

5275

U. S. COAST & GEODETIC SURVEY  
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Form 504  
Ed. June, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. Patton, Director

State: Massachusetts

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 6 5275  
Hydrographic }

LOCALITY

New England Coast

Georges Bank

19 32

CHIEF OF PARTY

W. E. Parker & L. O. Tolbert.  
H. A. Soren, Comdr., C&G

5275

DESCRIPTIVE REPORT

Hydrographic Sheet (field letter six)

Cape Cod -- Georges Bank 1932

Project No. H.T. 107

The descriptive report for Hydrographic Sheet (field letter six) is herewith submitted.

INSTRUCTIONS:

The hydrography on this sheet is a part of Project No. H.T. 107, the instructions for which were dated May 16, 1932. ✓

LIMITS AND SCALE:-

This sheet was surveyed on a scale of 1:100,000 and covers that part of Georges Bank which lies between Latitudes  $40^{\circ} - 55'$  --  $42^{\circ} - 15'$  and Longitudes  $68^{\circ} - 40'$  --  $69^{\circ} - 30'$  approximately. ✓

This sheet joins with Sheets 3 and 4 on the east side, Sheet 7 on the west side, and Sheet 5A on the south. ✓

SURVEY METHODS:-

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

OCEANOGRAPHER:-

The soundings on this sheet were taken with the oscillator and striker fathometers numbers 312 and 412 respectively. On August 26, 1932 the white light bulb on the oscillator fathometer was replaced by a neon tube. All soundings over 100 fathoms (approximately) after this date were taken using this method. ✓

REDUCTION OF SOUNDINGS:-

HYDROGRAPHER:

No information was furnished as to what method was used in reducing their soundings.

OCEANOGRAPHER:

The tide reducers as furnished this ship by the Office were used in the reduction of all the soundings. The fathometer corrections (the index correction and the temperature and salinity corrections) were taken as one unit. Comparisons between the fathometer and vertical casts were taken several times each day, usually at the beginning and end of the day. Temperature and salinities were taken at the time the fathometer comparisons were made. ✓

Submitted  
in a separate  
copy.  
A.L.S.

DISCREPANCIES AND ADJUSTMENTS:-

It was found that when the sounding lines passed through that area between the buoys that the arcs overlapped when buoys WE and Y2 and Z were used. However, when buoys Z and R were used the arcs failed to intersect in that area between them. 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 intersection were used in the first case or the rejection of the bombs in the second case, 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. This was done by plotting the lines on tracing paper using courses as steered and the logged distances and applying the proper current and log factors. It was found that the jumps that would have resulted otherwise were eliminated.

In all the 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 distance that it was very evident that they were in error in which case either one or both arcs were rejected and the sounding line plotted on course and distance and adjusted between those positions that were accepted. ✓

Special adjustments were made in the following cases:

HYDROGRAPHER:

- 1-3A incl. 2A
1. Reject positions 1-4A, no control.
  2. Positions from 7 to 16A, 42 to 47A, 83 to 13B, 24B to end of line, 36B to 39B, 3 to 6C, 31C to 36C, 52C to 53C were plotted on courses and distances using log and current factors and adjusted to fall between the arcs a proportional amount depending on the distance from the station ships. The above were in an area between the station ships and the bomb arcs overlapped.
  3. The bearings taken were used in adjusting positions 40C to 43C and 53D to 54D.
  4. Positions 1 and 2G. No courses were recorded therefore these positions were plotted on the one arc and distance.
  5. Positions from 28G to 36G, 39G to 44G, 56G to 60G were plotted on courses and distance using log and current factors and adjusted to fall between the arcs a proportional amount depending on the distance from the station ships. The above were in an area between the station ships and the bomb arcs failed to intersect.

OCEANOGRAPHER:

1. Positions from 9 to 19A, 46A to 54A, 12 to 22B, 49 to 56B, 57 to 63C, 25D to 32D, 44D to 49D, 53D to 54D, 36 to 12G, 47G to 51G, 94K to 101K, and 108K to 114K. The same adjustments were made

- here as on HYDROGRAPHER'S lines, case 2.
2. Positions 1-10C, 18E to 34E, 1-6F, 16-25E, 46-58F were plotted making use of one arc only due to poor returns on the bombs.

*Revised by 64604 C. S. ...*

H 5273

K day as shown on this sheet is from Sheet 5. The limits of the smooth Sheet 5 did not include this area. All of this day except that part of the line between 12K and the change of course between 16 and 17K day was plotted on Sheet 6. This small part of K day was plotted on Sheet 5A. - See report by J. W. ...

H 5274 H 5275

SOUNDINGS:-

HYDROGRAPHER:-

The crossing of the HYDROGRAPHER on its own work was very good in most cases being 2 fathoms or less usually. Your attention is called to the following large discrepancies:

1. 26 fathoms (1G) alongside 34 fathoms (24F).
2. 33 fathoms (6-7G) alongside 29-30 (11-12-13F).
3. Between positions 17 and 18J twenty-one soundings were recorded on one minute intervals. Evidently the clock was set ahead one minute so all the soundings were plotted.

*In deep water even bottom not important a. L. S.*

OCEANOGRAPHER:-

1. 30 fathoms (30E) on 34 fathoms (72-73B).
2. 40 fathoms (47-48E) on 32 fathoms (19-20K).
3. The sounding of 103 fathoms between positions 20-21B and 100 fathoms on position 35B are questioned in the record book.

When simultaneous soundings were made with the impact and oscillator fathometers, preference was given to soundings taken with the impact fathometer.

OCEANOGRAPHER ON HYDROGRAPHER:-

1. 106 fathoms (31A) on 91 fathoms (17-18J).  
The difference was probably due to the difference in the two fathometers used. It was found that satisfactory crossings were difficult to obtain with the oscillator fathometer. It is recommended that the shoal soundings be plotted.
2. 118-121 fathoms (33-34A on 100 fathoms (16-17J).  
Same as for case one above.
3. 112 fathoms (31-32B) on 107 fathoms (20-21J).
4. 110 fathoms (38-39B) on 113 fathoms (19-20J).
5. 106 fathoms (40-41B) on 101-102 fathoms (9-10J).

- 6. 115 fathoms (74-75C) on 107 fathoms (19-20J).
- 7. 88 fathoms (82-83C) on 92 fathoms (10-11J).
- 8. 109 fathoms (39-40G) on 104 fathoms (22-23J).A
- 9. Between positions 50-51B there are two soundings recorded for 18 minutes. Both soundings were plotted. This apparent error in recording was probably due to the clock being set and the recorder failed to make the proper notations in the record.

Respectfully submitted:

*Joe. E. Waugh, Jr.*  
Joe. E. Waugh, Jr., Aid, C&GS.,  
Ship OCEANOGRAPHER.

Approved and forwarded:

*H.A. Seran*  
H.A. Seran, Comdr., C&GS.,  
Commanding Ship OCEANOGRAPHER.

STATISTICS  
HYDROGRAPHER

Day	Date	Statute Miles Sounding line	Number Positions	Number Soundings
A	8-20-32	129.7	51	661
B	8-21-32	151.4	47	779
C	8-22-32	147.8	53	803
D	8-26-32	155.6	56	739
E	8-27-32	162.6	60	948
F	8-28-32	60.5	26	440
G	8-29-32	150.7	73	809
H	8-30-32	141.8	62	756
J	8-31-32	95.3	32	483
Totals		1195.4	460	6418

OCEANOGRAPHER

A	8-20-32	125.9	57	638
B	8-21-32	166.7	76	848
C	8-22-32	157.8	91	971
D	8-26-32	114.9	60	649
E	8-27-32	170.5	105	902
F	8-28-32	71.0	58	387
G	8-30-32	108.6	54	584
K	8-29-32	161.1	115	870
Totals		1071.9	616	5849
Total Sheet #6		2271.9	1076	12267

Area covered by sheet: 1920 square miles

LAC

July 26, 1933.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
7 volumes of sounding records for

HYDROGRAPHIC SHEET 5275

Locality Western Part, Georges Bank, Coast of Massachusetts

Chief of Party: W. E. Parker and L. O. Colbert in 1932

Plane of reference is mean low water, reading

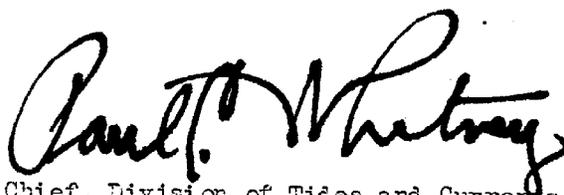
\* 3.3ft. on tide staff at Commonwealth Pier No. 5, Boston, Mass.  
18.2ft. below B. M. 7

\*Allowance made for time and range of tide on the working grounds

Time  $-1^{\text{h}} 15^{\text{m}}$  ; range 0.5 as large

Height of mean high water above plane of reference on working grounds is 4.7 ft.

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents

## Section of Field Records

Report on H 5275

Chief of Party W. E. Parker

J. O. Colbert

Projected by J. E. Waugh

Verified and Inked by  
J. Walker

Surveyed in Aug., 1932

" by Field Force

Soundings plotted

by J. E. Waugh.

This sheet was not given the customary verification by order of the Chief of Field Records. The plotting of the boat positions were accepted as plotted by the field unless the crossings were in disagreement or the curves so irregular as to indicate an error. In most cases, as enumerated below, where the crossings were bad, one of the lines was not inked in at the crossing. The spacing of the soundings was also not checked, (by order) but the soundings penciled in on the sheet were compared with the sounding records.

Overlap with H 5270, H 5272, H 5274; and H 5276 was transferred to H 5275 or to the overlapping sheet and was found to be sufficient and the agreement good.

The curves could be completely drawn in most cases and were fairly ~~reg~~ regular. Where the curves appear irregular a variation in the

depth of one or two fathoms or rejection of a few unimportant soundings would straighten them out.

The shallowest soundings on the sheet are three, 10 fathom soundings in the southwest corner of the sheet which should probably be further developed.

In the descriptive report for H 5275, page 2, it says that between 12 red K and the change in course between 16 and 17 K is plotted on H 5274. It is not plotted on H 5274. The sounding records for K day are filed with H 5273 and the line is plotted on one of the boat sheets of H 5273.

See  
Note  
at  
end  
of  
report

~~The part of K day between 12 and 17 K not plotted on any sheet is believed unimportant and adds no further development of the area and may be safely omitted as it would entail some little trouble to plot.~~

Where soundings were spaced close together and the slope was uniform some of the soundings were omitted. In general, every other sounding was omitted where the slope was uniform.

The following soundings were rejected: —

47-58 red F for lack of control and poor agreement at crossings.

30-35½ red A - soundings too deep - red light X6 method used is not considered reliable.

31-41 red B - Soundings too deep at crossings -  
Oscillator type fathometers used not reliable.

73-75 red C - Soundings too deep at crossing -  
Oscillator fathometers used not reliable.

38-41 red G. Soundings at crossing too deep.  
Change in course at 38 G may be plotted wrong.

The above rejections were made at the advice  
of Capt. Colburn, Chief of the section of Field Records.

Respectfully submitted

J. T. Walker  
Sept. 19, 1933

Note: All of K day is plotted on H 5275 except from  
12 to 16 K which is on a turn. This part of the  
line was plotted by the writer on a tracing  
and was found to be in good agreement  
with the soundings on H 5274 and was therefore  
omitted. J.T.W.

SECTION OF FIELD RECORDS  
Report on Hydrographic Survey No. 5275.  
Georges Bank, Mass.  
Surveyed in 1932.

Instructions dated May 16, 1932 (Hydrographer).

Chief of Party - W. E. Parker and L. O. Colbert.  
Surveyed by W. E. P. and L. O. C.  
Protracted and soundings plotted by - J. E. Waugh.  
Verified and inked by - J. T. Walker.

This sheet covers the work of two vessels, the Hydrographer and the Oceanographer.

1. Records.

The records in general conform to the requirements of the Hydrographic Manual. For the Oceanographer's work, no abstract of fathometer comparisons and corrections was submitted. This is desirable in order that fathometer corrections can be readily checked. It is also noticed that in the Oceanographer's work fathometer corrections for both velocity and index were applied, whereas the Hydrographer applied corrections based entirely on comparisons with vertical casts. A uniformity of practice in this respect is desirable.

2. Specific Instructions.

The work is in conformity with the specific instructions both as to extent and development. An extension of the work at the north end of the sheet in the vicinity of long. 69°00' to include a complete delineation of the 100 fathom curve would have been desirable.

3. Crossings.

The sounding line crossings are in general satisfactory. There are some differences where the two vessels cross each others work as well as where the vessels cross their own work (see D. R. pages 3 & 4). These differences may be due to variations in the fathometer or to the type of fathometer used. They have all been considered by the verifier and with the advice of the Chief, Section of Field Records, certain arbitrary rejections were made in order to obtain a more logical representation of the bottom.

4. Depth Curves.

The usual depth curves can be completely drawn except a portion of the 100 fathom curve mentioned in paragraph 2, above and the 10 fathom curves at the southwestern end of the sheet, where the development on the shoals is insufficient, for completely determining the curves. The area in the vicinity of the 50 fathom curve is rather flat and a difference of 1 fathom sometimes produces abnormal variations in the curve. As the fathometer soundings are always subject to this amount of error, it is recommended that in charting the 50 fathom curve be generalized to a considerable extent.

H. 5275 - 2.

5. Field plotting and office verification.

The usual amount of field plotting was accomplished. In verifying this sheet, the cartographer was directed by the Chief, Section of Field Records, to omit all verification of ships positions except in cases where the crossings were poor or the irregularity of the depth curves indicated a possible error. The usual checking of the spacing of the soundings was also omitted, but the soundings as plotted were compared with the sounding records. Approximately every other sounding was inked in.

6. Junctions with surveys.

A satisfactory junction has been effected with H. 5274 on the south and H. 5270 and H. 5272 on the east. The junction with H. 5271 in the southeast and with H. 5276 at the upper west will be considered in the reviews of these sheets. There are no contemporary surveys on the north and lower west.

7. Comparison with old surveys.

a. There being no critical depths involved on the main body of this survey, it was considered unnecessary to make a detailed comparison with the old surveys. The two shoals at the southwestern end of the sheet are portions of Middle Rip and Phelps Bank which are at present charted from H. 3201 (surveyed in 1910). Middle Rip, the uppermost of the two shoals on H. 5275 agrees generally well in location and depth with that shown on H. 3201. There is an incomplete development of these shoals on the present survey. For this reason no attempt should be made to use the outlines of these shoals on the present survey. Only such soundings should be used on these shoals as are shoaler than the present charted soundings.

b. The charted 19 fathom in lat.  $41^{\circ}10'.5$  long.  $69^{\circ}18'.5$  is from H. 3201 (survey of 1910, pos. 68D). While the 19 fathom is a tube sounding taken underway, and falls in depths of 26 fathoms on the present survey, the adjacent soundings are in fair agreement with the present survey. The present survey shows indications of a bank in this vicinity. The 19 will temporarily be carried forward on the present survey, but should be removed if a further examination in this area fails to reveal such depths. \* See below

c. The charted 13 fathom E.D. in approximate lat.  $41^{\circ}09'.5$  long.  $68^{\circ}57'.5$  comes from report by U. S. S. Maryland, Chart Letter 213 - 1922. It falls in depths of 53 fathoms on the present survey with no indication of shoaling. Although not definitely stated, the report indicates that the sounding was a tube sounding taken underway. It is considered of questionable accuracy and in the light of the present survey, its removal from the chart is recommended.

8. Bomb arcs and sound velocities.

A failure of bomb arcs to meet when on range with two buoys (an overlapping in some cases and a falling short in others) was experienced on this

\* In view of the inaccuracy of position and of soundings with the old type tubes of survey on H-3201, it is my opinion that the 19 fathom should not be carried forward. I do not think the present survey shows indications of shoaler water; on the contrary the bottom is quite flat and regular. *GF*

H. 5275 - 3.

sheet as it was on H. 5274. The probable reasons for this have already been discussed in the review for H. 5274 and reference can be made to that review for information relative thereto. In connection with these discrepancies, it should be borne in mind that in studying bomb arcs from two hydrophones in range with the vessel, a most rigid test is imposed upon assumed sound velocities, for an error of only 1 meter per second in the velocity will mean a failure of the arcs to meet by 50 meters in a distance of 40 miles between hydrophones.

9. Additional Work.

The following additional work is recommended when work is extended to the westward:

a. This sheet should be overlapped sufficiently to include a complete development of Middle Rip and Phelps Bank both of which have been partially surveyed on this sheet. The examination in the vicinity of Phelps Bank should extend far enough eastward and northward to cover the limits of this bank as shown on H. 3201.

b. The area surrounding the 19 fathom sounding mentioned in #7, b of this review should be examined with a view to finally determining its existence or non-existence. ~~See below~~ \* See below *gic*

c. In connection with the future survey of Nantucket Shoals to the westward of this sheet, it is strongly recommended that before any field work is attempted, a thorough study be made of the surveys and miscellaneous reports in this area and all matters that need investigation be incorporated on a boat sheet for the field party's guidance in making final dispositions. Judging from the verifiers report of H. 3201 there have been a number of reports of shoals in this vicinity at various times. Many of these may have been considered disproved on the basis of weakly determined lines. When a modern control scheme is established in this area these reports should be investigated anew.

10. Reviewed by - A. L. Shalowitz, Oct. 1933.

*L. O. Colbert*  
L. O. Colbert,  
Chief, Field Records Section.

*F. Borden*  
F. Borden  
Chief, Field Work Section.

Examined and approved:

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

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

*\* I do not agree with the recommendation of #7, b*

*\* In view of the fact that this area is on the western edge of this survey and close to any later work toward the westward, I concur in this recommendation.*  
*G. H. Hilde*

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

U. S. COAST & GEODETIC SURVEY  
LIBRARY AND ARCHIVES  
JUN 2 1933  
REG. NO. 5275  
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. 6

REGISTER NO. **5275**

State Massachusetts

General locality Georges Bank

Locality Western Part Bank

Scale 1:100,000 Date of survey August, 1932

Vessel HYDROGRAPHER--OCEANOGRAPHER

Chief of Party W.E. Parker -- L.O. Colbert

Surveyed by Field Force

Protracted by J.E.W. Joe E. Waugh, Jr. Aid, C.A.G.S.

Soundings penciled by J.E.W.

Soundings in fathoms ~~feet~~

Plane of reference MLW

Subdivision of wire dragged areas by \_\_\_\_\_

Inked by \_\_\_\_\_

Verified by \_\_\_\_\_

Instructions dated May 16, 19 32

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