6221

Form 504
Rev. April 1935
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic } Sheet No. 41-36,37

State California

LOCALITY

Northern California Coast

Big Flat to Cape Mendocino

193 6-37

CHIEF OF PARTY

F. H. Hardy

U. S. GOVERNMENT PRINTING OFFICE

Form 537

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. 41-36,37

REGISTER NO. H 6221

State California

General locality Northern California Coast

Locality Big Flat to Cape Mendocino

Scale 1:40,000 Date of survey May 8 to Sept. 23, 1937 June 7 to Oct. 7, 1936

Vessel GUIDE

Chief of Party F. H. Hardy

Surveyed by R. L. Schoppe, L. P. Raynor, Charles Shaw, I. E. Rittenburg and W. H. Bainbridge.

Protracted by L. P. Raynor, W. H. Bainbridge & G. M. Marchand

Soundings penciled by W. H. Bainbridge & M. G. Ricketts

Soundings in fathoms ~~feet~~

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by

Inked by G C McGlasson

Verified by G C McGlasson

Instructions dated May 2, 1935, 19

Remarks: Sheet started in 1936 and completed in 1937.

U. S. GOVERNMENT PRINTING OFFICE

DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SHEET FIELD NO. 41
Project No. HT-206
Coast of California
U.S.C. & G.S.S. GUIDE
1936-1937

AUTHORITY-PARTY-DATES-LIMITS:

The authority for this work is contained in Instructions, Project No. HT-206, dated May 2, 1935.

The work was done by the Ship GUIDE, F. H. Hardy, Commanding, during the periods June 7, 1936 to October 7, 1936 and May 8, 1937 to September 23, 1937. Lieutenant-Commanders R. L. Schoppe, L. P. Raynor, Charles Shaw and Lieutenants I. E. Rittenburg, W. H. Bainbridge were in charge of the work under the direct supervision of the Commanding Officer.

The area covered by this sheet is between Latitude 40° 28' on the north and a line extending southeast from Big Flat on the south, the work extending from about the 18 fathom curve to a distance of about 8 miles offshore. Junction on the south with Field No. 42-1935 & 1936, on the north with Field No. 41-1937 and Field No. 21-1937, on the east with the following Launch Sheets, Field Nos. 2, 3 & 4, 1936, 5-1936 & 1937, and 1-1937.

H-6138 H-6142 H-6163 H-6164 H-6222

CONTROL:

The signals used on this sheet were those which had previously been determined by triangulation, or were located by parties from this ship using planetable and aluminum mounted sheets.

SURVEY METHODS:

The ship's positions were obtained by the usual sextant three point fix, using shore objects, well determined by triangulation or topography. All soundings were obtained with Fathometer No. 312102 AC or by wire casts. Fathometer soundings were corrected for temperature, salinity and dial speed in accordance with Field Memorandum No. 3-1936, dated June 11, 1936. Special reports of Fathometer Corrections have been submitted for 1936 and 1937. Sheave Corrections are recorded on page 2 of volumes 1 and 7, and on page 26 of Volume 6.

DISCREPANCIES:

(1) A few discrepancies are noted in the development of the submarine valley just north of Big Flat. In this section the slopes are excessive, probably accounting for the differences. It was noted that the lines normal to the valley do not seem to reach the extreme depth. In this same valley, it appears that the soundings from Position 105R to 110R* are probably in error due to extreme slope and should be rejected, as the echo received probably did not come from directly below the ship. * Lat. 40°07' Long. 124° 19' *These soundings See par. 4, review.

(2) A shoal of 15 fathoms (pos 21G) in Latitude 40° 13.6', Longitude 124° 21.2' was not developed on this sheet. This sounding was thoroughly covered on the launch sheet of this area as well as by the wire drag. The bottom in this area is irregular and the 15 fathoms has been plotted.

(3) The 1937 work, Position 1 LL to Position 3 LL,* in the vicinity of Blunts Reef Lightship appears to be 2 fathoms deeper than the 1936 work, this may have been due to the fact that the instrument was not thoroughly warmed up, as the following soundings taken on the same day check remarkably well with previous work. Lat. 40°27.4' Long. 124° 31.4' *The soundings between positions 1LL and 3LL here been omitted for reason stated by field party. The area is adequately covered by other lines.

(4) Junction with the launch sheets of this area show differences of 1 or 2 fathoms, the 1936 Fathometer soundings in general being shoal. Reruns of launch work on Sheet Field No. 5-1936 & 1937 do not smooth out this discrepancy, attention is also called to the vertical casts by the ship, Positions 105 & 106 FF of the 1937 work. The soundings taken with the launch should be retained and the Fathometer soundings in this area questioned. H-6212 See par. 6, review. There were no reruns of launch work, this work simply being continued from stopping point in 1936.

Pos. 105 and 106 FF in lat. 40°21.8, long. 124°23.3 show depths averaging 18½ fathoms as against 17 fathoms in the 1936 fathometer work.

DANGERS:

No new dangers were found in the area covered by the soundings on this sheet.

ANCHORAGES:

There are none but offshore anchorages within the limits of this sheet; Shelter Cove being the nearest anchorage which offers reasonable protection, this anchorage being about 7 miles south of the southern limits of this sheet.

The GUIDE anchored in 17 fathoms, sandy bottom, good holding, Latitude 40° 21.95', Longitude 124° 23.2', about 2 miles south of Devil Gate Rock and about 1 mile offshore. Blunts Reef affords some protection from the swell caused by the locally strong northwest breezes.

The GUIDE also anchored in Latitude 40° 11.3', Longitude 124° 17.4' about 0.7 mile 170° True from Rodgers Break Whistle Buoy. The anchorage was in 15 fathoms about 3/4 mile offshore. This anchorage was only used twice during survey operations in the locality.

The anchorages noted were also used by Surveying Ships in previous years according to Davidson's Coast Pilot, 1889 Edition.

GENERAL DESCRIPTION OF BOTTOM - SUBMARINE VALLEYS, PLATEAUS:

The shore area of this sheet is characterized by high mountains and cliffs rising abruptly from the shoreline. Between the mountains are numerous steep sided gorges, many of which may be partially seen from the sea. Those near and in front of King Peak present a view of considerable grandeur.

As might be expected, however, the bottom of the sea is but a continuation of the land forms and several submarine gorges, some of which must rival in grandeur those seen on shore, cut through this Continental Shelf and head close under the mountainous coast line.

About three miles ~~north~~ west of Big Flat a minor submarine valley brings the 100 fathom curve to within about 2 miles of the beach.

Off to the west of Punta Gorda is a gently sloping submarine plateau, gradually narrowing to a ridge which carries the 100 fathom curve about 9 miles off from the point, from which the drop off is very pronounced particularly on the north side of the plateau.

The Punta Gorda Submarine Valley is a very deep gorge, immediately north of this cape, which comes in from the southwest. This valley heads close inshore about 1 mile north of the mouth of the Mattole River. It's sides are remarkably steep near the head, the 100 fathom curve comes within 1 mile of the beach.

Cape Mendocino Submarine Valley is another valley between Cape Mendocino and Punta Gorda. It comes from the westward but does not approach as close to shore as the Punta Gorda Valley. This valley brings the 100 fathom curve within 2 miles of the shore and the 400 fathom curve within about 6 miles of the shore. Northwest of this valley the irregular bottom off Cape Mendocino stretches well outside of Blunts Reef, between the 30 and 50 fathom curves the slope is quite gentle. Beyond the 100 fathom curve the slope becomes quite steep.

CLIMATE, WIND and WEATHER:

Punta Gorda, during the time the ship worked on this sheet, appeared to be a point of considerable climatic change. Many times when the weather at Shelter Cove and even at Big Flat was clear and calm, sea smooth; both wind and sea picked up as Punta Gorda was approached, until just north of this point strong breezes to moderate gales were experienced. At other times clear weather south of this point would lead to fog to the north or vice versa.

During the 1936 season unusally fine weather, for ship and launch work, was experienced south of Punta Gorda during May and June. After that period, the usual fog or wind prevented work much of the time. All work was hindered by smoke from forest fires, which started about the middle of August and continued until near the end of the season. The signals on many days were blotted out for all except inshore work by the launches, for them seeing was difficult at best.

COMPARISONS WITH PREVIOUS SURVEYS:

In general the agreement with sheets H-1681, H-1682, H-4136 and H-4184 is very good. See par. 7b, review.

This sheet, Field No. 41-1936-37, shows the flat off Blunts Reef Lightship to be of even bottom and in general shoaler than previously shown.

On the flat off the Mattole River the 50 fathom curve has been shifted inshore by this survey.

Off Mussel Rock in Latitude 40° 20.5', Longitude 124° 27.6' the old sounding of 49 fathoms, was thoroughly developed and disproved. See par. 7b, review.

The ~~66~~ 65 fathom sounding reported by the S. S. PRESIDENT GRANT in Latitude 40° 20', Longitude 124° 33.3' as plotted on the boat sheet fell on the tongue of the ridge south of Cape Mendocino Submarine Valley in depths of 500 fathoms as shown by the 1936 work on this sheet. This tongue was further developed in 1937 as depth curves indicated a slight possibility that such a sounding might exist. No indication of such a sounding was found in the area reported. See par. 12, review.

GEOGRAPHIC NAMES:

The geographic names for the locality covered by this sheet have been submitted in the topographic reports of the area.

STATISTICS:

1936 Season

Positions	1908
Soundings	7991
Statute Miles Sounding Lines	813.9

1937 Season

Positions---------- 954
Soundings---------- 3057
Statute Miles Sounding Lines ------ 318.3

TOTALS FOR SHEET 41

Positions---------- 2862
Soundings---------- 11048
Statute Miles Sounding Lines ----- 1132.2

Respectfully submitted,

Max G. Ricketts,
Jr. H. & G. Engineer,
Coast & Geodetic Survey.

Forwarded, approved:

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

(61)

H6221

STATEMENT
to accompany
HYDROGRAPHIC SHEET FIELD NO. 41-1936,37.

The protracting of the smooth sheet was done by Lieutenant-Commander L. P. Raynor, Lieutenant W. H. Bainbridge and Lieutenant (j.g.) G. M. Marchand. The soundings were penciled on this sheet by Lieutenant W. H. Bainbridge and Lieutenant (j.g.) M. G. Ricketts. ✓

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

Regarding the 65 fathom sounding reported by the S.S. PRESIDENT GRANT, reference Director's letter 80-DRM dated March 11,1937; should such a shoal exist within the range of two miles of the reported location, our regular system of lines point to the tongue of the ridge as the most probable location. The existence of such a shoal in this area was disproved by additional development, further development is not deemed necessary. ✓ It is only practicable to carry visual control to this area on but very few days during a seasons work . It is my opinion that the depth reported was due to a defective tube.

F. H. Hardy

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

H6221

TIDAL NOTE
to accompany
HYDROGRAPHIC SHEET FIELD NO. 41-1937-36
1936

A portable automatic tide gage was maintained on the wharf at Shelter Cove, in Latitude 40° 01.5' N., Longitude 124° 03.9' W.

MLLW on this gage was 2.9 feet, (see Director's letter 30 MC, October 8, 1935), as the staff of 1936 was set at the same elevation as in 1935.

The highest tide observed during 1936 was 10.4 feet on October 2nd, 1936.

The lowest tide observed was 1.6 feet on July 18,1936.

A low of 0.9 feet was recorded on May 23, but since the pipe was reported as clogged this may be questioned.

When the gage at Shelter Cove was not in operation records from the San Francisco gage were used by reduction to Shelter Cove datum, using the following corrections:

Ratio of Ranges	1.12
Time of High Water	- 0.85 hours
Time of Low Water	- 0.42 hours

For the hourly heights between high and low water, time differences in proportion to the time from high or low water were used.

H6221

TIDAL NOTE
to accompany
HYDROGRAPHIC SHEET FIELD NO. 41-1936-37
1937

The data from Portable Automatic Tide Gage No. H-147 at Shelter Cove, California was used for reductions of soundings and wire drag depths.

Position of Gage: Latitude 40° 01.5'

Longitude 124° 03.9'

MLLW (from level records) = 3.0 feet on staff.

The highest tide observed in 1937 was 10.8 feet on July 8, 1937.

The lowest tide observed was 1.0 feet on May 11, 1937.

R2C

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Ed. Feb. 1935

TIDE NOTE FOR HYDROGRAPHIC SHEET

Division of Hydrography and Topography: December 15, 1937.

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

Plane of reference
~~Tide Reducers are~~ approved in
9 volumes of sounding records for

HYDROGRAPHIC SHEET 6221

Locality Big Flat to Cape Mendocino, California coast

Chief of Party: F. H. Hardy in 1936 and 1937
Plane of reference is mean lower low water reading
2.9 ft. on tide staff at Shelter Cove, 1936
7.2 ft. below B.M. 2
3.0 ft. on tide staff at Shelter Cove, 1937
7.2 ft. below B.M. 2

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.

U. S. GOVERNMENT PRINTING OFFICE

GEOGRAPHIC NAMES

Survey No. H6221

Name on Survey	A, On Chart No. 5602	B, On previous survey No. T-1134	C, On U. S. ~~quadrangle~~ Forest Maps Service	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K USCP	
Big Flat	✓									1
Punta Gorda	✓									2
Cape Mendocino	✓	✓	✓					✓	✓	3
Blunts Reef Light Ship	✓							✓		4
California										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

Names underlined in red approved

by GBE on 12/20/37

M 234

	Remarks	Decisions
1		See T-6516
2		See T-6513
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
M 234		

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H6221

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

Number of positions on sheet	2862
Number of positions checked	33
Number of positions revised	0
Number of soundings recorded	11048
Number of soundings revised	123
Number of signals erroneously plotted or transferred	None

Date: 19 January, 1938

Verification by E. C. McGlinn — Time: 16 days 2 hours

Review by G. Risegari — Time: 8 "

HYDROGRAPHIC SURVEY NO. H-6221 (Contains W. D.)

Smooth Sheet Yes

Boat Sheet Yes

Sounding Records 9 Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals Vol.#1

Landmarks for Charts (Form 567) Yes

Statistics No

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) None

Special Chart for Lighthouse Service (Circular Nov. 30,1933) Yes

Remarks HYDROGRAPHY

Total Days 38

Last Date Sept 23, 37

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT } No. H-6221
~~PHOTOSTAT OF~~ No. I

received Dec. 9, 1937
registered
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	C. K. Green

19 January, 1938.

Report on H 6221
Verifying and Inking.

1. The records, as a whole, conform to the requirements of the General Instructions.
2. The usual depth curves can be completely drawn within the limits of the survey. However these depth curves were left in pencil on the sheet by direction of the Assistant Chief of Section.
3. The field plotting was completed to the extent prescribed in the Hydrographic Manual.
4. The office draftsman did not have to do over any part of drafting done by the field party except as noted on the statistic sheet, and correct the size of many, many position numbers. Furthermore, most all the position numbers on the sheet are large in comparision to standard Coast Survey practice.
5. The junctions with contemporary adjacent sheets are as follows:

H 6138 (1935-36) joins on the south and it is satisfactory.

H 6162 (1936) joins on the east

and it shows a general shoaling. all of the overlapping soundings were inked which, probably, should have been left in pencil. However the curves were not corrected but were left in pencil and they will be inked after the sheet is reviewed and disposition made of the soundings which conflict.

H 6163 (1936) and H 6164 (1936) join on the east and in general, the junctions are good. However in a few places the soundings were left in pencil and the curves were not inked. This work will be finished 10/44 disposition and final selection of soundings are made by the reviewing section.

The junctions with other contemporary adjacent sheets will be made and compared after they have been verified and inked.

6. The signals were taken from the aluminum mounted topographic sheets: T 6560 (1936), T 6559 (1936), T 6513 (1936), T 6512 (1936), T 6511 (1936), T 6516 (1936), and ~~T 6515 (1936)~~. There is one sheet missing in this area and it probably has not arrived from the field. Deductions from the records indicate this topographic sheet to be field letter "P".

This is an off shore sheet and no shoreline is shown.

7. The buoy "4RB" on the smooth sheet

was located by both topography and hydrography and no discrepancy was noted. Other aids* to navigation were located by hydrography. *(Blunts Reef L.S.)

8. On page two of the Descriptive Report, the Chief of Party recommends that soundings from position 105 R to 110 R* inclusive be rejected as they probably are in error, consequently these soundings were not inked on the smooth sheet. Vol. 9 p. 35

*These soundings are considered erroneous & have not been plotted. BL

9. In lat. 40°13.8', long. 124°21.8', volume 1, position 28C, The hydrographer states that the fathometer recorded a 17* fathom sounding but it is plotted on 18 fathoms on the smooth sheet and was inked as recorded in the records. (*This sounding was probably a stray as mentioned in record & has not been plotted.)

10. In lat. 40°07.8', long. 124°19.5', volume 1, position 107C. The hydrographer states that the recorded sounding of 128* fathoms should ~~not~~ undoubtedly be 138 fathoms, however it was inked on the smooth sheet as recorded. The 128 was rejected by F.P. in the record. 138 fms. is probably what was intended & plotted.

11. In lat. 40°16', long. 124°27', volume 3, page 69. The hydrographer notes this* a sounding of 131* fathoms but states that it is apparently a stray. In view of the fact that this is an "apparent stray" & has not been plotted on the smooth sheet & that the soundings recorded it was mentioned

12. In volume 4, position 131 R*. The wire taking this V.C. was slanting at an angle of 25°. Therefore it is recommended that this sounding be rejected.≠ Furthermore throughout the records and especially where the V.C.⊙ disagrees with the fathometer sounding, it will be noted that the wire for the V.C. is not going straight to the bottom but is approaching at an angle

* Lat. 40°-08'
Long. 124°-16.5'

Respectfully submitted.
E. C. McGlasson.

≠ V.C. sounding omitted on sheet, evidently erroneous. The record states "wire leaking out 25°."

⊙ The only other case where there is a decided difference in depths between the fathometer and wire soundings is pos. 132 R in lat. 40°-08.8' long. 124°-16' where the wire inclined 5°. The error is less than 1 fm. and is negligable.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6221 (1936-37) FIELD NO. 41

Big Flat to Cape Mendocino, Northern California Coast, Cal.
Surveyed in June - Oct. 1936, May - Sept. 1937, Scale 1:40,000
Instructions dated May 2, 1935 (GUIDE)

Fathometer Soundings. 3 Point fixes on shore signals.

Chief of Party - F. H. Hardy,
Surveyed by - R. L. Schoppe, L. P. Raynor.
Protracted by - L. P. Raynor, W. H.Bainbridge, G. M. Marchand.
Soundings plotted by - W. H. Bainbridge, M. G. Ricketts.
Verified and inked by - G. C. McGlasson.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except as follows:

a. Position numbers and day letters are in general too large. In many cases they were erased and re-inked in the office.

b. The plotting and verification form on the smooth sheet was not filled out in the spaces provided for hydrographic signals. The verification was accomplished in the office.

The Descriptive Report is clear and comprehensive and satisfactorily covers all items of importance.

2. Compliance with Instructions for the Project.

The survey satisfies the instructions for the project except that the submarine valley in the lower portion of the sheet should have been further developed. (See par. 14, instructions, and par. 4, this review).

3. Shoreline and Signals.

a. This is an offshore survey and contains no shoreline.

b. The topographic signals originate with plane table surveys: Field Letter P (1936-37), T-6511 (1936), T-6512 (1936), T-6513 (1936), T-6516 (1936). T-6559 (1936), and T-6560 (1936).

c. The hydrographic signal Strawberry Rock was located on the present survey, the cuts being recorded in Volume 7 of the sounding records.

4. Sounding Line Crossings.

Sounding line crossings are satisfactory except in the submarine valley near the southern limits of the survey (approximate lat.

40° 05', long. 124° 20'). The descriptive report (page 2, Discrepancies, par. 1) states that "soundings from pos. 105R to 110R are probably in error due to extreme slope and should be rejected." The discrepancies are not confined to positions 105-110R but maintain an average of 30 fathoms in 14 crossings of lines between positions 93 and 115 R with other lines in this area, the additional positions being in the deeper depths and on more gentle slopes. There are, too few vertical casts in the valley to arrive at any conclusion as to the probable amount of error due to slope. Soundings between pos. 105 and 110R have been rejected in the office because the area has been fairly well covered by other lines. The remaining soundings between pos. 93 and 115 R have been retained because of the inadequate coverage of the area in which they fall. While the soundings are probably sufficiently accurate for charting purposes they are inadequate for drawing detailed depth curves. Additional work is being requested in this area to eliminate the discrepancy found (see par. 11a, this review).

5. Depth Curves.

Within the limits of the survey the usual depth curves may be satisfactorily drawn.

6. Junctions with Contemporary Surveys.

a. The junctions with H-6138 (1935-6) on the south and H-6164 (1936) on the east are satisfactory.

b. The junctions with H-6162 (1936) and H-6163 (1936) in the east show discrepancies of 1 to 2 fathoms between the fathometer soundings on the present survey and the wire soundings on the inshore surveys. The wire soundings are considered the better of the two methods (see also descriptive report, page 2, Discrepancies, par. 4) and in cases where the fathometer soundings conflict with them in the delineation of the 20 fathom curve the fathometer soundings have not been inked in the overlaps. The inshore surveys with indicated additions should be given preference in charting the common area.

c. The junctions with H- Field No. 41 (1937) and H Field No. 21 (1937) on the north, H- Field No. 1 (1937) on the northeast, H-6222 (1936-7) on the east and H - Field No. 121 on the south, west and north will be considered in the reviews of those surveys.

7. Comparison with Prior Surveys.

a. H-241 (1851), 1:1,000,000, H-401 (1854) 1:375,000.

These are reconnaissance surveys and contain no information not fully covered by the present survey.

b. H-1150 (1872), 1:20,000; H-1681 (1886), 1:20,000 H-1682 (1885-6), 1:20,000.

These surveys, combined, cover the area of the present survey within 5 miles of the coast. All depths on H-1682 (1885-6) have had the leadline correction applied in the wrong direction (see par. 7b, Review of H-6222 (1936-7). A good example of this is the 49 fathom sounding (not charted) in lat. 40° 21.4', long. 124° 27.7' on H-1682 (1885-6) originating with pos. 38 W (red) and falling in depths of 56 fathoms on the present survey. When correctly reduced the 49 fathom sounding becomes 55 fathoms and is considered in good agreement with the present survey. It should be disregarded in future charting. With this lead line correction taken into consideration, depths on H-1682 (1885-6) and on the other two surveys are in fair agreement with those on the present survey. Outstanding discrepancies are discussed below:

(1) The 29 fathom sounding (not charted) in lat. 40° 21.5', long. 124° 24.6' on H-1682 (1885-6) originating with pos. 8 D (red) falls in depths of 42 fathoms on the present survey and becomes 31 fathoms when correctly reduced (see above). Surrounding depths on the two surveys are in fair agreement. The sounding may be erroneous as to depth or position but similar differences are found within the present survey (note 47 fathom sounding on a crossline between depths of 57 and 59 fathoms on regular system of lines in lat. 40° 19.0', long. 124° 26.4'). The 31 fathom depths has been brought forward to the present survey.

(2) The 118 and 154 fathom soundings (both charted) in lat. 40° 10.5', long. 124° 25.8', and lat. 40° 09.8', long. 124° 24.4', on H-1681 (1886) originate with positions 9 and 10 X (red) and fall in depths of 201 to 213 fathoms and in 209 fathoms respectively on the present survey. Surrounding depths on the two surveys are in fair agreement. There is no evidence of such shoaling on the present survey, the bottom being remarkably uniform. The 118 is almost exactly 100 fathoms shoaler than the depths on the present survey, leading to the belief that it may result from a recorder's error. No such argument can be advanced for the 154, however. The present survey is more closely developed although on a smaller scale, soundings averaging about 300 meters apart as against approximately 800 meters on the old survey. Similar depths on the present survey are from 1 to 2 miles inshore. The shoal soundings on the old survey are believed to be erroneous either in depth or position and should be disregarded in future charting.

(3) In the submarine valley near the southern limits of the present survey several soundings have been

carried forward from H-1681 (1886) in order to give a better delineation of the depth curves.

The present survey with indicated additions and because of its better development should supersede the above surveys for charting purposes.

c. H-4136 (1919-20-21), 1:120,000; H-4184 (1921) 1:40,000.

The former survey covers practically the entire area of the present survey with very widely spaced sounding lines, except in the areas opposite Punta Gorda and Cape Mendocino, where the lines are spaced much closer. The latter survey covers portions of the present survey generally inside the 50 fathom curve. In general, the depths on the above surveys are in good agreement with those on the present survey.

(1) The most noticeable discrepancy appears on H-4136 (1919-20-21) where three soundings, 75 fathoms (pos. 13 D'), 72 fathoms (15 D') (charted), and 76 fathoms (16 D') in approximate lat. 40° 16.3', long. 124° 30.6' are shoaler than the present depths by as much as 20 fathoms. These soundings are either out of position or the depths are erroneous. This area has been adequately covered by the present survey and the questionable soundings mentioned above should not be considered in future charting.

(2) Several soundings in the vicinity of lat. 40° 13', long. 124° 20' are from 2 to 4 fathoms shoaler than the surrounding depths on H-4184 (1921), which are in agreement with the present survey. These soundings fall between sounding lines on the present survey where the bottom is quite irregular and are being carried forward.

(3) A 14 fathom sounding in lat. 40° 27.7', long. 124° 29.7' (charted) and a 16 fathom sounding (uncharted) nearby are shoal soundings that fall in greater depths on the present survey as well as in an open area. Since the surrounding depths on both surveys are in good agreement the 14 fathom and 16 fathom soundings have been carried forward.

(4) Several soundings have been brought forward from H-4136 (1919-21) in approximate lat. 40° 17', long. 124° 35' to partially compensate for the gap left in the present work at the toe of the 100 fathom curve by the rejection in the field as strays of soundings between pos. 42 and 45 MM. Additional development is being requested in this area (see par.11b, this review).

Removed on application of 1938 split lines. J.A.M. 2/24/39.

The present survey has adequately covered the common area, and, with the indicated additions shown thereon, should

supersede the above surveys for charting purposes.

8. Comparison with Contemporary Wire Drag Surveys.

H-6169 (1936), H-6170 (1936).

The present survey contains no information that is in conflict with the effective drag depths on these surveys.

9. Comparison with Chart No. 5795 (New Print dated Mar. 31, 1937). Chart No. 5602 (New Print dated Apr. 26, 1937).

a. Hydrography.

Within the area of the present survey the charts are based on surveys discussed in the foregoing paragraphs.

b. Aids to Navigation.

Blunts Reef Lightship and Whistle Buoy "4 RB" were located in substantially the same location as charted and satisfactorily mark the features intended.

10. Field Plotting.

Field protracting and plotting were accurate and conform to the requirements of the Hydrographic Manual.

11. Additional Field Work Recommended.

a.- The submarine valley at the lower portion of the sheet (particularly the offshore half) should be further developed by a system of lines running approximately 45 degrees to the axis of the valley. Special attention should be given to the discrepancies noted in par. 4, this review.

b. Split lines should be run in approximate lat. 40° 17', long. 124° 35' in order to further develpp the toe of the 100 fathom curve. (See par. 7c(4) this review). The required lines are indicated on the boat sheet which has been returned to the field. Accomplished. See par. 3, review of 1938 Addl. Work

12. Doubtful Sounding.

A 65 fathom tube sounding (uncharted) reported in lat. 40° 20.0' long. 124° 33.3', by Captain H. B. Clark of the S.S. PRESIDENT GRANT, on Feb. 23, 1937, falls in depths of over 450 fathoms in a closely developed area on the present survey. (Capt. Clark's report and correspondence between this office and the Inspector, Seattle Field Station, relative to it are in the Chart Division files). The 65 fathom sounding was investigated on the present survey (see descriptive report, pages 4 and 6) but no indications of such a shoal depth were obtained in the reported position. The nearest similar depths are 4 miles to the south and 5 miles

to the east. In view of the absence of shoal indications it is unlikely that the 65 fathom depth exists in the position reported and if the position is approximately correct as the correspondence would seem to indicate then it is probable that the Chief of Party's theory of a defective tube is correct. The 65 should be disregarded in future charting.

13. Superseded Prior 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-1682	(1885-86) in part
H-401	(1854) " "	H-4136	(1919-20-21) in part
H-1150	(1872) " "	H-4184	(1921) in part.
H-1681	(1886) " "		

14. Reviewed by - G. Risegari, Feb. 7, 1938, and J. A. McCormick, March 7, 1938.

Inspected by - A. L. Shalowitz.

Examined and approved:

K. T. Adams
K. T. Adams,
Asst. Chief, Division of Charts.

L. O. Colbert
Chief, Division of Charts.

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

G. T. Rude
Chief, Division of H. & T.

Applied to Ct. 5602 + 5052 6/2/38 CBC.
applied (in part) to Ct. 5795 - June 1939. NBC

6221 Additional work 1938

Form 504
Rev. April 1935
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic } *Sheet No.* ~~41,36-7~~

State California

LOCALITY

Northern Califoria Coast

Big Flat to Cape Mendocino

193 8

CHIEF OF PARTY

F. H. Hardy

U. S. GOVERNMENT PRINTING OFFICE

6221 Additional work 1938

Form 537
Ed. Dec., 1930

REG. NO.

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. 41-36,7

REGISTER NO. H-6221 (Addl. Wk. 1938)

State California

General locality Northern California Coast

Locality Big Flat to Cape Mendocino

Scale 1 : 40,000 Date of survey June 17, 19 38

Vessel GUIDE

Chief of Party F. H. Hardy

Surveyed by C. Shaw

Protracted by H.F. Stegman

Soundings penciled by H.F. Stegman

Soundings in fathoms XXX

Plane of reference MLLW

Subdivision of wire dragged areas by

Inked by H.F. Stegman

Verified by H.F. Stegman

Instructions dated , 19

Remarks: Title Sheet executed in Office

U. S. GOVERNMENT PRINTING OFFICE: 1931

80KTA

POST OFFICE ADDRESS: Steamer GUIDE, P.O. Box 1197, Oakland, California

TELEGRAPH ADDRESS:

EXPRESS ADDRESS:

2 SVC JRP 22 82

1939 JAN 28 AM 11 58

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

Ship GUIDE, Oakland, Calif.,
January 24, 1939.

To: The Director, U. S. Coast and Geodetic Survey, Washington, D. C.

From: The Commanding Officer, U.S.C. & G.S.S. GUIDE.

Subject: Field Work;- Additional work on Sheet No. H-6221.

There are being transmitted to your office under separate cover the boat sheet and one sounding volume of Sheet No. H-6221. Since there are only 55 positions of hydrography in this sounding volume and since the smooth sheet is in your office, it is requested that this additional work be plotted on the smooth sheet by the office personnel.

For your information, the Fathometer report for 1938 is now being typed and should be forwarded in the near future. Received and filed in library under Acc. No. S-1621 Shelf No. 941 SH5 G4i5 1937-38 U5

It will be noted that the additional split lines called for in the review of Sheet H-6221, paragraph 11, page 5, and the letter transmitting this review, have all been done. Sufficient time was not available during the past field season to complete the additional work in the submarine valley called for in the above review. However, one line, (Positions 47 to 55, PP day), was run across this valley.

It is further requested that this boat sheet be returned to me, together with whatever criticisms may arise, not later than April 15, 1939.

E. W. Eickelberg,
Chief of Party, C. & G. S.,
Commanding Ship GUIDE.

Refer to:
22/IER/h

RC

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Ed. Feb. 1935

TIDE NOTE FOR HYDROGRAPHIC SHEET

February 20, 1939.

Division of Hydrography and Topography:

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

Plane of reference
~~Tide reducers are~~ approved in
1 volume of sounding records for

HYDROGRAPHIC SHEET ~~6121~~ 6221 **Add. Wk.**

Locality **Big Flat to Cape Mendocino, Northern California Coast.**

Chief of Party: **F. H. Hardy in 1938**
Plane of reference is **mean lower low water**
ft. on tide staff at
ft. below B.M.

All soundings over 100 fathoms and no tide reducers are necessary.

Condition of records satisfactory except as noted below:

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H6221 (Addl. Wk. 1938)

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

Number of positions on sheet	54.
Number of positions checked	54. (all smooth plotting by verifier)
Number of positions revised	4.
Number of soundings recorded	160.
Number of soundings revised	None.
Number of signals erroneously plotted or transferred	None.

Date: Feb. 24, 1939

Verification by H.F. Stegman Time: 8 hours

Review by J.A. McCormick, Feb. 24, 1939 Time: 4 hr.

HYDROGRAPHIC SURVEY NO. H-6221

Smooth Sheet Original

Boat Sheet Original

Records; Sounding One Vols., Wire Drag ___ Vols., Bomb ___ Vols.

Descriptive Report None (Cover Executed in Office)

Title Sheet Executed in Office

List of Signals Vol #1

Landmarks for Charts (Form 567) Yes

Statistics ---

Approved by Chief of Party ---

Recoverable Station Cards (Form 524) ---

Special Chart for Lighthouse Service Yes
(Circular Nov.30, 1933)

Hydrography: Total Days One ; Last Date June 17, 1938

Remarks

3776

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT
PHOTOSTAT OF

No. H-6221 (Addl. Wk. 1938)

NOAA

received Jan. 30, 1939
registered Feb. 13, 1939
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

✓ JBR

Verification Report on H-6221 (Add'l Wk 1938)

1. Condition of Records

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

This work consists of 55 positions of split lines. It was protracted, penciled, and inked (with the exception of pos. 7PP-9PP and 46PP-51PP) by the writer of this report.

All soundings which were inked were in good agreement with the previous work, and required only slight changes in the penciled depth curves.

As the 1938 work falls entirely within the limits of the previous work on this sheet no junctions have been made.

All soundings were verified when inked.

Positions agree well with time and course. Several positions were changed as recommended in the records.

Blue position numbers were used for the additional work.

Sdgs remaining in pencil will be disposed of by the reviewer.

Submitted by

Feb. 24, 1939

Harold F. Stegman

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6221 (1938)Ad.Wk. FIELD NO. 41

Big Flat to Cape Mendocino, Northern California Coast, California
Surveyed in June 1938, Scale 1:40,000
Instructions in Review of H-~~6185~~ 6221 (1936-37)

Fathometer Soundings. 3 Point fixes on shore signals.

Chief of Party - F. H. Hardy.
Surveyed by - C. Shaw.
Protracted by - H. F. Stegman.
Soundings plotted by - H. F. Stegman.
Verified and inked by - H. F. Stegman.

1. Purpose of Survey.

The purpose of the survey was to accomplish the additional work called for in par. 11, review of H-6221 (1936-37).

2. Office Work.

The additional work was plotted on the smooth sheet in the office from a sounding record and boat sheet forwarded by the field party. The additional soundings were inked in black but with blue position numbers and day letters to distinguish them from the original work.

3. Results of Survey.

The toe of the 100 fathom curve in approximate lat. 40° 17', long. 124° 35', was developed as called for in par. 11b, review of H-6221 (1936-37). Also, a single split line was extended north from this point to lat. 40° 24' and another, southeast to a crossing with the submarine valley at the lower end of the sheet. The latter line tended to further discredit the original work of pos. 93 to 115 R. which was questioned in par. 4 of the original review and which was the major reason for the additional development called for in par. 11a of the same review but not yet executed. The 30 fathom average discrepancy at crossings of R-day lines with the normal system is maintained in the crossings with the additional line. After careful consideration, it has been decided to reject the R-day soundings, not only between pos. 93 and 115 as originally intended, but between pos. 71 and 127. They will not be removed from the smooth sheet, however, until the additional development is accomplished and applied.

4. Additional Work Remaining to be Accomplished.

The submarine valley at the lower end of the survey has yet to be developed as called for in par. 11a, review of H-6221 (1936-37)

and further stressed in par. 3, this review. The additional lines should be run in a north and south direction with particular attention to adequate coverage of the rejected work.

5. Reviewed by - J. A. McCormick, March 3, 1939.

Inspected by - E. P. Ellis.

Examined and approved:

T. B. Reed,
Chief, Section of Field Records.

K. T. Adams
Chief, Division of Charts.

Fred. L. Peacock
Chief, Sectionof Field Work.

George D. Fowler
Acting Chief, Division of H. & T.

No Correction to Chart 5602 - J.F.W. 4/21/39