

6563

6563

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

**DESCRIPTIVE REPORT**

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Type of Survey Hydrographic

Field No. 43 Office No. 6563

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LOCALITY

State Massachusetts

General locality .....

Locality Cape Cod Bay

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1940

CHIEF OF PARTY

H.A. Karo

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LIBRARY & ARCHIVES

DATE .....

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.

Field No. 43

REGISTER NO. H-6563

State Massachusetts

General locality ~~Atlantic Ocean~~

Locality Cape Cod Bay

Scale 1:40,000 Date of survey August - September 1940

Vessel Ship LYDONIA

Chief of Party H. Arnold Karo

Surveyed by Ship's Officers

Protracted by Alfred Kaupa

Soundings penciled by Alfred Kaupa

Soundings in ~~fathoms~~ feet

Plane of reference M.L.W.

Subdivision of wire dragged areas by

Inked by C. E. Dennis

Verified by C. E. D.

Instructions dated March 8, 1940, July 26, 1940

Remarks:

DESCRIPTIVE REPORT TO  
ACCOMPANY HYDROGRAPHIC SHEET NO. H-6563 (FIELD NO. 43) 1940  
Scale 1:40,000  
Project No. HT-248 Cape Cod Bay, Mass.  
Ship LYDONIA H. Arnold Karo, Chief of Party.

INSTRUCTIONS:

This survey was executed under authority of Director's Instructions for Project No. HT-248 dated March 8, 1940 and Supplemental Instructions dated July 26, 1940.

LOCALITY:

This survey covers the offshore area of Cape Cod Bay from a junction with previously completed acceptable surveys on the east, and a junction with inshore launch hydrography executed this season on the south and west, northward to latitude  $42^{\circ} 00.7'$ .

CONTROL AND SIGNALS:

Triangulation control previously established and additional triangulation control established this season by the LYDONIA furnished the primary control for the visual hydrography of this survey. Signals consisted of triangulation stations or natural objects located by triangulation. Three sono-radio buoys were established and located early in the season. However weather was such that visual fix hydrography could be carried on almost continuously and RAR control hydrography was done on only two days.

SURVEY METHODS:

The usual visual control method of three-point fixes was used throughout this survey except for the two days when hydrography was controlled by RAR methods. The Dorsey No. 1 type sheal water fathometer was used throughout this survey, soundings being recorded every thirty seconds and at such additional times as necessary. As a whole, the fathometer functioned very well, and only two or three minor breakdowns occurred during the season. The subject of fathometer corrections is covered in a separate report.

The main system of lines was run in an east and west direction. Due to the large number of ships now using the Cape Cod Canal, most of which travel the route along the western shore of the bay going to and from Boston, the lines were more closely spaced along the western side of Cape Cod Bay. In addition, a closely spaced system of lines was run in this area at right angles to the main system of lines in order to fully develop this extensively used area. The bottom in this area is quite uneven and it was considered advisable to add considerable development in order to fully delineate the bottom characteristics.

DISCREPANCIES:

In general the soundings agreed very well and no serious discrepancies were found. The following minor discrepancies were noted.

Pos. 27C-28C and 35C-36C; discrepancy of three to four feet. The bottom is slightly irregular in this area. Lat.  $41^{\circ} 50.6'$  *Accepted*  
Long.  $70^{\circ} 14.0'$

DISCREPANCIES, CONTINUED:

Pos. 90B-91B and 17H-18H; discrepancy of two to three feet. It is recommended that the shoaler soundings be charted. Lat 41°-50.0; Long 70°-14.0 Accepted

Pos. 32C-33C and 39H-40H; discrepancy of three feet. If position 32C were shifted inshore slightly, it would bring the soundings into agreement. Lat 41°-50.1; Long 70°-12.0 11.6 Accepted

Pos. 49H-50H and 43B-44B; discrepancy of two to three feet. It is recommended that the shoaler soundings be charted. Lat 41°-48.0; Long 70°-16.0 17.0 Accepted

Pos. 30J-31J and 17E-18E; discrepancy of three feet. A slight displacement would bring these soundings into agreement. Lat 41°-53.4; Long 70°-30.0 Accepted

Pos. 31J-32J and 118C-119C; discrepancy of eight feet. Bottom is very irregular and it appears that these soundings may be on the edge of a large rock on the bottom. A slight error in time or a slight displacement would bring these soundings into agreement. Lat 41°-52.7; Long 70°-30.0 Accepted

Pos. 16M-17M and 18J-19J; bottom is irregular in this area and a slight displacement would bring the soundings into agreement. Lat 41°-54.3; Long 70°-28.7 Accepted

Pos. 127P-128P and 26P-27P; discrepancy of three to four feet. Moving positions 26P-27P to the westward slightly would bring these soundings into agreement. Lat 41°-59.4; Long 70°-27.6 Deeper sds omitted.

Pos. 85R-86R, 60R-61R, and 34L-35L; bottom is uneven in this area and a slight displacement would bring all soundings into agreement. Lat 40°-56.0; Long 70°-18.6 Accepted

Pos. 83S-84S and 70S-71S; discrepancy of four feet. A slight displacement would bring soundings into agreement. Lat 41°-57.0; Long 70°-08.0 Accepted

Pos. 65V-66V and 30P-31P; discrepancy of seven feet. A slight displacement would bring these soundings into agreement. Lat 41°-59.6; Long 70°-27.8 Accepted

The thirty-six foot sounding plotted on the smooth sheet in latitude 41° 55.58 longitude 70° 08.05, between positions 76S and 77S, is believed to be a stray. Additional lines over this spot gave no indication of a shoal and only the original shoal sounding was obtained. 3L Rejected.

COMPARISON WITH PREVIOUS SURVEYS:

In general the soundings of this survey agreed very well with those of previous surveys. The twenty fathom curve was found to extend about one-half mile farther south in the center of the bay. No evidence of the two slightly shoaler banks in latitude 41° 59.5' and longitude 70° 14.0' and two miles to the southwest, were found. There was no indication of any shoaling in these areas, the depth being uniformly over twenty fathoms. The twenty fathom curve at this point does not extend as far to the eastward as now charted. Too shoal See Rev. Par. 53

The irregular bottom and shoaler depths obtained in latitude 41° 48.2 and longitude 70° 26.3' is the result of the material dredged from the Cape

COMPARISON WITH PREVIOUS SURVEYS: CONTINUED.

Cod Canal being dumped in this area. This was verified by taking cuts on the dredge at the time it was dumping this dredged material.

(?) No trace of the forty-seven foot spot charted in latitude  $41^{\circ} 51.4'$  and longitude  $70^{\circ} 28.8'$  was found. *Retain, from H-2776 (1915-16) W.D. by immediately S. on sheet*

No trace of the twenty-four foot spot charted in latitude  $41^{\circ} 50.9'$  and longitude  $70^{\circ} 30.2'$  was found or of the thirty foot spot charted in latitude  $41^{\circ} 50.5'$  and longitude  $70^{\circ} 30.1'$ . *Rejected. Rev. Par. 52(2) + (3)*

A sounding of forty-four feet was obtained just south of the forty-five foot spot charted in latitude  $41^{\circ} 51.2'$  and longitude  $70^{\circ} 29.1'$ .

In the area off Manomet Point and Plymouth Bay, <sup>at the NW end of the sheet</sup> considerable discrepancy was found, as much as twenty feet in places. This area has a very irregular and uneven bottom. It is recommended that the present survey <sup>with the indicated additions</sup> supersede previous surveys in this area. In general the present survey gave shoaler depths than was previously charted. Several additional relatively shoal spots were developed in this area. No previous indication was charted of the seventy foot shoal developed in latitude  $41^{\circ} 59.58'$  longitude  $70^{\circ} 30.00'$ .

On Fishing Ledge, the shoalest sounding obtained on the present survey was eighty-six feet. An eighty-two foot sounding is charted in latitude  $41^{\circ} 56.5'$  and longitude  $70^{\circ} 18.6'$ , being 0.2 mile north of the shoalest sounding obtained on the present survey. *See Rev., Par. 52(6)*

A forty-five foot sounding was obtained in latitude  $41^{\circ} 48.20'$  and longitude  $70^{\circ} 28.22'$ . No previous indications of a shoal in this area were charted.

A sixty-seven foot sounding was obtained in latitude  $41^{\circ} 50.25'$  and longitude  $70^{\circ} 23.75'$ . No previous shoal indications were charted.

DANGERS:

No new obstructions which would be dangerous to navigation were found on this survey. While some new shoals were developed, these are covered with sufficient water for safe navigation. Uneven and rocky bottom prevails along the west side of Cape Cod Bay and this area should not be approached too closely.

CHANNELS:

No channels as such, were developed on this sheet. The main steamer track for ships bound from Boston through the Cape Cod Canal lies along the west side of the bay and is marked by floating navigational aids. This track was extensively developed and sufficient water is had along this track for the deepest draft vessels.

ANCHORAGES:

No specific anchorages are found on this sheet. Anchorage may be had wherever the depth affords, having due regard for weather and the inshore dangers. Ships waiting for passage through the canal sometimes anchor off the entrance to the canal.

GEOGRAPHIC NAMES:

No new geographic names were charted. Those appearing on the latest edition of chart No. 1208 are correct for the area of this sheet.

JUNCTION WITH CONTEMPORARY AND PREVIOUS SURVEYS:

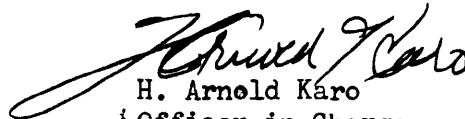
The junction with sheets No. H-6561<sup>1940</sup> and No. H-6562<sup>1946</sup> on the south and west and with No. H-5543<sup>1934</sup> and No. H-5588<sup>1944</sup> on the east is satisfactory. It is believed that few discrepancies occur which are greater than one foot or two feet at the most. *Other details in Rev. Par. 4b.*

MISCELLANEOUS:

This sheet was surveyed by the ship's officers.

Tidal reducers were obtained from the standard tide gage maintained by the U. S. Engineers at the eastern entrance to the Cape Cod Canal.


Respectfully submitted



H. Arnold Káro  
Officer in Charge  
Norfolk Processing Office.

Norfolk, Virginia.  
22nd August 1941.

The records for hydrographic sheet No. H-6563, <sup>1940</sup> field No. 43, have been examined and are approved.

  
H. Arnold Karo  
Chief of Party.

STATISTICS

H6563

SHEET NO. H 6563 LYDONIA

Date	Day	Miles	Soundings	Positions
Aug. 21, 1940	A	26.9	300	55
" 22	B	81.4	1001	166
" 23	C	80.3	879	151
" 24	D	89.9	992	165
" 25	E	79.2	991	171
" 26	F	85.8	941	164
" 27	G	53.8	585	104
" 28	H	59.8	671	121
Sept. 4	J	17.4	190	35
" 5	K	4.6	61	14
" 6	L	55.5	623	108
" 7	M	89.5	994	165
" 8	N	97.4	1192	180
" 9	P	76.2	896	152
" 10	Q	15.3	178	27
" 11	R	80.3	900	155
" 12	S	88.8	1025	175
" 18	T	76.4	961	162
" 20	U	50.6	623	106
" 21	V	65.8	748	75
" 22	W	85.5	1032	188
" 23	X	<u>60.0</u>	<u>757</u>	<u>139</u>
TOTALS		1,390.5	16,193	2,742



# R. A. R. AND DEAD RECKONING ABSTRACT

M-769

HYDROGRAPHIC SHEET No. 43 BUOYS: A-B-C  
 U. S. C. AND G. S. SHIP LYDONIA

DATE 9/21/40  
 DAY ✓

1485 val.

Pos. No.	TIME			ELAPSED TIME		COURSE				DISTANCE				BOYS			REMARKS
	A.	M.	S.	M.	S.	P&C	Dev.	Var'n	True	Log Reads	Log Dist.	True Dist.	r	No.	Station	Distance	
2	8-26-00					17				A					A	4.17	
										B					B		
										C 88.14					2	C	18.09
3	8-32-00			6	0	15				A					A	3.03	
										B							
										C 89.10	0.96				3		
4	8-33-30			1	30	15				A					A	2.75	
										B							
										C 89.10	0.96						
5	8-36-30			3	-	15				A					A	2.17	
										B							
										C 89.82	0.49				5		
6	8-39-30			3	-	15				A					A	1.64	
										B							
										C 90.31	0.49				6		
7	8-40-30			1	-	15				A					A	1.47	
										B							
										C 90.48	0.17				7	B	15.70
8	8-41-30			6	-	19				A					A	0.64	
										B					C	14.83	
										C 91.46	0.98				8		
9	8-52-30			6	-	19				A					A	1.07	
										B					C	13.86	
										C 92.45	0.99				9		
10	8-58-30			6	-	19				A					A	2.25	
										B					C	13.23	
										C 93.44	0.99				10		
11	9-04-30			6	-	21				A					A	3.43	
										B					C	12.86	
										C 94.44	1.00				11		
12	9-10-30			6	-	21				A					A	4.97	4.57
										B					C	12.43	12.03
										C 98.44	1.06				12		
13	9-16-30			6	-	20				A					A	5.74	
										B					C	11.60	
										C 96.44	1.00				13		
14	9-22-30			6	-	19				A					A	6.94	
										B					C	11.27	
										C 97.45	1.01				14		
15	9-28-30			6	-	17				A					A	8.14	
										B					C	11.04	
										C 98.46	1.01				15		
16	9-34-30			6	-	17				A					A	9.34	
										B					C	10.92	
										C 99.47	1.01				16		
17	9-40-30			6	-	17				A					A	10.53	
										B					C	10.92	
										C 00.47	1.06				17		
18	9-49-00			8	30	17				A					C	11.05	
										B					A	11.8	
										C 01.85	1.38				18		

**R. A. R. AND DEAD RECKONING ABSTRACT**

HYDROGRAPHIC SHEET No. 43 BUOYS: A-B-C  
 U. S. C. AND G. S. SHIP LYDONIA

DATE 9/21/46  
 DAY ✓

1485 Vd

Pos. No.	TIME			ELAPSED TIME		COURSE				DISTANCE				BOYS			REMARKS
	h.	m.	s.	m.	s.	P&C	Dev.	Var'n	True	Log Reads	Log Dist.	True Dist.	r	No.	Station	Distance	
19	9	51	00	—	—	100				A					C	11.23	
										B							
20	9	54	30	3	1/2	100				02.14	—			19			
										A						C	11.89
21	10	00	30	6	0	100				02.69	1.55			20	A	12.47	
										A						A	12.52
22	10	09	30	9	0	98				03.65	1.96			21	C	13.03	
										A						C	14.76
23	10	11	30	—	—	195				05.10	1.45			22			
										A						C	15.05
24	11	14	30	3	0	195				05.38	—			23			
										A						C	14.98
25	11	17	30	3	0	195				05.81	0.43			24			
										A						A	11.71
26	11	22	30	5	0	195				06.27	0.44			25	C	14.93	
										A						A	10.79
27	11	16	00	—	—	198				07.03	0.76			26			
										A						C	14.93
28	11	22	00	6	—	198				08.62	—			27			Bring Boys 1500 stb bn
										A						B	0.98
29	11	28	00	6	—	199				09.45	0.83			28	A	9.81	9.51
										A						C	14.76
30	11	34	00	6	—	202				010.31	0.86			29	B	2.20	
										A						A	8.88
31	11	40	00	6	—	202				011.17	0.86			30	C	14.57	
										A						B	3.30
32	11	46	00	6	—	202				012.03	0.84			31	A	6.90	
										A						B	4.43
33	11	53	00	7	—	202				012.92	0.87			32	A	5.54	
										A						A	5.92
34	12	00	00	7	—	210				013.95	1.03			33	B	6.88	
										A						C	14.08
35	12	05	30	8	1/2	210				014.98	1.03			34	A	2.97	1485 Vd
										A						B	8.21
35	12	05	30	8	1/2	210				015.78	0.80				A	3.31	
										A						B	8.21
															C	11.98	L.T.L. 857.

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET No. 43 BUOYS: A-B-C  
 U. S. C. AND G. S. SHIP LYDANIA 1485

DATE 8/21/40  
 DAY ✓

Pos. No.	TIME			ELAPSED TIME		COURSE				DISTANCE				BOYS			REMARKS
	h.	m.	s.	m.	s.	PSC	Dev.	Var'n	True	Log Reads	Log Dist.	True Dist.	r	No.	Station	Distance	
36	12-07-30					100				A					A	3.33	
										B					B	9.46	
										C	016.03			36	C	17.16	
37	12-14-30		7	0		00				A					A	4.57	
										B					B	9.60	
										C	018.59	0.16		37	C	18.75	
38	12-20-30		3	4	0	93				A					A	5.72	
										B					B	9.84	
										C	018.03	0.94		38	C		
39	12-28-00		3	7	1/2	92				A					A	7.18	
										B					B	10.17	
										C	019.24	0.21		39	C		
40	12-30-00					17				A					A	7.47	
										B					B	10.12	
										C	019.54	-		40	C	20.86	
41	12-36-00	cc	4		-	19				A					A	7.65	
										B					B	9.09	
										C	020.53	.99		41	C	20.72	
42	12-44-00	cc	8		-	18				A					A	7.63	
										B					B	8.32	
										C	021.91	1.37		42	C	-	
43	12-56-00	cc	6		-	20				A					A	6.62	
										B					B	8.93	
										C	022.93	0.03		43	C	19.57	
44	12-56-00		6		-	22				A					A	5.77	Log hung up.
										B					B	9.78	
										C	023.48	0.53		44	C		
45	13-02-00		2	1/2		20				A					A	5.07	
										B					B	10.73	
										C	024.51	0.03		45	C		
46	13-08-00		2	1/2		18				A					A	4.57	
										B					B	11.72	
										C	025.44	0.93		46	C	19.38	
47	13-14-00		3	1/2		16				A					B	4.34	
										B					A	12.75	
										C	026.47	0.94		47	C	19.27	
48	13-20-00		3	1/2		14				A					B	4.38	
										B					A	13.83	
										C	027.48	1.05		48	C		
49	13-24-00		2	0		17				A					B	4.63	
										B					A	14.50	
										C	028.19	0.71		49	C	9.02	L.T.L. A.B.
50	13-25-30					305				A					B	4.66	
										B					A	14.73	
										C	028.43	-		50	C	19.72	
51	13-31-30		6	0		300				A					B	3.80	
										B					A	14.30	
										C	028.42	0.99		51	C	17.85	
52	13-37-30		6	0		300				A					B	3.08	
										B					C	16.87	
										C	030.42	1.00		52	C		

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET No. 43 BUOYS: A-D-C  
 U. S. C. AND G. S. SHIP 14 DONIA 1405

DATE 9/21/40  
 DAY V

Pos. No.	TIME			ELAPSED TIME		WIND COURSE				DISTANCE				BOATS			REMARKS
	h.	m.	s.	m.	s.	PSC	Dev.	Var'n	True	Log Reads	Log Dist.	True Dist.	r	No.	Station	Distance	
53	13	43	30	6	0	295				A	30.4				B	2.66	
										B				A	13.57		
										C	31.45	1.01		53	C	15.51	
54	13	49	30	6	0	298				A					B	2.78	
										B				A	13.34		
										C	32.44	1.01		54	C	14.30	
55	13	53	30	6	0	295				A					B	3.39	
										B				C	12.88	13.16	
										C	33.46	1.02		55	A	13.20	
56	14	01	30	6	0	295				A					B	4.25	
										B				C	11.89		
										C	34.48	1.02		56	A	13.15	
57	14	07	30	6	0	294				A					B	5.27	
										B				C	10.74		
										C	35.51	1.03		57	A	13.30	
58	14	13	30	6	0	292				A					B	6.28	
										B				C	9.58		
										C	36.51	1.00		58	A	13.41	
59	14	19	30	6	0	294				A					B	7.38	
										B				C	8.44		
										C	37.53	1.02		59	A	13.60	
60	14	25	30	6	0	294				A					B	7.34	
										B				C	8.42		
										C	38.53	1.00		60	A	14.03	
61	14	31	30	6	0	294				A					B	6.31	
										B				C	9.66		
										C	39.53	1.00		61	A	14.51	
62	14	37	30	6	0	292				A					B	5.33	
										B				C	10.83		
										C	40.54	1.01		62	A	15.17	
63	14	45	30	8	0	292				A					B	4.13	
										B				C	12.40		
										C	41.90	1.36		63	A	15.85	L. T. L. A. L.
64	14	47	30			196				A					B	3.84	
										B				C	12.65		
										C	42.21			64	A	15.68	
65	14	51	30	4	0	196				A					B	3.25	
										B				C	12.52		
										C	42.86	0.65		65	A	15.25	
66	14	55	30	4	0	193				A					B	2.78	
										B				C	12.40		
										C	43.54	0.68		66	A	14.59	
67	14	59	30	4	0	193				A					B	2.46	
										B				C	12.33		
										C	44.20	0.66		67	A	13.95	
68	15	03	30	4	0	193				A					B	2.36	
										B				C	12.30		
										C	44.87	0.67		68	A	13.32	
69	15	07	30	4	0	193				A					B	2.56	
										B				C	12.35		
										C	45.54	0.67		69	A	12.72	

# R. A. R. AND DEAD RECKONING ABSTRACT

M-769

HYDROGRAPHIC SHEET No. 43 BUOYS: A-B-C.

DATE 9/21/40

U. S. C. AND G. S. SHIP LYDONIA

DAY ✓




1480-90 on A

Pos. No.	TIME		ELAPSED TIME		COURSE				DISTANCE				BOYS			REMARKS	
	A.	M.	S.	M.	S.	SPC	Dev.	Var'n	True	Log Reads	Log Dist.	True Dist.	r	No.	Station		Distance
70	15	11	30	4	0	195				A	45.54				C	2.46	
										B				A	12.15		
										C	46.21	0.67		70	B	12.42	
71	15	16	30	5	0	195				A				C	3.63		
										B				A	11.46		
										C	47.07	0.86		71	B	12.66	
72	15	20	30	4	0	195				A				C	4.23	✓	
										B				A	10.99	✓	
										C	47.74	0.67		72	B	12.88	✓
73	15	24	30	4	0	195				A				C	4.97	✓	
										B				A	10.53	✓	
										C	48.42	0.68		73	B	13.10	✓
74	15	28	30	4	0	198				A				C	5.64	✓	
										B				A	10.13	✓	
										C	49.09	0.67		74	B	12.40	✓
75	15	32	30	4	0	198				A				C	6.32	✓	
										B				A	9.80	✓	
										C	44.76	0.67		75	B	13.74	Line ends.
										A							
										B							
										C							
										A							
										B							
										C							
										A							
										B							
										C							
										A							
										B							
										C							
										A							
										B							
										C							
										A							
										B							
										C							

# ABSTRACT OF BUOYS PLANTED

U. S. C. and G. S. Ship LYDONIA H. Arneld Commanding.

Project No. 248 Locality Cape Cod Karo Aug. 20, 1940

No.	NAME	DATE	DEPTH	LATITUDE	LONGITUDE	CABLE			HORIZONTAL SCOPE	DESCRIPTION			REMARKS
						BETWEEN BUOYS	CHAIN	OBARS		BANNER	FLAG	WEIGHT	
75	Adam No. 10	8/20/40	16 fms	.	.	5 Fathoms	22	—	Meters	<input checked="" type="checkbox"/>		1200 Pounds	Picked up 9/23/40
76	B020 #4	8/20/40	23 1/2	.	.	5	30	—		<input checked="" type="checkbox"/>		1200	" " "
77	Cape #1	8/21/40	17 fms	.	.	5	25	—		<input checked="" type="checkbox"/>		1200	" " "

LAC  
HCC

### TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~

SEP 18 1941

✓ Division of Charts: Attention: Mr. H. R. Edmonston

Plane of reference approved in  
10 volumes of sounding records for

HYDROGRAPHIC SHEET 6563

Locality Cape Cod Bay

Chief of Party: H. A. Karo in 1940

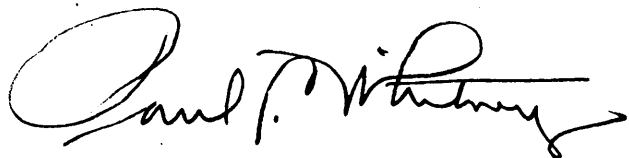
Plane of reference is mean low water reading

-0.1 ft. on tide staff at Cape Cod Canal, East Entrance

16.7 ft. below B. M. "Breakwater"

Height of mean high water above plane of reference is 9.4 feet.

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents.

Remarks

Decisions

	Remarks	Decisions
1		
2		419703
3		419705 U.S.G.B
4		419706
5	Location of tide staff.	
6		
7		
8		
9		
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27		



GEOGRAPHIC NAMES  
 Survey No. **H6563**

Name on Survey	On Chart No.		On previous survey No.		On U. S. quadrangle Maps		From local information		On local Maps		P. O. Guide or Map		Rand McNally Atlas		U. S. Light List	
	A	B	C	D	E	F	G	H	K							
<u>Cape Cod Bay</u>																1
<u>Fishing Ledge</u>																2
<u>Manomet Pt.</u>																3
<u>Plymouth Bay</u>																4
<u>Cape Cod Canal</u>																5
<u>Breakwater</u>																6
																7
																8
																9
																10
																11
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																27

Names underlined in red approved  
 by L. Hecy on 12/8/41

Surveys Section (Chart Division)

HYDROGRAPHIC SURVEY NO. **H6563**

Records accompanying survey:

Boat sheets <sup>one</sup>...; sounding vols. (9)...; wire drag vols. ....;  
 bomb vols. (1)...; graphic recorder rolls (1) <sup>see roll 16 (H6559 a-b)</sup>...  
 special reports, etc. Fathometer Report; Folder of Buoy computations  
and Geographic positions of Sono Radio Buoys......

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

Number of positions on sheet	2742.	
Number of positions checked	.63..	
Number of positions revised	.4..	
Number of soundings recorded	16193.	
Number of soundings revised (refers to depth only)	.12..	
Number of soundings erroneously spaced	1899.	
Number of signals erroneously plotted or transferred	..0..	
Topographic details	Time ..0..	
Junctions	Time .14..	
Verification of soundings from graphic record	Time ..73 <sup>1</sup> / <sub>2</sub> .	
Verification by <i>C. E. Dennis</i> .....	Total time .87 <sup>1</sup> / <sub>2</sub> .	Date 10/22/40.
Review by <i>Harold W. Murray</i> .....	Time 34..	Date 11/29/41.

# MEMORANDUM

## IMMEDIATE ATTENTION

SURVEY  
 DESCRIPTIVE REPORT  
~~PHOTOSTAT OF~~

No. H **H6563**  
~~No.~~

{ received **Sept. 2, 1941**  
 registered **Sept. 3, 1941**  
 verified  
 reviewed  
 approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
25			
26			
30			
40			
62			
63			
82			
83			
88			
90			

RETURN TO

82	T. B. Reed
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✓ JBR

DIVISION OF CHARTS

SURVEYS SECTION

REVIEW OF HYDROGRAPHIC SURVEY NO. 6563 (1940) FIELD NO. 43

Massachusetts, Cape Cod Bay  
Surveyed in August - September 1940, Scale 1:40,000  
Instructions dated March 8 and July 26, 1940 (LYDONIA)

Soundings: Dorsey No. 1

Control: Visual fixes  
on shore objects  
RAR and Sono-Radio Buoys

Chief of Party - H. Arnold Karo  
Surveyed by - Ship's Officers  
Protracted by - Alfred Kaupa  
Soundings plotted by - Alfred Kaupa  
Verified and inked by - C. E. Dennis  
Reviewed by - Harold W. Murray, November 29, 1941

1. Shoreline and Signals

- a. This is an offshore survey and no shoreline is shown.
- b. The control is principally based on triangulation stations and is supplemented by three sono-radio buoys, one topographic signal on T-6741 (1940) and two signals located by sextant angles. Cuts for the latter are listed in the sounding records.

2. Sounding Line Crossings

General agreement of sounding line crossings is very good. The few discrepancies that were noted are listed in the Descriptive Report, pages 1 and 2.

3. Depth Curves

The usual depth curves may be completely delineated.

4. Junctions with Surveys

- a. The junctions on the south, southwest and west with 1940 surveys H-6561 and H-6562 are very good.
- b. On the south, southeast, east and northeast, the present survey joins and overlaps the earlier 1934 surveys: H-5588, H-5543 and H-5400. Differences of about 2 feet exist in the overlapping area and are attributed to the fact that the 1934 work is either hand lead or machine soundings whereas the

present survey work is entirely composed of fathometer soundings. The present survey work sufficiently overlaps the earlier work to the extent that a satisfactory junction is made. Only a fringe of soundings is therefore shown along the outer limits of the present survey.

- c. The junctions with contemporary work on the north, northwest and west will be considered when that work is received from the field.

##### 5. Comparison with Prior Surveys

- a. H-516 (1854-55) and H-578 (1856), Scales 1:80,000 and 1:40,000

These sparsely covered surveys taken together cover the entire area of the present survey and are the principal basis for present chartings in this area. Agreement of depths with the present survey is varied and frequently very poor. As an example, the northeast portion of line 1 to 3A on H-578 in lat.  $41^{\circ}58'$ , long.  $70^{\circ}22'$  is consistently about 20 feet too deep whereas the southwestern portion of the same line is 10 or more feet consistently too shoal in depths of 137 to 148 feet. A similar discrepancy is noted in lat.  $41^{\circ}58'$ , long.  $70^{\circ}16'$ . Inasmuch as series of soundings on line are frequently at variance with the present survey, it follows that little confidence can be had in occasional single soundings which may or may not actually depict lumpy bottom such as the 82 on H-578 in depths of 93 feet in lat.  $41^{\circ}51.6'$ , long.  $70^{\circ}21.3'$ . On the other hand, the present survey amply indicates occasional lumps on the bottom in the area westward of long.  $70^{\circ}26'$ . Some of these lumps, such as the 47 in lat.  $41^{\circ}51.3'$ , long.  $70^{\circ}28.8'$  may rise abruptly as much as 24 feet. Although this area was wire dragged in 1915-16 (H-3776), the drag strips in general were set to clear the depths on these old surveys and consequently could not be used to substantiate the findings of the present survey.

Specific dispositions of the more important doubtful soundings are given below.

- (1). 35 feet; lat.  $41^{\circ}48.4'$ , long.  $70^{\circ}29.5'$

This sounding from H-578 is charted as 34 feet and falls in smooth bottom of 54 feet

on the present survey. The 35 is one of two 35-foot soundings obtained on line between soundings of 59 feet. This shoal was cleared by an effective drag strip of 40 feet on H-3776. The margin of 5 feet would appear to be sufficient to disprove the 35 but recalling that (1) the 35 is one of two soundings, (2) the 35 was cleared by but one eastbound strip, (3) the weather at the time of dragging was foggy and it is possible that the drag slipped over the shoal without detection, and (4) the 35, if authentic, is a menace to heavier surface navigation, it seems best from the viewpoint of safety that the 35 be retained pending an adequate specific investigation.

- (2). 30 and 42 feet; lat. 41°50.5', long. 70°29.8'

These two charted soundings from H-578 falling in depths 6 feet deeper on the present survey were obtained on the same line, Pos. 45-46 O. Other depths on this line ranging from 28 to 36 feet are all consistently 6 to 10 feet too shoal. These soundings should be disregarded.

- (3). 24 feet; lat. 41°50.9', long. 70°30.2'

This sounding as plotted on H-578 is one of 4 soundings of like depth on the same line, all of which are 16 feet shoaler than the present survey depths. These soundings should be disregarded.

- (4). 52 feet; lat. 41°53.15', long. 70°30.2'

This charted sounding from H-578 falling in depths of 62 feet on the present survey is incorrectly reduced for tide as are also several other soundings on this line, Pos. 4-6 O. The corrected soundings are slightly deeper than the present survey depths and may therefore be disregarded.

- (5). 66 feet; lat. 41°54.1', long. 70°29.5'

This 66 on H-578 falls in depths of 74 feet on the present survey. The 66 is one of several soundings having approximately similar depths on two sounding lines here all of which are slightly shoaler than the present survey depths. These soundings should be disregarded.

- (6). 83 feet, Fishing Ledge; lat. 41°56.5', long. 70°18.6'

This sounding from H-516 is one of several charted depths ranging from 83 to 96 feet defining the higher portion of this rocky ledge. The old survey development is intensive but is confined to a small part of the ledge whereas the present survey systematically delineates the entire area. The 83 (charted as 82 feet) in the sounding records is one of several soundings of like depth and has not been carried forward as it is only 4 feet less than the 87-foot depth shown here on the present survey. The charted 84-foot sounding about 1/3 mile south of the 83 falls between an 86 and 89 on the present survey and was not carried forward. The charted 87 about 1/2 mile northeast of the 83-foot depth was also not carried forward because a sounding line run directly over the 87 shows depths of 123 feet.

The present survey with the indicated additions supersedes these surveys.

- b. H-772 (1860), Scale 1:10,000

This large scale survey covers a small part of the present survey on the southwest outside the entrance to the Cape Cod Canal. General agreement of depths is good. In lat. 41°48.1', long. 70°30.0'; two 34-foot soundings fall in depths of 36 to 40 feet on the present survey. The latter survey, however, shows a 30-foot sounding just southward which is considered sufficient for charting purposes. The present survey supersedes this survey.

- c. H-3413 (1912) and H-3414 (1912), Scale 1:20,000

Portions of each of these sparsely covered surveys cover the present survey in the area westward of long. 70°24'. General agreement of depths with the present survey is within 2 feet. Three soundings were carried forward. One of these, the 47 on H-3414 in lat. 41°51.3', long. 70°28.8' was cleared with a 50-foot drag on H-3776 (1915-16). This single drag strip with its 3-foot margin is not considered conclusive evidence that the 47 does not exist. The present survey with these additions supersedes these surveys.

H-3776 (1915-16) W. D. and H-3776a (1916) W. D.,  
Scales 1:30,000 and 1:80,000

- (1). Wire drag sheet H-3776 entirely covers the present survey westward of long.  $70^{\circ}22'$ . Several soundings averaging 2 or 3 feet shoaler than the present survey were carried forward. The effective drag depths do not conflict with the present survey depths except in a few instances where the drag indicates a clearance depth of 1 to 3 feet more than the least depth on the present survey such as the 42 in lat.  $41^{\circ}51.4'$ , long.  $70^{\circ}29.8'$  which was cleared by 45 feet. None of these differences are substantial.

In lat.  $41^{\circ}59.2'$ , long.  $70^{\circ}34.1'$ ; the present survey shows a least depth on a detached shoal of 46 feet which depth is 4 feet shoaler than the 50-foot depth shown by the drag soundings.

The drag depths on this sheet were in general set to clear the least depths on the 1854-56 surveys considered in Paragraph 5a, above, but since the comparison with the present survey indicates that many of these soundings are too shoal or otherwise unreliable it is obvious that the drag depths could have been set deeper by as much as 10 feet in depths less than 60 feet.

- (2). H-3776a consists of a single drag strip with an effective depth of 51-52 feet covering the important portion of Fishing Ledge in lat.  $41^{\circ}56'$ , long.  $70^{\circ}19'$ . This does not conflict with the known least depths of 86 to 89 feet.

6. Comparison with Charts 1208 (New Print dated August 1, 1941)  
251 (New Print dated August 7, 1941)

a. Hydrography

Hydrography on the charts originates with surveys discussed in the previous paragraphs except the 40-foot sounding in lat.  $41^{\circ}46.9'$ , long.  $70^{\circ}27.9'$  and the 47 in lat.  $41^{\circ}47.7'$ , long.  $70^{\circ}28.5'$  on chart 1208 which originates with a small U. S. Engineers Survey (scale 1:80,000) attached to Chart Letter 323 of 1914. These soundings fall in depths of 44 and 51 feet respectively on the present survey and are 4 feet shoaler. The present survey, however, shows similar depths not far distant which are considered adequate for charting purposes.



b. Aids to Navigation

Three of the 4 charted aids on the present survey differ about 0.1 mile in position but satisfactorily mark the features intended.

7. Compliance with Instructions

Satisfactory.

8. Condition of Survey

Additional bottom characteristics for charting purposes may be obtained from previous surveys considered in Paragraph 5 above.

9. Additional Field Work Recommended

This is an unusually comprehensive survey. Mention is made that (1) it would be desirable at some future date to specifically investigate the 35 in depths of 54 feet discussed in Par. 5a (1), above, and (2) the drag strips on H-3776 (1915-16) were in general set to just clear the critical depths on H-516 (1854-55) and H-578 (1856). Since the present survey disproves many of these old soundings, it is apparent that many of the drag strips could have been set as much as 10 feet deeper in depths of less than 60 feet. (3) see below.

10. Superseded Surveys

H-516	(1854-55)	In part.	H-3413	(1912)	In part.
H-578	(1856)	" "	H-3414	(1912)	" "
H-772	(1860)	" "			

Examined and Approved:

*Robert W. King*

Chief, Surveys Section

*J. S. Gordon*

Chief, Division of Charts

*L. P. Raymond*

Chief, Section of Hydrography

*G. W. Hude*

Chief, Division of Coastal Surveys

(3). A supplemental sounding graph received subsequent to this review indicates shallower depths at the 73-foot sounding in depths of 80 feet in lat.  $41^{\circ} 51.6'$ , long.  $70^{\circ} 28.2'$ . Since the graph does not indicate a least depth and the area was cleared with a 52-foot drag strip, the actual least depth should be some figure between 52 and 73 feet. This depth is not menacing but merits investigation when practical to do so.

Harold W. Murray, Jan. 23, 1942