

5162

5162

Form 504  
Ed. June, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. Patton, Director

U. S. COAST & GEODETIC SURVEY  
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State: California

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DESCRIPTIVE REPORT

~~Hydrographic~~

Hydrographic

Sheet No. 1

5162

LOCALITY

Northern Coast, ~~Estero Americano~~

~~to one mile south of Rocky Pt. 2~~

Vicinity of Bodega Head

1931.

CHIEF OF PARTY

L. C. Johnson

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5162

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. 1

REGISTER NO. 5162

State California

General locality Northern Coast

Locality Vicinity of Bodega Head  
~~Estero Americano to one mile south of Rocky Pt. 2~~

Scale 1 - 10,000 Date of survey July - November, 1931.

Vessel Chartered Launch " POINT REYES " & Launch No. 4149

Chief of Party L. C. Johnson

Surveyed by L. C. Johnson

Protracted by E. B. Lewey

Soundings penciled by E. B. Lewey

Soundings in ~~fathoms~~ feet

Plane of reference MLLW

Subdivision of wire dragged areas by

Inked by *W. H. Bamford*

Verified by *W. H. B.*

Instructions dated April 29, 1930.

Remarks:

## Descriptive Report

to accompany

Hydrographic Sheet, Field No. 1.

### (a) Date of Instructions.

This hydrographic survey was made in accordance with the Director's Instructions, dated April 29, 1930.

### (b) Limits and Scale:

This sheet makes a junction at the northern end in latitude  $38^{\circ} - 22.5'$  and longitude  $123^{\circ} - 05'$  to  $06'$  with Hydro. Sheet 5098, running shoreward in a northeasterly direction.

At the southern end a junction is made with Hydro. Sheet, Field No. 2, <sup>5163</sup> in latitude  $38^{\circ} - 16'$ , longitude  $123^{\circ} - 00'$  to  $123^{\circ} - 02'$ , this junction runs shoreward in a northeasterly direction.

The hydrography is shown on a 1 - 10,000 scale.

### (c) Survey methods.

All signals were plotted from a list of plane-table positions scaled from Topo. Sheets, Field Nos. C, D, and E (1930), with exception of signals Wal, Pap, Boa, Bab, Dut, Wye, and Taff, which were located by sextant angles and recorded on page 2, vol. 7. Sndg. Records.

The usual survey methods were followed throughout the hydrography shown on this sheet, visual fixes were used for obtaining positions.

The hand lead was used up to 15 fathoms, from a sounding chair located approximately 10 feet abaft the beam on the starboard side. A hand sounding machine, located in the stern was used for all depths greater than 15 fathoms. In each case all precautions were used to obtain true vertical soundings.

The sounding lines were run parallel to the coast as it was not considered feasible to do otherwise, due to the direction of the swell which is usually from the westward, and quite heavy.

### (d) Discrepancies.

There were no discrepancies in the execution of this hydrography, with the exception of lead-line corrections, which have been entered in their respective volumes.

### (e) Dangers.

There are no dangers to be found on this sheet that have not already been properly described in U. S. C. P. page 107, (1926) that is Bodega Rock and the foul ground to the southward.

(f) Channels.

The channel entering the lagoon at the north end of Bodega Bay is constricted and not very well defined. The controlling depth over the bar is about 4 feet at MLLW, located 100 meters north of Eta. In entering the lagoon, the best water is found about 40 meters from the port hand. The channel, after crossing the bar, varies in depth from  $2\frac{1}{2}$  to  $16\frac{1}{2}$  feet, but is very narrow and curving, and should not be attempted without local knowledge. It is used by several fishermen who have launches drawing from  $2\frac{1}{2}$  feet to 3 feet, and by Smith Bros. who operate two trollers of approximately 30 ton gross, drawing 5 to  $5\frac{1}{2}$  feet. Smith Bros. dock is shown at position 30a, and at high tide, these boats can go alongside to discharge. They usually leave the dock and return to the position as shown by the sounding line 215b - 216 b, and moor to a buoy kept there for that purpose. The channel running to Smith Bros. Dock is very narrow and changes in course from year to year.

(g) Anchorage.

Northeast of Bodega Rock, distant 0.7 miles, is a good anchorage in from 5 to 6 fathoms, sandy bottom. It affords good shelter from northwesterly weather, but due to loose holding ground is dangerous in southerly weather.

Behind Bodega Head there is suitable anchorage for small craft though only a limited amount of swinging room is available. Quite often at low or half tide, the bar at the entrance to the lagoon breaks heavily. Protection can be had from weather in any direction in the bight behind Bodega Head, if it is possible to cross the bar.

(h) Comparison with previous surveys.

A careful comparison with previous surveys showed the following differences:

At position 63 P, in latitude  $38^{\circ} - 20.5'$ , longitude  $123^{\circ} - 05.5'$  a sounding of 74 feet was found to be the least depth. The surrounding depths vary from 81 to 92 feet. ✓

The sounding between 110 - 111P, in latitude  $38^{\circ} - 20.8'$ , longitude  $123^{\circ} - 05.2'$ , was found to be 37 feet, while the same location on Hydro. Sheet 1462a, (1879) was found to be  $8\frac{1}{2}$  fathoms. ✓

A small shoal in latitude  $38^{\circ} - 17.1'$ , longitude  $123^{\circ} - 02'$ , shows a least depth of 35 feet, surrounded by depths ranging from 39 to 49 feet. Hydro. Sheet No. 806 (1862) shows  $6\frac{1}{2}$  fathoms. ✓

A shoal in latitude  $38^{\circ} - 16.8'$ , longitude  $123^{\circ} - 01.83'$ , shows a least depth of 31 feet, which compares favorably with depths shown on Hydro. Sheet No. 806, (1862). ✓

At all of the shoals herein described, considerable time was spent in drifting over each area. Comparison throughout the remainder of the sheet was very satisfactory.

(j) Geographic Names.

The geographic names in general usage were described in the Topographic Report on Sheets A, B, C, D, and E, (1930).

(k) Statistics.

Accompanying this report is a table of statistics, a tide data sheet, and an approval sheet.

Respectfully submitted,

*L. C. Johnson -*

L. C. Johnson,

Jr. H. & G. E.

Chief of Party, C&GS.

Statistics for hydrographic sheet, field No. 1,

To accompany Descriptive Report.

Total number of positions-----	2226
Total number of soundings-----	7850
Statute miles of sounding lines-----	276.1

Approval Sheet

To accompany Hydrographic Sheet, field No. 1

This sheet has been examined and is approved; the records pertaining to this sheet have been examined and are approved.

*L. C. Johnson.*

L.C. Johnson, Jr. H. & G. E.  
Chief of Party, C&GS.

June 3, 1932.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
7 volumes of sounding records for

HYDROGRAPHIC SHEET 5162

Locality vicinity of Bodega Head, Northern Coast of California

Chief of Party: L. C. Johnson in 1931

Plane of reference is mean lower low water, reading

3.6 ft. on tide staff at Fort Ross

7.0 ft. below B. M. 1

1.9 ft. on tide staff #2 back of Bodega Head

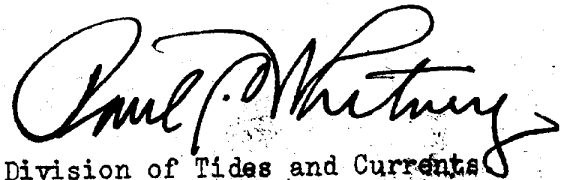
7.7 ft. below B. M. 1

1.8 ft. on tide staff at Smith Bros. Dock, Bay, California

9.8 ft. below B. M. 1

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.



Chief, Division of Tides and Currents



Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5162

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

Number of positions on sheet	2226
Number of positions checked	406
Number of positions revised	11
Number of soundings recorded	7850
Number of soundings revised	128
Number of signals erroneously plotted or transferred	NONE

Date: July 18 - 1932

Cartographer: J. Warren H. Bamford

SECTION OF FIELD RECORDS

REPORT ON HYDROGRAPHIC SHEET No. H-5162

JULY 20, 1932.

SURVEYED IN 1931

CHIEF OF PARTY - L. C. JOHNSON

SURVEYED BY - L. C. JOHNSON

PROTRACTED BY - E. B. LEWEY

SOUNDINGS PLOTTED BY - E. B. LEWEY

VERIFIED & INKED BY - W. H. BAMFORD

- 1/ The sounding records were found to be neat, legible, complete and to conform to the General Instructions for Field Work.
- 2/ The protracting was found to be well done and the position numbers small and legible. Less than one half of one percent of the total number of positions were revised. only 2.77% of the positions checked were revised.
- 3/ The soundings were very well spaced and neatly penciled.

Only 1.6% of the soundings plotted had to be revised. The soundings were penciled about the correct size.

4/ The sounding line crossings were found to be adequate.

5/ The development in channels and on shoals was found to be adequate except there should have been more development around the 18 foot shoal in Lat.  $38^{\circ}-22'-13''$  (approx) and Longitude  $123^{\circ}-04'-43''$  (approx) - as shoaler depths are likely to have been found.

6/ It was possible to draw the usual depth curves.

7/ The sheet was found to be clean and very legible.

8/ The field plotting was completed to the extent prescribed in the Hydrographic Manual.

9./ The junctions with adjacent hydrographic sheets were found to be adequate.

The junction with H-5098 at the north end of this sheet was very good - The soundings on H-5098 being only from two to four feet shaller - beyond the 60 ft depth curve.

The junction with H-5169 at the western edge of the work on this sheet was very good in some places - In other places the soundings from H-5169 were found to be from two to six feet deeper than those obtained on this survey - This difference is not thought to be important at this depth (over 100 ft.)

The sheet joining this one at the southern end had not been verified at this time. (H-5163)

10.) It is suggested that the 24 ft and 36 ft depth curves shall not be penciled by the field party when they have not needed by them for study. These depth curves are not inked in by the verifier unless they give a better delineation of the bottom than other curves that it is possible to draw or where the soundings obtained are of such a depth that the other depth curves cannot be drawn.

It is also suggested that where a "miss" occurs on a sounding line - that the space be left blank instead of a capital "M" being placed there - as was done on this sheet - The bottom characteristic for a muddy bottom - is a capital "M" and where sounding lines are run close together this causes some confusion as to what the "M" may be.

11/ The black dotted low water line in the lagoon at the north end of Bodega Bay was taken from the topographic survey T-4596

Whenever the low water line determined by this hydrographic survey <sup>(H-5162)</sup> conflicted with the low water line determination of T-4596 - the hydrographic determination was used and shown by the yellow - plane of reference curve.

12/ Attention is called to the existence of a 31 ft shoal in Latitude  $38^{\circ}-16'-47''$  (approx) and Longitude  $123^{\circ}-01'-50''$  (approx).

A 35' shoal also exists at Latitude  $38^{\circ}-17'-04''$  (approx) and Longitude  $123^{\circ}-02'-01''$  (approx).

A 37 ft shoal exists at Latitude  $38^{\circ}-20'-46''$  (approx) and Longitude  $123^{\circ}-05'-15''$  (approx).

The shallowest sounding at each of these locations is

12 CONTD.

encircled by a "dashed" thirty foot  
depth curve to attract the  
compiler's attention.

Respectfully Submitted.

Warren H Bamford

Section of Field Records  
Review of Hydrographic Sheet No. 5162  
Vicinity of Bodega Head, California.  
Surveyed in July - November 1931  
Instructions dated April 29, 1930 (L. C. Johnson)  
Surveyed by L. C. Johnson  
Protracted and soundings plotted by E. B. Lewey  
Verified and inked by W. H. Bamford

1. The records are clear and legible ~~and legible~~ and generally conform to the requirements of the Hydrographic Manual. The location of the portable tidegauge in Bodega Lagoon was not shown on the smooth sheet.
2. The plan and extent of development satisfy the specific instructions except that there is insufficient development of the area in the vicinity of the  $8\frac{1}{2}$  fathom on the former survey in approx. lat.  $38^{\circ} 20'.2$  long.  $123^{\circ} 05'.1$ .

The hydrography is not carried as close inshore as on the former survey, nor is there any statement in the record about the distance of the inshore line from the line of breakers.

The development of Bodega Lagoon is deficient in that the channel stakes were not located, nor any lines of soundings run across the flats at high water to show the extent to which they bare.

3. Soundings are generally consistent. The depths at crossings of lines are in fair agreement. A difference of 12 feet at the junction with H 5169 in lat.  $38^{\circ} 20'.2$  long.  $123^{\circ} 05'.9$  is unexplained. It probably is due to a misreading of the depth by the relieving leadsmen but as there is no definite evidence to that effect, the sounding (138 feet) was plotted as recorded.
4. Depth curves are shown on the sheet but those less than 5 fathoms are necessarily incomplete.
5. Junctions with contemporary survey sheets H 5098 and H 5169 are satisfactory except as noted under paragraph 3. The depths shown in blue are from the sounding records. The verification of H 5163 has not yet been completed.
6. Comparison with previous surveys.  
In general the agreement between the former survey (H 1462a of 1879 and H 806 of 1862) and the present survey (H 5162) is



very good. The greater detail on H 5162 shows less water on the shoal spots as noted in the Descriptive Report under "Comparisons with previous surveys".

The  $8\frac{1}{2}$  fathom noted in paragraph 2 and the 9 and  $9\frac{1}{2}$  fathoms in the vicinity were not adequately developed on the present survey. An indication of this shoaling is shown by the 56 and 58 foot soundings on H 5162.

A number of rocks along shore are shown on the former survey as islands, and on this survey by the rock awash symbol. In such cases the rocks should be charted as shown on H 5162. The original sounding records of H 806 and H 1462 were examined and where the plotting was not obviously in error the rocks were transferred to H 5162 in brown. The 1931 survey does not carry the work as close inshore as the former survey. There seems to be a tendency to slight inshore work when lines are run parallel to an exposed coast.

Depths in the lagoon at the head of the bay are slightly less and the channels have changed. This whole lagoon area must be classed as changeable.

7. The sections of charts 5603 and of 5502 covering this area were compiled from the earlier surveys (1862 and 1869) and paragraph 6 applies to them also.

Chart 5603 shows a small island westward of Bodega Head in lat.  $38^{\circ}18'.3$  long.  $123^{\circ}04'$ . This is shown by the rock awash symbol on H 1462a; the 1931 survey does not show it though a line of soundings passed close by this locality. It should be shown on the chart as a rock awash.

The 18 foot depth  $3/10$  mile southward of Bodega Rock and the 55 foot depth  $7/10$  mile east southeastward of Bodega Rock are from erroneously plotted sounding lines on H 806. The 1931 survey sufficiently disproves their location as charted.

#### 8. Recommendations.

Additional surveys are needed as follows:-

- a. The area in the vicinity of the 57 foot spot lat.  $38^{\circ}20'.2$  long.  $123^{\circ}04'.9$  to include the  $8\frac{1}{2}$  fathom shown on H 1462 a about  $2/10$  mile to the westward.
- b. The inshore area northward of the northwest point of Bodega Head to within a reasonably safe distance of the line of breakers. The present survey does not show the line of breakers.
- c. The area southeast of Bodega Rock which is now shown in brown from H 806 hydrography. While b and c are not essential for safe navigation they would add to the completeness of the chart and the information may become valuable for other purposes.

d. Locate the stakes marking the channel in the lagoon.

All essential details have been transferred from H 806 and H 1462 a, and these sheets may be disregarded in chart compilation. A possible exception to this statement is the narrow zone bordering the beach to the northward of Bodega Head.

Some of the work on H 806 was erroneously plotted. A revised plotting has been attached to the sheet.

Reviewed by R. J. Christman, Aug. 29, 1932.

Inspected: E. P. Ellis.

Approved: *A. M. Sobieralski*

*The recommendations for additional work should be considered in case any party is working in this vicinity. A compilation from both surveys, however, furnishes all essential information for the chart.*

Ch. 5603 inst. 5/24/67 John P. Wein Fully Applied