

8450

Diag. Cht. No.1209-3.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. GI-2157 Office No. H-8450

LOCALITY

State Massachusetts

General locality Cape Cod

Locality East Side of Nantucket Island

1957-58

CHIEF OF PARTY

C. A. Schoene

LIBRARY & ARCHIVES

DATE November 13, 1959

B-1870-1 (1)

8450

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-8450

Field No. G1-2157

State MASSACHUSETTS

General locality CAPE COD

Locality EAST OF NANTUCKET ISLAND

Scale 1:20,000 Date of survey 25 July to 10 Oct. 1957

Instructions dated 24 May 1954; 14 Jan. 1955; 27 Feb. 1955; 22 Oct. 1956

Vessel SHIP GILBERT

Chief of party C.A. SCHOENE

Surveyed by C.A. SCHOENE, D.G. RUSHFORD & R.H. GARNETT, JR.

Soundings taken by ~~XXXXXX~~ graphic recorder, hand lead, ~~XXX~~

Fathograms scaled by PERSONNEL OF SHIP GILBERT

Fathograms checked by PERSONNEL OF SHIP GILBERT & NORFOLK DISTRICT OFFIC

Protracted by W.N. GRABLER & A.G. ATWILL

Soundings penciled by A.G. ATWILL

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

REMARKS: SEE ATTACHED REPORT COVERING THE 1958 SEASON'S WORK.

Ans

A. PROJECT

This report is on work which was done on Project 13690, Sheet GI-2157. ~~25/156~~. Original instructions are dated 24 May 1954, ref. 22-ret S-2-PARKER, issued to C.O., Ship PARKER; supplemental instructions are dated 14 January 1955, ref. 22-SRO S-2-GI, modified 27 February 1955, ref. 22/MEK S-2-GI. Supplemental instructions were again received, dated 27 December 1955, ref. 22/MEK S-2-GI, issued to C.O., Ship GILBERT. The last supplemental instructions were dated 22 October 1956, ref. 22/MEK S-2-GI, issued to C.O., Ship GILBERT.

B. SURVEY LIMITS AND DATES

Sheet GI-2157 is located along the Eastern Coast of Nantucket Island. The entire sheet has not been completed. This report covers the hydrography which was done during the 1957 field season and is roughly the northern half of the sheet.

✓ The finished area is bounded by Lat. $41^{\circ} 23.00'$ on the North, Long. $69^{\circ} 53.00'$ on the East, Nantucket Island on the west and south to $41^{\circ} 15.00'$, excluding an area between Sankaty Head Lighthouse and its two mile arc.

Hydro on this portion of the sheet began on 25 July 1957 and ended on 10 October 1957. ✓

This sheet junctions with PAR-2154 (H-8171) on the north, and GI-2.5/156(H-8409) on the east. ✓

(1956)

Previous surveys in this area are as follows:

H - 2312 ✓	1:10,000	1897	} see TP6 of Review
H - 2051 ✓	1:20,000	1890	
H - 2039 ✓	1:10,000	1890	

C. VESSELS AND EQUIPMENT

The Ship GILBERT and LAUNCH CS-180 were the two vessels engaged in this survey. The ship used two 808 fathometers, Nos. 161 and 162. The launch used 808 fathometer No. 159 and EDO No. 213. ✓

All sounding was done in feet. The GILBERT and LAUNCH CS-180 were both operated at a full speed of 8 knots. Turning radius for the ship at this speed is approximately 200 meters, and for the launch it is approximately 40 meters. ✓

(1956)
Both vessels based out of Woods Hole, Mass. Hydro was done in ten day trips on this sheet, or on GI-2.5/156(H-8409), depending upon weather conditions. The GILBERT anchored on the working grounds, with the launch either tied alongside or anchored nearby. In foul weather a protected anchorage was used, on the western side of Great Point. ✓

Depths encountered during the survey ranged from 4 feet to 169 feet. ✓
The average depth is approximately 45 feet.

D. TIDE AND CURRENT STATIONS

No current stations were established for this survey. Tide gages were installed at Great Point and Brant Point. However, these gages were not used in reducing soundings. Tide reducers for the boatsheet came from the tide tables using the predicted values for Great Point. Final tide reducers were taken from our standard tide gage at Boston, using a 0.2 ratio with no time difference. There are no tidal zones on this sheet.

E. SMOOTH SHEET

The smooth sheet is to be constructed and plotted by the Norfolk District Office.

F. CONTROL STATIONS

This survey was entirely Shoran controlled. Three shore stations were located at (1) Chatham Lighthouse, Cape Cod, (2) Coast Guard lookout tower, Great Point, Nantucket I., and (3) Sankaty Head Lighthouse, Nantucket I. The station names in the above order are CHAT, LOOK, and KATY.

In each case, the Shoran tower itself was not located exactly on a triangulation station and consequently the positions of the towers were determined by azimuth and distance from the nearby triangulation stations. The latitudes and longitudes which appear below are of the actual Shoran towers.

Control for the aluminum Shoran calibration plate was obtained from Cape Cod triangulation, G.P. Topo Station Card T-5738, and Chart Letter 257, Ship HILGARD, 22 July 1949.

Location of actual Shoran towers:

CHAT - Lat. 41° 40',	513.2 meters	{ Some twenty miles North of H-8450 and N.E. of Great Point
Long. 69° 57',	33.4 meters	
KATY - Lat. 41° 17',	16.1 meters	
Long. 69° 57',	1318.5 meters	
LOOK - Lat. 41° 23',	782.2 meters	
Long. 70° 02',	1114.2 meters	

AND SURF in 1958

G. SHORELINE AND TOPOGRAPHY

Shoreline was put on the boatsheet from advance manuscripts T-11217A and T-11221A and T-11223A of 1955 (TP2 REVIEW)

The low water line was not determined by hydrography due to beach conditions which would make it very hazardous. (TP2 REVIEW)

H. SOUNDINGS

All soundings were recorded in feet. The Ship used 808 Nos. 161 & 162. The Launch used EDO No. 213 and 808 No. 159.

No unusual methods, equipment, or corrections were employed. Fathometer corrections were in accordance with Section 5616, Graphic Determination of Velocity Corrections (see fathometer report).

Soundings were read to the nearest 0.5 ft. and the corrections were entered to the nearest 0.2 ft. Where the depth exceeded 60.0 ft., corrections were entered to the nearest foot.

I. CONTROL OF HYDROGRAPHY

Shoran stations KATY, CHAT, and LOOK furnished the horizontal control. Shoran corrections were computed using the method of theoretical curve, as outlined in Hydrographic Instruction 10 (Revised), dated 13 May 1957. These corrections have been computed and tabulated, and are now a part of the Shoran report. ✓

J. ADEQUACY OF SURVEY

This survey is considered entirely adequate to supersede all prior surveys. Junctions are satisfactory and depth curves can be drawn. ✓

See
p. 5 of
Review

K. CROSSLINES

Crosslines comprise 10% of this sheet and are considered satisfactory. ✓

L. COMPARISON WITH PRIOR SURVEYS

H - 2039, 1:10000, 1890: This sheet is along the eastern coast of Nantucket Island. Agreement is considered to be good. H-2039 has pencilled note about eleven foot peak. See Chart Letter # 348 (1913). This peak should be shown on chart # 1209 and chart # 265. ✓
H - 2051, 1:20000, 1890: A comparison with this sheet is difficult because the sheet itself is inadequately developed. However, a reasonably good comparison was obtained. ✓

Not compared
by verifier

M. & N. COMPARISON WITH CHART, and DANGERS & SHOALS See p. 5 of Review

A comparison with C&GS Chart 1209, corrected through 23 March 1957, follows. Also, a tabulated list of new found shoals.

This area is one in which a great number of shoals are present and continually changing their position. The area involved is used principally by small fishing boats, and is not considered to be of great importance from a general navigational standpoint. ✓

In general, agreement with Chart 1209 is considered to be good.

Comparison with Chart 1209: (see p. 7 Review)

1. Least depth at Lat. $41^{\circ} 22.00'$, Long. $69^{\circ} 56.38'$ is ¹³12', not 14' as charted. ✓
2. The 6.0' shoal at Lat. $41^{\circ} 17.20'$, Long. $69^{\circ} 54.00'$ should be deleted.
3. Least depth at $41^{\circ} 16.11'$, Long $69^{\circ} 54.15'$, of 4.0 ft, is ^{Not} verified. Now C (99-100C)
4. Least depth at $41^{\circ} 19.8'$ Lat., $69^{\circ} 57.45'$ Long., is ¹⁴11.0 ft, not 16.0 as charted. ✓
5. A 6.0 ft shoal at Lat $41^{\circ} 15.0'$, Long. $69^{\circ} 54.50'$ is not verified. However, ✓
there is a 6.0 ft. shoal at Lat. $41^{\circ} 15.50'$, Long $69^{\circ} 54.75'$
6. Shoal soundings of 12 ft. and 13 ft at Lat. $41^{\circ} 20.15'$, Long. $69^{\circ} 54.9'$ have shifted slightly northeast (see boatsheet).
7. Shoal sounding of 11.0 ft. charted at $41^{\circ} 22.3'$ Lat. & $70^{\circ} 00.3'$ Long. is not verified. Least depth in this area was found to be 18.0 ft. at Lat. $41^{\circ} 22.4'$, Long. $70^{\circ} 00.5'$. If not disproved, carried forward.
8. Shoal sounding of 17.0 ft charted at Lat. $41^{\circ} 21.4'$, Long. $69^{\circ} 58.7'$, is not the least depth in this area. Least depth here is ^{15.0}14.0 ft. at Lat. $41^{\circ} 21.25'$, Long $69^{\circ} 58.45'$.
9. A least depth of ¹⁴13 ft. was found on the charted 17 ft. shoal at Lat. $41^{\circ} 21.55'$, Long. $69^{\circ} 54.60'$ (15-166)
10. A least depth of ¹⁴13 ft. at Lat. $41^{\circ} 21.05'$, Long. $69^{\circ} 53.35'$ was found on the charted 16 ft. shoal in this vicinity. (31-326)

See overlays for further N.P.O. Comparisons

COMPARISON WITH CHART, and DANGERS & SHOALS (continued)

New Shoals:

1. A least depth of 10.0 ft. at Lat. $41^{\circ} 17.68'$, Long. $69^{\circ} 53.85'$ should be plotted on the chart. ✓
2. A least depth of ^{14.0}13.0 ft. at Lat. $41^{\circ} 19.65'$, Long. $69^{\circ} 54.55'$ should be charted, instead of 16 ft. as presently shown. (142-143E) ✓
3. A least depth of ^{15.0}14.0 ft. at Lat. $41^{\circ} 20.2'$, Long. $69^{\circ} 57.8'$ should be charted. (10K) ✓
4. A least depth of ^{17.0}12.0 ft. at Lt. $41^{\circ} 18.45'$, Long. $69^{\circ} 55.1'$ should be charted, instead of 22 ft. as presently shown. (20-21E) ✓
5. A least depth of 10.0 ft. at Lat. $41^{\circ} 18.6'$, Long. $69^{\circ} 53.9'$ should be charted. (31-37C) ✓
6. A least depth of 9.0 ft. at Lat. $41^{\circ} 18.5'$, Long. $69^{\circ} 53.85'$ should be charted. (36-37C) ✓

See overlays for additional uncharted shoals -

Locations of important shoal soundings were sent to the Washington Office on a tracing of our boatsheet. Reference letter to the Director dated 20 August 1957 from C. A. Schoene, Comd'g Ship GILBERT.

O. COAST PILOT INFORMATION

It is considered that this area is a dangerous place for small boats to be navigating. Those who do enter this area should proceed with caution as the shoals are subject to changes of position. There are no aids to navigation in this area. ✓

The Ship GILBERT and LAUNCH CS-180 generally anchored at approximately Lat. $41^{\circ} 20.00'$, Long. $69^{\circ} 59.00'$, in about 30 ft. Holding quality of the bottom is considered good. However, the anchorage itself is not recommended except in emergency, due to the lack of protection from three sides. ✓

P. AIDS TO NAVIGATION

floating
There are no aids to navigation in this area. No bridges, cables, submarine cables, or ferry routes, are within this area. ✓

Q. & R. LANDMARKS FOR CHARTS and GEOGRAPHIC NAMES

No new landmarks for the chart are recommended, and no investigation of geographic names was made. ✓

S. through Y.

No comment. ✓

Z. TABULATION OF APPLICABLE DATA

Tabulations of Statistics, Velocity Corrections, Shoran Corrections, Temperature & Salinity Observations, and Tide Note, follow. ✓

Respectfully submitted, *Richard H. Garnett, Jr.*

Richard H. Garnett, Jr.
Ensign, C&GS.

APPROVED AND FORWARDED:

Charles A. Schoene
Charles A. Schoene,
Commander, C&GS,
Comdg Ship GILBERT.

TIDAL NOTE

The standard tide gage at Boston, with a 0.2 ratio of ranges and a zero time correction, was used for the reduction of soundings. Tide reducers were furnished direct from the Washington Office, based on the plane of mean low water.

In a letter to the Norfolk District Office, dated 13 February 1958 (File No. 36-45-267), the tide zones were changed in this area, and the tide reducers will have to be changed before the smooth sheet is plotted.

*Tidal entries comply with referenced letter.
Tide zones were not changed for the area of
this survey - H.L.P. (See Tide Note 1958 season)*

S T A T I S T I C S
for
HYDROGRAPHIC SURVEY GI-2157
(1957 Field Season Only)

SHIP GILBERT:

<u>Date</u>	<u>Volume Number</u>	<u>Day Letter</u>	<u>FATHOMETER NUMBER</u> (808)	<u>Number of Positions</u>	<u>Naut. Miles of Sounding</u>
1957					
July 25	1	A	161	122	50.4
26	1	B	"	64	26.6
30	1 & 2	C	"	162	58.7
31	2 & 3	D	"	104	40.8
Aug. 6	3	E	"	100	40.3
7	3 & 4	F	"	200	80.4
8	4 & 5	G	"	190	68.1
9	5	H	"	73	21.8
14	6	J	"	169	55.7
15	6	K	"	198	67.7
16	6 & 7	L	"	67	21.6
Sept. 21	7	M	"	100	27.0
22	7 & 8	N	"	44	14.0
23	8	P	"	113	38.5
24	8	Q	"	65	19.0
Oct. 4	8	R	"	21	---- *
<u>Totals, Ship GILBERT</u> - - - - -				1,792	630.6

LAUNCH CS-180:

			(EDO)		
Aug. 27	9	a	213	248	58.4
Sept. 8	9 & 10	b	"	192	50.5
Oct. 10	10	c	"	175	54.0
<u>Totals, LAUNCH CS-180</u> - - - - -				615	162.9
<u>TOTALS, SURVEY</u> - - - - -				2,407	793.5

* Bottom Characteristics Only.

VELOCITY CORRECTIONS

Ship GILBERT:

808

Fathometer No. 161 -

Correction

Depth Range

+0.2 ft	0.0 ft to 14.0 ft
+0.4	14.5 60.0
0.0	60.5 116.0
+1.0	117.0 180.0

LAUNCH CS-180:

EDO No. 213 -

- 0.4 ft	0.0 ft to 11.0 ft
- 0.2	11.5 19.0
0.0	19.5 30.0
+ 0.2	30.5 39.0
+ 0.4	39.5 46.0
+ 0.6	46.5 52.0
+ 0.8	52.5 60.0
+ 1.0	60.5 91.0
+ 2.0	92.0 126.0
+ 3.0	127.0 159.0
+ 4.0	160.0 192.0

SHORAN CORRECTIONS

Sheet 2157, - Ship GILBERT

Station KATY:

<u>25 July to 8 Aug.</u>	<u>13 Aug. to 22 Aug.</u>	<u>20 Sept. to 24 Sept.</u>	<u>4 October</u>
+ .009 at 6.8 M	+ .005 at 7.15 M	- .002 at 6.5 M	- .034 at 6.5 M
+ .012 to 5.8	+ .016 to 1.8	± .002 to 4.8	- .032 to 6.3
.010 6.8	.014 2.9	.000 5.9	.034 7.4
.008 8.0	.012 4.0	- .002 7.0	.036 8.5
.006 9.2	.010 5.1	.004 8.1	.038 9.7
	.008 6.2	.006 9.3	.040 10.8
	.006 7.3	.008 10.3	.042 11.8
	.004 8.4	.010 11.4	.044 12.9
		.012 12.5	.046 14.0
		.014 13.7	.048 15.0
		.016 14.8	.050 16.2

Station LOOK:

<u>25 July to 16 Aug.</u>	<u>23 September</u>
+ .0055 at 2.3 M	+ .027 at 2.5 M
+ .008 to 1.5 M	+ .030 to 1.4
.006 2.6	.028 2.5
.004 3.7	.026 3.6
.002 4.8	.024 4.7
.000 5.9	.022 5.8
- .002 7.0	.020 6.9
.004 8.1	.018 8.0
.006 9.2	.016 9.1
.008 10.3	.014 10.2
.010 11.4	
.012 12.5	

Station CHAT:

<u>13 Sept. to 24 Sept.</u>	<u>4 Oct. to 7 Oct.</u>
- .002 at 21.7 M	- .020 at 20.7 M
.000 to 21.3	- .020 to 21.2
- .002 22.4	.022 22.3
.004 23.5	.024 23.4
.006 24.6	.026 24.6
.008 25.7	.028 25.7
.010 26.8	.030 26.8
.012 27.9	.032 28.0
.014 29.0	.034 29.1
.016 30.1	.036 30.2
.018 31.2	.038 31.4
.020 32.3	.040 32.6
.022 33.4	.042 33.8
.024 34.5	.044 34.9
.026 35.6	.046 36.0

SHORAN CORRECTIONS (continued)

Sheet 2157,

LAUNCH CS-180

----- Station KATY -----

Station LOOK

27 August

8 Sept. to 10 Oct.

8 September

+ .0035 at 7.5 M
+ .026 to 0.5
.024 1.2
.022 1.8
.020 2.5
.018 3.2
.016 3.8
.014 4.5
.012 5.2
.010 5.8
.008 6.5
.006 7.2
.004 7.8
.002 8.5
.0000 9.2
- .002 9.8
.004 10.5
.006 11.2
.008 11.8
.010 12.5
.012 13.2

- .034 at 4.6 M
- .024 to 1.5
.026 2.2
.028 2.8
.030 3.5
.032 4.2
.034 4.8
.036 5.5
.038 6.2
.040 6.8
.042 7.5
.044 8.2
.046 8.8
.048 9.5
.050 10.2
.052 10.8
.054 11.5
.056 12.2

Average of 3 points
- .012 at 5.5 M
- .006 at 5.25 M
- .005 at 4.97 M
+ .002 to 2.2
.000 2.9
- .002 3.6
.004 4.2
.006 4.9
.008 5.6
.010 6.2
.012 6.9
.014 7.6
.016 8.2
.018 8.9
.020 9.6
.022 10.2
.024 10.9
.026 11.6
.028 12.2
.030 12.9

Station CHAT:

27 August

10 October

- .018 at 22.0 M
- .010 to 19.7
.012 20.3
.014 21.0
.016 21.7
.018 22.3
.020 23.0
.022 23.7
.024 24.3
.026 25.0
.028 25.7
.030 26.3
.032 27.0
.034 27.7
.036 28.3
.038 29.0
.040 29.7
.042 30.3
.044 31.0
.046 31.7
.048 32.3
.050 33.0
.052 33.7
.054 34.3

.000 at 25.1 M
+ .006 to 23.7
.004 24.3
.002 25.0
.000 25.7
- .002 26.3
.004 27.0
.006 27.7
.008 28.3
.010 29.0
.012 29.7
.014 30.3
.016 31.0
.018 31.7
.020 32.3

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-8450

Field No. G1-2157

State MASSACHUSETTS

General locality CAPE COD

Locality EAST OF NANTUCKET ISLAND

Scale 1:20,000 Date of survey 7 June to 10 Aug. 1958

Instructions dated 21 Oct. 1957

Vessel SHIP GILBERT

Chief of party C.A. SCHOENE

Surveyed by C.A. SCHOENE; W.M. LEE, R.H. GARNETT, JR., W.N. GRABLER

Soundings taken by ~~XXXXXX~~ fathometer, graphic recorder, hand lead, ~~XXX~~

Fathograms scaled by PERSONNEL SHIP GILBERT

Fathograms checked by PERSONNEL SHIP GILBERT & NORFOLK DISTRICT OFFICE

Protracted by A.G. ATWILL

Soundings penciled by A.G. ATWILL

Soundings in ~~XXXXXX~~ feet at MLW ~~XXXXX~~

REMARKS: SEE ATTACHED REPORT FOR WORK ACCOMPLISHED DURING THE 1957 SEASON.

A. PROJECT

This report covers work done on Sheet H-8450 (GI-2157), Project CS-369, during the 1958 field season. This sheet was worked on during two seasons, 1957 and 1958, and a report has been previously submitted on the part of the work done during the 1957 season. The work of 1958 was done under "REVISED INSTRUCTIONS - PROJECT CS-369" dated 21 October 1957, which superseded all previous instructions for this project.

B. SURVEY LIMITS AND DATES

Sheet H-8450 is located along east and southeast coast of Nantucket Island. The northern half of the sheet was done in 1957 and the southern half in 1958. The completed area of hydrography extends from Lat. 41°-23' south to Lat. 41°-10' and from Long. 69°-53' west to Long. 70°-04'.7.

Hydrography on the southern half of this sheet was done between 7 June and 10 August 1958.

(1954-56)
 (1956-57) This sheet junctions with contemporary surveys H-8171 on the north and H-8409 on the east; and with prior surveys H-6713 (1:20000 - 1940) and H-6558 (1:40000 - 1940) to the south. The sheet also joins to the west with survey H-2040 (Scale 1:10000 - 1990) and survey H-2052 (1:20000 - 1990). (Also with H-6712 [1940])
 1963 See # 5 Review

C. VESSELS AND EQUIPMENT

The Ship GILBERT and LAUNCH CS-180 were used on this survey. The ship used two 808 Fathometers Nos. 108 and 162. The launch used two 808 Fathometers Nos. 159 and 161. For additional information see Fathometer Report for 1958.

All sounding was done in feet. Both ship and launch were operated at full speed of about 8 knots. Turning radius for the ship at this speed is about 200 meters, and for the launch about 40 meters.

Both vessels based out of Woods Hole, Mass., and generally made 9-day trips to the working grounds. The GILBERT anchored on the working grounds, usually about one mile north of Sankaty Head Lighthouse, and the launch was tied up to a mooring buoy near the ship. The launch was kept alongside the ship only long enough to transfer personnel and to be fueled.

Depths encountered during 1958 ranged from 5 feet to 140 feet.

D. TIDE AND CURRENT STATIONS

No current stations were observed during this survey. A tide gage was established and maintained at Brant Point, Nantucket, during the survey. However, this station was not used for reducing the soundings. Final tide reducers were obtained from our standard tide gage at Boston, using a range ratio of 0.2 with no time difference. There are no tide zones on this sheet.

E. SMOOTH SHEET

The smooth sheet is ^{WGS} to be constructed and plotted by the Norfolk Processing Office.

F. CONTROL STATIONS

The hydrography during 1958 was controlled both by Shoran and visual fixes. Two Shoran stations were established in 1958, "KATY" at Sankaty Head Lighthouse and "SURF" at Surfside Lifesaving Station, both on Nantucket Island. The actual Shoran towers were located by azimuth and distance from a triangulation station. The position of station KATY is the same for 1958 as it was in 1957.

F. CONTROL STATIONS (continued)

Control for the aluminum-mounted Shoran Calibration Sheet was obtained from Nantucket triangulation DATA.

GEOGRAPHIC POSITIONS OF SHORAN TOWERS

KATY	Lat.: 41° - 17' - 00.521"	(16.1 meters)
	Long.: 69 - 57 - 56.658"	(1318.5 meters)
SURF	Lat.: 41 - 14 - 38.575"	(1190.0 meters)
	Long.: 70 - 05 - 55.199"	(1285.4 meters)

For additional information see SHORAN REPORT-1958. All of the area within the $\frac{1}{2}$ -mile arc of Station KATY and some of the inshore hydrography extending south and west to the edge of the survey was done with visual control. It was originally planned to use visual control on the area within $\frac{1}{2}$ mile of the shoreline but due to a great amount of foggy weather most of it was done with Shoran control. All of the shoreline south of signal "POLE" was run with visual control. Pole {^{N. 41° 18.4'}
_{W. 69° 58.9'}

A few of the hydrographic signals were located by photogrammetric methods, but the photographs were difficult to use because of the many changes along shore since they were taken in 1955. The Photogrammetric Field Inspection Party in 1955 located only a few points for use as hydrographic control. It is probable that more use could have been made of the photographs if we had had an experienced officer in photogrammetry.

The majority of hydrographic signals used were located by sextant angles, taken from the ship and ashore. Some theodolite cuts were taken from triangulation stations Sankaty Head Lighthouse and Weeweeder, and from topographic station "PIPE". The accuracy of the locations of all signals is considered to be satisfactory, and no trouble was experienced with signal locations during the survey. The sextant cuts are recorded in sounding volumes Nos. 21 and 27 of the records for this survey.

G. SHORELINE AND TOPOGRAPHY

Shoreline was put on the boatsheet from advance manuscripts T-11217, T-11221, and T-11223. *of 1955. (See #2 Review)*

The launch was not able to run close enough to the shore to determine the low water line by hydrography. A section of the high water line was found to be in error on the southeast coast of Nantucket in the vicinity of signal "TOWER". The correct high water line was determined by walking the beach and taking sextant angles at intervals of about 100 meters. A rock in the water line near signal "CHUM" was located by the same method. This rock did not show on the photographs. The sextant angles for this work are recorded in sounding volume No. 21 of the records for this survey. *Shoreline-change and rock in area covered by T-11221 and T-11223 See Vol. 21, p. 16, and Verifier's note #10*

H. SOUNDINGS

All sounding was done with 808 Fathometers and recorded in feet. Lead-line or wire soundings were taken when bottom characteristics were obtained. The wire soundings were recorded in fathoms.

No unusual methods, equipment, or corrections were employed. For method of obtaining fathometer corrections, see FATHOMETER REPORT-1958.

Soundings were generally read to the nearest foot, but occasionally to 0.5 foot. Index corrections were entered to the nearest 0.2 foot. All other corrections were entered to 0.5 foot in depths from 0 to 66 feet, and to the nearest 1.0 foot in depths over 66 feet.

I. CONTROL OF HYDROGRAPHY

See paragraph "F" of this report. ✓

J. ADEQUACY OF SURVEY

This survey is complete and is considered to be completely adequate ✓
to supersede all prior surveys for charting purposes. *See TP6 Review*

The junction between the 1957 hydrography and that of 1958 in the vicinity of Bass Rip Shoal (Lat. 41° 14' to 41° 16') is poor. There seems to be a discrepancy of as much as 100 meters between the two seasons' work. It is likely that some of this will be resolved after the Shoran corrections are applied. It is probable that this same discrepancy exists at the junction between this survey and H-8409 in the SE corner of this sheet between latitudes 41° 11' and 41° 15'. This is considered not to be serious for a Shoran survey, and in view of the changeable nature of this area. There was trouble drawing depth curves at the junctions mentioned. *Junctions between 1957-58 adequate considering bottom irregularity.*

K. CROSSLINES

Crosslines run were about 10% of the total mileage for the sheet. Crossings are generally considered to be satisfactory. In areas of smooth bottom the discrepancies are generally within 5%, but in areas of shoals and rough bottoms the discrepancies run from 5% to 15%. These discrepancies will probably be reduced after smooth plotting.

L. COMPARISONS WITH PRIOR SURVEYS (*see TP6 of Review*)

Following is a list of prior surveys in the area:

H-2039	1:10,000	1890	Good agreement.
H-2040	1:10,000	1890	Fair agreement.
H-2051	1:20,000	1890	Poor agreement.
H-2052	1:20,000	1890	Poor agreement.
H-2095	1:40,000	1891	Not sufficiently developed for a good comparison.
H-2312	1:10,000	1897	Area has changed since the old survey. ✓
H-6558	1:40,000	1940	Good Junction
H-6712	1:20,000	1942	Fair agreement.
H-6713	1:20,000	1940	Poor agreement.

In general, the discrepancies between this and the prior surveys ^{are} believed to be due to the shifting nature of the area. Some of the shoals were probably missed on the original surveys. No special investigations were made to resolve the discrepancies found.

M. COMPARISON WITH CHART (*see TP7 of Review*)

This survey has been compared with the latest edition of Chart 1209, Scale 1:80,000, Print Date 12-2-57, and it was found that extensive changes have taken place in this area. The following listed shoals were not verified by this survey and should be deleted from the chart.

<u>Least Depth</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Least Depth</u>	<u>Latitude</u>	<u>Longitude</u>
11 Feet	41°- 15.'3	69°-53.'0	19 Feet	41°- 11.'5	69°- 54.'0
16 "	41°- 14.'4	69°-53.'0	14 "	41°- 10.'1	69°- 56.'0
16 "	41°- 13.'8	69°-53.'0	18 "	41°- 10.'2	69°- 55.'7
17 "	41°- 13.'7	69°-53.'3	25 "	41°- 14.'5	69°- 55.'2
22 "	41°- 13.'2	69°-53.'4	28 "	41°- 12.'1	69°- 56.'2
27 "	41°- 12.'1	69°-54.'0	18 "	41°- 11.'1	70°- 01.'3
			18 "	41°- 11.'1	70°- 01.'7

M. COMPARISON WITH CHART (continued)

In addition to the shoals listed, the following general changes seem to have taken place in the area. On the chart, "Bass Rip Shoal" is shown as terminating at Lat. 41°-14.'5 at its southern limit. The present survey shows that the shoal extends south almost without a break to Lat. 41°-11'. "Old Man Shoal" is quite different at its southwestern extremity from the charted position and depth. The 20-foot shoal in Lat. 41°-13.'3, Long. 70°-01' to 70°-04' is generally the same as shown on the chart, but much shoaler water was found in the 1958 survey. It is difficult to tell whether all of the apparent differences are due to the inadequacy or inaccuracy of the original surveys or to actual changes in the depths and positions of the shoals. This survey is considered to be complete and it is recommended that all previous depths not in agreement should be deleted, unless specifically covered in this report.

See 1977 Review

N. DANGERS AND SHOALS

Due to the extensive changes in this area, no attempt will be made to list all of the uncharted shoals found. The majority of these were in the southern extension of "Bass Rip Shoal", mentioned in paragraph "M". The 3-foot shoal (Lat. 41°-15.'8, Long. 69°-54.'6) should be retained on the chart, although not verified by this survey. Due to breakers on this shoal in 1957 it was not possible to develop it completely. *6 ft. on this survey*

The area covered by this survey is used principally by small fishing vessels and is considered to be relatively unimportant from a civil or military standpoint.

N. 41° 22.32' & W. 70° 00.32' SECT 6 REVIEW
C.L. 348 (1913) → There are two soundings in the area mentioned in the preliminary review of this project. Item 15 is an 11-foot sounding. Although it was not verified in 1957, it should be retained because it was originally found by wire drag. The 16-foot shoal (Lat. 41°-15.'0, Long. 69°-56.'8) reported in 1928 was verified by the 1958 survey, and in fact 10-foot soundings were recorded in this vicinity. *See P. day (red) vol. 16, pp 44 and 46*

All charted dangers and shoals were found as charted or shoaler depths were found, except for those listed in this report.

pos. 74-75 (red) vol. 18, p. 25, indicates side-echo at 11:29:20. Critical depth. Reviewer please note.

O. COAST PILOT INFORMATION

It is considered that this is a dangerous area for all vessels large or small to navigate in, and all should proceed with caution as the shoals are subject to changes in depth and position.

During the 1958 survey the Ship GILBERT and LAUNCH CS-180 anchored about one mile north of Sankaty Head Lighthouse, in depths of 25 to 30 feet. This anchorage gives good protection from southwesterly weather (which is prevalent during certain times of the year), but is otherwise unprotected.

No current observations were made during this period but it is estimated that current velocities range up to three knots.

P. AIDS TO NAVIGATION

Great Point Lighthouse and Sankaty Head Lighthouse are the only aids to navigation in the area. There are no buoys.

Q. LANDMARKS FOR CHARTS

There are no changes recommended in the landmarks for charts in the area of this survey.

R. GEOGRAPHIC NAMES

A special report on geographic names will not be submitted for this project. There are no recommended changes in the geographic names in the area covered by this survey.

Z. TABULATION OF APPLICABLE DATA

The "Shoran Report-1958" has been written but not yet forwarded to the Washington Office. ✓

✓ The "Fathometer Report-1958" is in the process of being written. ✓
→ Sec "Special Report", Gilbert, years 1957 and 1958

A photogrammetric report and a triangulation report will probably be written at a later date. ✓

Respectfully submitted,

Charles A. Schoene
Charles A. Schoene,
Commander, C&GS.

T I D E N O T E

The standard tide gage at Boston, with a ratio of ranges of 0.2 and a zero time correction, was used for the reduction of all soundings, in both 1957 and 1958. Hourly heights from the Boston gage were furnished by the Washington Office, based on the plane of reference of MLW.

The authority for the tide zones is contained in letter to the Norfolk District Office, file No. 36-45-267, dated 13 February 1958; and letter to C. O. Ship GILBERT, file No. 36-268-267, 982 GI, dated 18 July 1958.

Also see "Tide Note", year 1957, this D.R.

STATISTICS
for
HYDROGRAPHIC SURVEY No. H-8450 (GI-2157)
(1958 Field Season)

<u>Launch CS-180</u>	Date	Volume Number	Day Letter	Fathometer Number (808)	Number of Positions	Nautical Miles Sounding Line
	June 7	11	d	159	80	22.3
	9	11	e	159	50	12.7
	11	12	f	159	175	46.0
	12	11 & 13	g	159	184	48.6
	21	12	h	159	162	43.4
	22	13	j	159	192	52.0
	23	14	k	159	204	48.9
	24	13 & 15	l	159	205	56.2
	25	14 & 16	m	159	159	41.4
	28	15	n	159	188	37.5
	29	16	p	159	184	41.5
	July 10	16 & 17	q	159	153	34.0
	12	18	r	159	16	2.4
	13	17	s	159	137	24.8
	14	18	t	159	185	43.0
	24	18 & 19	u	159	153	37.0
	25	20	v	159 & 161	162	34.7
	26	19	w	161	189	36.4
	27	20	x	161	121	22.0
	August 9	20 & 21	y	159	106	16.9

Launch CS-180 **TOTALS** 3005 701.7

Ship GILBERT

June 26	22	S	162	302	68.9
27	22 & 23	T	162	340	91.0
July 11	24	U	162	324	80.0
16	25	V	162	56	4.0
August 10	25	W	108	24	Bottem

Ship GILBERT **TOTALS** 1046 243.5

TOTALS (1958) 4051 945.2

1957 > 2407 793.5

GRAND TOTAL 6458 1738.7 naut. miles

August 13, 1968,
Vol. 21, "2" day
(1968)

walking
shoreline
30
6488

TABULATION OF PHASE COMPARISONS

1958 Field Season

FATHOMETER	DATE	B to A	C to B	D to C	B to A	C to A	D to A
808 No. 159	15 July	+1.1	—	—			
	14 Aug.	+0.7	+0.9				
	" 7 June	+1.1					
	" 12 June	+1.1					
	" 21 June	(+0.4)R					
	MEAN	+1.0	+0.9		+1.0	+1.9	
	ENTER				+1.0	+2.0	+2.0
808 No. 161	14 Aug.	+0.1	+1.0		+0.1	+1.1	
		ENTER			0.0	+1.0	
808 No. 162	15 July	0.0					
	" 26 "		-0.5	0.0			
	" 29 "	-1.0					
	" 31 "		-0.7				
		MEAN	-0.5	-0.6	0.0	-0.5	-1.1
	ENTER				(to 66') -0.5	-1.0	-1.0
					(over 66') -1.0	-1.0	-1.0

COMP. J.H.
 CK. C.D.K.

ABSTRACT OF VELOCITY
CORRECTIONS

(in feet)

SHIP GILBERT

808 No. 162

26 June thru 27 June
SHEET H-8450(GI-2157)
Corr. Depth

+0.5 0.0 - 66.0
0.0 66.0 - 140.0

11 July thru 10 August
SHEET H-8450(GI-2157)
Corr. Depth

~~20.5~~ +0.5 0.0 - 59.0
+1.0 59.0 - 122.0
~~+1.5 122.0 - 122.0~~

LAUNCH CS-180

808 No. 159

7 June thru 12 June
SHEET H-8450(GI-2157)

0.0 0.0 - 74.0
-1.0 74.0 - 140.0

21 June thru 29 June
SHEET H-8450(GI-2157)

0.0 0.0 - 92.0
-1.0 92.0 - 152.0

10 July thru 14 August
SHEET H-8450(GI-2157)

0.0 0.0 - 130.0

24 July thru 9 August
SHEET H-8450(GI-2157)

0.0 0.0 - 130.0

30 July thru 26 August
SHEETS H-8449(GI-1158) & GI-1258

0.0 0.0 - 23.0
+0.5 23.0 - 61.0

7 Sept thru 23 Sept.

SHEETS H-8449(GI-1158) & GI-1258

0.0 0.0 - 51.0
+0.5 51.0 - 70.0

808 No. 161

25 July thru 30 July
SHEETS H-8450(GI-2157) & ~~H-8449(GI-1158)~~

0.0 0.0 - 130.0

30 July only
SHEET H-8449(GI-1158)

0.0 0.0 - 48.0

List of Stations Used on H-8450 (GI-2157)

Name used in hydrographic Survey	Origin of stations
ABLE	T-11223 <i>GABLE 1955</i>
ACE	Volume 27
AIR	T-11223
BAG	T-11223 (Volume 27)
BOX	Volume 27
CAT	Volume 21
CHUM	T-11221 (Volume 27)
CON	T-11223
DOC	T-11223 (Volume 27)
DOG	Volume 27
DOVE	T-11221 (Volumes 27 & 19)
EVA	Volume 27
FOLLY	CHADWICK'S FOLLY, 1893
FUN	Volume 27
GABE	T-11221 (Volume 27)
GIRL	Volume (27)
GREAT	NANTUCKET GREAT POINT LIGHTHOUSE, 1835
GUL	Volume 27
HAT	Volume 27
JOB	Volume 27
KATY	(Visual) SANKATY HEAD LIGHTHOUSE, 1867
KATY	(Shoran) KATY, 1957
KILL	Volume 27
LAD	T-11223 (Volumes 21 & 27)
LEE	Volume 27
LOST	Volume 27
LOVE	Volume 27
MAC	Volume 27
MAD	Volume 27
NAVY	Volume 27
NET	Volume 27
OTT	Volume 27
PAL	Volume 27
PIPE	T-11223 (Volume 27)
POLE	Volume 27
RED	Volume 27
SANDY	SANDY, 1955
SEX	Volume 27
SUE	Volume 27
STAN	SIACONSET, BLACK STANDPIPE, 1932
SURF	SURF, 1958
TOWER	T-11223 <i>TOWER 1955</i>
TOY	Volume 27
TRY	Volume 27
USE	T-11223 (Volume 27)
VIM	Volumes 27 & 19
WAX	Volumes 27 & 19
WEED	WEWEEDER, 1887
WEST	WEST TANGENT, 1924
WHITE	Volume 27
ZOO	Volume 27

NORFOLK PROCESSING OFFICE
 LIST OF SIGNALS
 H-8450.

TRIANGULATION STATIONS

DOME DOME, 1958
 FOLLY CHADWICK'S FOLLY, 1893-1932
 GREAT NANTUCKET, GREAT POINT LIGHTHOUSE, 1835-1932
 KATY SANKATY HEAD LIGHTHOUSE, 1867-1932
 PIPE PIPE, 1958
 SANDY SANDY, 1955
 STAN SIACONSET, BLACK STANDPIPE, 1932
 SURF SURF, 1958
 TOWER TORAN, TOWER, 1958
 WEED WEWEEDER, 1887-1932
 WEST WEST TANGENT, 1934-37

TOPOGRAPHIC STATIONS

SOURCE T-11217

Look

SOURCE T-11223

Able Bag Con Doc Use

PLANIMETRIC FEATURES

SOURCE T-11223

Air

HYDROGRAPHIC STATIONS

*Ace	Vol. 27	Mac	Vol. 27
*Box	"	Mad	"
Cat	"	Navy	" & 21
*Chum	"	Net	"
*Dog	"	Ott	"
*Eva	"	Pal	"
Fun	"	*Pole	"
*Gabe	"	Red	"
*Girl	"	Sex	"
Gul	"	Sue	"
Hat	"	Toy	"
Job	"	Try	"
*Kill	"	Vim	19&27
Lad	" & 21	Wax	19&27
Lee	"	*White	27
*Lost	"	Zoo	27
Love	"		

*See List of Directions for theodolite cuts
 to these stations.

NORFOLK PROCESSING OFFICE

ADDENDUM.

To Accompany

HYDROGRAPHIC SURVEY H-8450 (G1-2157)

GENERAL

This appears to be an excellent basic survey in an area of almost continuous sandwaves and shifting shoals. Soundings at crossing are in satisfactory agreement considering the extremely irregular and changeable character of the bottom.

CHART COMPARISONS

A comparison with chart 1209 shows changes in depths, and shifting of shoals and depth curves too numerous to tabulate. In order to show the critical changes more clearly, the smooth plotter has prepared a series of tracing paper overlays to be submitted with the smooth sheet. The overlays should prove helpful for preliminary charting and also during the verification process.

CONTROL

Good closures of sextant angles and theodolite cuts were obtained on the hydrographic stations used to control visual work on this survey.

FATHOGRAMS

also B day
All fathograms were of good quality with the exception of "A" day (Gilbert), where faulty fathometer operation resulted in returns resembling grass. Comparisons at crosslines and with adjoining hydrography showed the tops of the straysindications to be the true bottom. Nevertheless, in immediate vicinity of pos. 37 "A" (Vol. 25, p. 28) (N. 41° 22.95' & W. 69° 57.70') the deeper impression of the fathogram was read, and the H-8450 soundings were brought into agreement with the H-8171 depths. Reason: more reasonable bottom-configuration. (S. Rose)
"B" day fath. trace, Gilbert, also ragged.

Norfolk, Va.
4 November 1959

Respectfully submitted,

Hugh L. Proffitt
Hugh L. Proffitt
Cartographer

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. ⁸⁴⁵⁰.....

Records accompanying survey:

Boat sheets ..4..; sounding vols. ..29..; wire drag vols.; bomb vols.; graphic recorder rolls ~~..17..~~²³; envelopes special reports, etc. ..1-Smooth sheet, 1-Descriptive report, ... (2-Shoran reports, 1957-58 and 2-Fathometer reports filed as .Special reports. 0.1-Roll tracings, chart comparisons,

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

Number of positions on sheet	64.88
Number of positions checked	69
Number of positions revised	3
Number of soundings revised (refers to depth only)	Numerous
Number of soundings erroneously spaced	0
Number of signals erroneously plotted or transferred	0
Topographic details	Time 4 hrs.
Junctions	Time 12 hrs.
Verification of soundings from graphic record	Time At least 100 hours

I would say that no less than three weeks of work, beyond the normal, were required for re-scanning of fathograms and for inking of curves. (Both because of tough bottom). S. Rose

Speed-control not good and progressively additive, "f" day (red) vol. 12, pos. 1-66. Rescanned all fathograms because originally all deepest water skipped. S. Rose

Verification by S. ROSE Total time 71.7 hrs. Date Feb. 25, 1964

Reviewed by Am Bestand Time 70 Date 3/31/65

Because of the nature of the bottom, and, therefore, the subsequent close development, I would suggest that in case of re-survey of the area the scale should be larger. S. Rose

MR. Carstens requested that his attention should be called to sand-wave traces on the fathograms, - for purposes of display. ✓
See "C" day, Oct. 10, 1957, - "U" day, July 11, 1958, - "f" day, June 11, 1958
"S" day (blue) (GILBERT) pos. 284-292

Information for Future Presurvey Reviews

The survey covers an area which is affected by strong currents, storms and wind. As a result of these phenomena, sand ridges which cover the bottom are constantly shifting their locations and extent and the shoreline is both accreting and eroding. The shoreline on the east side of Great Point may be expected to erode, whereas the shoreline on the west side may be expected to accrete. The shoreline on the southeast side of Nantucket Island may also be expected to erode. The sand ridges generally may be expected to shift in an easterly direction. Old Man Shoal will probably continue to shift in a southeasterly direction. Due to the above-mentioned phenomena, the bottom configuration may be expected to constantly change.

OFFICE OF CARTOGRAPHY
REVIEW SECTION -- NAUTICAL CHART DIVISION
REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8450

FIELD NO. GI-2157

Massachusetts, Cape Cod, East Side of Nantucket I.

SURVEYED: July 1957--Aug. 1958

SCALE: 1:20,000

PROJECT NO. 13690

SOUNDINGS: 808 Depth Recorder
EDO Depth Recorder

CONTROL: Shoran
Sextant fixes
on shore
signals

Chief of Party-----C. A. Schoene
Surveyed by-----D. G. Rushford
R. H. Garnett, Jr.
W. M. Lee
W. N. Grahler
Protracted by-----A. G. Atwill
W. N. Grabler
Soundings Plotted by-----A. G. Atwill
Verified and Inked by-----S. Rose
Reviewed by-----I. M. Zeskind
Inspected by-----R. H. Carstens

Date 3/31/65

1. Description of the Area

This survey covers an area extending about 5 miles off the east and southeast portion of Nantucket Island and includes Old Man Shoal and Bass Rip. The bottom is very irregular. Submarine features such as sand ridges, shoals, deeps and

pinnacles contribute to the bottom irregularity.

2. Control and Shoreline

The source of the control is given in the Descriptive Report.

The shoreline originates with reviewed photogrammetric surveys T-11217A, T-11221A, and T-11223A of 1955. The shoreline in the vicinity of lat. $41^{\circ}14.7'$, long. $69^{\circ}59.0'$ was revised during the present survey and is shown in red.

3. Hydrography

Considering the irregularity of the bottom depths cross-ings are in good agreement. The usual depth curves were adequately delineated. The least depths on shoals were adequately determined.

4. Condition of Survey

- a. The sounding records and Descriptive Report are complete and comprehensive.
- b. The smooth plotting was accurately done, except that many deeps were neither recorded in the sounding records nor smooth plotted. These have been added by the verifier.

5. Junctions

Adequate junctions were effected with H-8171 (1954-56) on the north and with H-8409 (1956) on the east. The junctions with H-8602 (1961) and H-8601 (1961) on the south and H-8760 (1963) on the west will be considered in the reviews of those surveys.

6. Comparison with Prior Surveys

H-223 (1847-48), 1-40,000	H-2052 (1890), 1-20,000
H-445 (1854), 1-40,000	H-2095 (1891), 1-40,000
H-2039 (1891), 1-40,000	H-2312 (1897), 1-10,000
H-2040 (1890), 1-10,000	H-6712 (1940), 1-20,000
H-2051 (1890), 1-20,000	H-6713(1940), 1-20,000

These prior surveys together cover the area of the present survey. A comparison between the prior and present surveys reveals great changes in shoreline and bottom configuration which are attributed to the action of the current on the bottom and to storms. Great Point has eroded about 130 meters in the vicinity of lat. $41^{\circ}23.6'$, long. $70^{\circ}02.98'$. Nantucket Island north of lat. $41^{\circ}22.0'$ has shifted westward about 150 meters. South of here shoreline erosion of as much as 100 meters is noted. A haulover which formerly existed in the vicinity of lat. $41^{\circ}20.3'$, long. $70^{\circ}00.2'$, has closed. The shoreline on the southeast side of Nantucket Island in the vicinity of lat. $41^{\circ}14.74'$, long. $69^{\circ}58.5'$ has eroded as much as 150 meters.

The bottom covered by the present survey consists of many sand ridges and shoals and is in a state of constant flux with the resultant changes in depths. The sand ridges have generally shifted in an easterly direction. Because of this shifting of the sand ridges, changes in depths of 2-32 ft. are noted, as for example, in lat. $41^{\circ}13.7'$, long. $69^{\circ}53.3'$, where a prior depth of 17 ft. falls in present depths of 44 ft. or in lat. $41^{\circ}11.60'$, long. $69^{\circ}52.9'$, where a prior depth of 48 ft. falls in present depths of 16 ft.

However, in several areas portions of the ridges have changed little in depths, as for example in the vicinity of lat. $41^{\circ}22.0'$, long. $69^{\circ}56.2'$ prior depths of 14-18 ft. fall in present depths 13-18 ft., or in the vicinity of lat. $41^{\circ}11.7'$, long. $69^{\circ}59.8'$, where a prior depth of 12 ft. falls in present depths of 10 ft. Several ridges appear on the present survey where none previously existed, as for example in the vicinity of lat. $41^{\circ}21.3'$, long. $69^{\circ}55.7'$, where a ridge trends on the present surveys in a north-northeasterly direction for about 2 miles. Here present depths of 15-18 ft. are found where prior depths of 30-42 ft. existed. Old Man Shoal has shifted about 500 meters in a south-southeasterly direction in the vicinity of lat. $41^{\circ}10.2'$, long. $70^{\circ}00.4'$.

The present survey is adequate to supersede the prior surveys within the common area.

7. Comparison with-Chart 265 (Latest print date 6-15-64)
Chart 1209 (Latest print date 12-28-64)

A. Hydrography

Chart 265

The charted hydrography originates with the present survey prior to verification and review supplemented by one sounding from chart letter 348, 1913. Only minor 1-2 ft. differences are noted between the charted and present survey depths.

- (1) The 11-ft. sounding "RK" charted in lat. $41^{\circ}22.25'$, long. $70^{\circ}00.33'$, has been carried forward to the present survey. The feature was located by wire drag by the Coast Survey vessel ENDEAVOR in 1913, (Chart letter 348, 1913).
- (2) The 35-ft. sounding charted in lat. $41^{\circ}12.39'$, long. $70^{\circ}00.10'$, originates with the boat sheet of the 1963 survey accomplished by the ship WHITING (Bp. 64856). The sounding is charted in error and should actually fall west of long. $70^{\circ}05.0'$, which is the eastern limits of the WHITING's survey.
- (3) The 20-ft. sounding charted in lat. $41^{\circ}12.3'$, long. $69^{\circ}55.62'$ originates with an erroneous sounding on the penciled smooth sheet of the present survey. During verification the 20 was revised to 30.
- (4) The 6 ft. charted in lat. $41^{\circ}12.9'$, long. $69^{\circ}55.09'$ from the penciled smooth sheet of the present survey was revised to 8 feet during verification.

The present survey supersedes the charted information with respect to the discrepancies indicated above.

Chart 1209

With the exception of that portion of chart 1209 covered by chart 265, the charted hydrography originates principally with the previously discussed prior surveys which need no further consideration supplemented by boat sheets of the present survey. In general, only minor differences of 1-3 ft. are noted between the charted and present survey depths, except in several areas where differences in depths of as much as 8 ft. are noted. Attention is directed to the following discrepancies:

- (5) The 7-ft. sounding charted in lat. $41^{\circ}14.55'$, long. $69^{\circ}53.95'$, from the boat sheet of the present survey, is in error and should actually be 10 ft. The field party used a predicted tide reducer of 4 ft. to reduce a 11.5 ft. sounding instead of an actual tide reducer of 1.4 ft. The 7-ft. sounding should be deleted from the chart.
- (6) The 14-ft. sounding charted in lat. $41^{\circ}10.08'$, long. $69^{\circ}55.97'$, from H-6713 (1940), falls in present depths of 23-ft. The charted sounding is considered to be discredited by depths on the present survey and, therefore, should be deleted from the chart.

The present survey is adequate to supersede the charted hydrography on chart 1209 within the common area.

B. Aids to Navigation

The floating aids to navigation fall within the area of the present survey. The locations of the fixed aids to navigation are in agreement with their present survey positions.

8. Compliance with Project Instructions

The survey adequately complies with the project instructions.

9. Additional Work Recommended

This is an excellent basic survey and no additional work is recommended.

Examined and Approved:


Chief,
Marine Chart Division


Associate Director,
Hydrography and Oceanography

R.H.C.

TIDE NOTE FOR HYDROGRAPHIC SHEET

13 January 1960

~~Divisions of Charts: R. H. Carstens~~

Division of Charts: R. H. Carstens

Plane of reference approved in
29 volumes of sounding records for

HYDROGRAPHIC SHEET 8450

Locality Nantucket Island, Mass.

Chief of Party: C.A. Schoene in 1957-58
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 1.9 feet.

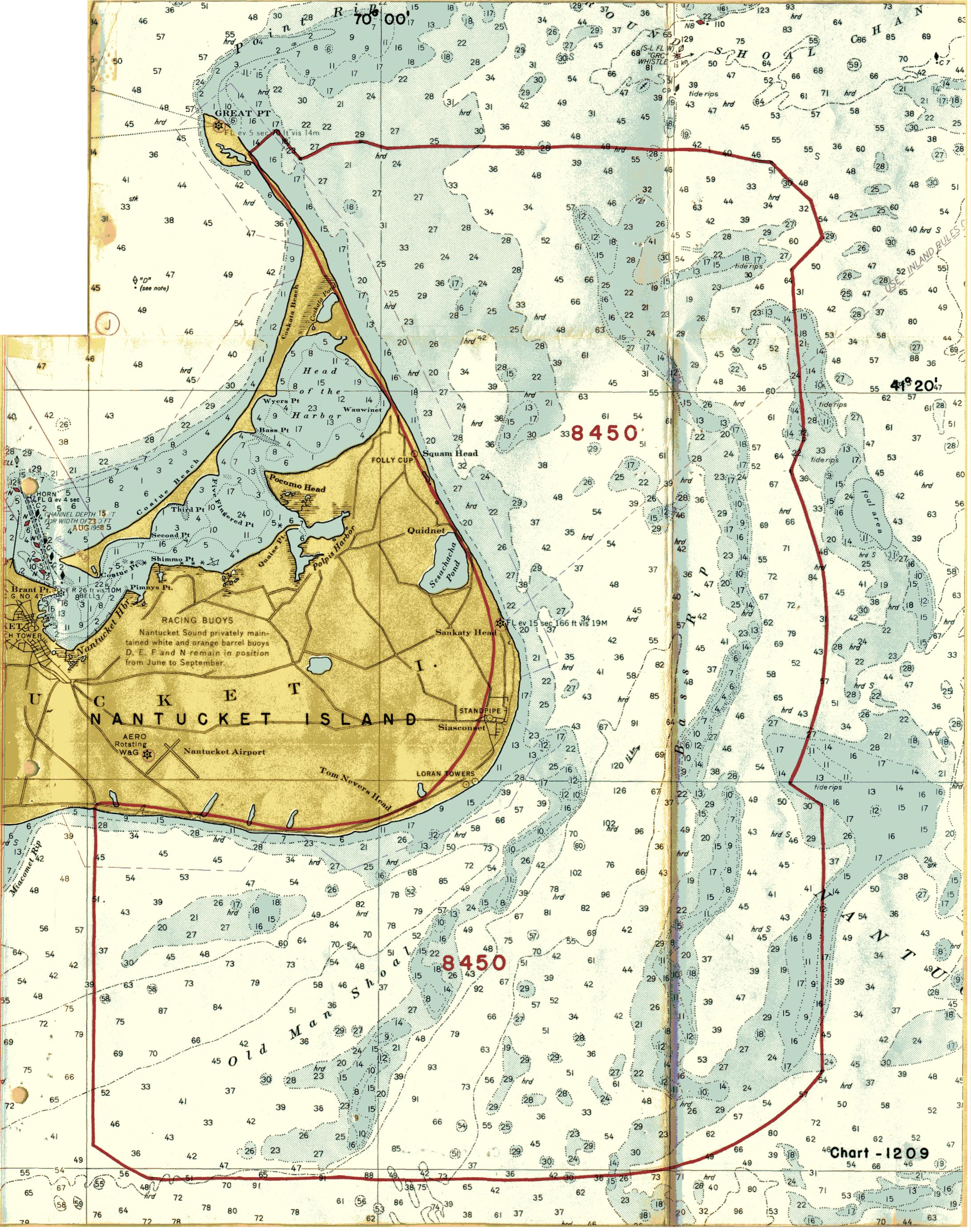
Condition of records satisfactory except as noted below: In waters deeper than 60 feet in 1957, and deeper than 66 feet in 1958, the tide-reducers incorporated index and phase-corrections. The tide-reducers should not be changed regardless of depth. Fortunately, due to rough bottom, extremely few crossing-disagreements were encountered. (S. Rose) Tide-reducers entered in records

William S. Hapner correctly
Chief, Tides Branch

~~Chief, Division of Tides and Currents~~

(One, of many, examples:
Vol. 3, pp. 43-49)
Vol. 3, pp. 25-26, 28
Also see:
Remarks:
Vol. 3, p. 25

> Also note Vol. 7, p. 7-8
Vol. 23, p. 60



J

USE INLAND RULES

41° 20' 47"

8450'

8450'

Chart - 1209

