

4942

Diag. Ch. No. 1218-2 & 1219-2

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: Delaware

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic } Sheet No. 2 4942

LOCALITY

East Coast of Delaware

C. Henlopen to Fenwick I. Light

19 29

CHIEF OF PARTY

Charles Shaw

4942

DESCRIPTIVE REPORT

to accompany

SHEET No. 2

Lewes, Delaware to Fenwick Island L. H.

1929

AUTHORITY:

Director's orders dated July 1, 1929.

To Lydonia
To Ranger

CONTROL:

Triangulation and topographic signals established by party of Lieutenant (j.g.) Carl F. Ehlers, 1929.

LIMITS:

East of longitude 75° - 08' to Cape Henlopen and southward to Fenwick Island Lighthouse. The sheet includes hydrographic survey of Breakwater Harbor Delaware, Hen and Chickens Shoal and inshore hydrography from the beach out to a junction with ship work done in previous years.

SURVEY METHODS:

The usual survey methods were followed with the exception of "l" day when soundings were taken around the docks in Breakwater Harbor. The officer in charge paced along the dock and gave the signal to sound about every 50 feet. Soundings were taken from a skiff which was rowed along about 8 feet from the docks.

DISCREPANCIES: Breakwater Harbor

On "k" day from positions 18 to 20 signal "MID" was used because it was too dark to see anything else. "MID" is a tower in the elbow of the breakwater and was transferred from Chart No. 379.

Mide

Depths agree very closely with the chart, with the exception of the depths at the docks. Chart No. 379 shows 18 feet at the end of the Iron Pier while 15 feet was found at the Northeast

corner about 8 feet from the dock.

Hen and Chicken Shoal:

100 meter lines were run across Hen and Chicken Shoal approximately normal to the depth curves and additional closely spaced lines were run along the ridge. This gave a very close development showing a least depth of 8 feet compared to 9 feet shown on chart No. 379. The ten foot spot on chart No. 379 Latitude $38^{\circ} - 47'.8$, Longitude $75^{\circ} - 05'$ was found about 120 meters to the Northeast. - *9' 140 m NE 70m*

Buoy C3A was found approximately ^{25 m} 100 meters northeast of charted position.

The 18 foot curve was found to continue southward in vicinity of Bell "1A" instead of breaking as shown on chart 379. The position of Bell "1A" was determined to be about ¹²⁰ 200 meters southeast of position shown on chart 379. Check fixes were obtained.

Can buoy #1 was found to be $\frac{1}{2}$ mile southeast of charted position. Check angles were taken.

Other discrepancies:

About $\frac{1}{2}$ mile northwest of A WE is a spot that shows poor agreement with the previous survey. Two cross lines were run over this spot, checking this year's work. It is thought that the soundings taken in previous years at this place were probably

taken while the ship was swinging and are less reliable.

DANGERS:

Hen and Chicken Shoal is the outstanding danger on this sheet. The bottom is mostly of white sand. The least depth is 8 feet.

Strong currents are found at the northern tip of Cape Henlopen and just inside Delaware Breakwater.

A rock awash was located about 320 meters East by North of O Rad. It bares at about half tide.

Respectfully submitted,

W. M. Gibson

W. M. Gibson,
Jr. H. & G. Engineer.

Approved:
Chas. Law
Cady Ship Ranger
Dec 31, 1929

TIDAL NOTE

A portable automatic tide guage was operated at the Queen Anne Pier at Lewes. This guage was used for reduction of soundings in Breakwater Harbor and the work outside of the harbor to a line about north of Cape Henlopen.

A guage was installed on a small pier off Rehobeth Beach and operated for a few days; but the pier was so shaky that the guage had to be removed. By means of a comparison of simultaneous observations a connection was obtained to be applied to Lewes Tides for reduction of remainder of soundings on the sheet. See Director's letter dated October 26, 1929.

Staff reading of M.L.W. at Lewes - 1.8 feet.

Highest tides observed - 8.4 feet.

Lowest tide observed - 0.7 feet.

STATISTICS

Sheet No. 2

Delaware - Maryland

1929

| Date | Vol. | Day | Sdgs. | Pos. | Miles | Remarks |
|----------------|-------|-----|------------|------------|------------|---------------------------------|
| Aug. 27 | 1 | a | 956 | 191 | 23.3 | Motor dinghy - Boat sheet #2 A |
| 28 | 1 | b | 547 | 104 | 13.5 | |
| 29 | 1 & 2 | c | 683 | 149 | 18.2 | |
| Sept 3 | 2 | d | 667 | 227 | 25.4 | |
| 4 | 2 | e | 724 | 218 | 26.3 | |
| 5 | 2 | f | 73 | 20 | 2.6 | |
| 9 | 3 | g | 442 | 120 | 15.2 | |
| 10 | 3 | h | 767 | 167 | 26.5 | |
| 17 | 3 | j | 503 | 124 | 22.2 | |
| 24 | 3 | k | 31 | 20 | 1.7 | |
| 31 | 4 | l | <u>147</u> | <u>147</u> | <u>1.5</u> | Soundings around dock at Lewes. |
| Totals - | | | 5540 | 1487 | 176.6 | |
| 31 | 5 | A | 50 | 8 | 2.0 | Ship RANGER - Boat Sheet 2A |
| 26 | 1 | a | 637 | 134 | 21.7 | Motor dinghy - Boat sheet 2B |
| 27 | 1 | b | 297 | 63 | 9.7 | |
| Oct. 7 | 1 | c | 688 | 135 | 22.2 | |
| 8 | 1 | d | 108 | 21 | 4.4 | |
| 9 | 1 | e | 93 | 24 | 4.0 | |
| 19 | 2 | f | <u>63</u> | <u>20</u> | <u>2.2</u> | |
| Totals - | | | 1886 | 397 | 64.2 | |
| Grand Totals - | | | 7476 | 1892 | 242.8 | |

(COPY FOR FILES FIELD RECORDS SECTION) ✓

February 27, 1930

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 4942

Locality: Delaware Coast (Vicinity of Cape Henlopen)

Chief of Party: Charles Shaw in 1929

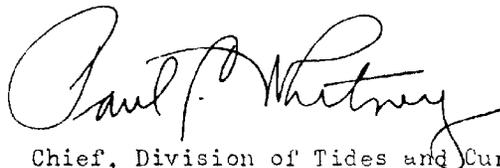
Plane of reference is mean low water reading
1.8 ft. on tide staff at Lewts, Del.

~~XXXXXXXXXXXX~~

Allowance made for time.

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. 4942
Chief of Party Charles Shaw
Protracted by M.E. Wennermark.
Verified & Diked by J.T. Walker

Surveyed in 1929
Surveyed by R.C. Overtor, B.H. Pigg,
W.M. Gibson.
Soundings plotted by M.E. Wennermark.

Sounding Records.

The sounding records were neatly kept.

They were complete except as follows: - Occasionally the bottom characteristics were not given. However, a note at 15 5 h day explains that the supply of soap was exhausted, so that they were unable to secure bottom samples. At position 33 a Vol. 2, two fixes were taken locating either one or two rocks. The boat sheet shows one rock and it may be that a fix was taken on each side of the rock. No list of signals used on the sheet, as required in the Hydrographic Manual, was found. Signal \mathcal{M} ide was transferred from chart 379 as explained on page 2 Vol. 4. As it was only used twice and the soundings seem to be all right, this plotting was accepted.

Protracting.

The protracting was well done. Position 105a was rejected because of a bad crossing. Position 131a was changed 10° to make it conform ^{with} the boat sheet. At position 157e the field plotter set his protractor 1° off. Position 112h and 35j were changed and

plotted on time and the sum of the angles, because the central object (Pod) had apparently been moved. At 15j the wrong signal was used.

Soundings.

The soundings were carefully plotted according to time and very few had to be revised. In the area west of Breakwater Harbor some of the soundings were plotted to half feet.

Conformity to General Instructions for field work.

The drafting conformed to General Instructions except as follows. The shore line was in pencil. It was verified as having been transferred accurately and was then inked in. No geographic names were on the sheet when received - either in pencil, as required, or in ink. The names of a number of signals were misspelled when they were transferred to the boat sheet and smooth sheet.

Signal Pod was apparently moved some time after the topographic survey was made. When this signal is used the time indicates very strongly that the signal is out of position. This is corroborated by a note in Vol. 4, p. 58, 88-89j.

The strip of hydrography on the west side of this sheet has the same day letters and colors as the hydrography on the east side of the sheet. Care should be taken that this does not lead to confusion.

The sheet was clean and the work was neatly penciled in

Overlap

There has been no other work done in this vicinity recently which has, as yet, been received by the office and diagrammed.

The junction between this sheet and H 4093 is fair. The work overlaps enough and those soundings which do not agree closely can mostly be explained by inaccuracies in plotting turns in the line on the older sheet.

The junction between this sheet (H 4942) and H 4164 is fairly good. The work overlaps and the soundings agree fairly close except as follows: At Lat. $38^{\circ} 28\frac{3}{4}'$, Long. $75^{\circ} 02\frac{1}{2}'$ there is a difference of about 6 feet in 30 feet of water. The new sheet shows the shoaler depths and as the scale is larger and cross lines were run, the new work should be accepted as the most reliable.

Curves

The curves could be carefully drawn in most places. There were plenty of soundings on shoals so that curves could be accurately drawn

Development of Shoals

Hen and Chickens Shoal which is the most important shoal on this sheet is shown adequately developed and it is believed that the least depths are plotted.

Comparison with other data.

All the dangers shown in the remarks column of the sounding records have been transferred to the sheet.

All the information on the boat sheet of permanent value has been transferred to the smooth sheet.

The topo sheet has been checked for any rocks or dangers which might not have been transferred to the smooth sheet.

On chart 379 near Lat. $38^{\circ}-47'$, Long. $75^{\circ}-07'$ there is a small rock shown. On H 3526 in the same position is shown a sunken rock symbol with a low water line around it and a note "pile of stone". This rock plots in about 4 feet of water on this sheet (H 4942). No mention of it was made anywhere in the sounding records or descriptive report of this sheet and it was not plotted on the boat sheet, smooth sheet, or topo sheet. Assumeably it was either overlooked by the field party or does not exist.

at the outer end of the most easterly pier in Breakwater Harbor a 15 foot sounding was obtained at the N.E. corner and a 21 foot sounding at the N.W. corner. On chart 379 the 18 foot curve is shown as running just past the outer end of the pier. However, on H 3526 at the N.E. corner in approximately the same position is shown a 16 and at the N.W. corner there is

an 18 at the corner with a 25 about 20 meters further out. The two sheets H 3526 and H 4942 therefore seem to agree quite closely.

The ten foot spot on chart 379, Lat. $38^{\circ}47.8'$, Long. $75^{\circ}05'$ falls in about 14 feet of water on H 4942. About 140 m. N.E. there is a 9 foot sounding on H 4942 and about 60 m N.N.E. there is an eleven foot spot on this sheet indicating that the 10 foot spot on the chart is not far wrong.

The 18 foot curve continues south in the vicinity of bell 1A instead of breaking as shown on chart 379. The 40000 scale sheet H 4164 does not agree closely with H 4942 which is on a 20,000 scale. The greater detail on H 4942 shows the area more accurately and allows the 18 foot curve to be delineated southward.

Buoy C 3 was found approximately 85 m. N.E. of its charted position but as it is located in about 37 feet of water it is thought that its location checks fairly close to its charted position.

Bell buoy 1A plots about 190 meters SE of its charted position but as it is in over 40 feet of water this is thought to be fairly close.

Can buoy No. 1 was found about half a mile southeast of its charted position. No doubt it has drifted or been moved.

In the vicinity of buoy C 3 at position 56g there is a note in the sounding record of a heavy tide rip. This is the only mention found of tides or currents on this sheet.

Miscellaneous

The crossings which 104 to 106a made with the east and west lines opposite © Bay, were bad. Either position 105a was too far off shore or several of the east and west lines were too far inshore. No other position could be found for 105a by assuming the angles or signals used were erroneous and at Capt. Ellis's advice this position was rejected. It is inconceivable that the tides could be wrong as all the work in this area was done the same day.

Respectfully submitted
J. F. Walker

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

AND REFER TO No. 11-WSW

DEPARTMENT OF COMMERCE.

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

August 27, 1930.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4942

Cape Henlopen to Fenwick Island Light, Delaware.

Surveyed in 1929

Instructions dated July 1, 1929. (Lydonia and Ranger)

Hand lead soundings

Chief of Party, C. Shaw.

Surveyed by R. C. Overton, B. H. Rigg, W. M. Gibson.

Protracted and plotted by M. E. Wennermark.

Verified and inked by J. T. Walker.

1. The records are well kept and in general conform to the requirements. At position 33a, two fixes are given both of which are marked "location of rock". While the record is not clear as to whether one or two rocks are located, the boat sheet shows one rock just between the two positions and the descriptive report states a rock awash was located about 320 meters east by north of signal Rad. It was therefore concluded that only one rock exists and the boat sheet plotting was followed.
2. The plan, character and extent of the survey satisfy the general and specific instructions except that the spacing of the lines, run parallel to the beach from Lat. $38^{\circ} 44'$ to the southern limits of the sheet, generally exceeds 100 meters.
3. In general the sounding line crossings are satisfactory.
 - a. Position 105a was rejected on account of poor crossings with the lines normal to the shoreline.
4. The information is sufficient for completely drawing the usual depth curves.
5. The junction with H. 4093 is satisfactory. While some differences of about two feet were noted, the general agreement is good.
 - a. At the junction with H. 4164, south of Lat. $38^{\circ} 35'$, the overlap is sufficient and the soundings agree fairly

well. Poor agreement was noted in Lat. $38^{\circ} 28.9'$ and in Lat. $38^{\circ} 32.7'$. This sheet, H. 4942, shows the shoaler depths, the soundings are considered more accurate and should be accepted.

b. North of Lat. $38^{\circ} 44.5'$ to Cape Henlopen this sheet, H. 4942, was compared with H. 4164 and other sheets. The development of Hen and Chickens Shoal on this sheet is much closer and the depths shoaler than on H. 4164. H. 1633, surveyed in 1884, shows a least depth of $5\frac{1}{2}$ feet on this shoal, but as the general formation of the shoal has changed somewhat, this should probably not be charted.

c. It is recommended that this sheet, H. 4942, should supersede all previous work in the area from Lat. $38^{\circ} 44.5'$ northward to a point around Cape Henlopen as far west as Long. $75^{\circ} 05.5'$. This includes the 10 foot sounding, taken from Blue Print No. 20,660 and shown on Chart 379 in Lat. $38^{\circ} 38.85'$, Long. $75^{\circ} 05.08'$.

d. As the survey of the area west of Cape Henlopen agrees in essential details with chart No. 379 as compiled from Blue Print No. 20,660, surveyed by United States Engineers in 1926, it is recommended that this survey, H. 4942, be used only for such additions as may be found necessary, instead of making a new compilation. The 12 foot curve west of Long. $75^{\circ} 07.5'$ does not agree with the chart but as the discrepancy is apparently due in large measure to the dropping of fractions of a foot, it is recommended that the 12 foot curve be retained in its present position. Depths at the wharves, particularly the 15 foot sounding off Iron Pier, should be taken from this sheet, H. 4942.

e. The small rock shown on Chart 379 in about Lat. $38^{\circ} 47'$, Long. $75^{\circ} 07'$ is taken from H. 3526. The records of that sheet show that this was supposed to be a sunken barge loaded with stone.

f. This sheet, H. 4942, shows 4 feet close by, but no mention is made of any obstruction. In the absence of definite information the symbol should be retained on the chart.

6. The protracting and plotting of soundings was very well done by the field party.

a. The shoreline was not inked and no geographic names were on the sheet.

b. There is reason to believe that signal Pod has been moved since the topographic survey.

c. Signal Way is shown on T. 4468 in a position about 70

meters east of the position on this sheet, H. 4942. The position as shown on the boatsheet and on H. 4942 was accepted as correct.

7. Character and scope of survey --- Excellent, except that the spacing of some of the lines run parallel to the shoreline on the southern portion of the sheet is too wide.
8. No additional work is recommended.
9. Reviewed by R. L. Johnston, May 3, 1930.

Approved:

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

J. B. Boden
Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4942

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. "2"

REGISTER NO. 4942

State Delaware

General locality Atlantic Coast

Locality C. Henlopen
~~Lower Delaware to Fenwick Island Lighthouse~~

Scale 1:20,000 Date of survey August 27 October 19, 1929

Vessel RANCHER (Motor Dinghy)

Chief of Party Charles Shaw

Surveyed by R. C. Overton, B. H. Rigg, W. M. Gibson

Protracted by M. E. Wennermark

Soundings penciled by M. E. Wennermark

Soundings in ~~fathoms~~ feet

Plane of reference M. L. W.

Subdivision of wire dragged areas by

Inked by J. T. Walker

Verified by J. T. W.

Instructions dated July 1, 1929

Remarks:

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4942

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

Number of positions on sheet . 1892
Number of positions checked . 360
Number of positions revised . . . 6
Number of soundings recorded . 7476
Number of soundings revised . . . *
Number of signals erroneously
plotted or transferred 0

* No count was made - the spacing was good and very few soundings were revised.

Date: April 18, 1930

Cartographer: J. Walker

Applied to Chart 411, 2/10/53 WE