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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. PATTON, Director

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 403
Hydrographic }

State NEW JERSEY - DELAWARE

LOCALITY

~~OFF~~ NEW JERSEY & DELAWARE COASTS

APPROACHES TO DELAWARE BAY

1937

CHIEF OF PARTY

JACK SENIOR and ROLAND D. HORNE

6272

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 403

REGISTER NO. H6272

State NEW JERSEY - DELAWARE

General locality off NEW JERSEY - DELAWARE COASTS

Locality APPROACHES TO DELAWARE BAY

Scale 1:40,000 Date of survey Aug. 31 to Sept 27, 1937

Vessel U.S.C.& G.S.S. LYDONIA and U.S.C.& G.S.M.V. GILBERT

Chief of Party JACK SENIOR and ROLAND D. HORNE

Surveyed by SHIPS' OFFICERS

Protracted by GLENDON E. BOOTHE (LYDONIA'S work) and JOHN H. BRITAIN (GILBERT'S work)

Soundings penciled by GLENDON E. BOOTHE

Soundings in ~~fathoms~~ feet FEET

Plane of reference M. L. W.

Subdivision of wire dragged areas by _____

Inked by G.H. Everett

Verified by G.H. Everett

Instructions dated April 9, 1936. Supplemental March 19, 1937

Remarks: _____

DESCRIPTIVE REPORT

To Accompany

HYDROGRAPHIC SHEET NO. 403 H-6272

Ship LYDONIA Jack Senior Commanding
M. V. GILBERT Roland D. Horne Commanding

Project HT-207 Year 1937

DATE OF INSTRUCTIONS

This survey was executed in accordance with the Director's instructions dated April 9, 1936 and supplemental instructions dated March 19, 1937.

SURVEY METHODS

This survey covers an area southeast of the mouth of Delaware Bay from east of Cape Henlopen, near McCrie Shoal, south to the east of Fenwick Island, near Fenwick Island Shoal. The area surveyed on this sheet is defined on the north by parallel $38^{\circ}-50'$; on the east by meridian $74^{\circ}-40'$; on the south by parallel $38^{\circ}-28'$; and on the west by a line from latitude $38^{\circ}-28.5'$, longitude $74^{\circ}-53'$ to latitude $38^{\circ}-50'$, longitude $74^{\circ}-55.5'$.

With the exception of lines run between buoys and a few cross lines all sounding lines on this sheet west of meridian $74^{\circ}-50'$ were run by the USC&GSMV GILBERT. The area east of this meridian was run by the USC&GSS LYDONIA. Sounding positions on the smooth sheet were numbered in red for the Ship LYDONIA and in blue for the M. V. GILBERT.

Practically all of the control for this survey was by hydrographic and sono radio buoys. A small amount of control at the northern end of the sheet was secured by three point sextant fixes on triangulation objects by the Ship LYDONIA. Also a small number of positions by the M.V. GILBERT were taken with three point sextant fixes on triangulation objects. The M. V. GILBERT used three point fixes on hydrographic buoys established and located by the Ship LYDONIA for control except buoy CRI, which was McCrie Shoal Buoy and it was located by the M. V. GILBERT by three point sextant angles on triangulation objects. An inner line of twelve hydrographic and three sono radio buoys was established near the western side of the area running approximately parallel with the shore line about eight miles offshore at the southern end and about ten miles offshore at the northern

end. All hydrographic buoys were located by three point sextant fixes on triangulation objects and their positions were computed, while the sono radio buoys were located by three point sextant fixes on triangulation objects and by distance and direction from a hydrographic buoy. (See special report on Buoy Control, submitted by the Ship LYDONIA for 1937.) Sounding lines were run nearly parallel with the buoy line and as far off the hydrographic buoy line as practicable by visual sextant angles. After using the sono radio buoys for three days it was found that they did not carry out well, probably due to the broken bottom and shoal areas. In order to secure adequate control for the area a second or outer line of four sono radio buoys approximately four miles east and parallel with the inner line of buoys was established, and located by three point sextant fixes on triangulation objects and on the inner line of buoys. The northern sono radio buoy of this outer line did not carry eastward satisfactorily, and it was moved to a position about four miles southeast or about three miles east of the outer line of buoys, but still it did not operate very well. Due to the difficulty in securing satisfactory arc intersections in this area adjacent to the north third of the outer string of sono radio buoys five hydrographic buoys were set in the outer line of buoys starting at the north end of the area and extending about eight miles southward.

For the plotting of the R. A. R. positions on the boat sheet assumed velocities were used varying from 1500 to 1520 meters per second. For the smooth sheet plotting the theoretical velocities were computed but as only three determinations of serial temperatures were secured in this area the data was not sufficient to compute workable velocities to use. The computed theoretical velocity at the mean depth of the sheet, or about 11 fathoms, was 1511 meters per second. By trial this theoretical velocity was found to be far too low to give good ^{arc} intersections. As over 10% of the R. A. R. positions had returns from three sono radio buoys it was decided desirable to secure velocity determinations that would give a maximum of point intersections. A tracing paper overlay of the sheet was used after the distance arcs for the buoys had been plotted and each position on the sheet that had returns from three buoys was plotted to give a point intersection, if possible, and the velocity necessary to do this tabulated. The mean of the reasonable velocities for each day was determined and used in the smooth sheet plotting. A velocity of 1523 meters per second was accepted for September 14, 15, and 16; 1518 meters per second for September 21, 22, 23 and 24; and 1514 meters per second for September 25 and 26. Each change of velocity follows a storm or marked change in the weather, which apparently changed the condition of the water by a temperature change and disturbance of its body as a whole. These accepted velocities are much higher than the theoretical velocities at the beginning of the sheet but tend to approach them at the end of the working period.

In plotting the R. A. R. positions the arcs were first plotted on the smooth sheet. Then two positions on a general course on a line as far apart as possible, at the ends of the line when practicable, were selected that were apparently good with good arc intersections and the distance between measured over the sounding line on the smooth sheet, and this distance used to compute the log factor for this line. Next the dead reckoning for the line between the selected points was plotted on tracing paper using corrected log distances between each position and change of course. This tracing was then placed over the smooth sheet and final positions to be used selected. In general the bomb arcs were held, unless too far out to be acceptable, even though a change of course was necessary in the line. Notes were made in the record books giving reasons for rejection of arcs. The area covered by this sheet has a broken bottom apparently causing currents to run in different directions. On some lines a noticeable set was noted and in general courses were difficult to make good.

All of the soundings on this sheet were obtained with the Dorsey I fathometers on the Ship LYDONIA and the M. V. GILBERT. Corrections were applied to the fathometer soundings for temperature, salinity, lag, and draft in accordance with the special reports on Fathometer Corrections submitted by the Ship LYDONIA and the M. V. GILBERT for 1937.

DISCREPANCIES

The boat sheet cannot be compared in detail with the smooth sheet due to the fact that computed positions were not available for the location of the buoys on the boat sheet. The positions of many of the boat sheet buoys were plotted with a protractor and the fixes were so sensitive that a slight movement in the protractor arms in plotting or distortion in the sheet would cause a shift in the buoy position. Two or more positions for the majority of the buoy signals were used on the boat sheet varying as much in distance apart as 420 meters in the case of sono radio buoy No. 17. An examination of the boat sheet will show these different locations of the buoy signals. The final computed positions are plotted on the boat sheet with a pencil circle with a horizontal line tangent at the bottom.

Small jumps between visual fixes on shore objects, visual fixes on hydrographic buoys, and between either of these two methods and sono radio buoy positions will be found in general over the sheet. Some jumps are noted on hydrographic buoys when changing buoy objects, especially on the south half of the sheet where the fixes for the buoys were not so good due to scarcity of objects obtainable to secure strong fixes. The largest

jumps found were on the lines between positions No. 139G-146G; and 147G-155G. As the lines worked in nearer to the buoys the discrepancies grew smaller. All fixes obtained on the buoys used in this area were computed in an attempt to find the best location for them, in order to eliminate all jumps possible. The strongest positions computed were used on the smooth sheet locations as they gave the best results.

Attention is called to the following listed crossings. Capital letters on the position numbers indicate work done by the ship LYDONIA and small type letters indicate work by the M. V. GILBERT.

Latitude & Longitude	Pos.Nos.	Feet	Pos.Nos.	Feet	Remarks
38-48.09 74-52.20	8A-9A <i>Adjusted see 9A</i>	48-49	31b-32b	52	Slight displacement would cause this. ✓
38-43.28 74-42.88	95K-96K	57	179J-180J	54	Probably slight displacement in pos.96K as two systems of control were used. Line onto 96K is too deep for adjoining lines. ✓
38-42.88 74-52.83	120b-121b <i>control by shore Sta. sensitive left L</i>	55	87b-88b	59-57 <i>Control by buoys</i>	Slight displacement in either line would correct ✓
38-42.85 74-52.86	87b <i>control by Buoys</i>	59	120b-121b	56-55 <i>control by shore Sta.</i>	Slight displacement in lines due to buoy fixes on one line and shore fixes on the other. ✓
38-43.11 74-53.35	104E <i>Both sdgs. on edge of depth slope</i>	66 <i>N.P.</i>	17b-18b <i>X line</i>	69 <i>N.P.</i>	Uneven bottom. Slight displacement of lines would correct. ✓
38-42.82 74-44.72	44L-45L <i>X line</i>	45	38L-39L	42-40 <i>N.P. - Probably a small depression Both lines OK</i>	Slight displacement of lines - irregular bottom ✓
38-42.47 74-45.89	65J	54	10G-11G	46-48	Probably a hole, or sounding on position 65J read one fathom too deep. ✓
38-40.39 74-45.40	206G-207G <i>plotted</i>	50-59	17L-18L	59-69 <i>plotted</i>	Steep slope - slight displacement in either line would correct. ✓
38-40.25 74-46.12	10L-11L <i>portion not plotted</i>	53-46	22D-23D	49-43	Slight displacement in either line would correct. ✓
38-41.25 74-52.61	49C <i>Adjusted see 49C</i>	85	10B-11B	88	Adjoining soundings do not check within 3 feet. Slight displacement in lines would correct ✓

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Latitude & Longitude	Position Numbers	Feet	Position Numbers	Feet	Remarks
38-39.36 74-52.98	63d-64d <i>Adjusted see 79b</i>	75-79	78b-79b	70-73	Slight displacement in lines would correct. ✓
38-36.23 74-46.40	139G-140G <i>139-140G Rejected see Vol.</i>	71-72	73J-74J	64	Probable displacement of line 139-140G. ✓
38-36.00 74-46.48	1K-2K <i>139-140G Rejected see Vol.</i>	73-75	140G-141G	81-85	Probable displacement of line 139G-141G. ✓
38-36.88 74-46.52	137G-138G	67-64	75J-76J	69-73	Probable displacement of line 134G-139G due to poor buoy location. ✓
38-36.87 74-46.88	137G	58	17D-18D	64-72	Probable displacement of line 134G-139G due to poor buoy location. ✓
38-36.86 74-47.19	136G-137G	74-68	70E-71E	59-60	Probable displacement of line 134G-139G due to poor buoy location. ✓
38-36.87 74-47.95	135G-136G	93-90	17C-18C	86-87	Probable displacement of line 134G-139G due to poor buoy location. ✓
38-36.52 74-46.86	153G-154G	78	17D-18D <i>See 18D.</i>	70	Probable displacement of 153G - 154G. ✓
38-36.60 74-46.88	154G	76	17D-18D <i>18D replotted see Vol.</i>	63-70	Probable displacement of 154G ✓
38-37.91 74-52.77	30e-31e <i>shore Sig. Central Buoy Central Both lines tied into "Jim". 30-32e shifted north to agree with Jim</i>	69-74	5B-6B	80	Slight shift of line 30e-31e to north would correct. ✓
38-30.67 74-52.98	23H-24H	53	56e-57e	57	Probable displacement of lines-uneven bottom. ✓
38-37.03 74-47.96	172G	87	17C-18C	86-81	Probable displacement of 172G ✓

COMPARISON WITH PREVIOUS SURVEYS

This survey was compared with chart No. 1219, published in February 1931, printed October 23, 1936 and issued on April 21, 1937.

In general the area covered by this sheet is from two to three feet to twenty feet shoaler than the charted depths. To make a comparison between this survey and the chart an overlay of tracing paper was used with about three quarters of the charted soundings plotted on it to the scale of the sheet. The area within parallel 38°-42' on the north, parallel 38°-36' on the south, meridian 74°-40' on the east and 74°-50' on the west includes the greatest number of discrepancies. These differences may be accounted for by the probable difference in tidal data used, differences in control for the surveys, to a quite broken and often sharp slope, or shoaling and changes due to storms and currents over a period of time.

So many discrepancies were found that all have not been listed. The most noticeable have been listed below:

Item No.	Latitude & Longitude	Chart No.	Charted Depth	Remarks
		Authority		
1.	38-50.00 74-52.75	1219	48	Between two lines. With a least depth of 37 ft. 0.1 mile east and a maximum depth of 46 feet about 0.17 mile southwest.
2.	38-49.9 74-55.5	" H 4793 (1927)	29	Least depth of 33 feet about 0.06 mile southeast. This line was the west limit of the sheet, and no lines were run to the west of the charted 29 foot spot.
3.	38-48.6 74-52.7	"	56	Least depth of 46 ft. 0.03 mile east and a maximum depth of 50 ft. about 0.06 mile S.E.
4.	38-48.55 74-45.6	"	74	Between lines varying from 61 to 70 feet with a maximum of 70 feet about 0.17 mile N.E.
5.	38-46.3 74-42.4	"	84	Almost on 78 feet with a maximum depth of 80 feet on the line about 0.23 mile to the west.
6.	38-45.8 74-42.4	"	78	Between lines with depths varying from 68 to 72 feet with 72 feet about 0.1 mile S.E.
7.	38-45.0 74-42.7	"	62	Falls between 68 and 69 feet with depths of 60 feet about 0.2 mile west.

This area well developed on H 4799 (1927). No Ad. Wk. necessary

Latitude Longitude	Chart No.	Charted Depth	Remarks
8, 38-47.1 74-47.4	1219	67	In a general area of 57-60 feet with 60 feet about 0.08 mile north by west. ✓
9, 38-47.1 74-48.15	"	68	In a general area of 53 to 57 feet with 55 feet about 0.01 mile south. ✓
10, 38-44.6 74-48.95	"	66	In an area of 60-62 feet. ✓
11, 38-45.4 74-50.2	"	57	In a general area of 49 to 52 feet. ✓
12, 38-44.5 74-47.4	"	42	About 0.04 mile northwest to 55 feet with 42 feet about 0.3 mile northeast. ✓
13, 38-42.1 74-40.9	"	75	In an uneven bottom with 82-84 feet about 0.04 mile west and 75 feet about 0.38 mile north by west. ✓
14, 38-42.1 74-45.2	"	36	In an area of 36-37 feet. ✓
15, 38-44.05 74-52.5	"	84	Almost between 77 and 79 with 85 feet about 0.2 mile west. ✓
16, 38-41.95 74-41.9	" H-1697	54	72 feet about 0.06 mile west. This depth is found about 0.6 mile north west. Disregard. Sec Rev. par. 7c
17, 38-41.8 74-42.0	"	79	Between 70 foot depths. This depth is found about 0.45 mile north east. ✓
18, 38-40.7 74-44.2	" H-1697	66	80 feet depth about 0.05 mile east but near a sharp slope with <u>56 feet</u> about 0.1 mile northeast. ✓
19, 38-40.8 74-45.0	"	38	Falls between 41 and 39 feet with a least depth of 33 feet about 0.07 mile east by south. ✓
20, 38-41.6 74-45.3	"	34	In a general shoal area of 34 to 35 feet. ✓
21, 38-41.5 74-45.7	" H-4164	29	Between lines with a least depth of 31 feet about 0.08 mile southeast, and 30 feet about 0.15 mile southwest. This shoal was not sufficiently developed. <small>Disregard 29, Ad. Wk. Authorized. Sec Rev, par. 77(1).</small>
22, 38-40.0 74-49.2	"	44	Between lines with 50 to 52-49 feet with 44 feet about 0.25 mile southeast. ✓

Latitude	Chart	Charted	Remarks
Longitude	No.	Depth	
		Authority	
23. 38-40.0 74-54.15	1219	#409369	Between lines with 78 feet about 0.22 mile to the east and 74 feet about 0.14 mile to the west with 69 feet about 0.42 mile southwest and a 71 about 0.2 miles due west. <i>Present survey accepted</i>
24. 38-40.6 74-40.95	"	90	68 feet 0.05 mile to the west with 93 feet about 0.83 mile north. ✓
25. 38-39.3 74-40.1	"	H-1697 64	82 feet is about 0.02 mile west. The depth of 64 feet was not found in this area although it was not developed. ✓
26. 38-39.2 74-40.9	"	H-1697 63	Line about 0.14 mile west has 76-79 feet and line to the east about 0.34 mile has 78-82 feet. This area was not developed. ✓
27. 38-39.0 74-41.8	"	H-1697 60	Line about 0.15 mile west with 86 to 89 feet and line about 0.36 mile to the east with depths of 78-87 feet. This area was not developed.
28. 38-38.7 74-43.6	"	H-4094 64	Line about 0.05 mile west has 70-76 feet and line to the east about 0.14 mile has 75-79 feet. A 63 foot area is about 0.37 mile north-by-west. <i>Disregard. See Rev., par. 7c.</i>
29. 38-39.0 74-44.0	"	72	Almost over 62 feet with 72 feet about 0.25 mile south. ✓
30. 38-38.5 74-44.3	"	H-1697 60	About 0.03 mile east to 70 feet in an area of 65-72 feet with 60 feet about 0.3 mile north-by-west. <i>Disregard. See Rev., par. 7c.</i>
31. 38-39.5 74-44.5	"	81	75 and 73 ft. with 80 ft. about 0.35 mile north. ✓
32. 38-39.8 74-45.7	"	69	Nearly over 77 feet with 68 feet about 0.18 mile north. ✓
33. 38-38.5 74-46.3	"	54	Between lines with depths of 53-61 feet 0.09 mile to the west and 56-63 feet on a line about 0.07 mile to the east with a least depth in the area of 53 feet about 0.14 mile southwest. ✓
34. 38-40.0 74-47.8	"	H-4164 34	41 foot depth about 0.02 mile west with a least depth in the area of 35 feet about 0.45 mile southwest. <i>34 carried forward. Ad. Wk. authorized. See Rev., par. 7f(2)</i>
35. 38-39.5 74-49.1	"	H-4093 35	Line with 45-46 feet about 0.03 mile east with depths of 48-65 feet on line about 0.14 mile to the west. 35 foot spot is 0.63 mile ExN <i>Disregard 35. Ad. Wk. Authorized. See Rev., par. 7f(3).</i>

Latitude & Longitude	Chart No	Charted Depth	Remarks
		Authority	
36, 38-40.0 74-51.7	1219	96	Falls over 91 foot sounding with 94 feet about 0.33 mile south and 93 foot that distance west. ✓
37, 38-39.5 74-52.9	"	86	Line with 73 to 79 feet about 0.04 mile west with a line about 0.15 mile to the east with 80 to 90 feet. An uneven bottom in this area. ✓
38, 38-37.1 74-40.4	"	90	82 feet about 0.08 mile west with a line with 89 feet about 0.33 mile east ✓
39, 38-37.5 74-41.4	" H-4094	79	Line with 85-88 feet about 0.04 mile to the west with a line with depths of 88-92 feet about 0.16 mile to the east. Disregard. See Rev., par. 7g. ✓
40, 38-36.1 74-41.8	"	75	About midway between lines (0.18 mile from each) with depths of 66-67 feet on the west and 69-74 feet on the east. 74-76 feet about 0.28 mile northeast. ✓
41, 38-37.9 74-42.1	"	89	Line with 72-73 feet about 0.08 mile east and line with 67-68 feet about 0.14 mile west. Area about 0.6 mile northeast is this depth. ✓
42, 38-37.0 74-42.4	"	84	Line with 59-60 feet depth about 0.09 mile west and line with 64-70 feet about 0.14 mile east. An area of this depth is about 0.75 mile east. ✓
43, 38-38.0 74-43.2	" H-1720	58	Line with 74-68 feet about 0.05 mile east and line with 66-70 feet about 0.2 mile west. A depth of 59 feet is about 0.32 mile south. Disregard, charted shoal either displaced or shifted in position. ✓
44, 38-37.0 74-43.7	"	62	Between lines with 55-56 feet on the east and 56-58 feet on the west with the 60 foot curve about 0.3 mile south. ✓
45, 38-36.8 74-44.7	"	66	Line with 53 feet is about 0.04 mile east and line with 52-59 feet is about 0.23 mile west. 60 ft. curves are about 0.4 mile to the north and south. ✓
46, 38-37.3 74-45.0	" H-1697	54	Line with 64 feet is about 0.03 mile east with this depth about 0.4 mile south. Disregard. See Rev., par. 7e. ✓
47, 38-36.9 74-45.7	" H-1697	52	Line with 60 feet is about 0.05 mile east with 47 feet about 0.7 mile east-by-south. ✓

DANGERS

The following shoals are noted as dangers to navigation although only dangerous to deep draft vessels:

Item	Latitude Longitude	Position Number	Feet	Remarks
1.	38 ^o -49.80' 74-55.16	13c	33	Three soundings of this depth on three adjoining lines extending about 1/2 mile east and west. Area not sufficiently developed.
2.	38-49.09 74-51.69	22b-23b	34	Small shoal in general depth of 40 feet or more about 0.3 mile east and west. More development needed. *
3.	38-43.00 74-51.96	52b-53b	32	The fathometer came up almost vertically-held for approximately 10 seconds and dropped down instantly giving every indication of a sunken barge or wreck. * In general depth of 53 to 63 feet. Although numerous crosslines were run this sounding could not be verified.
4.	38-41.42 74-45.86	9G-10G	30	The shoalest sounding in a shoal area running about 1-1/2 miles northeast and southwest. Not sufficiently developed to secure shoalest depth.
5.	38-40.77 74-44.91	39L-40L	33	Small detached shoal about 1/4 mile in diameter. *
6.	38-39.72 74-48.34	86E-87E	35	Small shoal area about 0.3 mile in diameter. *

Area well developed and in agreement with depths on H-4799 (1927). No Ad. Wk. necessary

* Ad. wk authorized in Instructions dated May 14, 1938 (OCEANOGRAPHER) Sec Rev, par. 7f and 10.

ADDITIONAL SHOALS

Attention is called to the following shoals although they are not dangers to navigation.

Latitude Longitude	Position Number	Depth Feet	Remarks
38-46.9 74-44.9	46J	40	Shoalest sounding in large shoal area.

Latitude Longitude	Chart No.	Charted Depths	Remarks
38-36.5 74-47.0	1219	85	This depth is about midway between and 0.15 mile from lines with 70-71 feet. A line with 89-94-feet is about 0.32 mile west.
38-37.5 74-48.2	"	107	A line with 87-90 feet is about 0.1 mile west and a line with 66-85 feet is about 0.25 mile east. The deepest water in this area is 98 ft. about 0.65 mile south-by-west.
38-36.D 74-45.D	"	66+62 <i>from H-4094</i>	A line with 76-74 feet is about 0.09 mile west and a line with 71-72 feet is about 0.06 mile east. The 60 foot curve is about 0.2 mile north-by-west. <i>Disregard. Present survey development adequate and shows shoals with shallower depths just North and south of this spot.</i>
38-34.1 74-44.0	"	58 <i>from H-4074</i>	A line with depths of 66-68 feet is about 0.08 mile east and a line with 66 foot depths is about 0.1 mile west. The area is not closely developed. The nearest 58 foot depth is about 0.63 mile northwest. <i>On shoal line. Shoal on present survey shown NW. Disregard.</i>
38-35.1 74-47.4	"	102	Falls nearly between 95-96 feet soundings. 102 ft. depth is about 0.42 mile east-by-south.
38-34.1 74-52.0	"	83	A line with 77 feet is about 0.04 mile west. 82 feet is found about 0.6 mile north.
38-33.0 74-44.8	"	89	A line with depths of 74-78-76 feet is about 0.04 mile east. A line with depths of 87-91 ft. is about 0.22 mile west.
38-33.5 74-45.5	"	95	Almost on a 90 foot sounding. A 95 foot depth is about 0.46 mile northwest.
38-33.9 74-48.6	"	87	A line with 79 feet is about 0.04 mile east. This depth is found about 0.75 mile north and also southwest.
38-30.0 74-42.2	"	85	Almost on top of a 92 foot sounding. An 86 foot depth is about 0.35 mile north.
38-30.3 74-50.5	"	77	Almost on a line with depths of 71 feet. 77 feet depths about 0.4 mile to the east.
38-29.0 74-42.3	"	99 <i>from H-4144</i>	A line with 103-104 feet is about 0.12 mile to the east and depths of 104-105 feet are about 0.25 mile to the west with 99 feet about 0.45 mile to the south-by-east. <i>Disregard. Shallower depths here of 91' on H-4094 also consistently disagree with present survey depths. 99' spot probably displaced in position.</i>

Uncorrected fathometer sounding
582

<u>Latitude</u> <u>Longitude</u>	<u>Position</u> <u>Number</u>	<u>Depth</u> <u>Feet</u>	<u>Remarks</u>
38-37.9 74-46.4	72J-73J	52	Shoalest sounding in large irregular shoal area.
38-36.5 74-45.0	30L-31L	47	Shoalest sounding in an extensive shoal area about 3 miles east and west.

JUNCTIONS WITH OTHER SURVEYS

At the northeast corner of this survey a junction was made with Sheet No. 402^{#62}. See Descriptive Report of Sheet No. 402, 1937 under "Junction With Other Surveys" for a comparison of crossings between the two sheets.

This sheet makes a good junction with Sheet No. 4858 (1928) on the north. A shoaling of from one to three feet is noted generally on crossings.

In general a shoaling of from one to three feet is found at the junction with Sheet No. 4875 (1928) on the north. One shoal of 37 feet, position 29C-30C, was found at latitude 38°51.0' longitude 74°48.0' with a line showing 47-42 feet on the 1928 survey almost over it. A shoal spot is noted on the 1928 survey about 0.1 mile north-by-west, which may be the same shoal, but displaced due to different control.

Sheet No. 4164 (1920) was overlapped and a junction was made on a line which was designated by the Office on the index chart. This junction was made on the north and west sides of the northwest corner of the sheet extending along the west side to parallel 38°-44'. Also a junction was made along the west side of the sheet from parallel 38°-34' south to the bottom of the sheet. A general shoaling of from one to three feet is found along the entire length of the sheet which cannot be accounted for by a displacement of lines. Attention is called to one eight foot difference at latitude 38°-32' longitude 74°-53.7' with 65 foot depth on the 1920 survey over a 57 foot depth on this sheet.

On the west between parallels 38°-44' and 38°-34' this survey overlaps Sheet No. 4093 (1919) and a junction was made on a line which was designated by the Office on the index chart. A general shoaling of from one to three feet is found.

A junction was made with Sheet No. 4944 (1929) on the south. The agreement is better than on the other junctions

but some variation is found with a maximum difference of four feet.

Sheet No. 5349(1933) in the center of the south side of the sheet was accepted as completed work. Junctions on the east and west sides are made by adjoining lines which do not cross, but a fairly good agreement is indicated. On the north side the 1933 work is generally deeper. Only one sounding line was run through the southern end of the sheet. The following cases of questionable crossings are noted.

<u>Latitude</u> <u>Longitude</u>	<u>Sheet</u>	<u>Feet</u>	<u>Sheet</u> ⁴⁻⁶²⁶⁴ <u>Feet</u> 403	<u>Position</u> <u>Number</u>
38-31.7 74-47.5	5349 (1933)	93-94	89-88	14C-15C
38-31.7 74-47.2	"	91-94	88	14C
38-31.7 74-46.9	"	90-93	86-86	13C-14C
38-31.7 74-46.3	"	94-97	91-91	13C-14C
38-31.7 74-46.0	"	98-97	89-89	13C-14C
38-27.9 74-47.6	"	78-78	83	191G-192G
38-27.9 74-47.0	"	93-93	87	192G-193G
38-27.9 74-46.7	"	92-90	85	193G
38-27.9 74-45.5	"	94	89	194G-195G

} Portions of 1933
Survey omitted.
See Rev., par. 6c.

The southern end of the southeast corner of the sheet overlaps Sheet No. 4944(1929). An area running south about six miles and west about five miles was to be surveyed but was not completed due to a storm which forced the closing of the season a few days sooner than contemplated.

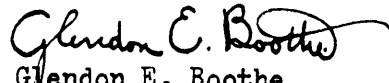
NOTES TO CARTOGRAPHER

Special attention is directed to a sounding of 32 feet, position 52b-53b at latitude $38^{\circ}-43.00'$ longitude $74^{\circ}-51.96'$, in a depth of 53 to 63 feet. (See note pertaining to this area under "Dangers"). It is recommended that a wire drag investigation be made of this area. All of the shoalest soundings possible were * plotted on the sheet in this developed area and three tracing paper overlays are attached to the sheet on which the remainder of the soundings are plotted. In order to keep the area as legible as practicable the depth curves were not drawn through this development.

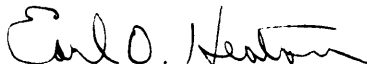
It is further recommended that a wire drag investigation be made of a 30 foot sounding at position No. 9G-10G, * latitude $38^{\circ}-41.42'$, longitude $74^{\circ}-45.86'$ as Chart No. 1219 gives 29 feet about 0.15 miles northeast.

* Ad. Wk. authorized in Instructions dated May 14, 1938 (OCEANOGRAPHER)
See page 10 of DR., Items 3+4 and Rev., par. 106+7f(1).

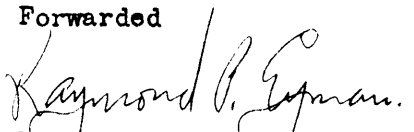
Respectfully submitted


Glendon E. Boothe
Lieut. U.S.C. & G.S.

Approved:


Earl O. Heaton
Lieut. U.S.C. & G.S.

Forwarded


Raymond P. Eyman
Lieut. Comdr. U.S.C. & G.S.
Commanding Ship LYDONIA

STATISTICS FOR SHEET NO. 403 #6272

<u>Letter Day</u>	<u>Date 1937</u>	<u>Number of Positions</u>	<u>Number of Soundings</u>	<u>Statute Miles</u>	<u>Volume Number</u>
A	Aug 31	13	122	11.8	1
B	Sept 5	24	211	18.6	1
C	" 14	53	531	52.2	1
D	" 15	48	541	51.0	1
E	" 16	113	983	95.8	1 & 2
F	" 21	46	496	48.0	2
G	" 22	210	1452	142.2	2 & 3
H	" 23	54	389	37.6	3
J	" 24	219	1387	134.7	3 & 4
K	" 25	118	1223	119.4	4
L	" 26	120	1287	124.5	4 & 5
M	" 27	32	157	13.8	5
a	" 17	68	502	32.8	6
b	" 18	142	1046	69.2	6
c	" 20	175	1174	73.9	6 & 7
d	" 21	152	1138	78.7	7
e	" 22	155	1217	81.1	7 & 8
f	" 23	50	358	25.0	8
<hr/>					
TOTALS.....		1792	14214	1210.3	5 Vols LYDONIA 3 Vols GILBERT
					8 Vols Total

LIST OF SIGNALS

--- SHEET 403. H-6272

<u>Hydro. Name</u>	<u>Station Name</u>	<u>Location Used</u>	<u>DMS & DPS Lat. & Long.</u>		
			<u>Degrees</u>	<u>Minutes</u>	<u>Meters.</u>
BETH	Bethany Beach LSS 1909-34	Del. Tri. page 10	38 75	32 03	1402.2 558.9
BOTH	Rehoboth Beach Standpipe, Del 1927 1934	N J & Del. Tri page 325	38 75	43 04	104 1380.5
CAPE	Cape May Light- house 1859-1932	N J Tri. page 32	38 74	55 57	1800.4 933.5
FEN	Fenwick Id. Light- house 1909-32	Del-Md-Va. Tri page 5	38 75	27 03	138.1 465.2
HOT	Hotel Tower Bethany Beach, 1909-34	De. Tri page 8	38 75	32 03	971.1 471.3
IND	Indian River LSS Tower 1909-34	Del. Tri, page 8	38 75	38 04	35.2 59.6
JETTY	Cape Henlopen N. Jetty Light, East end, Del 1927-34	N J and Del Tri pages 325 - 133	38 75	48 05	1598.1 819.7
LEWES	Lewes, Standpipe Del. 1908	N J Tri, page 4	38 75	46 08	440.3 419.3
NEW	Cape May, New Tank, 1936	N J Tri, page 353	38 74	56 54	418.0 1348.5
TANK	Cape May, Air Hanger W.T. Naval Base, 1927	N J Tri. page 326	38 74	56 53	1594.6 243.5
WATER	Water Tank, Md. 1932	Del.Md.Va. Tri page 5	38 75	20 04	1300.8 1249.4
WILD	Wildwood, large Standpipe 1928-32	N J Tri. page 26	38 74	58 50	809.7 529.5
ALSO	Survey buoy	Buoy Computations Senior - 1937	38 74	52 40	1114. 360.

Hydro. Name	Station Name	Location used	DMS & DPS		Lat. & Long. Meters
			Degrees	Minutes	
BALM	Survey Buoy	Buoy Computations Senior 1937	38 74	50 42	1161. 74.
COAT	" "	" "	38 74	48 43	1299 806
DUN	" "	" "	38 74	50 51	1801.1 963.8
EZRA	" "	" "	38 74	47 51	1708.8 1000.5
FISH	" "	" "	38 74	45 52	1768.6 532.7
GUT	" "	" "	38 74	44 52	804.2 318.9
HILL	" "	" "	38 74	41 52	1664.8 827.1
IDLE	" "	" "	38 74	39 52	1696.0 1018.0
JIM	" "	" "	38 74	38 52	26.4 1098.0
KICK	" "	" "	38 74	35 52	949.7 1190.1
LAMB	" "	" "	38 74	33 52	1519.7 1312.7
MAT	" "	" "	38 74	31 52	1246.5 1277.1
NIX	" "	" "	38 74	29 52	978.3 1279.6
OLS	" "	" "	38 74	27 52	1258.6 1298.6
PIT	" "	" "	38 74	41 47	1654.4 946.4
QUO	" "	" "	38 74	44 47	263.0 1087.0
RAT	" "	" "	38 74	46 47	149.3 833.5

- 18 - ^{H-6272}
 LIST OF SIGNALS SHEET 403 (Continued Sheet #3)

<u>Hydro Station Name</u> <u>Name</u>	<u>Location Used</u>	<u>DMS & DPS</u>	<u>Lat. & Long.</u>
		<u>Degrees</u> <u>Minutes</u>	<u>Meters.</u>
SAM	Survey Buoy Buoy Computations Senior 1937	38 48 74 47	393.5 263.5
TEE	" " " " " "	38 50 74 47	199.0 402.3
SRB#13	Survey Radio Buoy Buoy Computation Senior 1937	38 37 74 52	1709.0 1018.0
SRB#14	" " " " "	38 43 74 52	1802.3 557.8
SRB#15	" " " " "	38 49 74 51	1777.5 924.5
SRB#16	" " " " "	38 49 74 47	834.0 830.8
SRB#17	" " " " "	38 43 74 46	186.9 1312.7
SRB#18	" " " " "	38 38 74 47	190.2 207.4
SRB#19	" " " " "	38 29 74 47	247.3 1143.9
SRB#20	" " " " "	38 47 74 43	1258.3 339.2

TIDAL NOTE

Sheet No. 403-1937 H-6272

Ship LYDONIA and M.V. GILBERT

All soundings on this sheet are referred to Mean Low Water as determined from the primary tide station at Atlantic City, New Jersey.

All soundings west (inshore) of a red dashed line on the boat sheet of the Ship LYDONIA, at meridian $74^{\circ}-42.8'$ and north of a red dashed line on the boat sheet at parallel $38^{\circ}-39.2'$ and all sounding lines west of meridian $74^{\circ}-50'$ were referred directly to Atlantic City, N. J. and for all other soundings the tide was assumed to occur one half hour earlier than at Atlantic City, N. J.

All soundings by the M. V. GILBERT were referred directly to Atlantic City, New Jersey.

Sounding period - August 31, 1937 to September 27, 1937.

Mean Low Water on Staff = 4.1 feet.

Highest Tide, September 5 and 6, 1937 = 10.1 feet on staff.

Lowest Tide, September 24, 1937 = 3.4 feet on staff.

Hourly heights were furnished by the Office, and no gage was maintained by this party.

#-6272
The records for sheet 403 have been inspected and approved by Lieut. Commander Jack Senior and Lieut. Commander Roland D. Horne and the sheet has been inspected and approved by me.

Earl O. Heaton

Earl O. Heaton
H. & G. Eng'r

Field Records Section (Charts)

H6272

HYDROGRAPHIC SHEET NO.

The following statistics will be submitted with the
cartographer's report on the sheet:

Number of positions on sheet	<i>.1792.</i>
Number of positions checked	<i>..47..</i>
Number of positions revised	<i>.....6</i>
Number of soundings recorded	<i>..14214</i>
Number of soundings revised	<i>.....-</i>
Number of signals erroneously plotted or transferred	<i>.....-</i>

Date: *Sept. 20, 1938*
Ver. Cor. by *H.W. Murray*
Verification by *G.H. Everett*
Review by *H.W. Murray*

1 1/2 hrs
Time: *95 3/4 hrs.*
Time: *28 "*

HYDROGRAPHIC SURVEY NO. H6272

Smooth Sheet Yes

Boat Sheet Two

Records; Sounding 8 Vols., Wire Drag Vols., Bomb 2 Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals Vol.#1

Landmarks for Charts (Form 567) ----

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) None

Special Chart for Lighthouse Service ----
(Circular Nov.30, 1933)

Hydrography: Total Days 18 ; Last Date September 23, 1937

Remarks A volume of buoys is shared also by H-6271 & H-6264

Remarks

Decisions

1		see T-5661
2	An old name Blunts C.P. 1850 "McCrie's Shoal"	
3		see T-5661
4		see T-5648
5	off limits of Chart ^{sheet} - Location of T.G.	
6	Name of Light sufficient -	USGB decision
7	Do not ink name - shoal off south western limit of survey	" "
8		
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GEOGRAPHIC NAMES

Survey No. **H6272**

Name on Survey											
	A	B	C	D	E	F	G	H	K		
	On Chart No. 1219 On previous survey No. H-1533 On U. S. quadrangle Maps From local information On local Maps P. O. Guide or Map Rand McNally Atlas U. S. Light List										
<u>Delaware Bay</u>	✓										1
<u>McCrie Shoal</u>	✓	McCrie's shoal						✓			2
<u>Cape Henlopen</u>	✓										3
<u>Cape May</u>	✓										4
<u>Atlantic City</u>	✓										5
<u>Fenwick Island</u>	✓							✓			6
<u>Fenwick Island Shoal</u>	✓										7
											8
											9
											10
											11
											12
											13
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											23
											24
											25
Names underlined in red on 6/7/38 by <i>JHE</i> on 6/7/38										26	
										27	

TIDE NOTE FOR HYDROGRAPHIC SHEET

May 27, 1938.

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. E. P. Ellis.

Plane of reference
~~Tide Reducers are~~ approved in
8 volumes of sounding records for

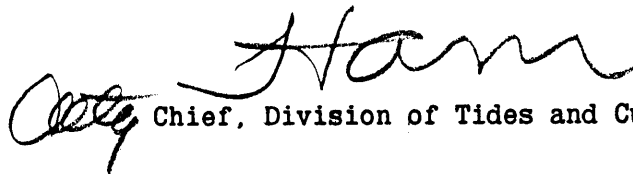
HYDROGRAPHIC SHEET 6 2 7 2

Locality Approaches to Delaware Bay, N. J. and Del. Coasts.

Chief of Party: R.D. Horne
Plane of reference is mean low water reading
4.1 ft. on tide staff at Atlantic City (off limit of sheet H-6272)
15.8 ft. below B.M. 32 see H-6271

Height of mean high water above plane of reference is 4.1 feet.

Condition of records satisfactory except as noted below:


Chief, Division of Tides and Currents:

VERIFIERS REPORT ON H-6272 (1937)

The records conform to the requirements of General Instructions and the field plotting was excellent.

There are no topo sheets involved.

All curves ~~were~~ complete.

The following surveys join this survey and were made as noted.

Survey No.	Scale	Extent. Junction	Remarks
4858(1928)	1:40,000	Complete	Good agreement ✓
4875(1928)	1:20,000	"	" " ✓
4164(1920)	1:40,000	Butt Junction	H-6272 is a new survey of most of this sheet. Generally deeper soundings on H-4164 ✓
4799(1927)	1:20,000	Complete	Good agreement for most part A 30ft shoal at Lat. 38-50; Long. 74-55.5 was included in junction ✓
4093(1919)	1:40,000	Butt Junction	H-6272 is a new survey of most of this sheet. Good agreement at junction with some changes in depth shown west of junction. ✓
4944(1929)	1:40,000	Complete East of Long. 74-46	Good agreement ✓
		Butt junction west of 74-46	H-6272 sufficiently covers the area. changes in depth shown by later survey. ✓
5349(1933)	1:20,000	complete	Earlier survey slightly deeper. ✓
4939(1929)	1:40,000	"	Good agreement. Sdgs. at Lat. 38-30; Long. 74-40 shows less depth on later survey. ✓
H-6264 (1937)	1:40,000	<u>Not made to date</u>	Not verified to date ✓
4094(1919-1920)	1:120,000	<u>Not made</u>	survey extends across H-6272 Appears to be generally deeper. Because of small scale and date of sheet, a junction is omitted until further consideration. See Rev. for details of agreement. ✓

Submitted Sept. 20, 1938

JH Everett

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6272 (1937) FIELD NO. 403

Approaches to Delaware Bay, New Jersey - Delaware Coasts,
New Jersey - Delaware
Surveyed in August - September 1937, Scale 1:40,000
Instructions dated April 9, 1936 and March 19, 1937 (LYDONIA)

Dorsey Fathometer Soundings.

3 Point fixes on shore and
buoy signals.
RAR control on sono radio
buoys.

Chief of Party - Jack Senior and Roland D. Horne.
Surveyed by - Officers of Ships LYDONIA and GILBERT.
Protracted by - Glendon E. Boothe and John H. Brittain.
Soundings plotted by - Glendon E. Boothe.
Verified and inked by - G. H. Everett.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except that the LYDONIA'S sounding records on several days omitted the organization notes and on other days the notes were incomplete.

The Descriptive Report is clear, exceptionally comprehensive and satisfactorily covers all items of importance. The paragraph on "Comparison with Prior Surveys" is particularly comprehensive and commendable.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the instructions for the project.

3. Shoreline and Signals.

- a. This is an offshore survey and no shoreline is shown.
- b. The control is mainly furnished by buoy signals and sono radio buoys and has been supplemented by triangulation stations on shore.

The buoy signals were located by 3 point fixes on shore triangulation stations and their positions computed. The sono radio buoys were located by 3 point fixes on shore triangulation stations and distances and directions from buoy signals. The above data is filed in cahier marked "Special Report on Buoy Control" (LYDONIA, 1937 - Library No. S - 1574).

4. Sounding Line Crossings.

Agreement of sounding line crossings is generally satisfactory. A number of 3 to 10 foot discrepancies in depths of 40 to 93 feet, however, are listed in the Descriptive Report, pages 4 and 5. Such office dispositions as were made are noted thereto.

5. Depth Curves.

The usual depth curves may be satisfactorily drawn.

6. Junctions with Surveys.

- a. The junction on the northeast with H-6264 (1937) will be considered in the review of that survey.
- b. The junctions on the north with H-4858 (1928), H-4875 (1928) H-4799 (1928) and on the east with H-4939 (1929)* are generally satisfactory although some of the present survey depths indicate differences of 1 to 3 feet in some areas.
- c. The junction with H-5349 (1933) in lat. $38^{\circ} 30'$, long. $74^{\circ} 47'$ is not as good as would be expected from this recent 1933 survey since a number of the present depths vary 1 to 6 feet deeper. The conflicting 1933 depths have been omitted on the present survey in the common area. For charting purposes, the present survey including such soundings as have been transferred should be used to its limits and charting then continued from the 1933 survey.
- d. Junctions are made on the north, east, south and west with H-4164 (1920), H-4093 (1919), H-4944 (1929) and H-4094 (1919-20). * Agreement is generally satisfactory except that on the east, the present survey depths vary 3 to 10 feet shoaler than those on H-4094 in some areas and 5 feet deeper in others. The junction on the north and west with H-4164 is satisfactory in part only since a number of present survey depths vary 1 to 9 feet shoaler, particularly in the vicinity of lat. $38^{\circ} 30'$ to $32'$. Additional details on these junctions are given in the Descriptive Report, pages 12 and 13.

Inasmuch as the present survey is a resurvey of portions of the above listed surveys (agreement in common area discussed in par. 7, below) and the larger differences noted are mostly due to natural changes or displacement in position, only a fringe of soundings are shown at the present survey limits. For charting purposes, the present survey including such transferred soundings as have been shown should be used to its limits and charting then continued from the adjacent surveys.

7. Comparison with Prior Surveys.

The Descriptive Report, pages 6 to 12 contains a comprehensive comparison with charted soundings originating with surveys discussed in the following paragraphs. An analysis of these items shows that such differences as are noted are generally due to displaced sounding lines or actual changes in bottom brought about by a wearing down of the shoal or a small shifting in position. Specific mention of these depths is not being repeated in this review, except in the more important cases, and particularly

* These surveys superseded by 1938 work.

those which have been carried forward or in which additional field work is required.

- a. H-100 (1842), H-101 (1844), H-670 (1859), H-1558 (1882-83) and H-1720 (1886), scales 1:200,000 to 400,000.

Portions of the above surveys each cover portions of the present survey especially on the northeast. The hydrography is unusually sparse, is controlled by dead reckoning, and but a few soundings fall within the limits of the present survey. Because of the small scale no satisfactory comparison can be made with the present survey. They contain no important soundings that need to be retained on the chart and should be superseded within the common area by the more detailed present survey in future charting.

- b. H-116 (1843), H-117 (1841), H-148 (1841-42), H-149 (1844), and H-151 (1844); Scales 1:20,000 to 1:80,000.

These sparsely covered surveys taken together cover a small part of the present survey in the area north of lat. $38^{\circ} 36'$. Agreement is varied, some depths being in good agreement whereas others on the present survey vary 1 to 11 feet deeper in some cases and 1 to 6 feet shoaler in others. Because of the changes noted, the present survey should supersede these surveys within the common area in future chartings.

- c. H-212 (1848), Scale 1:40,000.

A portion of this survey covers the western half of the present survey in the area south of lat. $38^{\circ} 39'$. The depths are generally in good agreement although the present survey depths vary 1 to 5 feet deeper in some spots and 1 to 7 feet shoaler in others. Because of the changes noted, the present survey should supersede this survey within the common area in future charting.

- d. H-1533 (1884), Scale 1:40,000.

A portion of this survey covers the area north of lat. $38^{\circ} 46'$. The depths in the northwest area are generally in good agreement, but in the remainder of the area a number of spots on the present survey vary 1 to 10 feet shoaler. Because of the changes noted, the present survey should supersede this survey within the common area in future charting.

- e. H-1633 (1884) and H-1697 (1886), Scale 1:40,000.

These surveys cover the present survey in the area between lat. $38^{\circ} 36'$ and lat. $38^{\circ} 49'$. The sounding lines, generally spaced $1/2$ to $3/4$ mile apart, are too sparse for

comparative purposes. It is noted, however, that the western portion is generally in good agreement. Eastward, numerous changes have occurred on the detached shoal areas enclosed by the 60 foot curve. In lat. $38^{\circ} 39'$, long. $74^{\circ} 47'$, a shoal with least depth of 36 feet on H-1697 which falls in depths of 72 feet on the present survey has shifted $1 \frac{1}{2}$ miles W.N.W. where the 1937 work shows a similar shoal with a least depth of 35 feet. In approximate lat. $38^{\circ} 45.5'$, portions of the southernmost line on H-1633 vary 10 to 13 feet deeper than the present survey depths.

The Descriptive Report, pages 7 to 9, lists 8 charted soundings originating with H-1697 which differ considerably with the present survey depths. Generally speaking, these old survey depths are single soundings or one of a series of similar soundings obtained on line. These as well as other adjacent depths on line show differences of as much as 29 feet with the present survey information and clearly indicate that the old lines are either displaced in position or that the bottom has changed. In some cases, the present survey shows identical or similar shoals in areas 0.1 to 0.7 mile distant. The present survey should supersede the old survey information within the common area in future charting.

f. H-4093 (1919), H-4164 (1920) and H-4944 (1929), Scales 1:40,000.

These surveys taken together cover the entire area of the present survey except a small strip on the east and form the basis of the present chartings in this area. Although many areas are in close agreement, the present survey depths generally vary 1 to 10 feet shoaler. Further details are summarized in the Descriptive Report, page 6. Special mention is made of:

- (1). The 29 foot sounding (charted) in lat. $38^{\circ} 41.5'$, long. $74^{\circ} 45.7'$, originating with H-4164, falls close to a small 30 foot shoal on the present survey. The general slope of the bottom here is such that shoaler depths could exist on this shoal. Additional work has been called for in the instructions dated May 14, 1938 (OCEANOGRAPHER), item 2. The present survey least depth of 30 feet is sufficient for charting purposes, the 29 not being carried forward since other soundings on line show that changes of 4 to 6 feet have occurred subsequent to the 1920 survey.
- (2). The 34 foot sounding (charted) in lat. $38^{\circ} 40.0'$, long. $74^{\circ} 47.8'$ originating with H-4164 falls near an undeveloped 38 on a narrow ridge on the present survey.

The 34 is one of two soundings of like depth on line and since surrounding depths on both surveys are in good agreement, it has been carried forward. Since neither survey adequately develops this shoal, additional development has been called for in the instructions dated May 14, 1938 (OCEANOGRAPHER), item 3.

- (3). The 35 foot sounding (charted) in lat. $38^{\circ} 39.6'$, long. $74^{\circ} 49.1'$ originating with H-4093 (1919) falls on a ridge and in depths of 45 feet on the present survey. The 35 is a single "trolley" sounding on line, pos. 36-37 P obtained underway immediately after a series of misses. It is also questionable as to depth and position because the original unreduced entry in the sounding records is "6 fms. 0 feet - about" and the line (4 successive positions) is plotted on time and course without use of any of the recorded angles. A wire drag examination has been called for in the instructions dated May 14, 1938 (OCEANOGRAPHER), item 3. This questionable 35 should be disregarded in future charting since the 35 foot depth obtained 0.6 mile northeastward is sufficient for charting purposes in this area.

Except as noted above, par. (2), the present survey should supersede these surveys within the common area in future charting.

g. H-4094 (1919-20), scale 1:120,000.

This survey consisting of lines spaced as wide as 2 miles covers the southwest quarter of the present survey. Agreement is varied, the present survey depths generally being 1 to 25 feet shoaler although some areas are in close agreement and a few vary 1 to 14 feet deeper. The larger differences are due to a wearing away or shifting in position of the numerous detached shoal areas enclosed by the 60 foot curve.

The 64 foot sounding (charted) in lat. $38^{\circ} 38.7'$, long. $74^{\circ} 43.6'$ and the 79 in lat. $38^{\circ} 37.5'$, long. $74^{\circ} 41.4'$ originating with this survey fall in depths 9 to 12 feet deeper on the present survey. Both of these soundings are one of two or more like depths obtained on line. Since these as well as the adjacent depths on line consistently disagree with the present survey depths, the lines are either displaced in position or the bottom has changed. They should be disregarded in future charting. Because of the differences noted the present survey should supersede this survey within the common area in future charting.

8. Comparison with Chart 1218 (New print dated July 26, 1938)
Chart 1219 (New print dated June 15, 1938)

a. Hydrography.

Hydrography shown on the charts originates solely with surveys discussed in previous paragraphs of this review, and no further consideration is necessary.

b. Aids to Navigation.

The whistle buoy located in lat. $38^{\circ} 50'$, long. $74^{\circ} 50'$ agrees with the charted position and satisfactorily marks the features intended.

Mention is made of the fact that the two most important shoal spots on the present survey, a 30 foot sounding in lat. $38^{\circ} 41'$, long. $74^{\circ} 46'$ and a 32 in lat. $38^{\circ} 43'$, long. $74^{\circ} 52'$ are not specifically marked by any aids.

9. Field Plotting.

Field protracting and plotting were excellent and conform to the requirements of the Hydrographic Manual.

10. Additional Field Work Required.

Additional field work required on the present survey is contained in the instructions dated May 14, 1938 (OCEANOGRAPHER). This consists briefly of the following:

- a. The 29, 34, and 35 foot soundings (charted) discussed in paragraphs 7 f (1), (2), and (3), this review (items 2 and 3 of instructions). Retain 34.
Remove 29
and 35.
Par. 3b(2) + (3)
review H-6342 WD
- b. The 32 foot spot on the present survey in lat. $38^{\circ} 43.0'$, long. $74^{\circ} 51.9'$. The fathometer gave an indication of passing over a sunken wreck in depths of 53 to 63 feet but additional sounding line development failed to confirm this sounding. (Item 1 of instructions.) Disproved by
42 ft. drag. Removed
from sheet.
See par. 3b(4),
review of
H-6342 (1938) W.D.
- c. The 34 foot sounding on the present survey in lat. $38^{\circ} 49.1'$, long. $74^{\circ} 51.7'$. This falls in depths of 38 to 40 feet and is the shoalest of several shoal soundings defining a small shoal area. The general slope of the bottom here, particularly on the south, is rapid and it is possible that shoaler depths may exist here. (Item 4 of instructions.) Cleared with 33 ft.
drag. Par. 3b(4), review
of H-6342 W.D.
- d. The 33 foot sounding on the present survey in lat. $38^{\circ} 40.8'$, long. $74^{\circ} 44.9'$. This falls in depths of 37 feet and is the shoalest of three shoal soundings on a narrow ridge. The bottom drops rapidly to 44-53 feet and there is no assurance that the least depth has been obtained. (Item 5 of instructions.) Cleared with 33 ft. drag.
Par. 3b(5), review H-6342 W.D.

11. Superseded Prior Surveys.

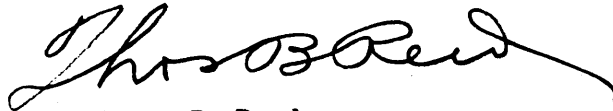
Within the area covered, the present survey with the indicated additions supersedes the following surveys for charting purposes:

H- 100 (1842)	In part
H- 101 (1844)	"
H- 116 (1843)	"
H- 117 (1841)	"
H- 148 (1841-42)	"
H- 149 (1844)	"
H- 151 (1844)	"
H- 212 (1848)	"
H- 670 (1859)	"
H-1533 (1882)	"
H-1558 (1882-83)	"
H-1633 (1884)	"
H-1697 (1886)	"
H-1720 (1886)	"
H-4093 (1919)	"
H-4094 (1919-20)	"
H-4164 (1920)	"
H-4944 (1929)	"

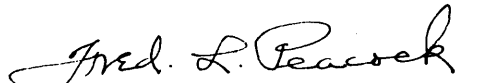
12. Reviewed by Harold W. Murray, October 12, 1938


Inspected by E. P. Ellis.

Examined and approved:


 Thos. B. Reed
 Chief, Section of Field Records


 K.T. Adams
 Chief, Division of Charts


 Fred. L. Pearce
 Chief, Section of Field Work


 G. H. Hude
 Chief, Division of Hydrography
 and Topography.

Applied to chart 1218. May 11, 1939 g.K.S.
 " " " 1219 May 16, 1939 J.W.

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
 DESCRIPTIVE REPORT
~~PHOTOSTAT OF~~

} No. H-6272
~~No. 6272~~

{ received April 8, 1937
 registered
 verified
 reviewed
 approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
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RETURN TO

82	T. B. Reed
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✓ *JBR*

applied to drawing of chart 1220, sept 27, 1939 J.G.L.