

5673

U. S. COAST & GEODETIC SURVEY
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Form 504
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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. Patton, Director

State: Virginia

DESRIPTIVE REPORT

~~Topographic~~ } Sheet No. 42 5673
 Hydrographic }

LOCALITY

Lat. ~~37°-34'~~ to ~~37°-56'~~

Long. ~~74°-44'~~ to ~~76°-14'~~

Off Virginia Coast
East of Porpoise Banks

193 4

CHIEF OF PARTY

H. A. Seran

5673

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

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. 42

REGISTER NO. 5673

State VIRGINIA

OFF VIRGINIA COAST

General locality ATLANTIC OCEAN

EAST OF PORPOISE BANKS

Locality OFF VIRGINIA COAST

Scale 1: 40000 Date of survey JULY, AUGUST, 19 34

Vessel OCEANOGRAPHER

Chief of Party H. A. SERAN

Surveyed by FIELD OFFICERS

Plotted
Projected by W. F. DEANE

Soundings penciled by W. F. D.

Soundings in ~~1000~~ feet

Plane of reference M.L.W.

Subdivision of wire dragged areas by

Inked by Goyea & Rosen

Verified by W. R. Jackson

Instructions dated APRIL 27, 19 33

Remarks: THIS SHEET IS PLOTTED BY R.A.R. CONTROL.

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET (Field number--42)

VIRGINIA COAST 1934

PROJECT NO. 142

INSTRUCTIONS: The work on this sheet was executed in accordance with the Director's Instructions to the commanding officers of the Ships OCEANOGRAPHER, LYDONIA, and GILBERT dated April 27, 1933, modified June 8, 1933. ✓

LIMITS AND SCALE:

The area comprising this sheet is from Lat. $37^{\circ}34'$ to Lat. $37^{\circ}56'$, and from Long. $74^{\circ}44'$ to Long. $75^{\circ}14'$. The sheet joins Sheet No. 121 on the east; No. 121 and No. 41 on the north; No. 41 and No. 44 on the west; and No. 44 and No. 43 on the south. The scale of this sheet is 1: 40,000. ✓

SURVEY METHODS: The area on this sheet was surveyed by the Ship OCEANOGRAPHER using standard R.A.R methods. The WELKER and GILBERT were used for station ships with the LYDONIA acting in that capacity in heavy weather during the absence of the WELKER. ✓

The soundings on this sheet were taken with the combination striker and oscillator fathometer, all the soundings being taken by the striker unit. Except in few cases, no soundings under ten fathoms were recorded. A few hand lead soundings were taken for verification of shoals. ✓

Satisfactory junctions were made with the adjacent sheets, the limits of the work on which are shown on this sheet by dashed lines with appropriate references to sheet numbers. ✓

Depth curves join satisfactorily, but it is to be noted that the ten fathom curve on this sheet is intermittent at best. Any break in a smooth curve may be eliminated by a slight shifting of lines concerned. ✓

REDUCTION OF SOUNDINGS:

A standard automatic tide gage was maintained at Assateague Anchorage. In the reduction of soundings for tide, it was assumed that the stages of the tide occurred on the working ground fifteen minutes earlier than the point where the gage was located. ✓

Comparisons between the fathometer and vertical casts were taken every hour, on an average, during the working hours. Temperatures and salinities were taken every three hours; a set of serial temperatures being taken once a day. ✓

For a complete report on fathometer corrections an addenda sheet appears with this report.

DISCREPANCIES AND ADJUSTMENTS:

Positions occurring between the station ships were not definite because the arcs usually overlapped or failed to meet. This was adjusted by using a dead reckoning plotting based on accepted bomb positions. ✓

In general, bearings to bouys were given no weight except as check measures. In several cases where the bearings emphasized the positions obtained by adjustment, the bearings were plotted and shown as black dashed lines. ✓

Several noteworthy cases occurred where the plotting officer used means based on boat sheet experience to plot lines where the control was weak. These cases follow: ✓

- A Day:
1. On positions 23 and 24, the GILBERT'S arcs were rejected. ✓
 2. Between positions 29 to 38 the positions ~~of bombs~~ 37 and 38 were too indefinite to be plotted. These positions were rejected. ✓ W.R.S. ✓
 3. Positions 39 to 45 were rejected because of poor control. This line was not needed to competently cover the area. ✓

- B Day
1. Between positions 71 and 72, the boat sheet was referred to for distance made on turn; the control in this case being too ragged to use without the reference. ✓

- C Day
1. Between positions 25 and 38, the line would not fit by plotting log distances, and the time was not sufficient in itself for control. With reference to the boat sheet and use of course changes, the line was plotted. ✓

- D Day
1. The line through positions 15, 16, and 17 was plotted on course and time disregarding the arc on 17 and log distances. ✓

Note: At various times during the season the log failed to function properly and its value had to be discounted on those occasions. ✓

G Day: 1. From positions 93 to 104 the line was plotted in many cases on single arcs in order to make the log distances check. ✓ ✓

H Day: 1. From positions 1 to 12 the line was plotted as much as possible on single arcs and log distances with great weight being given the boat sheet positions. ✓ ✓

J Day: 1. From 17 to 22 the positions as well as the soundings were rejected because of poor control. Another line served the purpose of the rejected positions. X

Probably K Day

NOTABLE discrepancies in crossings of soundings occurred as listed: ✓ W.R.S.

- 1. 5 feet between 133C and 134C is probably caused by faulty interval between positions. *poor fath. condition*
- 2. 7 feet between 136C and 139C ~~indicated erroneous soundings shaller than existing.~~ *probably due to combination of displacement of line & poor fathometer function*
- 3. 7 feet between 1D and 2D may be eliminated by shifting line slightly east.
- 4. 6 feet between 69D and 70D may be due to incorrect position interval.
- 5. 10 feet between 7F and 8F may be eliminated by shifting the line south.
- 6. 20 feet between 24F and 25F tends to show an erroneous series of soundings for the entire line. *Revised 223 to 253 be rejected.*
- 7. 15 feet between 31F and 32F, 13 feet between 34F and 35F, 18 feet between 35F and 36F, 10 feet between 38F and 39F, 20 feet between 39F and 40F bear out the observation made in Case No. 6 that the whole system of lines is too deep. It most likely can be charged to changing corrections on the fathometer because of fluctuating voltage.
- 8. 10 feet on 45F may be eliminated by shifting the position slightly northward. *Fathometer reading low. W.R.S.*
- 9. 6 feet between 45F and 46F may be eliminated by shifting the line laterally.
- 10. 10 feet between 67F and 69F may exist as the depth curves are not greatly effected.
- 11. 15 feet on 73F may be eliminated by shifting the line.
- 12. 11 feet between 73F and 74F will be corrected by the shifting in Case No. 11.
- 13. 10 feet between 91F and 92F will be eliminated by shifting the line westward. *Probably irregular bottom Ups and Downs.*
- 14. 10 feet between 25H and 26H is caused in all probability by a wrong interval between positions. *Replotted X*
- 15. 10 feet between 9J and 10J may be eliminated by shifting line westward. *Irregular bottom.*
- 16. 7 feet between 32K and 33K may be eliminated by shifting line southward. *Rough bottom.*
- 17. 10 feet between 1L and 3L may be decreased by shifting line eastward. *Valley edge.*

Hand Lead Soundings. Wrong correction. Corrected in Sounding Record. W.R.S.

Replotted X

18. 13 feet and 15 feet between 3L and 6L is caused by the unusual plotting of the line which was controlled largely by dead reckoning.
19. 10 feet between 8L and 9L probably is due to erroneous soundings.
20. The soundings between 66L and 67L are too deep; the line is doubtless too far north.

Minor discrepancies have not been listed since they may be easily corrected.

COMPARISON WITH EXISTING CHART:

The soundings on the sheet agree in general with the chart for this area. However, the western extremity of the work on this sheet showed evidence of changes farther inshore. ✓

AIDS TO NAVIGATION:

There are no aids to navigation on this sheet.

STATISTICS:

	Fathometer	Hand Lead
Miles of sounding lines-	923.7	15.0 ✓15.5
Number of soundings-	8794.	148. 172
Number of positions-	1198.	32. 49

Respectfully submitted,

William F. Deane

William F. Deane,
Ensign, C. & G.S.

Approved and forwarded:

H. A. Seran

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

FATHOMETER CORRECTIONS

Sheet 42 (For Descriptive Report) ✓

No regular system of corrections could be devised for this entire sheet; therefore, each day was treated as a separate unit and the fathometer corrections were obtained from the comparisons taken during said day. Due to noted differences of nearly a fathom when the voltage in the fathometer circuit dropped, which was often the case when the ship stopped, different methods for obtaining the corrections were arrived at.

The following are methods of obtaining the different daily fathometer corrections:


- A Day 10:04 to 10:50 Correction applied as per the first comparison.
12:37 to 19:32 A mean of the differences of all comparisons taken during this period was used.
- B Day Differences between handlead and fathometer soundings were plotted as ordinates, using the times when they were obtained as abscissas and a curve for applying corrections was drawn thru the means of these points.
- H Day
- C Day On each of these days a mean of the differences between the hand lead and fathometer soundings was obtained and applied thruout said day.
- D Day
- G Day
- J Day
- L Day
- E Day Corrections were obtained from and applied gradually between the first and second comparisons; and a mean of the differences of all other comparisons was applied during the remainder of the day.
- F Day Corrections were obtained from and applied gradually between the second and third comparisons; then a mean of the differences of all other comparisons was applied during the remainder of the day.
- K Day Corrections were obtained from and applied gradually between the first, second and third comparisons; then a mean of all other comparisons was applied during the remainder of the day.

Respectfully submitted,



R. A. Earle,
Lieut. (jg), C. & G.S.

Approved and forwarded:



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

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. **5673**

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

Number of positions on sheet	.1198.
Number of positions checked	..35.
Number of positions revised	..21..
Number of soundings recorded	.8966
Number of soundings revised	..220.
Number of signals erroneously plotted or transferred

Date:

Verification by *W.R. Jackson*
Inked by *Goyea & Rosen*
Review by *V. D. Behm*

Time: 44² hrs.
Time: 40⁴ hrs.
Time: 14 hrs.

Critical Report of H-5673

1. The records conform to the requirements of the General Instructions. ✓
2. The usual depth curves can be completely drawn. ✓
3. The field plotting was completed to the extent prescribed for R.A.R. control. ✓
4. No drafting was done over. ✓
5. Junctions with contemporary adjacent sheets are satisfactory. see ¶ 5 of rev. ✓
6. Major changes made in verifying.
 - (a) Positions "22 F" to "40 F" inclusive are hand lead soundings and do not have the fathometer correction. ✓
 - (b) Positions "21 K" to "25 K" were replotted to agree with log, time, course, bomb position, and boat sheet. ✓

Respectfully submitted,

M. R. Jackson

RAC

May 2, 1935.

Division of Hydrography and Topography:

RAR

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

Tide Reducers are approved in
6 volumes of sounding records for

HYDROGRAPHIC SHEET 5673

Locality Off Virginia Coast, East of Porpoise Banks

Chief of Party: H. A. Seran in 1934
Plane of reference is mean low water, reading
4.6 ft. on tide staff at Assateague
8.8 ft. below B.M. 15

Height of mean high water _above plane of reference is 3.7 feet.

Condition of records satisfactory except as noted below:

Atty *Stam*
Chief, Division of Tides and Currents.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5673 - FIELD NO. 42

East of Porpoise Banks, off Virginia Coast, Virginia
Surveyed in July-Aug. 1934
Instructions dated April 27, 1933 (OCEANOGRAPHER)

Hand Lead and Fathometer Soundings - RAR Control.

Chief of Party - H. A. Seran.
Surveyed by - Field Officers.
Plotted by - W. F. Deane.
Soundings penciled by - W. F. Deane.
Verified by - W.R. Jackson.
Inked by - Goyea and Rosen.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except as follows:

- a. Fathometer corrections were applied to hand lead soundings between positions 22 and 40F.
- b. No fixes were taken at the comparative hand lead and fathometer soundings.

The Descriptive Report is clear and comprehensive and adequately covers all matters of importance.

2. Compliance with Instructions for the Project.

This survey complies with the instructions for the project.

3. Sounding Line Crossings.

In general the agreement in the sounding line crossings is fair although there are several fairly large differences, the maximum being about 15%. The poor crossings have all been listed by the field party in the Descriptive Report. These crossings have all been examined and in a few cases adjustments have been made, as noted by the verifier in the Descriptive Report.

4. Depth Curves.

Within the limits of the survey the usual depth curves can be satisfactorily drawn.

5. Junctions with Contemporary Surveys.

- a. The junctions with H-5355 (1933) and H-5356 (1934) on the north and northwest respectively are satisfactory.

- b. The junction with H-5353 (1934) on the north is satisfactory. However, several soundings on H-5673 (1934) on lines 37-38f and 27-28f (lat. 37° 54.8', long. 74° 58.8') were considerably deeper (20 to 30%) than adjacent soundings on H-5353 (1934). These deep soundings were rejected.
- c. The junctions with H-5702 (1934), H-5715 (1934), H-5771 (1934) and H-5713 (1934) will be considered in their respective reviews.

6. Comparison with Prior Surveys.

- a. H-237 (1849-50), H-1720 (1886), H-298 (1851).

These surveys are in fair agreement with the new survey. In view of the difference in time between these earlier surveys and the new survey, and the greater accuracy of the new survey, these surveys should not be used in future charting.

- b. H-3314 (1911).

This survey is plotted on a scale of 1:200,000. It depends for control largely upon a crude type of dead reckoning, the position of the soundings probably being very approximate. There is nevertheless a fair agreement between this survey and the new survey. The new survey should supersede the above survey for charting purposes.

7. Comparison with Chart Nos. 1221 and 1109.

Within the area of the present survey these charts are based on surveys discussed in the foregoing paragraphs and contain no additional information that needs consideration in this review.

8. Field Plotting.

The field plotting is satisfactory and conforms to the requirements of the hydrographic manual.

9. Additional Field Work Recommended.

This survey is complete and no additional work is required.

10. Superseding Old Surveys.

Within the area covered the present survey supersedes the following surveys for charting purposes:

H-237 (1849-50)	in part
H-298 (1851)	in part
H-1720 (1886)	in part
H-3314 (1911)	in part

11. Reviewed by - [✓] R. D. Behn, July 11, 1935.

Inspected by - A. L. Shalowitz.

Examined and approved:

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

L. O. Lobbut
Chief, Division of Charts.

Faulstich
Chief, Section of Field Work.

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

Applied to drawing of Chart 1220 - Apr. 27, 1936 - JFW.
" " " " " 1109 May 2, " JFW.
" " reconstruction " 1221 June " JFW.

0/00