

8451

Diag. Cht. Nos. 1000-3 & 1107.

Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey **HYDROGRAPHIC**

Field No. **HY62158** Office No. **H-8451**

LOCALITY

State **Massachusetts**

General locality **Georges Bank**

Locality **Cultivator Shoal**

11 20000

19 58

CHIEF OF PARTY

Gilbert R. Fish

LIBRARY & ARCHIVES

JAN 20 1959

DATE

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

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.

REGISTER NO. H-8451

Field No. HY-2158

State Massachusetts

General locality Georges Bank

Locality Cultivator Shoal

Scale 1:20,000 Date of survey 7 June - 24 June 1958

Instructions dated 28 Nov. 1956 Supplementals: 28 Feb. 1957, 23 October 1957,
29 April 1958, 17 July 1958

Vessel HYDROGRAPHER

Chief of party Gilbert R. Fish

Surveyed by D.M. Whipp, W.R. Kachel, W.D. Barbee, D.L. Campbell, C.E. Fuller,
R.F. Schoolbred, J.R. Schwartz

Soundings taken by ~~fathometer~~ graphic recorder, hydrographic

Fathograms scaled by Ship's Personnel

Fathograms checked by Ship's Personnel

Protracted by C. E. Fuller

Soundings penciled by J. R. Schwartz, L.S. Brown

Soundings in fathoms ~~feet~~ at MLW ~~XXXXXX~~

REMARKS: Off Shore Survey

205

DESCRIPTIVE REPORT
TO ACCOMPANY HYDROGRAPHIC SURVEY H-8451
(Field No. HY-2158)
GEORGES BANK
CULTIVATOR SHOAL
1958

Ship HYDROGRAPHER
Gilbert R. Fish

Scale 1:20,000
Chief of Party

A. PROJECT:

Project No. CS-401 Original Instructions dated 29 November 1956, Supplemental Instructions dated 28 February 1957, 23 October 1957, 29 April 1958, 17 July 1958.

B. SURVEY LIMITS AND DATES:

This survey covers the area of Cultivator Shoal on Georges Bank in the Gulf of Maine. The approximate limits of the sheet are: Latitude $41^{\circ} 29' N$ to $41^{\circ} 43' N$ and Longitude $68^{\circ} 02' W$ to Longitude $68^{\circ} 14' W$.

Field work on this sheet began 7 June 1958 and ended 24 June 1958.

This survey makes a junction with the following prior surveys:

H-5225 1:10,000 1932
H-5269 1:40,000 1932

This survey makes a junction with the following contemporary surveys:

H-8457 1:40,000 1957 (HY-4257)
H-8453 1:40,000 1958 (HY-4158)

C. VESSEL AND EQUIPMENT:

The hydrography on this ^{Survey} was accomplished by the Ship HYDROGRAPHER and Launch No. HY-1. The launch was used for one day's sounding in an area with approximate limits of Latitude $41^{\circ} 38' N$ to $41^{\circ} 40' N$ and Longitude $68^{\circ} 11.5' W$ to Longitude $68^{\circ} 13.5' W$. The ship was used for the remaining area of the survey. The launch was operated from the ship.

The turning radius, at sounding speed (120 RPM or approximately 10 knots), of the HYDROGRAPHER is 80 to 120 meters, depending upon prevailing winds and current. Two (2) 808 j type fathometers were used for the ship hydrography. The Serial Numbers were 153 SPX and 57-31. An EDO No. 255 fathometer, Serial No. 207, was used by the launch.

D. TIDE AND CURRENT STATIONS:

Tide reducers for this survey are referenced to the Standard Tide Gage at Boston, Massachusetts. A time correction of minus one-half hour ($-\frac{1}{2}$) and a ratio of ranges of 0.5 was furnished from the Washington Office.

No current stations were observed on this sheet.

E. SMOOTH SHEET:

The smooth sheet projection and raydist arcs were ruled by the Washington Office. The shoran arcs were applied by ship's personnel. The sheet contains no shoreline or topographic details.

F. CONTROL STATIONS:

All ship hydrography was controlled by Raydist using two stations as follows:

R₂ (also EPIA) at Southwest Harbor, Maine
Latitude 44° 14' 47.65" N
Longitude 68° 17' 37.61" W

The G.P. of this station was determined by Francis B. Quinn, Boston District Officer, in 1955.

R₁ (also EPIB) at Camp Wellfleet, Cape Cod, Mass.

Latitude 41° 56' 31.426" N
Longitude 69° 59' 11.303" W

The G.P. of this station was determined by Kenneth S. Ulm, Boston District Officer, in 1957. It is the same as R.M.I. of triangulation station FRAZIER 1957.

The one day of launch work on this sheet was controlled by SHORAN using the Ship HYDROGRAPHER and Launch HY-2 as floating stations. Shoran arcs for the ship station were drawn from the following point: Latitude $41^{\circ} 33'$ ($\sphericalangle 1571$ m) N, Longitude $68^{\circ} 09'$ ($\sphericalangle 1246$ m) W. This point has Raydist arcs of $R_1 = 3441.5$ and $R_2 = 6529.0$. Shoran arcs for the launch station were drawn from the following point: Latitude $41^{\circ} 39'$ ($\sphericalangle 1216$ m) N and Longitude $68^{\circ} 07'$ ($\sphericalangle 1230$ m) W. This point has Raydist arcs of $R_1 = 3443.4$ and $R_2 = 6296.1$. These two floating control stations are shown on the smooth sheet by blue circles. The station designation was left in pencil to avoid obscuring soundings in the area and can be inked at the discretion of the office.

G. SHORELINE AND TOPOGRAPHY:

No shoreline or topography is shown within the limits of this sheet.

H. SOUNDINGS:

Soundings were obtained using 808 J type fathometers for ship hydrography. Adequate checks and tests were made to verify the accuracy of the fathometers. An EDO 255 portable depth recorder furnished from the Washington Office was used for the one day of launch hydrography. Corrections were obtained by bar check for this work. See separate report on velocity and fathometer corrections.

I. CONTROL OF HYDROGRAPHY:

Raydist control was used for all ship work on this sheet. The Raydist dials were set at Texas Tower #2 and at survey buoys located by runs from T.T. #2. An abstract of Raydist corrections for the sheet is included at the end of this report. Raydist stations were located as indicated in Section F of this report. A complete explanation of Raydist control and calibration is included in the separate Raydist Reports submitted 9 December 1957 and 15 August 1958 and the Addendum to the Raydist Report submitted 28 October 1958.

Shoran was used to control the one day of launch hydrography. To control this hydrography, the ship and a second launch were used as floating shoran stations, as described in Section F of this report.

Two corrections were applied to each shoran reading from each floating station. The corrections at the top of each page in the sounding volumes are the usual calibration corrections. These corrections (0.040 for the Launch Station and -0.005 for the Ship Station) were determined by planting two buoys and locating them by Raydist, taking into account current set and scope. The launch^{was} then calibrated at each buoy before and after sounding. The two shoran calibration buoys were located as follows:

Buoy G: 3323.5 = R₁; 6285.9 = R₂
Buoy I: 3344.1 = R₁; 6343.1 = R₂

The other correction which is shown immediately under the shoran reading for each position in the ~~same-day~~^{sounding} volume is a swing correction. In the case of the launch station, the launch was tied up at short scope to a buoy located by Raydist. The current set was recorded at 20 minute intervals and the correction to the point from which the shoran arcs were drawn was determined by a large scale plotting sheet using the current set and scope.

Similarly, the swing correction for the ship was determined by taking a Raydist fix every 15 minutes and plotting it on a large scale plotting sheet. The ship was anchored with a short scope as close as possible to the origin of the shoran arcs. A correction was computed from the launch, taking into account the azimuth of the launch from the ship.

The proper corrections have been applied in the volumes to the Raydist and Shoran distances and the smooth sheet is plotted correctly on North American 1927 Datum (Provisional).

An additional shift may have to be applied to the entire project due to (1) a change in lane width of the R₂ lane during the 1958 season, and (2) an error in the Texas Tower position in R₂ distance discovered near the close of the 1958 season.

These discrepancies are discussed in the Raydist Report for 1958 and the Addendum to the 1958 Raydist Report previously submitted to the Washington Office and also in personal contact between Captain G. R. Fish, Chief of Party, and the Division of Coastal Surveys.

See Volume 1, Report on Sounding Buoy

R₂ Area plotted at 145.83652 ft/lane

6.1 lane shift in R₂ value indicated by 1958 position

J. ADEQUACY OF SURVEY:

This survey is complete and adequate to supersede prior surveys for charting.

Junctions with adjoining surveys are satisfactory.

The depth curves can be adequately drawn at the junctions.

A 15 fathom depth curve was added to the smooth sheet in addition to the standard depth curves to aid in delineating the rough bottom in the vicinity of the shoals.

K. CROSSLINES:

Crosslines were run to approximately 5 - 8 % of the regular system of sounding lines. All crossings were good.

L. COMPARISONS WITH PRIOR SURVEYS:

This survey was compared with prior surveys H-5225, scale 1:10,000, 1932 and H-5269, scale 1:40,000, 1932. There is generally very good agreement between the new and old surveys. Some of the isolated shoal soundings shown on the prior surveys are now shown to be continuous ridges due to closer line spacing and more comprehensive development. The bottom contours are shown to a greater refinement and accuracy because of continuous recording fathometers and accurate Raydist control. There are slight displacements in depth curves but in general the shoals are in the same position as previously recorded.

The shoalest ridge, in the vicinity of Latitude $41^{\circ} 38' N$, Longitude $68^{\circ} 13' W$, is now about 0.5 mile SW of that shown previously.

The fingers of the 10 fathom curve extending NE'ly from the northern tip of Cultivator Shoal are in a slightly different position and the 10 fathom curve does not extend as far NE'ly as previously shown.

The 3 fathom sounding previously charted in Latitude $41^{\circ} 39.3' N$, Longitude $68^{\circ} 12.3' W$ was not substantiated and is discussed in section U-Y Misc. under preliminary Review Item No. 8.

The shoalest sounding found on the ridge about 7 miles East of Cultivator Shoal was a 4.9 fathom at Latitude $41^{\circ} 37.9'$ N, Longitude $68^{\circ} 03.1'$ W. This compares very well with the 5 fathoms previously shown in that position.

The shoalest soundings obtained on the SE'ly extension of Cultivator Shoal were 5.5 fathom spots at Latitude $41^{\circ} 31.9'$ N, Longitude $68^{\circ} 08.0'$ W, and Latitude $41^{\circ} 31.2'$ N, Longitude $68^{\circ} 09.1'$ W. 32.85

The shoalest sounding in this area shown by previous surveys is $5 \frac{5}{6}$ fathom at Latitude $41^{\circ} 31.2'$ N, Longitude $68^{\circ} 07.0'$ W. The new survey shows deeper depths in this immediate area.

The slight discrepancies between this and prior surveys is probably due to more accurate position control, sounding by continuously recording fathometers and closer line spacing and development.

M. COMPARISON WITH CHART:

This survey was compared with chart No. 3076, scale 1:220,000, the largest scale chart of the area available.

The comparison was very good considering the difference in scale between the chart and this survey. Most comments in Par. L also apply to comparison with the chart.

N. DANGERS AND SHOALS:

The following shoal soundings are in addition to those mentioned in Par. L:

Least Depth (fms)	Latitude	Longitude
5.1	$41^{\circ} 37.8'$	$68^{\circ} 03.0'$
3.7	$41 38.2$	$68 12.5$
3.6	$41 38.3$	$68 12.6$
3.9	$41 38.4$	$68 12.7$
4.0	$41 38.48$	$68 12.5$
3.8	$41 39.0$	$68 12.4$
3.9	$41 39.2$	$68 12.5$
7.7	$41 39.95$	$68 07.5$
6.3	$41 36.5$	$68 02.4$
6.3	$41 30.85$	$68 06.65$

All charted dangers and shoals were found as charted or shoaler depths were found except for those listed in L, M, and N.

P. AIDS TO NAVIGATION:

Cultivator Shoal whistle buoy ICS was relocated in Latitude $41^{\circ} 40.2' N$, Longitude $68^{\circ} 11.5' W$. The date of location is 24 June 1958. It is in 11 fathoms of water.

The buoy is stated to be at Latitude $41^{\circ} 40.3' N$ and Longitude $68^{\circ} 12.0' W$ in the most recent edition of the Light List. The new location was established by Raydist with readings of $R_1 = 3331.1$ and $R_2 = 6270.7$. Scope and current corrections were applied. Location information is in Sounding Volume No. 11.

Q. LANDMARKS FOR CHARTS:

No landmarks for charts are located within the limits of this survey.

R. GEOGRAPHIC NAMES:

No investigation of geographic names was made.

U - Y. MISCELLANEOUS:

Preliminary Review Item No. 8.

This item refers to a 3 fathom sounding charted in Latitude $41^{\circ} 39.3' N$ and Longitude $68^{\circ} 12.3' W$. and originally charted in 1864. The new survey shows depths a little over 6 fathoms in this position. There is a small ridge about 0.2 mile SW showing depths of 3.8 and 3.9 fathoms. The shoalest sounding in the area is 3.4 fathoms at Latitude $41^{\circ} 38.8' N$ and Longitude $68^{\circ} 12.9' W$. This is about 0.6 miles SW of the charted 3 fathom spot. Since this is a modern electronically controlled survey with closely spaced sounding lines it is recommended that the new sounding be used.

Z. TABULATION OF APPLICABLE DATA

	To Washington Office
Season's Report - 1958	28 October 1958
Raydist Report - 1958	15 August 1958
Addendum to Raydist Report	28 October 1958
Fathometer and Velocity Correction Report	29 October 1958
Oceanographic Activities Report	10 November 1958
Water Samples from Oceanographic Stations	
Annual Statistical Report	30 June 1958
Bathythermograph Slides	10 November 1958
Oceanographic Log Sheets "A" and "B"	10 November 1958
Shipboard Wave Observation Logs	10 November 1958

Abstracts of the various corrections used in this survey are attached to the end of this report.

Respectfully Submitted,

Lawrence S. Brown
Lawrence S. Brown
ENS, C&GS

LSB/WRK/r

STATISTICS FOR HYDROGRAPHIC SURVEY

H-8451 (HY-2158)

USC&GSS HYDROGRAPHER

1958

PROJECT 14010 (CS-401)

Day Letter	Vol. No.	Date	No. of Positions	Nautical Miles of Soundings
Raydist Controlled				
A	1	7 June 1958	210	98.1
B	2,3	8 June 1958	349	158.1
C	3,4,5	9 June 1958	336	121.8
D	5,6,7	10 June 1958	430	187.4
E	7,8	11 June 1958	267	97.5
F	8,9	12 June 1958	327	144.0
G	10	22 June 1958	38	11.9
H	10	23 June 1958	101	40.9
J	10, 11	24 June 1958	165	59.0
	Total Raydist Controlled		2223	915.7
Aa	12	Shoran Launch Hydro 23 June	119	24.8
	Total for Sheet		2342	940.5

H-8451 - 1120,000

1957

1958

$\begin{array}{r} 149,83652 \\ \times 3250 \\ \hline 749,182600 \\ 29,967304 \\ 44950956 \\ \hline 486,968,69000 \end{array}$	$\begin{array}{r} 149,87307 \\ \times 3250 \\ \hline 749,365350 \\ 29,974614 \\ 44961921 \\ \hline 487,708,74750 \end{array}$
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149,87307.) 118,78750.000

$$\begin{array}{r} 104911149 \\ 138763510 \\ 134885763 \\ \hline -38677470 \end{array}$$

.792 lane NW Cor
 using either 57 or 58 lane measurement.

1957

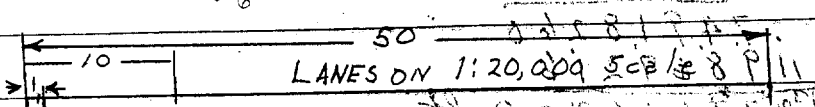
1958

$\begin{array}{r} 149,83652 \\ \times 3750 \\ \hline 749,182600 \\ 104886564 \\ 44950956 \\ \hline 561,886,95000 \end{array}$	$\begin{array}{r} 149,87307 \\ \times 3750 \\ \hline 749,365350 \\ 104911149 \\ 44961921 \\ \hline 562,024,01250 \end{array}$
---	---

149,87307.) 137,06250.000

$$\begin{array}{r} 134885763 \\ -21767370 \\ 14987307 \\ \hline -67800630 \end{array}$$

.914 lane SE Cor



.85 lanes

792
 914
 1706
 .853

000.00 000.00 000.00 000.00 000.00 000.00 000.00 000.00 000.00 000.00

$$\begin{array}{r}
 487354' \\
 3652431 \\
 149,83652 \cdot 792 \quad \text{NW} \\
 \hline
 118,78750.000 \\
 104885564 \\
 \hline
 = 139019360 \\
 134852868 \\
 \hline
 = -41564920
 \end{array}$$

$$\begin{array}{r}
 2441321 \\
 4873541 \\
 149.83652 \cdot 915 \quad \text{NESS E} \\
 \hline
 137,06250.000 \\
 134852868 \\
 \hline
 = -22106320 \\
 14983652 \\
 \hline
 = 71226680 \\
 74918260
 \end{array}$$

$$\begin{array}{r}
 76 \\
 344154 \\
 2149.83652 \quad 145. \\
 \hline
 .85 \\
 74918260 \\
 119869216 \\
 \hline
 2127.3610320 \text{ ft.} = \\
 101888825600 \\
 5094441280 \\
 38208309600 \\
 \hline
 38.819642553600 \quad 20,000
 \end{array}$$

38.82 m.

TIDE NOTE
To Accompany
Hydrographic Survey H-8451

Standard Tide Station: Boston (Commonwealth Pier) Massachusetts

Location: Latitude $42^{\circ} 21' N$, Longitude $71^{\circ} 03' W$

Plane of Reference: Mean Low Water 3.3 feet on tide staff

Time Correction: Minus one-half hour

Height Correction: Ratio of Ranges 0.5

Area Covered: Entire survey

The above time and height corrections were furnished by the Washington Office.

The hourly heights were furnished from the Washington Office.

SHORAN CORRECTIONS FOR A DAY SHEET H-8451 (HY-2158)

Calibration Corrections

Launch Station	+ 0.040
Ship Station	-0.005

Launch Station Swing Correction

0900 - 0930	+ 0.015
0930 - 1030	+ 0.020
1030 - 1050	+ 0.015
1050 - 1110	+ 0.010
1110 - 1134	+ 0.005
1134 - 1202	0.000
1202 - 1343	-0.005
1343 - 1500	-0.010

Ship Station Swing Correction


0955 - 1000	-0.040
1000 - 1012	-0.035
1012 - 1023	-0.030
1023 - 1034	-0.025
1034 - 1052	-0.020
1052 - 1100	-0.015
1100 - 1112	-0.010
1112 - 1123	-0.005
1123 - 1136	0.000
1136 - 1152	+ 0.005
1152 - 1220	+ 0.010
1220 - 1310	+ 0.015
1310 - 1456	+ 0.020
1456 - 1500	+ 0.015

APPROVAL SHEET

The Field work accomplished on this survey was under the supervision of Captain G. R. Fish, Comdg., Ship HYDROGRAPHER. Daily inspection of the records, boat sheet, and smooth sheet was made as the survey progressed.

The records, boat sheet and smooth sheet as submitted to the Washington office have been reviewed and are approved by me.

This survey is complete and adequate and no additional field work is recommended.


M. E. Wennermark
CDR, C&GS
Comdg., Ship HYDROGRAPHER

FINAL RAYDIET CORRECTIONS FOR SHEET NY-2158

Date	Day Ltr.	Positions	Final Corr.		Remarks
			<u>R₁</u>	<u>R₂</u>	
7 June	A	1 - 210	-1.1	1.8	
8 June	B	1 - 349	0.7	0.1	
9 June	C	1 - 22	0.7	0.1	
9 June	C	23 - 126	2.6	-0.4	Recalibrated
9 June	C	127 - 336	-0.2	0.6	Recalibrated
10 June	D	1 - 44	-0.2	0.6	
10 June	D	45 - 54	-0.2	-1.4	R ₂ gained 2 lanes
10 June	D	55	-0.2	0.6	R ₂ lost 2 lanes
10 June	D	56 - 57	-0.2	-1.4	R ₂ gained 2 lanes
10 June	D	58 - 60	-0.2	2.6	R ₂ lost 4 lanes
10 June	D	61	-0.2	0.6	R ₂ gained 2 lanes
10 June	D	62	-0.2	-2.4	R ₂ gained 3 lanes
10 June	D	63	-0.2	-1.4	R ₂ gained 2 lanes
10 June	D	64 - 430	-0.5	0.8	Recalibrated
11 June	E	1 - 65	-1.7	-2.6	
11 June	E	66 - 255	-1.2	-0.1	Recalibrated
11 June	E	256	-1.2	-2.1	R ₂ gained 2 lanes
11 June	E	257 - 258	-1.2	-0.1	R ₂ lost 2 lanes
11 June	E	259 - 264	-1.2	-2.1	R ₂ gained 2 lanes
11 June	E	265 - 267	-1.2	-6.1	R ₂ gained 4 lanes
12 June	F	1 - 327	-0.5	0.6	
22 June	G	1 - 38	-1.1	1.2	
23 June	H	1 - 101	0.8	1.3	
24 June	J	1 - 165	0.0	0.5	

NOTE: Additional ship's head corrections applied as follows:

When running R ₂ arcs in W'y direction:	R ₁ = -0.4	R ₂ = 0.0
When running R ₂ arcs in E'y direction:	R ₁ = 0.4	R ₂ = 0.0
When running R ₁ arcs in N'y direction:	R ₁ = 0.0	R ₂ = -0.6
When running R ₁ arcs in S'y direction:	R ₁ = 0.0	R ₂ = 0.6

ABSTRACT OF BAR CHECKS FOR LAUNCH HY-1 EDO FATHOMETER

SHEET HY-2158 a DAY ON 23 JUNE 1958

All Figures in Feet

<u>Depth</u>	<u>Corrections</u>			<u>Mean Correction</u>
20	/ 0.1	0.0	-0.2	0.0
30	/ 0.5	/ 0.6	(/ 0.1)R	/ 0.5
40	/ 0.8	/ 1.0	/ 0.8	/ 0.9
50		/ 1.2	/ 1.0	/ 1.1
60		/ 1.5	/ 1.4	/ 1.4
70		/ 2.2	/ 2.0	/ 2.1

Phase Comparison at 70 feet: -0.3 -0.8 Mean: -0.5

The above corrections were plotted in a curve and the following final corrections scaled off:

<u>Depth (ft.)</u>	<u>Correction (ft.)</u>
16 to 23	0.0
to 29	/ 0.2
to 34	/ 0.4
to 40	/ 0.6
to 45	/ 0.8
to 51	/ 1.0
to 56	/ 1.2
to 61	/ 1.4
to 65	/ 1.6
to 69	/ 1.8
to 74	/ 2.0
to 78	/ 2.2
to 82	/ 2.4
to 85	/ 2.6
to 89	/ 2.8
to 92	/ 3.0
to 96	/ 3.2
to 99	/ 3.4
to 102	/ 3.6
to 106	/ 3.8
to 109	/ 4.0
to 112	/ 4.2
to 115	/ 4.4
to 118	/ 4.6
to 120	/ 4.8

TABULATION OF FINAL INSTRUMENT CORRECTIONS IN FATHOMS FOR 1958

This final correction is the algebraic sum of the instrument, phase, draft and settlement and squat corrections.

<u>TRIP</u> <u>NOS.</u>	<u>DATES</u>	<u>FATH.</u> <u>NO.</u>	<u>A</u>	<u>SCALES</u> <u>B</u>	<u>C</u>	<u>D</u>
I thru III	22 April thru 27 May	57-31	-0.2	f 0.2	f 1.0	f 1.6
		153	-0.2	f 0.8	f 0.8	f 0.4
IV	4 June thru 1200 11 June	57-31	-0.2	f 0.2	f 1.0	f 1.6
		153	-0.2	f 0.8	f 0.8	f 0.4
	1200 11 June thru 13 June	57-31	-0.4	0.0	f 0.8	f 1.4
		153	-0.4	f 0.6	f 0.6	f 0.2
V and VI	20 June thru 17 July	57-31	-0.2	f 0.2	f 1.0	f 1.6
		153	-0.2	f 0.8	f 0.8	f 0.4
VII thru XII	21 July thru 7 Oct.	57-31	-0.2	f 0.2	f 1.0	f 1.6
		153	0.0	f 1.0	f 1.0	f 0.6

FINAL VELOCITY CORRECTIONS (FPS)
1958

Trip 1 (23-29 April 1958)

<u>HI-4157</u>	0.0 to 2.5	<u>HI-10257</u>	0.0 to 2.4
	-0.2 to 12.4		-0.2 to 11.6
	-0.4 to 22.3		-0.4 to 21.6
	-0.6 to 30.2		-0.6 to 30.2
	-0.8 to 39.8		-0.8 to 39.8
	-1.0 to 49.0		-1.0 to 49.0
	-1.2 to 58.8		-1.2 to 58.8

Trip 2 (6-15 May 1958)

<u>HI-4157, HI-4257, HI-4357</u>	0.0 to 2.8	<u>HI-10157</u>	0.0 to 3.4
	-0.2 to 14.0		-0.2 to 15.0
	-0.4 to 22.0		-0.4 to 23.7
	-0.6 to 31.3		-0.6 to 31.6
	-0.8 to 40.4		-0.8 to 39.5
	-1.0 to 50.0		-1.0 to 47.6
	-1.2 to 59.5		-1.2 to 56.5
	-1.4 to 69.0		-1.4 to 65.5
	-1.6 to 78.2		-1.6 to 75.5 *
	-1.8 to 88.5		-1.8 to 85.5 *
	-2.0 to 97.0		-2.0 to 95.5 *
			-2.2 to 105.5 *
			-2.4 to 115.5 *
			-2.6 to 125.5 *

* Extrapolated

Trip 3 (20-28 May 1958)

<u>HI-4157, HI-4357</u>	0.0 to 3.5	<u>HI-10157</u>	Same as Trip 2
	-0.2 to 17.2		
	-0.4 to 25.6		
	-0.6 to 35.0		
	-0.8 to 45.0		
	-1.0 to 54.8		
	-1.2 to 64.5		
	-1.4 to 74.5		
	-1.6 to 84.0		
	-1.8 to 95.2		
	-2.0 to 109.4		

FINAL VELOCITY CORRECTIONS (FMS) 1958—Continued:

Trip 4 (4-13 June 1958) TABLE 1

HY-4257, HY-4357, HY-2158,
HY-4158, HY-10158

HY-10157

Same as Trip 2

0.0 to 4.6
-0.1 to 11.0
-0.2 to 20.0
-0.4 to 30.2
-0.6 to 40.1
-0.8 to 49.8
-1.0 to 59.2
-1.2 to 69.4
-1.4 to 79.8
-1.6 to 90.8
-1.8 to 102.7
-2.0 to 109.4

Trip 5 (19-28 June 1958)

HY-2158, HY-4257 TABLE 2

HY-10157

0.0 to 4.7
-0.1 to 13.7
-0.2 to 22.0
-0.4 to 31.2
-0.6 to 40.4
-0.8 to 49.4
-1.0 to 58.5
-1.2 to 68.5
-1.4 to 78.6
-1.6 to 89.6
-1.8 to 102.0
-2.0 to 115.8

0.0 to 7.6
-0.1 to 11.0
-0.2 to 18.7
-0.4 to 27.0
-0.6 to 35.1
-0.8 to 43.6
-1.0 to 52.8
-1.2 to 62.7
-1.4 to 72.9
-1.6 to 83.5
-1.8 to 94.0 *
-2.0 to 104.5 *
-2.2 to 115.0 *

* Extrapolated

Trip 6 (7-17 July 1958)

HY-4257, HY-4158, HY-10158

HY-10157

0.0 to 10.0
-0.1 to 11.0
-0.2 to 25.0
-0.4 to 30.2
-0.6 to 39.9
-0.8 to 50.2
-1.0 to 60.0

0.0 to 13.7
-0.2 to 26.0
-0.4 to 35.9
-0.6 to 45.5
-0.8 to 55.0
-1.0 to 64.5
-1.2 to 74.0 *
-1.4 to 83.5 *
-1.6 to 93.0 *

* Extrapolated

FINAL VELOCITY CORRECTIONS (FMS) 1958—Continued:

Trip 7 (22-31 July 1958)

HY-4158, HY-10158

0.0 to 19.0
-0.2 to 50.0

HY-10157

No hydro on this trip

Trip 8 (5-15 August 1958)

Oceanographic trip - no hydro.

Trip 9 (20-29 August 1958)

HY-4158, HY-10158

0.0 to 30.0
-0.2 to 43.0

HY-10157

0.0 to 8.4
-0.1 to 11.0
-0.2 to 17.4
-0.4 to 26.0
-0.6 to 34.7
-0.8 to 43.5
-1.0 to 56.7
-1.2 to 65.3
-1.4 to 72.0 *
-1.6 to 79.5 *
-1.8 to 87.0 *
-2.0 to 94.5 *

* Extrapolated

Trip 10 (4-11 September 1958)

HY-4158

0.0 to 30.0
-0.2 to 43.0

HY-10157

0.0 to 10.2
-0.1 to 11.0
-0.2 to 23.0
-0.4 to 32.5
-0.6 to 41.5
-0.8 to 50.5
-1.0 to 60.7
-1.2 to 70.8 *
-1.4 to 81.0 *
-1.6 to 91.2 *
-1.8 to 101.4 *
-2.0 to 111.6 *

* Extrapolated

FINAL VELOCITY CORRECTIONS (FMS) 1958—Continued:

Trip 11 (16-25 September 1958)

HY-4158, HY-10158

0.0 to 30.0
-0.2 to 43.0

HY-10157

Same as Trip 10.

Trip 12 (1-6 October 1958)

HY-4158, HY-4258, HY-10158

0.0 to 30.0
-0.2 to 35.0
-0.4 to 40.0
-0.6 to 45.3

HY-10157

0.0 to 17.0
-0.2 to 34.7
-0.4 to 46.7
-0.6 to 57.5
-0.8 to 68.0
-1.0 to 78.5 *
-1.2 to 89.0 *
-1.4 to 99.5 *
-1.6 to 110.0 *
-1.8 to 120.5 *

* Extrapolated

GEOGRAPHIC NAMES

Survey No. H-8451

Name on Survey										
	A	B	C	D	E	F	G	H	K	
Massachusetts			(ditto)						SGN	1
Georges Bank										2
Cultivator Shoal										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

Names approved
2-11-59
L. Heck

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8451

Records accompanying survey: Smooth sheets .1...;
 boat sheets .2...; sounding vols. .12...; wire drag vols.;
 Descriptive Reports .1...; graphic recorder envelopes .4...;
 special reports, etc. .1-Cahier. Shorean. Plotting. Abstracts.....
.1. Cahier. - Brush + Printer... Tapes.....

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

Number of positions on sheet
Number of positions checked
Number of positions revised
Number of soundings revised (refers to depth only)
Number of soundings erroneously spaced
Number of signals erroneously plotted or transferred
Topographic details	Time
Junctions	Time
Verification of soundings from graphic record	Time
Special adjustments	Time

Verification by Total time Date

Reviewed by Time Date

VERIFIER'S REPORT OF HYDROGRAPHIC SURVEY NO. H- 8451

The verifier should deal with the present hydrographic survey only, as the reviewer considers its relation to previous surveys and published charts. He should be thoroughly familiar with Chapters 3, 7 and 9 of the Hydrographic Manual.

1. The descriptive report was consulted and appropriate notes were made in soft pencil regarding action taken.
2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude.
3. All reference to survey sheets mentioned in the descriptive report include the registry number and year.
4. Geographic names of hydrographic features if on sheet are in slanting lettering and of topographic features in vertical lettering.
5. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken.
6. All positions verified instrumentally were check marked in the sounding records.
7. All critical soundings are clear and legible and are a little larger than the adjacent soundings.
8. The metal protractor has been checked within the last three months.
9. The protracting and plotting of all bad crossings were verified.
10. All detached positions locating critical soundings, rocks or buoys were verified.
11. The boat sheet was compared with the smooth sheet.

12. The spacing of soundings as recorded in the records was closely followed.
13. The bottom characteristics were shown on outstanding shoals.
14. The reduction and plotting of doubtful soundings were checked.
15. The transfer of contemporary topographic information was carefully examined.
16. All junctions were transferred and overlapping curves made identical.
17. The notation "JOINS H- (19--)" was added in ink for all contemporary adjoining or overlapping sheets now registered. Those not verified are shown in pencil.
18. The depth curves have been inspected before inking.
19. All triangulation stations and transfer of topographic and hydrographic signals were checked.
20. Heights of rocks were checked against range of tide.
21. Rocks transferred from topographic surveys have a dotted curve where shown thereon. Rocks located accurately by hydrographer are encircled by dotted red curve.
22. Unnecessary pencil notes have been removed.
23. Objects on which signals are located and which fall outside of the low water line have been described on the sheet.
24. The low water line and delineation of shoal areas have been properly shown.
25. Degree and minutes values and symbols have been checked.
26. Questionable soundings have been checked on the fathograms.

27. Source of shoreline and signals (when not given in report).
28. All notes on sheet are in accordance with figure 171 in the Hydrographic Manual.
29. All aids located, with those on contemporary topographic sheets, have been shown on survey.
30. Depth curves were satisfactory except as follows:
31. Sounding line crossings were satisfactory except as follows:
32. Junctions with contemporary surveys were satisfactory except as follows:
33. Condition of sounding records was satisfactory except as follows:
34. The protracting was satisfactory except as follows:
35. The field plotting of soundings was satisfactory except as follows:
36. Notes to reviewer:

Verified by

Date

TIDE NOTE FOR HYDROGRAPHIC SHEET

Chart Division: R. H. Carstens

11 March 1959

Plane of reference approved in
12 volumes of sounding records for

HYDROGRAPHIC SHEET 8451

Locality Georges Bank

Chief of Party: G. R. Fish in 1958

Plane of reference is mean low water.

ft. on tide staff at

ft. below B.M.

Height of mean high water above plane of reference at the working
grounds is 4.9 feet.

Condition of records satisfactory except as noted below:


Signature

Chief, Tides Branch

