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Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

State: California

11—6813

DESCRIPTIVE REPORT.

Sheet No. 4555

LOCALITY:

San Francisco Bay

Bonita Channel

1926

CHIEF OF PARTY:

P. C. Whitney

4555

(11)

September 21, 1926.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET NO. 4555

Locality: CALIFORNIA COAST

Chief of Party: P. C. Whitney in 1926.

Plane of reference is M L L W
3.5 ft. on tide staff at BONITA COVE.

For reduction of soundings, 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 each 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.

DESCRIPTIVE REPORT

TO ACCOMPANY THE WIRE DRAG SHEET OF THE NORTH (BONITA) CHANNEL

SAN FRANCISCO, CALIFORNIA.

Instructions of November 5,1925.

GENERAL:

"A" day was done by Lieut. I.Rittenburg in December,1925. The swells were recorded as being from 6 to 7 feet on this day, and the area was therefore covered later in smooth seas. A grounding is recorded at the end of this day,with a 45 foot sounding; this day was not plotted because of the uncertainty of the drag depth and sounding (see note page 5 Volume 1). The grounding was at the channels edge near a charted sounding of the same depth.

All of the plotted work was done on smooth days and when the current was slack or fair.

The Centissima Rock Channel Buoy was lifted by the Light House Service while the area was being dragged. Old triangulation signals were used throughout with the exception of "F" day, when signal "SIG" (a white mark on the cliffs) was used and located,(see page 46 and page 47, Volume 1).

EQUIPMENT:

The drag used was equipment sent from the Steamer "Guide", and consisted of 1200 feet of 3/16 inch bottom wire;copper center sounding cord uprights;canvas middle buoys; 15 gallon drum end buoys. The launches,one 28 H.P. and one 20 H.P., were hired by the day.

CURRENT:

There is a very strong flood current in Bonita Channel, but the ebb (northerly) is only moderate at its greatest strength. Around low water, there is a little inshore set in the vicinity of Centissima Rock.

SOUNDINGS:

The soundings were taken from the guide launch and recorded in the guide launch record and later transferred to the sounding record.

A small pinnacle rock was found having a reduced sounding of 34.8 feet (150 meters N 30 degrees W of Centissima Rock Buoy). The drag grounded on this pinnacle twice,when set at 37 and 35 feet, respectively. This pinnacle was covered three times with the drag

set between 33 and 34 feet. The area around this sounding is very irregular and rocky, the adjacent sounding differing by two or three fathoms at times. Other soundings of 37,38,41 and 43 feet are shown between this pinnacle and Sears Rock.

The amount of lift was determined from the test shown on page 40, Volume 1.

The plain tide staff at Bonita Cove was used, and tides were read whenever the drag work was in progress. An automatic guage was operated during December,1925 by Lieut. Rittenburg. The data is being forwarded this date.

PLOTTING: Positions 10 to 14,"F" day and 12 to 17 "G" day were not plotted. Positions 15 to 29,"C" day, and 5 to 17 "G" day were not inked. The above work was omitted to save confussion of lines, as they offered nothing of value.

Approved:
Paul T. Whitney
Inspector, C&GS.

Submitted by,
Chas. K. Green

TABLE OF STATISTICS

WIRE DRAG SURVEY, NORTH CHANNEL, SAN FRANCISCO BAY ENTRANCE,

CALIFORNIA.

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DATE	LETTER	VOLUME	DRAG LENGTH	POSITIONS	MILES	SDGS.
Dec.22,1925	A	1	1000	11	0.5	1
Apr.27,1926	B	1	800	16	1.0	3
Apr.28,1926	C	1	1000	63	3.0	1
Apr.29,1926	D	1	1000	23	2.0	0
May 11,1926	E	1	1200	11	1.0	4
June 4,1926	F	1	1000	14	0.5	2
June 5,1926	G	1	900	37	2.5	0
Totals:				175	10.5	11

Note: A staff tide guage located in Bonita Cove at the Coast Guard station wharf was used. During the month of December,1925, a Rude Automatic tide guage was set up and run for a period of approximately two weeks.

E.O.S.

ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No. 11-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON September 25, 1926.

SECTION OF FIELD RECORDS

Report on Wire Drag Sheet No. 4555

Bonita Channel, San Francisco Bay

Surveyed in 1926

Instructions dated November 5, 1925 (Inspector, San Francisco)

Chief of Party, P. C. Whitney.

Surveyed by C. K. Green.

Protracted and inked by E. D. Deily.

Verified and Area and Depth Sheet by A. L. Shalowitz.

Traced by J. C. MacNab.

1. The records conform to the requirements of the General Instructions except that the soundings discovered by the drag were inked on the smooth sheet instead of being left in pencil. This in itself would be excusable but they were inked in so careless a manner as to make them practically illegible. Consequently they all had to be erased and re-inked, an operation not so simple on a complicated wire drag sheet.

2. The methods and character of the survey conform to the requirements of the General Instructions except that tests for lift of the drag were not made simultaneously with the progress of the survey, notwithstanding that the specific instructions directed that "It is essential that a constant check of the depth of drag be made by a tender and that these tests be properly recorded." (See Paragraph 4, specific instructions.) It is evident that the officer in charge of this work failed to appreciate the importance of knowing the actual depth at which the drag was being towed. The work was done during the latter part of April and the early part of June, but the lift applied was based on a table computed from tests made in about the middle of May at a point far removed from the working grounds and under apparently ideal conditions. This may be correct for determining the theoretical lift of the drag but throws little light on the lift during actual working conditions.

3. The work fails to conform to the requirements of the specific instructions for the following reasons:

a. The primary purpose of the survey was to verify or disprove the existence of the charted 33 ft. sounding in the vicinity of Centissima Rock, which depth was reported to exist by the Lighthouse Bureau and which was supposed to have been dragged to a depth of 40 feet by the Army Engineers. (See letter War Dept., May 2, 1925; No. 246-1925 of our files).

b. With the drag grounding at an effective depth of 40 ft. in close proximity to the 33 ft. spot (see positions 8 and 9 F, Vol. 2, page 44) and an actual sounding of 41.7 ft. obtained, the locality was not examined further and the clearance depths of 33 ft. obtained on previous days was considered sufficient. The strip from 12 to 17 G (36 ft. effective depth) which was the only time subsequent to the above grounding that the drag was set deeper than 33 ft., ended just before it reached the shoal, owing to the guide launch getting too close to Sears Rock. (See Vol. 2, page 52). The balance of the day's work was resumed on the southern part of Bonita Channel.

4. Inasmuch as the drag strip from 1 to 9 F has the greatest bearing on the existence of the 33 ft. spot, the circumstances surrounding the grounding at 8-9 F will be explained in some detail:

At position 8 F, the drag, set at 40 ft. effective depth, grounded near the end of the drag (guide launch end assumed, record not entirely clear.) The guide launch then stopped and the end launch continued around in order to cover the 33 ft. spot. Five minutes later the drag went aground near buoy No. 4. During this manoeuver the guide launch end of the drag was probably pulled around the shoal on which it had grounded. Plotting the most probable position of the bight of the drag at the time of grounding near buoy No. 4 (10:32 A.M.), the point of grounding would fall approximately 30 meters due west of the charted position of the 33 ft. spot. This point of grounding, however, does not check the actual position of the grounding obtained at 10:55 nor the 41.7 ft. sounding (2 F sounding record) obtained at 11:15. Position 2 F is plotted on the sheet with a depth of 40 feet, this being the effective depth of the drag at the time of grounding. It is possible that when the drag grounded near buoy No. 4 at 10:32, the minimum depth at that point was very close to the depth of drag and hence when the end launch continued moving to the northeastward it pulled the drag clear of that part of the shoal but soon after (at 10:36) grounded between F and 4 in the position of 2 F (sounding record), probably the pinnacle of the shoal. This grounding plots about 30 meters to the north of the

charted 33. A few minutes later, at 10:39, the drag was cast off and investigation of the grounding near buoy No. 4 was made.

Two notes appear in the record at position 9 F which are not entirely clear. The first is the note: "N" - about 60 meters away." Does this mean that N was 60 meters away from the point where the guide launch end of the drag grounded at position 8 F, or does it mean that N was that distance away when buoy No. 4 grounded? If so, then guide launch position 9 F is erroneous.

The second note of a doubtful nature is the one stating that "N" aground at edge of Sears Rock." This cannot be reconciled with the assumption made above that the guide launch end of the drag was aground at 8 F and that the guide launch had stopped and the end luanch was pulling the drag around. Nor does it check the location of N at position 9 F which is approximately 270 meters southeast of Sears Rock. It seems that the only way to account for this note is that the guide launch end was actually moving toward Sears Rock and hence position 9 F (G.L.) is in error. It is to be noted that position 9 F as plotted by the field party checks the recorded angles. No boat sheet having been forwarded it was impossible to further check this position and the recorded location was accepted. The location of this position being doubtful, no customary grounding depth will be charted.

Notwithstanding the above uncertainties and resolving all doubt in favor of the drag work and even assuming that the 40 ft. drag swung northwestward towards Sears Rock, thus giving it the benefit of the greatest possible effective area covered, the following conclusions may be reached:

a. That a 40 ft. drag grounded at a point about 30 meters north of the charted location of the 33 ft. spot. This location is only approximate and may easily be in error. (See Paragraph 3, a, this report.)

b. That the drag was so securely aground that 200 ft. of bottom wire, a 35-lb. weight and 1 canvas buoy were lost in attempting to clear it. (See vol. 1, page 7 and vol. 2, page 44.)

c. There is probably less water over the rock than 40 ft. but the amount is uncertain, no adequate clearance depth having been obtained.

d. The area in the vicinity of the 33 ft. spot as well as the Centissima Rock, was cleared three times at an effective depth of 33 ft. besides once or twice at a less depth.

e. The information furnished is insufficient for removing the 33 ft. spot from the charts for the following reason: The survey discloses that there is probably more than 33 ft. and less than 40 ft. on the rock, but in view of the uncertainty of the lift factor, it is recommended that until further investigation is made the 33 ft. sounding should be retained.

5. Attention is called to the fact that the present survey discloses a 35 ft. sounding (lat. 37° 49' 1236 meters, long. 122° 33' 62 meters) about 45 meters northwest of the old position of Centissima Rock. This rock was supposed to have been removed by the Army Engineers to a depth of 40 ft. at mean lower low water. A 37 and a 35 ft. drag grounded in this vicinity and the above depth was obtained. Later the area was cleared by a 33 ft. drag.

6. Additional work will be required as follows:

a. Redrag the vicinity of the 33 ft. sounding as mentioned in paragraph 4, e.

b. Investigate the grounding in the vicinity of position 9 F (G.L.), lat. 37° 49' 1157 meters, long. 122° 32' 1186 meters.

c. Redrag with a deeper drag the 31 ft. area shown on the Area and Depth sheet.

d. Obtain the least water over the 38 ft. shoal in the vicinity of lat. 37° 48' 1603 meters, long. 122° 32', 383 meters. This shoal was found by this party and lies in the main channel in charted depths of 44 ft. No clearance depth was obtained on this spot.

7. A number of soundings of 6 1/4 and 6 1/2 fathoms shown on H. 2293 (surveyed in 1897) were dragged over by a 44 ft. drag. These soundings lie along the western side of Bonita Channel about 1/3 mile northwest of the bell buoy at the southern end. This area may have deepened since the original survey was made.

8. The field drafting was completed to the extent prescribed in the General Instructions except as mentioned in paragraph 1. There were numerous errors in protracting and two important strips of greater depth than those plotted were entirely omitted: e.g., 12-17 G and 10-14 F. These were plotted by the verifier. Positions 39-40 C were rejected in the office, the corresponding guide and end launch positions differing considerably for the length of the drag used.

9. There is no verification report for this sheet, the substance having been incorporated in this review.

10. Character and scope of field operations - fair.
Field drafting - fair.

11. Reviewed by A. L. Shalowitz, September, 1926.

Approved:

A. L. Giacomini

Chief, Section of Field Records.

L. O. Colbert

Chief, Section of Field Work

WIRE DRAG

HYDROGRAPHIC TITLE SHEET

4555

Field No. Bonita Channel San Francisco Bay

4555

State California

General Locality San Francisco Bay

Locality Bonita Channel

Scale 1 : 10000 Date of Survey May and June 1926

Vessel Chartered Launches

Chief of Party P.C.Whitney

Surveyed By C.K.Green

Soundings and Depths in Feet at Mean Lower Low Water

Projection by G.E.Boothe Protracted by E. A. Deily

Inked by E.A.D. Soundings plotted by E.A.D.

Instructions dated November 5 , 1925 1926

Remarks