

8502

Diag. Cht. No. 1107.

Form 504

U. S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. HY-2159 Office No. H-8502

LOCALITY

State Massachusetts

General locality .....

Locality Northeast of Cape Cod

19 59

CHIEF OF PARTY

M. E. Wennermark

LIBRARY & ARCHIVES

DATE January 12, 1960

USCOMM-DC 5087

8502

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-8502

Field No. HY-2159

AREA "A"

State MASSACHUSETTS

General locality E. of Cape Cod

Locality Northeast  
~~16 Miles E. of Cape Cod Light~~

Scale 1:20,000 Date of survey 29 Sept. - 9 Oct. 1959

Instructions dated 19 August 1959

Vessel USC&GSS HYDROGRAPHER

Chief of party M. E. Wennermark

Surveyed by D.M. Whipp, P.A. Stark, J.T. Flynn, L.S. Brown, D.W. Moncevicz  
P.A. Martus, R.R. Floyd

Soundings taken by ~~fathometer~~, graphic recorder, ~~hand lead, wire~~ Graphic Recorder

Fathograms scaled by Ship's Personnel

Fathograms checked by Ship's Personnel

Protracted by P. A. Martus, L. S. Brown

Soundings penciled by P. A. Martus

Soundings in fathoms ~~1000~~ at MLW ~~10000~~

REMARKS: Off shore survey

DESCRIPTIVE REPORT  
TO ACCOMPANY HYDROGRAPHIC SURVEYS

HY-2159 (H-8502) Area A  
HY-2259 (H-8503) Area B  
HY-2359 (H-8504) Area C

*A. E. C. Waste  
Disposal Areas*

VICINITY MARTHA'S VINEYARD ISLAND and PROVINCETOWN, MASSACHUSETTS  
1959

Ship HYDROGRAPHER  
M. E. WENNERMARK

SCALE: 1:20,000  
Chief of Party

A. PROJECT:

Project No. 08000-810, Original instructions -----  
dated 19 August 1959, Supplemental Instructions dated 11  
September 1959.

B. SURVEY LIMITS AND DATES:

AREA A HY-2159 (H-8502)

Area "A" (HY-2159) covers a square area 5 miles on a  
side and centered at Latitude  $42^{\circ} 13.4' N$ ; Longitude  $69^{\circ} 48' W$ .  
The area is approximately 16 miles northeast of Cape Cod Light.  
The approximate limits of the sheet are: Latitude  $42^{\circ} 11' N$   
to  $42^{\circ} 16' N$ , and Longitude  $69^{\circ} 44' W$  to  $69^{\circ} 52' W$ .

Field work began 29 September 1959 and ended 9 October 1959.

This Survey makes a junction and is included within the  
following prior survey:

H - 6564                      1:120,000                      1940

AREA B HY-2259 H-8503

Area "B" (HY-2259) covers a rectangular area 1.75 by 2.25  
miles centered at Latitude  $41^{\circ} 13.4' N$ , Longitude  $70^{\circ} 49' W$ .  
This area is the southern half of the prohibited area around  
No Mans Land.

The approximate limits of the sheet are:  
Latitude  $41^{\circ} 12.5' N$  to  $41^{\circ} 14.5' N$ , and  
Longitude  $70^{\circ} 47.5' W$  to  $70^{\circ} 50.5' W$ .

Field work on this sheet began 14 September 1959 and  
ended 22 September 1959.

This survey makes a junction and is included within the  
following prior survey:

H-6445                      1:40,000                      1939

AREA C HY-2359 H-8504<sup>3</sup>

Area "C" (HY-2359) covers a square area 5 miles on a side centered at Latitude  $40^{\circ} 45' N.$ , Longitude  $70^{\circ} 52.7' W.$  This area is the central portion of the dumping area 36 miles south of Gay Head, Martha's Vineyard. The approximate limits of the sheet are: Latitude  $40^{\circ} 42.5' N$  to  $40^{\circ} 47.5' N.$ , and Longitude  $70^{\circ} 49.0' W$  to  $70^{\circ} 56.5' W.$

Field work on this sheet began on 1 September 1959 and ended 9 September 1959.

This survey makes a junction and is included within the following prior survey:

H - 6447                      1:80,000                      1939

C. VESSEL AND EQUIPMENT

The hydrography on these surveys was done by the Ship HYDROGRAPHER. The turning radius at sounding speed (120 r.p.m. or approximately 10 knots) of the HYDROGRAPHER is 80 to 120 meters depending upon the prevailing wind and current.

808 J type fathometers were used for this entire survey. The following serial numbers were used: 153 SPX and 57-31.

D. TIDE AND CURRENT STATIONS

AREA A

Area "A" (HY-2159) tide reducers for this survey are referenced to the Standard Tide Gage at Boston, Massachusetts with a correction of plus 10 minutes in time and 0.8 ratio of high-water heights.

A 100 hour Roberts Radio current station was observed at approximately Latitude  $42^{\circ} 13' N$  and Longitude  $69^{\circ} 48' W.$

AREA B

Area "B" (HY-2259) tide reducers for this survey are referenced to the Standard Tide Gage at Newport, Rhode Island, with no time correction and a 0.9 ratio of high-water heights.

A 100 hour Roberts Radio current station was observed in the approximate center of the area at Latitude  $41^{\circ} 13.4' N$  and Longitude  $70^{\circ} 49' W.$

AREA C

Area "C" (HY-2359) tide reducers are referenced to the Standard Tide Gage at Newport, Rhode Island with a time correction of minus 45 minutes and a 0.4 ratio of high-water heights.

A 100 hour Roberts Radio current station was observed in the approximate center of the area at Latitude  $40^{\circ} 45' N$  and Longitude  $70^{\circ} 52.7' W$ .

For all areas, Boat Sheet tide correctors were derived from Tide Tables. The Smooth Sheet Tide correctors were furnished by the Washington Office for all three areas.

E. SMOOTH SHEET

The smooth sheet projection and Raydist arcs were ruled by the Washington Office.

These are off-shore surveys and contain no shore line or topographic details.

F. CONTROL STATIONS

All hydrography on these sheets was controlled by Raydist with an  $R_1$  and  $R_2$  lane width equal to 149.87307 feet. A discussion of the  $R_1$  and  $R_2$  stations for each area follows.

AREA A (HY-2159)

$R_1$  station at Wellfleet, Cape Cod, Massachusetts is located at Latitude  $41^{\circ} 56' 31.43'' N$  and Longitude  $69^{\circ} 59' 11.30'' W$ . *Blue Arcs*

$R_2$  station at Provincetown, Massachusetts is located at Latitude  $42^{\circ} 04' 23.88'' N$ , and Longitude  $70^{\circ} 12' 28.22'' W$ . *Red Arcs*.

The G.P. of this station was determined in 1959 by K.S. Ulm, Boston District Officer. It is the same as R.M. 4 of triangulation station Ocean View.

The hydrography of this area was based on survey buoys "G" and "H". The control was established by obtaining independent sextant fixes, setting the Raydist dials and then locating buoys "G" and "H" (see 1959 Raydist-Shoran Report Ship HYDROGRAPHER).

AREA B (HY-2259)

$R_1$  at Wellfleet, Cape Cod Massachusetts is located at Latitude  $41^{\circ} 56' 31.43'' N$  and Longitude  $69^{\circ} 59' 11.30'' W$ .

$R_2$  at Gay Head, Martha's Vineyard Island, Massachusetts is located at Latitude  $41^{\circ} 20' 48.79'' N$  and Longitude  $70^{\circ} 49' 59.49'' W$ .

The hydrography of this area was run by setting the Raydist dials on survey buoy "E". The control was established by obtaining sextant fixes, setting the Raydist dials and then running a location on Buoy "E". Three independent sextant fixes were made and the probable error of location was about (0.1) lanes (see 1959 Shoran-Raydist Report, Ship HYDROGRAPHER).

AREA C (HY-2359)

R<sub>1</sub> at Wellfleet, Cape Cod, Massachusetts is located at Latitude 41° 56' 31.43" N and Longitude 69° 59' 11.30" W.

R<sub>2</sub> at Gay Head, Martha's Vineyard Island, Massachusetts is located at Latitude 41° 20' 48.79" N and Longitude 70° 49' 59.49" W.

The hydrography of this area was run by setting the Raydist dials on Survey Buoy "D". This buoy was located 2 September 1959 on a run from Texas Tower No. 3. (The Raydist values for Texas Tower #3-East Leg-are R<sub>1</sub> =2429.0 lanes and R<sub>2</sub> =2590.9 lanes). The position of Buoy "D" was later checked from a calibration on survey Buoy "E" (see 1959 Raydist-Shoran Report, Ship HYDROGRAPHER).

The G.P. of R<sub>1</sub> station at Wellfleet, Massachusetts was determined in 1957 by K.S. Ulm, Boston District Officer. It is the same as R. M. I of triangulation station FRAZIER, 1957.

The G.P. of the R<sub>2</sub> station at Gay Head, Martha's Vineyard Island was determined in 1958 by K. S. Ulm, Boston District Officer. It is known as Raydist, R.M. I of 1958 and was located from Gay Head No.2, 1958.

G. SHORELINE AND TOPOGRAPHY

No shoreline or topography is shown on these sheets as they are off shore surveys.

H. SOUNDINGS

All depths were measured using 808 J type fathometers. Adequate checks and tests were made to verify the accuracy of the soundings. See separate report on Fathometer and Velocity Corrections - 1959 Field Season, Ship HYDROGRAPHER.

I. CONTROL OF HYDROGRAPHY

Raydist control was used for all ship work on these sheets. The Raydist dials were set on survey buoys, as described in section F. A complete explanation of Raydist control and Raydist corrections pertaining to each respective area is included in the 1959 Raydist ~~corrections~~ - Shoran Report, Ship HYDROGRAPHER. For a further explanation of Raydist see Technical Bulletin No. 5\* Raydist Report submitted to the Washington Office, 15 August 1958 and the Addendum to the Raydist Report submitted 28 October 1958.

The proper corrections have been applied to the Raydist distances recorded in the sounding volumes and the smooth sheets are plotted correctly on the North American 1927 Datum.

\* SHIP HEAD CORRECTIONS APPLIED IN VOLS. TO ORIGINAL CORRECTIONS DERIVED FROM

J. ADEQUACY OF SURVEYS THIS PUB.

All three surveys are complete and adequate to supersede prior surveys for charting.

On survey HY-2159 (Area A) a 110,120, and 130 fathom depth curve was added to the smooth sheet in addition to the standard depth curves to aid in comparing the junction with H-6564 and in the comparison with C&G Chart No.1107. On HY-2159 the junctions are satisfactory and depth curves can be adequately drawn at the junctions.

On survey HY-2259 (Area B) only the standard 10 fathom depth curve is drawn. The junctions are satisfactory and depth curves can be adequately drawn at the junction.

On survey HY-2359 (Area C) the only applicable depth curve is the standard 30 fathom curve. This has been omitted from the smooth sheet.

#### K. CROSSLINES

On all the sheets crosslines were run to approximately 5-10% of the regular system of sounding lines.

On survey sheet HY-2159 (Area A) crossline soundings discrepancies do not exceed 2% of the depth except on crossline 25-27 L day. Within this area the greatest percentage of depth error is 8%. The reason for the discrepancies in this area is attributed to the irregular contour of the bottom as revealed by an examination of pertinent fathograms. A 110 fathom depth curve in this area was drawn to aid in delineating the rough bottom.

On survey sheets HY-2259 (Area B) and HY-2359 (Area C) the crossline soundings and regular system of lines soundings are in excellent agreement .

#### L. COMPARISON WITH PRIOR SURVEYS

##### AREA A HY-2159 (H-8502)

The survey on this sheet was compared with the following prior survey:

H-6564	1:120,000	1940
--------	-----------	------

In general, the comparison of the soundings and sounding lines was good. Since this is a modern electronically controlled survey, using close line spacing and continuously recording fathometers, it is recommended that data from this sheet govern.

##### AREA B HY-2259 H-8503

The survey on this sheet was compared with the following prior survey:

H-6445	1:40,000	1939
--------	----------	------

Agreement is excellent. It is recommended that the new depths and contours obtained by this modern, electronically controlled

survey be used.

AREA C HY-2359 H-8504

The survey on this sheet was compared with the following prior survey:

H-6447                      1:80,000                      1939

Considering the difference in scales and the number of sounding lines the new survey agreed favorably with the 1939 prior survey. It is recommended that the new depths obtained by this modern, electronically controlled survey be used.

M. COMPARISON WITH CHART

AREA A HY-2159 (H-8502)

This survey was compared with C&Gs Chart No. 1107, Scale 1:400,000, the largest scale survey of the area available. The comparison was good considering the difference in scale between the chart and smooth sheet. Some comparisons are listed below:

<u>Chart 1107</u>	<u>Approx. Position</u>	<u>Smooth Sheet HY-2159</u>
* 131 fms.	42° 15.3' N 69° 50.0' W	123 fms.
116 fms.	42° 12.2' N 69° 50.8' W	115 fms.
85 fms.	42° 11.0' N 69° 47.9' W	85 fms.
124 fms.	42° 13.4' N 69° 47.5' W	122 fms.
134 fms.	42° 14.9' N 69° 45.5' W	131 fms.

\* No indication of a 130 fathom depth curve in this area was determined by HY-2159.

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 the new survey be accepted.

AREA B HY-2259 (H-8503)

This survey was compared with C&Gs Chart No. 1210, scale 1:80,000 the largest scale <sup>survey</sup> of the area available. The comparison was excellent considering the difference in scale between the chart and smooth sheet. Some comparisons are listed below.



<u>Chart 1210</u>	<u>Approx. Position</u>	<u>Smooth Sheet HY-2259</u>
76 ft.	41° 12.8' N 70° 50.3' W	78 ft.
56 ft.	41° 13.7' N 70° 50.3' W	62 ft.
<del>Chart 1210</del>	<del>Approx. Position</del>	<del>Smooth Sheet HY-2259</del>
59 ft.	41° 13.8' N 70° 49.5' W	65 ft.
62 ft.	41° 13.3' N 70° 48.9' W	64 ft.
68 ft.	41° 12.9' N 70° 48.3' W	66 ft.
67 ft.	41° 14.1' N 70° 48.4' W	64 ft.

AREA C HY-2359

This survey was compared with C&GS Chart No. 1107, scale 1:400,000 the largest scale survey of the area available. The comparison was excellent considering the difference in scale between the chart and smooth sheet. Some comparisons are listed below.

<u>Chart 1107</u>	<u>Approx. Position</u>	<u>Smooth Sheet HY-2359</u>
32 FMS	40° 45.6' N 70° 51.5' W	33 fms
33 FMS	40° 44.5' N 70° 54.8' W	34 fms

N. DANGERS AND SHOALS:

AREA A HY-2159

There are no dangers to surface navigation within the limits of this survey. The shoalest depth recorded was 83 fathoms in Latitude 42° 10.9' N., Longitude 69° 47.9' W. Other shoal soundings are as follows:

<u>Least Depth (fms)</u>	<u>Position</u>	<u>Approximate Latitude</u>	<u>Longitude</u>
92	(1 out of 56K)	42° 13.3' N	69° 51.2' W
102	(5 out of 79K)	42° 14.9' N	69° 50.5' W

Soundings obtained on this survey were the same or shoaler than soundings from H-6564 or from C&GS Chart No. 1107.

AREA B HY-2259

The following shoal soundings are in addition to those mentioned in sections M.

<u>Least Depth (fms)</u>	<u>Position</u>	<u>Approximate</u>	
		<u>Latitude</u>	<u>Longitude</u>
7 <sup>2</sup> / <sub>10</sub> fms. (47 ft.)	33A	41° 14.4' N	70° 50.3' W
6 <sup>8</sup> / <sub>10</sub> fms. (41 ft.)	93A	41° 14.4' N	70° 48.9' W
9 <sup>6</sup> / <sub>10</sub> fms. (58 ft.)	2 1/4 min from 39B	41° 13.4' N	70° 50.4' W

All previously charted dangers and shoals were found as charted or greater depths were obtained except as listed in Sections M and N.

AREA C HY-2359

The shoalest soundings obtained on this survey are 30 fathoms and occur in the northwest part of the sheet. These 30 fathom depths are not indicated on prior survey H-6447 nor on C&GS Chart 1107. As mentioned in Section J the 30 fathom depth curve has not been drawn on the sheet.

Other than the 30 fathom depths there are no important newly found dangers and shoals.

O. COAST PILOT INFORMATION:

None

P. AIDS TO NAVIGATION:

No fixed or floating aids to navigation are located within the limits of these surveys.

Q. LANDMARKS FOR CHARTS:

No landmarks for charts are located within the limits of these surveys.

R. GEOGRAPHIC NAMES:

↓ No investigation of geographic names was made.

S. SILTED AREAS:

Not applicable

T. BY-PRODUCT INFORMATION:

Not applicable

U. - Y. MISCELLANEOUS

The Ship's Head corrections (see page 15, Technical Bulletin No., 5, April 1959) to the Raydist were computed for the center of each sheet and these correctors were used throughout the entire sheet. The curvature of the distance arcs was not significant on these sheets. As an example, in Area B (HY-2259) where the arc curvatures are greatest, the error in the most extreme case is about .03 lane in the R<sub>2</sub> dial setting. This is a negligible correction and thus was not applied.

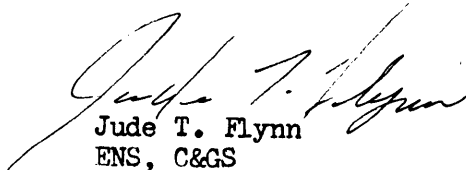
Area A (HY-2159), "E" Day, 3 October 1959, positions 22 to 48 were rejected because the fathometer scale setting was not in position properly. The lines were re run on "K" Day and are correctly plotted on the smooth sheet.

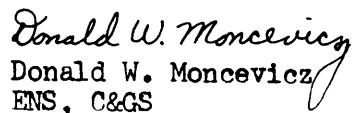
2. TABULATION OF APPLICABLE DATA:

Seasons Report - 1959 Season	To Washington Office December 1959.
Raydist & Shoran Report - 1959 Season	To be Forwarded.
Fathometer & Velocity Correction Report - 1959 Season.	To be Forwarded.

Oceanographic Activities Reports

Bathythermograph Slides	22 October 1959
Oceanographic Log Sheets - "A"	22 October 1959
Oceanographic Log Sheets - "B"	22 October 1959
Bottle Water Samples	22 October 1959
Bottom Cores	22 October 1959
Bottom Samples	22 October 1959
Current Observation Record Books	21 October 1959
Current Meter Tapes	21 October 1959
Record of Drift Bottle Drops	22 October 1959
Field Record of BT Data	22 October 1959

  
Jude T. Flynn  
ENS, C&GS

  
Donald W. Moncevicz  
ENS, C&GS

STATISTICS FOR HYDROGRAPHIC SURVEY  
 HY-2159 (H-8502) AREA A  
 USC&GSS HYDROGRAPHER  
 1959

PROJECT 08000-810

<u>Day Letter</u>	<u>Volume Number</u>	<u>Date</u>	<u>No. of Positions</u>	<u>Naut. Mi. Soundings</u>
A	1	29 Sept. 1959	108	45.4
B	1	30 Sept. 1959	62	22.0
C	1	1 Oct. 1959	33	----*
D	2	2 Oct. 1959	13	----*
E	2	3 Oct. 1959	20	9.0
F	2	4 Oct. 1959	83	29.8
G	2 & 3	5 Oct. 1959	163	63.5
H	3	6 Oct. 1959	65	22.0
J	3 & 4	7 Oct. 1959	141	51.0
K	4	8 Oct. 1959	131	55.8
L	5	9 Oct. 1959	<u>18</u>	<u>8.8</u>
TOTAL			837	307.3

\* C and D day positions are oceanographic positions only.  
 No hydrography these days.

APPROVAL SHEET

The field work accomplished on this project was under my personal supervision. Daily inspection of the records, boat sheet and smooth sheet were made as the work progressed.

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.

*M. E. Wennermark*

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

Fathometer & Velocity Correction Report Massachusetts.

Tabulation of Oscillator Draft Measurements and Corrections

Trip No.	Date	Time	Oscillator Draft (ft)	Draft Corr. (ft)	Draft Corr. (fms)	Final Draft Correction
1	21 April	1115	12.9	∓0.9	∓0.1	0.0
	29 April	1515	12.0	0.0	0.0	0.0
2	4 May	1030	12.7	∓0.7	∓0.1	0.0
	14 May	1100	11.8	-0.2	0.0	0.0
3	18 May	1200	12.7	∓0.7	∓0.1	0.0
	28 May	1100	12.0	0.0	0.0	0.0
4	No Hydrography					
5	16 June	0940	12.6	∓0.6	∓0.1	0.0 through 23 June
	26 June	1000	11.5	-0.5	-0.1	-0.2 through 26 June
6	6 July	1300	12.6	∓0.6	∓0.1	0.0
	11 July	0950	12.1	∓0.1	0.0	0.0
7	No Hydrography					
8	27 July	1230	12.6	∓0.5	∓0.1	0.0
	5 Aug.	0820	11.8	-0.2	0.0	0.0
9	11 Aug.	1500	12.9	∓0.9	+∓0.1	0.0
	19 Aug.	0850	11.9	-0.1	0.0	0.0

Tabulation of Oscillator Draft Measurements and Corrections

Trip No.	Date	Time	Oscillator Draft (ft)	Draft Corr. (ft)	Draft Corr. (fms)	Final Draft Correction
10	24 Aug. 28 Aug.	1500 1000	12.5 12.3	<del>+0.5</del> <del>+0.3</del>	<del>+0.1</del> 0.0	0.0
11	1 Sept. 9 Sept.	1630 1345	12.6 12.1	<del>+0.6</del> <del>+0.1</del>	<del>+0.1</del> 0.0	0.0
12	14 Sept. 22 Sept.	1530 1600	12.9 12.0	<del>+0.9</del> 0.0	<del>+0.1</del> 0.0	0.0
13	28 Sept. 9 Oct.	0830 2230	12.8 11.9	0.8 -0.1	0.1 0.0	0.0 } H-8502 Area A
14	No Hydrography					

TABULATION OF FINAL INSTRUMENT CORRECTIONS IN FATHOMS FOR 1959.

This final Instrument Correction is the algebraic sum of the fathometer instrument error, phase, draft, and settlement and squat correction.

Trip No.	Dates	Fathometer No.	Scales			
			A	B	C	D
1 through 3	21 April through 28 May	57-31 153	-0.2 -0.2	+0.3 +0.2	+0.9 +0.1	+1.2 -1.3
4	No Hydrography this trip.					
5	16 June through 23 June	57-31 153	-0.2 -0.2	+0.3 +0.2	+0.9 +0.1	+1.2 -1.3
	24 June through 26 June	57-31 153	-0.4 -0.4	+0.1 0.0	+0.7 -0.1	+1.0 -1.5

Trip No.	Dates	Fathometer No.	Scales			
			A	B	C	D
6	6 July through 11 July	57-31 153	-0.2 -0.2	+0.3 +0.2	+0.9 +0.1	+1.2 -1.3
7	No Hydrography this trip.					
8 through 10	27 July through 28 August	57-31 153 * 57-31 * 153	-0.2 -0.2 -0.1 -0.1	+0.3 +0.2 +0.4 +0.3	+0.9 +0.1 +1.0 +0.2	+1.2 -1.3 +1.3 -1.2
11	1 September through 9 Sept.	57-31 153	-0.2 -0.2	+0.3 +0.2	+0.9 +0.1	+1.2 -1.3
12	14 Sept. through 22 September.	57-31 153 * 57-31 * 153	-0.2 -0.2 -0.1 -0.1	+0.3 +0.2 +0.4 +0.3	+0.9 +0.1 +1.0 +0.2	+1.2 -1.3 +1.3 -1.2
13	28 Sept. through 9 October.	57-31 153	-0.2 -0.2	+0.3 +0.2	+0.9 +0.1	+1.2 } -1.3 } H-8502 Area A
14	No Hydrography this trip					

\* When the sounding is 11.0 fathoms or under and the speed is between 107 to 120 r.p.m., use these corrections.



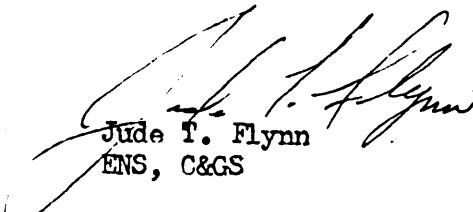
VELOCITY CORRECTION REPORT  
SHIP HYDROGRAPHER  
Projects - CS-401 and 08000-810  
M. E. Wennermark - Chief of Party  
1959

Velocity corrections for all hydrography were determined from temperature and salinities in accordance with the instructions of reference 561 of the Hydrographic Manual.

Temperatures and salinities were obtained in conjunction with oceanographic station operations. A total of 34 stations were observed during the field season.

Bathythermograph observations were taken on the average of once every four hours, where weather permitted, while running hydrography. The Bathythermograph observations were checked for possible changes in water temperature occurring between oceanographic station observations. Since the temperature changes were slight between observations, the velocity correctors were computed on a trip basis, or longer, where possible.

Velocity correctors for the two days of launch hydrography using the EDO 255-C18 depth recorder were determined by ~~use of~~ bar checks.

  
Jude T. Flynn  
ENS, C&GS

Approved and forwarded  
M. E. Wennermark, CAPT, C&GS  
Comdg., Ship HYDROGRAPHER



ABSTRACT OF BAR CHECKS FOR LAUNCH HY-1 EDO FATHOMETER  
 SHEET HY-1259 a and b Day, 26 and 27 August 1959

Bar checks were taken to obtain instrument and draft corrections and found to be +0.2 fms. for all depths. Since the velocity correction is 0.0 fms. for all shoal depths in this area, the final instrument correction is +0.2 fms.

<u>Date &amp; Time</u>	<u>Fathometer Reading</u>	<u>True Depth</u>	<u>Correction</u>
26 Aug. - 1120	3.1 fms	20 ft. (3.33 fms)	+0.2
27 Aug. - 1203	3.1 fms	20 ft. (3.33 fms)	+0.2
	4.9 fms	30 ft. (5.0 fms)	+0.1
27 Aug. - 1608	3.1 fms	20 ft. (3.33 fms)	+0.2
	4.9 fms	30 ft. (5.0 fms)	+0.1

---

Mean = +0.2 fms

FINAL VELOCITY CORRECTIONS (FMS)  
1959

Trip 1 (21-30 April 1959)

HY - 10158

0.0 to 2.2  
-0.2 to 12.6  
-0.4 to 23.6  
-0.6 to 38.2

Trip 2 (4-14 May 1959)

HY-10158

HY-4258

HY-10157

0.0 to 2.5  
-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

0.0 to 2.2  
-0.2 to 12.6  
-0.4 to 23.6  
-0.6 to 38.2

0.0 to 3.0  
-0.2 to 13.2  
-0.4 to 22.5  
-0.6 to 29.7  
-0.8 to 36.8  
-1.0 to 44.1  
-1.2 to 52.6

Trip 3 (18 - 28 May 1959)

HY-10158

HY-4258

0.0 to 2.0  
-0.2 to 11.5  
-0.4 to 21.5  
-0.6 to 31.0  
-0.8 to 40.2

0.0 to 2.0  
-0.2 to 11.5  
-0.4 to 21.5  
-0.6 to 31.0  
-0.8 to 40.3

Trip 4 (2-11 June 1959)

NO HYDROGRAPHY

Trip 5 (16-26 June 1959)

HY-4258

HY-10158

HY-10157

0.0 to 4.5  
-0.2 to 22.7  
-0.4 to 39.5

0.0 to 4.5  
-0.2 to 22.7  
-0.4 to 39.5

0.0 to 8.5  
-0.2 to 20.0  
-0.4 to 29.5  
-0.6 to 38.6  
-0.8 to 47.8  
-1.0 to 56.4  
-1.2 to 64.4

Trip 6 (6-11 July 1959)

HY-4258

0.0 to 8.0  
-0.2 to 39.0

HY-10157

0.0 to 8.5  
-0.2 to 20.0  
-0.4 to 29.5  
-0.6 to 38.6  
-0.8 to 47.8

Trip 7 (14-21 July 1959)

NO HYDROGRAPHY

Trip 8 (27 July to 5 August)

HY-4159

0.0 to 8.2  
-0.2 to 40\*

HY-1259

0.0 to 8.2  
-0.2 to 40\*

Trip 9 (11 to 19 August)

HY-4159

0.0 to 4.1  
-0.2 to 18.7  
-0.4 to 40\*

HY-1259

0.0 to 4.1  
-0.2 to 18.7  
-0.4 to 40\*

Trip 10 (24 to 28 August)

HY-4159

0.0 to 8.3  
-0.2 to 40\*

HY-1259

NO SHIP HYDROGRAPHY

Trip 11 (1 to 9 September)

HY-2359

0.0 to 28.3  
-0.2 to 38\*

Trip 12 (14-22 September)

HY-2259

0.0 to 15\*

Trip 13 (28 September to 9 October)

HY-2159 H-8502 Area A.

Table 1

-1.4 80.0 to 90.0  
-1.6 to 100.0  
-1.8 to 110.0  
-2.0 to 120.5  
-2.2 to 130.5  
-2.4 to 141.0

GEOGRAPHIC NAMES  
Survey No. H-8502

Name on Survey											
	A	B	C	D	E	F	G	H	K		
MASSACHUSETTS (TITLE)										BGN	1
CAPE COD (TITLE)											2
											3
											4
											5
											6
											7
											8
TIDE GAUGES											9
BOSTON										BGN	10
NEWPORT											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25
											26
											27

*George S. Bain*  
*Geographic Names Section*  
*Jan 21, 1960*

SURVEY # 08502  
POSITION NUMBERS

<u>VOLUME NUMBER</u>	<u>VESSEL</u>	<u>BLOCK OF NUMBERS ALLOCATED</u>
01-05	Hydrographer	0001-0775

NOTE: ALL VOLUMES IN THIS SURVEY ARE ELECTRONICALLY SURVEYED.

ABSTRACT FOR SURVEY #08502 (1959)

MANUAL

AUTOMATED

<u>DAY</u>	<u>POSITION #'s</u>	<u>JULIAN DAY</u>	<u>POSITION #</u>
<u>HYDROGRAPHER</u>			
"A" Day 9/29/59	1-108	272	0001-0108
"B" Day 9/30/59	1-062	273	0109-0170
"E" Day 10/03/59	1-020	276	0171-0190
"F" Day 10/04/59	1-084	277	0191-0274
"G" Day 10/05/59	1-145	278	0275-0419
"H" Day 10/06/59	1-055	279	0420-0474
"J" Day 10/07/59	1-133	280	0475-0607
"K" Day 10/08/59	1-134	281	0608-0741
"L" Day 10/09/59	1-034	282	0742-0775

SURVEY # 0 8 5 0 2

CROSS REFERENCE OF VOLUME NUMBERS, SHIPS,  
AND POSITION NUMBERS

<u>VOLUME NUMBER</u>	<u>SHIP</u>	<u>POSITION NUMBERS</u>
1	HYDROGRAPHER	0001-0170
2	HYDROGRAPHER	0171-0331
3	HYDROGRAPHER	0332-0526
4	HYDROGRAPHER	0527-0741
5	HYDROGRAPHER	0742-0775

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. .8502...

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

boat sheets .1...; sounding vols. .5...; wire drag vols. ....;

Descriptive Reports .1...; graphic recorder envelopes 3...;

special reports, etc. 1. ~~Cahier-Plotting Abstracts and 1. Cahier-~~

Brush and Recorder Tape .....

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-8502

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

RHC

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Coastal Surveys~~

26 January 1960

Division of Charts: R. H. Carstens

Plane of reference approved in  
5 volumes of sounding records for

HYDROGRAPHIC SHEET 8502

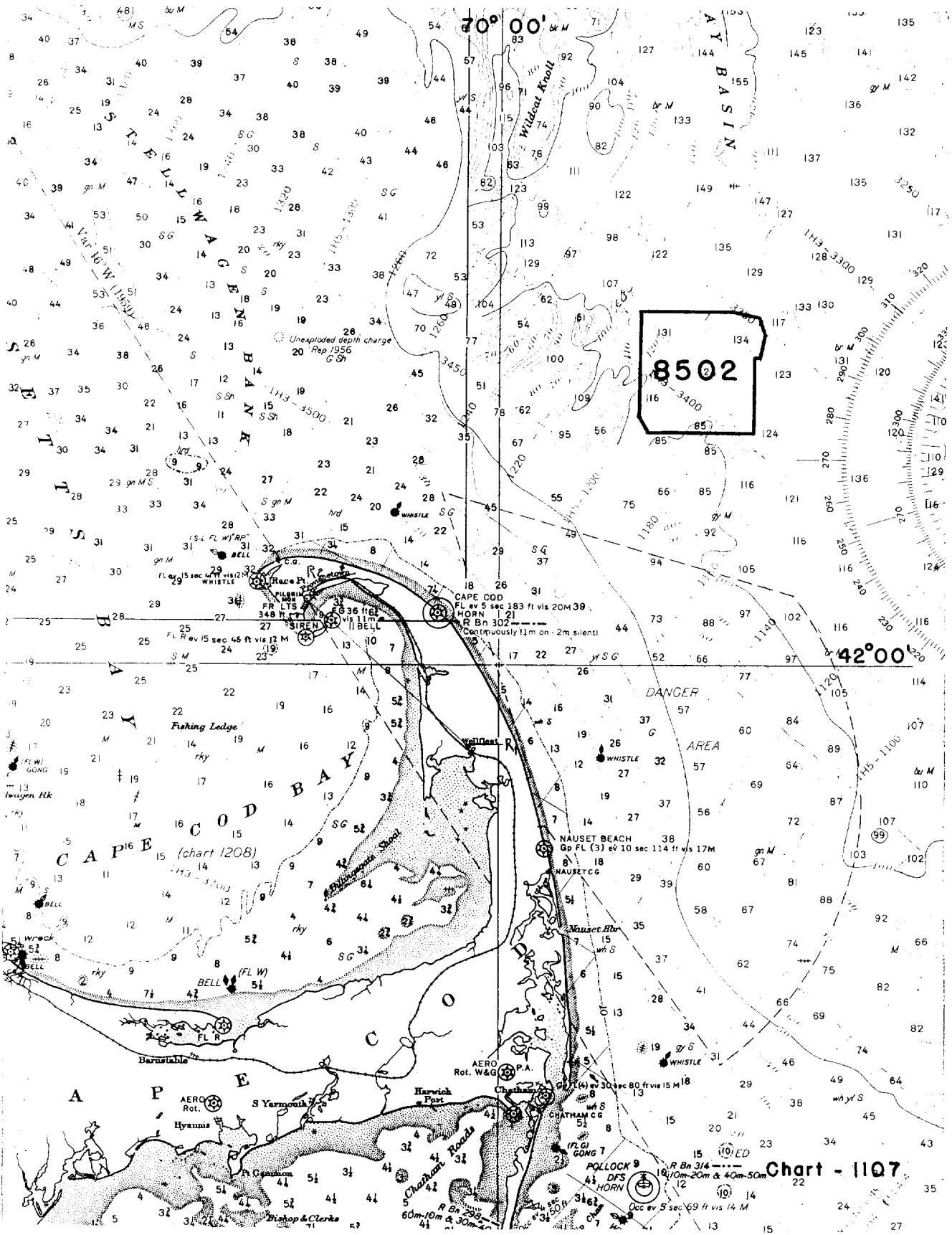
Locality Northeast of Cape Cod, Mass.

Chief of Party: M. E. Wennermark in 1959  
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 7.6 feet.

Condition of records satisfactory except as noted below:

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



8502

Chart - 1107

