

5416

U. S. COAST & GEODETIC SURVEY  
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5416

Form 504  
Ed. June, 1928

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
R. S. Patton *Director*

State: Maryland

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 5 5416  
Hydrographic }

LOCALITY

Chesapeake Bay

Off Gibson Island

Project No. 146

1933.

CHIEF OF PARTY

John A. Bond, H. & G. Engr.

DESCRIPTIVE REPORT

To Accompany Hydrographic Sheet No. 5  
CHESAPEAKE BAY, OFF GIBSON ISLAND, MARYLAND  
PROJECT NO. 146

AUTHORITY--The work on this sheet was executed in accordance with Director's Instructions dated May 10, 1933, Project No. 146.

SURVEY METHODS--Standard Coast Survey methods of hand lead sounding and sextant fixes were used. Mahogany colored, bronze wire centered lead line, with 8 and 10 lb. leads, was used. Boats used were a 24 ft. leased launch, 24 ft. leased skiff with outboard motor, and Coast Survey launch No. 65. Control consisted of cloth signals and natural objects located by standard Coast Survey methods of triangulation and planetable topography.

This work was done by a detached combined operations party from the Launch MIKAWA with Lieut. (j.g.) F.R. Gossett in charge and with the remainder of the party composed of graduate engineers and hands hired temporarily under the N.I.R.A. W.R. Jackson, Surveyor, who had had considerable previous Coast Survey experience was placed in charge of the hydrographic party after a short period of instruction and executed most of the work on this sheet. The principal difficulty encountered in breaking in the remainder of the unexperienced party was in developing a reliable coxswain which was

further complicated by the fact that the Kitch<sup>er</sup> rudder on launch No. 65 steers very unsteadily and the launch has a residual magnetism affecting the compass by as much as 45 degrees, causing the card to settle very slowly and to change irregularly on changes of course.

DEVELOPMENT--The locality of shoal indications on this sheet and the transferred positions of shoals from sheet 2346 (1897 survey) were investigated by running out the sextant angles to the positions and dropping a buoy (made up of a 5 gal. oil tin and grapnel hook). The launch then cruised and drifted in the vicinity of the buoy, sounding continuously. Fixes were taken on the shoalest soundings obtained.

DISCREPANCIES--Errors in the sounding record, principally in recording and reading of angles, have been adjusted during smooth plotting and appropriate notes shown in the record in red. No. 13-b' to 15-b' was run to disprove 61-k to 62-k which the leadsman evidently misread 2 fathoms too shoal. Soundings from 1-e to 47-e appear to be about 1 ft. shoal. When this was noted on the boat sheet during the progress of the work, it was expected that the actual reducers used in smooth plotting would eliminate this discrepancy since the tide was unusually low on the morning of Oct. 19. The sextant fix locations of the buoys along Craighill Channel do not check exactly the topographic lo-

locations. The hydrographic locations should be given preference because the swinging of the buoys with the tide would tend to displace the intersection of the topographic cuts.

DANGERS--The bottom on that part of the sheet north of Baltimore Lighthouse is very irregular. There are numerous small detached shoals with from 1 to 2 fathoms less water than the surrounding bottom which dotted the area on both sides of the dredged channel.

The positions of the shoalest spots are as follows:

10 ft. pos. 16-e' and 17-e'	Lat. 39-06.0, Long. 76-22.5
9 ft. pos. 25-e'	Lat. 39-06.0, Long. 76-22.9
12 ft. pos. 14-d'	Lat. 39-05.5, Long. 76-21.8
12 ft. pos. 16-d'	Lat. 39-05.7, Long. 76-21.8
12 ft. pos. 18-d' and 19-d'	Lat. 39-05.7, Long. 76-21.9
12 ft. pos. 22-e'	Lat. 39-06.2, Long. 76-22.8
17 ft. pos. 20-k, 1st sdg	Lat. 39-05.9, Long. 76-23.7
14 ft. pos. 47-j, 3rd sdg	Lat. 39-05.1, Long. 76-23.8
15 ft. pos. 15-h'	Lat. 39-06.1, Long. 76-23.8
15 ft. pos. 18-h'	Lat. 39-06.3, Long. 76-23.8
12 ft. pos. 10-u, 1st sdg	Lat. 39-06.2, Long. 76-24.3
11 ft. pos. 13-e and 3-u	Lat. 39-05.3, Long. 76-24.6
16 ft. pos. 57-d'	Lat. 39-04.4, Long. 76-23.9
14 ft. pos. 54-d'	Lat. 39-04.2, Long. 76-24.1
13 ft. pos. 47-d'	Lat. 39-04.3, Long. 76-24.6

CHANNELS--Craighill Channel; the principal channel on the sheet was not sounded as this channel is frequently dredged and the project depth maintained by the U.S. Army Engineers. This channel is well buoyed and lighted. Sounding lines down the lines of buoys on each side define the edges.

12 ft. may be carried into the mouth of the Magothy River.

The Little Magothy River is a shoal slough which can be entered only at high tide by canoes and other shallow draft boats.

ANCHORAGES--There are no protected anchorages on the sheet. Boats drawing 12 ft. or less can find shelter inside the mouth of the Magothy River.

COMPARISON WITH PREVIOUS SURVEYS--This sheet was compared with the photostats of Nos. 2345 and 2346 (1897). Depth curves were found for the most part to have the same general forms and positions. General depths check to within 1 ft. The most important of the small shoals which were transferred from the old surveys checked to within 1 ft. in the field. Soundings at the junction of sheet 5197 checked to within 1 ft.

GEOGRAPHIC NAMES--This information is given in  
the descriptive reports for topographic sheets G and H.

Respectfully submitted:

*F.R. Gossett*

F.R. Gossett,  
Jr. H. & G.E.,  
In charge, sub-party.

Approved and forwarded:

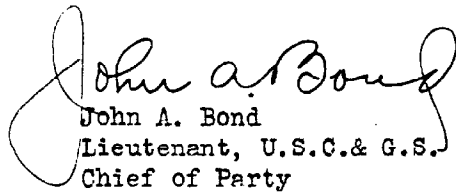
*John A. Bond*  
John A. Bond,  
H. & G.E.,  
Chief of Party.

*Applied to new chart 550  
Sept. 24, 1974 M.E.*

STATISTICS FOR SHEET NO. 5

<u>Date</u>	<u>Day Letter</u>	<u>Volume</u>	<u>Positions</u>	<u>Soundings</u>	<u>Statute Miles</u>
Oct. 12	a	I	47	283	5.70
Oct. 16	b	I	25	130	3.20
Oct. 17	c	I	52	304	7.50
Oct. 18	d	I & II	126	737	18.50
Oct. 19	e	II	106	586	18.10
Oct. 20	f	II	135	826	23.50
Oct. 21	g	III	34	187	5.50
Oct. 23	h	III	23	120	2.85
Oct. 26	j	III	96	536	17.15
Oct. 27	k	III	78	472	16.29
Oct. 30	l	IV	59	314	11.15
Nov. 3	m	IV	107	666	22.00
Nov. 6	n	IV	57	290	9.15
Nov. 7	p	V	114	645	31.14
Nov. 9	q	V	9	47	1.52
Nov. 13	r	V	92	543	17.14
Nov. 16	s	V & VI	35	268	3.93
Nov. 17	t	VI	39	202	5.71
Nov. 18	u	VI	25	111	3.08
Nov. 20	v	VI	58	303	9.71
Nov. 21	w	VI & VII	47	295	9.70
Nov. 22	x	VII	44	269	8.28
Nov. 23	y	VII	77	347	9.80
Dec. 15	z	VII	11	100	2.30
Dec. 18	a'	VII	88	439	13.10
Dec. 19	b'	VII & VIII	151	805	21.21
Dec. 20	c'	VIII	2	12	.12
Dec. 21	d'	VIII	60	74	---
Dec. 22	e'	VIII	43	43	---
Dec. 23	f'	VIII	18	18	---
Dec. 27	g'	VIII	17	17	---
Dec. 28	h'	VIII	31	31	---
Dec. 21	j'	VIII	64	217	3.45
Totals			1970	10237	300.78

Smooth Sheet 5 and records pertaining thereto have been  
examined by the Chief of Party and are approved

  
John A. Bond  
Lieutenant, U.S.C. & G.S.  
Chief of Party



LAC

April 21, 1934

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
8 volumes of sounding records for

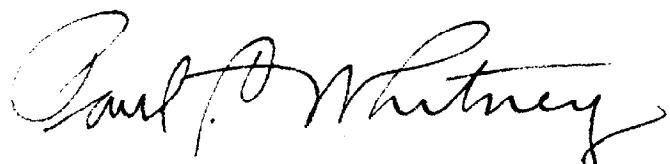
HYDROGRAPHIC SHEET 5416

Locality Eastward from Gibson Island, Chesapeake Bay, Md.

Chief of Party: John A. Bond in 1933  
Plane of reference is mean low water, reading  
3.1 ft. on tide staff at Gibson Island  
6.0 ft. below B. M. 1

Height of mean high water above plane of reference is 0.8 ft.

Condition of records satisfactory except as noted below:

  
Chief, Division of Tides and Currents

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

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Acc. No. \_\_\_\_\_

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. 5

REGISTER NO. **5416**

State Maryland

General locality Chesapeake Bay

Locality Eastward from Gibson Island

Scale 1:10,000 Date of survey October-December, 19 33

Vessel Launch MIKAWA (Shore Sub-Party)

Chief of Party John A. Bond

Surveyed by F.R. Gossett and W.R. Jackson

Protracted by G.V. Long and A.G. Turner

Soundings penciled by A.G. Turner and J.W. Seager

Soundings in ~~fathoms~~ feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by -----

Inked by Irvin Miller

Verified by Irvin Miller

Instructions dated May 10, 19 33

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

Section of Field Records  
Report on Verification of H-5416

1. Records.

The records conformed with the requirements of the hydrographic manual with the following exceptions;

- a. The symbol S was used instead of the signal names for the first fix on a page.  
Names of signals added in field by the field plotter, P.S.
- b. The records did not indicate any changes in course.  
Many notes do not mention the fact that the boat was off range, see Desc. Rep. p. 11
- c. The approximate latitudes and longitudes at the beginning of new lines of soundings were lacking. However in many cases these were entered by the field plotter.  
Essential if to be given additional in the report
- d. In a few volumes a too hard pencil was used. This made it more difficult to read.

The day letters and position numbers were small and legible, but the procedure of lettering approximately every fifth position was not followed.

There were no geographic names penciled on the smooth sheet.

2. Protracting

This sheet contains 1970 positions. 58 of these were checked because of a variance with the boat sheet, and nine were found to be in error. 138 detached positions were checked and 5 were found to be in error. In one case, the wrong signal was used and in another there was a 10 minute error in the setting of the left angle.

The detached positions were located by dropping buoys at the approximate positions of shoals as shown on previous surveys. The depths were recorded at the positions of the buoys and then the shoalest soundings in the vicinity of each buoy were recorded. This resulted in a group of 2 or 3 soundings being plotted at each shoal indication. In three instances, the positions of these shoals were correctly protracted but were numbered wrong, as 23e' was numbered 24e' and 24e' was numbered 23e'.  
also pro 43 e' protracted in 8 m. probably great error of 20' on right side of protracting.

Position 27e', a 10ft. shoal, was found to be plotted on both the boat sheet and the smooth sheet at approximately the same position as 29e', but was in error as the office plotting places the shoal at a position 420 meters to the north, which checks very closely with a like shoal indicated on the current chart. There was no apparent reason for this error. See preceding page for error on boat sheet and smooth sheet.

This sheet contains 14 buoys with their positions fixed by sextant cuts. All of these were checked and were found to be accurately protracted.

Several of the positions, including detached positions, along the eastern extremity of the sheet required the use of double extension arms for the protracting. A consistent discrepancy of approximately 25 meters was found for each fix that was

checked. This was, for the greater part, apparently caused by distortion of the sheet. There may also have been a slight difference between the accuracy of the field and office reprotractors when the double arm extensions were used. The positions were not changed by the verifier.

Positions 58-686' and 75-806 were outside the limits of the smooth sheet. It was found advisable to attach a "dog ear" and plot these positions and soundings.

### 3. Soundings.

The soundings were accurately and neatly plotted. All variances of the time intervals were accounted for and the B.S. was referred to for changes in course. However 10 soundings were plotted in error as to the amount.

There were several instances in the sounding volumes where a one minute jump in the time interval was recorded. These variances were not followed by the verifier as they disagreed with the boat sheet plotting. The errors were, apparently, in the recording.

### 4. In general.

The location of the sunken wreck and of buoy # "N2" were taken from T-6039.

Respectfully submitted,  
Irwin Miller

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5416

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

Number of positions on sheet	1970
Number of positions checked	230
Number of positions revised	14
Number of soundings recorded	10,237
Number of soundings revised	76
Number of signals erroneously plotted or transferred	.....

Date: 7/2/34.....

Cartographer: Irvin Miller.....

Verification of protracting

Verification & inking of rocks & Shoals)

*or buoys*

by Irvin Miller

Time: 53.5 hrs.

Verification of inking by

Irvin Miller

Time: 112.0 hrs.

Review by

R. J. Christman

Time: 39<sup>3</sup>/<sub>4</sub> hrs.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5416 (1933)

Eastward from Gibson Island, Chesapeake Bay, Maryland.

Surveyed October - December 1933

Instructions dated May 10, 1933 (MIKAWA).

Hand Lead Soundings - 3 Point Fixed Positions on Shore Objects.

Chief of Party - J. A. Bond.

Surveyed by - F. R. Gossett and W. R. Jackson.

Protracted by - G. V. Long and A. G. Turner.

Soundings penciled by - A. G. T. and J. W. Seager.

Verified and inked by - Irvin Miller.

1. Condition of Records.

Soundings records conform to the requirements of the Hydrographic Manual except -

- a. Too hard a pencil was used in several volumes.
- b. In a number of instances, names of signals were not entered on the first position on the page. In most cases they were later entered by the field plotter.

2. Compliance with Instructions for the Project.

The plan and extent of development are in accordance with the instructions for the project. Several shoals shown on earlier surveys were not examined in detail. Many small shoal spots are shown. The method of development assures that the least depth was determined but the record fails to show the outline or shape of the shoal in many cases.

3. Soundings Line Crossings.

Depths at crossings of lines are in good agreement. Differences of 1 foot are noted in a few places. In general the soundings are consistent.

4. Depth Curves.

Depth curves can be drawn satisfactorily. The boat sheet was consulted in drawing curves around the many small shoals shown on the sheet.

5. Junctions with Contemporary Surveys.

- a. Junction with H. 5403 (1933) is adequate; the depth agreement is good.
- b. Junction with H. 5197 (1932) is adequate. Depths in the overlapping area are in fair agreement, generally less than 1 foot although one crossing indicates a difference of 2 feet in 40.

c. On the east and southeast this survey overlaps H. 2345 (1896-7). To the eastward the general depths appear to be slightly less (about 1 foot) than on the 1896 survey. Most of the shoal spots in the overlap on Belvidere Shoal have been verified. Two shoal spots have been carried forward (in red) to the new survey in this vicinity.

In and near the southern entrance to Craighill Channel depths are greater and details have changed, probably as a result of the deepening of this dredged channel.

In the remainder of the area common to the two sheets the agreement is fair. More detail is shown on the new survey principally due to the larger scale of the survey. Except for the two shoal spots carried forward the 1933 survey (H. 5416) should supersede H. 2345 (1896-7) for charting the area common to the two surveys.

#### 6. Comparison with Prior Surveys.

A large portion of the area covered by the present survey is characterized by numerous lumps and shoal spots of small extent rising 3 to 8 feet above the general level of the surrounding depths.

In studying the prior surveys in this area, special attention was given the many shoal spots shown on the old and new survey. Where a conflict existed, the records (old and new) were examined and in determining what shoal spots should be carried forward to the new survey, consideration was given the possibility of errors in lead-line reading or of position, the matter of whether the shoals on the old surveys were developments or whether they represented a single sounding on the regular system of lines, and the amount and character of development on the new survey.

##### a. H. 2346 (1896-7).

The 1933 survey checks the earlier survey within about 1 foot except in Craighill Channel and the area affected by the deepening of that channel by dredging; and in approximate lat.  $39^{\circ}06'.5$ , long.  $76^{\circ}22'.1$  where the present survey shows 2 to 3 feet lesser depth with a correspondent deepening in the area to the westward.

The 1933 survey (H. 5416) with indicated additions should supersede the above survey for future charting purposes.

##### b. H. 913 (1866).

This survey shows conditions before any dredging of channels in this area. The general agreement is fair. There are several localities where general changes appear to have taken place aside from those caused by dredging operations, and there are many more



shoal spots shown on the later surveys. Only one sounding from this survey (a 13 in lat.  $39^{\circ}05'.5$ , long.  $76^{\circ}21'.7$ ) has been carried forward to the 1933 survey, within the area common to the two surveys. This survey should be superseded by the 1933 survey (H. 5416) for future charting purposes.

c. (H. 469 (1852), H. 415 (1854), H. 166 (1845)).

The first is a large scale examination of Belvidere shoal (shoalest area only), in the others the lines are spaced far apart and details of shoals are not in close agreement with the later surveys. All three surveys may be considered as reconnaissance for present purposes and within the limits of the present survey should be superseded by the 1933 survey (H. 5416) for future charting purposes.

7. Comparison with Chart No. 549.

The area under consideration was compiled from the 1896-7 survey for the Sept. 1933 edition of this chart, (see par. 6, above, for comparison) with additions from U. S. Eng. B P and reports. The 1933 survey shows four of the Craighill Channel buoys up to 200 meters northward of their charted position, and the N 2 at the entrance of Magothy River about 100 meters northward of the charted position. These differences do not affect their value for navigating purposes.

The 25 foot sounding shown about 1/10 mile south of black buoy 5 C at the west edge of Craighill Channel (lat.  $39^{\circ}04'$ ) comes from B P 24969 (U. S. Eng. March 1932). The new survey shows similar depths within 50 meters of this charted 25.

8. Field Plotting.

General protracting of positions was fair. Attention should be directed to the necessity for extreme care in plotting detached positions. At least two of the ten positions of this kind found in error were traceable to setting the wrong value on one of the protractor arms. Several position numbers were interchanged. A few errors in value of soundings were corrected. In general the penciling of soundings was accurately and neatly done.

Some details of the penciled curves were changed in the office. See par. 4.

9. Additional Field Work Recommended.

a. Immediately necessary.

None.

b. For future consideration.

The shoals carried forward (in red on H. 5416(1933) from previous surveys should be examined.

Shoals located during the 1933 survey were examined for least depth by drifting over them and do not need further examination, except the 23 foot sounding in lat.  $39^{\circ}03'.95$ , long.  $76^{\circ}22'.8$ , which should be investigated.

10. Miscellaneous.

Craighill Channel is maintained by U. S. Engineers. B P 27097, (March 1932) received Dec. 13, 1933, is the latest blueprint consulted in connection with this review.

11. Superseding Old Surveys.

Within the area covered, the present survey, with the indicated additions from previous surveys, will supersede the following surveys:

H. 2345 (1896-7)	in part.
H. 2346 (1896-7)	" "
H. 913 (1866)	" "
H. 469 (1852)	entirely.
H. 415 (1854)	in part
H. 166 (1845)	" "

12. Reviewed by - R. J. Christman, August 1934.

Inspected by - A. L. Shalowitz.

*K.T. Adams*

K. T. Adams,  
Chief, Section of Field Records.

*B. Borden*

Chief, Section of Field Work.

Examined and approved:

*L. O. Pollock*

Chief, Division of Charts.

*G. T. Wade*

Chief, Division of H. & T.

Applied to reconstruction of CHN 566 F/A Jan 1948