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2267 2268
2267 2268

Diag. Chart No. 1210-1

Form 504

U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey

Field No.

Office No.

2267
2268

LOCALITY

State

General locality

Locality

Massachusetts
Duggard
Bay

1896-7

194

CHIEF OF PARTY

Robert G. Peck, U.S.N.

LIBRARY & ARCHIVES

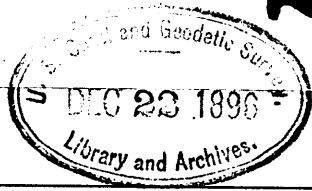
DATE

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SHA
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U. S. COAST AND GEODETIC SURVEY.

Gen. W. W. Duffield, Superintendent.

State: Massachusetts.

DESCRIPTIVE REPORT.

Hydrographic Sheets Nos. 2267,
2268.

LOCALITY:

Buzzards Bay.

1896.

CHIEF OF PARTY:

Lieut. Robert G. Peck, U.S.N.

2268

U.S.C AND G SURVEY
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1896

Diag. Cht. No. 1210-1

Doc. No. 1

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

W. W. Duffield
Superintendent.

State: *Mass.*

DESCRIPTIVE REPORT.

Hyd. Sheet No. *2268*

LOCALITY:

See

2267

1896
100

CHIEF OF PARTY:

R. G. Beck

2268

U. S. Coast and Geodetic Survey,
 Steamer "A. T. Bache",
 Navy Yard, New York,
 December 15, 1896.
Descriptive Report.

Gen. W. W. Duffield,
 Superintendent,
 U. S. Coast and Geodetic Survey,
 Washington, D. C.

Sir:

I have the honor to submit the following descriptive report of hydrographic work executed in Buzzards Bay during the past season by the party under my command, under your instructions of June 25, 1896, and the detailed instructions of the Hydrographic Inspector of corresponding date.

That portion of the re-survey of Buzzards Bay assigned to the "Bache" consisted of two projections on a scale of 1/10000 extending from the vicinity of Wood's Hole to a line about half a mile west of Cuttyhunk; one

projection on a scale of $1/10000$ covering the northern shore of the Bay from the Dumping Rock to Gooseberry Neck; one projection on a scale of $1/20000$ covering the central waters of the Bay from the vicinity of Woods Hole to the western limit to which the re-survey is to be carried.

Scheme of Lines.

As directed by the office, a right-angled development of the ground covered by the sheets was planned, the lines of each system being 100 metres apart. This distance was reduced to 50 metres in Cuttyhunk harbor and in all the principal channels where it was considered that a closer development was desirable and important. Special developments were likewise planned for all shoals and shoal spots, together with careful search for least water on known rocks and shoals.

On the $1/20000$, or ship's sheet, the lines of each system were made 200 metres apart, which distance, in view of the very regular character of the bottom, was regarded as sufficiently close for a full development.

Tide Stations.

For all the work of the "Bache" the tide station at Clark Point, near New Bedford, established by Lieut. Hannes in 1895, was adopted as a tidal base. For the sheet extending from Robinson's Hole to Cittyhunk a tide station was established at Penikese Island, and this was connected by simultaneous observations with Clark Point. Another station was established just inside the entrance of the inner harbor at Cittyhunk, on which the work in the inner harbor was made to depend. This station was connected by simultaneous observations with the Penikese Island station.

After careful study, I decided to obtain my tidal reductions for the sheet extending from Robinson's Hole to Nauset Island, directly from the Clark Point gauge which, though somewhat distant, from its open and central location seemed well suited for the purpose. The difference in time and range of the tide, throughout Buzzards' Bay is inconsiderable. The following table, prepared from the Tide Tables, shows the tidal differences in time for the north shore of Nauset,

The ground covered by our sheet No. 6. —

Stations	Difference for H.W.	Difference for L.W.
Clark Point and Kettle Cove	- 8 min.	- 6 min.
" " " Uncatena Island	+ 7 "	- 3 "
Kettle Cove and " "	- 15 "	+ 9 "

From this table it appears that the Clark Point gauge is situated quite favorably for this sheet, and in addition to this fact it would be extremely difficult and inconvenient to set up a gauge at any point along the Naushon shore except at the N.E. end of the island, where it would be less favorably placed than at Clark Point.

Clark Point Tide Station.

This is the same as the station established by Lieut. Hannus in 1895.

Near the outer end of the old stone wharf at Clark Point, on north side of wharf, is a flight of granite steps.

The centre of the sixth flagging stone shoreward from top of steps is marked by a cut near edge of stone.

The Bench Mark is the upper surface of this stone over the mark, and is 8.8 feet above M. L. W.,

the plane of reference, as determined by Lieut. Harus in 1895 from one lunation of tides.

The B.M. corresponds to tide gauge reading 12.7 on "Bach's" gauge.

Penikese Island Tide Station.

The gauge was secured to the outer easterly corner of the stone wharf on the south side of Penikese Island in practically the same place as that of Sub-Assistant Van Orden in 1878.

The Bench Mark is a triangle (Δ) cut in flat top of a rock a little southwesterly of the southwesterly edge of wharf. The top of the rock is even with the ground and is some six or eight feet above level of wharf. The B.M. is 13.39 feet above zero of gauge and 12.39 feet above M.L.W., the plane of reference, as determined by simultaneous comparisons with the Clark Point tide gauge.

This same B.M. was determined by Sub-Assst. Van Orden to be 12.62 feet above M.L.W., from observations of 12 high waters and 11 low waters in September, 1878.

Old Record of Tidal Observations at Penikese Isld.

A series of high waters and low waters observed between July 10 and Sept. 20 (year unknown) was given to me by the man in charge of Penikese Island, and from this record, which seems to have been carefully kept, the mean range of the tide at this station is 3.499 feet. This result was obtained by taking a lutation of tides from the top of the list and a lutation of tides from the bottom of the list, the two series of course overlapping, and then accepting the mean of these two results.

There was in the record no reference to a bench mark and consequently no means of determining the plane of reference from this otherwise valuable series of observations.

I was unable to ascertain by whom the record was made.

Cuttyhunk Pond Tide Station.

The gauge was secured to a post driven into the bottom, opposite to the landing wharf at entrance to Cuttyhunk Pond.

The Bench Mark consists of four nails

driven into post in horizontal row at the 4 ft. mark of gauge and is 2.14 ft. above M.L.W., the plane of reference, as determined by simultaneous comparisons with the Penikese Island gauge.

The following comparisons were made for difference of elevation of zeros :-

8
Comparison of Tide Gauges for
Difference of Elevation of Zeros.

Date,	Tide Gauge No. 1 - Clark Pt.				Tide Gauge No. 2 - Penikese I.				Difference Time		Difference Reading		Mean of Diff's		
	1896	Tide	Time	Ready	Range	Stand	Time	Ready	Range	Stand	H.W.	L.W.		H.W.	L.W.
Aug. 3	H.W.	2.40 p.m.	6.95				2.30 p.m.	3.98		2.45	+10		2.97		2.96
" 3	L.W.	8.27 "	4.77	2.18	7.50	8.50	9.40 "	1.82	2.16	9.35			9.55		2.95
" 4	H.W.	3.17 A.M.	6.40				3.05 A.M.	3.44		2.48			3.12	-12	2.96
" 4	L.W.	8.12 "	4.25	2.15	7.50	8.35	8.10 "	1.40	2.04	8.08			8.12	-2	2.85
" 4	H.W.	3.43 p.m.	6.90				3.36 p.m.	3.98		3.25			3.55	-7	2.92
" 4	L.W.	9.50 "	4.37	2.53	9.30	9.55	10.05 "	1.50	2.48	9.28			10.35	+15	2.87
" 5	H.W.	4.20 A.M.	6.36				4.00 A.M.	3.48		3.45			4.13	-20	2.88
" 5	L.W.	9.05 "	4.10	2.26	7.45	9.20	9.15 "	1.30	2.18	8.45			9.45	+10	2.80
															3.60
															2.90

The zero of the Penikese I. gauge is below the zero of "Bach's" Clark Pt. gauge 2.90 ft.
 " " "Bach's" Clark Pt. " " " M. L. W. 3.90 "
 " " " the Penikese I. " " " " 1.00 "

9.
 Comparison of Tide Gauges For
 Difference of Elevation of Zeros.

Date	Gauge No. 2 - Penikese Island				Gauge No. 3 - Cittyhunk Pond				Diff. of		Mean of	
	Time	Ready	Range	Stand	Time	Ready	Range	Stand	H.W.	L.W.		Diff. in
1896 Aug. 25	H.W.	8.45 Am.	4.54	8.30 9.00	8.50 Am.	5.42			-	+5	.88	.89
" 25	L.W.	2.05 P.M.	0.80	3.74 2.15	2.55 P.M.	1.70	3.72	2.70 2.55		+30	.90	
" 26	H.W.	9.20 Am.	4.50	9.05 9.35	9.20 Am.	5.32		9.05 9.35	0		.82	.84
" 26	L.W.	2.45 P.M.	0.92	3.58 2.55	3.10 P.M.	1.78	3.54	3.00 3.15		+25	.86	1.73 .86

The Zero of the Cittyhunk Pond Gauge is below the zero of the Penikese I. Gauge .86 ft.
 " " " " Penikese Island " " " M. L. W. 1.00 "
 " " " " Cittyhunk Pond " " " " 1.86 "

Cittyhunk Harbor.

On the present Chart 112, there is shown in Cittyhunk Harbor a 3 ft. spot, the sounding being carried out from the western shore to include this depth. Careful search failed to develop any such depth in this locality and I am satisfied that it does not exist. It is possible that the "3" in question may have been intended for 3 fathoms and became incorporated in the records as three feet.

7 feet
Rock
found
nearly
" "
8

Edwards Rock and Middle Ledge.

In the "List of Beacons, Buoys and Day-marks for the Second District," ^{the bearings of} these two dangers seem to be reversed in position as described therein, Edwards Rock being made by the bearings the northerly of the two, while our investigation showed it to be the southerly one. This corresponds also with the nomenclature as used by the people of the vicinity.

On Edwards Rock a depth of 7.1 ft. was found, but on Middle Ledge the least depth developed by several searches was 13.3 feet which is about 1 ft. more than is given in the

Buoy list.

A dense growth of seaweed covers the bottom of the harbor inside a depth of 3 to 4 fms. and this is said to cause the anchors of small vessels to drag. The holding ground except for this trouble is good, as shown by the fact that the "Bachi" with one anchor down rode out a very heavy gale from the north-east.

Recommendation as to Chart of Cuttyhunk Harbor

I have respectfully to recommend that a chart of Cuttyhunk Harbor be published on a scale of $1/10,000$. At present there is no harbor chart and the scale of the coast chart on which alone it now appears is so small that strangers are probably often prevented from entering or making use of this harbor on account of its crowded appearance. My development of the locality is so close as to be well suited to a $1/10,000$ scale.

Cuttyhunk Pond.

The inner harbor at Cuttyhunk goes by the name of Cuttyhunk Pond. About 5 ft. draft can be taken into the place at high water, there

being at low water only about one foot on the bar outside. To aid in crossing the bar a tripod has been set up by the fishermen on the beach to the eastward of the entrance and about one third of the distance to the life-saving station. This tripod in range with the cupola of the Cityhank Club house leads across in the best water.

The perfect shelter afforded by the inner harbor makes it of much value to the lobster men and fishermen, by whom it is considerably patronized.

A careful development was made of the inner harbor. It is probable that some day this harbor will be improved by dredging so as to be of much greater importance than at the present time.

Very respectfully,

Robert G. Seaman,

Lieut. U. S. N., Det. C. & G. Survey,
Comdg. "Bache."

List of officers and crew, and statistics in tabular form relating to the season's work are hereto appended.

List of Officers and Crew of U. S. Coast and Geodetic
 Survey Steamer "A. D. Bache," under command of
 Lieut. Robert G. Peck, U. S. N., Asst. C. & G. Survey, - Summer, 1896.

Ensigns	3.
Past Asst. Surgeon	1.
Ch. Yeoman	1.
Ch. Machinist	1.
Machinist (unexpired old rate)	1.
Machinists, 1st Class	2.
Master-at-Arms, 1st Class.	1.
Ship's Writer	1.
Carpenter's Mate	1.
Boatswain's "	1.
Quartermasters	3.
Ship's Cook	1.
Cabin Steward	1.
" Cook	1.
Second Class Firemen	6.
Seamen	14.
Mess Attendants	4.

*Hydrography: Buzzards' Bay, Mass., Adjacent to Cuttyhunk & Nashawena Islands.
 U.S. Coast and Geodetic Survey Steamer "A. D. Bache". Summer Season, 1896.
 Lieut. Robert G. Peck, U.S.N., Asst. C. and G. Survey, Chief of Party.*

Date, 1896.	Day letter.	Vol.	Number of			Boat or Vessel.	Observers.
			Angles.	Soundings.	Nautical miles.		
July 29	a	1	94	328	7.00	Oil Launch	Ensigns H. K. Hines & F. M. Russell, U.S.N.
" 30	b	2	186	762	13.20	"	"
Aug. 3	c	1	114	243	8.00	"	"
" 4	d	2	124	495	10.00	"	"
" 5	e	3	224	640	18.00	"	"
" 6	f	1	266	613	19.30	"	"
" 7	g	2-3	232	960	19.65	"	"
" 10	h	1	134	402	9.80	"	"
" 11	i	4	284	585	20.00	"	"
" 12	k	5	318	757	19.00	"	"
" 13	l	4	208	420	11.00	"	"
" 14	m	5	56	226	3.60	"	"
" 17	n	3	108	236	6.25	"	"
" 18	o	8	260	615	18.20	"	"
" 19	p	7	160	645	11.70	"	"
" 20	q	6	260	936	20.00	"	"
" 21	r	7	284	655	21.10	"	"
" 22	s	5	110	273	8.10	"	"
" 24	t	7	176	353	9.50	"	"
" 25	u	8	78	668	3.90	"	"
" 26	v	8	224	1306	17.00	"	"
Sept. 1	w	9	50	328	1.75	"	"
" 2	x	9	174	1332	8.60	"	"
" 3	y	10	110	737	6.90	"	"
" 4	z	10	86	416	3.55	"	"
" 5	a'	11	116	246	6.10	"	"
" 11	b'	11	160	466	8.80	"	"
Total			4596	15642	310.00	"	"

29

Hydrography: - Buzzards' Bay, Mass., Adjacent to Cuttyhunk & Nashawena Islands.
 U.S. Coast and Geodetic Survey Steamer "A. D. Bache", - Summer Season of 1886.
 Lieut. Robert G. Peck, U.S.N., Asst. C. and G. Survey, Chief of Party.

Date, 1886.	Day letter	Vol.	Number of -			Boat or Vessel.	Observers.
			Angles.	Soundings.	Statistical miles.		
July 29	a	1	180	819	19.80	Stm. L. No. 25	Ensigns A. H. Davis, & Thos. S. Martin, M. of A., U.S.N.
" 30	b	2	198	635	15.50	"	"
Aug. 3	c	1	106	417	8.00	"	"
" 4	d	2	150	479	9.50	"	"
" 5	e	1-3	292	949	22.50	"	"
" 6	f	2-4	344	1041	24.30	"	"
" 7	g	3	190	592	13.20	"	"
" 11	h	4	350	981	23.65	"	"
" 12	i	3	250	605	14.50	"	"
" 13	k	5	245	598	14.10	"	"
" 14	l	6	116	277	7.45	"	"
" 17	m	5	150	346	8.60	"	"
" 18	n	6	220	528	12.25	"	"
" 19	o	5	151	460	8.10	"	"
" 20	p	6	310	681	17.25	"	"
" 21	q	7	250	588	12.60	"	"
" 22	r	8	132	327	7.30	"	"
" 24	s	8	104	270	5.15	"	"
" 25	t	9	98	387	4.20	"	"
" 26	u	7	172	650	4.50	"	"
Sept. 1	v	8	104	400	4.80	"	"
" 2	w	9	116	445	7.45	"	"
" 4	x	10	68	242	2.25	"	"
" 5	y	10	96	338	5.60	"	"
" 11	z	9	148	382	6.55	"	"
Total	25		4540	13637	279.10	"	"

$\frac{10}{11} = \frac{21}{21}$

Recapitulation.

Oil Taunch	4596	15642	310.00
Stm. " No. 25	4540	13637	279.10
Total on Sheet	9136	29279	589.10

Hydrography: Buzzards' Bay, Mass., Adjacent to Nausikon Island. -
 U.S. Coast and Geodetic Survey Steamer "A. D. Bache", - Summer Season, 1896.
 Lieut. Robert G. Peck, U.S.N., Asst. C. and G. Survey, Chief of Party.

Date, 1896.	Day Letter.	Vol.	Number of -			Boat or Vessel.	Observers.
			Angles.	Sound'gs.	Nautical miles.		
Sept. 12	a	1	110	390	10.20	Oil Launch	Ensg's H. K. Hines & F. M. Russell, U.S.N.
" 14	b	2	90	232	7.40	"	" "
" 15	c	2	40	117	2.50	"	" "
" 16	d	1	70	229	6.30	"	" "
" 17	e	2	262	758	24.80	"	" "
" 18	f	1	152	441	14.90	"	" "
" 22	g	3	138	392	8.40	"	" "
" 24	h	3	64	238	4.70	"	" "
" 25	i	1	276	851	26.35	"	" "
" 26	k	2	80	293	8.75	"	" "
" 29	l	4	230	778	18.15	"	" "
Oct. 1	m	4	228	677	17.50	"	" "
" 7	n	5	240	650	17.40	"	" "
" 9	o	5	126	372	7.20	"	" "
" 10	p	3	36	122	2.00	"	" "
Total, Oil Launch			2142	6540	176.55	"	" "
Sept. 12	a	1	70	200	3.85	Stm. L. #25	Ensg's R. H. Davis & Thos. S. Martin, U.S.N.
" 14	b	2	94	347	7.60	"	" "
" 15	c	2	136	472	8.50	"	" "
" 16	d	1	68	271	6.00	"	" "
" 17	e	2	304	1057	24.35	"	" "
" 18	f	1	120	483	4.80	"	" "
" 22	g	3	176	559	11.10	"	" "
" 24	h	1	104	326	8.10	"	" "
" 25	i	3	274	888	21.55	"	" "
" 26	k	1	70	248	6.10	"	" "
" 29	l	4	250	991	18.55	"	" "
Oct. 1	m	4	202	643	14.80	"	" "
" 7	n	5	128	410	7.85	"	" "
" 9	o	5	136	448	7.45	"	" "
" 10	p	4	14	39	.90	"	" "
Total - Stm. L. #25			2146	7382	151.50	"	" "
Oct. 16	A	1	62	247	6.80	Ship	Ensg's R. H. Davis & F. M. Russell, U.S.N.
11 Recapitulation.							
Oil Launch			2142	6540	176.55	Oil Launch	
Stm. " #25			2146	7382	151.50	Stm. " #25	
Ship			62	247	6.80	Ship	
Total on Sheet			4,350	14,169	334.85		

Hydrography: - Buzzards' Bay, Mass., - Proj. "B." & Recapitulation. -
 U.S. Coast and Geodetic Survey Steamer "A. D. Bache" - Summer, 1896, -
 Lieut. Robert G. Peck, U. S. N., Asst. C. and G. Survey, Chief of Party.

Date 1896	Day Letter	Vol.	Number of -			Boat or Vessel	Observers.
			Angles	Soundings	Naut. miles		
Sept. 28	A	1	26	125	3.70	"Bache"	Ensig's H. K. Hines, A. H. Davis & F. M. Russell, U.S.N.
Oct. 16	B	1	102	374	13.20	"	" A. H. Davis and F. M. Russell, "
" 22	C	2	54	219	7.80	"	" " " " " " " " "
Total on Sheet			182	718	24.70	"	

Recapitulation of Season's Work. - By Boats.

Boat or Ship -	Number of -		
	Angles -	Soundings -	Naut. miles -
Ship - "Bache"	244	965	31.50
Str. Launch #25	6686	21019	430.60
Oil "	6738	22182	486.55
Grand Total	13,668	44,166	948.65

Recapitulation. - By Projections.

Projection No. 5	9136	29,279	589.10
" " "B" 6	4350	14,169	334.85
" " "B" 182	718	24.70	
Grand Total	13,668	44,166	948.65

Number of days on Station, and how employed. - July 20, to Oct. 31, 1896.

Number of days on which hydrographic work was done	45
" " " " " " " " " prevented by bad weather	29
" " " " " " " " " other causes	16
" " " Sundays	14
Total number of days on Station,	104

Signals.

Erected -	Occupied -	Determined -	Used -
31	28	63	52

Sheet 2267

made. Ground south from

Peukese Island Buzzards Bay Mass.

The ground within the limits of examination seems to be well covered.

The sounding lines by Derickson are much closer than those run by

Peck, and consequently change

the development from that determined from Peck's soundings - A sub sketch

on a scale of 1-5000 was made including both surveys, all soundings

~~was~~ plotted and curves drawn agreeable to both surveys.

J. C. Dorn,

NAUTICAL CHARTS BRANCH

SURVEY NO. *H-2267*
H-2268

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
<i>Aug 54</i>	<i>263</i>	<i>Jonest H Bell</i>	Before After Verification and Review <i>Sounding 5 Curves</i>
<i>11-16-61</i>	<i>1210 Recor</i>	<i>M. Rogers</i>	Before After Verification and Review <i>thru chart 263</i>
<i>2-7-62</i>	<i>New Cht 264</i>	<i>G.R. Johnson</i>	Before After Verification and Review <i>Applied in Part Thru Chts 263 & 249</i>
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
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M-2168-1

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