

6344

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

FEB 10 1939

Acc. No.

6344

Form 504
Rev. April 1935
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Topographic } Sheet No. 6344
Hydrographic }

~~State Delaware and New Jersey~~

LOCALITY
Atlantic Coast - Offshore
~~Approaches to Delaware Bay~~

1938

CHIEF OF PARTY

~~Frank S. Borden~~

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

FEB 10 1939

REG. NO.

HYDROGRAPHIC TITLE SHEET 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. 41

REGISTER NO. 6344 ⁽¹³⁸⁾

State ~~Off shore, Delaware and New Jersey~~

General locality Atlantic Coast - Offshore
~~Approaches to Delaware Bay~~

Locality Approaches to Delaware Bay

Scale 1:40,000 Date of survey May 4 - June 3, 1938

Vessel Ship OCEANOGRAPHER

Chief of Party Frank S. Borden

Surveyed by Ship's Officers (H. P. Odyssey, P. A. Smith)

Protracted by E. F. Hicks, Jr.

Soundings penciled by E. F. Hicks, Jr.

Soundings in ~~fathoms~~ feet

Plane of reference M.L.W.

Subdivision of wire dragged areas by See "remarks" below.

Inked by R. H. Carstens

Verified by R. H. Carstens

Instructions dated March 4, 1938, 19

Remarks: Areas wire dragged within limits of this sheet
are shown on Sheets No.'s W.D. 6341 and W.D. 6342.

DESCRIPTIVE REPORT

PROJECT #207 - SHEET 6344 (1735)

SHIP OCEANOGRAPHER

Frank S. Borden, Commanding

I. INSTRUCTIONS

This survey was authorized in supplemental instructions dated March 4, 1938. It covers the area between parallels 38°- 20' and 38°- 44' and meridians 74°- 20' and 74°- 40' as shown outlined in red on attached sketch. ✓

II. METHODS

A line of survey buoys running north and south with buoys spaced about two miles apart was established on the western portion of the sheet. This line originated near Ocean City, Maryland and ended at Barnegat Inlet, New Jersey with other shore connections at Cape May, New Jersey and Avalon, New Jersey. The positions of these buoys were computed from sun azimuth and taut wire traverse and after the complete traverse with all shore connections was completed the buoy positions were adjusted proportionally from the nearest shore tie. Sono buoy ACE was located by a spur line from buoy KIT. Sono buoy BUG was located by bomb distances from several other buoys. All other sono buoys on this sheet were part of the main line traverse. See control scheme on previous page. ✓

From the western limit of the work to about four miles east of the buoy line the positions were located by visual fixes. The remainder of the work was controlled by bomb distances from sono radio buoys. These sono radio buoys were used at four locations, but the greater portion of the work was controlled by returns from two stations. At the beginning of the season only two buoys gave satisfactory results. ✓

In computing the bomb distances a boat sheet overlay was made showing average depth from each sono buoy to every position depending on it for control, and the velocity used was the bottom velocity at a depth corresponding to this average depth. These bottom velocities for the various depths were obtained by plotting all bottom velocities, computed from bottom temperature and salinity, for one trip on a single sheet of co-ordinate paper using velocity as the ordinate and depth as the abscissa and a mean curve was drawn through these points. These depths as plotted were one and one half fathoms less than the recorded depth because the thermometer and water cup were stopped about one and ✓

one half fathoms off the bottom; they were placed above the sounding lead and the gear was stopped when the lead hit bottom. A similar curve was drawn for each trip and from these curves a seasonal curve of bottom velocities was drawn using the date as the abscissa and velocity as ordinate. The date used for plotting was the middle date for each trip.

These distances were plotted on the sheet by the increment distances from the various distance circles drawn around each buoy at the time the projection was made.

In plotting the R. A. R. positions the arcs were accepted as correct unless it was obvious that they were in error.

All soundings on this sheet were obtained with the Dorsey No. 1 Fathometer. In the correction of fathometer soundings there were five corrections or reducers to be applied to the soundings as follows: Tide, velocity, draft, index and settlement.

The reductions for tide were made to all soundings and for this sheet the Coast and Geodetic Survey standard tide station at Atlantic City, New Jersey was used assuming that the tide occurred one half hour earlier than at Atlantic City and that the range was the same.

Since the fathometer runs at a constant speed, it is necessarily calibrated for a fixed velocity of sound in seawater. Both fathometers on the Oceanographer are calibrated for a velocity of 820 fathoms or 1499.6 meters per second. If the actual velocity differs from this calibrated value the sounding must be corrected by an increment proportional to the depth and the variation of the actual from the calibrated velocity, this correction being added if the actual velocity is greater, and subtracted if less, than the calibrated velocity.

During the past season on the Oceanographer the velocity corrections were divided into separate parts by trips, each trip averaging nine to ten days. In this manner the seasonal effect was taken care of and also the locality of work as in each trip the work was more or less restricted to a small area.

Serial temperatures were taken at every opportunity and these observations of temperature and salinity were plotted as shown in Figure 1. From these individual curves a mean curve for temperature and salinity, as shown by the black line on Figure 1, was drawn for each trip. From the mean curves the temperatures and salinities at two fathom intervals were recorded as shown on Figure 2. Then the mean temperature and mean salinity from surface to the point in question is computed by meaning the values to the desired depth, these values are computed at two fathom intervals to the greatest depth sounded during the period in question.

From the mean values thus obtained a mean velocity corresponding to the mean temperature and salinity was computed using the British Admiralty velocity tables. Then from the formula, given in Field memorandum No. 3 dated June 11, 1936,

$$\frac{\text{British Admiralty table velocity} - \text{Fathometer Velocity}}{\text{Fathometer Velocity}} = \pm \text{Factor}$$

the fathometer factor was computed. The correction to be applied to the recorded sounding is the product of this factor and the depth. However, since the distance between the surface of the water and the transceiver is not measured by the fathometer, this distance must be subtracted from the recorded depth before multiplying by the factor, assuming of course that the initial flash on the fathometer is set so that it corresponds with or practically with the depth of the transceiver. Then the velocity or temperature and salinity corrections curve using depth as ordinate and corrections as abscissa, this curve is shown as a red line and marked "O draft correction" on Figure 4.

This procedure alters corrections
.02 ft at 4fms.
.12 ft at 30fms.
A.L.S

Since it is desirable to keep the fathometer initial set at a constant value and the depth of the transceiver varies with the amount of fuel and water on hand a correction on account of changes in draft must be applied. When the ship was in dry dock the vertical distance between the rail and the transceiver was determined by spirit levels. Then by measuring from each rail to the water it was a simple matter to compute the distance from the surface of the water to the transceiver. Two measurements, one on each side, were taken and the mean used to eliminate any effect of list. However this method was unsatisfactory as it was very difficult to obtain an accurate measurement except in calm weather and later in the season a draft gage was installed. This consisted of a vertical glass tube in the engine room with one end open to the sea. Attached to this tube was a graduated scale the zero of which was set at the same level as the transceiver. To determine the draft of the transceiver the valve was opened and the scale reading of the water in the tube recorded. These values were plotted on the draft correction curve as shown in Figure 3. With the draft gage daily readings were recorded while rail to water measurements could be made on calm days only.

The changes in draft were taken from the curve by days to the nearest tenth of a foot and for the period of one day was assumed to be constant. Then a corrections curve combining temperature and salinity and draft was drawn for each day by stepping off with dividers a distance from the zero draft correction curve equal to the draft correction for that day. See Figure 4. The advantages of combining the curves will be discussed later.

Then there is an index correction, this correction probably being due to several causes among which is a lag in the circuit, there being a small time elapse between the receiving of the signal at the transceiver and the flashing of the light. This correction is determined by making a comparison between fathometer soundings and wire or hand lead soundings while the ship is dead in the water. The fathometer sounding is corrected for velocity and draft, and the difference between the corrected fathometer sounding and the vertical cast is the index correction. This correction is the most difficult of any to obtain and for this reason a large number of vertical casts should be made in varying depths. A sample of these computations is shown on Figure 3.

For the past season on the Oceanographer these index corrections seemed to divide into two parts, there being a marked difference between the first two trips and the remaining eight. There seemed to be no difference between the No. I and the No. II fathometer, after the date when No. II was used for sounding. For the first two trips the index correction used was - 1 foot and for all remaining trips was - 2 feet except that on the first day the No. II fathometer was used the initial was set 4 feet off and the correction used was - 6 feet.

There is a correction for settlement which is the actual increased draft of the ship due to its speed. The settlement was computed from formulae in Taylor's "Speed and Power of Ships" and for a ship the size of the Oceanographer was found to be very nearly $\frac{1}{2}$ foot at a speed of 10 knots.

Of the five corrections just discussed the tide reducer is a variable depending on the time of day or stage of tide. The velocity correction is a variable depending on depth and season, but as previously mentioned the seasonal effect is treated in ten day periods so that for any one trip the velocity corrections may be assumed to vary only with the depth. The draft correction varies with the time out from port, but may be considered as constant for one day since it rarely changes more than a tenth of a foot per day. The index correction is usually constant for at least a trip or until a known time of change. The settlement varies slightly with speed and depth but for all practical purposes of full speed sounding may be regarded as constant.

If each correction is taken out to tenths of feet the maximum combined error would be 0.25 foot, while if each one is taken out separately to the nearest half foot the maximum error will be $1\frac{1}{4}$ feet. However since draft, index and settlement may be regarded as constant for at least one day they may be combined with the velocity correction

in the same manner in which the velocity and draft corrections are combined in Figure 4. If these corrections are combined and taken out to the nearest half foot the maximum correction error would be one half foot which would be one per cent or less in depths of fifty feet or over. This combination greatly reduces the work in taking out, entering and checking reducers without sacrifice of accuracy.

Index and settlement were not combined with velocity and draft in this manner in the past season's work on the Oceanographer because they summed up to an even half foot and nothing would have been gained by the combination. The combined index and settlement corrections are shown in the sounding record in the column marked "I & S". The velocity and draft corrections were combined and shown in the column marked T/S/D.

III DISCREPANCIES

All minor changes in the record are noted in red pencil and no further explanation is needed. In the case of bomb distances when a distance was not used it was indicated by a question mark in red pencil following the questioned distance.

A considerable number of gyro bearings were not used in locating the position as they were apparently in error. It is not believed that this error is due to erroneous observations but to oscillations in the gyro compass for sometime after making wide angle turns. At times this amounts to as much as three degrees.

On page 10, volume 2 of the sounding record, positions 28-29C, there is a recorded sounding of 58 feet. This sounding plots in latitude $38^{\circ}-32'$, longitude $74^{\circ}-39'$. From other soundings in this vicinity including a later cross line over this sounding it appears that this 58 foot sounding is in error and it is not plotted. (see note in record by Commanding Officer)

*58 ft. sdg
was rejected
RNC*

On page 66, volume 3 of the sounding record, position 50-51 "F" there is a recorded sounding of 144 feet which is probably in error and is not plotted. (see note in record)

*144 ft
sdg omitted*

Other discrepancies noted: In latitude $38^{\circ}-27'$, longitude $74^{\circ}-42'$ positions 120 - 121 "A" and 60 - 61 "A" there is a six foot crossing. The bottom is very irregular in this locality and a slight displacement of either line would make the crossing agree. In latitude $38^{\circ}-33'$ longitude $74^{\circ}-31'$ position 38 - 39 "G" and 136 - 137, 142 - 144 "F" there are two three foot crossings which are no doubt due to weak positions in this locality. The soundings on the east-west lines, which are better controlled, should be given preference.

IV DANGERS

No dangers to surface navigation were found in the area covered by this survey. For details regarding wire drag work in locality of the reported shoal at the south end of the sheet see Descriptive Report on Sheet No. 6341 (W.D.). ✓

V COMPARISON WITH PREVIOUS SURVEYS

Surveys on this sheet were extended considerably beyond the limits outlined in the instructions in an effort to obtain satisfactory junctions and in order to provide better development than was obtained from the previous surveys. On the south-east portion of the sheet approximately sixty square miles, previously surveyed on sheet # 5350⁽¹⁹³³⁾, were resurveyed in sufficient detail to draw definitely the depth curves. Along the southern portion of the sheet the work was extended southward over the area wire dragged. This was done in order to make certain that the ridge on which drag work was to be done would actually be covered by the drag. On the southwest corner of the sheet a poor junction was obtained with sheet No. # 4944⁽¹⁹²²⁾ and the work was extended southwestward until a satisfactory junction had been obtained with sheet No. # 5348⁽¹⁹³³⁾. Satisfactory junctions were obtained with Sheets Nos. # 6272⁽¹⁹³⁷⁾ on the west, and # 6264⁽¹⁹³⁷⁾ on the north without extending the work beyond the limits of those sheets. The junction with Sheet No. # 6345⁽¹⁹³⁸⁾ will be discussed in the report on that sheet. ✓

Par. 4,
review.

This survey was also compared with chart No. 1219 published Feb. 1931, issued June 1, 1938. In general the agreement was fair though it was not uncommon to find discrepancies of as much as 10 to 12 feet. However in view of the more thorough development on the present survey and of the higher degree of accuracy of the sounding apparatus used, it is believed that this survey should supercede all previous surveys except the work done by the Lydonia in 1937 on which the Dorsey No. I Fathometer was also used. ✓

Respectfully submitted,

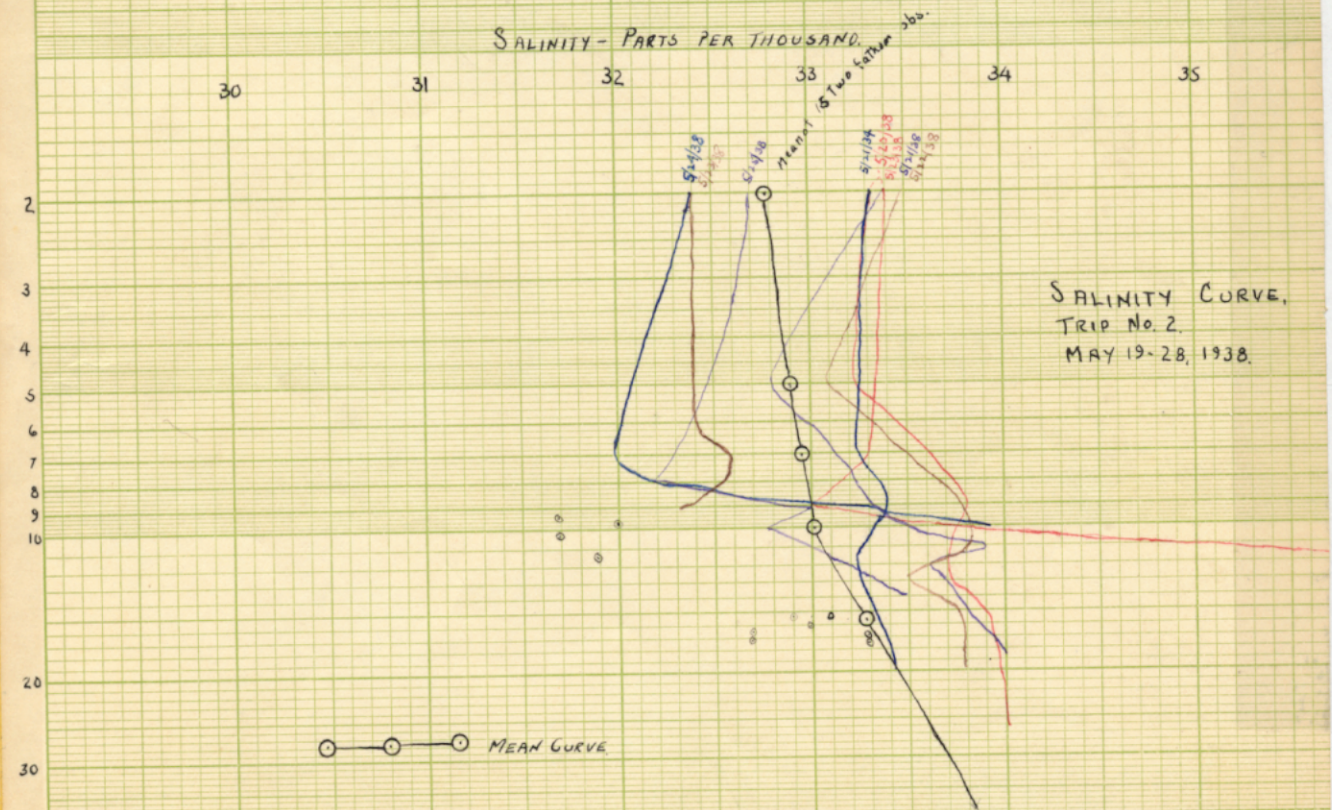
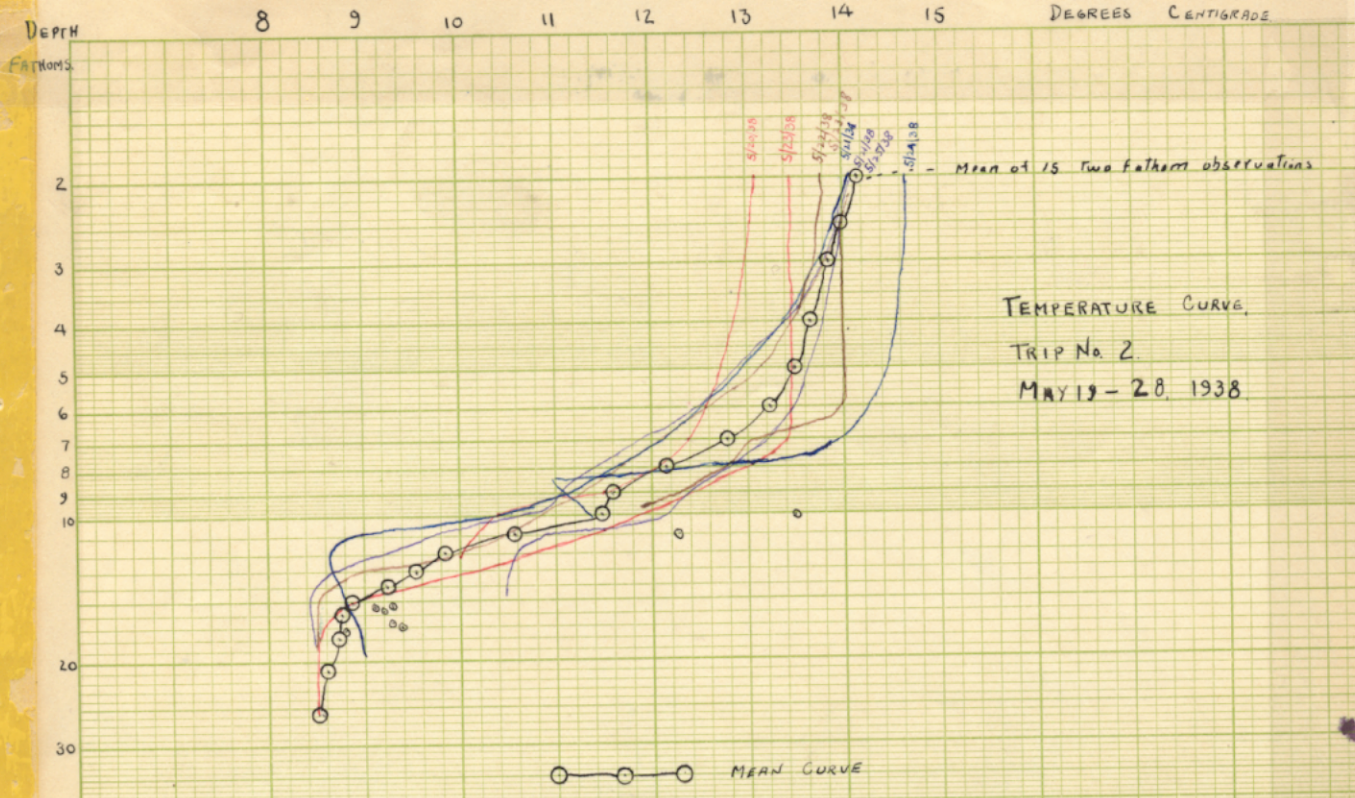
E. F. Hicks, Jr.
E. F. Hicks, Jr.,
Ensign C&GS.

Approved and forwarded

Frank S. Borden
Frank S. Borden, Comdr., C&GS
Commanding Ship OCEANOGRAPHER

STATISTICS SHEET - 6344 (1938)

Day	Date	Vol. No.	R.A.R. Pos.	Vis. Fix Pos.	Soundings	Stat. Miles
A	May 4, 1938	1	-	123	953	99.0
B	" 5 "	1	-	104	821	89.7
C	" 6 "	2	-	73	593	58.0
D	" 7 "	2	-	176	1359	151.0
E	" 8 "	3	19	160	1378	144.3
F	" 9 "	3	23	42	644	69.0
F	" 9 "	4	80	-	893	92.0
G	" 10 "	4	127	5	1317	144.0
G	" 10 "	5	34	-	698	38.0
H	" 11 "	5	61	89	1194	125.0
J	" 20 "	5	52	-	564	51.2
J	" 20 "	6	27	1	171	30.0
K	" 21 "	6	141	16	1523	159.0
L	" 22 "	6	26	12	347	34.4
L	" 22 "	7	27	-	251	23.9
M	" 23 "	7	10	2	111	10.1
N	" 25 "	7	57	68	1183	118.0
P	" 26 "	7	-	14	99	13.9
Q	June 3 "	7	-	16	117	11.8
			<u>684</u>	<u>901</u>	<u>14,216</u>	<u>1,462.3</u>



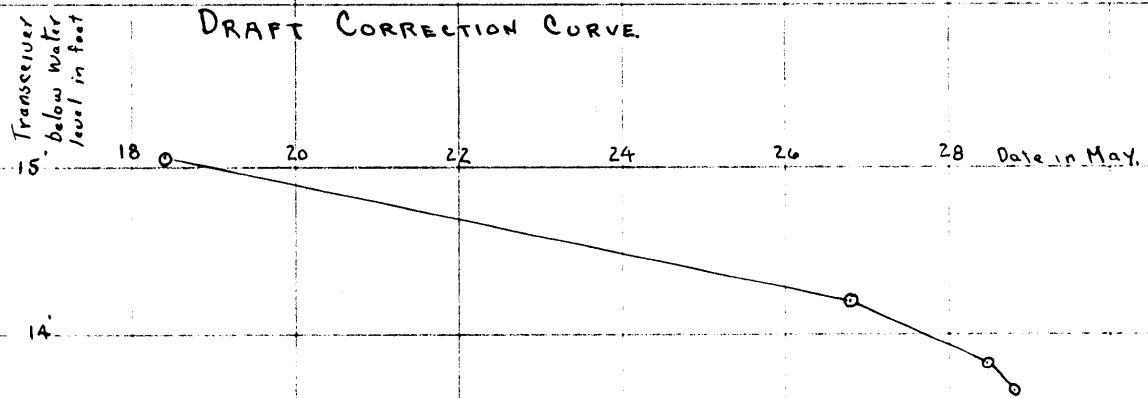
NOTE: This is not the original copy. It is a sample only to illustrate methods. Original temperature and salinity records furnished under separate cover J.S.B.

FIGURE I

TEMPERATURE and SALINITY or VELOCITY CORRECTIONS.

Depth in feet under Transducer	Depth in fathoms on Fathometer Dial.	Salinity	Mean Salinity	Temperature	Mean Temperature	Mean Velocity Meters per Second.	Fathometer factor	Correction in feet.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9) ① x ⑧
	2	32.8		14.1				
10	4	32.8	32.8	13.6	13.8	1497.5	- 0.0014	- 0.01
22	6	32.9	32.8	13.2	13.6	1496.9	- 0.0018	- 0.04
34	8	33.0	32.9	12.1	13.2	1495.7	- 0.0026	- 0.09
46	10	33.0	32.9	11.4	12.9	1494.7	- 0.0033	- 0.15
58	12	33.1	32.9	9.8	12.4	1493.1	- 0.0043	- 0.25
70	14	33.2	33.0	9.2	11.9	1491.6	- 0.0053	- 0.37
82	16	33.3	33.0	8.7	11.5	1490.2	- 0.0063	- 0.52
94	18	33.4	33.1	8.7	11.2	1489.3	- 0.0069	- 0.65
106	20	33.4	33.1	8.6	10.9	1488.4	- 0.0075	- 0.79
118	22	33.5	33.1	8.6	10.7	1487.7	- 0.0079	- 0.93
130	24	33.5	33.1	8.5	10.5	1487.0	- 0.0084	- 1.09
142	26	33.6	33.2	8.5	10.4	1486.8	- 0.0085	- 1.21
154	28	33.6	33.2	8.5	10.2	1486.2	- 0.0089	- 1.37
166	30	33.7	33.2	8.5	10.1	1485.9	- 0.0091	- 1.51

FIGURE 2



VERTICAL CASTS.

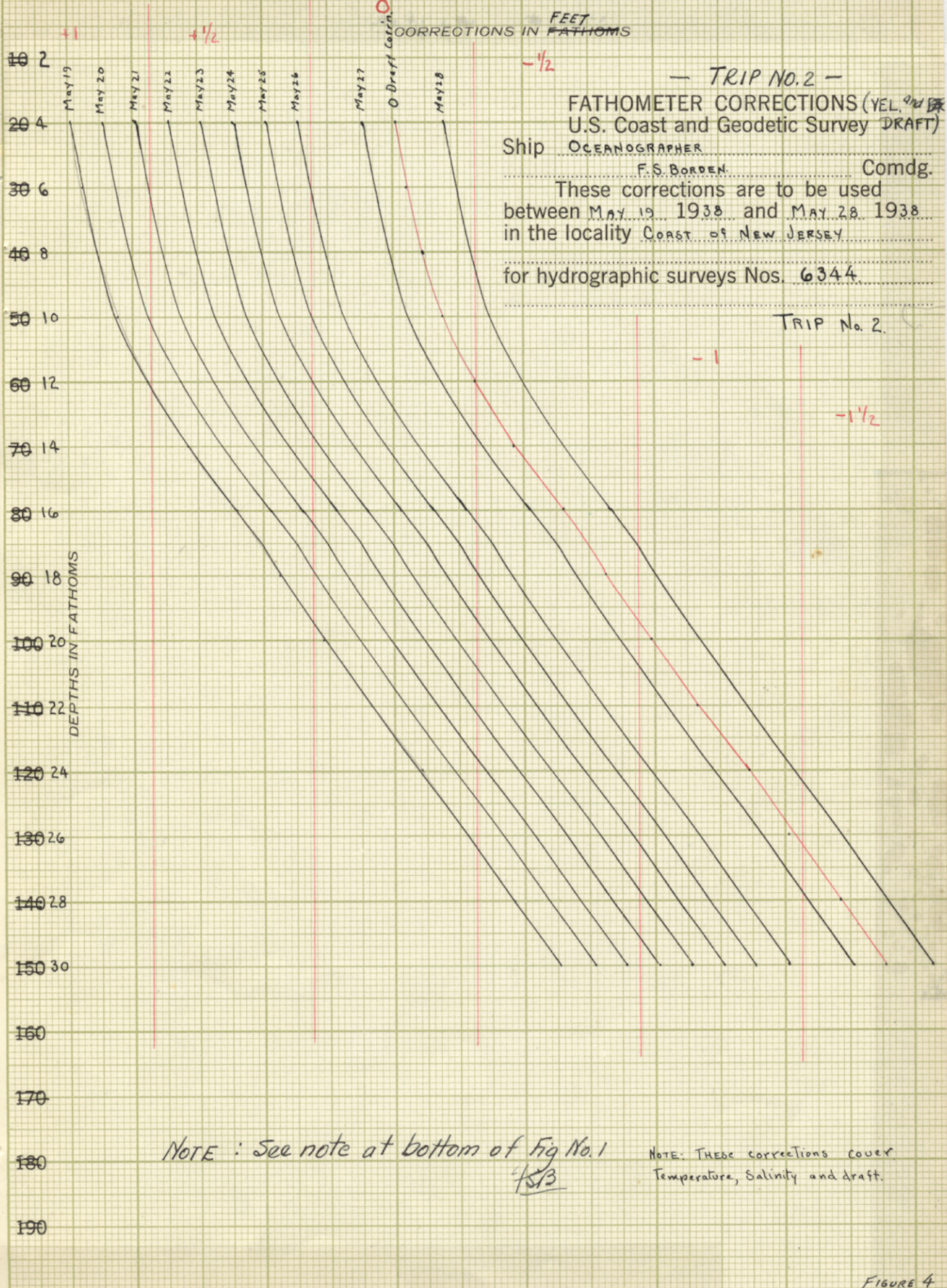
Date	Fathometer Reading	Correction in feet-Velocity	Correction in feet-Draft.	Fathometer Sounding corrected for Velocity and draft	Vertical Cast	Index Correction	Remarks
5/20/38	12-4.0	-0.3	+0.9	12-4.6	12-5.5	+0.9	
	12-4.0	-0.3	+0.9	12-4.6	12-5.5	+0.9	
	12-4.0	-0.3	+0.9	12-4.6	12-5.0	+0.4	
5/23/38	24-5.0	-1.1	+0.6	24-4.5	24-4.2	-0.3	
	24-3.8	-1.1	+0.6	24-3.3	24-3.0	-0.3	
	24-3.5	-1.1	+0.6	24-3.0	24-2.4	-0.6	
5/28/38	4-5.0	-0.1 [⊙]	-0.3	4-4.6	4-4.0	-0.6	
	4-4.8	-0.1	-0.3	4-4.4	4-3.8	-0.6	
	4-4.7	-0.1	-0.3	4-4.3	4-3.6	-0.7	

⊙ from special T.&S. observations at time of sounding.

FIGURE 3

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

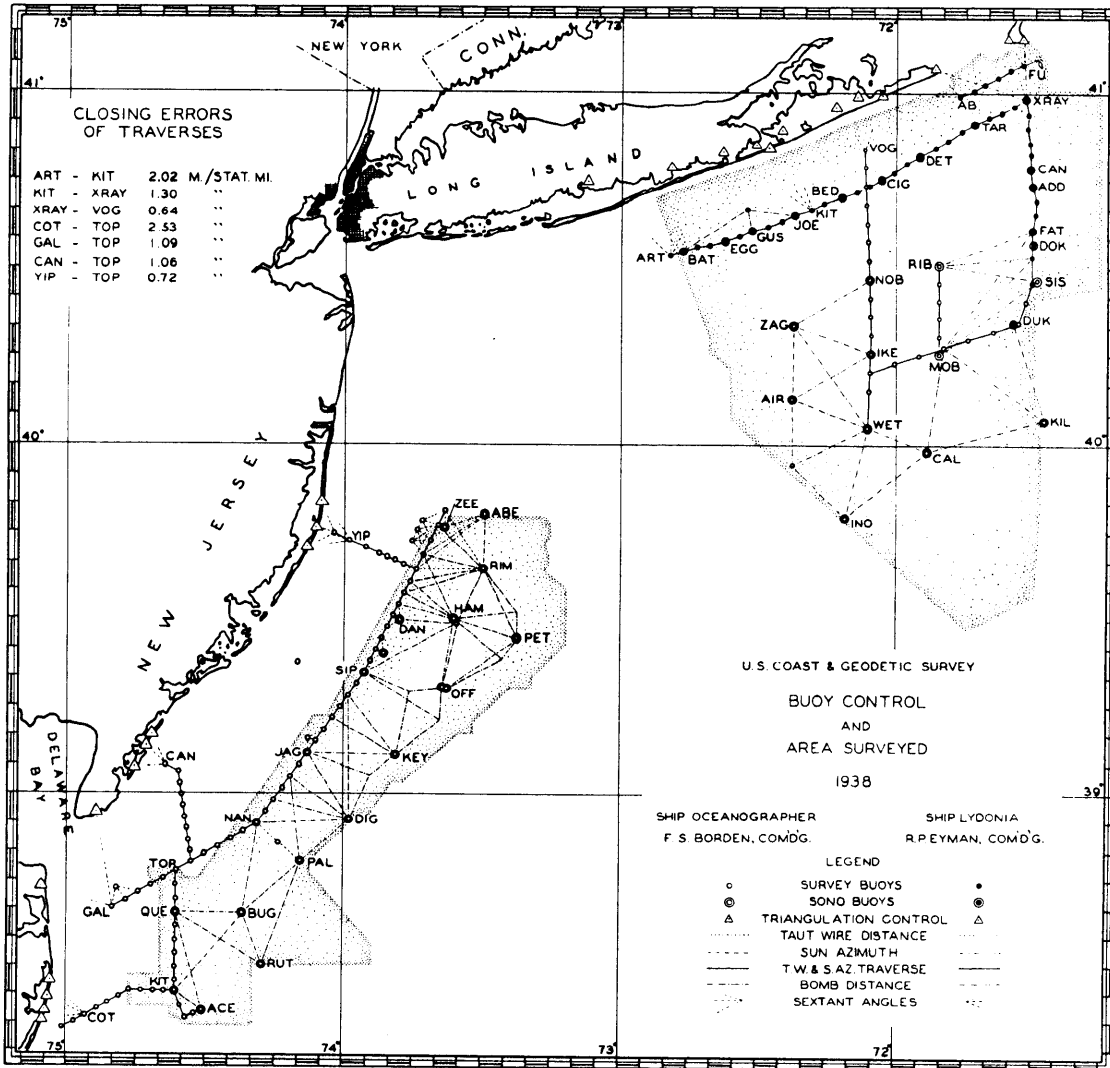
PRINTED IN U.S.A.
 (For deep water add a 0 to these figures)
 EUGENE DIEZGEN CO. NO. 346 A

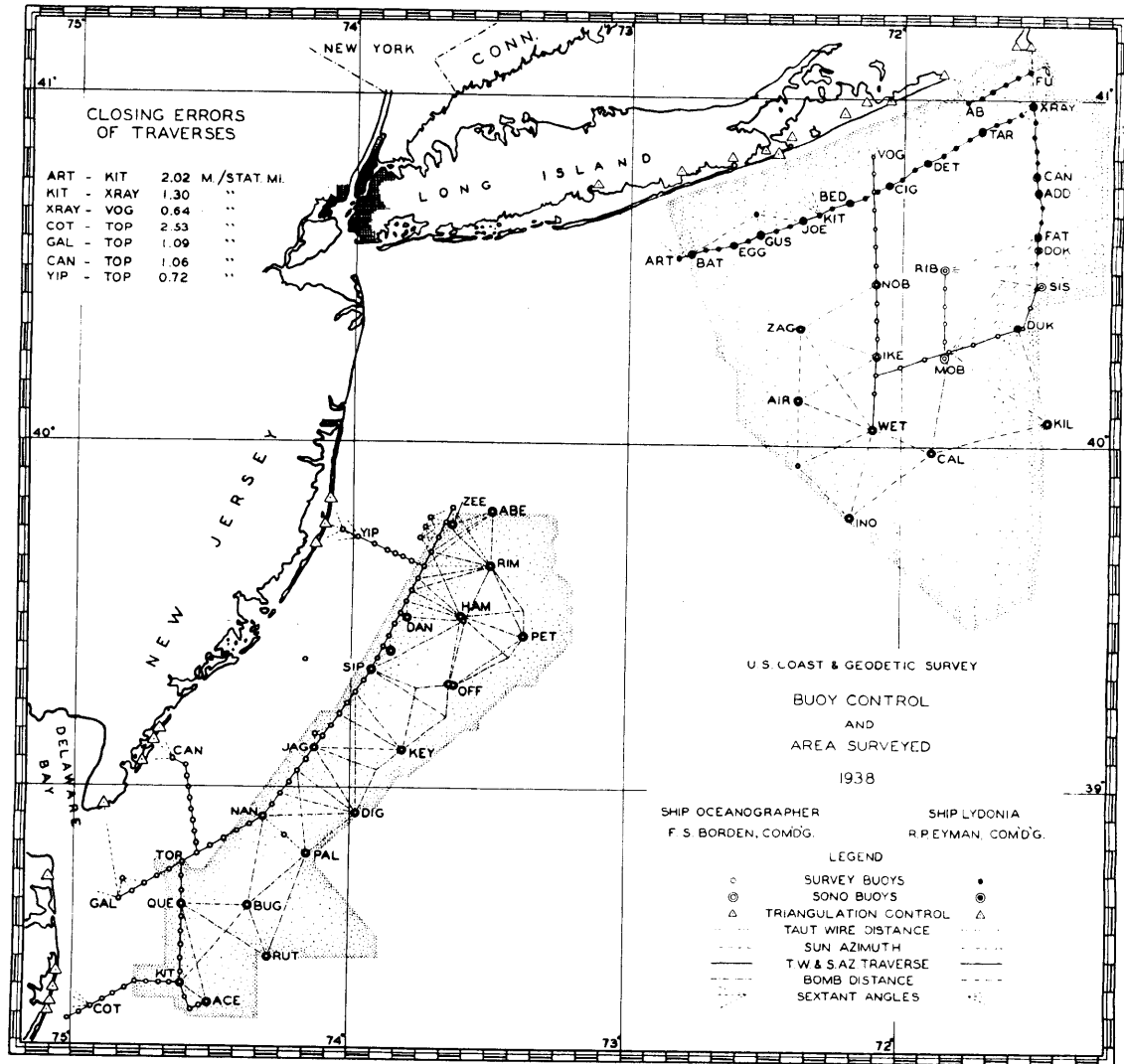


NOTE: See note at bottom of Fig No. 1
 4/5/38

NOTE: THESE CORRECTIONS COVER
 Temperature, Salinity and draft.

FIGURE 4





TIDE NOTE FOR HYDROGRAPHIC SHEET

March 6, 1939.

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. E. P. Ellis

Plane of reference

~~Tide~~ ~~Records~~ approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 6344

Locality Approaches to Delaware Bay, Atlantic Coast

Chief of Party: F. S. Borden in 1938

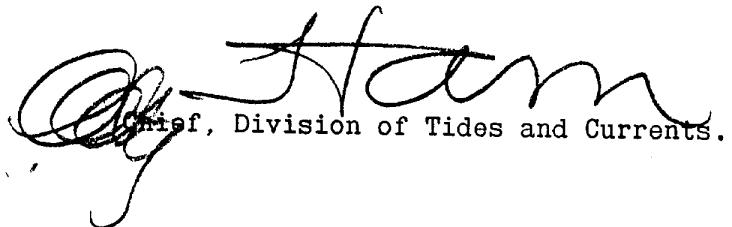
Plane of reference is mean low water reading

4.1 ft. on tide staff at

15.8 ft. below B.M. 32

Height of mean high water above plane of reference is 4.1 feet.

Condition of records satisfactory except as noted below:


Chief, Division of Tides and Currents.

Remarks

Decisions

1	For title	
2	Fenwick I. Shoal USGB decision	38-25.2 74-45.9
3		
4		
5		38-47.3 74-34.5
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27 ¹		
M 234		

GEOGRAPHIC NAMES

Survey No. H-6344

Name on Survey											1	
	A.	B.	C.	D.	E.	F.	G.	H.	K.			
												2
<u>Delaware Bay</u>												1
<u>Fenwick Island Shoal</u>												2
<u>Lighted Whistle Buoy</u> <u>2</u>												3
												4
<u>Five Fathom Bank Ltship</u>												5
												6
												7
												8
												9
												10
												11
												12
												13
												14
												15
												16
												17
												18
												19
												20
												21
												22
												23
												24
												25
												26
												27

Not Geographic Names
Do not ink on Hydro sheet.

Names on this sheet are from
by L. Heck on 6/29/29

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. ~~4~~-6344 ⁽¹¹³⁸⁾

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

Number of positions on sheet	1585.
Number of positions checked	...38.
Number of positions revised	...23.
Number of soundings recorded	14216
Number of soundings revised	...45.
Number of soundings erroneously spaced	...60.
Number of signals erroneously plotted or transferred	...0.

Date: *May 17, 1939*

Verification by *R.H. Carstens*

Time: *115² hrs*

Review by *J.A. McCormick 6/19/39*

Time: *35 hr.*

HYDROGRAPHIC SURVEY NO. H-6344 ⁽¹⁷³⁸⁾

Smooth Sheet Yes

Boat Sheet Yes

Records; Sounding 7 Vols., Wire Drag 0 Vols., Bomb 2 Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals ----

Landmarks for Charts (Form 567) ----

Statistics Yes

Approved by Chief of Party Reprt only

Recoverable Station Cards (Form 524) ----

Special Chart for Lighthouse Service -----
(Circular Nov.30, 1933)

Hydrography: Total Days 15; Last Date June 3, 1939

Remarks _____

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
 DESCRIPTIVE REPORT
~~PHOTOSTAT OF~~

No. H- 6344 ⁽¹⁹³⁸⁾
~~No. X~~

received Feb. 10, 1939
 registered Feb. 16, 1939
 verified
 reviewed
 approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
25			
26			
30			
40			
62			
63			
82			
83			
88			
90			

RETURN TO

82	T. B. Reed
----	------------

TBR

Verifying Report for H-6344 (1938)

1. The records conform to the requirements of the General Instructions except that no list of fathometer corrections was attached to either the descriptive report or the sounding records. Submitted separately. No comment in review. J.A.M.

2. The field plotting was completed to the extent prescribed by the Hydrographic Manual except that the soundings around a number of the turns were not plotted. Soundings on turns ^{in areas} not covered by overlapping sheets, were plotted by the verifier. Inasmuch as the path taken by the sounding vessel on turns is rather uncertain, when these turns were made in areas covered by adjacent sheets, the soundings were not plotted.

3. The other drafting done over by the verifier is shown on the statistics sheet.

4. The usual depth curves can be completely drawn. The curves in the vicinity of lat. 38-22 long. 14-33 were left in pencil awaiting the addition of soundings from overlapping sheets when the review of this sheet is taken up. Curves inked. J.A.M.

5. The junctions with contemporary adjacent sheets are satisfactory. Butt junctions were made with H-4944 (1929) on the west, H-5351 (1933) and H-5352 (1933) on the south and H-5350 (1933) on the east. Overlapping junctions were made with H-5348 (1933) on the south, H-6272 (1931) on the west and H-6264 (1937) on the north. In making the junction with H-5348 (1933) lines from that sheet - one ending in lat. 38-24.1 long. 74-38.2, and one ending in lat. 38-23.8 long. 74-43.8 - were omitted as they do not agree with lines run on H-6344 nor do they agree so very well with cross lines on H-5348.

Butt junctions with all except H-6264 and H-6272. Par. 4, review. J.A.M.

A junction with H-6345 (1938) on the north and east was not made as this sheet has not been inked and verified at the present date.

6. This is an off shore sheet and no shore line appears on it.

Respectfully submitted

R.H. Carstens

5/17/39

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6344 (1938) FIELD NO. 41

Approaches to Delaware Bay, Atlantic Coast - Offshore, Delaware
Surveyed in May - June, 1938, Scale 1:40,000
Instructions dated March 4, 1938 (OCEANOGRAPHER)

Dorsey Fathometer Soundings

3 Point fixes on buoys.
RAR control

Chief of Party - F. S. Borden
Surveyed by - H. P. Odessey, ~~B.~~^{P.} A. Smith
Protracted by - E. F. Hicks, Jr.
Soundings plotted by - E. F. Hicks, Jr.
Verified and inked by - R. H. Carstens

1. Shoreline and Signals

No shoreline is shown. Signals are buoys located by the sun azimuth, taut wire method. Location data is filed in the library.

2. Depth Curves

The usual depth curves may be satisfactorily drawn.

3. Sounding Line Crossings

Sounding line crossings are satisfactory.

4. Junctions with Adjoining Surveys

- (a) Junctions with H-6264 (1937) on the north and H-6272 (1937) on the northwest and west are satisfactory.
- (b) The junction with H-6345 (1938) on the north and northeast will be considered in the review of that survey.
- (c) The present survey overlaps H-4944 (1929), H-5348 (1933), H-5350 (1933), H-5351 (1933) and H-5352 (1933) on the southwest, south and southeast. Soundings on the older surveys differ by as much as 15 feet from those which they cross on the present work. This is particularly true of H-5352 which is a special investigation of a reported shoal on a scale of 1:10,000. Sounding line crossings on H-5352 are poor, the discrepancies being of amounts similar to those with the present work. It is also noticeable that comparisons

between vertical casts and fathometer soundings on H-5352 were erratic, in one case giving a difference of 10 feet in the correction within the space of one hour. The 82 foot depth (charted 13 fathoms) in Lat. $38^{\circ}19.9'$, Long. $74^{\circ}33.0'$ on H-5352 is the shoalest depth obtained on that survey and falls on a shoal ridge with least depth of 90 feet on the present survey. It is considered as unreliable as the remainder of the survey and should be disregarded in future charting (this shoal was cleared with an effective drag depth of 53 feet on H-6341 (1938) Wire Drag). A fringe of soundings from the older surveys has been shown along the limits of the present survey and the latter should supersede the older work in the overlapping area.

5. Comparison with Prior Surveys

- (a) H-101 (1844), 1:400,000; H-670 (1859), 1:400,000;
H-1558 (1882-83), 1:300,000; H-1633 (1884), 1:40,000;
H-1697 (1886), 1:40,000; H-1720 (1886), 1:200,000.

Outmoded methods of sounding and control on this group of surveys make detailed comparisons with the present survey of no value. Sounding lines are widely spaced. Depths are in fair agreement with those on the present survey. The old surveys should be disregarded in future charting of the common area.

- (b) H-4094 (1919-20), 1:120,000; H-4939 (1929), 1:40,000;
H-4940 (1929), 1:120,000.

This group of surveys falls in the same category as the older junction surveys discussed in paragraph 4. They cover the major portion of the present survey and, considering the dead reckoning control used, are in fairly good agreement with the present work. Depths on the 1929 surveys are 5 or 6 feet shoaler in some cases than those on the present work but this can be ascribed to the less accurate fathometer procedure used in that year. The present survey should supersede the older surveys in future charting of the common area.

6. Comparison with Wire Drag Surveys

Wire drag investigation of a 6-1/2 fathom shoal

reported in the vicinity of Lat. 38°19.5', Long. 74°33.5' was made on H-6341 (1938) Wire Drag. Effective drag depths of 50 to 53 feet do not conflict with least depth of 90 feet on the present survey.

7. Comparison with Chart 1109 (New Print dated Dec. 19, 1938).
Chart 1219 (New Print dated March 22, 1939).
Chart 1220 (New Print dated March 29, 1939).

(a) Hydrography

Within the area of the present survey the charts are based on surveys discussed in the foregoing paragraphs. The 64 foot depth in Lat. 38°28.0', Long. 74°41.0' on chart 1219 (10 fathoms on chart 1109) is an erroneous charting of an 84 on H-4944 (1929). The two 74 foot depths in Lat. 38°25.7', Long. 74°45.9' on chart 1220 originate with a single 74 foot depth obtained over a wreck on H-4944 (1929). The northwesterly of the two is correct. The other results from charting the survey depth on the approximate position of the wreck charted prior to the survey. These errors will be corrected.

(b) Aids to Navigation

The survey position of the whistle buoy in Lat. 38°25.1', Long. 74°46.0' is in substantial agreement with the charted position. The charted marker buoy for the above whistle buoy was not located.

8. Condition of Survey

- (a) The sounding records are neat and legible.
(b) The descriptive report satisfactorily covers all items of importance.
(c) The field drafting is satisfactory.

9. Compliance with Instructions for the Project.

Satisfactory.

10. Additional Field Work Recommended

None

11. Superseded Surveys

H-101 (1844) in part
H-670 (1859) in part
H-1558 (1882 - 83) in part
H-1633 (1884) in part
H-1697 (1886) in part
H-1720 (1886) in part

12. Reviewed by - J. A. McCormick, June 19, 1939.

Inspected by - H. R. Edmonston

Examined and approved:



T. B. Reed,
Chief, Section of Field Records



Chief, Division of Charts



Chief, Section of Field Work



Chief, Division of H. & T.

Applied to chart 1220 Mar. 6, 1941 g.H.S.

From Lat. $38^{\circ}27'$ to Lat $38^{\circ}35'$ and from
Long $74^{\circ}20'$ to Long $74^{\circ}18.2'$
Applied to Chart 12119 to fill in
where title had previously been
shown. Title and notes now
shifted to margin of Chart.

12/13/51 *[Signature]*