

5248

5248

Form 504	
U. S. COAST AND GEODETIC SURVEY	
DEPARTMENT OF COMMERCE	
DESCRIPTIVE REPORT	
Type of Survey	<i>Hydrographic</i>
Field No.	Office No. <i>5248</i>
LOCALITY	
State	<i>California</i>
General locality	<i>San Pablo</i>
Locality	<i>Bay</i>
<u>1923</u>	
CHIEF OF PARTY	
<i>F. L. Peabody</i>	
LIBRARY & ARCHIVES	
DATE	

5248

U. S. COAST & GEODETIC SURVEY  
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APR 4 1933

Acc. No. \_\_\_\_\_

Form 504  
Ed. June, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

H. S. Patton Director

State: California

DESCRIPTIVE REPORT

~~Topographic~~  
Hydrographic

Sheet No. 11 5248

LOCALITY

San Pablo Bay, South of

Red Rock.

19 33

CHIEF OF PARTY

Fred. L. Peacock

U. S. GOVERNMENT PRINTING OFFICE: 1921

5248

## DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET FIELD NO. 11

U. S. C. & G. S. S. GUIDE

Fred. L. Peacock, Chief of Party

February and March, 1933

### AUTHORITY

The authority for the hydrography executed on this sheet was contained in telegraphic instructions from the Director dated February 9, and February 28, 1933.

### SCALE

The scale of this sheet is 1 : 10,000.

### LOCALITY AND LIMITS

The work of this sheet constituted a complete hydrographic resurvey of an area in San Pablo Bay, South of Red Rock. This area extended on the north to Red Rock, on the east to a line from the outer end of the Standard Oil Dock at Richmond to Latitude  $37^{\circ} 54\frac{1}{2}'$ , Longitude  $122^{\circ} 24'$ , on the south to approximately Latitude  $37^{\circ} 54'$ , and on the west to Longitude  $122^{\circ} 27'$ . On the south and west the area surveyed extended beyond the six fathom curve on the Red Rock Shoal.

### CONTROL

The signals used for the control of the hydrography on this sheet were objects located by triangulation in 1910 and 1916. One additional hydrographic signal was located. A correction of plus  $1''.095$  was applied to the parallels and plus  $1''.248$  to the meridians to change the control approximately to the North American Datum, 1927 adjustment.

### SURVEY METHODS AND EQUIPMENT

The main system of sounding lines was run north and south, approximately in the direction of the current. When sounding with a strong current running, all lines were run with the current. Compass courses were steered in running lines as ranges were not available. The positions on sounding lines were determined by

means of three point sextant fixes. The soundings were taken with a hand lead line of No. 8 Mahogany tiller line with phosphor bronze center and a nine pound lead. The line was graduated in fathoms and feet. The lead line was checked before and after sounding each day and the corrections noted in the sounding record.

The spacing of the main system of sounding lines was from 50 to 80 meters. Five cross lines were run with an average spacing of 500 meters.

The motor sailer of the GUIDE was used for the hydrography with the exception of one day when the gig was used.

All buoys within the limits of the sheet were located by means of three point fixes at both flood and ebb tides.

#### REDUCTION OF SOUNDINGS

The Presidio standard gage station was used for the reduction of soundings to the Pacific Coast datum plane. To obtain the height of the tide at Red Rock a correction was applied to the observed tides at the Presidio standard gage station of a plus 40 minutes in time and a ratio of ranges of 1.1. Corrections for both lead line and tide were entered to one half feet, and the soundings plotted in feet.

*changed to Richmond by Office*

#### DISCREPANCIES

On lines run against the current it was found that the soundings obtained were, in most cases, too deep and had to be rejected. This was verified when the lines were re-run at either slack water or with the current. These soundings were as follows: A day, positions 11 to 17, B day, positions 81 to 92, positions 105 to 116; C day, positions 47 to 49; D day, positions 33 to 46, positions 55 to 59, positions 75 to 79; positions 88 to 97, and positions 109 to 114.

*soundings 1 to 4 D day not plotted - run against .76 knot current and probably too deep. L.S.S.*

Between positions 53 and 54, F day, a sounding that reduced to 30 feet was obtained, on either side of which were soundings of 35 feet and 37 feet, reduced. An examination of this spot failed to disclose a shoaling so that it was assumed that the lead line was read with a 1 fathom error and the sounding was rejected.

*soundings 39- to 43 e inclusive not plotted - apparently too deep L.S.S.*

#### COMPARISON WITH CHART 5532

Upon comparing the soundings taken on this sheet with those shown on chart 5532, a shoaling was found to the west of the limit of the Red Rock Shoal. The least depth found was 28 feet below mean

*29 feet*

lower low water at Latitude  $37^{\circ} 54'$  plus 1410 meters, and Longitude  $122^{\circ} 26'$  plus 550 meters. This is surrounded by depths of 30 feet. This point checks very closely with the reported depth of 28 feet shown on the chart and mentioned in the Notice to Mariners, No. 12, March 23, 1932, paragraph 596.

The location of "Red Rock Buoy 2" was found to be at Latitude  $37^{\circ} 54'$  plus 1540 meters, and Longitude  $122^{\circ} 26'$  plus 250 meters, which is approximately 325 meters, 10 degrees true from the chartered location. ✓

Respectfully submitted,

*J. H. Brittain*  
J. H. Brittain,  
Jr. H. & G. Engineer, C. & G. S.

Respectfully forwarded,  
approved:

*Fred. L. Peacock*  
Fred. L. Peacock,  
H. & G. Engineer, C. & G. S.,  
Commanding Ship GUIDE.

STATISTICS

Hydrographic Sheet Field No. 11

DAY	DATE	VOL	BOAT USED	STATUTE MI. OF SDG. LINE	NO. OF SDGS.	NO. OF POSITIONS
a	Feb. 13	1	Motorsailer	8.6	378	68
b	Feb. 14	1	Gig	22.5	746	155
c	Feb. 16	2	Motorsailer	14.5	315	83
d	Feb. 17	2	"	19.0	587	151
e	Feb. 20	3	"	19.1	611	128
f	Feb. 21	3	"	13.4	380	115
g	Feb. 23	3	"	1.0	37	9
h	Feb. 27	3-4	"	18.2	677	164
j	Feb. 28	4	"	12.6	474	132
k	Mar. 13	4	"	9.7	638	176
l	Mar. 14	5	"	9.6	436	125
TOTAL				148.2	5279	1306

AREA: 3.8 square statute miles.

- - - - -

List of signals on Hydrographic Sheet No.11:

Hydrographic Name	Location:
CAL	California City tank, 1916.
ERO	East Brothers Lighthouse, 1910.
HAM	Southampton Shoal Lighthouse, 1910.
ROCK	Red Rock, southernmost rock, 1899.
WHITE	White house on steel structure, 1916.
BRICK	Brick stack, 1910.
LITE	Hydrographic signal, Volume 3, G day, page 49.

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SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 5248.

Surveyed-Feb. Mar. 1933.

Chief of Party - Fred L. Peacock.

Surveyed by - J. H. Brittain.

Protracted by - J. H. Brittain and E. A. Foster.

Soundings plotted by - J. H. B. and E. A. F.

Verified and Inked by - Leo S. Straw.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of development fulfill the requirements of the General Instructions.
3. Specific Instructions were telegraphed (dated Feb. 9 and Feb. 28, 1933) by the Director. See page one of Descriptive Report.
4. The sounding line crossings are adequate and satisfactory.
5. The usual depth curves can be completely drawn.
6. The Field plotting was completed to the extent described in the Hydrographic Manual and is considered satisfactory.
7. No part of the drafting done by the Field party was done over in the office.
8. This sheet (H. 5248) has no contemporary junctions with other Hydrographic Surveys.
9. Further surveying within the limits of this survey (H. 5248) is not deemed necessary at this time.

Remarks.

1. Red Rock Shoal.

(a) The shoalest depth found in this survey (H. 5248) on the western part of Red Rock Shoal was 28 feet; approximately 39 meters southwest of Red Rock Buoy No. 2. Lat. 37°-54' plus 1493 meters; Long. 122°-26' plus 277 m.

(b) Due to a one foot correction in the tide reducer, the 28 foot sounding referred to in the last paragraph on page 2 of the Descriptive Report, is changed to 29 feet, Lat. 37°-54' plus 1410 meters; Long. 122°-26' plus 550 meters.

(c) Four, 28½ foot soundings to the south and southwestward of Red Rock Buoy No. 2 were plotted on the Smooth Sheet to the one-half foot, their location from Red Rock Buoy No. 2 is 165° true - 208 meters 176°-176m; 275°-198<sup>m</sup>, and 213°-280m. The vicinity of these soundings is Lat. 37°-54' plus 1280 m; Long. 122°-26' plus 300m.



2. Comparison with former Surveys and Chart 5532.

(a) The previous surveys, H. 465 (1855), H. 2340 (1895-97) and H. 3929 (1916-21) although not as completely developed as this survey H. 5248 indicate that the bottom is of a changeable nature at Red Rock shoal and vicinity. The bottom is generally sandy, some places mud and is subjected to swift currents.

(b) A 26 foot sounding Lat. 37°-34' plus 1276m, Long. 122°-26' plus 135 meters is transferred in red from H. 3929, surveyed in 1916. This sounding is shown on chart 5532.

(c) The 22 foot sounding (pos. 1001 page 19, Vol. 5) Lat. 37°-54' plus 1084 meters, Long. 122°-25' plus 940 meters, is corroborated by the 22 foot sounding at 173b and the 22½ (plotted as 22) at 1041 and is in agreement with the 22 foot sounding shown on Chart 5532.

(d) A 27 foot sounding (pos. 83k page 49, Vol. 4) Lat. 37°-55' plus 154m, Long. 122°-25' plus 1120 meters, is approximately 180 meters south of the 27 foot sounding shown on Chart 5532. Bottom characteristics on H. 3929 are "hrd" in this immediate vicinity whereas on the present survey gray sand is apparently the character of the bottom.

(e) A 30 foot sounding shown on the Chart 5532 Lat. 37°-55' plus 275m, Long. 122°-26 plus 100 meters, also on H. 3929 falls near 31 and 32 foot soundings on this survey (H. 5248). Because of the possibility of its existence it is therefore transferred in red from H. 3929.

(f) A 30 foot sounding shown on Chart 5532 from H. 3968, Wire Drag, surveyed in 1917. This sounding plotted from the Wire Drag records on H. 5248 falls on a 33 foot sounding which is completely surrounded by depths from 32 to 34 feet on sounding lines 16 to 17f; 125 to 126b, and 145 to 146b. The character of the bottom in the Wire Drag records is noted as "Mud", "sticky". The development on the present survey (H. 5248) seems sufficiently close at this point to disprove the existence of the 30 foot sounding and would warrant its removal from the chart.

(g) A recorded 18½ foot sounding (between pos. 24 and 25e, page 7, Vol. 3) plotted as 18 on the Smooth Sheet (H. 5248) is approximately 180 meters north of the northern limit of <sup>the 18 ft. curve off</sup> Southampton Shoal.

(h) A 30 foot channel 150 m in width runs southeastward toward Pt. Richmond which does not appear on former surveys.

3. Verification.

(a) A very small percentage of the total number of positions were checked on this survey. However, positions in shoal areas were more carefully inspected and doubtful ones, in all cases were checked or revised.

(b) All positions in and close around Red Rock Shoal are not affected by distortion, and check as recorded. Some distortion was noticed on the western limits of the sheet, but it does not extend any appreciable amount beyond the extreme western part of Red Rock Shoal. The shift in positions on lines 48 to 50-1, 40 to 43-1 is from 4 to 8 meters. Positions revised in this area were adjusted to conform with the other plotted positions. No distortion is apparent in any portion of the sheet other than that mentioned above.

(c) Several sounding lines were rejected by the Field party because of discrepancies caused by running against current. See paragraph under "Discrepancies" <sup>Descriptive Report</sup>. Line 1 to 4d was rejected by the verifier since it was run against a strong current, and the soundings are 3 to 4 feet deeper than adjacent lines. Soundings from 39 to 40e were not plotted but they are only about a foot deeper than the longitudinal lines. Lines were run longitudinal the rest of the day.

(d) In areas where the bottom is uniform, about thirty percent of the soundings were not inked. Near curves and in shoal areas a sufficient number of soundings were inked to clearly delineate the bottom.

(e) The Field Work on this survey is of excellent character.

Respectfully submitted,

Nov. 15, 1933.

Leo S. Straw.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. *H. 5248*.....

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

Number of positions on sheet	..... <i>1306</i>
Number of positions checked	..... <i>49</i>
Number of positions revised	..... <i>13</i>
Number of soundings recorded	..... <i>5279</i>
Number of soundings revised	..... <i>61</i>
Number of signals erroneously plotted or transferred	..... <i>9</i>

Date: .....*Nov. 9, 1933*.....

Cartographer: .....*[Signature]*.....

SECTION OF FIELD RECORDS  
Review of Hydrographic Sheet No. 5248.  
San Francisco Bay, South of Red Rock, California.  
Surveyed Feb. - March, 1933.  
Instructions - Telegram dated February 9, 1933 (Guide).

Chief of Party - F. L. Peacock.  
Surveyed by - J. H. Brittain.  
Protracted and soundings plotted by - J. H. Brittain and E. A. Foster.  
Verified and inked by - Leo S. Straw.

1. The records conform to the requirements of the Hydrographic Manual.
2. The plan and extent of development conform to the regulations and satisfy the specific instructions.
3. Soundings are generally consistent and the depths at crossing of lines are in good agreement except a few lines run against the current. The soundings on these lines were rejected by the field party and/or the verifier, see under Discrepancies in the Descriptive Report.
4. Depth curves can be drawn satisfactorily.
5. Junctions.- This is a special examination of Red Rock Shoal and no contemporary surveys join on to it.
6. Comparisons:- H. 465 (1865) and H. 2340 (1895-7) are on scale 1-10,000 but depths are plotted to  $\frac{1}{4}$  fathom; H. 3929 (1916 and 1921) and H. 3968 (1917) wire drag survey are on scale 1-20,000. Agreement in depth with H. 5248 is as close as can be expected with the development made on the older surveys. Minor changes are shown to have taken place along the edge of the shoal. A 30 and a 26 have been transferred from H. 3929. They are in an uneven bottom where the existence of these depths is quite possible.

The 30 on Chart 5532 about  $\frac{1}{4}$  mile west of lighted buoy No. 2 comes from H. 3968 (a detached sounding by the wire drag party). The present survey shows a depth of 32 to 34 feet in this vicinity and the removal of the 30 from the chart seems to be warranted.

The 21 on Chart 5532 about  $\frac{1}{4}$  mile northwest of lighted bell buoy No. 1, apparently came from advance information of the present survey. The office revision of tidal reducers makes the least depth in the vicinity 22 feet which is also the least depth on this shoal. The survey found "Red Rock Buoy 2" located 325 meters 10° from its charted position. This may account for the reported 28 foot depth (Letter 198/1932) though the present survey shows 29 where the 28 is now charted.

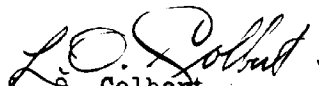
7. Field drafting was satisfactory. A change of  $\frac{1}{2}$  foot in tide reducer by the Division of Tides necessitated many changes from the pencilled soundings on inking this sheet. For details of verification see Verifier's Report.

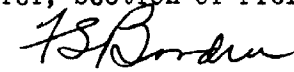
H. 5248 - 2.

9. Recommendation. This sheet (H. 5248) should supersede all previous surveys for the area represented by it. Two soundings (26 and 30) now on Chart 5532 have been transferred to this sheet in red from H. 3969 as noted above.

No further surveys are deemed necessary at this time.

9. Reviewed by - R. J. Christman - Dec. 5, 1933.

  
L. O. Colbert,  
Chief, Section of Field Records.

  
F. B. Borden  
Chief, Section of Field Work.

Examined and approved:

  
L. O. Colbert,  
Chief, Division of Charts.

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

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5248

HYDROGRAPHIC TITLE SHEET

U. S. COAST & GEODETIC SURVEY  
LIBRARY AND ARCHIVES

APR 4 1933

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Acc. No. \_\_\_\_\_

Field No. 11

REGISTER NO. 5248

State CALIFORNIA

General locality San Francisco Bay

Locality SOUTH OF RED ROCK

Scale 1 : 10,000 Date of survey Feb. and March, 1933

Vessel MOTORSAILER AND GIG OF THE U. S. C. & G. S. S. GUIDE

Chief of Party FRED. L. PEACOCK

Surveyed by J. H. BRITTAIN

Protracted by J. H. BRITTAIN AND E. A. FOSTER

Soundings penciled by J. H. BRITTAIN And E. A. FOSTER

Soundings in ~~XXXXXX~~ feet

Plane of reference MEAN LOWER LOW WATER

Subdivision of wire dragged areas by

Inked by *[Signature]*

Verified by *[Signature]*

Instructions dated FEBRUARY 9, and FEBRUARY 28, 1933

Remarks:

Lat.  
Long.

<sup>258 m</sup>  
250 yd - 313° from  
charted post of buoy.