

8539

Diag. Cht. No. 1107.

Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. EK-40-1-60 Office No. H-8539

LOCALITY

State Massachusetts

General locality Nantucket Shoals

Locality Northern Nantucket Shoals

19 60

CHIEF OF PARTY

Edmund L. Jones, CAPT., C&GS

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8539

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-8539

Field No. EX-40-1-60

State Massachusetts

General locality Nantucket Shoals

Locality Northern part of Nantucket Shoals

Scale 1:40,000 Date of survey 25 June 1960 to 28 Sept. 1960

Instructions dated 27 November 1959 and supplemental instructions of 10 May 1960

Vessel USC&GSS EXPLORER

Chief of party E. L. Jones

H.D. Reed, G. DeGroot, J.B. Allen, M.T. Egan, R.L. Hess, R.E. Moses,
Surveyed by P.A. Martus, R.I. Greene, M.J. Umbach, G.A. Maul

Soundings taken by ~~XXXXXX~~ graphic recorder, ~~XXXXXXXXXX~~

Fathograms scaled by Ship's personnel

Fathograms checked by Ship's personnel

Protracted by Glenn DeGroot, Will Connell

Soundings penciled by Will Connell

Soundings in fathoms ~~XXXX~~ at MLW ~~XXXXX~~

REMARKS: The hydrography within this sheet limits is not complete but is submitted in accordance with oral instructions from the Washington Office on 31 January 1961. New sheets with Raydist curves for the new frequencies are to be prepared for the 1961 season's work and will cover the uncompleted part of H-8539.

21

70°

WELL

CAPE

COD

MARTHA'S
VINEYARD

HEAD

NANTUCKET I.

EX 40-1-60
(H-8539)

41°

HY-4159

(H-8484)
HY-1259

(H-8541)

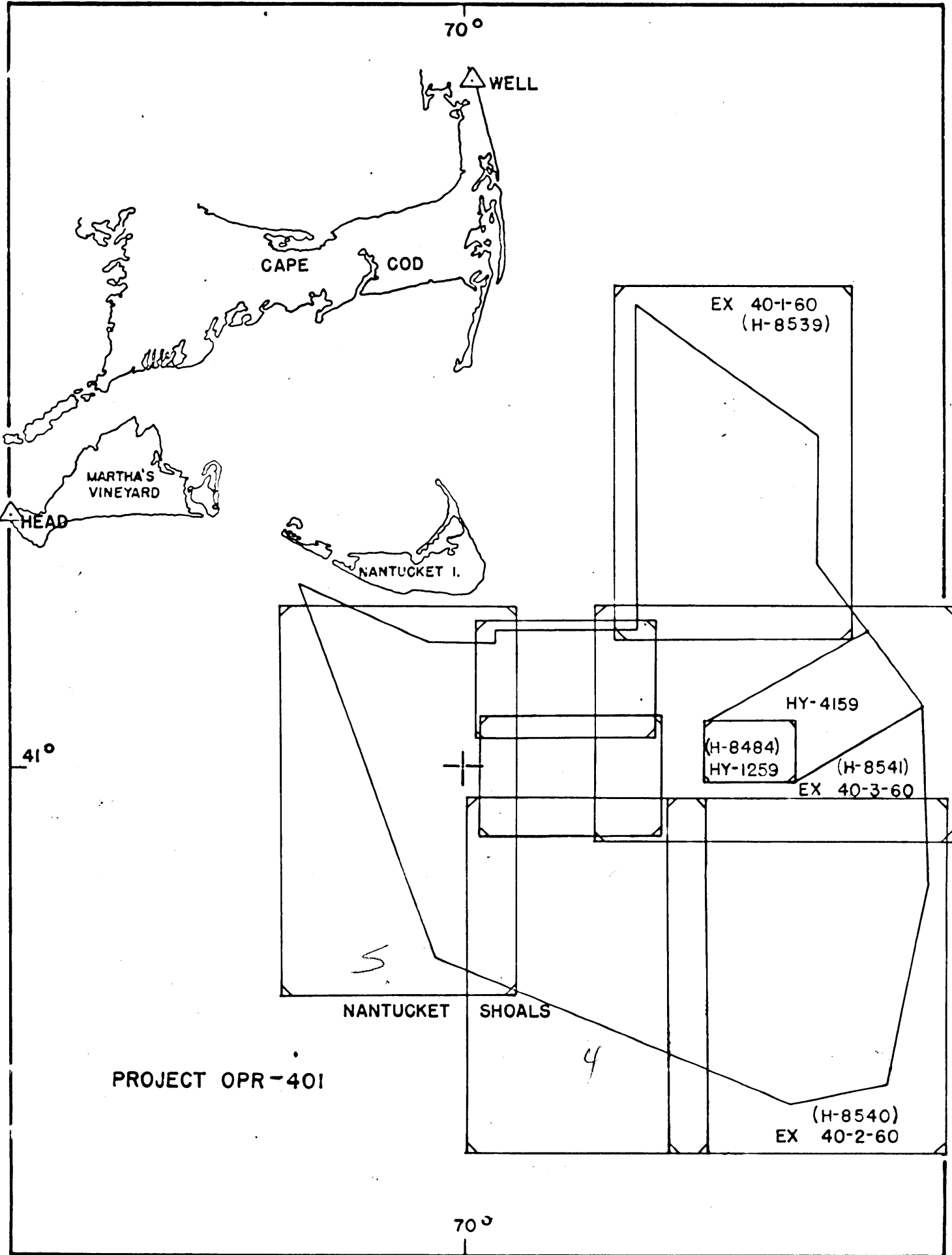
EX 40-3-60

NANTUCKET SHOALS

PROJECT OPR-401

(H-8540)
EX 40-2-60

70°



DESCRIPTIVE REPORT

to accompany

Hydrographic Survey H-8539 (Field No. EX-40-1-60)

Scale 1:40,000

USC&GSS EXPLORER

E. L. Jones, Comdg.

A. Project:

Hydrography was accomplished in accordance with instructions for Project CS-401, dated 27 November 1959 and supplemental instructions for Project CS-401, Nantucket Shoals, dated 10 May 1960.

B. Survey Limits and Dates:

This survey covers the northern part of Nantucket Shoals between latitudes $41^{\circ}10'N$ and $41^{\circ}38'N$ and between longitudes $69^{\circ}18'W$ and $69^{\circ}41'W$.

Field work was done between June 25 and Sept. 28 during the 1960 season. Junction was made with contemporary survey EX-40-3-60, H-8541 on the southern limit of this sheet and with H-8350 (1:40,000), 1956, and with H-8409 (1:25,000), 1956 on the western limit of the sheet.

Frequent dense fog and malfunctioning of Raydist equipment hampered progress on this survey.

C. Vessels and Equipment:

All hydrography was done by the EXPLORER using 808 fathometers: Serial No.'s 57-20, 57-32, and 127S. The calibrated speed of the fathometers is 820 f.p.s.

For horizontal control, Raydist model GA-38 was used through F day, 30 June 1960; and from L day, 4 Aug. 1960 through R day, 28 Sept. 1960. The transistorized Raydist set was used from G day, 21 July 1960 through K day, 3 Aug. 1960.

Bottom samples were taken using a snapper type sampler. The frequency of bottom samples was according to Hydrographic Instruction 2 (Revised), Section 4.10.

Turning radius for the Ship EXPLORER as determined by Raydist speed trials on August 10 and 11, 1960 for 25° rudder is:

	<u>Standard Ahead</u>	<u>Half Ahead</u>
Left	262 meters	190 meters
Right	281 meters	213 meters

D. Tide and Current Stations:

Tide reducers for this survey were obtained by using the hourly heights from the standard tide gage at Boston, Mass. A range ratio of 0.2 was furnished by the Washington Office, no time differences being used.

No current stations were occupied in this area.

E. Smooth Sheet:

The smooth sheet was made by ruling machine in the Washington Office. The Raydist curves were also drawn by the Washington Office.

This is an offshore survey and there is no shoreline within the limits of this sheet.

F. Control Stations:

All ship hydrography was controlled by Raydist and was based

on the ship HYDROGRAPHER'S 1958 position of the east leg ("C" leg) of the Texas Tower No. 3. The 1958 position of the tower was determined by a geodetic azimuth taken from Sankaty Head Lighthouse and a mean of shoran distances from the lighthouse and Raydist distances.

The following is the 1958 position of the tower in lanes from the common 1958-1960 shore stations when converted to the 1960 frequency of 3307.4 KC:

Sta HEAD (green) - 2612.5 lanes
 Sta WELL (red) - 2449.3 lanes

The position of the Raydist shore station at Wellfleet, Cape Cod and at Gay Head on Martha's Vineyard are as follows:

WELL	Latitude	41°-56'-31.426"N
(RM#1, FRAZIER 1957)	Longitude	69°-59'-11.303"W
HEAD	Latitude	41°-20'-43 ⁴⁸ .794"N
(RM#1, RAYDIST 1958)	Longitude	70°-49'-59.486"W

Two-thirds of the baseline of 96,673.267 meters was across land and this is believed to account for some of the malfunction of the Raydist equipment.

The following Raydist frequencies were used:

Red Station WELL	Green Station HEAD	EXPLORER
2492KC (link)	2496KC (link)	3307.4KC
1653.5KC (ref.)		

Lane width is 45.302 meters.

Two survey buoys, "A" and "B" were located by uninterrupted Raydist lines from the Chatham calibration area and adjust to the 1958 position of Texas Tower No. 3. They were located by the reciprocal bearing method with corrections for direction of current and the scope of the anchor applied. These buoys were intended for calibration of the ship's Raydist set while working in this general area. The buoys were equipped with radar reflectors and it was believed that they would be extremely useful to determine the lane count during periods of heavy fog when calibration could not be made by 3-point fix methods on shore objects, or it would be dangerous to pass close to the Texas tower. These buoys were used only during June and then not as much as anticipated. Later in the season there was some evidence that buoy "B" had been dragged from position.

Raydist positions of these buoys

when used on this hydrography were determined from observations made on 26-27 June, and are as follows:

Calibration Buoy	Date	Lane location from		Latitude Longitude
		WELL	HEAD	
A	26 June	1223.3	2129.7	41°29.6'W
	27 June	1223.6	2130.6	69°41.7'N
	mean	1223.4	2130.2	
B	26 June	1775.0	2342.1	41°17.6'W
	27 June	1774.9	2343.1	69°34.4'W
	mean	1775.0	2342.6	

G. Shoreline and Topography:

There is no shoreline within the limits of this sheet.

H. Soundings:

All soundings were obtained with the 800 fathometers listed in paragraph C. A separate report, titled, "Fathometer and Velocity Correction Report", 1960, has been forwarded, and contains the vertical corrections. A tabulation of velocity corrections may be found on page 10 of this report.

I. Control of Hydrography:

All hydrography was controlled by Raydist. The lane width used in the projection of this sheet is 45.3028 meters, resulting from the use of 3307.4 KC frequency.

The datum held for this sheet was the 1958 location of the Texas Tower No. 3 (east leg), WELL 2449.3, HEAD 2612.5 and the settings of the Raydist dials were all corrected to correspond to that value.

An abstract of the buoy locations for the hydrography is included under paragraph F. An abstract of the Raydist corrections is included at the end of this report.

J. Adequacy of Survey:

This survey is incomplete; however, the area covered is complete and adequate to supercede prior surveys for charting purposes.

Junction was satisfactorily made with H-8541, EX-40-3-60, on the southern limit of this sheet.

K. Crosslines:

Crosslines made up 12.3% of the hydrography. They were in generally good agreement and apparent discrepancies could be resolved on the fathograms as areas of extremely rough profile where the pinnacles drop off sharply. No large crossline discrepancies can be found. Minor differences are due to the rounding-off point of sounding reductions.

L. Comparison with Prior Surveys:

Comparisons with H-5276, 1:100,00, 1932, H-5275, 1:100,00, 1932, H-5249, 1:40,000, 1932 and H-6559 a&b, 1:40,000, 1942, have been made. Agreement was generally good and very little shoaling or shifting was found. The 7 fathom depths shown on the prior surveys at latitude 41-17N, Longitude 69-36 W, and at 41-17.1 N, 69-33.8W were not found. The shoalest depth found in this area was 8.9 fathoms. Depth contours on this sheet are in agreement with prior surveys. The new survey covers the area more thoroughly and should supercede prior surveys.

M. Comparison with Chart:

Comparison was made with chart 3076, first edition (Nov., 1951) and with 1107, seventh edition (Feb. 1945, revised Mar. 1960). The soundings on these charts originate with the surveys compared in paragraph L and the same comments apply.

No evidence of the submerged obstruction charted at latitude 41°23.5', longitude 69°22.8'W was found on the regular system of sounding lines.

N. Dangers and Shoals:

No uncharted dangers or shoals were discovered in this survey.

P. Aids to Navigation:

There are no aids to navigation within the limits of this survey.

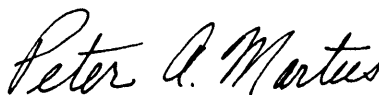
R. Geographic Names:

There are no new geographic names for this area. The geographic names were taken from chart 1107.

T. By-product Information:

Oceanographic Repeat Station #2, located at the northern edge of the sheet, was observed four times at monthly intervals. Its position is $41^{\circ}37.7'N$, $69^{\circ}36.8'W$. Specific information gathered at this station is submitted in the separate report titled, "Fathometer and Velocity Correction Report", 1960. Bathythermograph observations were taken every four (4) hours during hydrographic operations.

Respectfully submitted,



Peter A. Martus
ENS, C&GS

TIDE NOTE

to accompany Hydrographic Survey

H-8539, EX-40-1-60

USC&GSS EXPLORER

Tide reducers were obtained from the standard tide gage at Boston. A range ratio of 0.2 was used with no time correction. Time and range corrector values and hourly heights were furnished by the Washington Office.

GEOGRAPHIC NAMES LIST

The geographic names on this sheet are:

Davis Bank

Nantucket Shoals

Project CS-401
 Statistics for Hydrographic Survey
 H-8539, EX-40-1-60
 1960

USC&GSS EXPLORER

<u>Vessel</u>	<u>Date</u>	<u>Day Ltr.</u>	<u>Vol.</u>	<u>No. Pos.</u>	<u>Naut. Miles</u>	<u>Soundings</u>
EXPLORER	6/25/60	A	1	64	51.8	
"	6/26/60	B	1	67	56.0	
"	6/27/60	C	1,2	117	93.0	
"	6/28/60	D	2	190	151.0	
"	6/29/60	E	2,3	146	110.2	
"	6/30/60	F	3	172	147.5	
"	7/21/60	G	3	103	53.2	
"	7/22/60	H	4	26	23.3	
"	7/26/60	J	4	164	146/5	
"	8/3/60	K	4	31	16.8	
"	8/4/60	L	4	34	22.5	
"	8/7/60	M	4	10	9.0	
"	8/9/60	N	4,5	66	53.0	
"	8/11/60	P	5	70	45.0	
"	9/27/60	Q	5	154	127.5	
"	9/28/60	R	5,6	175	118.5	
				Totals	<u>1589</u>	<u>1224.3</u>

Total area of hydrography 198 square nautical miles (1960)

Total miles of crosslines 150.4.

1960 Raydist Calibration Abstract

Sheet EX-40-1-60

<u>Date</u>	<u>Position</u>	<u>Lane Correctors</u>		<u>Cal. Bk.Pg.</u>	<u>Calibration Reference</u>	<u>Remarks</u>
		<u>WELL</u>	<u>HEAD</u>			
25 June	1-64A	-0.3	-0.3	12	T.T.3	Changed from 40-3-60
26 June	1-67B	-0.1	-2.0	9	Chatham	
27 June	1-117C	+0.1	+0.1	13	T.T.3	Changed from 40-3-60
28 June	1-188D	-1.2	-1.0	37	Buoy A	
	188-189D	-1.2	+2.0			H*lost 3**
	189-190D	-1.2	+4.0			H lost 2
29 June	1-17E	-0.6	-0.5	77	Buoy B	
	18-140E	-0.6	+1.5			H lost 2
	141E	-0.6	+3.5			H lost 2
	142E	-0.6	+9.5			H lost 6
	143-146E	-0.6	T&C			
30 June	1-40F	-0.5	-0.5	78	Buoy B	
	41-130F	-0.5	+1.5	38	Buoy A	H lost 2
	131-135F	-0.5	+3.5			H lost 4
	136-137	-0.5	+7.5			H lost 2
	138F	-0.5	+9.5			H lost 2
	139-142F	-0.5	+11.5			H lost 2
	143-145F	-0.5	+9.5			H gained 2
	146-148F	-0.5	+7.5			H gained 2
	149-156F	-0.5	+9.5			H lost 2
	157-172F	-0.8	+0.8	38	Buoy A	Reset to 0 Corr. before 157.

<u>Date</u>	<u>Position</u>	<u>Land Correctors</u>		<u>Cal. Bk.Pg.</u>	<u>Calibration</u>	
		<u>WELL</u>	<u>HEAD</u>		<u>Reference</u>	<u>Remarks</u>
21 July	1-11G	0.0	+0.1	15	T.T.3	
	12G	0.0	+2.1			H lost 2
	13-103G	0.0	+3.1			H lost 1
22 July	1-26H	-1.2	-0.1	15	Chatham	
26 July	1-164J	0.0	0.0	16	T.T.3	Changed from 40-3-60
3 August	1-31K	-0.7	+0.1	None	Chatham	
4 August	1-12L	+1.1	+0.3	None	Chatham	
	13-34L	+6.1	-0.7			*** W lost 5.
7 August		-0.3	-0.1		Chatham	H gained 1
	1-8M	-0.3	+3.7	116		H lost 4
	8,9&10M	-0.3	T&C			
9 August	1-66N	+8.1	-2.5	18	Chatham	
11 August	1-53P	-0.2	+24.0	19	T.T.3	Changed from 40-3-60
	54-66P	-0.2	+22.0			H gained 2
	67P	-0.2	+25.0			H lost 3
	69-70P	-0.2	T&C			
27 Sept.	1-34Q	0.0	-0.2	25	T.T.3	Changed from 40-3-60
	35-89Q	0.0	-1.2			H gained 1
	90-99Q	0.0	-0.2			H lost 1
	100-146Q	0.0	+1.8			H lost 2
	Reject 147 on.					
28 Sept.	1-174R	+0.2	-0.1	25	T.T.3	Changed from 40-3-60
	175R	+0.2	T&C			

* H is station HEAD

** Losses and gains are in lanes

*** W is station WELL

APPROVAL SHEET

Survey Sheet H-8539 (Field No. EX-40-1-60)

Project OPR-401, Nantucket Shoals

The boat sheet and records were inspected daily by the Commanding Officer and the Field Records Officer, CDR Harry D. Reed, during the field season. The smooth plotting was done under the general supervision of LCDR Eugene A. Taylor who also was Acting Executive Officer during the lay-up period. The descriptive report was prepared by ENS Peter A. Martus from notes left by ENS DeGroot and ENS Connell prior to their resignations.


The hydrography within this sheet limits is not complete and it was not planned to submit it until after additional field work could be accomplished in 1961. However, a change of Raydist frequencies and a change of shore station locations necessitated new Raydist curves for the next season. It was decided in conference with Projects Operation Division at the Washington Office on 31 January 1961 that the present sheets be prepared for submission and new sheets with new registry numbers and with the new Raydist curves would be furnished for the 1961 season for the remainder of the uncompleted hydrography.

While no field evidence of the submerged obstruction charted at latitude 41-23.5N, longitude 69-22.8W, was found on the regular system of sounding lines a special investigation will be attempted here next field season.

The 1960 position of Texas Tower No. 3 was not well determined until near the end of the field season. Since the Tower was used for calibration purposes from the start of the season. The 1958 position was used throughout the season for consistency. The 1960 position of the tower is in disagreement with the 1958 position by about $\frac{1}{2}$ Raydist lane of 45.3 meters. It is believed that the difference can be resolved during the 1961 season and if necessary, a projection shift of the hydrography can be made for charting purposes.

This sheet and the records are approved for submission.

20 February 1961


Edmund L. Jones
CAPT, C&GS
Comdg., Ship EXPLORER

VELOCITY CORRECTIONS
Ship EXPLORER
1960 Field Season

JUNESheet 40-1-60 ✓ *Table 1*

0.0 fathom to 7.0 fathoms
-0.1 " to 15.5 "
-0.2 " to 19.5 "
-0.3 " to 24.0 "
-0.4 " to 28.0 "
-0.5 " over 28 "

Sheet 40-3-60 ✓
For north side, use sheet
40-1-60 correctors.

South side

0.0 fathom to 5.0 fathoms
-0.1 " to 10.5 "
-0.2 " to 16.5 "
-0.3 " to 22.0 "
-0.4 " to 27.0 "
-0.5 " to 32.5 "
and over

JULYSheet 40-1-60 *Table 2*

0.0 fathom to 12.5 fathoms
-0.1 " to 18.5 "
-0.2 " to 22.5 "
-0.3 " to 26.0 "
-0.4 " to 30.0 "
-0.5 " over 30 "

Sheet 40-2-60

0.0 fathom to 6 fathoms
-0.1 " to 14 "
-0.2 " to 22 "
-0.3 " to 30 "
-0.4 " over 30 "

JULYSheet 40-2-60, "C" day ✓
pos. 122-191 only

0.0 fathom to 6.0 fathoms
+0.1 " to 13.5 "
+0.2 " to 22.0 "
+0.3 " to 30.0 "
+0.4 " over 30 "

Sheet 40-3-60

North side, use correctors for
sheet 40-1-60. South side, use
correctors for sheet 40-2-60 ✓

AUGUSTSheet 40-1-60 *Table 3*

0.0 fathom to 10.0 fathoms
-0.1 " to 15.0 "
-0.2 " to 20.0 "
-0.3 " to 24.0 "
-0.4 " to 28.5 "
-0.5 " to 32.5 "
and over

Sheet 40-2-60

0.0 fathom to 9.0 fathoms
-0.1 " to 23.0 "
-0.2 " to 37.0 "
-0.3 " over 37 "

Sheet 40-3-60

0.0 fathom to 22 fathoms
-0.1 " over 22 "

(above to be used for P, Q, R, S,
and T days only)

For other work in August use
40-1-60 correctors for north side
and 40-2-60 correctors for south
side.

copy checked PGM

VELOCITY CORRECTIONS (contd.)

SEPTEMBER

Sheet 40-1-60 - *Table 4*

Sheet 40-2-60

0.0 fathom to 19.5 fathoms
 -0.1 " to 23.5 "
 -0.2 " to 30.5 "
 -0.3 " over 30.5 -

0.0 fathom to 13.5 fathoms
 -0.1 " to 32.0 "
 -0.2 " over 32 -

Sheet 40-3-60

North side, use correctors for sheet 40-1-60
 South side, use correctors for sheet 40-2-60 -

DRAFT AND INSTRUMENT CORRECTIONS
FOR LAUNCHES

<u>808 Fath. No.</u>	<u>Corrector</u>
136SP	+0.3 fathom
137SP	+0.1 "
158SPX	+0.2 "

copy to Gunn

GEOGRAPHIC NAMES
Survey No. H-8539

Name on Survey	Source											
	A	B	C	D	E	F	G	H	K			
Davis Bank	x											1
Nantucket Shoals	x											2
												3
												4
												5
												6
												7
												8
												9
												10
												11
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												26
												27

James M. Bee
GEOGRAPHIC NAMES SECTION
28 MARCH 1961

RHC

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Coastal Surveys:~~

11 May 1961

Division of Charts: R.H. Garstens

Plane of reference approved in
6 volumes of sounding records for

HYDROGRAPHIC SHEET 8539

Locality North Nantucket Shoals, Mass.

Chief of Party: E.L. Jones (1960)
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: 1.9 ft.

Condition of records satisfactory except as noted below:

Burt W. Wilcox
Chief, Tides and Currents Branch
~~CHIEF, DIVISION OF TIDES AND CURRENTS.~~

S U R V E Y # 0 8 5 3 9

<u>VOLUME NUMBER</u>	<u>VESSEL</u>	<u>BLOCK OF NUMBERS ALLOCATED</u>
1-6	EXPLORER	0001-1563

ABSTRACT FOR SURVEY # 08539

<u>MANUAL</u>		<u>AUTOMATED</u>	
<u>DAY</u>	<u>POSITION #'s</u>	<u>JULIAN DAY</u>	<u>POSITION #'s</u>
<u>SHIP EXPLORER</u>			
"A" DAY	6/25/60 1-064	177	0001-0064
"B" DAY	6/26/60 1-067	178	0065-0131
"C" DAY	6/27/60 1-117	179	0132-0248
"D" DAY	6/28/60 1-190	180	0249-0438
"E" DAY	6/29/60 1-146 (18R)	181	0439-0566
"F" DAY	6/30/60 1-172	182	0567-0738
"G" DAY	7/21/60 1-103	203	0739-0841
"H" DAY	7/22/60 1-026	204	0842-0867
"J" DAY	7/26/60 1-164	208	0868-1031
"K" DAY	8/03/60 1-031	216	1032-1062
"L" DAY	8/04/60 1-034	217	1063-1096
"M" DAY	8/07/60 1-010	220	1097-1106
"N" DAY	8/09/60 1-066	222	1107-1172
"P" DAY	8/11/60 1-070	224	1173-1242
"Q" DAY	9/27/60 1-146	271	1243-1388
"R" DAY	9/28/60 1-175	272	1389-1563

CROSS REFERENCE FOR SURVEY # 08539

<u>VOLUME NUMBER</u>	<u>SHIP</u>	<u>POSITION NUMBERS</u>
1	Explorer	0001-Q244
2	Explorer	0245-0527
3	Explorer	0528-0841
4	Explorer	0842-1133
5	Explorer	1134-1414
6	Explorer	1415-1563

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. .8539...

Records accompanying survey: Smooth sheets .1...;
 boat sheets .1...; sounding vols. .6...; wire drag vols.;
 Descriptive Reports .1...; graphic recorder envelopes .4...;
 special reports, etc. 1 Cahier - Raydist Records.....

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- 8539

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.

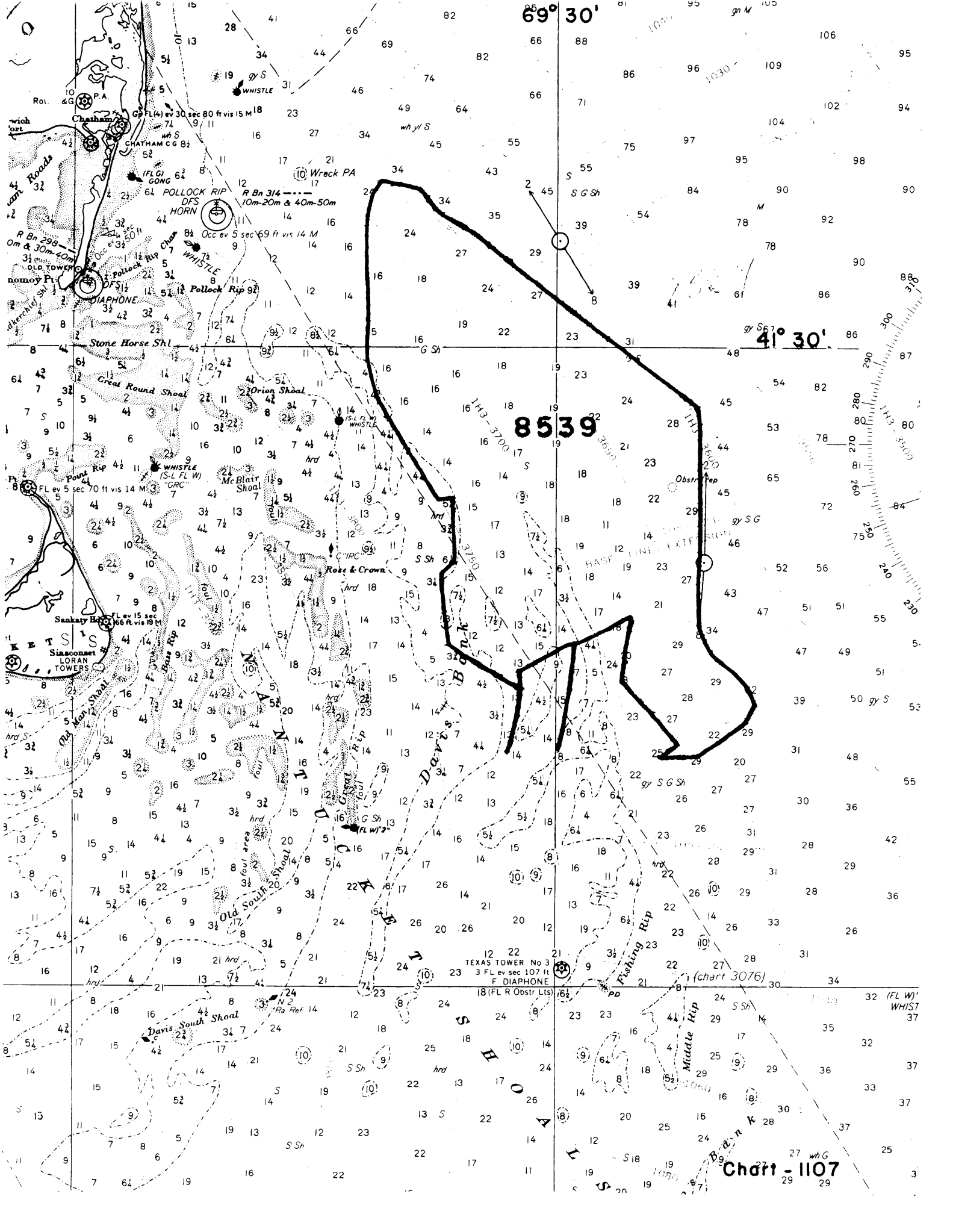
1. The descriptive report was consulted and appropriate notes were made in soft pencil regarding action taken.
2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude.
3. All reference to survey sheets mentioned in the descriptive 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



69° 30'

41° 30'

8539

Chart - 1107

NAUTICAL CHARTS BRANCH

SURVEY NO. 8539 1960

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
3/13/61	1107 drg 16	J. Am.	Before After Verification and Review Examined only. No corr. at this time.
11-8-61	1108	R. E. Elkins	Before After Verification and Review No revision. Considered partly applied thru cht 1107 drg 16.
3-20-62	1000	<i>[Signature]</i>	Before After Verification and Review Partly applied -Exam No Corr thru drg # 29 cht 1108
9-26-62	71	G. R. Johnson	Before After Verification and Review Examined through cht 1107 drg #16. No Corr.
10-18-62	70	G. R. Johnson	Before After Verification and Review Partly Applied through cht 71 drg #16 No Corr.
6-15-63	3076	G. R. Johnson	Before After Verification and Review Partly Applied
2-14-90	13003	E. Martin	Before After Verification and Review Drg 61 Adequately applied, no further processing required
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
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			Before After Verification and Review
			Before After Verification and Review

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8539

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
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M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.