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U. S. SURVEY
L. & G.
JAN 12 1920

Form 504
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

State: *Delaware*

11-5613

DESCRIPTIVE REPORT.

Hyd. Sheets Nos. *4093 & 4094*

LOCALITY:

Delaware Bay

Entrance

St. Isis

1919

CHIEF OF PARTY:

Luce, R. F.

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Descriptive Report to Accompany Hydrographic
Sheets A and B off the Entrance to Delaware Bay.

1. The work on these sheets was done by the Steamer ISIS during the period from August 26, 1919 to October 21, 1919, in accordance with the Superintendent's Instructions of June 4, 1919.

2. Inasmuch as the area covered by these sheets has been very well known for many years, a description of the coast, including landmarks, shoals, anchorages, channels, etc., is not given here, as it is thought that it would not supply any new information to the office.

3. On sheet A, inshore sheet, scale 1-40,000, lines were run in general in an east and west (true) direction, normal to the coast. Inside the ten fathom curve, lines were run one-quarter mile apart, crossed by lines two miles apart. In depths from ten to twelve fathoms the lines were spaced one half mile apart, to the offshore limit of visibility of the signals. Developments of shoal areas were made whenever the soundings indicated the necessity for it.

4. On sheet B, offshore sheet, scale 1-1/120,000, lines were run normal to the general trend of the coast, spaced two miles apart from the outer limit of visibility of shore signals to the twenty five fathom curve.

5. Owing to the lateness of the start of the season's work, to the fact that the weather during the latter part of September and all of October proved to be most unfavorable, and to the fact that there was a serious shortage of experienced officers, very little dead reckoning work could be done. These same causes, together with the fact that survey buoys were not placed until the middle of September, made it impossible to do much work in the vicinity of the survey buoys.

6. There is some development work yet to be done in the vicinity of the northern two survey buoys, which could not be done for the reasons mentioned above.

7. In general, soundings were taken while the ship was proceeding at a speed of about four and one half knots ~~per~~ hour; inside the twelve fathom curve soundings were taken by means of hand lead and line, and outside the twelve fathom curve by means of a trolley sounding apparatus.

8. Work on the offshore sheet was by means of dead reckoning, according to the method inaugurated by me in 1914; that is, lines started from a fixed position just outside the line of survey buoys, ship was run by log and course at a five knot speed, currents were measured at anchorages at the beginning and end of lines and at two hour intervals on the lines, coming in again to a fixed position at the survey buoys. Prior to the start of the work, the ship was swung for compass deviations, and all patent logs were tested at various speeds over a measured course.

9. No smooth sheet of the offshore dead reckoning work was made owing to the fact that it was not known on what scale the sheet was to be made and also on account of the small amount of work of that class that was done during the season.



Hydrographic & Geodetic Engineer,
Commanding U.S.C. & G.S.S. ISIS.

January 5th., 1920.

STATISTICS SHEET NO.-----

Off-shore hydrography, Delaware Bay Entrance.
Position Work.

1919	Letter	Volume	Positions	Soundings	Statute Miles	Bottom Specimens
Aug. 29	A	1	67	463	21.3	1
Sept. 3	B	1	166	997	53.8	0
4	C	1	97	528	28.7	5
5	D	2	144	750	42.4	9
8	E	2	197	1138	55.3	5
11	F	3	81	514	22.0	2
16	G	3	32	219	9.8	2
17	H	3	133	594	40.0	5
18	J	3	167	503	56.5	20
21	K	4	98	647	30.9	0
23	L	4	2	21	.2	0
24	M	4	156	827	44.8	15
25	N	4	93	385	18.4	10
29	P	5	58	177	11.8	
30	Q	5	22	92	6.0	
Oct. 3	R	5	159	710	44.4	8
7	S	5	172	634	51.3	5
10	T	6	156	935	46.0	9
15	U	6	111	640	28.0	0
16	V	6&7	160	916	36.0	3
<hr/>						99
Totals	20	7	2271	11690	647.6	

Soundings in feet at Mean Low Water

Automatic tide gauge at Delaware Breakwater

ADDRESS THE SUPERINTENDENT
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No.

41-~~EMK~~

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

March 3, 1920.



Division of Hydrography and Topography:

Division of Charts:

Tidal reductions are approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 4093

Delaware Bay Entrance, Del.
R. F. Luce, in 1919

Plane of reference is
Mean low water, reading

1.3 ft. on tide staff at Delaware Breakwater
Harbor, Delaware.

Condition of records, very satisfactory.

G. Wade

Chief, Section of Tides
and Currents.

*Forwarded by
W. G. Barber*

Chief, Division of Hyd'y & Top'y

HYDROGRAPHIC SHEET 4093

Coast of Delaware, 1/40,000 scale.

Surveyed by R. F. Luce in 1919.

Each position is not numbered as directed by G. I.

Protracting is good but plotting of soundings was poorly done, no attention whatever having been paid to time intervals in plotting. All the soundings on the sheet, with exception of those on the positions had to be erased and replotted.

Similarity of names of signals, such as Cat and Cot, Hen and Fen, on the same survey, is likely to result in errors in recording and should be avoided.

The bottom characteristics should have been left in pencil to be inked when the sheet was completed in the office.

Attention is called to the 17 and 19 ft. spots at the bottom of the sheet and $\frac{1}{2}$ mile offshore. Additional development should be made on these shoals when field operations are resumed in this locality. It may be thought desirable also to investigate further the 20 and 21 ft. spots southeast of triangulation station Midway and $\frac{3}{4}$ mile offshore. Also 31 ft. sounding $4 \frac{3}{4}$ miles E x N of triangulation station Midway. Also the two ridges in the northeastern corner of the sheet.

With the exception of the spots indicated the development is sufficient.

The survey is in accordance with the instructions and is a creditable piece of work. The sheet should be approved.

The boat sheet should be kept until the offshore sheet is inked when it can be destroyed.

April 28, 1920.

E. P. Ellis,

Report on Hyd. 4093

● Ground well covered within the limits of the work and strata soundings sufficiently developed

Protracting good.

Time interval disregarded in plotting of soundings
Plotting poor.

Curves slightly irregular due to differences of from one to two feet in sounding lines crossing in the well covered areas.

No unusual developments

A. S. Mac Ewen

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. 4093

State Delaware

General locality Coast of Delaware

Locality Rehoboth to Indian R. Bay
~~Between Cape Henlopen & Fenwick Id. L. Houses.~~

Chief of party R.F. Luce

Surveyed by Steamer ISIS

Date of survey Aug. 25 to Oct. 24, 1919

Scale 1/40,000

Soundings in Feet at M.L.W.

Plane of reference Mean Low Water

Protracted by F.M.A. Soundings in pencil by F.M.A.

Inked by Verified by

Records accompanying sheet (check those forwarded):

Des. report, _____ Tide books, _____ Marigrams, Boat sheets,

7 Sounding books, _____ Wire-drag books, _____ Photographs.

Data from other sources affecting sheet

Remarks: One volume of Angles ^{to be} forwarded. *Reid*

Applied to Chart 411, 2/12/53 JTE