

5400

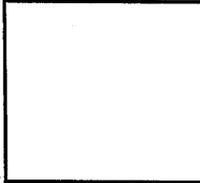
5400

Form 504  
Ed. June, 1923

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. Patton, Director



State: Massachusetts

DESCRIPTIVE REPORT

~~U.S. COAST AND GEODETIC SURVEY~~  
Hydrographic

} Sheet No. 1 5400

LOCALITY

Cape Cod

Provincetown Harbor and Vicinity.

19 33

CHIEF OF PARTY

K. T. Adams.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

5400

~~HYDROGRAPHIC~~  
~~TOPOGRAPHIC~~ TITLE SHEET

The finished ~~Topographic~~ <sup>Hydrographic</sup> sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

Field Number 1.

U. S. Coast and Geodetic Survey.

Register No. 5400

State ~~Massachusetts~~ . . . . .

General locality ~~Cape Cod~~ . . . . .

Locality ~~Provincetown Harbor and Vicinity~~ coasts. . . . .

Chief of party ~~K. T. Adams~~ . . . . .

Surveyed by ~~E. A. Dally and E. S. Averell~~ . . . . .

Date of survey ~~May 15, 1933 to November 1, 1935~~ . . . . .

Scale . 1 : 20,000 . . . . .

Depths  
Heights in feet ~~above~~ below Mean Low Water . . . . .

Depth Curve  
~~Contour~~ interval . . . . feet. 6, 12, 18, 24, 30, 36, 60.

Plotted  
~~Traced~~ by E. L. Hayward . ~~Traced~~ by . . . . . Soundings penciled by E. L. Hayward

Records accompanying sheet (check those forwarded): ~~PHOTODUPLICATIONS~~

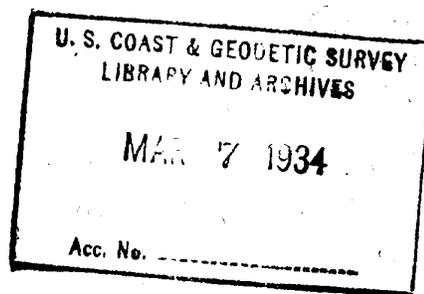
Descriptive report,  Data used in reduction of soundings.  
~~HOGRAPHICAL SHEETS / BOOKS / TABLES / COMPUTATIONS~~

Data from other sources affecting sheet . . . . .

Remarks: Tidal Data submitted seperately but includes  
Tide Curves at Provincetown  
Staff Readings at Peaked Hill Bar.

DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SHEET NUMBER 1  
PROVINCETOWN HARBOR AND OUTSIDE COAST (TO LONGNOOK BEACH)

K. T. ADAMS  
CHIEF OF PARTY.



DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SHEET NUMBER 2

PROVINCETOWN HARBOR AND OUTSIDE COAST (TO LONGNOOK BEACH)

AUTHORITY:- The authority for the hydrographic work executed on this sheet is included in the "Orders and Instructions, Project H. T. 145, Paragraphs 5 and 6, to the Inspector, Coast and Geodetic Survey, Boston, Mass.

SURVEY METHODS:- A Coast Guard Picket Boat No. 2337 was furnished to carry on the work and the personnel of this party was as follows:

1 man in charge who read right angle and plotted.  
1 left angle man  
1 recorder  
1 coxswain  
1 engineer  
2 leadsman.

Lieutenant E. A. Deily had direct charge of the boat until August 10, 1933, when Mr. E. S. Averell was placed in charge.

The hydrography was executed by the conventional U. S. Coast and Geodetic Survey methods using the hand line and machine with registering shieve. Signals were located by triangulation or topography. Only one signal, BAR, was located by sextant cuts for the use as a hydrographic signal.

OFFICE WORK:- Tide reducers for Provincetown Harbor and to a line running in a South Westerly direction from Race Point Light House were obtained by the use of a Portable Automatic Tide Gage located at the Town Pier in Provincetown.

Tide reducers for the outside coast, from Race Point Light to Longnook Beach were obtained from readings from a tide staff located at Peaked Hill Bars, Lat  $42^{\circ}-05'$  N. Long.  $70^{\circ}-10'$  W. and maintained over a period of seven days. After the tide staff was washed away, reducers were taken from the gage at Provincetown and corrections applied to reduce them to Peaked Hill Bars datum.

Where lines were spaced so close that all the soundings taken could not be plotted, the shallower ones were chosen.

Hydrographic Sheet Number 1 was made in Provincetown by Lieutenant E. A. Deily under very adverse conditions, and also checked by him.

COMPARISON WITH PREVIOUS SURVEYS: On Charts 1208 and 341 a shoal spot with 27 as the least depth (Approximate Lat 42°-01'18" Long 70°-06'19")<sup>is shown</sup>. This shallow spot was searched for and nothing less than the general slope of the surrounding area could be found. It is advisable to omit this shoal from future charts.

A rock approximately 10 feet in diameter was located approximately one half mile South of the entrance to Pamet River and about one half mile off shore. Although only boats with shallow draft use this area, this rock is rather a danger to navigation and it might be well to take steps to mark it as it bares only two feet at low water.

A group of rocks not shown on the above charts was located about one and one quarter miles South of Pamet River and near the shore line.

Provincetown Harbor is apparently growing larger and deeper, especially so in the cove to the West of Long Point Light House.

The area one mile off shore from Race Point Light House has deepened considerably, about 20 feet.

The tide rip as designated by the note on Chart 340 West of Race Point Light House is very strong at times.

Herring Cove, South East of Race Point Light House, no longer exists.

A dike has been built across the entrance to Hatches Harbor and shallow draft boats could use this place only at high water.

Our survey shows a wreck on the beach at Race Point Coast Guard Station. This was a three masted schooner, the hull of which is still very sound. It is well above the Low Water line.

The wreck shown by the new survey at approximate Lat 42°-03'14" Long 70°-05'11" would be difficult to see, as it was apparently only a few logs on the beach. These at times are covered by sand and cannot be found.

It is found that Peaked Hill Bars have changed somewhat.

CHANNELS:- There is no dredged channel in Provincetown Harbor.

GEOGRAPHIC NAMES:- Local geographical names were not checked by the writer of this report.

STATISTICS:-

Number of positions	Number of soundings	Miles of soundings
5206	20,383	869.8

Submitted by:

*Edw. S. Averell*  
E. S. Averell  
Surveyor

Approved by:

*K.T. Adams*  
K. T. Adams  
Chief of Party

ADDENDUM TO REPORT FOR HYDROGRAPHIC SHEET NUMBER 1.

OFFICE WORK:- Although certain signals are shown as triangulation stations on this sheet, they were first located by the topographic party and plotted on the sheet from this data. In general, the topographic positions check the later triangulation locations within reasonable limits, but attention is called to the position of "THUR", which varies 17 meters in the two methods of location.

The smooth sheet was started and most of the hydrography in this vicinity was plotted before the triangulation positions were available, therefore, the topographic locations of the following signals were not changed on the smooth sheet.

The following comparison furnishes a check on the accuracy of the work done by the topographer.

List of signals:

Name	Topographic Location		Triangulation Location	
	LAT	LONG.	LAT.	LONG.
FRI	1648	343	1652.3	348.6
SAT	1570	260	1567.1	266.1
WED	967	967	963.2	971.1
THUR	853	850	836.4	862.3
AB	573	490	571.0	500.9
BOS	418	340	409.0	344.1

LAC  
82

March 22, 1934

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
17 volumes of sounding records for

HYDROGRAPHIC SHEET 5400

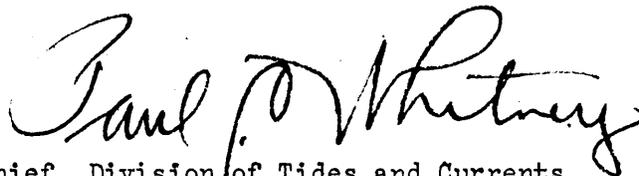
Locality Provincetown Harbor and Vicinity, Cape Cod Harbor, Mass.

Chief of Party: K. T. Adams in 1933  
Plane of reference is mean low water, reading  
4.0 ft. on tide staff at Provincetown  
15.8 ft. below B. M. 6

2.0 ft. on tide staff 1 at Peaked Hill  
1.0 ft. on tide Staff 2 " " "  
28.5 ft. below B.M. 1

Height of mean high water above plane of reference is 9.1 feet  
at Provincetown and 8.3 feet at Peaked Hill.

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents

Report on H-5400

May 4 1934

This sheet was inked and verified by three verifiers. Mr. Murray and Mr. Zerkind inked and verified the major part of the hydrography. This part of the sheet was completed first in order that a chart (No 580) could be made. Remarks by Mr. Murray and Mr. Zerkind are to be found immediately following this report.

This report is on the remaining work connected with this sheet; it includes the following hydrography.

- 1) all work on the north side of Cape Cod east of Long 70° 09.3'
- 2) Work north of Lat 42° 05.6'
- 3) Work south of Lat 41° 56.95' and east of Long 70° 05.9' including the overlap.

The records conform to the requirements of the general instructions

The usual depth curves could be completely drawn, except for the 18 foot curve in the vicinity of Long 70-09 on the north side of Cape Cod.

The field plotting was complete except for the shoreline in the following locations

- 1) Vicinity of Hatchus Harbor
- 2) Part of the shoreline inside the dike at Provincetown Harbor.
- 3) Pilgrim Lake

The only adjoining sheet is H 5401 which overlaps the southern end of this sheet. This junction is not very satisfactory. In general the soundings from H-5401 are from 1 to 3 ft less than those of this sheet.

The portion of the low water line shown on the Topographic sheet (T-6033), on the north side of Cape Cod, had to be revised due to the hydrography

Additional work showing the location of present outer limits of Fish Traps and Boat Moorings was plotted on this sheet. This work is completely shown on a tracing accompanying this sheet.

In order to plot this work it was necessary to plot triangulation stations Cold, Cen and Fish. and to transfer  $\odot$  Pump and  $\odot$  Cot from T 6033.

The name Herring Cove although shown on the new chart has been left off this sheet. This cove as shown on the old chart has apparently disappeared. The name Salt Meadow is not

shown on the new chart and has been left off ✓  
this sheet.

The field drafting was excellent. ✓

Respectfully Submitted  
Victor D Behr.

Peaked Hill Bar. (H-5400)  
Historical notes for Review

In 1908, this was a continuous bar  
5 m. in length and having a least depth of  
from 14-18 ft.

By 1911, the bar had broken up into  
3 sections

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Wreck Lat.  $42^{\circ} 02.69$ , Long  $70^{\circ} 10.61$

Schooner - Cabral y. 1910  
On Mar. 8, 1910, a wreck <sup>reported by</sup> was found on the  
chart in this location. Authority of LHN to M 97  
1910

On June <sup>15</sup> of the same year the wreck <sup>reported by</sup> and buoy  
were removed by authority of letter # 288  
from the Light House board stating that  
the wreck had been removed

On July 29, 1920 the buoy & wreck <sup>reported</sup>  
was re-established per authority of LHN to M  
#309 1920.

On Aug 15, 1920, the buoy & wreck <sup>reported</sup>  
were removed ~~per~~ authority of LHN to M  
#33, 1920 stating that the wreck had been  
removed.

May 4, 1935  
H. Murray

Remarks H-5400  
RUSH SHEET

1. Field protesting & plotting excellent. ✓
2. Buoys are located by 3-sh. fix and have been checked against the records.
3. Comparison with the chart. 341

a Buoys have been compared and following differences noted:

- (1) Lat.  $42^{\circ}02'$ , long  $70^{\circ}9'.8$  — moved 100m due N.
- (2)  $42^{\circ}02'.4$   $70^{\circ}8'.6$  — 175m E + 50m. N.
- (3)  $1'.5$   $9'.83$  — 150m due S.
- (4) The accompanying buoy to the north-west is OK.
- (5)  $42^{\circ}08'.7$   $70^{\circ}12'.06$  — 20m. E + 10m. N.
- (6) buoy about 180m S.W. has moved 40m due N. ✓
- (7)  $42^{\circ}01'.5$   $70^{\circ}13'.2$  — 70m. due N.
- (8) accompanying buoy to N.W. has moved 90m due N.
- (9)  $42^{\circ}2'.75$   $70^{\circ}15'.05$  — 50m. to N.E.
- (10)  $2'.7$   $14'.2$  — 320m to S.W.

b 27ft shoal, lat  $42^{\circ}01'.75$ , long  $70^{\circ}6'.85$ . additional development failed to confirm the 27 ft. shoal shown on the chart. Least depths obtained range from 45-97 ft.

4. Crossings are adequate and in general vary from 1-200' with few exceptions. One exception may be found in lat  $42^{\circ}0.1$ , long  $70^{\circ}8'$  — 72/65 ft. Evidence of a steep bank is shown by a adjacent line to the south; possibly slight displacement of the 72 into 65 in plotting.
5. Work done jointly by Murray & Zerkow

may 4, 1974

Harold W. Murray & Art Zerkow

Section of Field Records

REVIEW OF HYDROGRAPHIC SHEET NO. 5400

Provincetown Harbor and Vicinity, Cape Cod, Mass.

Surveyed May -Nov. 1933.

Instructions for project H. T. 145, Apr. 29, 1933 (Boston)

Chief of Party - K. T. Adams.

Surveyed by - E. A. Delly and E. S. Averell.

Protracted and soundings penciled by - E. L. Hayward.

Verified and inked by - H. W. Murray, I. M. Zeskind and V. D. Behn.

1. Records in general conform to the requirements of the Hydrographic Manual. Some bottom characteristics were entered in the wrong place (course column). Notes relating to fish traps and nets were not definite enough to plot on the sheet. This was later remedied by a separate determination of the outer limits of the existing fish traps and indicated on the smooth sheet by a broken line (violet) where the traps were not shown on the boat sheet.
2. The plan and extent of development conform to the regulations and the specific instructions.
3. Soundings generally are consistent and depths at crossings of lines are in fair agreement. Exceptions are line 84 AN to 94 AN on which soundings are apparently 1 to 2 feet too deep ( $41^{\circ}58'.3-70^{\circ}04'.9$ ). In plotting preference has been given to the soundings on angle positions and the time spaced soundings were selected to give an average representation at depth curves. Change of leadsmen may account for the discrepancy.

The soundings in the vicinity of the Municipal Dock (O Cit) taken on b day do not agree with those taken in the same vicinity on AL day. The latter were given the preference in that they were taken later in the season after the crew was well broken in to the work.

4. Depth curves can be drawn satisfactorily except at the western end of Peaked Hill Bar ( $42^{\circ}05'.2 - 70^{\circ}09'$ ) where the development is not sufficient to draw the 18 foot curve accurately.
5. Junction with H. 5401 is adequate, but the agreement in depth of the overlapping lines is not as close as could be desired. Differences of 2 to 3 feet are noted on the outermost line of H. 5401. There is evidence of ridges and valleys paralleling the coast but the difference is in excess of probable change in depth. It may be due to the use of different leadsmen or to the existence of choppy seas when the work on H. 5401 was done. No other contemporary surveys adjoin the sheet.
6. Comparison with H. 1903, H. 1951, H. 1952, H. 2019 and H. 2053 (surveys to 1890) shows numerous changes in details inside the 30 foot curve. In most places the outer part of the 18 foot

curve seems fairly stable, but there were some changes in details especially in the vicinity of Peaked Hill Bar. The position of many of the shoaler areas has changed but the depth over them generally varies less than 2 feet. H. 2594 (1902) shows soundings in the vicinity of the speed trial course. They are in good agreement with the present survey. These surveys can be superseded by the present survey for charting purposes. Chart 1208 shows a 27 hard sand in the eastern part of Provincetown Harbor. The sounding was placed on our charts about 1890 but its source could not be determined. The present survey sufficiently disproves its existence at the present time. Depths of 45 and 46 feet were obtained. It has been omitted from the new chart 580. Chart 580 was compiled before H. 5400 was entirely completed but no changes have been made on the sheet that affect the chart.

- 7. Field drafting was completed to extent prescribed by the Hydrographic Manual and was excellent.
- 8. Reviewed by - R. J. Christman, May 16, 1934.

INSPECTION NOTE

Additional Work.

a. In order that the discrepancy with hydrographic survey No. 5401 (mentioned in par. 5 of the review) be cleared up, it is recommended that one or two cross lines be run across the overlapping area to determine which sheet is correct. If H. 5400 is found in error then an additional cross line should be run about a mile to the northward of the first line to determine how far the error extends. If H. 5401 is found in error a similar cross line should be run about one mile to the southward of the first cross line.

*Add'l cross lines accomplished on H-5543 (1934). Westernmost line from H-5401 (1933) appears to be too shoal but evidence is not conclusive, the work on H-5543 failing to consistently agree with itself or with the present survey. No changes have been made.  
H. W. M. 10/2/36*

b. It would also be desirable to extend the development of Peaked Hill Bar to the westward.

Sheet Inspected by - A. L. Shalowitz.

*K. T. Adams*  
K. T. Adams,  
Chief, Section of Field Records.

Examined and approved:

*L. O. Albert*  
Chief, Division of Charts.

*H. P. Jordan*  
Chief, Section of Field Work.

*G. Wade*  
Chief, Division of H. & T.

25 Jan 24, 1936  
E.H.D.