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Department of Commerce and Labor
 COAST AND GEODETIC SURVEY

O. H. Tittmann
 Superintendent.

State: Massachusetts

DESCRIPTIVE REPORT.

Hyd. Sheet No. 3391

LOCALITY:

Buzzards Bay

Northern end of Bay

1912

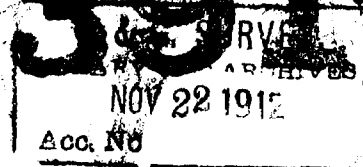
CHIEF OF PARTY:

N. H. Heck, Assistant

11-4645

3391

Hyd. 3391 3391
COAST OF MASSACHUSETTS- BUZZARDS BAY



West Island to Wings Neck

Area covered by Wire Drag Party

Sept. 30 - Nov.

1912

Chief of Party N. H. Heck, Assistant

Officers- Geo. Olsen, W. O. H. A. Cotton, Aid

H. R. Bartlett, R. V. Miller, W. R. O'Sullivan, Deck Officers

Scale 1/20000

Tide gauge at Marion, Mass.	Clarks Wharf.
Highest tide-staff reading	7.7
Lowest tide " "	1.4
Mean Low Water " "	2.2

North end of Buzzards Bay Coast of Massachusetts

This sheet shows the area dragged and the shoals discovered in the wire drag work executed in 1912. All the dragging was carried as close to bottom as practicable. In some cases the wire slipped over the smooth or soft bottom when the depth was ~~greater~~ less than that at which the drag was set, and in case the effective depth is greater than the charted depth it should not be assumed that the latter is wrong. In general the charted depths are correct, though in a number of cases less depth was found where a point of a shoal extended farther than the soundings indicated.

All the important finds were boulders or ledges, though in one case described later it is probable that the shoal is made by the remains of an old wreck. Drags from 3000 ft. to 3900 ft in length were used and all the detail practicable with these lengths was used. Of course with a very short drag the channels between shoals could be developed more thoroughly but it is believed that the expense was not warranted and that the work as executed serves every purpose of navigation. Especial care was used in developing the shoal ridge that extends south from Bird Island eastward across the bay, including Cleveland Ledge and the 17 ft. shoal eastward, and it will now be possible to buoy a channel correctly by which the full ~~depth~~ draft permitted by the dimensions of the Cape Cod Canal, about 25 feet, can be taken through safely at all stages of the tide.

Attention is called to the following shoals: which are numbered in the attached list which gives bearings and extent:

1. Cleveland Ledge was found to extend with depths of 20 ft. about 350 m. to N.W and 250 M. to SE with depths of 22-24 ft. from the charted least depth of 16 ft. which was checked by dragging over.

2. A 17 ft. spot not a rock, which is stated to be part of the remains of a sunk ~~en~~ scow or barge, which was lost many years ago.

3. Depths of 16 ft. were found on a number of boulders where 18 ft. spots were indicated on the chart.

5. A group of boulders with 15 to 18 feet. In order to mark the best channel it seems desirable that buoy no. 13 be moved outside of this shoal.

6&7. A group of boulders with 18 to 23 feet extending about 800 meters NNE-SSW.

8&9. An extensive boulder strewn area 700 by 900 meters with 19 to 25 feet.

12.-20 . A ridge of boulder E-W 15 to 18 ft.

11. A group of boulders with 14 to 20 ft.

10. A small group of boulders with 15 to 16 ft.

13. A group of small rock projecting 2 to 4 ft. above the surrounding bottom. least depth 29 to 30 ft.

14. A small patch of boulders with 36 to 38 ft.

15. 25. 26. An extensive area over which small rocks were found with several ft. less than charted. Least depths 29 to 31 ft.

16. 17. 27. The ridge extending NE-SW. with a least charted depth (checked by dragging over) of 17 ft. was examined. A boulder with 25 ft. was found to the SW of the ridge. At the north end depth of 21 and 23 ft. were found as indicated. As a possible deep channel is indicated east of the 23 ft shoal it should be noted that the general depth of 27 to 29 feet mud was found for 400 meters eastward which is several feet less than charted .

18 A small group of boulder with least depth of 14 ft.

19. A group of boulder 13 to 19 ft. lying outside of black buoy no. 1. It seems desirable that this buoy be moved to better mark this shoal.

20. A small group of boulders surrounded by deep water with 19-21 ft.

21. A very extensive group of boulders which with charted shoals extends about 2 miles across the bay. A more extensive development would undoubtedly develop a larger number than shown but the least depths of 24 to 29 feet are correct as each part has been dragged over within a foot or two.

22. A small rocky shoal with 31 to 32 ft.

23. A group of boulders with 36 to 38 ft.

24. Boulders with less depth than charted, with 21 to 22 ft. Entire area in this vicinity covered with boulders. Development only begun.

28. A ridge of boulders with 23 feet, an eastward extension of Nye's Ledge.

29. A patch with small rocks, least depth 36 ft.

30. & 31. Small patches with 25 and 31. Extensions of the shoal of which Cormorant Rock is the center.

32. 33 34 36. 16 and 17 feet. Extensions of the 18 ft. curve.

35. a group of rocks with 14 to 17 ft. in the vicinity of the Bow Bells.

37. 38. 20 and 22 ft. spots each a foot less than charted, muddy bottom.

39. Boulders with 15 to 18 feet found on a part of Southwest ledge which was charted at greater depths.

40. A narrow ridge with 27 and 28 ft. boulders

41. 42. 43. Small rocky patches in the region south of the Dumping Ground.

With proper buoyage a depth of 26 feet can be taken between Cleveland Ledge and the 17 ft. shoal to the eastward. 18 ft. can be taken to the eastward of the ridge of which the 17 ft. shoal is a part but the channel has several sharp turns and is hardly practicable/ 19 ft. is the greatest advisable draft to take between Bird Island and Cleveland ledge though a 21 ft. channel could be buoyed about one half mile westward of Cleveland Ledge. While the eastern side of the Bay is not completed, it has been determined that depths greater than 13 feet must use great caution to avoid the shoals.

Additional shoals.

44. Small group of boulders with 28-29 ft.

45 46 47 Boulders with 23 to 26 ft.

At northern end of the sheet the Cape Cod Canal Dumping ground has been extended to the southward of the buoys. A brush buoy very near position 1 marks the southern limit the lines extending from it to the two southern navigation buoys marking the ground.

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Described as a "17' spot, not a rock," on page 1 of the D.P. (remains at 7PS (scow or barge))

No. From Bird Island Lt. House.

No.	True Bearing	Dist. Meters	Direction Extent	App. Area sq. mi.	Least Water (Fm)	General Description
1.	Center+East W. 166° 00'	426.0 m	580m SE x200m SW	0.04	17-18-24	Extension of Cleve land hedge
2.	Center 170° 00'	1990 m		0.01	17	Small Flky Shoal 100m in Dia.
3.	West Water Western End 163° 30'	935 m	230m ESE x80m	0.007	16	Shoal already shown as 18' curve.
4.	East Water Center Shoal 173° 15'	732 m	180m S-E x60m	0.004	16	Shoal already shown as 18' Curve.
5.	Western End 116° 30'	705 m	450m NE-SE x200m	0.03	15 to 20	Floky Shoal with 20' at Eastern End and 15' to 18' at Western end.
From Nye's Neck Water Tower						
6.	Southern End 310° 00'	272.0 m	250m N-NE-SE x80m	0.008	22	Small Floky Shoal General N-NE.
7.	Center 302° 45'	257.0 m	400m NE-SE x230m	0.035	18 to 21	Floky Shoal General NE Direction
8.	Eastern End 202° 00'	187.0 m	750m SE-E x150m	0.043	21 to 24	Long narrow shoal About 200m at East End where it is widest. Floky.
9.	NE. End 220° 45'	130.0 m	500m E-NE x350m	0.068	19 to 25	Irregular Floky Shoal. Covers Area of two 24' Curves on Present Sheet.
10.	S.W. End 223° 15'	170.0 m				
11.	NE SW. 288° 50'	114.6 m	100m x 50m NE SW.	0.002	15	Small Floky Shoal.
12.	N.W. End 205° 50'	271.0 m	250m N.W. x200	0.02	14 to 20	Small, Round Floky Shoal.
13.	East. End 269° 00'	184.0 m	250m x 100m W-NW	0.01	15	Narrow Shoal
14.	S.E. End 247° 45'	188.0 m	300m x 100m N-NW	0.011	29	" "
15.	Western End 231° 30'	465.2 m	50m x 50m W-S	0.001	36	Small Round shoal
16.	Eastern End 257° 00'	258.0 m	400m x 150m E+W	0.024	30	Long Narrow Shoal
17.	Western End 262° 45'	288.0 m	350m W-N	0.063	23 to 29	Irregular Shoal
18.	265° 10'	315.0 m	300m x 100m W-N	0.011	21	Narrow Shoal
19.	212° 00'	312.0 m			14	Boulders.

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No.	True Bearing	Diameter	Direction	Area	Least Water	General
	North End,		Extent	Sq. mi.	in Feet.	Description.
19	154° 45'	3140 m	300m X 200 m	0.024	13	Irregular Rky Shoal
20	127° 40'	3400m	50m X 50 m	0.001	19	Small Rky Shoal
	154° 45'	4660m	East + West 3300m	1.50	From	A irregular Shoal
21	156° 45'	5290m	X 1500 m		24 to 35	Area Extending
	141° 30'	7200m				in general East
	134° 00'	8040 m				and West Direction
						Generally Rocky and Boulders.
22	North End. 169° 10'	6870m	N+S 250m X 150m	0.015	31	Small Rocky
23	North End 164° 00'	8450m	N+S 200m X 100m	0.008	36	Shoals
24	North End 183° 30'	8060 m	200m X 100m	0.008	21	Generally Narrow
From Nyes Neck Water Tower.						
25	238° 00'	3090m			29	Small Rocky Patch.
26	231° 00'	2920m			31	" " "
27	247° 00'	4400m			25	Pinnacle Rock
From Ned Pt. Lt. House.						
28	146° 00'	4620m			23	Boulder.
From Nyes Neck Water Tower.						
29	218° 00'	9600m			36	Small Stones.
From Cormorant Rock Spindle						
30	164° 00'	960 m			31	Small Patch.
31	113° 00'	840m			25	" " "
From Angelica Pt Spindle.						
32	145° 00'				19	} Extension of 18' Curve.
33	67° 00'				17	
34	43° 00'				16	
35	40° 00'				14	Least Depths
	47° 00'				17	on Rocky Areas
	56° 00'				17	Surrounding The
	50° 00'				19	Bow Belts.
36	20° 00'				17	Extension of 18' Curve.

No.	True Bearing	Dist	Direction	App. Area	Least Water	General
Shot		in Meters	+ Extent	Sq. Mi.	in Feet.	Description
			From Bird Island	Ht. House		
37	202° 00'	1960m			20	Mud Bottom
38	174° 00'	2960m			22	1ft less than Charted
39	101° 00'	3900m			15 to 17	Boulders. Less Depth than Charted
40	96° 00'	3280m	N and S.	280m	27 to 28	Rocky Ridge
41	74° 00'	2340m			26	Small Patches
42	64° 00'	3280m			24 & 25	" "
43	52° 00'	2100m			21	" "
			From Nyes Neck	Water Tower		
44	227° 30'	3650m			28 & 29	Small Patch.
45	234° 00'	2200m			23	Boulder.
46	252	1680			23	Boulder
47	267	1700			26	"

VEC
Dec. 3, 1912.

HYDROGRAPHIC SHEET 3391.

Buzzards Bay, Massachusetts, by Assistant N. H. Heck
in 1912.

TIDES.

	Marion ft.
Mean low water, or plane of reference on staff	2.2
Lowest tide observed " "	1.4
Highest " " " "	7.7
Mean range of tide	4.2

United States Hydrographic Survey

DEC 3 1912

HYDRA. DIVISION



3391

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Department of Commerce and Labor
COAST AND GEODETIC SURVEY

Superintendent.

State: _____

DESCRIPTIVE REPORT.

Hyd. Sheet No. *3391*
3391

LOCALITY:

Buzzards Bay

1913

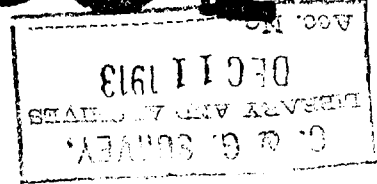
CHIEF OF PARTY:

Massachusetts

3391

BUZZARDS BAY

Upper Part



WIRE DRAG SURVEY Continued From 1912.

Sheet No. 3391

Sept. 17 --- Nov. 14.

1913.

N. H. Heck, Assistant, Chief of Party.

Geo. Olsen, W. O.

J. A. Daniels, Aid.

W. R. O'Sullivan, "

R. V. Miller, "

E. W. Eickelberg, "

R. L. Schoppe, "

M. C. Nelson, "

SCALE:- 1 : 20 000.

Tide Gauge - Fort Rodman.

The area examined upon this sheet includes that part of Buzzards Bay included between the N.E. boundaries of Hydrographic sheets Nos. 2 & 2968 and the SW limits of the 1912 work on this sheet, together with several small isolated areas missed in 1912.

Shoals found within this area consist chiefly of boulders, with deep water around them. Beginning at the NE limit of the work, further development of the charted 16 ft. shoal, 1 mile N of Dumping Grounds off of West Falmouth, showed 22 ft. extending 200 meters north of 16 ft. spot. 250 meters north of middle of Dumping Grounds 23 ft. was found where 29 was charted and upon the western border 38 ft. was found in a previously charted 40 ft depth. 1 1/2 mi. S W of the S W buoy marking the Dumping Ground was found an extensive area of boulders with a least depth of 31 & 33 ft., with 39 ft. charted. 1/2 mile true south of this patch are more boulders extending in a westerly direction for 1 1/2 mi. Depths vary from 27 to 35 ft., with 34 to 44 ft. charted. 1 mi. and 2 mi. further westward are more boulders with depths of 36 & 32 ft. with 38 and 45 charted. 1/2 mi. south of the last mentioned 32 ft. spot is a patch with a least depth of 39 ft. where 47 ft. is charted. 1 1/4 mi. N W of Long Neck is a patch 400 meters in extent with a least depth of 38 ft. with 44 to 48 charted. 2 1/2 mi. true west of this is a 39 ft. spot in a charted 46 ft. depth. 1 1/4 mi. S E'ly from Black Can No. 9 of f West Id. a 32 ft. shoal was found ~~to be much~~ in a charted depth of 47 ft. 1/2 mi. S by W from this black can the 21 ft. charted shoal was found to be much more extensive than charted, about 300 meters in diameter with a least depth of 16 ft. 1/2 mi. east of West Id. 26 & 27 ft. was found where 33 ft. was charted,

Otherwise, charted depths were verified within the examined area.

Statistics to accompany Descriptive Report of Sheet NO. 3391.

Date	Letter	Vol.	Angles H	Angles K	Miles		Drag Length		Soundings				Remarks
									No.	Ang.	No.	Ang.	
Sept. 17	A	1	36	27	2.2		3600		0	0			
23	B	1	48	45	3.0		5800		1	2			
24	C	1							2	4			
25	D	1	81	72	5.5		3900		3	6			
26	E	1	90	72	6.0		3900		2	4			
Oct. 10	F	1	90		3.0		3000		6	12			
13	G	1	60		1.8		3000		3	6			
18	H	1	48		1.5		3000		22	44			
22	J	1	162		5.0		3000		6	12			
23	K	1	168		5.5		3000		0	0			
24	L	1	108		3.0		3000		3	6			
		H-K			H	K	H	K	H		K		
28	M	1	36	78	1.5	2.0	3000	2100	2	4	0	0	Two
29	N	2-1	108	102	3.0	2.0	3000	2100	0	0	1	2	Drags
30	O	2-1	42	-	1.0	-	3000	-	0	0	-	-	in
31	P	2-1		108		3.8		2400			0	0	use.
Nov. 3	Q	2-1	228	138	5.0	4.0	3000	2400	1	2	4	8	
6	R	2-1	54	66	1.2	2.0	3000	2400	5	10	1	2	
7	S	2-1	228	90	4.5	2.8	3000	2400	0	0	1	2	
8	T	1		144		4.2		2400			0	0	
12	U	2		168		4.5		2600			4	8	
14	V	2		24		1.0		2400			0	0	

Total angles----- 2855
 Total soundings---- 67
 No. of sq. miles-- 20
 No. of lin. miles- 79

Myd @ Sheet #3391#

The area dragged covers part of Buzzard's Bay, Mass. south of the work of 1912, and in addition a few isolated spots missed in 1912.

The shoals located during the survey are described in the Descri. Report of the Chief of the Party.

Plotting was done in the field, verified and arranged in the office, and finally a tracing made, which shows the max. effective depth, to which the partial areas have been dragged. Another tracing was then prepared showing the combined work of 1912 & 1913, and a glance at this tracing will bring forth the fact, that a number of areas were missed by the drag.

Attention might be called to a few inaccuracies in plotting:

On a number of cases, such as at $\sqrt[7]{E}$, $\sqrt[24]{J}$ - $\sqrt[6]{K}$ changes were made in the eff. depth of the drag and the time recorded, but in plotting, the time element was not followed.

At $\sqrt[15]{N}$ "G" to "F" changed to 41'. The change was incorrectly plotted.

At $\sqrt[22]{Q}$ plotted 34'. Should be N to 5 - 34' and the rest 40'.

At $\sqrt[12]{P}$ - "N" to 4 changed to 38', but the Δ formed by the sections N to 4 and the drag in motion was covered

by the drag set at 26½ ft. and not 22' as plotted. However it was left on the sheet as plotted, as the area covered is very small.

In a number of instances the soundings taken to determine the least depth in places struck by the drag, fall on the wrong side of the drag, conveying the erroneous impression, ^{that} the drag, set up at a certain eff. depth, has passed over a spot of lesser depth. In all such cases the curve representing the sag of the drag was made deeper so as to fall in front of the shoal spot.

The records throughout the work were kept in good shape.

J. P. Shkleari.

Department of Commerce and Labor

Notes on verification of Hyd. No. 3391.

Closely verified to J day, general verification for the remainder of the work.

Only minor inaccuracies were found, as follows,
Pos. 12a was not plotted but 13a was marked 12a on the sheet.
Pos 1b evidently plotted wrong, no direction recorded in the record.
Pos 6e was marked 7e on the sheet.
Pos. 46e - 50e, lines connecting M and G burys wrong, area covered O.K.
Sdps. 5h and 7h interchanged on the sheet

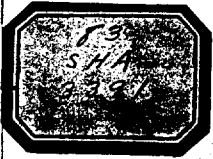
Error in recording Pos. 24-25 and 27 v day introduces a depth line not warranted by the notes.

The tracing shows the effective depth covered by the drag with the soundings taken while doing the work.

R. J. Christman
Draftsman

3391

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Department of Commerce and Labor
COAST AND GEODETIC SURVEY

C. Stittman
Superintendent.

State: *Mass.*

DESCRIPTIVE REPORT

Sy d. Sheet No. *3391*

LOCALITY:

Buzzards Bay
Upper Part

1914

CHIEF OF PARTY:

M. H. Sibley

3391

Hyd. 3391.

MASSACHUSETTS

BUZZARDS BAY

Upper Part

WIRE DRAG SURVEY Continued from 1912-13

Sheet No. 3391

Oct. 5 ----- Nov. 2

1914

N. H. Heck, Assistant, Chief of Party.

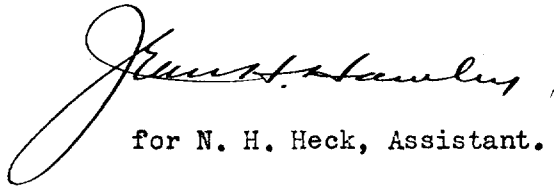
Scale 1:20,000

Tide Gauge - Fort Rodman

The work done on this sheet is in addition to work done in 1912 and 1913.

Several changes in charted depths were found along the Eastern shore between the dumping ground and Woods Hole.

These changes are shown, in red, on the section of chart No. 249, accompanying the sheet.


for N. H. Heck, Assistant.

STATISTICS.

Coast of New England, ----- Buzzards Bay.

October 5, to November 4,

1914.

Sheet 1, (3391).

Date.	Day.	Vol.	Angles.	Miles.	Drag Length.	Soundings		Remarks.
						Number.	Angles	
Oct. 5	A	1	96	2.8	3600	3	6	Sub Drag Party.
7	B	"	102	4.7	4000	7	15	
15	C	"	156	1.2	4000	8	17	
Nov. 4	D	"	132	2.0	2400	0	0	
			<u>486</u>	<u>10.7</u>		<u>18</u>	<u>38</u>	

SUMMARY.

Total number of miles,	10.7
" " " angles,	524
" " " soundings,	18
" " " square miles,...	3

E.M.

Statistics Hyd. Sheet B North end of Buzzards Bay, Coast of Mass.

Date	Day	Vol.	Angles	Miles	Drag Length	Number	Angles	Remarks
1912								
9-30	a	1	75	2.2	3000	1	2	
10-3	b	1	44	1	3000	2	4	
5	c	1	204	4	3900	10	20	
7	d	1	188	3.5	3900	9	18	
8	e	1	298	7	3900	4	8	
9	f	1	124	3	3900	11	22	
10	g	2	154	4.3	3300	12	24	
11	h	2	67	1.5	3900	18	36	
14	j	2	104	2.7	3900	12	24	
15	k	2	70	1.3	3000	1	4	
16	l	2	131	2.5	3900	6	12	
17	m	2	22	0.3	3900	2	4	
18	n	2	16	0.2	3900	9	18	
21	o	2	197	5.5	3900	3	6	
22	p	2	101	2	4800	4	8	
25	q	3	110	2	3000	0	0	
26	r	3	332	7	3300	3	6	
28	s	3	183	4	4200	11	22	
29	t	3	328	8.2	4200	0	0	
31	u	3	161	3	3000	12	24	
11-4	v	4	106	2.5	3000	1	2	
6	w	4	140	2.2	3000	1	2	
8	x	4	127	2	3000	3	6	
11	y	4	213	4	2700-3900	3	6	
12	z	4	134	3.5	3900	8	16	
14	a'	4	43	1	3900	2	4	
15	b'	4	107	1.7	3300	3	6	
19	c'	5	122	3.0	3300	1	2	
20	d'	5	102	2.0	3000	2	4	
Totals			4003	88.5		154	308	

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 NOV 22 1912
 ACC. NO

1633

Total Angles 431
 Miles 88.5
 Soundings 154
 Square Miles 28

VEC
July 2, 1915.

HYDROGRAPHIC SHEET 3391.

L. P. A.

Buzzards Bay, Eastern Part, Massachusetts, by
Assistant N. H. Heck in 1914.

TIDES.

	Clark Point ft.
Mean low water, or plane of reference on staff	1.0
Lowest tide observed " "	-0.3
Highest " " " "	7.3
Mean range of tide	3.9

Appld to 1210 Recorsts. thru chks 249, 251, 252. 11/29/61 JSD