

8489

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

Form 504

U. S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey **HYDROGRAPHIC**  
Field No. **HY-16158** Office No. **H-8489**

LOCALITY

State **MASSACHUSETTS**  
General locality **GEORGES BANK**  
Locality **SOUTH GEORGES BANK**

19 58, 1959

CHIEF OF PARTY

**Gilbert R. Fish, Maurice E. Wennemark**

LIBRARY & ARCHIVES

DATE **FEB 20 1960**

8489

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-8489

Field No. HY-10158

State MASSACHUSETTS

General locality GEORGES BANK

Locality SOUTH GEORGES BANK

Scale 1:100,000 Date of survey 5 June - 5 October 1958  
25 April - 22 June 1959 1958  
28 Feb. 1957, 23 Oct. 1957, 29 April,

Instructions dated 28 Nov. 1956, Supplementals: 17 July 1958, 16 Oct. 1958

Vessel USC&GSS HYDROGRAPHER

Chief of party Gilbert R. Fish, Maurice E. Wennermark

Surveyed by D.M.Whipp, W.R.Kachel, W.D.Barbee, D.L.Campbell, D.I.Wolsk,  
J.T.Flynn, L.S.Brown, D.W.Moncevicz, P.A.Martus, R.R.Floyd.

Soundings taken by ~~Electronic~~ graphic recorder, hand level

Fathograms scaled by Ship's Personnel

Fathograms checked by Ship's Personnel

Protracted by Ship's Personnel

Soundings penciled by Ship's Personnel

Soundings in fathoms ~~feet~~ at MLW ~~MLLW~~

REMARKS: Off Shore Survey

*RWW 8/25/92*

DESCRIPTIVE REPORT  
TO ACCOMPANY HYDROGRAPHIC SURVEY H-8489

FIELD NO. 140158  
1958, 1959

GEORGES BANK - SOUTH GEORGES BANK  
SHIP HYDROGRAPHER SCALE 1:100,000

Gilbert R. Fish, Maurice E. Wennermark  
Chief of Party

A. PROJECT:

Project 14010 (also CS-401). Project instructions dated 28 November 1956, (reference 22/MEK, file S-2-HY). Supplemental Instructions dated 28 February 1957 (reference 22/MEK, file S-2-HY), 23 October 1957 (reference 22/MEK, file S-2-HY), 29 April 1958 (reference 22/MEK, files S-2-HY), 17 July 1958 (reference 22/MEK, file S-1-HY), and 16 October 1958 (reference 22/MEK, file S-2-HY).

Supplemental Instructions of 23 October 1957 change project from 14010 to CS-401.

B. SURVEY LIMITS AND DATES:

This survey covers an irregular area in the southerly part of Georges Bank in the Gulf of Maine. The approximate limits of the sheet are: Latitude  $40^{\circ} 40' N$  to  $41^{\circ} 25' N$  and Longitude  $67^{\circ} 05' W$  to  $68^{\circ} 50' W$ .

Field work on the sheet began 5 June 1958 and ended 22 June 1959.

This survey makes a junction with the following prior surveys:

H-5167	1:100,000	1931
H-5168	1: 40,000	1931
H-5170	1:100,000	1931
H-5195	1: 40,000	1931
H-5270	1: 40,000	1932
H-5271	1: 40,000	1932
H-5273	1:100,000	1932

This survey makes a junction with the following contemporary surveys:

H-8453	1:40,000	1958	(HY-4158)
H-8483	1:40,000	1958	(HY-4258)
H-8404	1:40,000	1957	(HY-4357)

C. VESSEL AND EQUIPMENT

The hydrography on this survey was accomplished by the Ship HYDROGRAPHER.

The turning radius at sounding speed (120 RPM or approximately 10 knots) of the HYDROGRAPHER is 80 to 120 meters depending upon the prevailing wind and current.

808 type fathometers were used for the entire survey. Depth recorders numbers 153 SPX and 57-31 were used.

D. TIDE AND CURRENT STATIONS

Tide reducers for this survey are referenced to the standard Tide Gage at Boston, Massachusetts. Time differences of minus one hour and minus one half hour and a ratio of ranges of 0.5 were furnished by the Washington Office.

Predicted tide curves for the reduction of boat sheet soundings were also furnished by the Washington Office.

There were no current stations on this sheet.

E. SMOOTH SHEET:

The smooth sheet projection, EPI arcs and Raydist arcs were hand ruled by the Washington Office. The soundings were smooth penciled aboard the ship.

F. CONTROL STATIONS:

Hydrography on this sheet was controlled by EPI and Raydist in 1958 and by Raydist in 1959.

Control stations were located as follows:

R<sub>1</sub> (also EPI B), at Wellfleet, Cape Cod, Massachusetts  
Latitude 41° 56' 31.426" North  
Longitude 69° 59' 11.303" West

The geographic position of this station was determined by K. S. Ulm, Boston District Officer, in 1957. It is the same as Reference Mark 1 of Triangulation Station FRAZIER 1957.

R<sub>2</sub> (also EPI A), at Southwest Harbor, Maine.  
Latitude 44° 14' 47.65" North  
Longitude 68° 17' 37.61" West

The geographic positions of this station was determined by F. B. Quinn, Boston District Officer, in 1955.

G. SHORELINE AND TOPOGRAPHY:

No shoreline or topography is shown on this sheet as this is an off-shore survey.

H. SOUNDINGS:

All depths were measured using 808 J type fathometers. Adequate checks and tests were made to verify the accuracy of the soundings obtained with the fathometers. For further information see separate reports on Fathometer and Velocity Corrections, Ship HYDROGRAPHER, for the years 1958 and 1959.

I. CONTROL OF HYDROGRAPHY:

EPI Control

EPI control was used only during the period 16-30 July 1958. This method of control was not as reliable as Raydist control. In plotting the EPI portion of the sheet, the recorded EPI fix was compared with a dead reckoning position. If on a given fix it was not possible to make the EPI data roughly compatible with the DR position one or both EPI arcs were rejected.

About 15% of the EPI positions had one or both arcs rejected. Neither arc was consistently more reliable than the other; each station experiencing erratic periods.

The EPI was calibrated once each day used. It was calibrated on survey buoys which had previously been located by Raydist. An abstract of EPI calibrations during 1958 is included in the 1958 Addendum to Raydist Report - Ship HYDROGRAPHER.

RAYDIST CONTROL 3280 KC

Raydist control was used on over three quarters (75%) of the work on this sheet. A complete explanation of Raydist Control and calibration is included in separate Raydist Reports submitted 9 December 1957, 15 August 1958, 28 October 1958, and 1959 Raydist-Shoran Report (Ship HYDROGRAPHER). Raydist stations (also EPI stations) were located as indicated in Section F of this report. Reference should also be made to letters to the Director of 18 March 1958, 10 October 1958, and 27 October 1958. Also refer to Technical Bulletin No.5, by Captain Gilbert E. Fish entitled Raydist on Georges Bank.

The Raydist dials were set at Texas Tower #2 (Southwest Tower Leg) and at survey buoys located by runs from T. T. #2. The Raydist values (lanes) used for the T. T. #2 - Southwest Leg during 1958 and 1959 were:

$$R_1 = 4068.6 \qquad R_2 = 6264.4$$

This value determined in 1957 has become known as the "1957 datum" or "the 1957 position of Texas Tower No.2. In 1958 a new

value for the Tower position was determined. It being;  $R_1 = 4068.3$  and  $R_2 = 6269.0$ , and based on  $R_1$  and  $R_2$  lane widths of 149.87307 feet. *Manually plotted on old values*

The "1957 datum" is based on the same  $R_1$  lane width but a  $R_2$  lane width of 149.83652 feet. This  $R_2$  lane width of 149.83652 feet was originally in error when given to the HYDROGRAPHER for use. In 1958 the new and more precise  $R_2$  lane width was relayed to the HYDROGRAPHER as  $R_2 = 149.87307$ .

The boat sheet and smooth sheet of HY-10158 is based on the old value of  $R_2$ , that is  $R_2 = 149.83652$ , and also on the "1957 position of Texas Tower No. 2". Thus the boat sheet and smooth sheet may have to be shifted to account for the change in lane width and the Texas Tower position error.

*Ignore lane value error - less than 1/4 lane or 5, limit*  
*correct this by adding 6.1 lanes to  $R_2$  distances and equivalent to EPI 3rd Harbor Sta.*  
The lane width discrepancies and Tower positions are discussed in the Raydist Report for 1958 and the Addendum to the 1958 Raydist Report previously submitted to the Washington Office. Abstracts of the EPI and Raydist correctors are included at the end of this report.

J. ADEQUACY OF SURVEY:

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

Depth curves can be adequately drawn at the junctions.

Junctions with adjoining surveys have been inspected and are satisfactory.

In various areas of the sheet 15 and 25 fathom depth curves were added in addition to the standard depth curves to aid in delineating rough bottom in the vicinity of shoals.

K. CROSSLINES:

Crosslines were run to approximately 5-10% of the regular system of sounding lines and are satisfactory.

L. COMPARISON WITH PRIOR SURVEYS:

This survey was compared with the following prior surveys:

H-5167	1:100,000	1931
H-5168	1: 40,000	1931
H-5170	1:100,000	1931
H-5270	1: 40,000	1932
H-5271	1: 40,000	1932
H-5273	1:100,000	1932

In general, the comparisons are very good. Because of closer line spacing, more accurate control and continuously recording fathometers it is recommended that the new depths and contours be used except as mentioned in section N of this report.

The development of various shoals was more complete on this new survey. Some of the shoalest soundings found are tabulated in Sections M & N of this report

M. COMPARISON WITH CHART:

This survey was compared with Chart No. 3076, scale 1:220,000, the largest scale survey of the area available. The comparison was good considering the difference in scale between the chart and the smooth sheet.

Some comparisons are as follows:

<u>Smooth Sheet</u> Depth (fms)	<u>Chart 3076</u> Depth (fms)	<u>Latitude</u>	<u>Longitude</u>
15	17	40° 59.6' N	68° 39.4' W
13	11	40° 56.3' N	68° 24.0' W
21	21	40° 46.0' N	68° 23.3' W
14	14	41° 11.3' N	67° 54.3' W

Other comparisons were made between specific areas and the agreement in depth and position was very good. The closer line spacing and more accurate Raydist control gives a much more comprehensive and accurate delineation of bottom characteristics than previous surveys.

It is recommended that the depths found on this survey be accepted.

N. DANGERS AND SHOALS

The following shoal soundings are in addition to those mentioned in section M of this report.

<u>Least Depth (fm)</u>	<u>Latitude</u>	<u>Longitude</u>
11	40° 55.5' N	68° 24.8' W
16	40° 51.6' N	68° 29.0' W
13	40° 56.0' N	68° 31.0' W
9 <u>2</u>	40° 56.5' N	68° 30.4' W
15	40° 59.6' N	68° 39.5' W
14	41° 11.5' N	67° 54.4' W
13	41° 23.5' N	67° 38.1' W

An 18 fathom sounding on prior survey H-5167, 1:100,000, 1931 at approximately Latitude 41° 25.9' N, Longitude 67° 14.9' W should be retained as the line spacing in that area was not adequate to disprove or confirm the 18 fathom value.

All charted dangers and shoals were found as charted or shoaler depths were obtained except as noted in Section M and N.

O. COAST PILOT INFORMATION:

None

P. AIDS TO NAVIGATION:

No fixed or floating aids to navigation are located within the limits of this survey.

Q. LANDMARKS FOR CHARTS:

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

R-X NOT APPLICABLE

Y. SHIP'S HEAD CORRECTOR:

A ship head corrector was applied to the control on this sheet. Tabulation of corrections is included in Addendum to Raydist Report, 1958, Ship HYDROGRAPHER.

Z. TABULATION OF APPLICABLE DATA:

Seasons Report - 1958 Season	28 October 1958
Seasons Report-- 1959 Season	15 December 1959
Fathometer & Velocity Correction Report- 1958 Season.	28 October 1958



Fathometer & Velocity Correction Report	
1959 Season	8 January 1960
Raydist Report - 1958 Season	15 August 1958
Shoran & Raydist Report - 1959 Season	8 January 1960
Addendum to Raydist Report - 1958 Season	28 October 1958

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

*Donald W. Moncevicz*  
Donald W. Moncevicz  
ENS, C&GS

TIDE NOTE

To Accompany  
Hydrographic Survey H-8489 (HY-10158)

Standard Tide Station:	Boston (Northern Ave. Bridge) Massachusetts.
Latitude:	42° 21.3' North
Longitude:	71° 03.0' West
Plane of Reference:	Mean low water 3.3.feet on tide staff.
Area covered:	Entire sheet
Time correction:	Minus one hour (1 hr.) East of Longitude 68° W (approximate) and Minus one half hour ( $\frac{1}{2}$ hr.) West of Longitude 68° W (approximate).
Height correction:	Ratio of Ranges 0.5

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

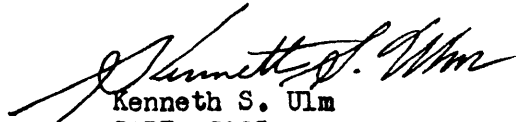
The hourly heights were furnished by the Washington Office.

APPROVAL SHEET

The field work accomplished on this survey was under the supervision of Captain Gilbert R. Fish, and Captain Maurice E. Wennermark.

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

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

  
Kenneth S. Ulm  
CAPT, C&GS  
Comdg., Ship HYDROGRAPHER

Instrument Correction for  
Ship Hydrography  
1958 Field Season

<u>Trip Nos.</u>	<u>Dates</u>	<u>Fath. No.</u>	<u>A</u>	<u>Scales</u>			
				<u>B</u>	<u>C</u>	<u>D</u>	
1 thru 3	22 April	57-31	-0.2	+ 0.2	+ 1.0	+ 1.6	
	to 27 May	153	-0.2	+ 0.8	+ 0.8	+ 0.4	
4	4 June to	57-31	-0.2	+ 0.2	+ 1.0	+ 1.6	
	1200 11 June	153	-0.2	+ 0.8	+ 0.8	+ 0.4	
	1200 11 June to 13 June	57-31 153	-0.4 -0.4	+ 0.0 + 0.6	+ 0.8 + 0.6	+ 1.4 + 0.2	
5 and 6	20 June to	57-31	-0.2	+ 0.2	+ 1.0	+ 1.6	
	17 July	153	-0.2	+ 0.8	+ 0.8	+ 0.4	
7 thru 12	21 July to	57-31	-0.2	+ 0.2	+ 1.0	+ 1.6	
	7 October	153	0.0	+ 1.0	+ 1.0	+ 0.6	

These instrument correctors are the algebraic sum of the Fathometer instrument error, phase, draft, and settlement and squat corrections.

Instrument Correction for  
Ship Hydrography  
1959 Field Season

<u>Trip Nos.</u>	<u>Dates</u>	<u>Fathometer No.</u>	<u>A</u>	<u>Scales</u>		
				<u>B</u>	<u>C</u>	<u>D</u>
1 through 3	21 April	57 - 31	-0.2	+ 0.3	+ 0.9	+ 1.2
	to 28 May	153	-0.2	+ 0.2	+ 0.1	- 1.3
4	NO HYDROGRAPHY THIS TRIP					
5	16 June	57 - 31	-0.2	+ 0.3	+ 0.9	+ 1.2
	to 23 June	153	-0.2	+ 0.2	+ 0.1	- 1.3
	24 June	57 - 31	-0.4	+ 0.1	+ 0.7	+ 1.0
	to 26 June	153	-0.4	+ 0.0	- 0.1	- 1.5
6	6 July	57 - 31	-0.2	+ 0.3	+ 0.9	+ 1.2
	to 11 July	153	-0.2	+ 0.2	+ 0.1	- 1.3
7 - 13	NO HYDROGRAPHY THESE TRIPS ON THIS SHEET					

These instruments correctors are the algebraic sum of the Fathometer instrument error, phase, draft, and settlement and squat corrections.

1958 Field Season

Velocity Corrections ( all in fms)  
HY - 10158 (H-8489)

Trip 1 - 3 (23 April - 28 May 1958) No Hydrography

Trip 4 (4 - 13 June 1958)

0.0 to 4.6 Table 1  
-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~~  
150.0

Trip 5 (19 - 28 June 1958)

No Hydrography

Trip 6 (7 - 17 July 1958)

0.0 to 10.0 Table 2  
-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~~  
100.0

Trip 7 (22 - 31 July 1958)

0.0 to 19.0 Table 3  
-0.2 to ~~50.0~~  
75.0

Trip 8 (5 - 15 August 1958)

Oceanographic trip - No Hydrography

Trip 9 (20 - 29 August 1958)

0.0 to 30.0 Table 4  
-0.2 to ~~43.0~~  
50.0

Trip 10 (4 - 11 September 1958)

No Hydrography

Trip 11 (16 - 25 September 1958)

0.0 to 30.0 Table 4  
-0.2 to ~~43.0~~  
50.0

Trip 12 (1 - 6 October 1958)

0.0 to 30.0 Table 5  
-0.2 to 35.0  
-0.4 to 40.0  
-0.6 to ~~45.3~~  
50.0

1959 Field Season

Velocity Corrections (all in fms)  
HY-10158 (H-8489)

Trip 1 (21-30 April 1959)

0.0 to 2.2     *Table 6*  
-0.2 to 12.6  
-0.4 to 23.6  
-0.6 to ~~38.2~~  
          50.0

Trip 2 (4-14 May 1959)

0.0 to 2.5     *Table 7*  
-0.2 to 11.8  
-0.4 to 21.3  
-0.6 to 30.8  
-0.8 to 40.2  
-1.0 to ~~49.7~~  
          60.0

Trip 3 (18-28 May 1959)

0.0 to 2.0     *Table 8*  
-0.2 to 11.5  
-0.4 to 21.5  
-0.6 to 31.0  
-0.8 to ~~40.2~~  
          50.0

Trip 4 (2-11 June 1959)

No Hydrography

Trip 5 (16-26 June 1959)

0.0 to 4.5     *Table 9*  
-0.2 to 22.7  
-0.4 to ~~39.5~~  
          50.0

Trip 6-13 (6 July - 9 Oct. 1959)

No Hydrography





1958

## FINAL RAYDIST AND EPI CORRECTIONS FOR SHEET NY-10158

Date	Day Ltr.	Positions	Final Corr.		Remarks
			R <sub>1</sub>	R <sub>2</sub>	
5 June	A	2 - 8	-4.4	-1.3	
6 June	B	1 - 12	-3.7	-2.7	
15 July	C	1 - 19	-1.8	-0.3	
15 July	C	20 - 41	-1.8	-9.3	R <sub>2</sub> gained 9 lanes
15 July	C	42 - 80	-1.8	0.1	
16 July	D	1 - 56	-1.2	-0.6	
23 July	E	1 - 5	0.0	-0.5	
23 July	E	6 - 15	0.8	0.0	
23 July	E	16 - 49	-6.6	0.3	EPI
24 July	F	1 - 56	-6.6	0.3	EPI
24 July	F	57 - 75	-0.3	-1.4	
24 July	F	76 - 141	0.4	0.8	Recalibrated Raydist
24 July	F	142 - 180	-6.6	0.3	EPI
25 July	G	1 - 73	-6.6	0.3	EPI
25 July	G	74 - 103	0.8	-0.1	
25 July	G	104 - 114	-1.7	0.2	Recalibrated Raydist
25 July	G	115 - 134	-1.7	-2.2	Recalibrated Raydist
25 July	G	135 - 174	-6.6	0.3	EPI
26 July	H	1 - 50	-6.6	0.3	EPI
26 July	H	51 - 152	-0.1	-0.8	
26 July	H	153	-0.1	0.2	R <sub>2</sub> lost 2 lanes
26 July	H	154	-0.1	0.2	R <sub>2</sub> lost 1 lane
27 July	J	1 - 37	-1.0	-2.8	
27 July	J	38 - 68	0.9	0.6	Recalibrated Raydist
27 July	J	69	0.9	0.6	R <sub>2</sub> lost 8 lanes
27 July	J	70 - 75	0.9	0.6	R <sub>2</sub> lost 5 lanes
27 July	J	76 - 96	-6.6	0.3	EPI
27 July	J	97 - 118	-5.9	0.3	EPI
28 July	K	1 - 28	-5.2	0.3	EPI
28 July	K	29 - 55	-6.6	0.3	EPI
28 July	K	56 - 141	0.5	-3.1	
28 July	K	142	0.5	-2.1	R <sub>2</sub> lost 1 lane
28 July	K	143 - 185	-4.6	0.3	EPI
29 July	L	1 - 67	-4.6	0.3	EPI
29 July	L	68 - 124	-0.7	-1.7	
29 July	L	125 - 203	-4.6	0.3	EPI
30 July	M	1 - 29	-4.6	0.3	EPI
30 July	M	30 - 37	-4.6	0.0	EPI

1958

## FINAL RAYDIST AND EPI CORRECTIONS FOR SHEET HY-10158 (Cont.)

Date	Day Ltr.	Positions	Final Corr.		Remarks
			R <sub>1</sub>	R <sub>2</sub>	
30 July	M	38 - 92	-1.3	-1.1	
21 August	N	1 - 90	<del>0.7</del>	-0.1	
22 August	P	1 - 60	<del>1.8</del>	-0.3	
22 August	P	69 - 95	<del>1.9</del>	-0.6	
23 August	Q	1 - 109	<del>0.5</del>	-2.1	
24 August	R	1 - 96	<del>1.0</del>	-2.1	
24 August	R	97 - 98	<del>1.0</del>	-1.1	R <sub>2</sub> lost 1 lane
26 August	S	1 - 31	-1.9	-2.5	
26 August	S	32 - 35	-2.9	<del>14.5</del>	R <sub>1</sub> gained 1 lane - R <sub>2</sub> lost 17 lanes
26 August	S	36 - 55	<del>0.5</del>	<del>1.6</del>	Recalibrated
26 August	S	56 - 62	-1.3	-1.0	Recalibrated
26 August	S	63 - 65	-1.0	-1.1	Recalibrated
27 August	T	1 - 63	<del>0.2</del>	-0.2	
23 September	U	1 - 23	-1.1	-0.1	
24 September	V	1 - 29	-0.1	-0.9	
2 October	W	1 - 10	<del>21.0</del>	-38.1	
3 October	X	1 - 7	-0.7	-0.1	
3 October	X	8 - 26	-0.7	-2.1	R <sub>2</sub> gained 2 lanes
4 October	Y	1 - 105	<del>1.1</del>	<del>2.0</del>	
5 October	Z	1 - 53	<del>1.3</del>	-0.1	

3

NOTE: Ship's head corrections applied according to azimuth of arcs. Tabulation of corrections is included in Addendum to Raydist Report, 1958 Ship HYDROGRAPHER, Project CS-401.

EPI BASE LINE CROSSINGS

4 May, 2130 Min. Sum = 1946.4;  $1946.4 - 5.5(a) - 3.4(b) = 1937.5$ ;  
 $1937.5 - 1940.2 = -2.7$  Error on Set Nos, A - #3; B - No. No  
 Zero Check A - 1998.6; B - 1998.1

10 May, 0220 Min. Sum = 1954.8;  $1954.8 - 5.5(a) - 7.5(b) = 1941.8$ ;  
 $1941.8 - 1940.2 = 1.6$  Error on Set Nos, A - #3; B - ID 31;  
 Zero Check, A - 1998.4; B - 998.8

(a) Set #3 Correct Calib at Buoy 5 to Zero Check of 98.6 and  
 corrected to Z.C. of 98.6 mean, then average this  
 value with calibration at Buoy A.

$$\frac{[-4.9(98.6) - (4.5/0.3)(98.3)]}{2} = -4.8;$$

$$\frac{[-4.8 - (6.9 - 0.7)(99.3)]}{2} = \underline{\underline{-5.5}}$$

(b) Set No. No Correct calib at Buoy 5 to Z.C. of 97.6. mean and  
 then average with calib at Buoy A corrected to Z.C.  
 of 97.6

$$\frac{[-(2.4 - 0.4)(98.0) - (2.4/1)(97.5)]}{2} = -2.2;$$

$$\frac{[-2.2 - (4.3/0.2)(97.4)]}{2} = \underline{\underline{-3.6}}$$

(c) Set ID 31 Use calib at Buoy A corrected to Zero Check of 97.6  
 $-(7.3/0.2)(97.4) = -7.5$

(d) Set ID 32 Use mean of calibrations from 9 Sept. (1830) to 11  
 Sept.  $[-8.9 - 7.3 - 8.1 - 9.3]/4 = -8.4$

Set No. No  $[-2.7 - 5.2 - 3.6 - 4.3]/4 = -4.0$

(e) Use corrections of 12 Sept. (0610)  
 Set ID 32 = -3.5; set No. No = 1.2

(f) Use mean of corrections for 21 & 22 Sept. for Set  
 ID 32  $(-8.9 - 9.4)/2 = -9.2$

(g) For Set No. No (B) vary corrections from  
 -2.5 to 1.0, calib of 21 & 22 Sept.

Final Raydist Corrections  
Sheet HY-10158  
1959

<u>Date</u>	<u>Day Letter</u>	<u>Positions</u>	<u>Final R<sub>1</sub></u>	<u>Corr. R<sub>2</sub></u>	<u>Remarks</u>
25 April	AA	1-36	-0.6	+ 0.7	
26 April	BA	1-128	-0.4	+ 0.7	
		129	-0.4	+ 2.7	R <sub>2</sub> lost 2 lanes
		130 - 154	-0.4	+ 0.7	R <sub>2</sub> gained 2 lanes
27 April	CA	1 - 20	+ 0.3	-0.5	Raydist out
		21-73	+ 1.9	+ 0.2	Recalibration
		74-84	+ 1.9	-1.8	R <sub>2</sub> gained 2 lanes
6 May	DA	1-54	-0.8	-0.8	
		55-68	-0.8	-3.8	R <sub>2</sub> gained 3 lanes
7 May	EA	1-125	+ 2.4	+ 8.6	
		126-142	+ 2.4	+ 9.6	R <sub>2</sub> lost 1 lane
		143-144	+ 2.4	+ 11.6	R <sub>2</sub> lost 2 lanes
		145	+ 2.4	t & c	Raydist Out
8 May	FA	1-115	+10.3	-4.2	
9 May	GA	1-144	-0.7	+ 0.9	
10 May	HA	1-142	-1.3	+ 1.5	
		143	-1.3	+ 2.5	R <sub>2</sub> lost 1 lane
		144	-1.3	+ 3.5	R <sub>2</sub> lost 1 lane
		145	-1.3	t & c	Raydist Out
11 May	JA	1-29	+ 0.8	-2.4	
		30-155	+ 0.8	-0.4	R <sub>2</sub> lost 2 lanes
		156	+ 0.8	+1.6	R <sub>2</sub> lost 2 lanes
12 May	KA	1-166	+ 0.4	+ 3.8	
13 May	LA	1-151	+ 0.7	+ 5.7	
19 May	MA	1-109	+ 1.7	+ 5.2	
		110-112	+ 1.7	+ 6.2	R <sub>2</sub> lost 1 lane
20 May	NA	1-81	-3.2	-7.0	
21 May	PA	1-63	-1.2	-1.8	
22 June	QA	1-27	-0.3	5.7	

Note: Ship's head corrections applied according to azimuth of arcs. Tabulation of corrections is included in Addendum to Raydist Report, 1958, Ship HYDROGRAPHER, Gilbert R. Fish, Cmdr., Project CS-401.

1958  
 Statistics for Hydrographic Survey  
 HY-10158 (H-8489)

<u>Date</u> 1958	<u>Day Letter</u>	<u>Volume</u> <u>Number</u>	<u>Number of</u> <u>Positions</u>	<u>Nautical Mile Soundings</u>	
5 June	A	1	8	7.5	
6 June	B	1	12	11.5	
15 July	C	1	80	123.3	
16 July	D	1	56	87.4	
23 July	E	2	64	58.3	*
24 July	F	2	179	193.2	*
25 July	G	2,3	174	179.2	*
26 July	H	3,4	154	169.3	*
27 July	J	4	118	125.3	*
28 July	K	4,5	185	202.3	*
29 July	L	5,6	203	207.4	*
30 July	M	6	92	103.6	*
21 August	N	6,7	90	138.2	
22 August	P	7	95	121.8	
23 August	Q	7	109	116.4	
24 August	R	7,8	98	127.9	
26 August	S	8	65	70.8	
27 August	T	8	63	37.2	
23 Sept.	U	8	21	15.5	
24 Sept.	V	9	29	30.5	
2 Oct.	W	9	10	6.0	
3 Oct.	X	9	26	17.1	
4 Oct.	Y	9	105	94.1	
5 Oct.	Z	9	33	30.2	
		TOTAL	<u>2069</u>	<u>2274.0</u>	

\* EPI control these days.

1959  
 Statistics for Hydrographic Survey  
 HY-10158 (H-8489)

<u>Date</u> <u>1959</u>	<u>Day Letter</u>	<u>Volume</u> <u>Number</u>	<u>Number of</u> <u>Positions</u>	<u>Nautical Mile Soundings</u>
25 April	AA	10	36	33.0
26 April	BA	10	154	141.2
27 April	CA	10	84	74.5
6 May	DA	10,11	68	64.0
7 May	EA	11	145	134.7
8 May	FA	11	115	102.9
9 May	GA	12	144	123.5
10 May	HA	12	145	123.4
11 May	JA	13	156	137.0
12 May	KA	13	166	138.8
13 May	LA	14	151	137.9
19 May	MA	14	112	97.0
20 May	NA	14,15	81	60.1
21 May	PA	15	63	51.7
22 June	QA	15	<u>27</u>	<u>23.4</u>
		TOTAL	1647	1443.1

	<u>Number of Positions</u>	<u>Nautical Mile Soundings</u>
1958 Season ---	2069	2274.0
1959 Season ---	<u>1647</u>	<u>1443.1</u>
TOTAL	3716	3717.1

GEOGRAPHIC NAMES  
Survey No. H-8489

Name on Survey	Sources										BGN
	A	B	C	D	E	F	G	H	K		
	On Chart No. 1107										
	On previous survey										
	On U. S. Quadrangle Maps										
	From local information										
	On local Maps										
	P. O. Guide or Map										
	Rand McNally Atlas										
	U. S. Light List										
MASSACHUSETTS (TITLE)										✓	1
GEORGE'S BANK	✓										2
											3
											4
											5
											6
TIDE STA											7
BOSTON											8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25
											26
											27

*George M. Balle*  
*Geographic Names*  
*27 March 1960*

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. ...8489...

Records accompanying survey: Smooth sheets ...1...;

boat sheets ...1...; sounding vols. ...15...; wire drag vols. ....;

Descriptive Reports ...1...; graphic recorder envelopes ...17...;

special reports, etc. ...1... Cahier-Plotting Abstracts *ex. 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-

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

RMC

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Coastal Surveys~~

31 March 1960

Division of Charts: R. H. Carstens

Plane of reference approved in  
15 volumes of sounding records for

HYDROGRAPHIC SHEET 8489

Locality: Georges Bank, Atlantic Ocean

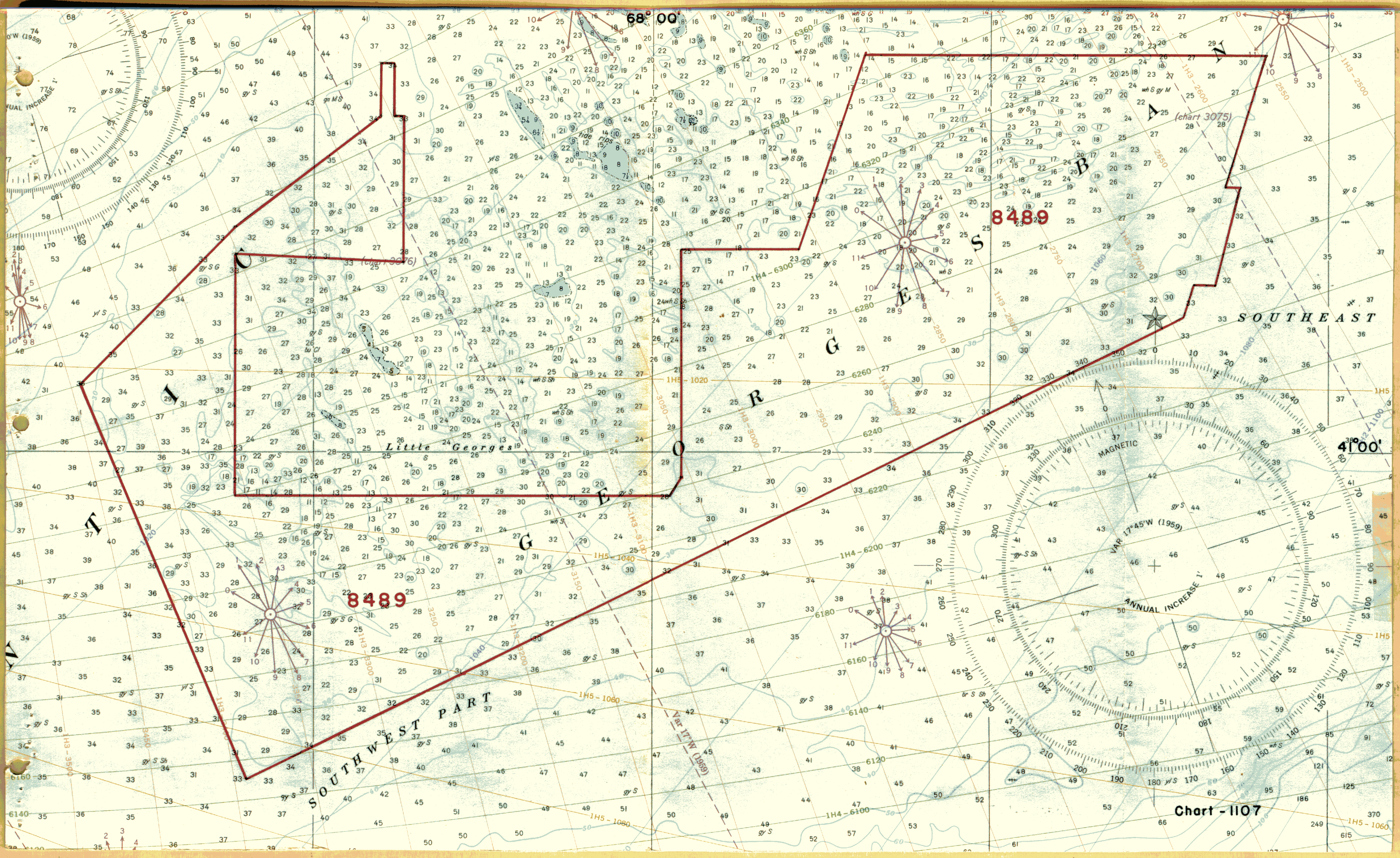
Chief of Party: G. R. Fish )  
M. E. Wennermark ) in 1958-59  
Plane of reference is mean low water  
ft. on tide staff at  
ft. below B. M.

Height of mean high water above plane of reference is 4.8 feet.

Condition of records satisfactory except as noted below:

  
Chief, Tides Branch  
Chief, Division of Tides and Currents  
~~Chief, Division of Tides and Currents~~





68 00

8489

8489

41'00'

SOUTHWEST PART

SOUTHEAST

Little Georges

Chart - 1107

MAGNETIC  
VAR 17° 45' W (1959)

ANNUAL INCREASE 1'

(chart 3075)

