

5944

U. S. COAST & GEODETIC SURVEY
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Form 504
Rev. Dec. 1933
DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

~~Taxiograph~~ } Sheet No. _____
Hydrographic } **Field No. 41**

State California

LOCALITY

~~North Coast~~ Northern California Coast
one mile south of
Point Cabrillo to Usal Rock

1935

CHIEF OF PARTY

F. H. Hardy

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

35046
5602

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. 41 **H5944**

REGISTER NO.

State California

General locality North Coast Northern California Coast

Locality Point Cabrillo to Usal Rock
0.5 mile south of

Scale 1:40,000 Date of survey June 13 to Oct. 22, 1935

Vessel GUIDE

Chief of Party F. H. Hardy

Surveyed by L. P. Raynor and F. B. Quinn

Protracted by H. G. Conerly

Soundings penciled by H. G. Conerly

Soundings in fathoms feet

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by

Inked by Jamelornick

Verified by Jamelornick

Instructions dated May 2, 1935

Remarks:

DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SHEET FIELD NO. 41
Project H.T. 206
Coast of California
U.S.C. & G.S.S. GUIDE

INSTRUCTIONS:

Instructions dated May 2, 1935.

CHARACTER OF WORK:

Soundings were taken by Fathometer on the ship and controlled by visual three point fixes on shore stations. All angles were taken from bridge of the ship or very near the bridge.

The system of lines were kept within the limits prescribed by the instructions and a system of cross lines were run every four miles. Vertical casts were distributed over the sheet for Fathometer comparisons at different depths, and to obtain bottom specimens.

LIMITS:

This sheet covers the area from Point Cabrillo to Usal, between the limits of the inshore hydrography completed in 1929, on sheets H-4983 and H-4982; and the inshore limit of Sheet H-4989, also completed in 1929.

Area covered, approximately 185 square statute miles.

CONTROL:

All triangulation stations on this sheet except COTTANEVA NEEDLE 1871, and USAL ROCK 1873, were located in 1929 and 1930, on the North American 1927 datum. Stations USAL ROCK 1873 and COTTANEVA NEEDLE 1871 were adjusted in the field the same amount that other stations changed in position between the 1930 work and the 1871 work. A signal was built on reference mark at HARDY and plotted on the sheet.

Topographic stations were taken from Topographic Sheet 4209, completed in 1929. Hydrographic Station BUST was located on Field Sheet No. 1 by sextant cuts.

APPARATUS CORRECTION:

Sheave corrections were obtained by running a measured 20 fathom wire over the sheave.

Fathometer corrections were computed for each month using temperatures and salinities obtained in vertical casts, and using British Admiralty tables for velocities. A report on Fathometer corrections was submitted to the office on January 17, 1936.

Results of sheave tests are in the front of volume No. 1.

BOTTOM CHARACTERISTICS:

The bottom, in general was green sand and mud with occasional broken shell.

DANGERS AND SHOALS:

There are no dangers within the limits of this sheet.

Soundings of 25 fathoms were obtained at Latitude $39^{\circ} 30'.5$, Longitude $123^{\circ} 49'.6$, which seem to be an extension of a shoal extending out from Laguna Point as shown on Sheet H-4983. Soundings obtained on this sheet are the same location as a single 25 fathom sounding obtained on Sheet H-4983. See review, par. 7b (1)

The comparatively shoal area at Latitude $39^{\circ} 22'.5$, Longitude $123^{\circ} 53'.0$ was adequately surveyed on Sheet H-4989, and with the line done on Sheet Field No. 40, it was not deemed necessary to do additional development.

There were no other irregular bottom areas or shoals.

COMPARISON WITH PREVIOUS SURVEYS:

Where the work joins Sheet H-4989 and Sheet H-4991 on the west, the comparison was good with one or two fathoms difference in a few places.

On the east side the junctions were also good with only one difference of more than two fathoms. A 16 fathom sounding was obtained at Latitude $39^{\circ} 40'.8$, Longitude $123^{\circ} 49'.0$, near a 23 fathom sounding on Sheet H-4982. It was not considered advisable to do further work here with the ship. There was no opportunity to sound with a launch. It is planned to wire drag this area the next field season and cover the 16 fathom spot. See review, par. 10 a ✓

Soundings obtained are in general one to three fathoms deeper than those shown on sheets H-1586 b and H-1643 a. It is recommended that this sheet supercede those sheets.

See review, par 7b

LANDMARKS:

Landmarks for charts have been submitted under separate cover.

No Landmarks covering this area received Aug. 5, 1936. RJC

ANCHORAGES:

There are no recommended anchorages within the limits of this sheet.

DISCREPANCIES:

Crossings on this sheet were in general, good.

At Latitude $39^{\circ} 42'.6$, Longitude $123^{\circ} 50'.6$, there is a five fathom difference in two cross lines. The sounding on 71 B may have been read a little early or the position taken late which, on the steep slope would make the difference. The 37 fathom sounding should be rejected. *The 37 fm sdg at pos. 71B omitted*

At Latitude $39^{\circ} 30'.0$, Longitude $123^{\circ} 52'.9$, to Longitude $123^{\circ} 52'.2$, soundings on cross lines apparently are too deep. The vertical casts in the near vicinity indicate that the regular system of lines are correct, and the soundings from the 64 fathom sounding after Position 54 N to the sounding on Position 65 N are too deep and should be questioned. *67 fm sounding before pos. 55 N omitted*

BOATS AND EQUIPMENT:

All sounding was done by the Fathometer and electric driven sounding machine aboard the Steamer GUIDE. The machine is located forward and slightly to starboard of the bridge and the end of the sounding boom is 10 feet forward and 25 feet to starboard of position where angles were taken.

Respectfully submitted,

H. G. Conerly
H. G. Conerly,
Aid,
C. & G. Survey.

Approved and forwarded:

F. H. Hardy
F. H. Hardy,
Chief of Party,
Coast and Geodetic Survey.

STATISTICS
TO ACCOMPANY
HYDROGRAPHIC SHEET FIELD NO. 41

Date 1935	Day Letter	Statute Mi. Soundings	Number Soundings R L D	Number Positions	Vertical Casts
June 23	A	31.1	320	57	1
June 24	B	47.4	320	71	
June 25	C	51.6	326	83	
June 26	D	87.6	921	150	5
July 7	E	31.3	231	61	5
August 4	F	25.8	138	41	5
August 5	G	27.6	136	38	
August 6	H	55.2	310	86	5
August 8	J	1.8	10	4	
August 11	K	28.5	194	57	
August 14	L	16.1	212	39	
August 26	M	54.0	288	102	5
August 27	N	45.4	354	92	22
Sept. 6	P	13.8	115	33	
October 22	Q	16.1	101	38	5
TOTAL		533.3	3976	942	53

Area 185.0 Square Statute Miles.

LIST OF SIGNALS
to accompany
HYDROGRAPHIC SHEET FIELD NO. 41

Name	Location	Full Name
Cab	Triangulation, 1929	Pt. Cabrillo Lighthouse
Mid	" "	Mid
Mitch	" 1919-1929	Mitchell
Beaver	" "	Beaver
Noyo	" 1874-1929	South Noyo
Sold	" 1919-1929	Soldier
West	" 1929	West Stack
Fort	" 1929	Fort Bragg
Lag	" 1878-1929	Laguna Point
Sand	" 1929	Sand
Ten	" 1929	Ten Mile River Bluff
New	" 1929	Newport
Phee	" 1929	Phee
Bell	" 1873-1929	Bell Point
Cup	" 1929	School Cupola
Aba	" 1929	Abalone Point
Hardy Rock	" 1929	Hardy Rock
Hardy	" 1929	Hardy (Reference Mark)
Slope	" 1930	Slope
Cot	" 1871	Cottaneva Needle
Roc	" 1930	Rock
Frank	" 1930	Soldier
Devil	" 1930	Devil
Rok	" 1873	Usal Rock
Usal	" 1873-1930	South Usal
Line	" 1930	Shoreline Rock
North	" 1930	North Usal
Bust	Hydrographic Sheet Field No. 1	Bust
End	Topographic Sheet No. 4209	End tower 85 feet high
Tow	" "	Tower 150 feet high

STATEMENT
to accompany
HYDROGRAPHIC SHEET FIELD NO. 41

The smooth plotting of this sheet was done by Ensign
H. G. Conerly.

The soundings, bottom characteristics and depth
curves were also penciled by Ensign H. G. Conerly

The completed smooth sheet and records have been
inspected and approved.

F. H. Hardy

F. H. Hardy,
Chief of Party, C. & G. S.,
Commanding Ship GUIDE.

HYDROGRAPHIC SURVEY NO. 5944

Smooth Sheet Yes

Boat Sheet 1

Sounding Records Yes Vols. 3

Descriptive Report Yes

Title Sheet Yes

List of Signals See D.R.

Landmarks for Charts (Form 567) No

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) No

Special Chart for Lighthouse Service No
(Circular Nov. 30, 1933)

Remarks _____

GEOGRAPHIC NAMES

Survey No. **H5944**

Name on Survey	Source										
	A	B	C	D	E	F	G	H	K		
<u>PT. CABRILLO</u>	5602										1
<u>USAL RK.</u>	5602										2
											3
											4
<i>Undeclared names approved Mar. 4 1926</i>											5
<i>Olague</i>											6
											7
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MEMORANDUM

IMMEDIATE ATTENTION

SURVEY }
 DESCRIPTIVE REPORT } No. H 5944
 PHOTOSTAT OF } ~~No. T~~

{ received Feb. 25, 1936
 { registered March 2, 1936
 { 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	
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G. K. Green Mar. 3-36
 Capt. Hardy requested boat
 sheet returned to field '36
 by May 1, 1936
(Signature)
 CKG

zac.

TIDE NOTE FOR HYDROGRAPHIC SHEET

March 4, 1936.

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. E. P. Ellis

Tide Reducers are approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 5944

Locality Pt. Cabrillo to one mile south of Usal Rock, California coast.

Chief of Party: F. H. Hardy in 1935
Plane of reference is mean lower low water reading
2.7 ft. on tide staff at Shelter Cove
7.2 ft. below B.M.1A

Height of mean high water above plane of reference is 5.6 feet.

Condition of records satisfactory except as noted below:



Acting Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. **H5944**

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

Number of positions on sheet	942...
Number of positions checked6.
Number of positions revised1.
Number of soundings recorded	.4029.
Number of soundings revised	...12.
Number of signals erroneously plotted or transferred	...0..

Date: March 9, 1936

Verification by **J.A. McCormick**

Time: ~~8~~ hrs.

Review by *R L Johnston*

Time: 24 $\frac{1}{2}$ hrs.

Verifier's Report on H-5944

Records: Records conform with regulations.

Drafting: Drafting is excellent.

Control: Topographic Signals are from ~~H-428~~ T-4209. Hydro signal BUST is from H-5920.

Junctions: H-5920 adjoins this sheet on the northeast and H-5921 adjoins it on the south. These two sheets have not been verified at date of this report.

March 9, 1936.

Submitted,

J. A. McCormick.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5944 (1935) FIELD NO. 41

Northern California Coast
Surveyed in June to October, 1935
Instructions dated May 2, 1935 (GUIDE)

Fathometer Soundings.

3 Point fixes on shore signals.

Chief of Party - F. H. Hardy
Surveyed by - L. P. Raynor, F. B. Quinn
Protracted and plotted by - H. G. Conerly
Verified and inked by - J. A. McCormick

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual.

The Descriptive Report is clear and adequately covers all matters of importance.

2. Compliance with Instructions for the Project.

The survey adequately complies with the instructions for the project.

3. Shoreline and Signals.

This is an offshore survey and no shoreline is shown. Topographic signals are from T-4209 (1929). Hydro signal "Bust" is from H-5920 (1935).

4. Sounding Line Crossings.

In general the sounding line crossings are excellent. The difference at crossings was not more than one fathom except in the two cases described on page 3 of the Descriptive Report.

5. Depth Curves.

The usual depth curves may be satisfactorily drawn.

6. Junctions with Surveys.

The survey to the northward, Field Sheet No. 42, has not been received and this junction will be considered in the review of that sheet. The inshore junction on the northeast with H-5920 (1935) will be considered in the review of that sheet. The inshore junctions on the east with H-4982 (1929) and H-4983 (1929) are satisfactory except in the area between lat. 39°41 and lat. 39°43 where a close junction with H-4982 (1929) was not made. Two soundings lines from H-4989 (1929) fall in the open area between H-4982 (1929) and the present survey never the less at least one more split line would have been desirable.

H-4989 (1929) joins the present survey along its western limits and also shows several sounding lines along its eastern limits and some development on its southern limits. In the deeper areas over 65 fathoms on the western limits, some of the soundings are in fairly close agreement with the present soundings while others are from 1 to 4 fathoms shoaler. In the shoaler areas under 65 fathoms, the depths are in general agreement with the present soundings. The junction with this survey is considered satisfactory.

The offshore survey, H-4991 (1929) shows a few widely spaced soundings which are in fairly close agreement along the western limit of the present survey. This junction is considered satisfactory except in the vicinity of lat. 39°46, however, the blank area not covered by either this survey or the present survey is covered by sounding lines on H-4136 (1921) and may also be covered by the survey yet to be received to northward. (Field ~~Station~~ Sheet No. 42.) The junction on the south with H-5921 (1935) is satisfactory.

7. Comparison with Prior Surveys.

a. H-241 (1851) and H-401 (1854)

These surveys, on scales of 1:1,000,000 and 1:375,000 respectively show one or two soundings within this area. Because of their small scales these surveys are of no value for comparison and they should be disregarded in future charting.

b. H-1586b (1883) and H-1643a (1885)

These surveys, on scales of 1:20,000, together cover the entire area of the present survey. The depths are from 1 to 3 fathoms shoaler than the present ones in some areas and are in general agreement in others. An examination of the original sounding records was made to trace, if possible, the reasons for the differences. It is noted that the leadline was in use up to depths of 110 fathoms. In the case of H-1586b (1883) no "comparison of leadline" was submitted but the soundings were reduced in accordance with a table of corrections given at the end of each day. This apparently was accomplished by erasing the original sounding entry and substituting the corrected sounding but in a few cases only can the original figures be determined. There is no evidence to show how the values of the corrections were determined. The leadline (old style cord) must have been unstable as the corrections for similar depths on different days vary considerably. In the case of H-1643a (1885), the original records show that the leadline corrections were properly applied, viz. shown in the tide reduction column but independently of the tide reduction values. The original comparison of leadline was not forwarded but a "true copy" was entered in vol. 9 of the sounding records. The following significant note was also entered: "In applying corrections to leadline due weight was given to circumstances of weather and also to age of leadline. E. D. Taussig."

This note indicates that the values of the corrections were more or less arbitrary. The actual differences between the leadline and the standard are not recorded; the weight of the lead in use was not given; the leadline appears to have been unstable, the A.M. and P.M. comparisons varying considerably (up to 8 feet at 60 fathoms on several days). In view of the known difficulty of getting accurate soundings in deep water with the old style leadline and the uncertainties in the reductions for leadline noted above, and because the present survey, although plotted on a scale of 1:10,000 shows as close or a closer development of the area with well distributed vertical casts in good agreement with the general fathometer soundings, the above surveys should be superseded by H-5944 (1935) for future charting purposes with the exception of the following:

- (1) The 24 3/4 fathom sounding (charted 24 on Chart 5602) in lat. 39°30.23' long. 123°49.9' from H-1586b(1883) falls in depths of about 33 fms. on the present survey which shows a closely sounded area with depths of 25 fathoms about 700 meters north-east of the old 24 3/4. The present development does not extend far enough in a southwest direction to conclusively disprove the old 24 3/4. The present 25 fathom soundings fall in blank area on H-1586b(1883) but the surrounding soundings agree with the present depths and there is therefore no evidence that both of these shoalings could not exist. The 24 3/4 fathom sounding therefore has been carried forward as 25 fathoms and should be retained until more definitely disproved. A 29 fathom sounding 150 meters northwest of the 24 3/4 was also carried forward.

c. H-4136 (1921)

This survey, on a scale of 1:120,000 covers the north western area of the present survey as far south as lat. 39°42'. The depths are in good agreement with the present ones with the exception of an occasional sounding which is several fathoms deeper. This survey shows no outstanding shoal soundings which need be mentioned. Because of the larger scale and closer development of the present survey, H-5944 (1935) should supersede the above survey for charting the area common to them.

8. Comparison with Chart 5602 (New Print dated Aug. 15, 1935)
Chart 5703 (New Print dated Feb. 2, 1935)

a. Hydrography.

Within the area of the present survey the chart is based on surveys discussed in the foregoing paragraphs and contains no additional information that needs consideration in this review.

b. Aids to Navigation.

The buoys in this area were not located on the present survey as they fall off the inshore limits.

9. Field Plotting.

The prescribed amount of field plotting was satisfactorily done.

10. Additional Field Work Recommended.

When feasible the following additional work should be accomplished:

- a. The 16 fathom sounding on the present survey at lat. 39°40.8', long. 123°49.0' falls in depths of approximately 22 fathoms on H-4982 (1929) and H-4989 (1929). It is stated in the Descriptive Report, page 2, that it is planned to cover the spot with the wire drag the next field season. If this is not done the 16 should be further examined by soundings. 69/5
- b. The 24 3/4 fathom sounding carried forward from H-1586b (1883) at lat. 39°30.23', long. 123°49.9' should be further investigated. (See par. 7b (1) of this review).

11. Superseding Old Surveys.

Within the area covered the present survey, with the indicated additions from previous surveys, supersedes the following surveys for charting purposes:

H-241 (1851) in part	H-1586b (1883) in part
H-401 (1854) " "	H-1643a (1885) " "
	H-4136 (1921) " "

12. Reviewed by - R. L. Johnston and R. J. Christman, March 30, 1936

Inspected by - A. L. Shalowitz

C. K. Green, *C. K. Green*
Chief, Section of Field Records.

Fred. L. Peacock
Chief, Section of Field Work.

K. T. Adams
Acting Chief, Division of Charts.
Stude
Chief, Division of H. & T.

Applied to chart 5602 June 19, 1937. G. H. S.