

4944

Diag. Cht. No. 100081219-2 & 1220

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey *Hydrographic*  
Field No. \_\_\_\_\_ Office No. *4944*

LOCALITY

State *Maryland*  
General locality *Coast of*  
Locality *Maryland &*  
*Delaware, Off Fenwick*  
1929

CHIEF OF PARTY

*G. O. Mattison*

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DATE \_\_\_\_\_

4944

4944

Form 504  
Ed. June, 1928

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

C. & G. SURVEY  
L. & A  
JAN 8 1930  
Acc. No.

State: Maryland

DESCRIPTIVE REPORT

Topographic }  
Hydrographic } Sheet No. (1) 4944

LOCALITY

Coast of Maryland & Delaware

Off Fenwick Island

19 29

CHIEF OF PARTY

G. C. MATTISON

4944

DESCRIPTIVE REPORT

to accompany

FIELD SHEET # 1

AUTHORITY:

Instructions from the Director dated July 1, 1929.

LIMITS:

From a junction with sheet 4164 on the north, to Longitude 74°-38' on the east, to a line bearing 72° True from a point 3.5 miles south of Ocean City, water tank on the south, to a junction with the RANGER's 1929 work on the west.

METHODS:

Positions were fixed by sextant angles on either shore objects or buoys.

Tall hydrographic signal towers and natural objects were used to the limit of visibility, about twelve miles. A line of survey buoys at about 2 1/2 mile intervals were placed fifteen miles offshore and used beyond this limit. Hydrography was carried about 4.5 miles beyond the buoys. When changing from shore to buoy fixes only a very slight jump was noted.

Soundings were taken at reduced speed using hand lead to thirteen fathoms work being carried on from there using fathometer and full speed running. The usual record form was used in the hand lead work. In the fathometer work two record books were used, one containing the positions and the other the soundings. Positions numbers and time are shown in both records. At the exact time of position a bell was rung on the bridge, and the time by the the bridge clock noted in the bridge record while that by the fathometer clock was noted in the sounding record. Frequent comparisons, during the day, were made between the two clocks.

Buoys were located by simultaneous sextant cuts, with a fix on shore objects, the ship being anchored. Three or more cuts were taken on each buoy. The cuts were plotted on a projection on an aluminum plate to eliminate error due to distortion. In all cases the triangle of error was quite small. Positions of the buoys as recorded in the sounding records were scaled from the aluminum plate.

In the Florida 1929 Season, considerable trouble was experienced in jumps of line due to change of buoy fixes. It was found that the greatest jump occurred when adjacent buoys were located at different times. At the buoys were given a 1:3 scope, a relative error of 100 meters was possible in adjacent buoys. To remedy this, six buoys were planted and then located at the same time. When work on these buoys had been completed additional buoys were planted. These additional buoys were then located as before and any of the old set to be used in connection with them were relocated at the same time and renamed. With this system the relative location of the buoys was correct and no jump in buoy fix was experienced. Theoretically this result could have been obtained by scope correction when the buoys were located. However, current observations would have been necessary and a theoretical determination of the horizontal component of the scope which it was decided was not worth the trouble.

DISCREPANCIES:

Crossings in hand lead work were good and within an allowable limit. Between fathometer work and hand lead the crossings some times differed by a fathom in all cases it is noted that the fathometer soundings were the shoaler depth.

COMPARISONS WITH PREVIOUS WORK:

The present seasons work gave shoaler soundings in all cases than the previous work. Differences as large as thirty feet were noted in the work about fifteen miles offshore. Inshore in comparing with charted soundings the agreement was very close.

A thirty feet shoal shown on Chart 1220, at Lat.  $38^{\circ}-26.5'$ ; Long.  $75^{\circ}-50'$  was examined, the shoal depth found being greater than ten fathoms. It is recommended that this shoal as shown be removed from the chart.

The ridge six miles north east of Fenwick Island Light Vessel was developed by hand lead with a least depth of 62 feet.

The wreck near Fenwick Light Vessel was examined by using a small boat. The least depth found being 74 feet, the shoal section being an area about 20 feet in diameter. All other soundings were of fifteen to sixteen fathoms.

MISCELLANEOUS:

Instructions to take up experimental R. A. B. work, made it necessary to leave some of this area undeveloped. Two shoals are noted as especially in need of further development, these are at Lat.  $38^{\circ}-18'$ ; Long.  $74^{\circ}-55'$  and Lat.  $38^{\circ}-21'$ ; Long.  $74^{\circ}-53'$ .

55'

See critical report of office  
work for details.

Fenwick Island Light Ship was cut in, cuts plotted on aluminum plate.  
Position being Lat.  $38^{\circ}-26'$  (-1272); Long.  $74^{\circ}-46'$  (-24).

Respectfully submitted,

*Max G. Ricketts*

Max G. Ricketts,  
Deck Officer,  
U. S. C. & G. Survey.

Forwarded approved, *used as noted in memorandum.*

*G. C. Mattison*

G. C. Mattison,  
H. & G. Engineer,  
Commanding Officer,  
U.S.C. & G.S.S. LYDCNIA.

STATISTICS SHEET #

(FIELD # 1)

Day	Date	Volume	Mileage	Soundings	Positions	Boat
A	7-26-29	1	46.3	500	116	Ship
B	7-27-29	1	39.0	546	103	Ship
C	7-28-29	1	13.3	192	39	Ship
D	7-29-29	1 & 2	36.8	710	131	Ship
E	7-30-29	2	31.1	469	108	Ship
F	8- 7-29	2	18.1	558	99	Ship
G	8- 8-29	2 & 3	24.7	178	89	Ship
H	8- 9-29	3	87.1	166L & 522 F	147	Ship
J	8-10-29	3	13.5	186	38	Ship
K	8-12-29	3	9.6	155	35	Ship
L	8-13-29	3	40.2	302F	66	Ship
M	8-21-29	3 & 5	82.3	810	197	Ship
N	8-22-29	5	49.1	630	169	Ship
P	8-23-29	5 & 6	46.0	858	146	Ship
Q	8-24-29	6	15.1	175	37	Ship
R	8-25-29	6	37.1	204F	76	Ship
S	8-26-29	6	18.3	187	46	Ship
T	8-27-29	6 & 8	56.0	786	198	Ship
U	9- 7-29	8	19.9	337	97	Ship
V	9- 8-29	8	20.9	625	113	Ship
W	9-11-29	8 & 9	56.4	698	175	Ship
X	9-12-29	9	22.2	409	103	Ship
Totals			783.0	10,203	2,225	

Total Area Square Statute Miles --183.7

TIDAL NOTE  
to accompany

SHEET # 1

The portable tide gauge established July 24, 1929  
on Ocean City Pier, Maryland, was used for the reduction  
of soundings for the entire sheet.

Latitude  $38^{\circ} - 19.8'$

Longitude  $75^{\circ} - 05.3'$

Highest tide obtained, Sept. 1st - 17.8 Hr. 6.3

Lowest tide obtained, Sept. 4th - 1.8 Hr. 0.4

MEMORANDUM TO ACCOMPANY SHEET # 1

The chief of party kept in close touch with the field and office work on this sheet.

Mr. Ricketts has recommended that the 30 foot shoal be removed from the chart, but as this shoal is said to be a wreck, it should not be removed until the area has been wire-dragged.

The wreck symbol near Fenwick Island Light Vessel should be removed as a depth of 74 feet exists there at present. A very careful examination of this wreck was made. The captain of the light vessel described it's sinking in the mud and breaking off of the masts at various times, and as he has fished continually around the wreck, it is believed that his information is correct.



G. C. Mattison,  
Chief of Party





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. 1REGISTER NO. 4944State Maryland & DelawareGeneral locality Coast of Maryland & DelawareLocality Off Fenwick IslandScale 1:40,000 Date of survey July 26 1929  
September 12, 1929Vessel LYDONIAChief of Party G. C. MATTISONSurveyed by E. B. Roberts, F. E. Olesen, H. A. Paton, E. A. Dally.Protracted by O. B. Hartsog, Jr.Soundings penciled by O. B. Hartsog, Jr. & Max G. Ricketts.Soundings in ~~fathoms~~ feetPlane of reference Mean low water

Subdivision of wire dragged areas by \_\_\_\_\_

Inked by J. T. WalkerVerified by J. T. WalkerInstructions dated July 1st, 1929

Remarks: \_\_\_\_\_

FOR FILES OF FIELD RECORDS SECTION

ecm

January 11, 1930

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in  
volumes of sounding records, for  
10

HYDROGRAPHIC SHEET

4944

Locality:

Maryland and Delaware (Off Fenwick Island)

Chief of Party:

Plane of reference ~~is~~ C. Mattison, in 1929

1.5 ft. on tide staff ~~mean~~ low water, reading

ft. below B. M. Ocean City, Md.

XXXXXXXXXXXXXXXX

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

Chief, Division of Tides and Currents.

## Section of Field Records.

Report on Sheet No. H4944  
 Chief of Party G.C. Mattison  
 Protracted by O.B. Hartzog  
 Verified and Inked by J. Walker

Surveyed in 1929  
 Surveyed by Roberts, O. Keson,  
 Paton and Peily.  
 Soundings plotted by  
 Hartzog and Ricketts.

### 1. Sounding Records.

- a. The records were neatly and carefully kept.
- b. There were plenty of bottom characteristics recorded.
- c. Starting with position 3L where the fathometer soundings were kept in one book and the fixes in another, there are some differences in time as recorded in the book of positions and the book of soundings. Captain Sobieralski recommends that this discrepancy be disregarded and an assumption be made that the soundings and positions were taken simultaneously.
- d. Turns and ends of the lines were recorded and the Lat. and Long. of the beginning and ending of the lines was given.
- e. Changes of speed were indicated in some places by giving the number of R.P.M.'s.
- f. A list of signals used is affixed to the cover of the first volume.

g. The location of the wreck near Fenwick Island Light vessel was plotted by one cut and a distance derived from a vertical angle. The wreck and note under it was plotted as shown on the advice of Capt. Ellis. The nun buoy near the wreck was located from two cuts. See page 3 of the descriptive report for the location of the light ship.

## 2. Protracting.

a. The field protractor with which the smooth sheet was plotted was apparently slightly out of adjustment. When the signals were distant and the angles small, so as to make the position weak, it was found that the positions plotted as much as 200 meters south of where the field plotted them. About 50 of the worst of these positions were revised. The office protractor was carefully checked and found to be correct.

b. In nearly all cases no check marks were made by the field to indicate the fixes had been plotted, unless the checks on the left page indicated this.

c. The positions from which the buoy cuts were made were not plotted on the smooth sheet. These positions (47-566 ind. and 1-7X ind.) were plotted by the office verifier.

d. Position 13 X is a buoy signal fix between two shore signal fixes and it indicates that the buoy fixes place the position about 115 meters south of where a shore fix would put it. This may be an extreme case. In other places the junction between shore and buoy fixes seems fairly good.

### 3. Soundings.

a. The time intervals were carefully adhered to.

b. Soundings were taken on the turns of most of the lines and in many cases the course of the boat was doubtful and the soundings on the turns were rejected. The field plotters rejected some of these which the office verifier also rejected and in addition rejected others. Some of the positions on the turns were weak (one angle given) and the soundings were not inked in for that reason.

c. Between 31 and 33 S there were notes in the record of "Lead behind" and the soundings seem to be too deep by about 8 to 10 feet.

d. Some of the fathometer soundings were as small as 12 fathoms. Capt. Sobieralski says that these are to be accepted on the Atlantic coast.

e. The crossing near 115 H and 15 X is not very good. One line was fathometer work and one line hand lead. The fathometer shows the shoaler depth.

#### 4. Conformity to General Instructions.

a. No geographic names were shown on the sheet.

b. No shoreline is shown but as it is ~~on~~ an offshore sheet and as it is on a smaller scale than the topo. sheets it is thought that a shoreline is not necessary.

c. The sheet was received clean and legible.

#### 5. Overlap.

a. The overlap with H 4939 was plotted on the sheet and agreed within 7 feet and in most cases less than that. This is considered a good agreement in 61 to 120 feet of water especially with a fathometer. also H 4939 is a dead reckoning sheet. The amount of overlap between these sheets seems entirely unnecessary. H 4939 overlaps H 4944 as much as 6 miles.

- b. The overlap with H 4951 was not applied by instruction from Capt. Ellis because of a shortage of men and a hurry to get the sheet out.
- c. The overlap with older sheets was not considered except as indicated in 7 & below.

#### 6. Curves.

- a. The usual depth curves could be drawn.
- b. Although the curves are not very smooth or regular it is thought that they closely show the character of the bottom.

#### 7. Comparison with other data.

a. No information contained in the remarks column (or any other place) of the sounding records of a permanent value has been omitted from the smooth sheet.

b. There was no information found on the boat sheet which needed transferring to the smooth sheet.

c. In the descriptive report under, "Comparisons with previous work," they say, "The present seasons work gave shoaler soundings in all cases than the previous work." A number of shoal soundings were picked off the chart which show



much shoaler depths than were obtained in the 1929 work. The above statement of the field officer would therefore seem to be misleading. These shoal soundings will be taken up under 7d of this report.

d. Numerous shoals were found on charts 1219 and 1220 in the area of this sheet which were not developed in this survey. One of the most important is a 31 foot shoal shown on chart 1220 Lat.  $38-20\frac{3}{4}$ , Long.  $74-53$  which plots in about 39 feet of water on this sheet. This 31 foot sounding was traced back to a  $5\frac{1}{4}$  fathom sounding on H 213. Most of the surrounding soundings on H 213 are in good agreement or are deeper except in a few cases. There is a pronounced ridge in the vicinity of the 31 foot sounding on both the old and new surveys. It is recommended that the 31 foot sounding be retained until the area has been adequately developed by additional work. It was not considered within the scope of this report to go into the other undeveloped shoals found.

Respectfully submitted

J. Walker  
5/28/30.

IN REPLY ADDRESS THE DIRECTOR  
U. S. COAST AND GEODETIC SURVEY  
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DRM

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4944

Off Fenwick Island, Coast of Maryland and Delaware

Surveyed in 1929

Hand lead and fathometer soundings

Instructions dated July 1, 1929 (LYDONIA)

Chief of Party, G. C. Mattison

Surveyed by E. R. Roberts, F. E. Okeson, H. A. Paton, E. A. Dally

Protracted by O. B. Hartzog, Jr.

Soundings plotted by O. B. H. Jr. and M. G. Ricketts

Verified and inked by J. T. Walker

1. The records are clear and well kept but some discrepancies were noted between the time of observing positions, as recorded in the volume of positions and the time of the position as given in the book of fathometer soundings. In plotting and verifying the sheet it was assumed that the positions and soundings were taken simultaneously.
2. The plan, character and extent of the survey satisfy the general and specific instructions except that paragraph 18, in the specific instructions, was not complied with. Several critical depths, shown on the chart, were not found but no additional work was done to disprove their existence and no recommendations as to their retention or rejection appear in the descriptive report. These soundings will be mentioned under "Comparison with previous work", paragraph 6.

Since no new work is contemplated in the area covered by H. 4164, this survey should have been extended far enough within the limits of that sheet to cover the P.D. wreck symbol mentioned in the instructions and shown on chart 1219 in about Lat.  $38^{\circ}30'$ , Long.  $74^{\circ}45'$ , from Notice to Mariners No. 38, 1918.

3. In general the sounding line crossings are satisfactory. Where the hand lead soundings cross the fathometer soundings, the fathometer soundings are slightly shoaler.

4. The information is sufficient for completely drawing the usual depth curves.
5. The junction on the west, with the contemporary sheet, H. 4951, is satisfactory as far south as Lat.  $38^{\circ} 22'$ . Below this, there is a gap between this sheet, H. 4944, and H. 4951, which should be covered if the work is extended farther south.

The junction on the east, with the contemporary offshore sheet, H. 4939, is satisfactory and the soundings agree very well.

The junction with H. 4161, surveyed in 1920, is satisfactory, but the soundings on the eastern limits of H. 4161 do not agree very well with those on this sheet, H. 4944.

6. Comparison with Previous Work:

The offshore portion of this sheet overlaps H. 4094, surveyed in 1919 and 1920. The work does not agree very well and within its limits this sheet, H. 4944, will supersede H. 4094.

A 54 foot sounding shown on chart 1219 in Lat.  $38^{\circ} 30'.8$ , Long.  $74^{\circ} 40'.05$ , from H. 670, has apparently been disproved and should be removed. The statement in the descriptive report that "The present season's work gave shoaler soundings in all cases than the previous work. Inshore in comparing with charted soundings the agreement was very close", is misleading and incorrect.

The following soundings, shown on chart 1220, on the inshore portion of this work are much shoaler than the depths on this survey:

- A 28 foot sounding in Lat.  $38^{\circ} 22'.5$ , Long.  $74^{\circ} 56'.1$ , from H. 212. The least depth found was 34 feet.
- A 54 foot sounding in Lat.  $38^{\circ} 23'.4$ , Long.  $74^{\circ} 56'.7$ , from H. 212. The least depth found was 68 feet.
- A 30 foot sounding in Lat.  $38^{\circ} 22'.1$ , Long.  $74^{\circ} 59'.5$ , from H. 212. The least depth found was 54 feet.
- A 34 foot sounding in Lat.  $38^{\circ} 17'.9$ , Long.  $75^{\circ} 01'$ , from H. 251. The least depth found was 51 feet.
- A 30 foot sounding in Lat.  $38^{\circ} 19'.8$ , Long.  $74^{\circ} 57'.2$ , from H. 213. The least depth found was 59 feet.
- A 55 foot sounding in Lat.  $38^{\circ} 18'.35$ , Long.  $74^{\circ} 55'.0$ , from H. 213. The least depth found was 67 feet.

A 31 foot sounding in Lat. 38° 20'.7, Long. 74° 52'.9,  
from H. 213. The least depth found was 38 feet.

A 53 foot sounding in Lat. 38° 20'.7, Long. 74° 51'.3,  
from H. 3314. The least depth found was 74 feet.

A 48 foot sounding in Lat. 38° 22'.3, Long. 74° 50'.5,  
from H. 3314. The least depth found was 56 feet.

All of the above soundings were verified from the records and could not be discredited in this manner, although some of them do not agree with the surrounding depths on the original sheets. While there is not always definite proof of the non-existence of these spots, considering the character of the bottom, and the greater reliability of the recent survey, it is recommended that this survey, H. 4944, supersede the old work with the exception of the following spots which should be retained from the old surveys:

The 28 foot spot in Lat. 38° 22'.5, Long. 74° 56'.1, and the 31 foot spot in Lat. 38° 20'.7, Long. 74° 52'.9.

Cleared with 30 and 34  
Pt. Arago on H-6341 (1438)WQ  
Removed. Par. 32 and 34,  
review H-6341

The 30 foot sounding shown on chart 1220 in Lat. 38° 26'.65, Long. 74° 50'.3 is from Lighthouse Notice to Mariners 42, 1913. Although our survey shows no indication of this, the chief of party recommends its retention as it is supposed to be the depth over a wreck. Information has been requested from the Lighthouse Bureau as to whether this wreck is still a menace to navigation.

The wreck symbol near Fenwick Island Light Vessel in about Lat. 38° 25'.8, Long. 74° 46'.2 should be removed from the chart and 74 feet charted. (See memorandum by chief of party in this descriptive report.)

7. The usual amount of field plotting was well done by the field party. Some differences were found in the protracting and the verifier suggests that the field protractor was slightly out of adjustment. While this may be partly the trouble, the weakness of the fixes is probably the principal reason for the discrepancy, as several office protractors, all of which were adjusted, failed to give exactly the same point.
8. Character and scope of surveying - very good, except for the failure to develop critical spots shown on the chart.

9. There are several spots, most of which are from the old surveys, which are in need of further examination. These are noted under paragraph 6. The use of the wire drag might be desirable on some of these spots, especially the 30 foot sounding in Lat.  $38^{\circ} 26'.6$ , Long.  $74^{\circ} 50'.3$ .

10. Reviewed by R. L. Johnston, August 18, 1930.

Approved:

A. M. Sobieralski  
Chief, Section of Field Records (Charts)

H. Brady  
Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

C. & G. SURVEY  
L. & A.  
JAN 4 1930  
Acc. No.

REG. NO. 4944

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. 1

REGISTER NO. 4944

State Maryland & Delaware

General locality Coast of Maryland & Delaware

Locality Off Fenwick Island

Scale 1:40,000 Date of survey July 26 1929  
September 12 1929

Vessel LYDONIA

Chief of Party G. C. MATTISON

Surveyed by E. H. Roberts, F. E. Oreson, H. A. Paton, E. A. Dally.

Protracted by O. B. Hartzog, Jr.

Soundings penciled by O. B. Hartzog, Jr. & Max G. Ricketts.

Soundings in ~~fathoms~~ feet

Plane of reference Mean low water

Subdivision of wire dragged areas by \_\_\_\_\_

Inked by J. Walker

Verified by J. W.

Instructions dated July 1st 1929

Remarks: \_\_\_\_\_

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4944

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

Number of positions on sheet . 2225  
Number of positions checked . 693  
Number of positions revised . . 54  
Number of soundings recorded 10203  
Number of soundings revised . 235  
Number of signals erroneously  
plotted or transferred . . . . . 0

Date: - May 27, 1930 -----  
Cartographer: - J. Walker -----