

5355

Diag. Cht. Nos. 1000-2 and 1220-1.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. 5 (part 2) Office No. H-5355

LOCALITY

State Maryland and Virginia

General locality Offshore Maryland and Virginia Coasts

Locality North of Winter Quarter Shoal

194 33

CHIEF OF PARTY

H.A. Seran

LIBRARY & ARCHIVES

DATE February 19, 1934

5355

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5355

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. 5 (part. 2)

REGISTER NO. 5355

State Maryland and Virginia

General locality Offshore Maryland and Virginia Coasts

Large

Locality North and East of Winter Quarter Light Vessel

Small

Scale 1:40,000 Date of survey 7-16 to 9-28, 1933

Vessel OCEANOGRAPHER

Chief of Party H. A. Searan

Surveyed by Field Officers

Protracted by J. E. W.

Soundings penciled by J. E. W.

Soundings in ~~fathoms~~ feet

Plane of reference M. L. W.

Subdivision of wire dragged areas by F. N.

Inked by C. R. Bush Jr.

Verified by C. R. Bush Jr.

Instructions dated April 27, 1933

Remarks:

DESCRIPTIVE REPORT

Hydrographic Sheet (field letter five-part two)

Maryland and Virginia Coast 1933

Project No. H. T. 142

The descriptive report for Hydrographic Sheet (field letter five - part two) is herewith submitted.

INSTRUCTIONS:

The hydrography on this sheet is a part of Project No. H. T. 142, 143, 144, the instructions for which were dated April 27th, 1933.

LIMITS AND SCALE:

This sheet was surveyed on a scale of 1:40,000. The area covered lies between Latitude 38°-05', Longitude 74°-31', Latitude 38°-12.5, Longitude 75°-02' and Latitude 37°-55', Longitude 75°-00', Latitude 37°-48.5, Longitude 74°-38' approximately.

This sheet joins with Sheet 3 on the N.E., Sheets 4 and 2 on the north, Sheet 2 on the N.W. and Sheet 5-part 1 on the west. Sheet 5 A covers that area that lies between Latitude 38°-04' and 38°-06' -- Longitude 74°-45' and 74°-49'.

Wire drag operations were executed on the shoal that lies between Latitude 37°-55' to 37°-56.5 and Longitude 74°-54.7 to 74°-56.1.

55.4

SURVEY METHODS:

The area on this sheet was surveyed by the ship OCEANOGRAPHER using standard R.A.R. methods. The LYDONIA and GILBERT acted as station ships.

The soundings on this sheet were taken for the most part with the combination striker and oscillator fathometer. The fathometer soundings were taken with the striker unit. Those soundings taken on Position 66 to 129 G-Day and 1-35 W Day were with the hand lead. They were given preference in plotting over the fathometer soundings. The fathometer soundings in water of 8 fathoms and under were considered unreliable and have been rejected and removed from the sheet. 8 fathom soundings and under were removed in the following cases:

1. A Day : 16 - 18; 22 - 24; 43 - 44; 76.
2. E Day : 26 - 27; 68 - 70.
3. G Day : 35 - 36; 40 - 46; 54 - 59; 63 - 64.
4. J Day : 21 - 24; 40 - 45; 57 - 59; 80 - 81; 98 - 99; 116 - 119.
5. K Day : 11 - 12; 52 - 53; 87; 126; 135 - 136; 142 - 143; 149 - 151.

6. N Day : 13 - 14; 24 - 25; 38 - 39; 61 - 62.

7. V Day : 56 - 59.

H5353 Satisfactory junctions were made with the adjacent sheets. Sheet 5 (part one) overlaps the shoals as shown on this sheet in the North West in the vicinity of Latitude 38°-10' to Latitude 38°-12' and Longitude 74°-56' to Longitude 74°-58' and also that area south of 38°-10' and west of a line drawn from Latitude 38°-09', Longitude 74°-58' to Latitude 38°-05', Longitude 75°-00' approximately. It overlaps on the south over that area which lies between Latitude 37°-54' and Latitude 37°-55' and west of Longitude 74°-57'.

Positions 11 - 20 V were plotted on a celluloid sheet which is attached. They were used as a check on any changes on the shoal between Latitude 38°-04' and Latitude 38°-06'; Longitude 74°-46' and Longitude 74°-49'.

The depth curves (from the other sheets adjacent to this one) were transferred and are shown in dotted red lines.

The depth curves joined satisfactorily in most cases and smooth continuous curves can be drawn from this sheet onto the ones adjacent to it. They will need special adjustment in the following cases:

H5351  
1. The 90' curve in the vicinity of 42M and 93M does not join with the ones taken from sheet 4. Shoal soundings on sheet 4 fall on deep soundings on this sheet. A small displacement in either line would make the two curves join. The control on sheet 4 is poor because Jig was used as one buoy and the final location of this buoy is not very strong.

2. The 90' curve in the vicinity of positions 25 - 26 A does not join with the one transferred from sheet 2. This is probably due to erroneous soundings. H5348 (not finished)

3. The soundings on line 14 - 16 F appear to be a little deep throughout in comparison with the soundings on sheet 5 - part one. Evidently 14 - 16 F is displaced out of its true position. H5353

H5353  
4. There are several cases where the curves join on sheet 5 - part one where it was necessary to make special adjustments to have the curves join. One example of this type:- Between Positions 114 to 115 J the line appears a little too far to the north. The shoal soundings fall on the deep and the deep soundings on the shoal but by moving the line a small amount satisfactory junction can be obtained.

H5353  
Deep soundings on sheet 5 - part one fall partly on shoal soundings on the lines 60 - 61 K, 84 - 85 K, 113 - 114 K, sheet 5 - part two. A small displacement of the soundings on sheet 5 - part two would put the depth curves in perfect agreement. H5355

REDUCTION OF SOUNDINGS:

A standard tide gauge was maintained at Assateague Coast Guard station located at Assateague Anchorage. In the reduction of soundings for tide, it was assumed that the stages of the tide occurred on the

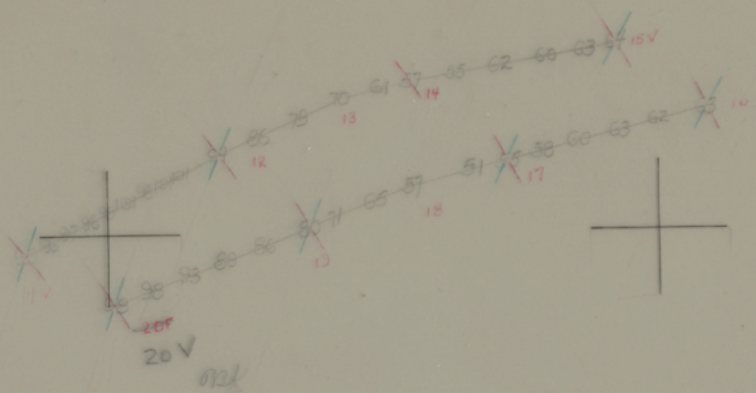
06 52

74 50

48

46 06 06

04



+

04 04

To accompany H 5355

06 52

74 50

48

46 06 06

working ground fifteen minutes earlier than that at the point where the tide gauge was located.

The fathometer corrections ( the index correction and the temperature and salinity correction ) were taken as one unit. Comparisons between the fathometer and vertical casts were taken on an average of once an hour during the working hours. Temperatures and salinities were observed on an average of every two hours unless the sounding ship was in close proximity of the station ships.

DISCREPANCIES AND ADJUSTMENTS:

It was found that when the sounding lines passed through that area between the buoys that the arcs either overlapped or were too short to intersect. This was due to the fact that the velocity used was not the true velocity, or in adjusting the buoy scheme the buoys were moved slightly out of their true positions. In order to take care of the jump that would have occurred if the intersections were used, the arcs were plotted and the lines adjusted graphically to fall between the arcs a proportional amount depending on the distance from the station ships.

In all cases where there were strong bomb arc intersections they were given preference over the courses and log distances unless they were so far off course or time that it was very evident that they were in error. If the arcs were rejected the line was plotted on course and time and adjusted between those positions that were accepted. The time of the positions were determined to the nearest 5 seconds while the log cannot be read that close, therefore in plotting the lines the time was used in checking in preference to the log where ever it was possible to do so.

Special adjustments were made in the following cases:

1. Positions 64 F, 65 F, 79 F, 80 F, 9 G, 11 G, 14 G, 15 G, 28 G, 32 G, 33 G, 46 G, 47 G, 81 N, 86 N, 99 N, - 103 N, 105 N - 111 N, 113 N - 116 N, 119 N - 123 N, were plotted on courses and time using log and current factors and adjusted to fall between the arcs a proportional amount depending on the distance from the station ships.

2. Bearings taken on positions were used as checks only and usually were not given any weight in plotting the positions. However, the bearings on positions 1 K, 11 - 14 K, 96 K to ~~101 K~~, 1 - 3 N, were used in plotting these positions.

3. Positions 22 N - 28 N were determined by sextant angles on shore objects. They were plotted on an aluminum sheet and transferred to this sheet. They were given preference over the R.A.R. positions.

4. Positions 94 to 97 G were rejected on account of poor control.

5. All of B.C.D. Days were rejected as buoy Jig was used as one of the control buoys on these days and it was later found to have dragged. An attempt was made to relocate it, but it had disappeared between July 19th and July 31st.

The following is a list of crossings on this sheet. They have been divided into three classes. First are the crossings where the soundings on both lines were obtained with the fathometer. Second, those crossings where the soundings on one line were obtained by the use of the fathometer and on the other the soundings are hand lead soundings. Third, those crossings where the soundings on both lines were obtained by hand lead. In all cases the soundings obtained by the use of the hand lead were given the preference over the fathometer soundings in plotting this sheet. Due to the character of the bottom of this area covered by this sheet there are numerous crossings that do not come within a two foot limit of crossing. This is probably due in part to an error in the velocity chosen in plotting the bomb positions or in the fathometer comparisons. If the soundings in the immediate vicinity indicate that the soundings are correct and a perfect crossing could be obtained by a very small shift of either or both of the lines the crossing is called good and is not given in the list below. As an example of one of this type; there is a five-foot difference in the soundings on the crossing that falls between positions 95 - 96 E and 51 - 52 L. A 116 foot sounding falls on a 111 foot sounding. But this is on a slope because on the L line the soundings jump from 104 feet to 116 feet in the space of one sounding interval. Therefore, it is entirely possible by a very small shift in the E Day line to the eastward to have a perfect crossing. The crossings of this type are not listed below and are considered good crossings.

FATHOMETER SOUNDINGS ON FATHOMETER SOUNDINGS: ( A Day ) Min.dif.

1.	69 feet	(22 - 23 A)	on	53 feet	(24 - 25 E)	✓	16
2.	73 "	(40 - 41 A)	"	56 "	(17 - 18 K)	✓	17
3.	65 "	(46 - 47 A)	"	59 "	(20 - 21 K)	✓	8
4.	65 "	(50 - 51 A)	"	69 - 70 "	( 3 - 4 E)	✓	4
5.	50 - 47 "	(52 - 53 A)	"	53 "	(22 - 23 G)	✓	3
6.	84 "	(53 - 54 A)	"	80 "	(60 - 61 G)	✓	4
7.	49 "	(54 - 55 A)	"	61 - 62 "	(71 - 72 F)	✓	12
8.	49 "	(54 - 55 A)	"	62 - 69 "	(22 - 23 G)	✓	13
9.	102 "	( 66 A)	"	94 - 96 "	(33 - 34 E)	✓	6
10.	55 "	(74 - 75 A)	"	59 "	(16 - 17 K)	✓	4

		<u>E Day</u>					
1.	62 - 67 feet	(12 - 13 E)	on	78 feet	(36 - 37 V)	✓	11
2.	62 "	(12 - 13 E)	"	72 - 71 "	(43 - 44 V)	✓	9
3.	88 - 89 "	(35 - 36 E)	"	95 "	( 3 - 4 N)	✓	6
4.	98 "	(33 - 34 E)	"	103 "	(30 - 31 K)	✓	5
4.	100 "	(33 - 34 E)	"	105 - 106 "	(40 - 41 K)	✓	5
5.	86 "	(36 - 37 E)	"	93 "	(95 - 96 K)	✓	7
6.	83 "	(36 - 37 E)	"	95 - 93 "	(100-101 K)	✓	10
7.	87 - 88 "	(36 - 37 E)	"	82 - 83 "	(40 - 41 N)	✓	4
8.	87 - 88 "	(37 - 38 E)	"	84 - 83 "	(46 - 47 N)	✓	3
9.	96 "	(41 - 42 E)	"	104 - 109 "	(95 - 96 E)	✓	8
10.	86 "	(48 - 49 E)	"	98 "	(90 - 91 E)	✓	12
11.	102 "	(69 - 70 E)	"	110 - 106 "	(99 - 100 E)	✓	4
12.	103 "	(76 - 77 E)	"	97 "	(18 - 19 M)	✓	6
13.	101 "	(76 - 77 E)	"	98 "	(18 - 19 M)	✓	3
14.	106 "	(76 - 77 E)	"	102 "	(18 - 19 M)	✓	3
15.	112 - 115 "	(76 - 77 E)	"	106 "	(18 - 19 M)	✓	6

FATHOMETER SOUNDINGS ON FATHOMETER SOUNDINGS:

Min. dif.

E Day (Cont'd.)

16.	101 feet	(76 - 77 E)	on	107 - 106 feet	(87 - 88 E)	✓	5
17.	106 "	( 87 E)	"	98 - 102 "	(18 - 19 M)	✓	4
18.	106 - 103 "	(90 - 91 E)	"	91 - 89 "	(18 - 19 L)	✓	12 <i>B</i>
19.	98 - 99 "	(90 - 91 E)	"	94 "	(48 - 49 L)	✓	4
20.	105 "	(97 - 98 E)	"	95 - 95 "	(58 - 59 L)	✓	10 <i>B</i>

F Day

1.	75 feet	( 1 - 2 F)	on	71 - 72 feet	(39 - 40 V)	✓	3
2.	67 "	( 5 - 6 F)	"	74 - 75 "	(75 - 76 J)	✓	7
3.	67 "	( 8 - 9 F)	"	77 "	( 3 - 4 J)	✓	10 <i>B</i>
4.	85 - 84 "	( 9 - 10 F)	"	88 - 94 "	(41 - 42 H)	✓	3 <i>ft</i>
5.	72 - 62 "	(11 - 12 F)	"	80 - 81 "	( 8 - 9 H)	✓	8
6.	77 - 76 "	(58 - 59 F)	"	86 - 87 "	( 5 - 6 J)	✓	10 <i>B</i>
7.	95 - 92 "	(59 - 60 F)	"	103 "	(73 - 74 J)	✓	8
8.	91 - 73 "	(60 - 61 F)	"	97 "	(109-110 N)	✓	6
9.	86 - 83 "	(60 - 61 F)	"	107 - 97 "	( 92- 93 J)	✓	11 <i>B</i>
10.	77 "	(60 - 61 F)	"	83 - 81 "	(114-115 N)	✓	4
11.	84 - 80 "	(61 - 62 F)	"	87 - 88 "	(100-101 N)	✓	4
12.	79 - 80 "	(61 - 62 F)	"	89 "	(120-121 N)	✓	9
13.	87 "	(66 - 67 F)	"	91 - 98 "	( 78- 79 K)	✓	4
14.	77 - 76 "	(67 - 68 F)	"	84 "	(42 - 43 K)	✓	7
15.	70 "	(68 - 69 F)	"	81 "	( 2 - 5 G)	✓	11 <i>B</i>
				74 "	(17 - 19 G)	✓	4
16.	72 "	(68 - 69 F)	"	78 - 79 "	(28 - 29 K)	✓	6
17.	71 - 69 "	(68 - 69 F)	"	80 "	(123-124 K)	✓	9
18.	60 "	(69 - 70 F)	"	65 - 68 "	(18-19-20G)	✓	5
19.	53 "	(69 - 70 F)	"	61 "	(18-19-20G)	✓	8
20.	62 "	(71 - 72 F)	"	67 - 66 "	(21-22-23G)	✓	4
21.	96 - 97 "	(77 - 78 F)	"	83 "	(10 - 11 N)	✓	13 <i>B</i>
22.	100 "	(78 - 79 F)	"	96 "	(103-104 K)	✓	4
23.	93 - 94 "	(79 - 80 F)	"	89 - 82 "	(34 - 33 N)	✓	5

G Day

1.	75 feet	( 2 - 3 G)	on	80 feet	(124-125 K)	✓	5
2.	93 "	( 7 - 8 G)	"	99 "	(78 - 79 K)	✓	6
3.	101- 100 "	(10 - 11 G)	"	90 - 92 "	(40 - 41 N)	✓	8
4.	95 "	(11 - 12 G)	"	88 - 92 "	(47 - 48 N)	✓	3
5.	97 - 98 "	(13 - 14 G)	"	92 - 90 "	(39 - 40 N)	✓	5
6.	98 "	(14 - 15 G)	"	104 -108 "	(94 - 95 K)	✓	6
7.	90 "	(15 - 16 G)	"	98 "	(78 - 79 K)	✓	8
8.	73 "	( 18 G)	"	78 "	(28 - 29 K)	✓	5
9.	72 "	(18 - 19 G)	"	80 "	(123-124 K)	✓	8
10.	60 "	(22 - 23 G)	"	76 - 75 "	(124-125 K)	✓	15 <i>B</i>
11.	80 "	(25 - 26 G)	"	86 "	(78 - 79 K)	✓	6
12.	84 - 93 "	( 32 G)	"	77 - 74 "	(33 - 34 N)	✓	7
13.	95 - 92 "	(32 - 33 G)	"	80 - 79 "	(48 - 49 N)	✓	12 <i>B</i>
14.	49 "	(41 - 42 G)	"	54 - 61 "	(28 - 29 K)	✓	5
15.	50 "	(43 - 44 G)	"	58 - 59 "	(79 - 80 K)	✓	8
16.	49 "	(44 - 45 G)	"	55 - 53 "	(12 - 13 N)	✓	4



FATHOMETER SOUNDINGS ON FATHOMETER SOUNDINGS:

Min.dif.

G Day (Cont'd.)

17.	51 feet	(44 - 45 G)	on	54 feet	(93 - 94 K)	3
18.	76 "	(47 - 48 G)	"	<del>58</del> "	(45 - 46 V)	18 + 4' net 18' CR13
19.	77 "	(49 G)	"	83 "	(35 - 36 V)	6
20.	73 - 75 "	(51 - 52 G)	"	81 - 83 "	(36 - 37 V)	6
21.	75 "	(51 - 52 G)	"	78 - 81 "	(45 - 46 V)	3
22.	70 "	(52 - 53 G)	"	67 - 64 "	(75 - 76 N)	3
23.	52 - 50 "	(54 - 55 G)	"	59 - 55 "	(103-104 K)	3
24.	67 - 72 "	(56 - 57 G)	"	61 "	(79 - 80 K)	6

H Day

1.	86 feet	(20 - 21 H)	on	98 - 94 feet	( 2 - 3 K)	8
2.	83 "	(20 - 21 H)	"	97 - 95 "	(122-123 J)	12 ✓
3.	83 - 91 "	(22 - 23 H)	"	98 - 94 "	( 2 - 3 K)	3
4.	78 "	(43 - 44 H)	"	92 "	( 4 K)	14 ✓

J Day

1.	72 - 74 feet	(20 - 21 J)	on	80 feet	( 5 - 6 K)	6
	(20 - 21 J replaced by 72 - 73 V and checks sounding)					
2.	49 - 56 feet	(21 - 22 J)	on	69 - 63 feet	(57 - 58 J)	7
3.	51 "	(23 - 24 J)	"	54 "	(43 - 44 J)	3
4.	85 - 87 "	(70 - 71 J)	N. of	91 - 92 "	(111-112 P)	4
5.	64 - 66 "	(77 - 78 J)	on	57 - 60 "	(115-116 J)	4
6.	59 "	(101-102 J)	"	63 "	(62 - 63 V)	4
7.	59 "	(102-103 J)	"	64 - 62 "	(66 - 67 V)	3

K Day

1.	67 - 68 feet	(13 - 14 K)	on	63 - 64 feet	(109-110 K)	3
2.	55 - 57 "	(15 - 16 K)	"	51 - 52 "	(58 - 59 K)	3
3.	109 - 106 "	(101-102K)	"	102 "	(14 - 15 G)	4
4.	59 - 55 "	(103-104 K)	"	52 - 50 "	(54 - 55 G)	3
5.	56 - 52 "	(104-105 K)	"	48 - 50 "	(61 - 62 N)	2
6.	74 "	(104-105 K)	"	71 "	(66 - 67 N)	3

L Day

1.	105 - 106 feet	( 7 - 8 L)	on	95 feet	(21 - 22 V)	10 ✓
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N Day

1.	71 feet	(49 - 50 N)	on	76 feet	(71 - 72 N)	5
2.	58 "	(58 - 59 N)	"	66 - 65 "	(71 - 72 N)	7
3.	65 "	( 69 N)	"	74 - 73 "	(38 - 39 V)	8
4.	71 - 69 "	(70 - 71 N)	"	75 - 74 "	(38 - 39 V)	3
5.	67 "	(70 - 71 N)	"	74 - 73 "	(89 - 90 N)	6
6.	82 "	(88 - 89 N)	"	86 "	( 45 V)	4
7.	74 "	(98 - 99 N)	"	58 "	( 48 V)	16 ✓
8.	61 "	( 123 N)	"	68 "	( 1 - 2 F)	7

FATHOMETER SOUNDINGS ON FATHOMETER SOUNDINGS:

Min.dif.

P Day

1.	107-106 feet	( 5 - 6 P )	on	99 - 98 feet	(21 - 22 V)	7
2.	101-100 "	(55 - 56 P) "		109-106 "	(23 - 24 V)	5
3.	100-105 "	(65 - 66 P) "		89 - 94 "	(47 - 48 P)	6
4.	99 "	(65 - 66 P) "		95 - 94 "	(51 - 52 P)	4
5.	112 "	(67 - 68 P) "		118-117 "	( 9 - 10 V)	5
6.	112-113 "	(67 - 68 P) "		120-119 "	(39 - 40 Q)	6
7.	91 "	(68 - 69 P) "		109-106 "	( 3 - 4 U)	15 <sup>B</sup>
8.	90 - 88 "	(69 - 70 P) "		98 "	(30 - 31 U)	8
9.	108-109 "	(71 - 72 P) "		113 "	(46 - 47 U)	4

Q Day

1.	114-118 feet	( 9 - 10 Q )	on	104 feet	(24 - 25 V)	10 <sup>B</sup>
2.	109 "	(46 - 47 Q) "		113 "	(27 - 28 V)	4
3.	106 "	(57 - 58 Q) "		114-112 "	(27 - 28 V)	6

HAND LEAD SOUNDINGS ON FATHOMETER SOUNDINGS:

Min.dif.

G Day

1.	101 feet	(69-70 G )	on	97 feet	( 7 - 8 G)	4
2.	61 "	(79 - 80 G) "		73 -72 "	(18 - 19 E)	11 <sup>B</sup>
3.	80- 78 "	(101-102 G) "		74 - 73 "	(73 - 74 F)	4
4.	88 "	(108-109 G) "		75 - 73 "	(20 - 21 E)	13 <sup>B</sup>
5.	64 "	(117-118 G) "		55 - 56 "	(43 - 44 G)	8
6.	77 "	(121-122 G) "		69 "	(24 - 25 G)	8
7.	52- 56 "	(125-126 G) "		49 "	(64 - 65 G)	3

W Day

1.	66 feet	( 1 W )	on	61 feet	(79 - 80 K)	5
2.	47 -48 "	( 9 - 10 W) "		57 - 54 "	(42 - 43 K)	6
3.	48 "	(12 - 13 W) "		51 "	(66 - 67 K)	3
4.	82 "	(29 - 30 W) S.of		76 "	(79 - 80 K)	6
5.	81 -66 "	(31-32-33W) on		62 "	(17 - 18 E)	4

HAND LEAD SOUNDINGS ON HAND LEAD SOUNDINGS:

W Day

6.	71 feet	( 1 - 2 W )	on	66 feet	(77 - 78 G)	5
7.	46 "	( 5 - 6 W) "		49 "	(10-11 W )	3
8.	62 -67 "	(14 - 15 W) "		84 - 79 "	(78 - 79 G)	12 <sup>B</sup>

\* Crossings Nos. 2, 3, 5, 10, A Day; 9 and 10, E Day; 11, 13, 18, 20, 22, F Day; 1, 2, 11, 12, 16, 22, G Day; 2, 3, 6, 7, J Day; 1, 2, K Day; 5, 6, 8, N Day; 2, 4, 5, 6, P Day; 1, 2, 3, Q Day; 3, 6, 7, W Day; 1, 2, 3, 4, 6, 7, (hand lead sdg.) G Day might be possible since a small shift in either one of the lines would make these crossings good even with their present differences.

There is an indication of shoal water around the shoal sounding between 54-55 A. It is recommended that the 49 foot sounding be accepted.

It is recommended that the line of soundings 29 to 38 E be rejected. The whole line appears to be too shoal on all of the crossings with other lines. *Line omitted only between pos 36E + pos 37E*

It is recommended in the other cases that the shoal soundings be accepted, except in the case of fathometer soundings on deeper hand lead soundings.

COMPARISON WITH EXISTING CHART:

The shoals shown on the chart No. 1220 were proven to exist in this general shape. The least water as shown on them is too deep, however, and the shoals as a whole have moved to the southward by one-half mile to a mile.

AIDS TO NAVIGATION:

W. Q. Marker - 2 as shown on the sheet is a yellow nun buoy and is used as a marker buoy for the location of the Winter Quarter shoal light vessel. This buoy bears  $0^{\circ}$  true <sup>457.2m</sup> 500 yards from the light ship. The light ship swings to 120 fathoms of anchor chain.

\* See letter from H. A. Seran, filed in descriptive report of 5351

Respectfully submitted:

*Joe E. Waugh, Jr.*

Joe E. Waugh, Jr., Aid, C. & G. S.,  
Ship OCEANOGRAPHER.

Approved and forwarded:

*H. A. Seran*

H. A. Seran, Comdr., C. & G. S.,  
Commanding Ship OCEANOGRAPHER.

STATISTICS

R.A.R. Control - Fathometer Soundings					
Day	Date	Statute miles sounding line	Number positions	Number soundings	Number bombs
A	7-16-33	71.7	80	778	79
E	7-31-33	79.1	100	830	92
F	8-1-33	71.6	82	774	71
G	8-2-33	48.3	65	488	59
H	8-9-33	55.0	60	518	64
J	8-10-33	122.0	125	1270	114
K	8-11-33	138.0	151	1383	130
L	8-12-33	84.0	84	619	78
M	8-13-33	98.0	95	634	90
N	8-14-33	110.8	120	1126	120
P	8-15-33	115.0	112	769	116
Q	9-13-33	58.0	63	463	60
R	9-14-33	16.0	19	121	17
U	9-26-33	81.0	81	564	77
V	9-27-33	46.0	75	732	69
Totals		1194.5	1312	11069	1236

R. A. R. HAND LEAD SOUNDINGS

G	8-2-33	23.0	63	232	61
W	9-28-33	7.0	35	155	37
Totals		30.0	98	387	98

VISUAL FIX- FATHOMETER SOUNDINGS

N	8-14-33	2.8	6	38	
Total for Sheet 5 (part two)		1227.3	1416	11494	1334

Area covered by this sheet 352 square miles

LAC

March 6, 1934

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
8 volumes of sounding records for

HYDROGRAPHIC SHEET 5355

Locality North and East of Winter Quarter Light Vessel, Maryland Coast

Chief of Party: H. A. Seran in 1933

Plane of reference is mean low water, reading  
3.5 ft. on tide staff at Assateague Anchorage, Va. (Allowance of 15 minutes  
9.3 ft. below B. M. 17 earlier made for time of tide at place of soundings)

Height of mean high water above plane of reference is about 4 feet.

Condition of records satisfactory except as noted below:

*Hammann*  
Acting Chief, Division of Tides and Currents

SECTION OF FIELD RECORDS  
*Verification* Report on H. 5355

Verified and inked by - W. H. Bamford and C. R. Bush, Jr.

This sheet was inspected and verified by W. H. Bamford with additional verification and inking by C. R. Bush, Jr.

The records conform to the requirements of the General Instructions.

The usual depth curves can be completely drawn except where the soundings are so far apart as to be uncertain of the depths between.

The field plotting was completed to the extent prescribed in the General Instructions.

The field drafting was satisfactory.

In several cases junctions with adjacent and overlapping sheets were not satisfactory. A difference of 10 feet in a crossing was arbitrarily taken as the limit of error which should be accepted. On sheet H. 5354 there were five places where the overlapping error was too great, in one place the 60 foot curve being greatly displaced. On sheet W D 5359 the overlapping error was within the limit. The junction with sheet H. 5350 was very satisfactory. With the exception of about four places the junction with H. 5351 was satisfactory. On this sheet however one complete line is felt to be generally too shoal and is therefore left in pencil. In the vicinity of buoy XTRA the overlapping line from H. 5351 seems to be displaced somewhat. Other adjacent sheets have not yet been verified.

Crossings listed on this sheet which were in error of more than 10 ft. were all checked except No. 18 on "G" day, page 6 of the descriptive report. The difference seems to be only 4 ft. instead of 18 ft. To the crossings listed may be added the following crossings with a minimum of 10 feet difference.

E Day	Min. Dif.
52 feet (17 - 18E) on 66 - 81 (31 - 33 W)	14 ft.
75 - 73 " (20 - 21E) 88 (108 - 109 G)	13 ft.

K Day	Min. Dif.
82 - 75 feet (134 - 135 K) on 61 - 65 ft. (22 - 23 E)	10 ft.
Other differences appear to be less than 10 ft.	

Quite a bit of developing could be done on some of the shoal spots. This is especially true SE of the Winter Quarter Light Ship.

The bottom seems to be of a rolling nature, frequented with ridges and valleys. It is questionable whether these should be further developed or not as they are no doubt subject to some shifting and none of them could be rightfully called a danger to navigation.

In many cases, where it appeared justified, soundings of 48 feet or less were inked, whereas in most instances where such shoal soundings were recorded they were left in pencil as directed by the Chief of Section.

Report on H. 5355.

The line 33E to 37E was partially inked and it is felt by the undersigned that up to the crossing with 6-7n. It should be inked as with but one exception, the crossings are within the limits of error established. From this crossing to the crossing with 40-4ln the line should be omitted as it greatly displaces the 90 ft. curve.

The work as a whole is considered very good.

Respectfully submitted,

*Chas. R. Bush, Jr.*  
Chas. R. Bush, Jr.

Section of Field Records

REVIEW OF HYDROGRAPHIC SHEET NO. 5355

North and East of Winter Quarter Light Vessel off Md. and Va. Coasts  
Surveyed in 1933  
Instructions dated April 27, 1933 (OCEANOGRAPHER)

Hand lead and fathometer soundings

Chief of Party - H. A. Seran.  
Surveyed by - Party of Steamer OCEANOGRAPHER.  
Protracted and plotted by - J. E. Waugh, Jr.  
Soundings penciled by - J. E. Waugh.  
Verified by - W. H. Bamford and C. R. Bush, Jr.  
Inked by - C. R. Bush, Jr.

1. Records.

The records conform to the requirements of the Hydrographic Manual with the exception that fixes were not taken at the comparative soundings. As a result only those comparisons were plotted on the sheet that could be related sufficiently close in point of time to the nearest position.

2. Specific Instructions.

The plan and extent of the work satisfy the requirements of the Specific instructions.

3. Sounding line crossings.

There are numerous discrepancies at the crossings of the sounding lines on this sheet. A complete list of the crossings where differences occurred was submitted with the descriptive report. In some cases these differences are greater than is usually considered within the allowable limit. The field party point out that a slight displacement of either one of the lines would bring the soundings into agreement in most cases. Although adjustments were made in the field plotting of the lines in order to obtain the best results from the information available, no attempt was made to shift or adjust the lines to bring the soundings into better agreement at the crossings.

A study in the office of the sounding lines, showed that the control was generally of equal strength and there was no reason to believe one line more correct than the other. For this reason no arbitrary adjustments were attempted except in one or two cases where a line with weak control was shifted slightly into better agreement with a stronger line. In some cases where discrepancies of 10 feet and over occurred, the shifting of a few soundings on a cross line brought the work into good agreement.

The line between pos. 36E and 37E was omitted as recommended by the field party because of differences of 9 to 12 ft. at the crossings.



4. Fathometer soundings under 8 fathoms.

The instructions authorized the use of the fathometer in depths over 8 fathoms. On the western part of this work a good many depths under 8 fathoms were obtained with the fathometer. The field party consider these unreliable and recommend their rejection. No arbitrary division line was drawn in handling these soundings in the office, but a working rule was adopted whereby all soundings less than 48 feet were omitted except in those cases where the surrounding general depths indicated their probable correctness.

Two soundings of 35 feet were obtained with the fathometer (pos. 143K and pos. 150K) on the shoal located in approximate Lat.  $38^{\circ}11'.4$ , Long.  $74^{\circ}57'$ . If correct these depths would be a danger to navigation. This shoal was fairly closely developed with the handlead (complete development plotted on H. 5353) and no depths under 44 feet were found. The two 35 foot fathometer soundings are believed to be unreliable and should <sup>not</sup> be charted pending a further examination. They have been retained on the sheet, as a matter of record, and are shown in color with a suitable note appended.

*Soundings discredited  
See review of  
Additional Work*

A 39 foot fathometer sounding in approximate Lat.  $38^{\circ}10'.2$  Long.  $74^{\circ}52'$  also appears doubtful. However, H. 5348 (not yet verified) which overlaps this area shows a well defined ridge with a least depth of 45 feet on it. Soundings on H. 5348 indicate such shoal depth. This sounding was treated in a similar manner as the above 35 foot soundings and should not be charted pending a further examination.

5. Curves.

The 10 and 20 fathom depth curves can be completely drawn within the limits of this sheet.

6. Junctions with contemporary surveys.

The junction on the west with H. 5353 is considered satisfactory. There are some differences in the soundings but the irregularity of the bottom could account for these. The soundings from H. 5353 are mostly handlead soundings and are controlled by three point fixes. They should be given the preference over the R.A.R. controlled, fathometer soundings on H. 5355.

The junction on the north with H. 5348 will be reported in the review of that sheet after it has been verified.

At the junction on the north with H. 5351, the overlap is adequate but the soundings agree very poorly. The discrepancies appear to be due to the fact that some of the work on H. 5351 depended

upon buoy Jig whose position was known to have shifted but could not be relocated. Because of this it was necessary to omit one entire line which appeared too shoal throughout and did not check the other lines on either H. 5351 or H. 5355. A part of the line just north of buoy XTRA was also omitted because of poor agreement with soundings on H. 5354 and H. 5355. There are several other poor crossings at the junctions with these two sheets, but these will be finally disposed of when H. 5351 is reviewed.

The junction on the north east with the offshore sheet, H. 5350 is very satisfactory.

The junction with H. 5354, the large scale development of the shoal west of buoy XTRA, is considered satisfactory although there are some cases where the soundings disagree.

The junction with the wire drag survey, H. 5359, just east of Winter Quarter Shoal Light Ship, is satisfactory. The soundings obtained by the drag party agree very well with this work. The shoal was dragged to a least depth of 44 feet and proven to be free of dangers.

At present there is no contemporary work south and east of this survey.

7. Comparison with previous surveys.

The survey of 1850, H. 251, generally agrees fairly well with this work where it overlaps. H. 251 shows no dangerous shoals within these limits and because of the elapsed time and the fact that this area is fairly changeable it should be superseded.

The survey of 1863, H. 761, and the survey of 1886, H. 1720, show only a few soundings and should be superseded.

The survey of 1911, H. 3314, is shown on a scale of 1-200,000. It depends largely for control upon a crude type of dead reckoning. There is no indication that allowance was made for current or leeway. The survey of 1912, H. 3314a, is shown on a scale of 1-80,000. The control on this work is also very weak. (See verifier's report in Descriptive Report of H. 3314a). The locations of the soundings on both, H. 3314 and H. 3314a are very approximate and both surveys should be superseded.

8. Comparison with chart.

The general shape of most of the shoals shown on the chart is very much the same but some have shifted slightly. The shoal in approximate Lat. 38°05', Long. 74°47', has shifted about two miles to the eastward but was probably charted incorrectly from the surveys of 1911 and 1912.

The reported 36 foot spot, formerly charted in Lat. 38°05', Long. 74°48'.3, has been removed from the chart by authority of a recommendation by the Chief of Party. (Chart Letter 507, 1933). For history and discussion of this spot see review of H. 5354.

The P. D. wreck symbol previously shown on Chart 1220 about one mile N.N.E. from Winter Quarter Shoal Lt. Ship has been removed from the chart on the strength of a recommendation by the Chief of Party. (Chart Letter 643, 1933). The area was covered by the wire drag with a minimum depth of 44 feet. (For History and discussion see Review W. D. 5359).

9. Field Plotting.

The prescribed amount of field plotting was accomplished. It is evident that numerous adjustments were made in the plotting of the lines. (See par. under Discrepancies and Adjustments p. 3 D. R.) the plotting of the lines was accepted as submitted by the field party and was not verified in the office.

10. Additional Work.

The only additional work recommended within the limits of this sheet is a further examination of the two 35 foot fathometer soundings in approximate lat. 38°11'.4, long. 74°57' and the 39 foot fathometer sounding in approximate lat. 38°10'.2, long. 74°52'. *Soundings discredited See review of Additional Work*

11. Note to Compiler.

The present survey, H. 5355 should supersede all previous chartings within the limits of this survey. The two 35 foot fathometer soundings and the 39 foot fathometer sounding mentioned in the recommendation for additional work should not be charted pending a further examination in this area.

12. Reviewed by - R. L. Johnston.

Inspection Note by A. L. Shalowitz.

Regarding the discrepancies at a number of the crossings listed on pages 4 to 8 of the Descriptive Report and the suggestion that the errors may be due to the use of erroneous velocities of sound, it should be stated that it was not found feasible to shift lines in the office to bring soundings into harmony with those on cross lines. While a bodily shift of a line would have improved certain crossings, violence would have been done to other acceptable crossings. Some of the larger discrepancies (10 feet and over) were smoothed out by adjusting the soundings between bomb positions. Others had to be left in their discordant state. It is quite conceivable that the discrepancies found were due to several factors, such as irregularities in the bottom, errors in reading the fath-

ometer, intermittent fluctuations in the fathometer that are not disclosed by the comparative soundings, and variations in the actual velocity of sound for the R. A. R. work from the adopted value. Discrepancies are also accentuated when soundings are plotted in feet.

It should be noted that of the 132 crossing discrepancies listed in the Descriptive Report, the great majority of which were in depths less than 15 fathoms, 110 were in excess of the 4% requirement given in the Director's letter of June 1, 1933, to the commanding officer of the Oceanographer. Forty-one of these crossings were in excess of 10%.

Sheet Inspected by - A. L. Shalowitz.

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

*F. H. Gordon*  
Chief, Field Work Section.

Examined and approved:

*L. O. Pollett*  
Chief, Division of Charts.

*G. H. H. H.*  
Chief, Division of H. & T.

# 5355

Additional work

Diag. Cht. Nos. 1000-2 and 1220-1.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

## DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. \_\_\_\_\_ Office No. H-5355

### LOCALITY

State Maryland and Virginia

General locality Offshore Maryland and Virginia.

Locality North and East of Winter Quarter Shoal

19 34

CHIEF OF PARTY

R. L. Shoppe

LIBRARY & ARCHIVES

DATE October 10, 1934

B-1870-1 (1)

# 5355

Additional work

AN EXAMINATION TO DISPROVE  
THE 35 FOOT FATHOMETER SOUNDING

This report is written without having access to the boat sheet or the record books and it may therefore be slightly indefinite. The area covered is small and the object of the survey is very definite and little is needed in the way of a report.

The object of this survey was to prove or disprove the accuracy of the fathometer readings in two spots of the 1933 work. One spot was on sheet 5355 in Latitude  $38^{\circ} 11'.4$ , Longitude  $74^{\circ} 57'.0$  and the other was in approximate Latitude  $38^{\circ} 10'$  and Longitude  $74^{\circ} 51'.5$ .

These spots were mentioned in last year's report and it was recommended that the soundings be rejected. A further examination was desired and on July 10th the LYDONIA ran to that locality prepared to do this work. Fortunately it was found that all tall signals south of Ocean City, Maryland, were standing from 1933 and in good condition. The examination of the in-shore area was made using sextant fixes on shore signals, and hand lead soundings. The offshore area was beyond the visibility of shore signals and three buoys, planted on this date, close to the limit of visibility of shore objects were located by sextant angles. The development of this area was then made using hand lead and sextant fixes on these three buoys. Lines were run over both areas as closely as they could be plotted on a 1 - 40,000 scale and cross lines were also run as closely as possible.

The finest possible weather prevailed during this examination on both July 10th and 11th. A smooth sea and perfect visibility made it possible to complete the work with no delay. At the conclusion of the work, the LYDONIA picked up the three buoys and returned to this year's working grounds.

The exact depths cannot be given here but they are obvious on the sheet. The fathometer soundings were evidently in error and I beg to concur with Captain Seran's recommendation that they be rejected.

The soundings on this sheet are reduced by the OCEANOGRAPHER and the smooth sheet is to be plotted in the Section of Field Records.

STATISTICS ARE AS FOLLOWS:

Scale	1 - 40,000
Statute miles	79.6
Soundings (hand lead)	765
Positions	260
Angles	522
Buoys located	2

Submitted by,

*Ray L. Schoppe*  
Ray L. Schoppe, Chief of Party  
Commanding Ship LYDONIA.

*Approved.*  
*A. J. Moran.*

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. H-5355

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

Number of positions on sheet	260
Number of positions checked	132
Number of positions revised	2
Number of soundings recorded	765
Number of soundings revised	.....
Number of signals erroneously plotted or transferred	.....

Date:..... November 22, 1934 .....

Cartographer:..... Paul W. Scherr .....

Additional work plotted, verified, and inked by P.H. Scherr  
complete time - 45 hrs.

Verification of pretracting  
Verification & inking of marks and shoals) by Time:

Verification of inking by Time:

Review by R. L. Johnston Time: 4 hrs



Section of Field Records

VERIFICATION REPORT ON ADDITIONAL WORK ON H-5355.

The additional work was done by the method of sextant fixes, *but the signals observed on are beyond the limits of* the controls ~~of which are missing~~ from the smooth sheet. Therefore most of the protracting of the positions on the boat sheet, which contains the ~~controls~~ <sup>signals</sup>, was checked and found to be accurate. The positions were traced. The soundings were plotted on the tracing and ~~these~~ <sup>then</sup> transferred to the smooth sheet and inked.

The fathometer work <sup>of the original survey</sup> that differed seriously with this work was removed. A few green soundings in the area of the A day which come from the junction with H-5353, and which are also hand lead soundings obtained by sextant fix, were deleted. An accompanying tracing of the original status of the smooth sheet in the affected areas shows the deleted soundings. The three questionable fathometer soundings in purple which occasioned the additional work, were removed, the notes concerning which left as guide to the reviewers.

A note was placed on H-5353 referring to this additional work on H-5355, as the area is covered on that sheet. No soundings were changed on H-5353 as only three of these soundings had been deleted on H-5355 which is permissible in transferring junctions.

No title page or tide sheet accompany the report on the additional work.

Respectfully submitted,

*Paul H. Scherr.*

November 22, 1934.

Paul H. Scherr

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5355 (Additional Work, 1934).

North and East of Winter Quarter Light Vessell off Md. and Va. Coasts.  
Instructions dated Aug. 24 - 31, 1934 (H. A. Seran).  
Surveyed - July 1934.

Hand Lead Soundings - 3 Point Control on Shore Signals and Buoys.

Chief of Party - R. L. Schoppe.  
Surveyed by - R. L. Schoppe.  
Protracted and soundings plotted by - Field Party.  
Verified and inked by - P. Scherr.

1. Purpose of Survey.

The purpose of the additional work was to verify or disprove certain fathometer soundings of doubtful accuracy obtained during the season of 1933, and noted in the review of that work (H. 5355).

2. Results of Survey.


a. The vicinity of the two 35 foot fathometer soundings in approximate lat.  $38^{\circ}11'.4$ , long.  $74^{\circ}57'$  was developed by closely spaced sounding lines run in two directions. The lines were controlled by fixes on shore signals and the soundings obtained with hand lead. The least depth found was 45 feet which is in good agreement with the two 44 foot handlead soundings from H. 5353 (1933). The doubtful 35 foot fathometer soundings are considered disproved and have been removed from the sheet.

b. The location of the 39 foot fathometer sounding in approximate lat.  $38^{\circ}10'.2$ , long.  $74^{\circ}52'.0$  was closely developed with cross lines. This examination was controlled by fixes on buoys located by fixes on shore signals and the soundings were obtained entirely with the hand lead. The least depth found was 46 feet. The doubtful 39 foot fathometer sounding is considered disproved and has been removed from the sheet.


3. Reviewed by - R. L. Johnston - December 1934.


Inspected by - A. L. Shalowitz.

Examined and approved:

  
C. K. Green,  
Chief, Section of Field Records.

  
L. O. Lobbut,  
Chief, Division of Charts.

  
F. B. Borden,  
Chief, Section of Field Work.

  
G. W. White,  
Chief, Division of H. & T.

*Additional work applied after review to Dwg. of Chart 1220, July 15, 1935, J.A.B.*