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Diag. Ch. No. 1223-Z

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

State: *Virginia*
11-5013

DESCRIPTIVE REPORT.

Hyd. Sheet No. *4193*

LOCALITY:
Entrance to Chesapeake Bay
Off Cape Charles

1921

CHIEF OF PARTY:
H. A. Swan

4193

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SHEET NO. I

ENTRANCES TO CHESAPEAKE BAY

OFF CAPE CHARLES

VIRGINIA

SCALE 1:40,000

STEAMER BACHE

H. A. SERAN, H. & G. ENG., COMMANDING.

APRIL TO JULY

1921.

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET NO. 1

LIMITS.

The work on this sheet covers very nearly the area between latitudes 37-00 and 37-08.5 North, and from the shore line of Smith and Fishermans Island off-shore to about Longitude 75-12, West. It is joined on the North by Hydrographic Sheet No. 3, on the west by Hydrographic Sheet No. 2, and on the South by previous work of this vessel. On the inshore end South of Fishermans Island it joins work of the Steamer Hydrographer. This work was done under instructions dated February 8, 1921.

CONTROL.

The control consisted of triangulation, topographic and hydrographic stations. A plane table traverse was run from Δ OLD, along the beach to the Northward. This located all the intermediate signals and the tall signal SHIP on the extreme edge of the sheet, the traverse being tied in on Δ SHIP.

The survey buoys were located by fixes using the shore signals and were used in turn as signals. They were the three barrel type with wire screen banner, made by the party.

METHOD.

The ship did all the sounding from about the three fathom curve outward. The inshore work was done by the launch, as was also the sounding in the immediate locality of the wreck shown on the chart in Lat. 37-03.1 North and Long. 75-45.9 West.

Lines were run in an east and west direction, which is approximately normal to the shore line, in accordance with the instructions. They were run a quarter of a mile apart until the ten-fathom curve was reached. From here to the limit of visibility of signals they were placed a half mile apart. They were run a mile apart from here to the end of the sheet.

Positions were determined by sextant three-point fixes as far as it was possible. From this point the lines were run by Precise Dead Reckoning.

The ship was run at a uniform speed of about five miles per hour and soundings were taken at regular intervals depending upon the depth. A hand lead with eight and twelve pound lead was used for all soundings up to about fifteen fathoms. Beyond that depth the trolley gear was used with a twenty pound lead.

In addition to the regular system of lines other lines were run at right angles in a north and south direction at intervals of about two miles, out to the ten fathom curve.

Several shoals were developed on Precise Dead Reckoning Lines. Very satisfactory results were obtained by anchoring the launch with an observer. The ship was then run on a given course. At regular intervals the bearing of the launch was taken and simultaneous angles between the launch and the horizon and between the ships fore truck and the horizon were read. The mean of the two distances thus obtained was used as the distance between the launch and the ship. This method has been described by Captain Seran in a special report.

SHOALS AND DEVELOPMENT.

All suspicious spots were carefully developed for shoals.

A series of lines was run over the seventeen foot spot known as Smith Island Shoal on the Chart in Lat. 37-05.9 North and Longitude 75-45 West. The least depth obtained was twenty four feet. — 23 ft on Hydrographic Sheet

In Latitude 36-55 North, Longitude 75-34 West, a special development was made, as called for in the instructions to the Chief of Party, of a shoal indication found by the BACHE in 1919. A small nine fathom area was found with a least depth obtained of fifty one feet. P. 130

In approximately Latitude 37-02 North and Longitude 75-33 West, a development was made of an area of about three square miles. The bottom was lumpy as it is on other places on this sheet, but nothing of importance was discovered.

NAUTILUS SHOAL.

This shoal was sounded out by the launch. The depths found were greater than those shown on the chart, our least sounding being ten feet.

To the North of Nautilus Shoal, the channel into Smith Island Inlet is apparently filled in some what.

The launch party was unable to find any channel with depths as great as those shown on the chart.

RANGE TOWERS.

Attention is called to the two range finding towers on "The Issacs". These towers are about thirty feet high and are shown on the hydrographic sheet as "East" and "West". They were located by sextant cuts and show well from seaward.

CURRENTS.

Currents were observed at anchorages on the Precise Dead Reckoning work. They were found to be very uncertain both as to direction and strength. No doubt the uneven bottom had much to do with this.

CONCLUSION.

It will be noted that the cross soundings as a rule check within the limits required by the Regulations. Where large discrepancies are found it should be remembered that the bottom is in general very lumpy and a slight displacement in position may cause quite an appreciable disagreement in the cross soundings.

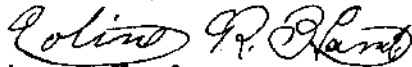
One Precise Dead Reckoning Line remains to be plotted on the sheet. This is from Position 1B to 5B on Sheet No. 2; P.D.R. The line was made continuous on the two sheets. All records for sheet No. 2 were sent to the office before the portion of the line was plotted on Sheet No. 1.

Respectfully Submitted:



L.O. Stewart,
H. & G. Engr.

Respectfully Forwarded:



Eoline R. Hand,
Commanding, Steamer BACHE.

S T A T I S T I C S S H E E T # 1

1921	Letter	Volume	Position	Sound- ings	Miles Statute	Vessel
April 13,	A	1	42	244	10.8	Ship
" 14	B	1	145	857	40.5	"
" 20	C	1&2	153	1011	39.9	"
" 21	D	2	166	1155	45.2	"
" 25	E	2	82	430	22.0	"
" 26	F	3	176	1278	44.7	"
May 4,	G	3&4	123	687	31.6	"
" 17	H	4	57	359	15.8	"
" 18	J	4	116	622	30.2	"
" 18	a	1	180	1060	42.6	Launch
" 19	K	4&5	76	427	20.9	Ship
" 20	L	5	25	224	6.0	"
" 20	b	1	25	113	6.8	Launch
" 25	M	5	72	467	19.6	Ship
" 27	N	5	125	840	30.0	"
" 27	c	1	117	638	25.5	Launch
June 7	P	6	163	858	41.6	Ship
" 8	Q	6	135	902	36.5	"
" 16	R	6&7	119	535	36.6	"
" 16	d	2	37	157	6.7	Launch
" 20	S	7	92	362	25.2	Ship
" 21	T	7	178	655	47.7	"
" 23	U	7&8	59	401	13.1	"
" 30	V	8	69	484	18.7	"
July 5,	W	8	26	248	5.9	"
" 6	X	8	103	504	22.0	"
" 8	Y	8&9	166	1168	44.6	"
" 13	Z	10	115	656	41.7	"
" 14	A'	10	18	111	6.3	"
" 15	B'	10	137	582	40.0	"
" 18	C'	10	25	136	10.0	"
" 19	D'	10&11	61	305	18.7	"
" 21	F'	11	41	156	12.0	"
" 21	e	2	124	905	28.5	Launch
" 29	G'	11	29	88	6.0	Ship

1921	Letter	Volume	Positions	Soundings	Miles Statute	Vessel
May 26&27	A	1	¹⁵ PDR	384	47.	Ship
June 16&17	B	1	¹⁴ PDR	363	41.9	"
29	C	1	¹⁴ PDR	162	49.9	"
July 7	D	1	⁶⁵ PDR	311	21.1	"
7	E	2	⁸ PDR	91	41.1	"
12	F	2	⁸ PDR	124	35.0	"
18&19	G	2	¹² PDR	280	37.0	"
T O T A L			<u>522</u>	<u>21420</u>	<u>1166.9</u>	

Soundings in feet/
Tide Staff Fishermans Island.
Plane of Reference M.L.W. = 3.0 feet on staff.

Positions Sealed from Hydrographic Sheet No. 1

Object and Description	Latitude	Long. W.	Long. E.	Height	Remarks
East range finding tower on the Isaacs	37-05	60	75-57	701	30ft. ^{Height} approximate.
West range finding tower on the Isaacs	37-05	60	75-57	821	30ft. "

Report on Verification & Inking of Hyd. Sheet 4193.

The records and notes were complete and legible. The protracting was excellent and the plotting of soundings was good. The area was well covered. The sheet was quite soiled, and appears to have been protracted upon directly, without a tracing paper protection. The drafting conformed to the general instructions except the numbering of each position.

There is a note that requires further examination, where on a sounding of $12\frac{1}{2}$ fms. the leadman reported he thought he "felt something at about 8 fms." This is labeled doubtful by H. A. Seran in the sounding record. See p. 3, Vol. 1, P.O.R.

As is customary in the inking of dead reckoning work, the locations of the lines were not verified, the field plotting having been accepted as correct.

There was some doubt as to which position of Ves to use after m day pos 51, the note indicating Ves 2 and the work on the smooth sheet showed that Ves was used. A letter asking for a decision from H. A. Seran was sent thru Capt. Colbert but no satisfactory explanation was stated in his reply. Therefore the plotting as done in the field was accepted and the amount of shift ~~from the using of Ves 2~~ from the using of Ves 2 may be seen by comparing the pencilled line which is left on the smooth sheet with the work as inked, based on Ves.

The crossings were poor in many cases although the reduces were carefully examined by the tide Division.

July 29, 1922.

Frank M. Albert
Draftsman, Section of Field Records.

As a compare with Capt. Seran it was during
to accept as better than position being the same as 51.

COPY TO FIELD RECORDS

March 27, 1922.

Division of Hydrography and Topography:

Division of Charts:

and tidal reductions by Div. T. and C.

Tide reducers are approved in
15 volumes of sounding records for

HYDROGRAPHIC SHEET 4193

Locality: Approaches to Chesapeake Bay


Chief of Party: E.A. Soren in 1921

• Plane of reference is mean low water

3.0 ft. on tide staff at Fishermans Island, Va.; 3.2 ft. on t. s. at Assateague
Island, Va. (automatic gauge); 2.2 on t. s. at Breakwater Harbor, Del. (automatic

• Allowance made for difference in tide at place of soundings. (gauge)

Condition of records satisfactory except as checked below:
for reduction of soundings.

- 
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 each 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.

In general, the survey was poorly done. Daylight tidal observations have been used in obtaining tide reductions for soundings taken during the night; many soundings do not cross by 6 ft., yet the range of the tide is but 3 feet; etc.



Chief, Division of Tides and Currents.

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

SECTION OF FIELD RECORDS.

Report on Hydrographic Sheet No. 4193.

Surveyed in 1921.

Instructions dated Feb. 8 and Apr. 8, 1921.

Chief of Party: H. A. Seran.

Surveyed by party of Str. Bache.

Protracted by L. B. Clore, L. O. Stewart, C. H. Wright and
W. D. Patterson.

Soundings Plotted by L. O. Stewart.

Verified and inked by F. M. Albert.

1. The records as well as the plan and character of development conform to the requirements of the General Instructions.
2. The plan and extent of development satisfy the specific instructions except that the direction to obtain bottom specimens was complied with on three days only.
2. The sounding line crossings are adequate except in a few instances where they are 10 or 12% in error. The reason for the errors could not be discovered. They are not of great importance.
4. The information is sufficient for drawing the usual depth curves.
5. The field plotting prescribed by General Instructions was completed and none of it had to be done over.
6. The junctions with adjacent work by the same party are satisfactory. Differences of some consequence are noted from the depths shown on the chart.
7. No further surveying is required within the area covered by the sheet.
8. The character and scope of surveying and quality of field drafting are excellent.
9. Reviewed by E. P. Ellis, October, 1922.

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. 4193

State . . . Virginia

General locality . Entrance to Chesapeake Bay

Locality Off Cape Charles

Chief of party H.A. Seran

Surveyed by . Steamer Bache, H.A. Seran Commanding

Date of survey . April . to . July . 1921

Scale . . . 1:40,000

Soundings in . Feet

Plane of reference . Mean Low Water

Protracted by . ^{L.E. Clore}
^{L.O. Stewart}
C.T. Wright Soundings in pencil by . L.O. Stewart
W.D. Patterson

Inked by Verified by

Records accompanying sheet (check those forwarded):

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

15 Sounding books, Wire-drag books, Photographs.

Data from other sources affecting sheet P. D. R. Abstracts.

List of positions scaled from Hydrographic Sheet

Remarks:

