12 feet above water; 15 feet from edge of channel. Entering Fox River from Lake Butte des Morts; leave lights about 40 feet on starboard hand. Lights can not be depended on when ice is running.
Lone Willow Bar Light (Wis.).						To be established.
Range. Old River Bar Front Light (Wis.).		Red.....	Rectangular wooden float, surmounted by post supporting lantern.	Rear light, 33° 45', 800 feet.	4	Fixed white post-lantern light, 8 feet above water; 15 feet from edge of channel.
Old River Bar Rear Light (Wis.).		Red.....	Rectangular wooden float, surmounted by post supporting lantern.		4	Fixed white post-lantern light, 12 feet above water; 15 feet from edge of channel. Entering Wolf River from Lake Payang, leave lights about 40 feet on starboard hand. Lights can not be depended on when ice is running.

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			White Shoal Buoy, Straits of Mackinac, Mich.	12	151
			White Shoal Light-Station, Straits of Mackinac, Mich.	12	101
			Wharton Light, Georgian Bay, Canada	11	49
			Whisk Point Light-Station, Lake Ontario, Canada	12	163
			Whisk Point Shoal Gas Buoy, No. 4, Lake Michigan, Mich.	12	163
			Wilson Channel Range, North Channel, Canada	11	126
			Williams Landing Buoy, Grand Island Harbor, Mich.	12	160
			Wind Point North Shoals Gas Buoy, No. 19, Lake Michigan, Wis.	12	160
			Wind Point (Kacine Point) Light-Station, Lake Michigan, Wis.	12	160
			Wind Point South Shoals Buoy, Lake Michigan, Wis.	12	160
			Windmill Point Light-Station, Detroit River, Mich.	11	84
			Windmill Point Light-Station, Lake Champlain, Vt.	2	39
			Windmill Point Light-Station, River St. Lawrence, Canada	11	84
			Windmill Point Range lights, Detroit River, Mich.	11	84
			Winter Point Range Lights, St. Marys River, Mich.	11	82
			Witch Shoal Light, Lake Memphremagog, Canada	11	88
			Woodtick Island Buoy, No. 20, River St. Lawrence, Canada	11	44
			Wolf Island Cut Gas Buoy, River St. Lawrence, Canada	11	44
			Wolf Island Light, River St. Lawrence, Canada	11	44
			Yamachichee Light, River St. Lawrence, Canada	11	20
			Yamachichee Light, No. 34, River St. Lawrence, Canada	11	20
			Yamachichee Shoal Buoy, Portage Lake, Lake Superior, Wis.	11	134
			Yamachichee Shoal Buoy, No. 35, Lake Superior, Wis.	11	137
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