5129

5129

Diag. Cht. No. 5530-4

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. I Office No. H-5129

LOCALITY

State CALIFORNIA

General locality SOUTH SAN FRANCISCO BAY

Locality PT. SAN MATEO TO HAYWARDS LDG AND VICINITY

194 ~~30~~-31

CHIEF OF PARTY

G. C. Jones

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DATE NOVEMBER 20, 1931

B-1870-1 (1)

Descriptive Report to Accompany Hydrographic Sheet, Field No. 1

Project no. 70, South San Francisco Bay.
Instructions Dated September 8, 1930.

Limits.

The area covered by this sheet includes that part of South San Francisco Bay lying South and East of Pt. San Bruno and extending to a line 2 miles south of the San Mateo- Haywards Bridge. The instructions of above date call for an overlap and satisfactory junction with sheet H4137 (1920). Additional work on the North side of the sheet was decided upon after verbal discussion with the Chief of the Section of Field Work and the Inspector, San Francisco Field Office. These details included supplementing the survey of 1920 with additional lines on the shoal spit lying East of the bar abreast of P. San Bruno, some additional soundings on the bar for comparison with the survey of 1920, and two small local areas South of Pt. San Bruno and North of Oyster Pt. The first of the above was desired by the Chief of the Section of Field Work and the latter three by the Inspector San Francisco Field Office.

Tides.

For reducing soundings on this sheet tide gauges were maintained at (1) Pt. San Bruno (2) 1.4miles off Roberts Landing (E. Shore) and (3) The San Mateo-Haywards Drawbridge. Time differences were not great, particularly the high water difference between Pt. San Bruno and Roberts Landing, which was only 0.06hr. There were, however, occasional jumps as great as one foot in the reducer when shifting between those two gauges. In such cases a mean curve was drawn and the reducers for one half mile or so on each side of the dividing line were taken from the mean curve. ?

Due to several causes the transition from the San Bruno gauge to that at the San Mateo-Haywards Bridge, particularly in the channel was not so accurately made. The time difference between these two gauges was greater, 0.21hr. for the high water and 0.38hr. for the low. There is considerable difference in the rate of progress of the tidal wave below and above the San Mateo-Haywards Bridge. In reaching that conclusion it was assumed that the wave would reach a point in the channel directly East of Pt. San Bruno at least as early as it would reach the point. From such a point in the channel to the San Mateo-Haywards Brigge is very little over half the distance from that bridge to the Dumbarton Highway Bridge. In spite of the greater distance and a similar depth of water the time difference is nearly the same. That circumstance caused some doubt as to the proper place for the dividing line between the two gauges, also the machine at the San Mateo Bridge failed * to function at first and it was thought that carrying the San Bruno reducers forward a short distance past the selected dividing line was as accurate as deducing a curve for San Mateo Bridge. Again, when running the additional channel

12.(m

22.8 min

* Dec. 27th Dec. 30 (90?) am

lines, the reason for which is given below, the San Bruno reducers were carried 1/3 mile south of the line on which the change had previously been made. Due to the shortage of personnel, most of the party having been discharged, an observer was available for the San Bruno staff only. This resulted in the sounding for that 1/3 mile (from 2 miles North of the bridge to 1 2/3 miles north of the bridge) being reduced from different staffs. No adjustment of these matters was attempted in the field, but it is recommended that they be examined and the reducers revised if it is thought necessary. The dividing lines between the three gauges, not rigidly followed in the channel as explained above, is marked lightly in red pencil on the smooth sheet. A further fact brought out in checking and revising tidal computations after the completion of the field work, is that the range is the same at Roberts Landing and at the San Mateo Bridge ~~ixxexxxi~~ and the time difference is the same for highs and lows, so that the Roberts Landing tides can be used very conveniently for the missing San Mateo tides by applying a time correction of ten minutes.

Sounding checks.

There were a number of crossings which failed to check properly, all of which were North of the parallel 37° 36'. During the earlier part of the field work it was not thought that the depth of the channel or the speed of the current were great enough to make innacurate soundings taken across the current. When check lines were run, however, that conclusion appeared erroneous. After final reductions had been made and the smoothplotting done on some of the early work it was definitely proven by too great depths on several of the early lines. Accordingly a supplemental scheme of channel lines was run with the current and, fortunately, during excellent weather conditions. Due to the fact that the failures to cross properly invariably showed the original crosslines, run under poorer conditions, to be deeper than the later lines, and that no indications of shoal soundings were shown by either, it was not thought necessary to make a complete resurvey. Accordingly the new scheme of fore and aft channel lines was run with a spacing ~~of about~~ 150 meters. The practice of running crosslines across the current had been discontinued north* of ~~parallel~~ 37° 36', but as some of the discrepancies occured south of that line where it was the practice to run crosslines at slack water, the new scheme was extented to parallel 37° 36'.

+ probably South

* Evidently means south as shown by work on sheet

For charting purposes it is recommended that only the later soundings be used, and the crosslines be regarded of value for showing the channel clear, outlining the banks, etc. In general all lines, even the early crosslines mentioned above, checked fairly well but as differences of 2 ft. and occasionally as high as $3\frac{1}{2}$ ft. were encountered the additional lines described above were thought advisable. On the steep banks where the width of the sounding launch might cause a difference of one fathom, such differences were considered unavoidable and were not treated as discrepancies.

South of parallel 37° 36' the method of sounding the crossline at slack tide was abandoned on account of the extremely short slack encountered at times and the tendency for a hydrographer to hang on to complete a line.after the current had become too strong for accurate work. Several of the above discrepancies were found in the area sounded in that way. Also the channel sounding had fallen far behind the other work. The balance of the channel was sounded with long diagonal lines run with the current. This involved much loss of time running back against the current but was justified by results.

Dangers.

38.3'

No new dangers were found./ The 2 ft. spots in lat. 37° 38.2' long. 122° 17.1' and lat. 37° 38.7' long. 122° 17.4' were developed much more closely than shown, but some of the work had to be rejected when smoothplotting due to its having been done under poor conditions and being, for that reason, doubtful. It is known, however, that the least depth is shown to the nearest foot. The launch was grounded on the shoal in $2\frac{1}{2}$ ft. with $\frac{1}{2}$ ft. of tide. A light chop that was on at the time would have broken readily if appreciably less water than is shown had existed. These spots are shown on Chart 5531 as 1 ft.

The 2/1 ... satisfactorily with same on H. 5129

Chart 5531 shows the symbol for a rock 2250 meters ExS true from Pt. San Mateo. A careful development was made but had to be rejected later. It was done in weather too thick to sound farther offshore and just before the loss of the boat sheet in the fire of Feb. 2nd. It was not discovered till too late for resounding that, due to the thick weather, some error in sextant objects taken had been made and carried through the entire development. Even so it appeared that part of the development did extend over the charted position of the rock and no indication was found. The flats have been looked over at low water, though not at minus tide, and nothing of the sort was visible. It is not thought that anything exists at present and that the original obstruction was a barnacle incrusted pile.

A spoil bank was thrown up along the south side of the San Mateo Haywards Bridge from the turn east of the channel to its eastern end in order to make a channel for the piledriver when the bridge was built. This is mostly shown by minus soundings on the first line south of and parallel to the bridge. It may be that not all the minus area is indicated as it was impossible to keep the sounding launch on the top of the ridge all the way.

Additional Work.

Some work in addition to that called for in the instructions was thought necessary. That additional work is outlined in paragraph 1. The additional soundings on the bar could be obtained very cheaply by extending the supplementary channel lines described under "Sounding Checks" farther north and that was done. They are not intended for a complete development of the bar but as a check on changes which may have occurred since the survey of 1920 and to supplement that survey.

The sounding lines on the shoal spit extending north from lat. 37° 39', long. 122° 17.5' are likewise intended to supplement the survey of 1920 and not for a complete development.

Changes.

The changes are slight. The channel and flats are remarkably like those shown in previous surveys. In addition to the bridge dredging and spoil bank mentioned above, a dredge has been operating near the junction of this sheet and sheet 3 on the south. This dredge is taking shell for the cement plant at Redwood Creek and its work is not systematic and is of no particular value to navigation, but explains otherwise unaccountable deep spots in this region.

When sounding the flats emphasis was placed on securing accurate soundings rather than close development and a pole was used for those soundings wherever possible. This was in order to indicate change in depth if the information is needed in connection with the silting problem as mentioned in par. 11 of the instructions. It soon became apparent that very little if any change had taken place at least on this portion of the project and for that reason close development was not made of small patches two of three feet higher than the surrounding flat. A case in point is the $1\frac{1}{2}$ ft. spot, with 5 ft. farther east, 700 meters SE of Signal False in lat. 37° 36.7' and long 122° 14.7'. This area is shown on chart 5531 as $\frac{1}{2}$ and 0 ft. which looks slightly high for general depths but may be correct in those spots.

probably means west R

Statistics for sheet, Field No. 1.

Positions	Soundings	Miles (stat.)
4,154	30,054	826.8

L. C. Jones

LIST OF SIGNALS, SHEET "1"

Triangulation Stations

Mat	Point San Mateo, 1925
Trans	East tower of three transmission towers, 1930
Mill	Millbrae Oysterhouse Windmill, 1930
East	East tower, San Mateo-Haywards Bridge, 1930
West	West tower, San Mateo-Haywards Bridge, 1930
Mul	Mulfords Landing, 1894
Ter	Oyster Point, 1894
Tide	Tide Guage on Piles, 1930
Rob	Roberts Landing, 1925
Cup	Cupola of warehouse on point, 1930
Center	Triangulation Station on Bridge, 1930
Bridge	Triangulation Station near tollhouse, 1930
Flash	Guano Island Flashing Light, 1906 — Light discontinued May 1930 RJG 4 pile structure remaining about 28 feet high
Haywards	Traingulation Station, 19?5
Nor	North of two tanks, 1930
Tin	Cupola with flagpole, No. 1 , 1930
Sho	Tank, California Salt Works, 1930
Salt	Triangulation Station, 1930
La	Cupola with flagpole No. 2 ,1930

Signals Located by Topo Party

Rad	N.W. Radio Tower
Tad	S.W. Radio Tower
High	Tall Black Stack
Vane	Wind Vane Staff
Dock	Pump house on end of dock
Red	Tall red stack
Mad	White water tank, lower of two
Wet	White water tank, upper of two
Black	Black stack
Tree	Lone tree
Pipe	Pipe in Shack
Hat	Small Shack
Tall	Water tank
Pad	Duck blind
Boat	Main black stack on boat
Gab	Gable of white house
Con	Concrete post
Wod	Wooden water tank
Tot	Black tank on ground
Pil	Fender piles
Arch	Brown stone archway
Twin	Twin Shell Oil Co. tank
Roof	North gable
Cal	Tank, "California Home Brand"
Lit	Light on dock
San	Tall transmission tower
Is	Tall transmission tower

LIST OF SIGNALS, SHEET "1"

Signals Located By Topo Party (Cont.)

Oil	Derrick
Der	Derrick
High	Derrick
Pole	Wooden power pole with transformer, West of two
Flag	Flagpole near tollhouse
Les	Leslie salt shaker
With	Windmill with tank
Tri	Topo tripod
Tar	" "
Tre	" "
Low	" "
Mid	" "
Lev	" "
End	" "

Signals Located by Sextant Cuts

False	Pile,	Sounding Volume No. 6
Ton	Pile,	Sounding Volume No. 15

POST-OFFICE ADDRESS: P. O. Box 1017, Redwood City, Cal.

TELEGRAPH ADDRESS: 20 22 80

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ams

1931 NOV -20- AM 11:03

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

Nov. 16, 1931.

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

From: G. C. Jones,
Chief of Party.

Subject: Hydrographic Sheet, Field No.1. (H.5129)

After completion of the field work on this project a review of the tidal data and a more carefull study of the areas on hydrographic sheet no. 1 to be reduced from each tide gauge was made, and a few changes were made in the reducers entered earlier in the season. The changes were entered in the record and the reduced soundings changed after the soundings had been smoothplotted. A list of the changes was made but, due to reluctance to interrupt work on the following sheets, the changes were not made at once on the smooth sheet. After mailing sheet no. 1 and the records it was discovered that the soundings had not been replotted on the smooth sheet to agree with the records. It is recommended that the smooth sheet be changed to agree with the records or, if preferred, that sheet and records be returned for correction. The changes are all on the flats and are in no case more than ½ ft.

The list follows:

R day, from pos. 28 to pos. 36.
T " " " 85 " " 86 inclusive.
U " " first sounding before pos. 7 to and including pos.9.
U " " pos. 36 to pos. 38, inclusive.
W " " " 64 " " 68.
X " " " 89 " " 93.
Z " " " 88 " " 89.
B' " " between positions 4 and 5 to pos. 7.
P' " " " " 24 " 25 " " 28.
P' " " " " 34 " 35 " " 36.
U' " " pos. 20 to pos. 21.
U' " " " 31 " between positions 32 and 33.
U' " " between positions 36 & 37 to pos. 41.
U' " " " " 45 & 46 " " 49.

G. C. Jones, Chief of Party.
G. C. Jones

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO NO.

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

80

Nov. 25, 1931.

Field Records Section (H. & T.).

Letter from Lt. G. C. Jones, dated Nov. 16, 1931;

This letter suggests to me that it might be desirable to have all the soundings on the flats (H. 5129) plotted to the nearest half foot for the reason that the U. S. Engineers are much interested in the silting that is taking place in San Francisco Bay. They are particularly interested on account of the Salt water Barrier project which has been proposed. We have excellent old surveys of this region plotted to the nearest half foot and to have them with this unit might prove helpful.

FSB

(Signed) F. S. Borden.

Section of Field Records.
Report on Hyd. Sheet H. 5129.
South San Francisco Bay, California.
Surveyed in 1930, 1931.
Instructions dated Sept. 8, 1930 (G.C. Jones)

Chief of Party G.C. Jones
Surveyed by G.C.J., L.P. Raynor, E.C. Baum, H.C. Applequist.
Protracted by E.C.B., H.C.A., K.M. Eggen.
Sdgs. plotted by H.C.A., K.M.E.
Inked by and verified by G. Risegari.

1. The records conform to the requirements of the Genl. Instr. Exception: The prick ~~points~~ points used for making the positions in the channel are too large and interfered with the inking and also are unsightly.

2. The plan and character of development fulfill the requirements of the Genl Instructions. R.

3. The plan and extent of development satisfy the Specific Instructions. Exception: Failure to prove or disprove a rock awash on Chart 5531 about 2250 meters E x S (true) from Pt. San Mateo. This rock was first reported in letter #345, year 1898 (Hyd. Insp's File). ~~A Mr.~~ Capt. Westdahl stood on the rock and took sextant angles from it as described in the letter. On page 3, descriptive report (chapter on marked Dangers), this rock is commented on at length but no sufficiently good reason is advanced, it is believed, to ~~disp~~ satisfactorily disprove its existence. It was the Chief of Party's belief that the obstruction is now non-existent and that it was a barnacle incrusted pile.

Sheet H. 2412 shows this particular spot very well developed. ~~and~~ The work was done in 1898 and ~~but~~ later than the date of ~~the~~ letter #345 mentioned above. The development of this spot shows a -1 foot sounding close to a rock awash symbol and marked "Rk."

3 (cont.).

It is certain in view of the substantial past evidence that a rock existed then and most certainly should exist now and probably can be seen only at minus tides. The Chief of Party states that he inspected this area but not at minus tide.

It is recommended that this rock be retained on the charts until the area is sufficiently developed to warrant its rejection.

The two foot and one foot spots, vicinity of lat. 37°38.5' long. 122°17.4' mentioned in the same chapter on dangers, plot close not far from soundings of the same general depths on the later survey. There is an indication, however, that this sandy shoal has shifted slightly to the east and may accounts ~~with~~ for any disagreement between the old (H.2412) and the new work (H.5129) in this area.

A one foot spot, vic. of lat. 37°38' long. 122°17', was further looked into by the verifier as it plots on the sheet H. 5129 near a 7½ foot sounding in an area in which 6½ feet is the shoalest depth. The records of H. 2412 show ~~this~~ a 1½ foot sounding in between a 6.5 and 6.7 foot soundings and was taken ~~over~~ on a broken shell bottom. It is believed that this sounding should be retained as the work on H. 5129 does not show enough development to disprove its existence. This sounding has been transferred to H. 5129 in red.

Attention is called to the complete change in the hydrography at Pt. San Bruno and Oyster Pt. from the hydrography shown on H. 4137 (1920). It appears that the two channels shown on the old survey have been abandoned and are fast filling up.

4. No ~~sounding~~ line crossings were run on the flats. The crossings lines were sufficient north of lat. 37°36', but many of them had to be rejected on account of the soundings being too deep, undoubtedly due to running sounding lines across too strong a current. The channel ~~wire~~ lines which were run with the current and appear satisfactory and were used as a basis for the consideration of the cross channel lines. In general the latter lines which were run at or about slack current ~~th~~ agree fairly well with the

3 (cont.).

Attention is also called to the apparent deepening of the area on the flats easterly of the channel, while on the flats westerly of the channel there is more or less a general agreement between the old and new surveys.

A check-up by the tide division on the reducers used and the methods employed by the field party on H. 5129 in the transition of one tide gauge to another when in the respective areas of one of the following three tide gauges used, San Bruno, Roberts Landing and San Mateo Bridge, were considered satisfactory by that division.

The plane of reference used for the entire work on H. 2411 was referred to the Redwood City Creek Entrance tide gauge. It is believed that the apparent deepening mentioned above between the old and new surveys over the flats can be contributed to a large extent to the different characteristics of the various sections of San Francisco Bay which can ~~could not~~ be best registered only by a local ~~a remote~~ tide gauge.

It is known that San Francisco Bay varies in tide ranges in various parts of the bay with the many sloughs entering it. And that strong winds over the flats are often encountered which at times can pile up the water and make as much as a foot or more difference in the tide level. ~~(see Capt. Jones' report pages)~~. Had additional tide gauges been used, say one at Roberts Landing and one at Pt. San Bruno, at least these conditions in the bay would necessarily have been localized and referenced more correctly to the nearest tide gauge. In the old work this was not done.

In order to make good junctures with H. 2315 ~~(north~~ & H. 2304 north and east of H. 2411, respectively, ~~and~~ ~~east~~ an arbitrary adjustment was made by Mr. J. T. Watkins to the soundings ~~work~~ of H. 2411 and is indicated by a note on that sheet as follows: "To reduced depths east of meridian 122° 14', add 0.5 ft.; from 122° 14' to 122° 19', add 1.0 ft.; west of 122° 19', add 1.5 ft." This in effect admits the fact, it is believed, that the work on H. 2411 cannot be considered reliable and it could be misleading to use it for the study of silting as conjectured. (See letter in descriptive report by Capt. Borden).

3 (cont.).

The work on H. 2315 at the north junction of H. 2411 and which covers a part of the survey on H. 5129 is referred to Baden Outer Stake Light, off Pt. San Bruno. This work, within the distance of several miles of the gauge agrees in general, satisfactorily with the work of H. 5129. Nearing the ~~East~~ east coast, however, a slight general deepening occurs but not in so marked a degree as with H. 2411 over the same flat. This again may be due to the ~~future~~ irregularities of this area not registered by the Baden Outer Stake Light gauge.

There are no 1897 simultaneous tide observations for Redwood Creek gauge ~~and~~ Baden Outer Stake Light, and Roberts Landing (formerly Thompson's Staff), therefor, no comparison between these stations can be obtained. Also the bench marks tieing-in these old stations with each other or to the reference station at San Francisco were lost or destroyed.

As suggested by Mr. A. L. Shalowitz, a comparison of tidal curves between Redwood Creek ~~&~~ and Roberts Landing for May 12 and 13, 1897, based on 1897 tide predictions, using the 1931 constants for ratio of ranges and tidal differences shows for the eastern portion of H. 2411 from Roberts Landing, southerly to about six miles, diminishing values from 0.9 foot to 0.7 foot differences.

From the study of ~~the~~ the old tidal data and examination of the records of H. 2403, apparently ~~failed to apply a~~ no time correction and range correction was applied for this area. The 1931 observations for Roberts Landing show a mean range of 5.4 feet and for Redwood Creek 6.1 feet with a time difference between them of 14 minutes. The difference in the mean ranges is 0.7 foot and agrees closely with the plotted graph differences mentioned above.

This would show that the ~~values~~ values for the reducers used in this area are too large by about 0.8 foot and that the adjoining work on H. 2411 should be increased similarly in addition to the 0.5 foot applied by Mr. Watkins.

In other words, it appears that about one foot should be applied to the soundings of H. ~~2403~~ 2304 near Roberts Landing.

3 (cont).

and diminishing in value in a southerly direction approaching the Redwood Creek gauge and that the adjoining work of H. 2411 might be increased by about 0.5 foot in addition to the 0.5 foot already applied by Mr. Watkins and also diminishing in a corresponding ~~manner~~ manner.

The application of these corrections would make the agreement between the depths on H. 5129 and the old work appear more probable and instead of an average deepening of about one foot there would be a slight shoaling on H. 5129. This would seem more logical when taking into consideration the silt deposits from the various sloughs entering the Bay.

It is recommended that the work on H. 5129 supersede the work of the older surveys and to retain the 12 foot sounding, vicinity of Lat. 37°38', long. 122°17' as the area in this vicinity was not sufficiently developed to disprove its existence [illegible]

4. No sounding line crossings were run on the flats. The crossing lines were sufficient, north of Lat. 37°36', but many of them in the channel had to be rejected on account of the soundings being too deep, undoubtedly due to running sounding lines across too strong a current. The channel-wise lines were run with the current and appear satisfactory and were used as a basis for the consideration of the cross channel lines. In general, the latter lines ~~which~~ were run at or about slack current, agree fairly well with channel-wise lines.

Report on H. 5129. #6

4 (cont.). ~~channel-wise lines~~. No channel cross lines were run south of lat. 37°36', but channel-wise lines have been run sufficiently close to one another to satisfactorily make up this deficiency.

5. The usual depth curves can be completely drawn.

6. There are several omissions of features which, it is believed, should have been plotted on this sheet by the field party on account of their better knowledge of the working grounds (see par. 140, Civil Instr.). These features include numerous piles, duck blinds, an oyster fence, shell banks, and rocks awash.

The features were added by the verifier from information in the records or from topographic sheets. It is believed that the features such as piles, duck blinds, mentioned in the records are in their most probable positions.

Attention is called to the piling foundations of two destroyed oysterhouse vicinity of lat. 37°37', long. 122°22' shown on Top. 4439, apparently were not seen by the field party. Pos. 29 d. plots very close to the upper oyster house piling in 1 feet of water. No note is recorded in the sounding volume or in other data on hand in reference to it. The lower oysterhouse piling plots very close to Pos. 3 E ~~between two lines of soundings~~ in about 2 feet of water, also not mentioned in the available data.

The positions of both piling foundations are transferred in red ~~pencil~~ on H. 5129 and believe should be considered as existing obstacles.

7. Junction with H. 5133 (south) cannot be reported on until this sheet is completed.

Junction with H. 5131 (south) is satisfactory.

~~There is no other junction with contemporary work.~~

8. With the exception of the rock awash and the one and a half foot spot, mentioned in par. 3 of ~~this~~ my report, which sounding was transferred in red to H. 5129, no further surveying, it is believed is necessary to develop any particular areas within the limits of this ~~spot~~ sheet.

9. Character and scope of surveying - fair.

Field drafting - good

10. Reviewed by C. Risegari - Mar. 18, 1932.

Examined by R. J. Christman, March 1932.

December 17, 1931.

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
18 volumes of sounding records for

HYDROGRAPHIC SHEET 5129

Locality South San Francisco Bay, Pt. San Mateo to Haywards Landing and Vicinity.

Chief of Party: G. C. Jones in 1930 and 1931

Plane of reference is mean lower low water, reading
3.7 ft. on tide staff at San Mateo Bridge
15.6 ft. below B. M. 3
2.0 ft. on tide staff at Point San Bruno
20.3 ft. below B. M. 2
2.6 ft. on supplementary tide staff at Point San Bruno
20.3 ft. below B. M. 2

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.

0.8 ft. on tide staff at Roberts Landing
8.3 ft. below B. M. 1

H A Marmer
Actg Chief, Division of Tides and Currents.

Form 537
Ed. Sept., 1929

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. 1

REGISTER NO. 5129

State California

General locality South San Francisco Bay

Locality Pt. San Mateo to Haywards Ldg. and Vicinity

Scale 1-20,000 Date of survey Oct. 27, 1930 to Sept. 30, 1931.

Vessel Chartered launches Anna 11, 6213, and B414.

Chief of Party G. C. Jones

Surveyed by G. C. Jones, L. P. Raynor, E. C. Baum, H. C. Applequist.

Protracted by E. C. Baum, K. M. Eggen, H. C. Applequist.

Soundings penciled by H. C. Applequist and K. M. Eggen.

Soundings in ~~fathoms~~ feet

Plane of reference MLLW

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated September 8, 1930, 19

Remarks:

18 vols.
1 Rep.
1 BS

U. S. GOVERNMENT PRINTING OFFICE: 1929